Instruments, switches and controls

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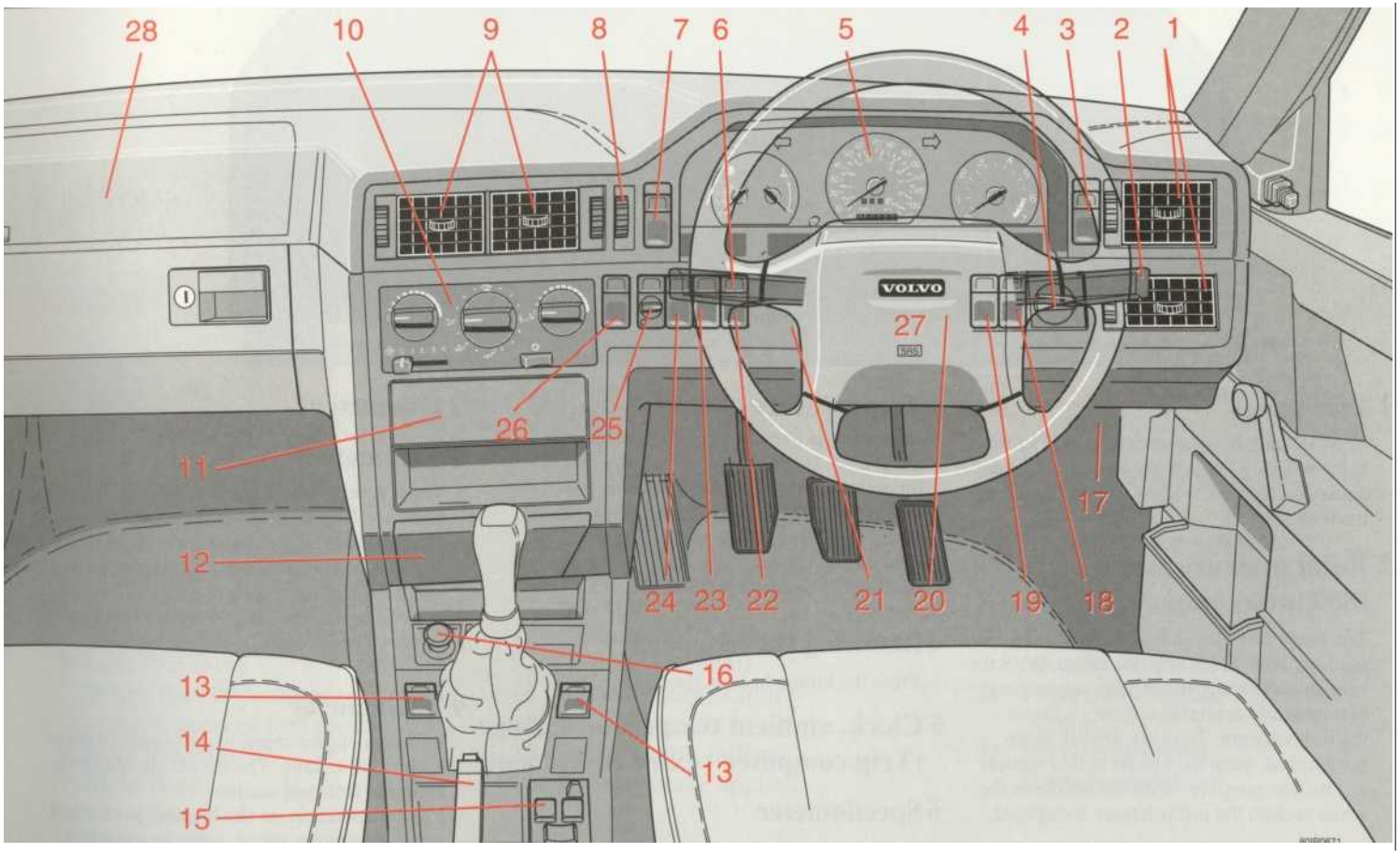
26	Electrically heated rear window and rear-view mirrors	1:10
27	Horn/SRS (Airbag)	2:16-2:21
28	SRS (Airbag)	2:16-2:21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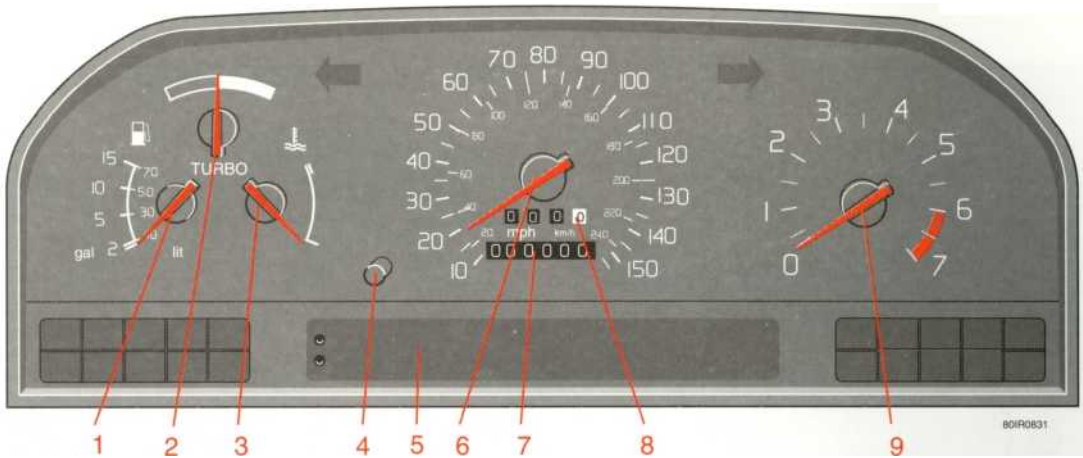


1 Fuel gauge

The fuel tank holds approximately 73 litres. If the warning light on the instrument panel comes on, approx. 8 litres of fuel remain in the tank.

2 Boost pressure gauge (850 turbo only)

The boost pressure gauge is divided into two sections - one black and one white. With the needle in the black section the engine acts as a naturally aspirated engine - without the turbocharger. To make driving more economical, keep the needle in this section as much as possible. With the needle in the white section the turbocharger is engaged.

3 Temperature gauge

Indicates the temperature of the coolant in the engine. If the pointer repeatedly enters the red sector, or if it remains there, you should immediately check the coolant level. Also check the coolant level if the warning light comes on; see 7:10. Refer to 3:9 for additional information about the cooling system.

4 Resetting the tripmeter

Press the button to reset the meter.

5 Clock, ambient temperature gauge (Trip computer - extra equipment)

6 Speedometer

7 Odometer

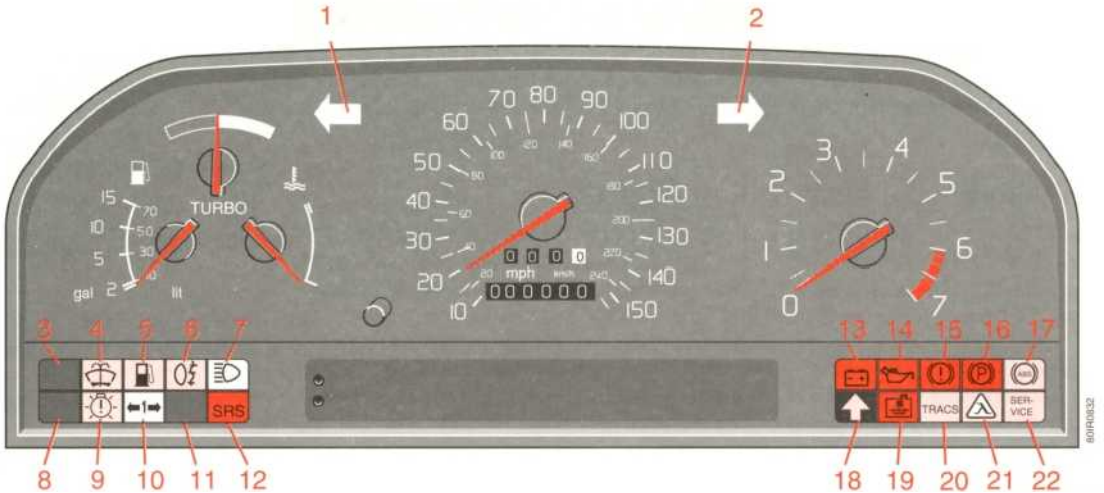
8 Tripmeter

The tripmeter is used to measure short driving stretches. The digit on the right indicates 1/10 mile/km. If the digit on the tripmeter is red, this is an indication that the speedometer and tripmeter have been replaced. The date and mileage at the time of replacement are recorded in the Service Record booklet.

9 Tachometer

Indicates engine speed in thousands of revolutions per minute. The needle should never be in the solid red section.

For information on the highest permitted constant engine speed, refer to page 8:9.



1 **Direction indicator, left**
2 **Direction indicator, right**
3 **Not connected**
4 **Low washer fluid level**
If the lamp comes on, there is only 1/2 litre fluid in the reservoir.
5 **Low fuel level**
When the lamp comes on, only about 8 litres of fuel remain
6 **Rear fog lamp on**
7 **Main beam**
8 **Not connected**
9 **Bulb failure warning light**
10 **Bulb failure warning light, trailer (Germany)**
11 **Not connected**
12 **Fault in SRS (Airbag) system (extra equipment)**
13 **Battery charge failure**
14 **Low oil pressure**
15 **Brake circuit failure**
16 **Parking brake applied**
17 **ABS (anti-lock brakes) malfunction**
18 **Automatic transmission Position W, 3 or L engaged**
19 **Low coolant level**
20 **TRACS failure (extra equipment)**
21 **Fault in the engine electronic system**
22 **Service reminder (certain models)**

Control and warning lights

The warning lights described here should never be on while driving

However, all the warning lights should light up when the ignition key is turned on and before the engine actually starts. This allows you to check that the bulbs are in working order. Once the engine starts, all the bulbs except for the parking brake reminder light, should turn off. The parking brake light will turn off once the parking brake is disengaged.

Brake circuit failure

If this light comes on while driving or braking, the fluid level in the brake fluid reservoir is too low. Stop immediately and check the level in the reservoir (see the back cover of the manual for its location).
If the fluid level is under MIN in any part of the reservoir, do not drive any further; have the car towed to a workshop to be checked and repaired!

Low oil pressure

If this light comes on when the engine is running, the oil pressure is too low. Switch off the engine immediately and check the oil level; see 7:6.
After hard driving, the light will come on occasionally when the engine is idling. This is normal provided it goes off again when the engine speed increases.

Bulb failure warning light

Lights up if any of the following bulbs fail:
Dipped beam
Tail lights
Rear parking lights
Brake lights (if the light glows when the brake pedal is depressed).
Check the fuse and the bulb.

Battery charge failure

The warning light comes on when the alternator is not charging the battery. If the lamp comes on while driving, there is either a fault in the electrical system or the drive belt is slack.
Note! If the drive belt snaps, or if the belt tensioner is broken so that the alternator cannot charge the battery, this light and warning lights 4, 9. 15, 16 and 19 will come on.

Parking brake engaged

The parking brake, which is separate from the service or foot-operated brake, is not applied during normal braking. For this reason, it is not cleaned automatically. We therefore recommend that you use the parking brake regularly to keep it clean.

Fault in the engine electronic system

If this light stays on after the engine has started, a fault has been detected in the engine's fuel or ignition system. This could mean that the engine does not meet exhaust regulations.
Have your car checked by a Volvo workshop.

The warning lights described here should never be on while driving (cont'd).

Low coolant level

If this light comes on while driving, the coolant level is too low. Stop the engine and check the coolant level in the expansion tank; see 7:10.

Automatic transmission

If the warning light starts flashing, this indicates a fault in the automatic transmission. Contact your Volvo dealer.
This light comes on when position W is engaged or gear 3 or L is selected.

ABS - Anti-Lock Braking system

ABS prevents the wheels from locking during severe braking. If the warning light comes on this is an indication that the ABS system is not functioning, although the standard braking system will continue to operate as normal. Drive to a Volvo dealer to have the system checked.
See 3:12 for more information about ABS brakes.

Fault in SRS (Airbag) system (extra equipment)

If this light remains lit or if it lights up while driving, this indicates that the Air bag's diagnostic system has discovered a fault. Drive immediately to a Volvo workshop to have it checked.
See 2:16-2:21 for more information about the Airbag.

Control lights

Direction indicators, trailer (Germany)

If a trailer is being towed, this light will flash at the same time as the direction indicator light flashes. If it does not flash then a bulb has failed in either the trailer or the car.

Service reminder (certain models)

If this light comes on, it is time to have your car serviced. Three factors determine when the light is activated: mileage, total hours of engine operation or time in months. The actual values are pre-programmed at the factory. The light is reset by your Volvo dealer when the car is serviced. The light always remains lit for two minutes whenever the ignition is turned on.

TRACS failure (extra equipment)

If the TRACS (TRAction Control System) malfunctions the warning light will come on. It also comes on when the brakes overheat, and goes out again when normal temperature level is reached.
Contact your Volvo dealer.
Read more about TRACS on page 1:10.

Headlights and parking lights

See 1:7 for location.

0 **Ignition key in 0 position:** All lights switched off.

Ignition key in positions II, (alt.1): Dipped headlights on (+ front and rear parking lights and number plate light). Dipped headlights are **automatically** switched on when the ignition key is turned to **position II.**

Ignition key in positions II, (alt.2): All lights switched off.

Parking lights front and rear.
Parking lights should only be used when the car is parked, **never** when the car is being driven.

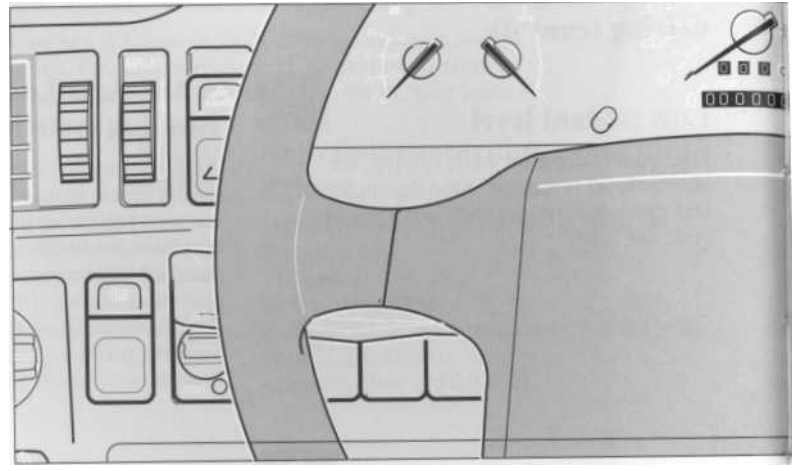
Ignition key in positions O and I: all lights off.
Ignition key in position II: headlights on (+ parking lights front and rear, number plate illumination and instrument lights).
NOTE! You have to turn the headlight control to in order to switch on the main beam.

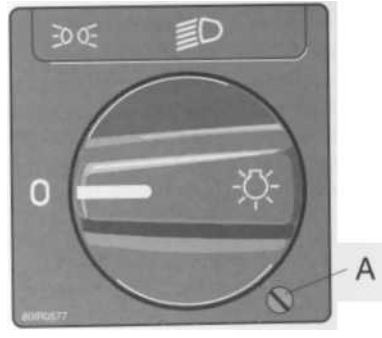
Automatic dipped headlights

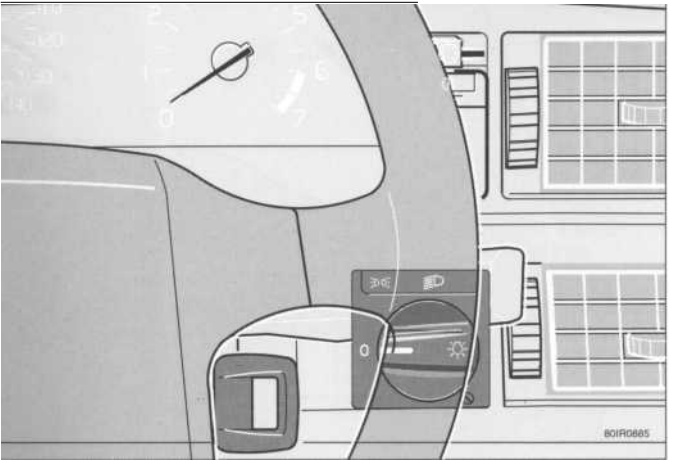
Knob (A) below the light switch is used to control the automatic dipped headlight in position O. This facility is not applicable for the UK market.

The car will be delivered with Knob A in the vertical position giving automatic dim dip headlights at all times.

Knob A should not be adjusted under any circumstances as the car could then be contravening UK motoring legislation.







Ignition and steering wheel lock

If it is difficult to turn the key, this is because the front wheels are positioned so that they exert pressure on the lock. To release the pressure, turn the steering wheel a little from left to right at the same time as you turn the ignition key. Lock the steering wheel before leaving the car as anti-theft precaution.

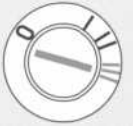
WARNING!

The ignition key should never be removed from the lock while driving or while the car is being towed.

0 **Lock position**
The steering wheel is locked when the ignition key is withdrawn from the lock.

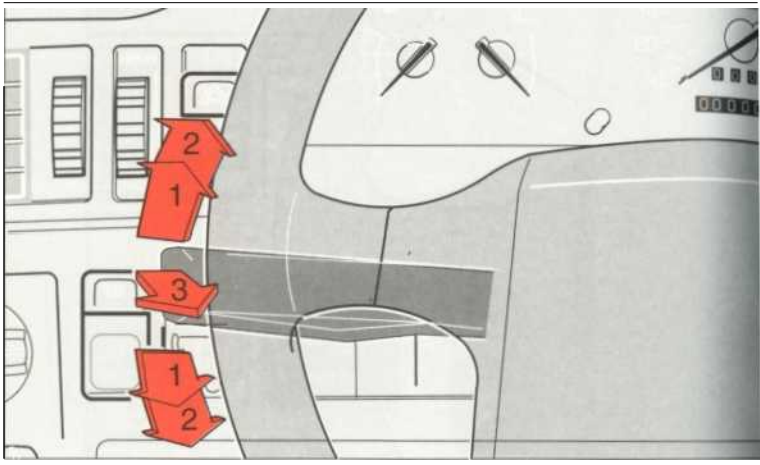
I **Intermediate position "Radio"**
Certain electrical components (e.g. heater fan, cigar lighter, radio) can now be operated.
The ignition system is switched off.

II **Drive**
Key position during driving. The entire electrical system is switched on.



III **Start position**
The starter motor is engaged. Release the key as soon as the engine starts. The key automatically springs back to the engine-running position.

Direction indicators, main beam/dipped beam and headlight "flasher"



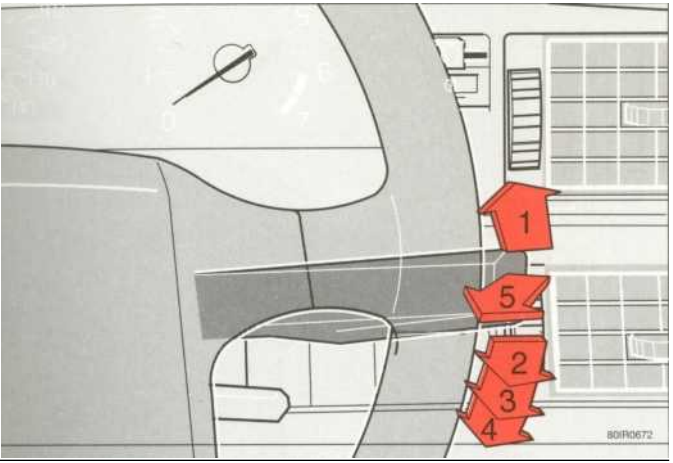
1 "Lane changing"
Light pressure upwards or downwards to indicate slight directional changes (lane change, overtaking). The lever will return to the neutral position when released.

2 Normal turns

3 Headlight flasher (headlights off)
Pull the lever towards the steering wheel. The main beam remains on until the lever is released.

3 Main beam/dipped beam switch (headlights on)
Pull the lever towards the steering wheel, past the headlight flasher position, and release it. The headlight will switch between main and dipped beam.

A blown direction indicator bulb will cause the indicator light to flash more rapidly than usual.



Windscreen wash/wipe, headlight wash/wipe

1 Intermittent wiping
Useful when driving in mist or light rain. The wipers make one sweep every six seconds.

2 Slightly depress the lever
The wipers return to the park position when the lever is released. Especially useful in light rain.

3 Windscreen wipers, normal speed

4 Windscreen wipers, high speed

5 Windscreen wash/wipe + headlight wash/wipe
The washers are operated in this position and the windscreen wipers make 2 or 3 sweeps after the lever is released. The headlight washers operate together with the windscreen washers.

Trip computer, sun roof, hazard warning flashers, heated rear window/mirrors

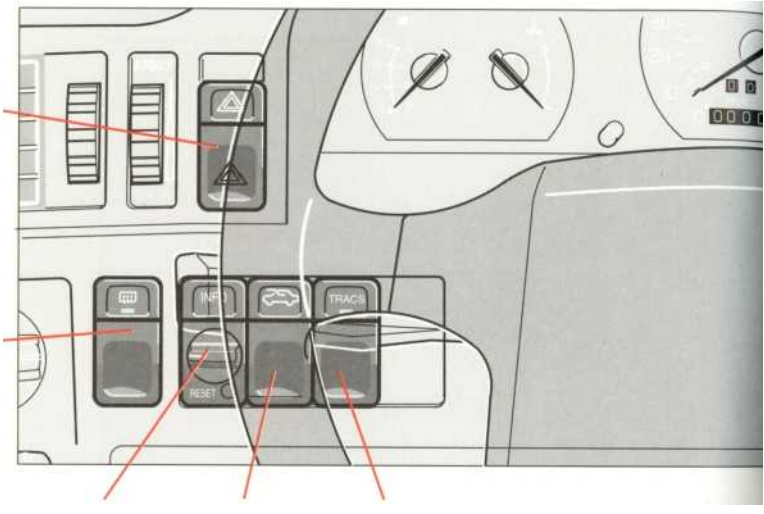
Hazard warning flashers

All four exterior direction indicators flash when the switch is activated. Use it to inform other road users of an obstruction or hazard caused by your own vehicle.

Note: Regulations concerning the use of hazard warning flashers vary from country to country.

Heated rear window
Heated rear-view mirrors (extra equipment)

Use the heated rear window and heated rear-view mirrors for demisting and defrosting. Press once on the switch to start heating of the rear window and rear-view mirrors simultaneously. The orange indicator lamp in the switch lights up when it is activated. A built-in timer automatically switches off heating of the rear window and rear-view mirrors after about 12 minutes. The indicator light switches off at the same time. Press the switch once more while the indicator light is on to switch off all heating. Press the switch again after the indicator light goes off to restart the heating process.



Trip computer control (extra equipment)

Rotate the control to obtain the desired trip computer function. See 1: 13.

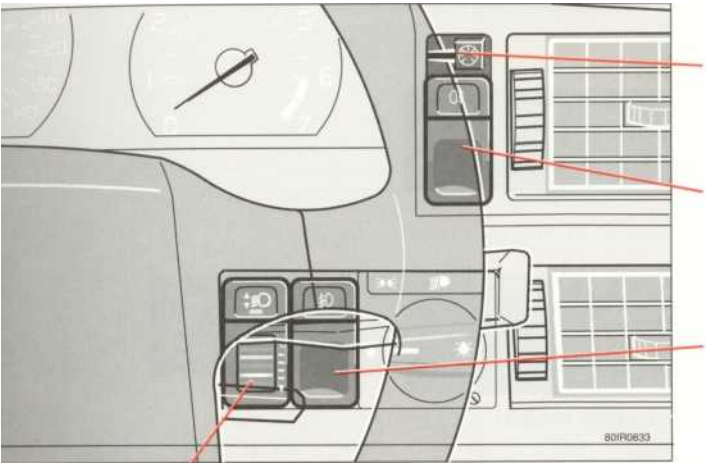
Electrically operated sun roof (extra equipment)

See 2:4 for instructions about opening and closing.

TRACS (extra equipment)

Your car can be equipped with TRACS (TRAction Control System) as an optional extra, this is an automatic aid to starting on slippery road surfaces and operates via the ABS system.

The TRAMS function is engaged manually using a switch on the dashboard. When switched on TRACS engages automatically at speeds below 25 mph (40 km/h) when one of the drive wheels has no grip. It disengages automatically when speed exceeds 25 mph (40 km/h). The sound which can be heard when the system is operating comes from the ABS system, see 3:12.



Instrument illumination

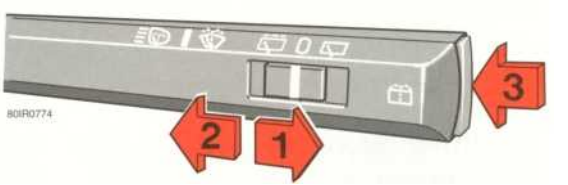
Slide the control to the right - stronger illumination
Slide the control to the left - weaker illumination.
Instrument illumination is switched on in positions and

Rear foglight

The rear foglight shines far more intensively than the standard rear light; it is used when driving in extremely poor visibility. The rear foglight operates in combination with the main/dipped beam.

Front foglights (extra equipment)

The front foglights operate in combination with the parking light, dipped and main beam.



Note: The rules governing the use of front and rear foglights vary from country to country.

Beam height adjustment (Certain markets)

The system consists of a motor on each headlight and one switch on the dashboard.
This switch makes it possible to adapt the height of the headlight beam to different loads. The height of the beam can only be adjusted when the headlights are turned on. The correct levels for different loads are shown in the table on the right.

Note: Check that the setting is 0 for normal load conditions.

Settings		
Load	sedan	estate
Driver	0	0
Driver and I passenger	0	0
Driver and 4 passengers	2(0)	1(0)
5 people + load (95 kg)	3(0)	2(0)
Driver + Max load (270 kg)	4(2)	4(2)

( ) Cars with Nivomat.

Rear window wash/wipe

The rear window wash/wipe is operated using the switches on the windscreen wiper lever.

1 Rear window wiper, normal speed
2 Intermittent wiping
The rear wiper makes one sweep every ten seconds.
3 Rear window wash
The wiper operates together with the washer spray when you press this button.
After the button is released the wiper makes 2 or 3 more sweeps.

Clock, ambient temperature gauge

Clock

Clock and ambient temperature gauge (certain models)

Resetting the clock

The digital clock can be reset by pressing one of the two buttons (A and B) with a sharp object such as the tip of a pen.

h=hours
m=minutes

Maintain the pressure on the buttons for more than four seconds to change the time more quickly. This does not apply to models which only have a clock.

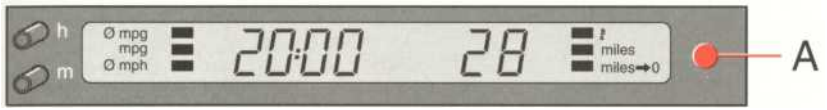
Ambient temperature gauge (certain models)

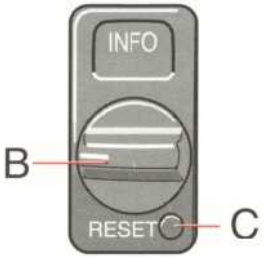
Indicates the temperature slightly above the road surface while driving. A red warning light (C) comes on when the temperature is in the +2 °C to -5'C range.
Note! At low speeds or when the vehicle is stationary the ambient temperature displayed may be too high because of the heat from the engine.

Choice of presentation

If buttons A and B are pressed in simultaneously, it is possible to shift between four different presentation methods, as follows:

Press 1st time: 12 hour display and T
Press 2nd time: 24 hour display and °F
Press 3rd time: 12 hour display and °C
Press 4th time: 24 hour display and °C





Trip computer

Volvo's trip computer receives a considerable amount of information which is processed on a continuous basis by a microprocessor. The trip computer offers six functions which are presented in one single display.
The cursor indicates the selected function. The trip computer's clock is shown permanently in the left-hand field. Refer to 1: 2 for more detailed information.
The following data is displayed by the computer:

- Average speed
- Current fuel consumption
- Average fuel consumption
- Ambient temperature
- Driving distance on current fuel reserve
- Tripmeter

Warning function

The trip computer is equipped with two warning functions: low fuel level and low ambient temperature. In either of these cases, the cursor lights up and, in the case of low ambient temperature, lamp A also lights up.
The relevant value is shown in the display, irrespective of the function selected. In order to return to the selected function, the control should be rotated one step and then back again. Note that the low ambient temperature warning always has the highest priority in the display panel.

Trip computer controls

Select one of the trip computer's six functions by using control B. The Reset button (C) is used to reset the following functions: average speed, average fuel consumption and the trip meter. Rotate the control to the required position and press the button for at least two seconds to reset the selected function.

NOTE: If pressure is maintained on the button for another three seconds, the three resettable functions are reset.

Trip computer

Average speed Ø mph

Average speed since the function was last reset. When the ignition is switched off, the average speed is stored in memory and is used as the basis for the new figure when the engine is started once again. Can be set to zero by pressing the reset button on the switch.

Current fuel consumption mpg

Continuous information on current fuel consumption. Calculation of fuel consumption once per second. When the car is at a standstill, the display shows "----".

Average fuel consumption Ø mpg

Average fuel consumption since the function was last reset. When the ignition is switched off, the average fuel consumption figure is stored in memory and remains in memory until it is reset using the reset button on the switch.

Ambient temperature

Shows the outside temperature just above the road surface while driving. When the temperature is in the +2˚C to -5˚C range, the ambient temperature gauge activates a red lamp.
Note! At low speeds the ambient temperature displayed may be too high because of the heat from the engine.

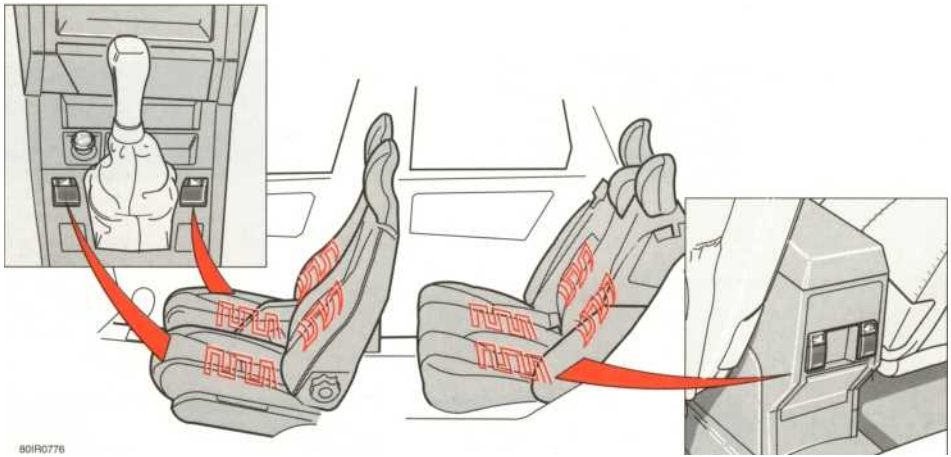
Tripmeter miles

The distance driven since the function was last reset. This value is stored in memory until it is reset using the reset button on the switch. The trip meter indicates 10 yard intervals for a distance of up to 1 mile.

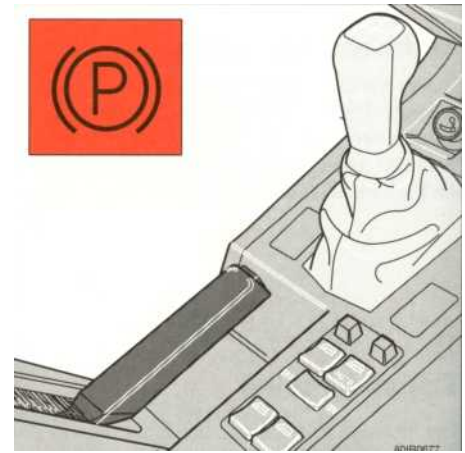
Driving distance on current fuel reserve miles--> 0

Shows the distance which can be driven on the fuel which remains in the fuel tank, calculated on the basis of the average fuel consumption and the remaining fuel in the tank.
When the quantity of fuel drops to below 8 litres, a warning lamp lights up in the combined instrument and the cursor beside the "Driving Distance on Current Fuel Reserve" symbol is activated.
This takes place irrespective of the function currently selected. When the driving distance on the current fuel reserve is less than 5 miles, the display shows the "----" sign.

Heated seats front/rear, parking brake



Switches for the heated front seats and heated rear seat



Parking brake lever

Heated front seats

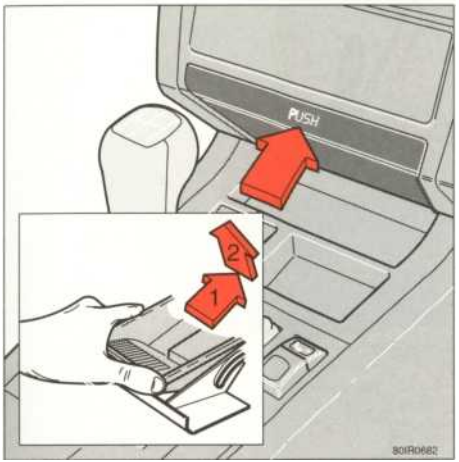
The seat heating function can be switched on or off using the two switches. The heat is thermostat-controlled and it cuts out automatically. Switch off the passenger seat heater if the seat is empty.

Heated rear seat (extra equipment)

The seat heating function can be switched on or off with this switch. Press the switch once to start heating the seat. When you press the switch again, heating is switched off.
The built-in timer will switch off heating automatically after 10 minutes. Switch off the rear seat heater if the seat is empty.
Note! Remember to disconnect the electrical connector when removing the rear seat cushion

Parking brake

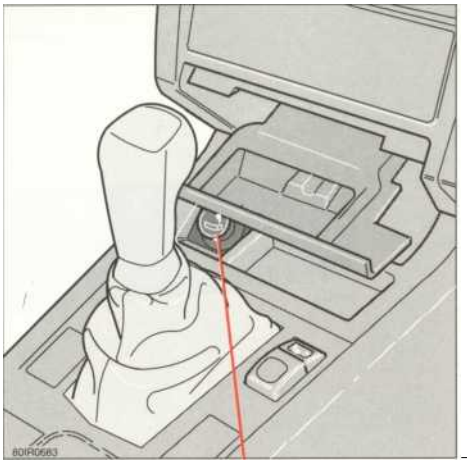
The parking brake lever is located between the front seats. The parking brake operates on the rear wheels. A warning light in the combined instrument panel lights up when the parking brake is engaged. To release the brake, pull the lever upwards slightly, press the button and ease the lever down. Then release the lever. Always use the parking brake when parking the car to ensure optimal function.



Ashtray

Ashtray

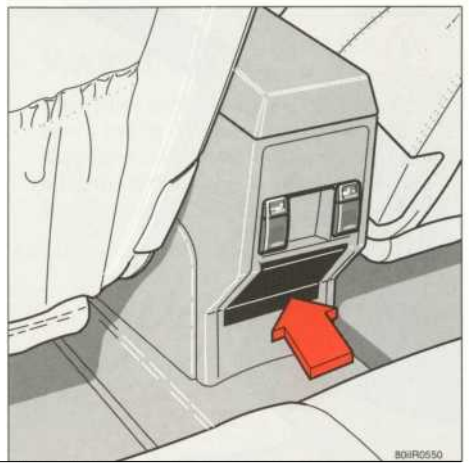
To open ashtray: press lightly on the panel. To empty the ashtray, grip it on the short sides, push in and then pull straight upwards.



Cigar lighter

Cigar lighter

Press in the lighter. When it has become sufficiently hot, after about 6-8 seconds, it will spring back ready for use.
The cigar lighter socket has a 120 W output.

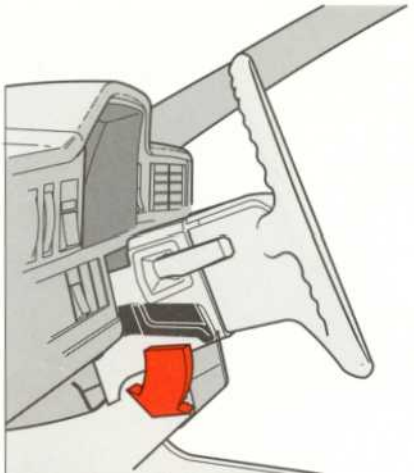


Rear seat ashtray

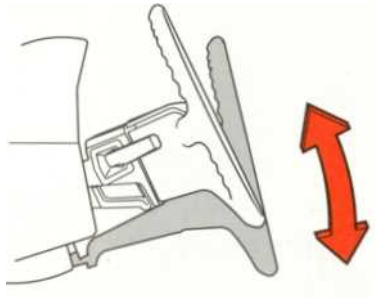
Rear seat ashtray

To empty the ashtray, pull it out completely, lift up the rear edge and remove.

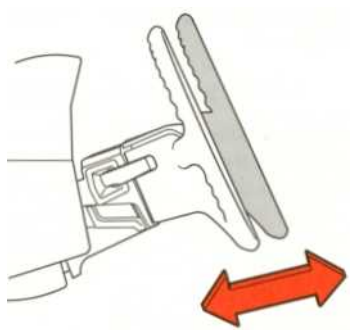
Steering wheel adjustment



Depress...



... to adjust height



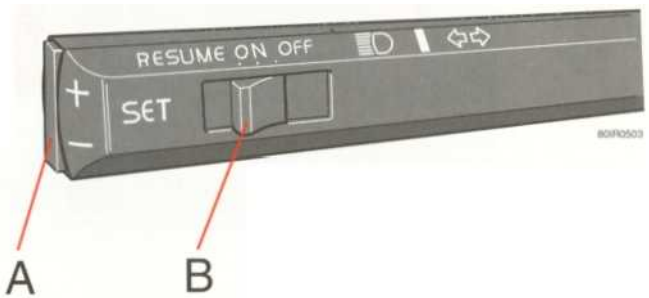
... to adjust reach

Steering wheel adjustment

The steering wheel can be variably adjusted both vertically and lengthways.
Press down the lever to the left of the steering column.
Adjust the steering wheel to the position that suits you. Press the lever up again to lock the wheel.

WARNING!

Check that the steering wheel is locked in position. Do not adjust the steering wheel while driving.



WARNING!

The cruise control should not be used in heavy traffic or when driving on wet or slippery roads. Note: When driving on hills, the actual vehicle speed may vary slightly from the set cruise control speed.

Engagement

The cruise control switches are located on the direction indicator stalk.
To engage and set the desired speed:
1 **Set switch B in the ON position.**
2 **Accelerate or decelerate to the desired speed.**
Note: The cruise control cannot be engaged at speeds below 22 mph (35 km/h).
3 **Press the + or - area of the SET button (A) to engage the desired speed.**

Reducing speed

The cruise control is automatically disengaged if the brake or clutch pedal is pressed. The previously selected cruise speed is retained in the memory; by momentarily pushing switch B towards the RESUME setting, that speed will be re-engaged.

Acceleration

Momentary acceleration such as for overtaking does not interrupt cruise control operation. The previous set speed will be maintained without having to set the switch to RESUME.
If the cruise control is already engaged, the cruising speed can be increased or decreased by pressing the SET button (A) towards either + or -. One short activation of the SET button corresponds to a speed change of +/-1 mph (1.6 km/h). The current speed of the vehicle when the button is released will now be programmed.

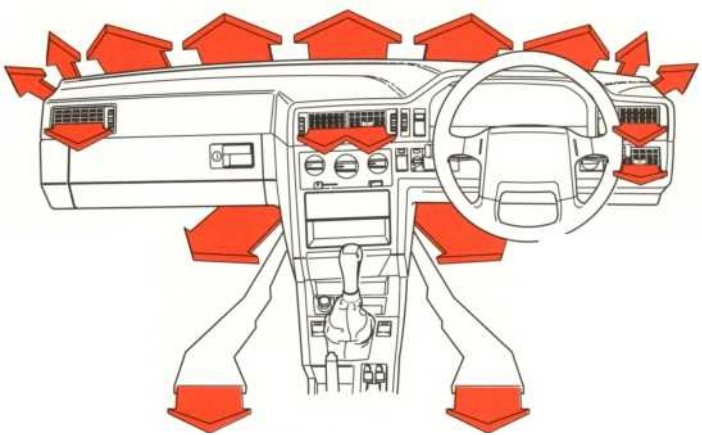
Disengagement

Set switch (B) to the OFF position or depress the brake or clutch pedal. If the ignition is switched off or the gear selector lever is in position N, the cruise control system will automatically disengage. If the speed decreases to 70% of the set speed the cruise control will automatically disengage. This also occurs if the wheels spin or lock.

Automatic transmission

When the car is driven in hilly terrain, there may be a tendency for the gearbox to hunt between different gears. You can avoid this by manually selecting a lower gear or changing driving mode.

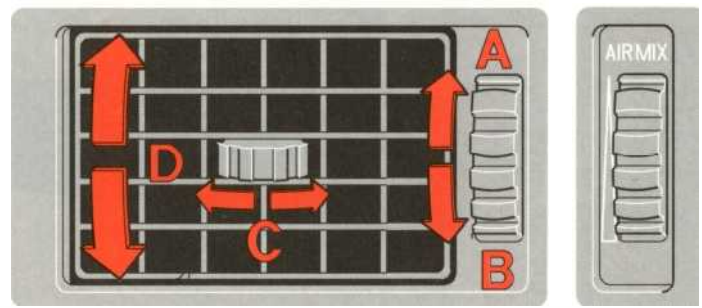
Heating and ventilation - climate units



To rear seats

The following pages contain a good deal of information about correct use of the climate unit to obtain the best possible results.
Air conditioning offers you the possibility of maintaining a cool, pleasant climate inside the car even when it is very hot outside, but remember that the windows and sun roof must be shut when the air conditioning system is on.
Note: The new refrigerant R 134a is included in your air condition-¡ng unit. This contains no chlorine which means that it is completely harmless to the ozone layer. R 134a contributes only negligibly to the greenhouse effect. When refilling/replacing refrigerant only R134a should be used. This must be carried out by an authorised Volvo dealer.

- Climate unit without air conditioning. See 1:22-1:23.
- Climate unit with manual air conditioning. See 1:24-1:25.
- Climate unit with automatic air conditioning. See 1:26-1:28.



Air vents

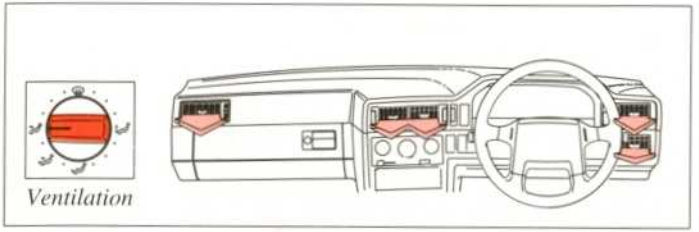
A Shut
- Open

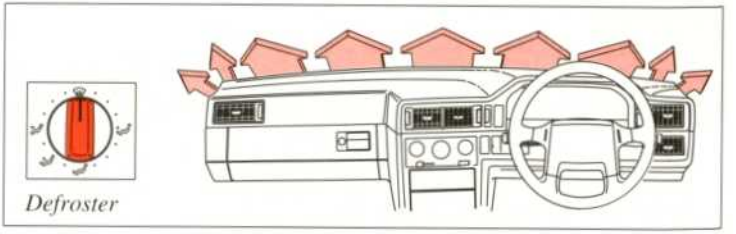
C Lateral adjustment
- Vertical adjustment

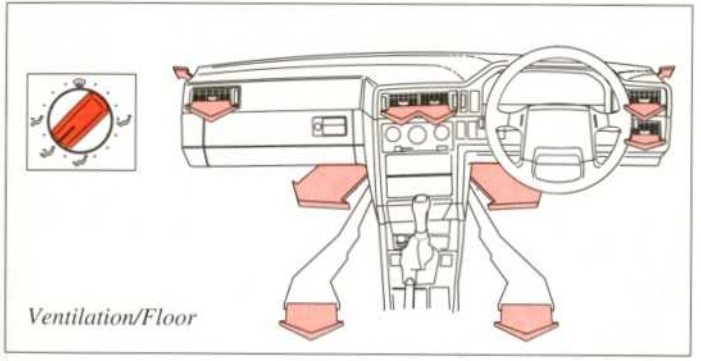
Air mix

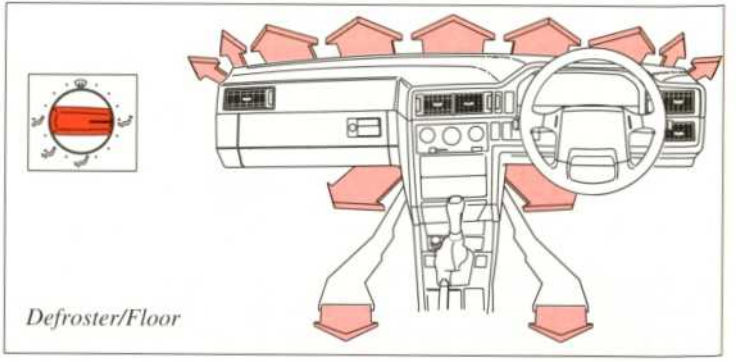
The climate unit features an Air mix function which allows the entry of fresh air when the air vents are open (position B).
This allows you to direct cool air to your face at the same time as warm air is directed elsewhere in the car.
For best results, the Air Mix function should be switched off when the central air vents are not being used and when rapid heating of the car is required.

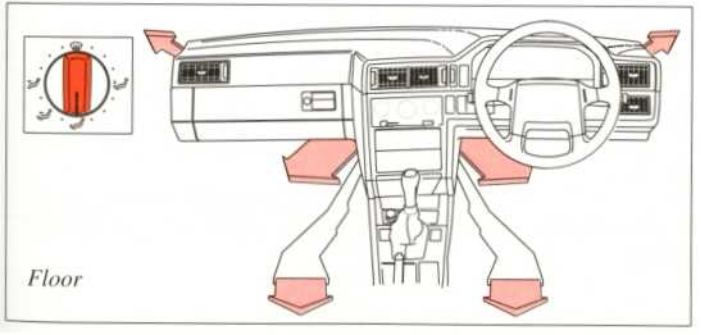
Air distribution

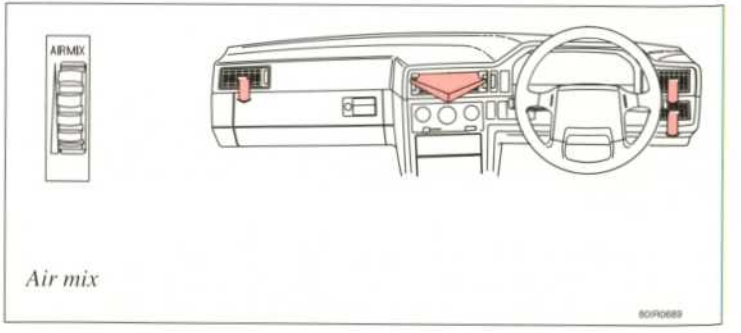












Heating and ventilation system without air conditioning

Temperature selector

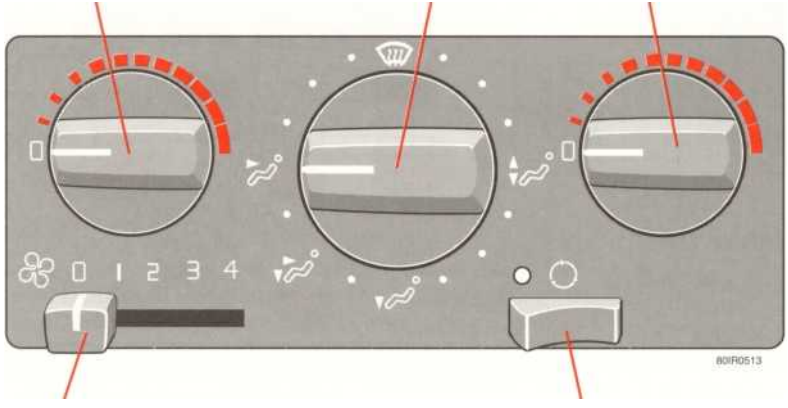
Passenger's side
Set desired temperature

Function selector

Select desired function
The control is infinitely adjustable between the marked settings.

Temperature selector

Driver's side
Set desired temperature



Fan

0 = Off
4 = Highest fan speed

Air in the car recirculates, i.e. no fresh air is brought into the cabin. The control light comes on when this function* is engaged.

Function selector

Air through the air vents

Air to the windscreen/windows

Air to the floor and windscreen/ Windows

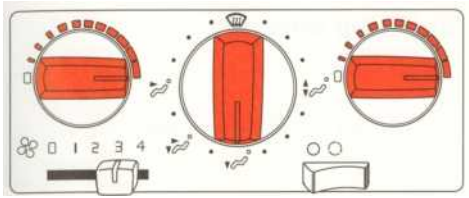
Air to the floor

Air to the floor and air vents

*certain models

Heating and ventilation system without air conditioning

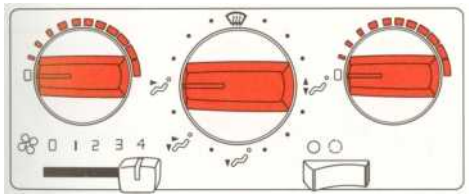
To obtain maximum heat:



Shut the two middle air vents and the air mix control.

Bear in mind that a certain amount of air always enters through the air vents in the instrument panel if the vents are open, irrespective of the position of the mode selector.
If you wish to obtain maximum air flow to the floor or windows, shut the air vents.
If the windows mist up, open the two air vents at the sides.

This is the coolest setting:

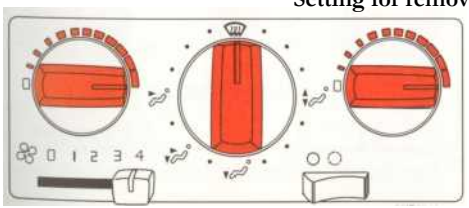


Air vents open.

Use this setting* for a few minutes if you wish to exclude exhaust fumes from the cars around you or to obtain heat quickly.
With this setting, no fresh air is brought in from outside the car. Remember not to drive with this function activated for more than 10 or 15 minutes, otherwise you will risk an accumulation of stale air and mist inside the car. Adjust the temperature with the temperature selector.
Windows may mist up when this setting is used in cold or damp weather.

***certain models**

Setting for removing mist from the windows:



Shut the two middle air vents and the air mix control.
If it has snowed, brush away the snow from the heating system's air inlet, i.e. the grille under the bonnet.

Temperature selector

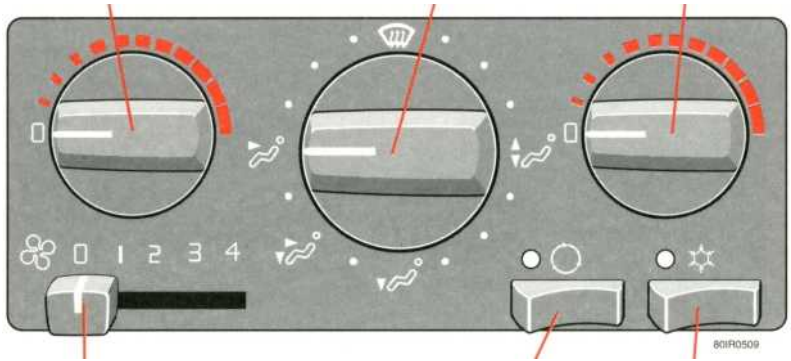
Passenger's side
Set desired temperature

Function selector

Select desired function
The control can be set to any position between the marked settings.

Temperature selector

Driver's side
Set desired temperature



Fan

0 = Off
Air conditioning off.
4 = Highest fan speed

The air in the cabin recirculates, i.e. no fresh outside air is admitted into the cabin. The control light is on when this function is engaged.

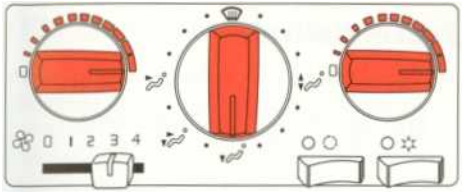
Air conditioning engaged. Should normally be engaged; control light comes on to indicate this.

Function selector

- Air through the air vents
- Air to the windscreen/windows
- Air to the floor and windscreen/windows
- Air to the floor
- Air to the floor and air vents

Heating and ventilation system with manual air conditioning

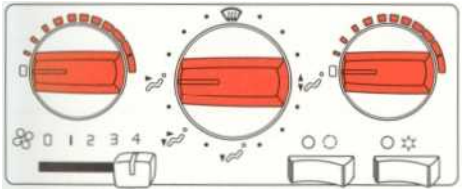
To obtain maximum heat:



Note that a certain amount of air always enters through the air vents in the instrument panel if they are open, irrespective of the position of the mode selector.
To obtain maximum air flow to the floor or windows, shut the air vents. If the windows mist up, open the two air vents at the sides.

Shut the two middle air vents and the air mix control.

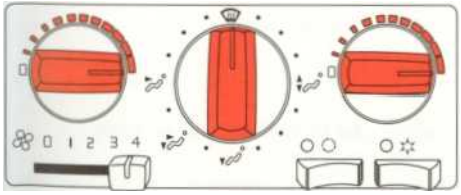
This is the coolest setting:



Control temperature with the temperature control if it gets too cold.

Open the air vents.

Setting for demisting windows:



The air conditioning system can be used to clear mist effectively from the windows even at low outdoor temperatures.
Move the function selector to position and turn the air conditioning on.
When the mist has disappeared, set the fan control to speed 2.

Shut the two middle air vents and the air mix' control.

A few hints:

- The air conditioning system can be used at ambient temperatures as low as 0 °C.
- The fan must be set to at least speed 1 for the air conditioning system to function.
- When air conditioning is switched on the temperature can be adjusted with the temperature selector.
- Use your air conditioning system regularly to maintain it in good condition.

Use this setting for a few minutes to exclude exhaust fumes from surrounding cars or to heat up/cool down interior quickly. With this setting, no fresh air is brought into the car. Remember not to drive with this function activated for more than 10 or 15 minutes, otherwise you will risk an accumulation of stale air and mist inside the car. Windows may mist up when this setting is used in cold or damp weather.
Adjust the temperature with the temperature selector.

For additional information see page 1:28...

ECC - Electronic Climate Control panel

Temperature selector
Passenger's side
Set desired temperature

Function selector
Select desired function
The control can be set to any position between the marked settings.

Temperature selector
Driver's side
Set desired temperature

Fan
AUT = air distribution automatically regulated
0=off
Move the knob to the right to increase the fan speed.

REC
The air in the cabin recirculates, i.e. no fresh outside air is admitted into the cabin.
The control light is on when this function is engaged.

AC OFF
The air conditioning is disconnected when the button is in the OFF position.
The light is on when the function is disengaged.

Function selector

AUT — Air distribution automatically regulated

Air through the air vents

Air to the windows. In this position the air does not recirculate, and the fan runs at maximum speed if the fan switch is in the AUT position.

Air to the floor and windscreen! windows

Air to the floor

Air to the floor and air vents

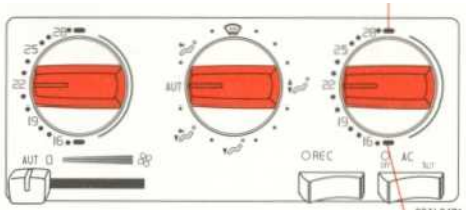
ECC (Electronic Climate Control)

The Climate Control system automatically maintains the desired temperature in the car irrespective of the temperature outside.
The system uses the fastest method available to achieve the desired temperature.
Choosing a higher or lower setting than actually needed will have little effect on the speed of heating/cooling.

The temperatures achieved will not correspond exactly to the settings on the controls since the actual physical temperature takes into account factors such as air speed/humidity and intensivity of sunlight on driver's and passenger side.

Automatic setting

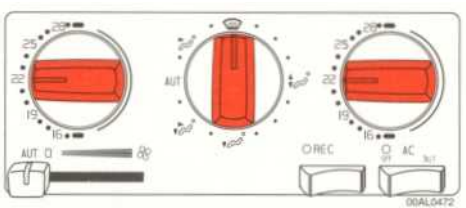
maximum *heating*



maximum cooling

Set the function selector on AUT and select temperature. If the driver's side temperature selector is set to either max heating or cooling, the fan will operate at its highest speed.

Optimum demist



Set the function selector at
In this position the air conditioning is engaged and the air does not recirculate regardless of the position of the REC and **AC OFF** buttons.

Additional information

- For optimum automatic function, always leave air vents at the sides open. A certain amount of air always enters through the air vents, if they are open, irrespective of the position of the function selector. To obtain maximum air flow to the floor or windows, shut the air vents. If side windows mist up, open the two air vents at the sides.
  In cold weather, close the centre air vents to obtain the most comfortable temperature in the car.

- Optimum automatic function is obtained when the air conditioning is engaged.
  The air conditioning can be used at ambient temperatures as low as 0 °C.
  Select **AC OFF** when you want to switch off the air conditioning and reduce fuel consumption.
  Use your air conditioning regularly to maintain it in good condition.

- REC Select this function if you wish to prevent unpleasant exhaust fumes entering the car for a few minutes. Air will not enter the car with the selector at this position. Only use this for 10-15 minutes otherwise the air can become stale. When using this function in winter or in wet weather, the windows may mist up. Recirculation is automatically engaged on cooling in warm weather if the fan switch is in the AUT position.
  This can also be used for rapid heating/cooling when the fan is manoeuvred manually.

Heating and ventilation system with automatic air conditioning

The air conditioning is disengaged when the fan switch is set at 0 and the speed of the car is less than 30 km/h.

*When driving with the sunroof or windows open, a stable temperature is obtained by setting the fan at 0 and manually controlling the temperature.
When the fan is set at 0, the temperature is not controlled automatically, but has to be set manually using the temperature selectors.

Do not place anything over the solar sensor on the top of the dashboard as this will cause the climate unit to receive incorrect information.

Faulty climate unit

The following lights indicate a fault in the unit: REC and AC OFF.
The lights flash for 20 seconds when a fault occurs. If this fault still exists next time you start the car the lights will flash for 20 seconds again.
Contact your Volvo dealer.

General information!

Leakage of water under the car may be caused by condensation as a result of climate unit operation in hot weather.

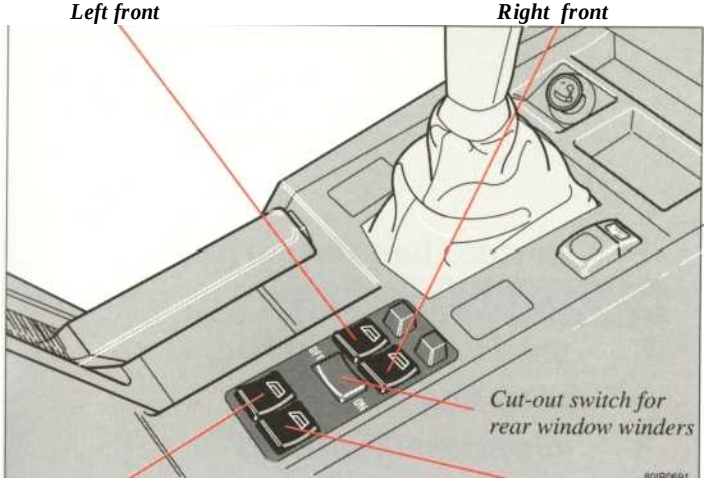
The air conditioning is momentarily disengaged when "kick-down" acceleration is used.

The panel vents may emit some moisture when the air conditioning is in use. This is because of high air humidity and high ambient temperature and is quite normal.

If it has snowed, brush away the snow from the heating system air inlet, ie. the grille under the bonnet.

For best results, the Air Mix function should be switched off when the central air vents are not being used.

Electrically operated windows (extra equipment)



The electrically operated windows are controlled by switches on the centre console.
The window winders will only function if the ignition is turned to the "drive" position. To lower the window, press the rear of the switch; to raise, press the front of the switch.

The electrically operated window on the driver's side has an extra "AUTO" function. Press the switch quickly and the window opens fully this can be interrupted by pressing the switch quickly once again.
Note! AUTO is only located on the driver's side.

WARNING!

If you have children in the car, make sure that their fingers are not in the way when you shut the windows.

WARNING!

Electric Windows/Sunroof

- Care should be taken when operating the electric windows or sunroof of a car as fingers or hands can become trapped. This is particularly important with young children in the car. Drivers should also warn passengers to take care.
- In models with electric rear windows the isolator switch prevents operation of these windows by rear seat passengers. It is recommended that this is used whenever young children are in the car (see Owner's manual for details).
- Never leave the vehicle without removing the ignition key.

Cars equipped with electrically operated windows in the rear doors have a cut-out switch in the centre console to block use of the rear window winders. Always remember to turn off power to the window winders (by removing the ignition key) if you leave children unattended in the car.

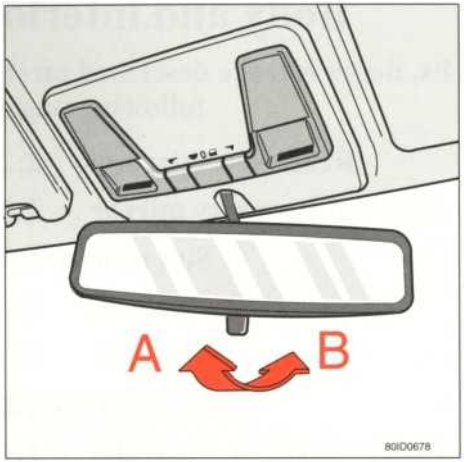
ON	The rear door windows can be raised or lowered with the respective door switch as well as with the switch on the driver's door.
OFF	Override position: only the front seat occupants can use the switches in the centre console to operate the rear windows.

Note: The electrically operated window winders have an overload protector which engages if an object blocks the windows. If this happens, remove the object and wait 20 seconds. The overload protector should then have cooled down and the window winders should function normally.

Body and interior

The seats, seat belts, doors etc. are described on the following pages:

Rear-view mirrors



B=anti-dazzle position

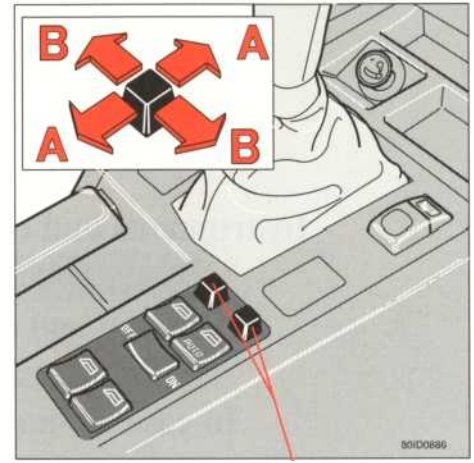
Interior rear-view mirror

A normal position
B anti-dazzle position. Use this position to reduce the glare from headlights behind you.

Adjustment, manual door mirror

Manually adjustable door mirrors

Use the adjustment lever to adjust the position of the door mirror from inside the car.



Switches, electrically operated door mirrors

Electrically adjustable door mirrors (extra equipment)

The control switches for adjustment of the door mirrors are located in the centre console beside the parking brake lever.

A lateral adjustment
B vertical adjustment

WARNING!

The mirrors should always be adjusted before driving.

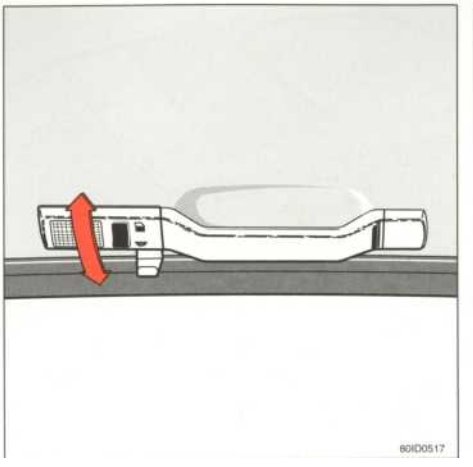
Never use ice scrapers made of metal as they can easily scratch the mirror surface. Some car models are fitted with wide-angle door mirrors to eliminate blind spots.
Remember that these mirrors distort angles and distances!

Roof light

Front courtesy lights

The front courtesy lighting consists of two reading lamps for front seat occupants.

- Front and rear reading lamps always lit.
- 0 Front and rear reading lamps always off.
- Front and rear reading lamps light up when a door is opened.
- Left or right reading lamp lights up if the centre switch is in the position.



Reading lamps, rear seat

Reading lamps, rear seat

There are two reading lamps for the rear seat passengers. These are turned on and off by the switches.

- Lamp on if the front switch is in position
- Lamp turns on if any door is opened.

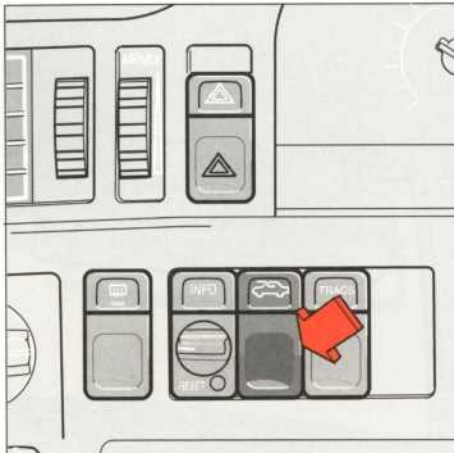
Vanity mirror

Vanity mirror (certain models)

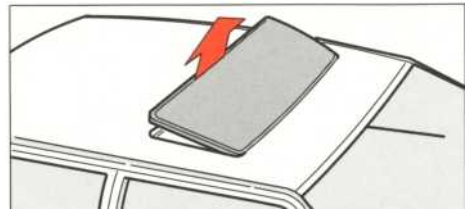
The lamp lights up when the cover is opened.

The courtesy lights will remain on for 30 seconds after the doors have been shut, but they will be switched off if the ignition is turned on or the doors are locked.

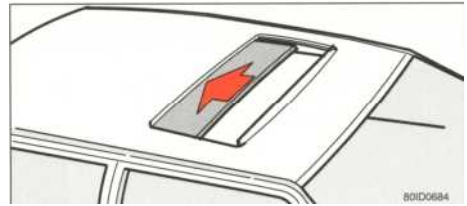
Sun roof



Switch for sun roof operation



Ventilation position



Sun roof

Sun visor

Electrically operated sun roof

The sun roof can open as a conventional sun roof or the rear edge can be raised for extra ventilation in the car.
The ignition key must be in the "drive" position to permit operation of the sun roof.
To open the sun roof press on the lower edge of the switch.
To shut the sun roof press on the upper edge of the switch.
To raise the rear of the sun roof (ventilation position): press on the upper edge of the switch. Press on the lower edge to close.

The sun roof also features a manually operated sliding sun visor on the inside of the hatch.
The sun visor automatically slides back somewhat when the ventilation position is selected.
Note: Do not shut the sun visor when the sun roof is in the ventilation position, otherwise you risk damaging the mechanism.

Note: The electrically operated sun roof has an overload protector which engages if an object blocks the hatch.
If this happens, remove the object and wait 20 seconds. The overload protector should then have cooled down and the sun roof will then function normally.

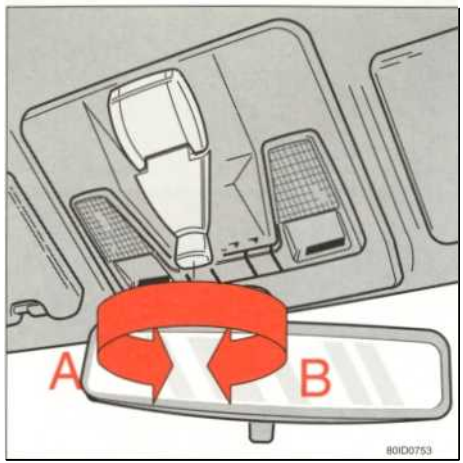
WARNING!

Electric Windows /Sun roof

Care should be taken when operating the electric windows or sun roof of a car as fingers or hands can become trapped. This is particularly important with young children in the car. Drivers should also warn passengers to take care.

In models with electric rear windows the isolator switch prevents operation of these windows by rear seat passengers.
It is recommended that this is used whenever young children are in the car (see Owner's manual for details).

Never leave the vehicle without removing the ignition key.



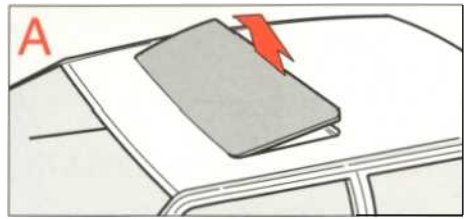
Crank for manually operated sun roof

Sun roof (extra equipment)

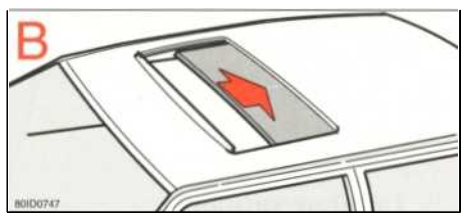
The sun roof operates in two ways: firstly, as an ordinary sun roof and secondly, by raising the rear edge to allow extra ventilation in the car.

Operation using the crank:
Pull the crank down and turn.

Anti-clockwise = normal sun roof
Clockwise = ventilation position



Ventilation position



Sun roof

The crank has a pressure position which denotes when the sun roof is closed. Continue turning the crank through this position to go from normal sun roof to ventilation.

NOTE! For safety reasons the crank should always be folded away when driving!

Front seats

Height adjustment

The front of the driver's seat can be adjusted to seven different height settings, the rear to nine different height settings.

Adjust the seat to the required height before you start driving.
Lever forwards = adjustment of front edge.
Lever backwards = adjustment of rear edge.

The front edge of the passenger seat can be adjusted to seven different height settings.

+ firmer

Lumbar support

- softer

Passenger seat does not have adjustable lumbar support.

Angle of backrest

Stepless adjustment of the backrest angle. To simplify adjustment of the backrest angle do not put any pressure on the backrest while it is being adjusted.

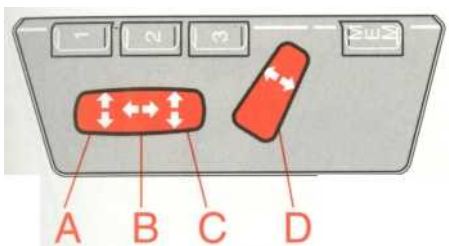
Quick release
The passenger seat has a quick forward release mechanism which is used when long loads are carried. See 2:32.

WARNING!

Do not adjust the seat while driving.

Fore/aft travel

Adjust the position of the seat before you start driving.
When the bar is lifted, the seat can slide forwards or backwards.
Check that the seat is locked into place every time you change the seat adjustment.



WARNING!

When adjusting the seat, make sure there are no objects in front of or behind it. Also be sure that rear-seat passengers have sufficient room. Children must not play with adjustment switches.

Electrically operated driver and passenger seats (extra equipment)

If your Volvo is equipped with electrically operated seats you can adjust the position of the following using the two switches:

Height of the front of the seat	(A)
Forward - back	(B)
Height of the back of the seat	(C)
The angle of the backrest	(D)

The ignition key need not be in the ignition when seats are adjusted.
For safety reasons adjustment stops if one of the switches is released.

Memory function

Programming:
Three positions can be stored. When the seat has been adjusted hold in the MEM button and at the same time press button 1.
Further seat positions can be saved in memory using buttons 2 and 3.

Adjustment:
Hold one of the memory buttons 1, 2 or 3 down until the seat stops.
If the memory button is released adjustment will immediately be interrupted for safety reasons.

Emergency stop:
If the seat starts moving unintentionally press one of the buttons and it will stop.

Note! Electrically operated front seats have an overload protector which is activated if a seat is blocked by an obstacle. If this happens, wait for about 20 seconds before using the seat again.

Always use seat belts

A sudden application of the brakes can result in severe personal injury if you are not wearing a seat belt! Ask all your passengers to use their seat belts. Otherwise, unrestrained passengers in the rear seat will be thrown with immense force against the backs of the front seats, which means that the front seat belts will be subjected to far more strain than they are designed to handle. As a result, all the car's occupants may suffer injury. Do as follows: pull out the belt fairly slowly and lock it in place by inserting the metal tongue into the buckle. A loud "click" will confirm that the belt is latched. The front seat belts are automatically adjusted depending on the height of the seat occupant. If you wish to adjust the belt manually, pull it out about 20 cm and then guide it to the height you feel is most comfortable. In normal conditions, the belt is not locked and you can move in your seat without any restriction whatsoever.

The belt is locked and cannot be extended:

- if the belt is pulled too quickly
- when braking and accelerating
- if the car leans very sharply at any angle
- during hard cornering

To ensure maximum protection, it is important that the belt is adjusted to offer a snug fit against the body.

Adjusting the shoulder belt

Lap belt low on hips

Therefore, remember the following:

- do not use fasteners or anything else which may hinder the belt from sitting snugly
- the belt must not be twisted
- the lap belt must be positioned low, not pressing against the abdomen
- adjust the fit of the lap belt by pulling the shoulder portion of the belt as illustrated above.

Each belt is only intended for one person!

To release the belt: press in the red button on the buckle and allow the belt to retract fully into the holder.

Lap belt low on hips

Pregnant women

Pregnant women should always wear seat belts.

It is very important that care is taken when adjusting the belt to ensure that the lap belt is worn low and snug to prevent any possible pressure on the abdomen. See above.

Note:

Do not recline the backrest too far to the rear. The seat belt is designed to offer protection at normal backrest angles.

Check the seat belts regularly

Inspect the seat belts periodically for signs of abrasion or wear against sharp edges, and check that the belts are in good general condition.
Use water and a mild synthetic detergent for cleaning soiled seat belts.

Check the locking action of the inertia reel seat belt by:

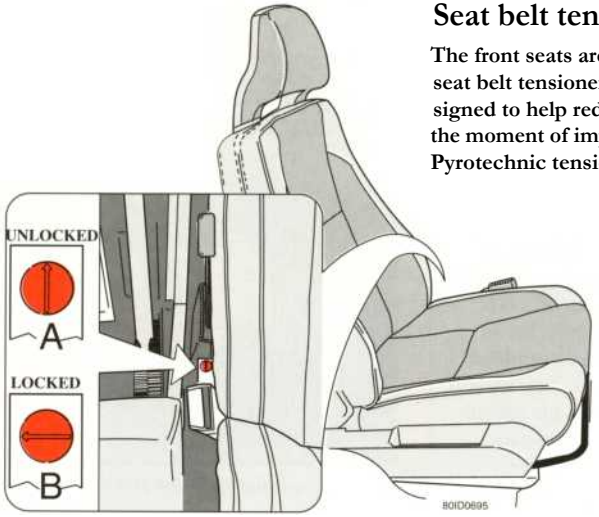
- gripping the belt and jerking it extremely sharply.

The belt should lock and should not be able to be extended.

Note: The use of seat belts is required by law in certain countries.

Seat belt tensioners

The front seats are equipped with mechanical seat belt tensioners. These tensioners are designed to help reduce slack in the seat belts at the moment of impact.
Pyrotechnic tensioner see page 2:17.



Mechanical seat belt tensioner

CAUTION!

If a seat belt has been exposed to considerable strain, for example a collision, then the entire seat belt, i.e. the seat belt including the retracting and locking mechanism plus all anchorage bolts, must be replaced even if it appears undamaged, since its energy absorbing properties will have been affected. The belt should also be replaced if it appears to be very worn or damaged.
Never carry out alterations or repairs to the seat belt - let the Volvo dealer deal with this crucial safety aspect.

WARNING!

The seat belt tensioners must be latched before any work is begun on the seat or seat belt lock. Rotate the red safety knob one quarter of a revolution. It is located just in front of the lock (see illustration B). After the work is completed, rotate the safety knob back one quarter of a revolution (see illustration A) to return it to its active position.

Children should also sit comfortably - and safely!

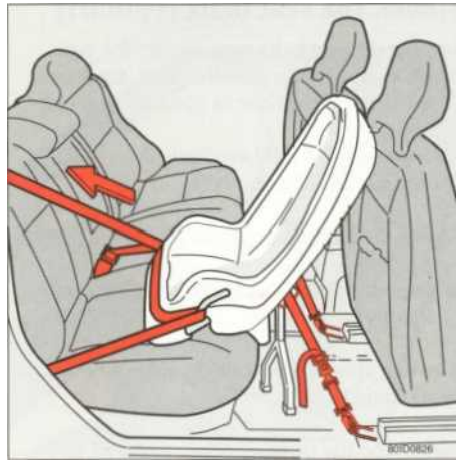
An adult wearing a seat belt in a Volvo has excellent protection in the event of a collision or other road accident. To give your children the same degree of protection, we suggest the following concerning the seating of children in cars.

Remember that children, irrespective of age and size, should always wear seat belts.

Never place a child in a passenger's lap!

The type of child safety equipment and its positioning in the car should be determined with regard to the child's weight. You should use the children's seats and cushions specifically developed by Volvo for Volvo cars.

Placing in the front seat



Placing in the rear seat's outer positions

Note! Many countries have legislation on child seating in cars. Be sure to find out what specific regulations apply in the various countries in which you plan to drive.

WARNING!

Never install or place a child seat in the front passenger seat in vehicles fitted with SRS (Airbag).

Children aged up to about 3

Even new-born babies can sit safely in Volvo's child safety seat. This seat is approved for use in the front seat facing rearwards, in combination with a special installation kit and the car's standard 3-point seat belt and in the rear seat's outer and centre positions (for children weighing up to 40 lb, 18 kg).

In order for small children to sit securely in the child seats, an extra lining is available which can easily be placed in the seat.

When fitting the attachments and anchorage straps to the child seat, please take particular care to follow the instructions included with the child seat for maximum safety.

- The child seat fixture fits onto the seat's slide rails in the back seat, and in the front seat to the centre console and side members. See installation instructions. (This should be carried out by your Volvo dealer.) Attach the anchorage straps to the eyelets.
  For installation in the rear seat, it is also necessary to fit a support to the child seat.

Rear seat centre position

Child booster cushion and backrest

Child booster cushion

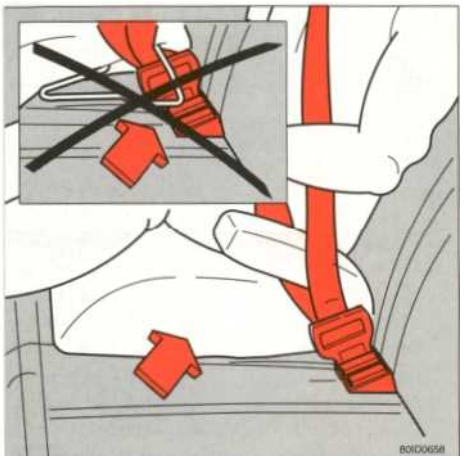
- Anchor the child seat by threading the anchorage strap through the eyelets on the seat.
  Lock the strap into the catch and pull tight.
- Fasten the seat belt lap and shoulder straps through the hooks on the child seat and pull tight.

NB! When installing the child seat, always take particular care to follow the installation instructions so as to ensure maximum safety.

Children aged from about 3 years upwards

When a child has grown out of the child seat, this seat should be replaced with a booster cushion placed either in the front or rear seat, and secured by the car's standard three-point ¡nertial reel seat belt, preferably in combination with a backrest. Volvo's own booster cushion, backrest (approved for children weighing between 33 lb, 15 kg and 80 lb, 36 kg) and 3-point seat belt, are all specially designed to offer a high degree of safety. When installing the booster cushion and backrest, it is important to follow carefully the fitting instructions which are provided with the cushion and backrest so as to guarantee maximum safety.

- Place the booster cushion and backrest in the rear seat or front seat.
- Seat the child on the cushion, pull the lap belt under the corners of the cushion and the diagonal belt over or under the corners, so that the diagonal belt sits comfortably and securely across the shoulder.
- Insert the seat belt tongue into the lock and tighten the belt so that it sits taut across the child's body.



Attachment of child booster cushion

- Check that the belt is positioned correctly across the shoulder and that the lap belt is positioned low so as to offer the best protection. The belt may under no condition touch the child's neck, nor may it be positioned below the child's shoulder. If a backrest is used, the diagonal belt should run freely through the backrest corners.

Important advice!

When using other makes of child safety equipment, it is important to read the installation instructions which come with these products and follow them closely. Here are a few particularly important points to bear in mind:

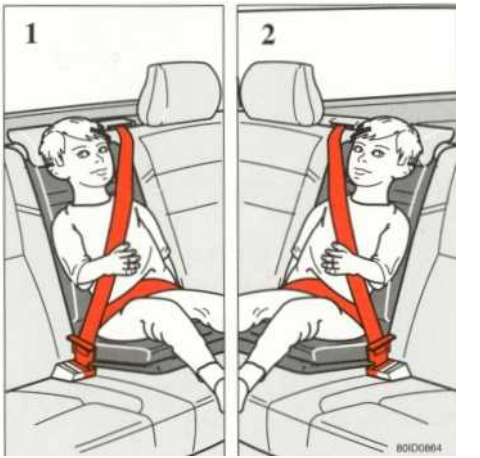
*Children's safety restraints with steel frames, or any other design which may rest against the seat belt latch, should not be used as they may unintentionally cause the seat belt latch to open. See left. Volvo has its own child safety restraints which are designed and tested for use in your Volvo 850.

- The child seat should always be positioned in the way stipulated by the manufacturer.
- Do not attach the child seat anchorage straps to the seat's fore-and-aft adjustment bar, springs or other rods and members under the seat if these have sharp edges.

*Support the child seat backrest against the instrument panel.

- Do not support the upper section of the child seat against the windscreen.
- Never put a child safety seat in the front passenger seat if the car has an airbag (SRS) on the passenger side.

NB! If you experience any difficulty in installing child safety equipment, please contact the manufacturer of this equipment for further instructions.



1: 4-door, 2: 5-door

Integrated booster cushion (extra equipment)

Volvo's own integrated booster cushion in the middle of the rear seat is specially designed to offer an excellent degree of safety. In combination with the standard-fit, three-point seat belt, it is approved for children weighing between 33 lb, 15 kg and 80 lb, 36 kg.
When a child is sitting in this seat, the lap section of the three-point belt must fit snugly across the child's pelvis, not across the stomach. Remember also to adjust the height of the head restraint to suit the position of the child's head.
First fold it up to form an armrest, then fold back into the backrest.

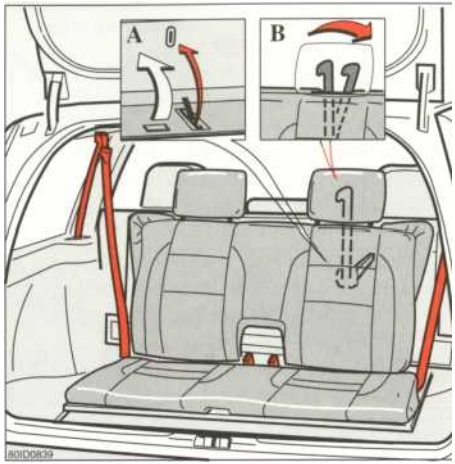
CAUTION!

If the integrated child cushion has been subjected to severe strain, for instance during a collision, the entire child cushion including the seat belt and its anchoring screws must be replaced. Even if the integra- ted child cushion appears to be undamaged, its protective capability might be impaired. It is also necessary to replace the child cushion if it is very worn or damaged.

Replacement of the cushion must be carried out professionally, since it is crucial to the safety of the passengers that the cushion is properly anchored. Do not perform any replacement, modifications or repairs to the integrated child cushion; such work should be left to an authorised Volvo workshop. If the cushion becomes soiled, clean it in place in the car. If however the cover is so soiled that it has to be removed for cleaning, the above instructions for installation of the cushion apply.

WARNING!

The rear seat centre armrest must not be used as a seat for a child if the Volvo integrated child seat is not installed.



Extra seat

Extra seat (extra equipment, certain markets)

If all the seats are occupied, a rear-facing extra seat in the boot area of 5-door models can be used. The extra seat is made for two children each weighing a maximum of 84 lb (40 kg) and approximately 60 in (150 cm) tall.

A: Fold up
B: Fold down

WARNING!

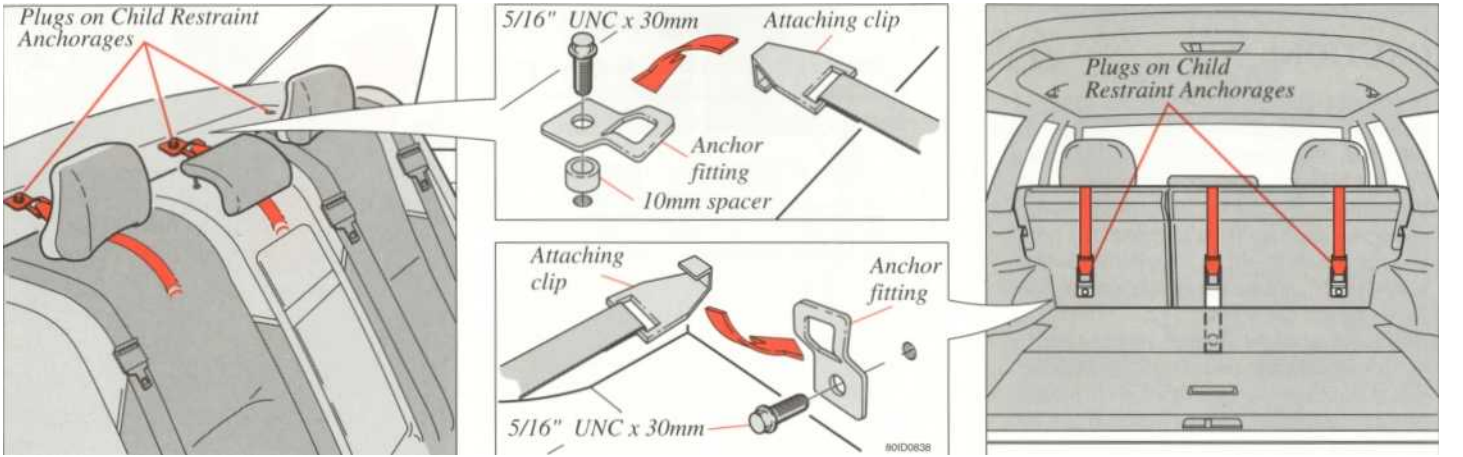
Both rear seat backrests must be up when the extra seat is being used.

Vertical adjustment, pull forward and press.

Centre head restraint

The centre head restraint can be adjusted vertically to suit the height of the passenger. Make sure that the height of the centre head restraint is adjusted to the position of the passenger's head (see illustration).

Child Restraint Anchorages (Australia)



Child Restraint Anchorages

To comply with Australian requirements all Volvo cars in the market are fitted with Child Restraint Upper Anchorages for the rear seat.

The reason for this legislation is to provide upper anchorages for the attachment of Child Restraints and facilitate the transfer of Child Restraints from one car to another, since they would have similar upper restraint anchorages fitted as standard.

The three anchorages are located on the parcel shelf and on the rear side of the backrest. Remove the plug covering the anchorage point you want to use.

This can be done with a suitable coin. The plug is removed anti-clockwise. The centre anchor fitting is pre-fitted at the factory (certain models).
Refer to the manufacturers' instructions for securing your child seat.

The anchor fitting to be installed has to be of the type shown in the diagrams above. For correct installation: Note the correct fittings and dimension in the diagrams. It is important to use only the recommended bolt and spacer.

WARNING!

Child Restraint Anchorages are designed to withstand only those loads imposed by correctly fitted Child Restraints. Under no circumstances are they to be used for adult seat belts, harnesses or for attaching other items or equipment to the vehicle.

Seat belts

To comply with Australian requirements the following additional information should be read in conjunction with the seat belt information.

WARNING!

Seat belts are designed to bear upon the bone structure of the body, and should be worn low across the front of the pelvis or the pelvis, chest and shoulders, as applicable; the lap section of the belt must not be worn across the abdomen.

Seat belts should be adjusted as firmly as possible, consistent with comfort, to provide the protection for which they have been designed. A slack belt will greatly reduce the protection afforded to the wearer.

Care should be taken to avoid contamination of the webbing with polishes, oils and chemicals, and particularly battery acid. Cleaning may safely be carried out using mild soap and water. The belt should be replaced if webbing becomes frayed, contaminated or damaged.

It is essential to replace the entire assembly after it has been worn in a severe impact even if damage to the assembly is not obvious.

Belts should not be worn with straps twisted. Each belt assembly must only be used by one occupant; it is dangerous to put a belt around a child being carried on the occupant's lap.

WARNING!

Modifications or additions should not be made to the seat belt adjusting devices, as this could result in them failing to remove slack, or from operating correctly.

Airbags are located in the steering wheel, above the glove compartment and in the backrest of the seat.

SRS (Airbag) and SIPS bag

For added safety, some cars are equipped with SRS (Airbag) as a supplement to the standard three-point anchored seat belts. These vehicles have "SRS" embossed on the hub of the steering wheel, and on the dashboard on the passenger side if the car also has an airbag on that side. The letters "SIPS bag" are embossed on the side compartments by the front seats if the vehicle is equipped with SIPS bag. The inflatable airbag is folded into the centre of the steering wheel. On the passenger side it is folded into a compartment above the glove compartment. The SIPS airbags are mounted in the frame of the front seat backrests. The airbag inflates in the event of a serious collision. The angle of impact, speed and nature of the object involved in the collision all play a part in whether the airbag is activated. You can read more about this on page 2:21.

WARNING!

The SRS airbag is intended to supplement - not replace - seat belts. The airbag is not deployed when the car is hit from behind, from the side or if it rolls over.

The SIPS bag (side airbag) is intended as a supplement to the existing SIPS system. The airbag is not activated in response to impacts from the front or rear of the car, nor if the car overturns.

For maximum protection always wear your seat belt.

The Airbag System

The system consists of a gas generator (1) surrounded by the inflatable airbag (2 and 5). In the event of a sufficiently violent collision a sensor (3) activates the gas generator's detonator and the airbag inflates at the same time as it heats up. To cushion the impact, the airbag deflates when compressed. This also releases some smoke into the car. The entire sequence, from inflation to deflation of the airbag, takes a few tenths of a second.

SIPS bag system

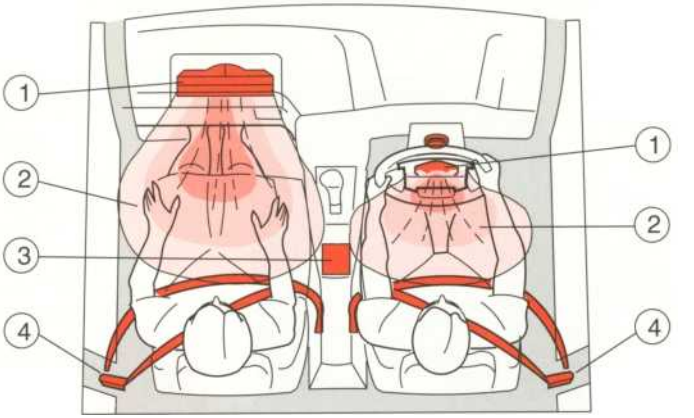
The system consists of two gas generators (4), mechanical sensor (3), pyrotechnical wiring (2) and an airbag (1). A sufficiently strong impact will activate the sensor which in turn triggers the gas generators and inflates the airbag. The airbag inflates between the driver and the door panel and absorbs the impact at the moment of collision at the same time as it starts to deflate.

Seat belts with seat belt tensioners

Cars with airbags (SRS) have special pyrotechnical seat belt tensioners (4). A small charge, which is housed next to the seat belt reel, is triggered at the moment of collision tensioning the seat belt to take up the slack caused by loose clothing etc. This allows the seat belt to restrain the driver and passenger more quickly.

Note!

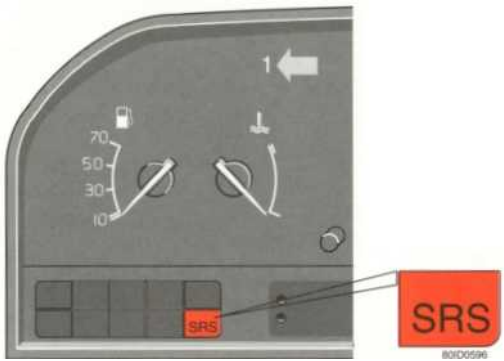
For best protection, the occupants should sit in an upright position with the seat belt properly fastened.



1. *Gas generator*
2. *Airbag*
3. *Sensor*
4. *Seat belt tensioner*

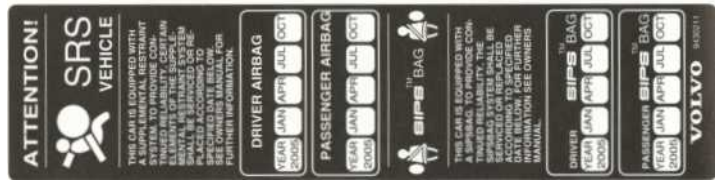
1. *Airbag*
2. *Pyrotechnical wiring*
3. *Sensor*
4. *Gas generators*

Airbag (SRS) SIPS bag



The warning lamp in the combination instrument

Labelling on seat belts with tensioning



This decal is located on the door post

The SRS system is continually monitored by the sensor*. In the combination instrument there is a warning lamp marked SRS. This lamp comes on with the other lamps when you start the engine and should go out when the motor is running. If the ignition is switched on (position II) the lamp should go out after about 10 seconds.

*not the SIPS bag

WARNING!

The car should be taken to an authorised Volvo workshop immediately if the warning lamp stays on or comes on when the car is being driven.

The month and year shown on the sticker on the door pillar(s) indicate when you should contact your Volvo workshop for a specific servicing or replacement of airbags and seat belt tensioners. Never attempt to make any adjustments to the SRS and SIPS bag system yourself. Please contact your Volvo dealer if you have any queries regarding the SRS system.

WARNING!

Never attempt to repair any part of the SRS or SIPS bag system. Any interference with the system may cause it to malfunction and result in serious injury. Work on the system may only be carried out by an authorised Volvo workshop.

Airbag inflation on passenger side

Passenger side airbag

The airbag on the passenger side has a volume of about 150 litres, while because of the steering wheel on the driver's side, the volume is 60 litres. During a collision the airbags give the same degree of protection to both driver and passenger.

WARNING!

Passenger side airbag

- **Front seat passengers must never sit on the edge of the seat, lean over the dashboard or sit in an awkward position.**
  Passengers should sit comfortably, upright and with their backs against the seat back. Seat belts should be properly fastened.
- **Feet must be on the floor (not on the dashboard, on the seat or out of the window).**
- **Never allow children to stand in front of the passenger seat.**
- **No objects or accessories should attached to or near the SRS panel (above the glove compartment) or be placed in the area into which the airbag deploys.**
- **There should be no loose articles on the floor, seat or dashboard.**
- **Do not interfere with SRS components in the hub of the steering wheel or the panel above the glove compartment. SRS components may only be replaced by an authorised Volvo workshop.**

WARNING!

Do not put any stickers or decals on the airbags.

WARNING!
SIPS bag

- **Only Volvo original or Volvo approved extra upholstery may be used on the front seats of cars equipped with SIPS bag.**
- **Do not place any objects or accessories in the area affected by the SIPS bag.**
- **Never attempt to open the SIPS bag system in the front seats. Replacement of SIPS bag components may only be carried out by an authorised Volvo workshop.**

Airbag (SRS) SIPS bag

The airbag and child seat do not go together!

SRS text at the end of the dashboard.

Inflation of SIPS bag

Child seat and child cushion!

Having a child safety seat in the front seat can result in serious injury if an airbag is fitted on the passenger side.

If the vehicle is also equipped with the SIPS bag, it is recommended that the child is not placed on a child cushion on the front seat.

The rear seat is the safest place for children and child safety seats.

WARNING!

Never put a child safety seat in the front passenger seat if the car has an airbag (SRS) on the passenger side.

SIPS bag

The SIPS bag system is a mechanical system consisting of two main parts - the airbag module and the sensor unit. The airbag module is located in the frame of the front seat backrest. The sensor unit is located in a sensor mounting in the end of the forward SIPS tube. The sensor is not monitored by the SRS system's diagnostic unit as it is a mechanical system.
When inflated, the volume of the airbag is approximately 12 1.

When are the airbags deployed

Airbags are only deployed during a head-on collision where the angle of collision is +/- 30° and the car hits a fixed or heavy object with sufficient speed. The SRS sensor registers both the force of a collision and the inertial forces caused by the collision. The sensor determines if a collision is sufficiently violent for the airbags to be deployed.
The above conditions also apply for the SIPS bag, apart from the fact that it is only activated in response to impacts from the side, when the vehicle collides with a fixed/heavy object with sufficient force in the front area of the SIPS system.

NOTE! The SRS and SIPS bag system is only activated once in a collision.
If the airbags have been deployed, we recommend the following:

- Have the vehicle towed to a Volvo workshop. Even if the car can be driven after a collision, we do not recommend driving the car with deployed airbags.
- Have an authorised Volvo workshop change the SRS and SIPS bag system components.
- Use only Volvo Original parts when replacing the SRS and SIPS bag components (airbags, seat belts with tensioners etc.).

When are airbags not deployed

Not all frontal collisions activate the SRS system. Should you collide with a soft object (a snow drift or bush for example), or a hard or fixed object at low speed, there is no need for the SRS system to be activated. The airbags are usually not inflated in response to side-on collisions (unless the car is equipped with SIPS bag), impacts from the rear or if the car overturns. The extent of damage to the car's bodywork is no measure of how well the SRS system works.

Can the airbags be deployed accidentally

It is highly unlikely that the airbags could deploy while the car is being driven. The entire SRS system is constructed so that the airbags only inflate in particular collision conditions. The SRS system has its own diagnostic unit which continuously monitors and inspects* the functioning of the system. Make a habit of checking the SRS system warning lamp when starting and driving the car.

The heart of Volvo's safety system

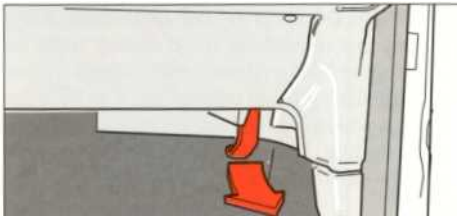
The three-point anchored seat belt is the heart of Volvo's safety system. Seat belts should be worn at all times by everyone in the car. The SRS system is intended as a supplement to the three-point anchored seat belt, just as the SIPS bag system is a supplement to the SIPS** system.

*not the SIPS bag
**Side Impact Protection System

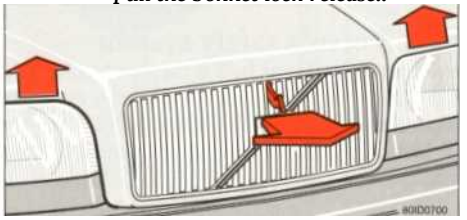
WARNING!

The SRS sensor is located under the centre console. If the carpeting has been soaked or if there has been standing water on the floor, DO NOT ATTEMPT TO START THE CAR. This may cause airbag deployment. Disconnect the battery and have the car towed to an authorized Volvo dealer for repairs.

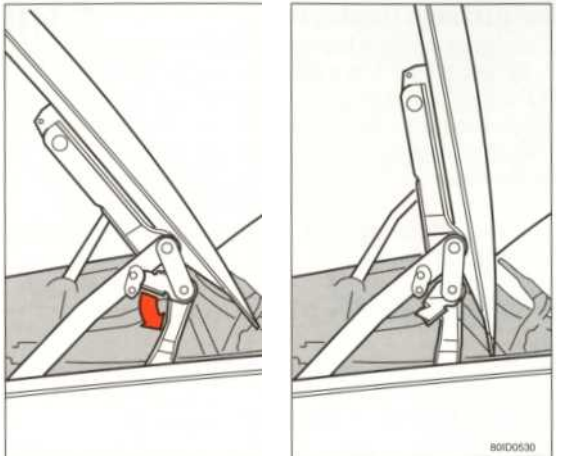
Bonnet



Pull the bonnet lock release..



... pull the handle and open

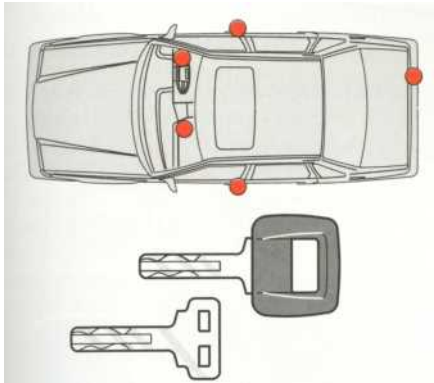


Rotate the catches - open completely

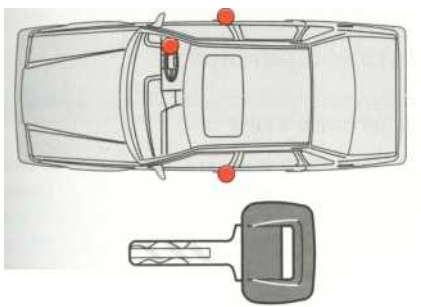
Opening the bonnet

Pull the bonnet lock release at the bottom right edge of the instrument panel. You will hear the lock being released.
This releases the safety catch handle in the front of the grille.
Lift the bonnet slightly to gain access to the safety catch handle.
Pull the handle and lift up the bonnet. Do not lift using the handle.
Open the bonnet.
Check that the bonnet locks securely into place when you shut it.

The bonnet normally opens to a 57° angle. You can also raise the bonnet to the vertical position by turning the hinge catches downwards, as shown in the diagram.
The catches return automatically to their normal position when the bonnet is shut.
If you are in a garage, make sure that the bonnet does not strike the roof when it is opened.



Owner's key and wallet key
These keys operate all locks



Service key
Front doors, ignition
switch and steering wheel lock

Locking and unlocking the doors

Your car is equipped with central locking. You can automatically lock and unlock all the doors, boot and fuel filler flap from either the front door locks or the boot lock. On some models, the fuel filler flap is not part of the central locking facility. Turn the key away from the pillar to unlock, towards the pillar to lock.

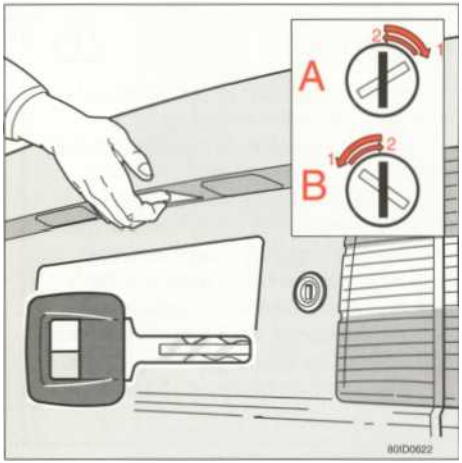
The doors can always be opened from inside using the interior door handle irrespective of whether the doors are locked or not. All the doors can be locked by pressing down the lock buttons in either of the front doors. In the same way, it is possible to unlock all the doors by opening either of the front doors. All the doors are locked when the lock buttons are down. Both the driver's and passenger door must be closed when you lock either of them, in order for the central locking to function.

CAUTION!

Always drive with the doors unlocked, i.e. with the lock button pulled up.
If you are involved in an accident, rescue workers will then be able to gain swift access to the inside of the car. Bear in mind that if the child safety catch in the rear doors is engaged, these doors can only be opened from the outside if the lock button is pulled up. This is done by pushing up the rear door lock button from the inside using the interior door handle. The door can then be opened from outside.

Number tag

If the original keys are lost, duplicate keys can be ordered from Volvo dealers.
The key number is stamped on the separate number tag, which you should remove and store in a safe place.



Large key operates boot lock

Opening, shutting and locking the boot lid

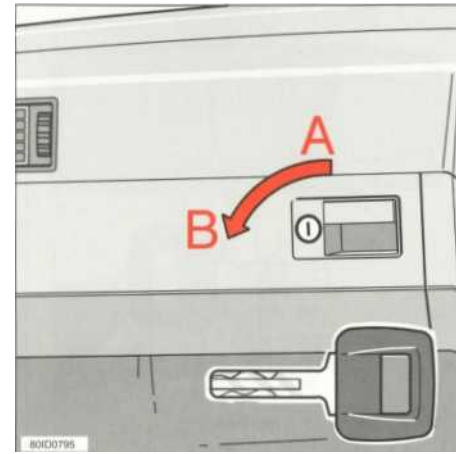
The boot lock is part of the central locking system. The boot is locked and unlocked when either of the front doors are locked or unlocked and vice versa.
A and B above show how to unlock (A) and lock (B) the boot lid.

The boot lock can also be disconnected from the central locking as follows:

Withdraw the key in horizontal position

The boot is now always locked.
This method of locking the boot and rear seat backrest (see 2:31) is useful if you lend your car to someone and want to protect the contents of the boot. If you give the driver the service key (the smaller key), it will not be possible for the temporary driver to open the boot.
To reconnect the boot lock to the central locking facility:

Withdraw the key in the vertical position



Large key operates glove compartment

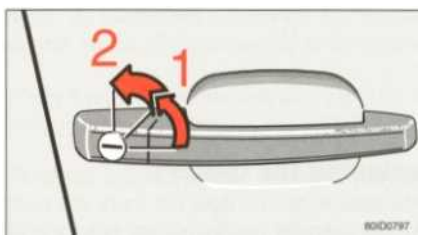
Glove compartment

The glove compartment can only be locked with the owner's key.

A unlocked
B locked

"Deadlock" locking position (certain markets)

Your car has a special "deadlock" locking position, which means that when the doors are locked in this way, they cannot be opened from inside the car. "Deadlock" locking can be activated only from the front doors, not from the boot.
All doors must be closed before "deadlock" locking can be activated. When doors are locked using lock buttons, the "deadlock" locking position cannot be activated.



Turn the key in the usual way to lock the doors (1). Turn it further to activate "deadlock" locking position (2). More resistance will be felt at the last turn. This is perfectly normal.
The doors cannot now be opened from the inside. The car can only be unlocked from outside via the front doors and the boot.

If you have a 5-door model, the rear door should be in childproof mode when activating the "deadlock" locking position.

Note!

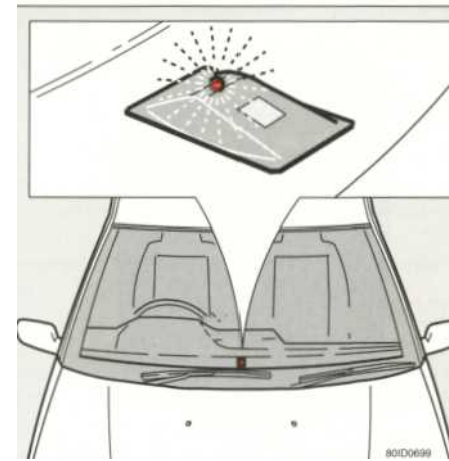
If there is no power supply present in the car, the central locking system will not function and only the driver's door can be unlocked. In this situation, the lock button will not be visible even though the driver's door is unlocked.

If your car is equipped with an alarm, this will only be activated when the "deadlock" locking position is activated, and the red LED flashes. The "deadlock" locking position and the alarm are not activated when locking the boot.

If your car is equipped with remote controlled central locking/alarm, you have to press the LOCK button twice within three seconds (although not too quickly) to activate the "deadlock" locking position.
See page 2:26.

WARNING!

Be careful not to activate the "deadlock" locking position if anyone is still in the car! The doors cannot be opened from the inside!



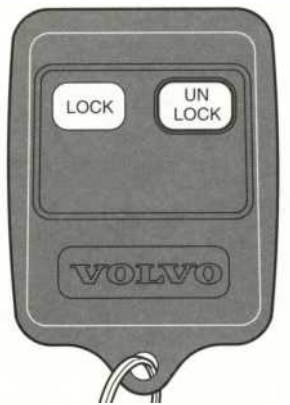
Alarm system LED

Alarm (extra equipment)

Cars with central locking can be fitted with an alarm as extra equipment.
Note! The alarm system is activated when the front doors are locked with the key*. The alarm system is connected to the doors, boot, bonnet and ignition switch. The alarm can be deactivated by turning the key in either of the front doors or the boot. A red LED flashes on the upper side of the instrument panel to indicate that the alarm has been activated. If an attempt has been made to break into the car, the LED glows steadily, until the ignition is switched on.

*Also the boot when not equipped with "deadlock" locking position.

Remote controlled central locking/alarm



Remote control

Remote controlled central locking/alarm (extra equipment)

Your car can be fitted with a remote control-led central locking system as an optional extra. The system works on a frequency that makes it possible to operate the door and boot locks without a key. Two coded remote controls, which can be attached to your key ring, are supplied with the car. The remote control can be used to unlock/lock all doors and the boot from a distance of 3-5 metres from the car.
Press either the LOCK or UNLOCK buttons.

Press the LOCK button twice within three seconds (although not too quickly) to activate the "deadlock" locking position and the alarm.

NOTE! A red LED flashes on the upper side of the instrument panel to indicate that the alarm has been activated.

The remote control should not be used to lock the doors from the inside. For safety reasons it is not possible to lock the doors when the ignition key is in position I or II. However, it is possible to unlock them.
To prevent theft the remote control should not be left on the key ring when the car goes into the workshop. Contact your Volvo dealer immediately if either of the remote controls are lost.

Battery

When replacing the battery you must dispose of it so that it does not harm the environment. Let your Volvo dealer help you.

WARNING!

Do not lock the doors in the "deadlock" locking position from inside the car. In the event of an accident, locked doors would prevent those giving assistance and emergency services from gaining access to the car quickly.

Replacing the battery

If the remote control does not work at a normal distance from the car the battery generally needs replacing.

Replacing the battery:

- Remove the back of the remote control using a coin.
- Replace the battery (Type CR2025). Put the battery in so that the side with text on faces upwards enabling the cover to be closed.
- Replace the cover and check it fits tightly so that water cannot get in.

Theft prevention

Below are a number of tips to help you make the most of your car's security devices. In addition to the other security features, an alarm is also available for installation (extra equipment), to further increase security.

When you lock the car, always use the "deadlock" locking position*. Turn the key in the usual way to lock the doors, then turn it further to activate the "deadlock" locking position. There will be more resistance at the last turn, but this is normal. The deadlock can be activated from the front doors only.
If you have remote controlled central locking, press the LOCK button twice within three seconds (although not too quickly) to activate the "deadlock" locking position.
Note! Be careful not to activate the "deadlock" locking position if anyone is still in the car as the doors cannot be opened from the inside.

If you have a 5-door model, the rear door should have its child safety lock on when you lock the car with the deadlock.

Close the sun roof and all windows fully when you leave the car.

Never leave any items such as cameras or handbags visible from outside the car.

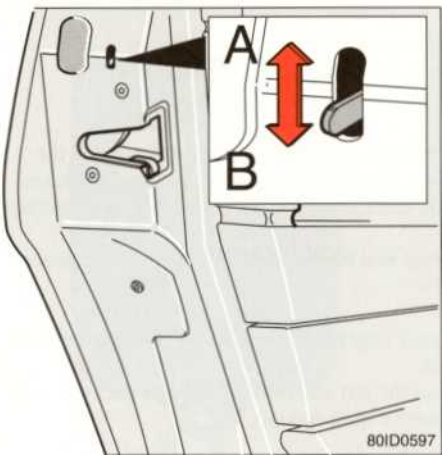
*certain markets

If you lend your car to someone, you can put personal items in the glove compartment or boot. These can only be locked and unlocked with the owner's key. You can then give the service key to the person borrowing the car.
Don't forget to lock the rear seat backrest using the two red catches on its rear (4-door model).

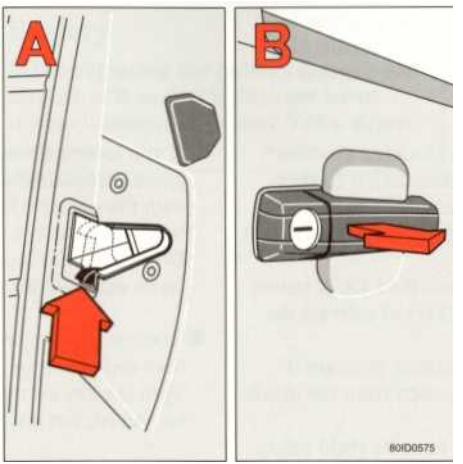
You can always protect your luggage in the boot by using the special boot-only locking position.
Turn the key completely to the left and remove it. Now the boot will be locked, but not the doors (4-door model).

For detailed information on the functions mentioned here, see this chapter.

Child safety lock



Latch for child safety lock



Switching off the door-open warning lights

Child safety lock

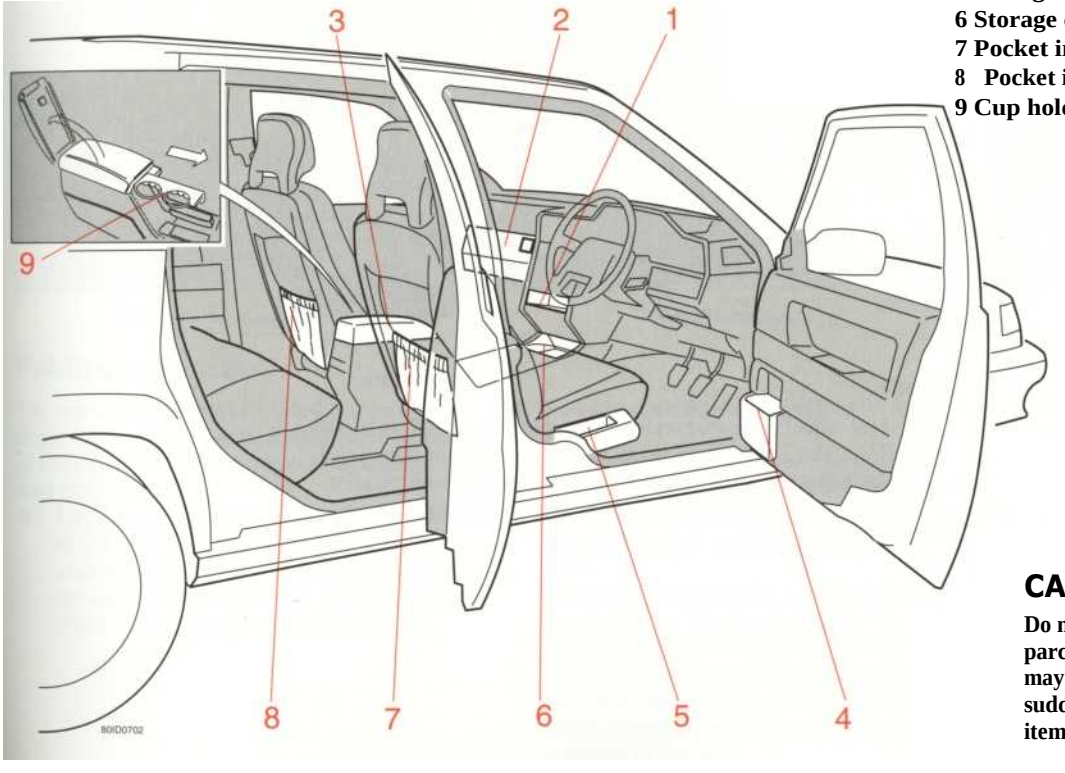
The latch for the child safety lock is located at the rear edge of each rear door and it is only accessible when the door is open.
A the door cannot be opened from inside
B the lock functions as usual
Remember that in the event of an accident, rear seat passengers will not be able to open the rear doors themselves from inside the car if the latch is in position A. The rear doors will have to be opened from outside.
See the caution on page 2:23.

Useful advice

The courtesy lights and the red warning lights at the rear edges of the doors come on whenever a door is open. If you intend to leave the doors open for a long period of time but nonetheless wish to switch off these lights, press the lock mechanism in (A) and the lights will be switched off. To return to normal courtesy light function, pull the door handle before shutting the door (B).

Storage compartments

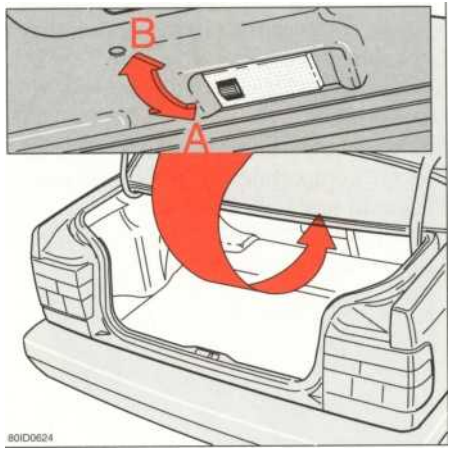
1 Storage compartment in the centre console
2 Lockable glove box
3 Storage compartment in the armrest
4 Door pockets
5 Storage compartment beside front seats
6 Storage compartment in the centre console
7 Pocket in seat backrest
8 Pocket in seat backrest
9 Cup holder (certain models)



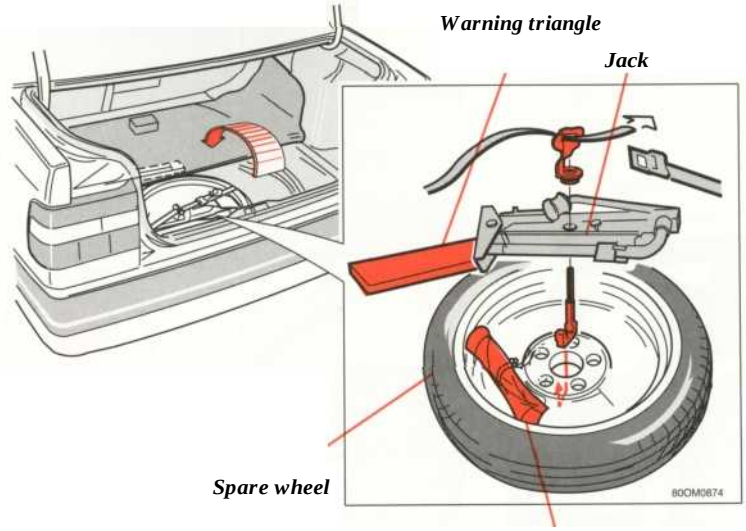
CAUTION!

Do not place heavy objects on the rear parcel shelf or anywhere else where they may be thrown about when braking suddenly. Always secure large, heavy items using the seat belts.

Boot - 4-door model



Location of the switch

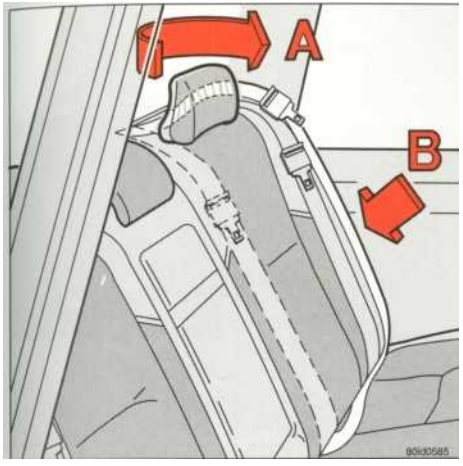


Boot lighting

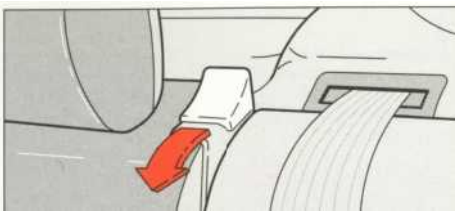
A lamp always off
B lamp on when the boot is open

Boot

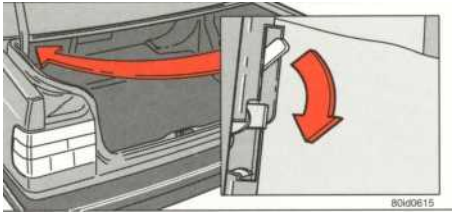
The spare wheel is located under the carpet in a special well in the boot floor. The jack with its crank is placed inside the wheel rim. Make sure that the jack is properly secured in this position after use. Refer to the decal on the inside of the boot lid for storage ¡nstructions.



Rear centre seat belt



Pull the catch



Rear seat catch

Folding rear seat

Folding rear seat

The rear seat backrest is divided into two sections. Each section can be folded independently of the other. This offers a variety of storage and load alternatives.

- Lift the rear seat belts to the fixed section of the backrest. The centre seat belt can also be folded across the fixed part of the backrest so that it does not get in the way when the right-hand backrest is folded.
- Pull the catch forwards and fold the backrest.

  The two red catches on the rear of the backrest are used to prevent unwanted use of the backrest folding mechanism.

  Push the catches down to lock the backrests.

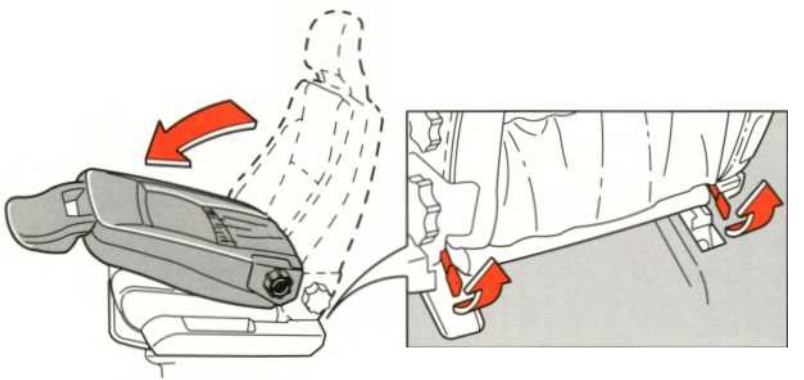
  The backrests cannot now be folded from inside the car. This is a useful facility if there are children in the car who might otherwise tamper with the folding mechanism from the rear seat, or if you lend the car to someone and want to protect the contents of the boot.

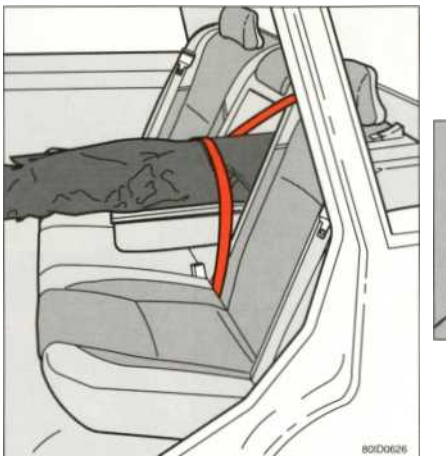
  Note: With the catch in the locked position, it is not possible to fold the rear seat backrest from inside the car.
- When pulling the backrests upright, make sure that the seat belts are not caught and twisted.

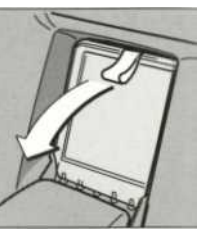
WARNING!

When you have folded the backrest up, make sure that it has locked into place.

Folding front seat, long loads







Folding front seat

With the help of two catches, the passenger seat backrest can be folded down to the horizontal position for carrying long loads.

- Push the seat to the forward position.
- Lift up the catches at the rear of the backrest.
- At the same time, push the backrest forwards.

Long loads (4-door model)

There is a panel behind the centre armrest to allow the transport of long objects.

Please note that only light loads such as skis may be carried in this manner.

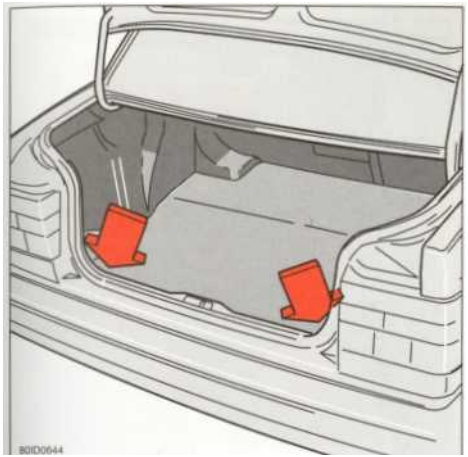
Max. length: 2 metres and max. weight: 55 lb (25 kg).

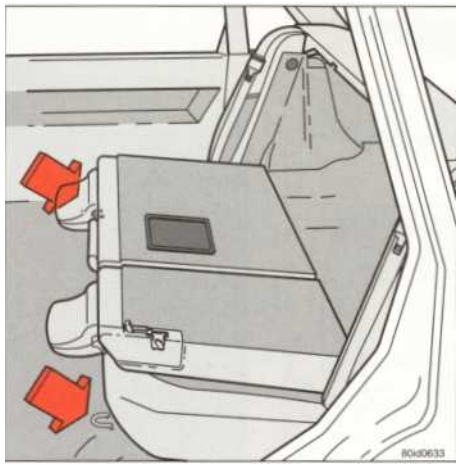
CAUTION!

Secure the load properly, for instance by winding the seat belt around the folded-down armrest, as shown in the illustration. If the load is not secured in place, it may be thrown forward and injure the car's occupants if the car is braked hard. Protect sharp edges with a soft blanket or cloth.

CAUTION!

Stop the engine and engage the parking brake when loading or unloading long objects. This will prevent the vehicle from suddenly moving off on its own if the gear lever or gear selector is accidentally moved out of neutral.





Anchorage eyelets in the boot

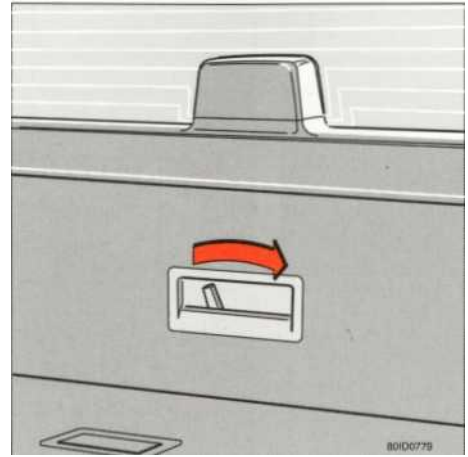
Anchorage eyelets inside the car

Anchorage eyelets

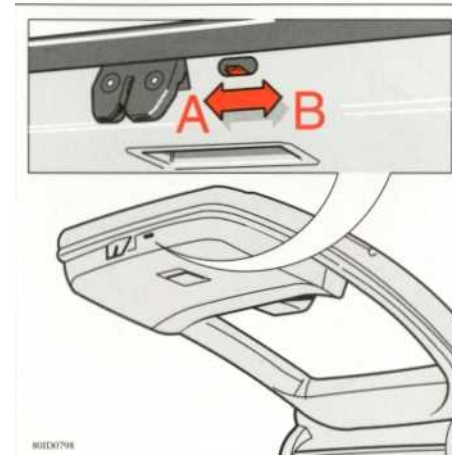
Always secure large and heavy cargo to avoid the danger of personal injury if the car is suddenly braked or involved in a collision. There are four eyelets which can be used for anchoring cargo using ropes or straps. Suitable straps and a cargo net can be purchased from your Volvo dealer.

Rear door - 5-door model

Opening the rear door



Opening from inside



Latch for child safety lock

Opening and closing the rear door

The rear door lock cylinder is concealed under a cover on the rear door handle. For locking or unlocking, open the cover until it catches.
The rear door lock is activated by the central locking, which means that you can control the opening and locking of the rear door with the front door locks and vice versa.

To unlock - turn the key clockwise and allow it to spring back.
To lock - turn the key anti-clockwise and allow it to spring back.

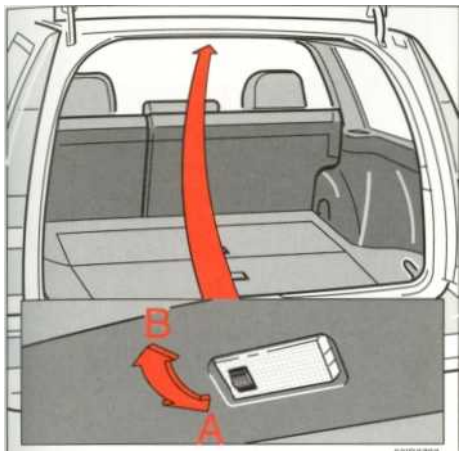
To open the rear door, pull the section beneath the handle.
The rear door can be opened from the inside by pulling the handle to the right and pressing the door outwards.

Child safety lock

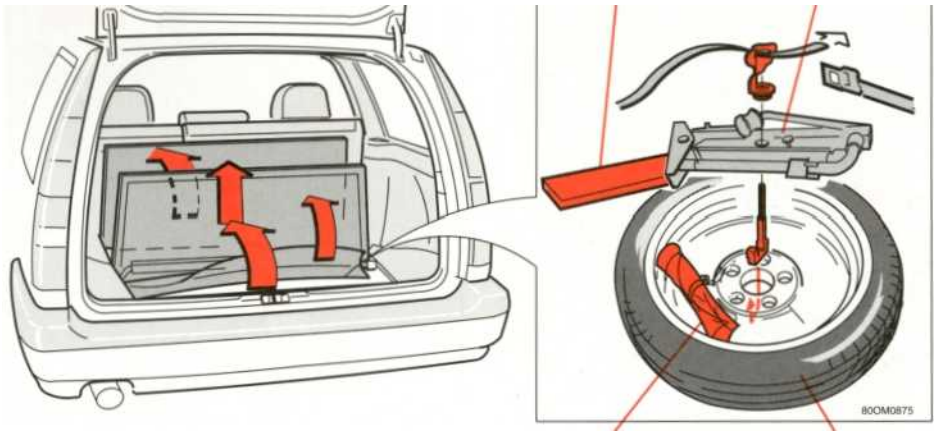
Use the latch when you want to prevent the door from being opened from inside. The easiest way to move the latch is with a small screwdriver. Remember, though, that in the event of an accident passengers in the extra seat will not be able to open the door from inside if the latch is in position A.

A Door cannot be opened from inside.
B Door can be opened from inside.

For maximum security when using the "dead-lock" locking position ensure that the rear door's child safety lock is in position A.



Switch positions



Boot lighting

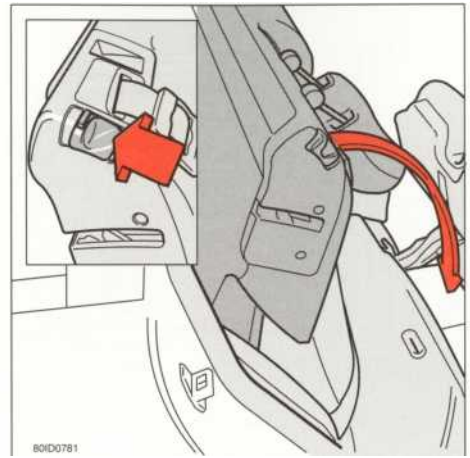
There is an extra light on the ceiling at the rear of the boot.

A Lamp always off.
B Lamp on when the boot is open.

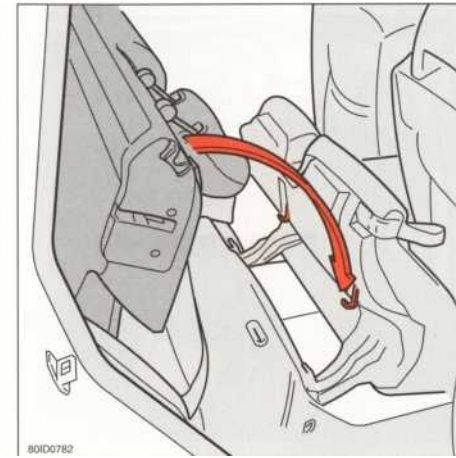
Spare wheel and jack

The spare wheel is located under the carpet in a special well.
Lift and remove the rear cover, and lift the front cover to obtain access to the spare. The jack and crank are within the rim.
Make sure that the jack is properly secured in position after use.
Refer to the decal in the boot area for storage ¡nstructions.

Cushion catch



Backrest catch



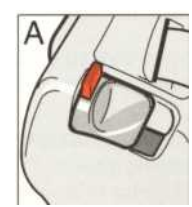
Hooks in holes

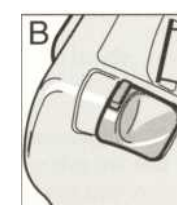
Folding rear seat
Extending load area

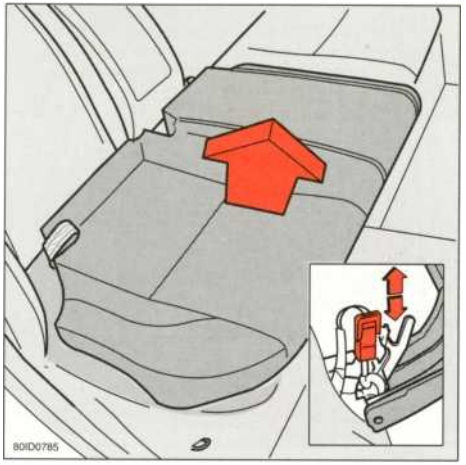
- The rear seat is divided so that each section can be folded independently.
- Straighten the backrests of the front seats if they are sharply reclined.
- Pull the cord for the seat cushion catch and fold the cushion towards the backrests of the front seats.
- The head restraints of the two outer places must be folded downwards but not removed. Pull each one straight upwards and then fold it down. Lower the centre head restraint if necessary.
- Press the backrest catch backwards and fold the backrest forwards.
- Note! Make sure that the holes in the plastic sections on the backrest top engage with the hooks on the seat cushion base.
- When returning backrest and seat cushion to their normal places, make sure the head restraints are also restored to their normal positions.

Check that the red locking indicator is no longer visible (B). The backrest is properly locked in its open position when the indicator disappears. Check that the seat belts are free of the seat.

To increase the load area simply fold down the rear seat backrest on to the seat cushion.







Removing the seat cushion

WARNING!

The red locking indicator for the backrest catch shows when the backrest is not locked. When it is hidden the backrest is locked. Driving with the backrest not locked can cause serious injury during sudden braking or in a collision, because the seat belts will not function.

Removing the seat cushion

The seat cushion is easy to remove, providing a longer load area.
Fold the seat cushion up towards the front seats, undo the red plastic fastenings, disconnect the connectors, lower the cushion slightly and lift it out.

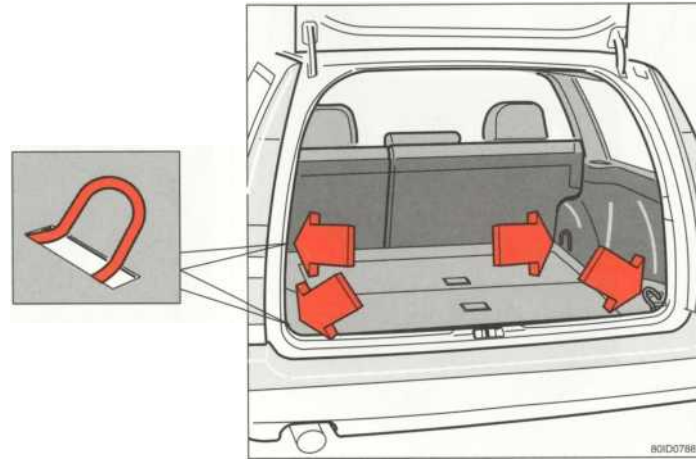
When putting it back, reverse the procedure.

WARNING!

Do not place heavy objects against the front seats as the backrest which is folded down is then placed under severe strain. Do not load luggage higher than the seat backrests to avoid luggage being thrown forward and injuring passengers in the car. All items should be secured in place.

Boot - 5-door model

Storage compartment in boot

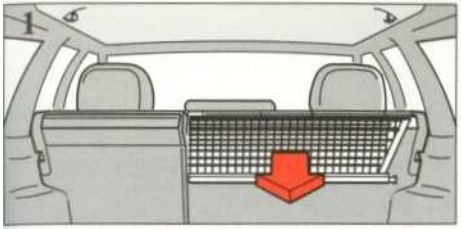


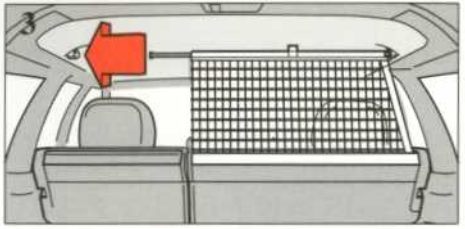
Anchorage eyelets in the boot

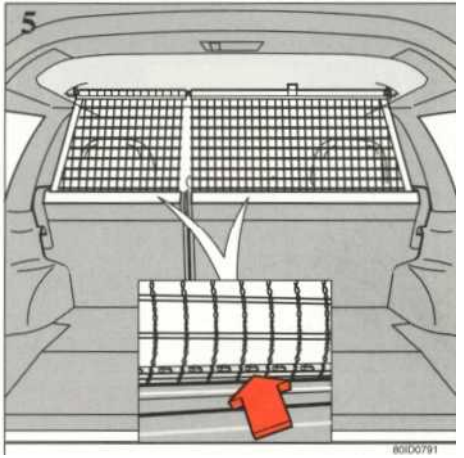
Anchorage eyelets

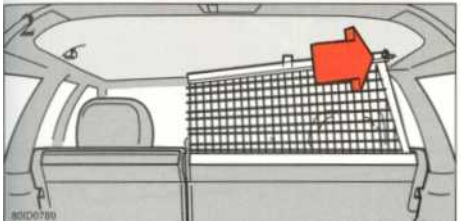
Always secure large or heavy loads to avoid the danger of injury during sudden braking or collisions. There are six eyelets which can be used for anchoring loads with rope or straps (four in the boot and two inside the cabin). Suitable straps and load nets are available at your Volvo dealer.

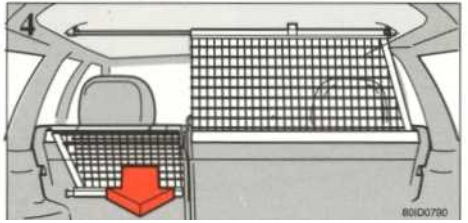
Make sure that the heating and antenna wires on the insides of windows cannot be damaged by objects placed near them. When cleaning the windows take care not to scratch the wires, e.g. with rings.











Load net (extra equipment)

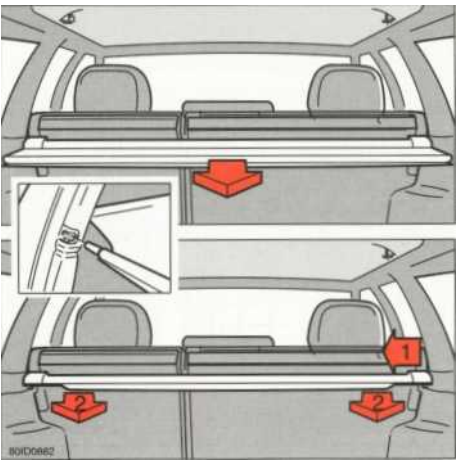
A load net is a useful accessory made of strong nylon mesh which unreels from the back of the rear seat.
The load net has to be positioned for use from the rear of the car.

Open the cover on the right seat back.
Pull out the load net towards you (1).
First hook the rod onto the mounting on the right side, then pull out the rod and hook it in place on the left side (2&3).
Pull out the left load net and attach to rod (4).
Note! Make sure that the net hooks properly onto the hooks under the rear door (5).

When putting away the net, reverse the procedure.

The load net can also be used when the rear seat is folded down, but then an accessory mounting on the entry hand grip must be used.

Luggage cover



Luggage cover (extra equipment)

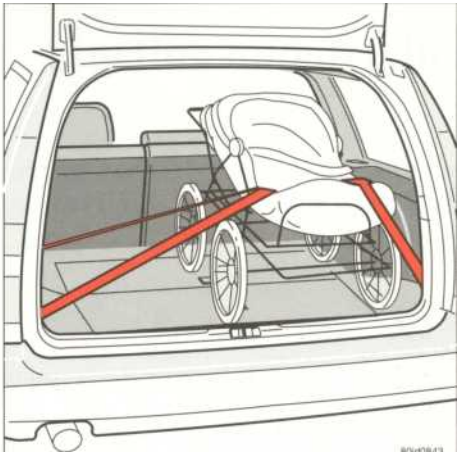
Pull out the luggage cover, pull it over the luggage and hook it into the holes in the rear pillars in the luggage compartment.

Removal of luggage cover:

- **Press in the right end of the luggage cover and disconnect it from the side panel**
- **Remove the luggage cover**
- **Install in reverse order.**

NOTE! Watch out for the aerial wiring when fitting and removing the luggage cover.

Cargo space 5-door model. Loading



Loading in loading area

Seat belts and airbags give driver and passengers good protection, especially in head-on collisions. However, there is also a risk of injury from behind. When loading the car, remember that objects not properly loaded and secured may move forward in collisions or when braking suddenly, causing serious injury.

Remember that a 20 kg object weighs the equivalent of 2,200 lb (1,000 kg) in a head-on collision at 30 mph (50 km/h).

Remember the following when loading the car:

- Load the cargo against the backrest.
- Load heavy cargo as low down as possible.
- Load wide cargo on either side of the rear seat split.
- Secure the cargo with cargo straps through the eyelets in the cargo space.
- If nobody is sitting in the rear seat reinforce the backrest by fastening the rear seat belts.
- Never load cargo above the backrest without a cargo net.

Starting and driving

This section on starting and driving contains items such as starting the engine, gear changing and towing:

Fuel filler flap

Filler cap

Refuelling (unleaded fuel)

The fuel filler cap is located behind the flap on the right-hand rear wing. Place the cap in the bracket on the inside of the flap when refuelling. Open the cap slowly during hot weather to release the fuel's vapour pressure.
After refuelling, screw on the cap until a click is heard. The fuel filler flap on your car is also part of the central locking facility (certain models only).
Emergency release for fuel filler flap, see page 5:17.
Your Volvo dealer can supply lockable fuel caps for all Volvo models.

A new car needs to be run-in

While your car is new, we recommend that you drive gently and refrain from using the car's full performance potential during the first 1200 miles (2000 km). From the time the engine is new until you have driven about 1200 miles (2000 km) the oil consumption could be as high as 1 litre. You should therefore keep this in mind and check the oil every time you refuel your car. Do not exceed the following speeds:

	During the first 600 miles (1000 km)	Between 600 miles (1000 km) and 1200 miles (2000 km)
1st gear	20 mph (30 km/h)	25 mph (40 km/h)
2nd gear	30 mph (50 km/h)	45 mph (70 km/h)
3rd gear	50 mph (80 km/h)	60 mph (100 km/h)
4th gear	70 mph (110 km/h)	80 mph (130 km/h)
5th gear/ overdrive	80 mph (130 km/h)	90 mph (150 km/h)

Do not drive at low speeds in top gear and avoid using the kick-down on cars with automatic transmission during the first 1200 miles (2000 km).

Use the correct petrol

A car equipped with a catalytic converter must always be driven on unleaded petrol, otherwise the catalytic converter will be damaged. The recommended octane rating is 95 RON.
Some petrol companies use cleaning additives in the petrol they sell. These additives reduce the risk of deposits building up in the engine; such deposits impair driveability and performance. If you are uncertain as to whether the petrol you buy contains additives, ask the service station attendants.
Note: Never add cleaning additives to the fuel yourself, unless an authorised Volvo workshop has expressly recommended you to do so.
Please consult your Volvo workshop if you intend driving in countries where it is difficult to obtain unleaded petrol or petrol with the appropriate octane rating.

Economical driving does not necessarily mean driving slowly

Driving economically means smooth driving at moderate speeds, avoiding flying starts and abrupt stops whenever possible. It also requires the driver to adapt driving technique to current traffic situations.
To drive your car as economically as possible, observe the following driving suggestions:

- Warm up the engine as soon as possible, i.e. do not let the engine tick over at idling speed after starting. Instead, drive off immediately using only moderate acceleration.
  A cold engine uses two to three times more fuel than a warm engine, and it is also subject to increased wear.
- Drive smoothly. Avoid racing starts and abrupt stops. This will save fuel.
- Maintain a moderate speed on highways and motorways.
- Avoid carrying unnecessary items (extra load) in the car.
- Remove the roof rack when you no longer need it.
- Do not open the side windows unnecessarily.
- If your car has automatic transmission, it will always change gear at the appropriate time; avoid unnecessary kick-down operation.

In addition, you should naturally keep the entire car, especially the engine, in good condition. Other factors which ensure good fuel consumption are:

- correct spark plug gap
- clean air filter
- correct engine oil, correct oil change interval + new oil filter
- brakes which do not drag
- correct front end alignment
- correct tyre pressures

Correct gear changing

Utilising the gears correctly will also improve fuel economy. Use the appropriate gears.

- Change from 1st to 2nd at approx. 10 mph (20 km/h).
  Change from 2nd to 3rd at approx. 20 mph (35 km/h).
  Change from 3rd to 4th at approx. 30 mph (50 km/h).
  Change from 4th to 5th/overdrive at approx. 45 mph (70 km/h).

However ...

Do not forget that the most important factor affecting fuel economy is you and the way you handle the accelerator, brakes and gear lever. The difference between driving correctly and incorrectly will be seen in the size of the fuel bill at the end of the year!

Starting the engine

Starting the engine:

- Apply the parking brake
- Move the gear lever to P (automatic transmission)
- Press the clutch pedal (manual gearbox)
- Do not touch the accelerator pedal
- Turn the ignition key to the starting position. Let the starter motor operate until the engine fires, but never for more than 5 seconds at a time.
  Note! Turbo for 10 seconds.

For better cold-starting performance, turn the key to position II and wait for one second so that fuel pressure can be built up. Then turn the key to the start position.

For cold starts at altitudes in excess of approximately 1800 m, you can assist the engine by pressing the accelerator pedal halfway to the floor at the same time as the key is turned to the start position. Release the accelerator pedal slowly once the engine starts up.

Never race the engine immediately after a cold start.
If the engine does not start or if it misfires, contact your nearest Volvo dealer.

Cars with catalytic converters may never be tow-started. Failure to observe this instruction may result in impairment of the catalytic converter.

CAUTION - CATALYTIC CONVERTERS

The catalytic converter normally has an operating temperature of several hundred degrees Centigrade. Do not park the car on inflammable material such as high grass which may be ignited by the catalytic converter.

Hydraulic tappets

This engine features hydraulic tappets which means that valve clearance is adjusted automatically. It is possible that the hydraulic valve tappets produce a ticking sound for the first few seconds after an engine is started, while the oil pressure is being built up. If the car has not been used for a long period of time, this ticking sound may be heard for up to 15 minutes, but this is entirely normal.
NB ! Do not exceed 3000 rpm until the ticking sound disappears.

Warm up the engine as soon as possible

After the engine has been started, it is important to try and reach normal operating temperature as soon as possible.
Drive off immediately under moderate acceleration; do not allow the engine to operate unnecessarily at idling speed.
Experience shows that engines in cars which have been driven for short distances with many stops are worn out exceptionally quickly. The reason for this is that these engines never have the opportunity to reach normal operating temperature.

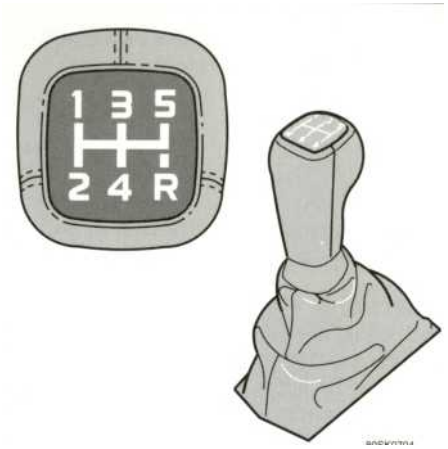
WARNING FOR CARBON MONOXIDE

Always open garage doors completely before starting the engine inside a garage.
Exhaust gases contain carbon monoxide, which is invisible and odourless but lethal.

TURBO WARNING!

When cold: do not race the engine immediately after starting as the oil is viscous and will not reach all lubrication points.

When switching the engine off: do not rev the engine before switching it off. Always switch it off from idling speed. This is so that the turbo compressor does not rotate for too long without oil pressure.



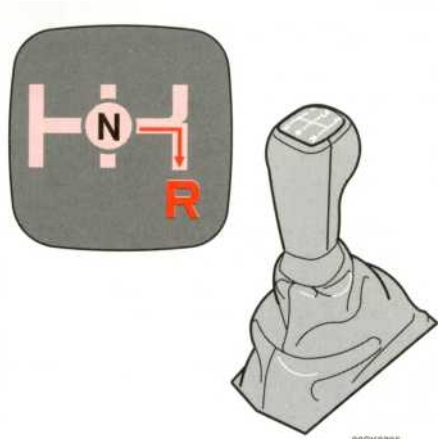
Gear positions

Gear positions, manual gearbox

Depress the clutch pedal fully when changing gear. Remove your foot from the clutch pedal while driving.

In order to obtain the best possible fuel economy, try to use 5th gear as often as possible ¡n highway driving at more than approx. 45 mph (70 km/h).

In order to avoid unnecessary wear and tear on the gearbox, follow the gear pattern on the gear lever. For instance, do not change directly from second to fifth gear.



Reverse gear inhibitor

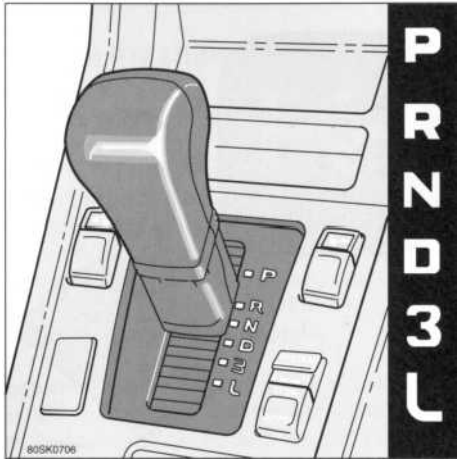
Reverse gear inhibitor

The gear lever must first be moved to neutral (between 3rd and 4th gear) in order to engage reverse gear. The gear selector is blocked so that it cannot be removed directly from 5th gear into reverse.

CAUTION!

Reverse gear should not be engaged if the vehicle is moving forward.

Automatic transmission



Gear positions

Gear selector positions

P Parking

Select this position when you start the engine or park the car.
Never leave the car with the engine running, because if anyone inside the car accidentally moves the gear lever out of the P position, the car may start moving.
The car should be at a complete standstill when you select position P!
In P, a mechanical device is activated in the transmission. It is still necessary to engage the parking brake when the car is parked on a slope!

R Reverse

The car must be at a complete standstill before position R is selected!

N Neutral

N is the neutral position. The engine may be started in this position since no gear is engaged. Engage the parking brake whenever the car is at a standstill and the gear lever is in position N.

D Drive

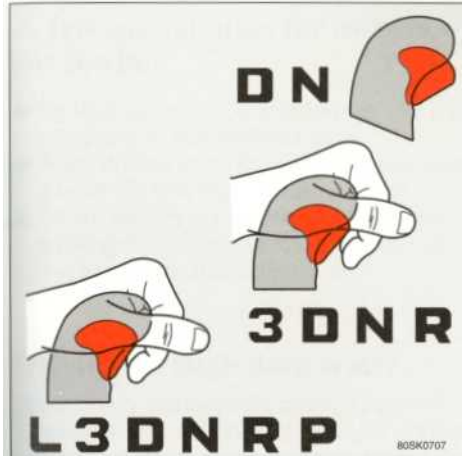
The normal driving position is indicated by D. When mode E or S is selected, the transmission makes use of all the gears automatically, changing up or down in response to acceleration and speed. The car should be at a complete standstill when position D is selected after R.

3 Low gear

Automatic changes up and down between first, second and third gears when the programme mode is set at E or S.
In this position the indicator lamp in the instrument panel lights up
There is no change up from third gear.
Position 3 may be used for driving in hilly terrain and for obtaining increased engine braking power.

L Low gear

The transmission does not change up in position L.
Select position L if you wish to drive in first and second gear and you do not wish to change up, for example if you are driving in hilly terrain since position L offers the best engine braking power. In this position the indicator lamp in the instrument panel lights up The transmission will make a very noticeable shift down from 2nd to 1st gear if road speed drops to below 30 mph (50 km/h).



The position of the selector knob

Gear selector catch

It is always possible to move the gear lever freely between N and D, whereas the other positions are protected by a catch which is released by pressing the knob on the top of the gear lever.

By pressing lightly on the knob with the palm of the hand, it is possible to move the lever freely between positions R, N, D and 3.

When the knob is depressed fully, it is also possible to select positions L and P. This full pressure is also required to move the lever from position P.

Mode selector

Mode selector

The push-buttons to the left of the gear lever are for selection of modes E, S and W.
All three modes can be selected while driving.
The selected alternative (S or E) is always retained in memory even when the engine has been switched off.

ECON Economy Mode

This is the normal mode. The transmission changes gears at a lower engine speed to achieve the best possible fuel consumption. If speed increases while you are driving downhill in D and you release the accelerator pedal, the transmission will automatically select 3rd gear*.

SPORT Sport Mode

This mode is adapted to "sporty" driving. The transmission changes up and down at higher engine speeds so as to offer maximum performance.

WINTER Winter Mode

This mode may be selected for starting/moving off in slippery road conditions.

**In position D, the transmission starts in 3rd gear and changes up to 4th gear.
**In position 3, 2nd gear is locked and the transmission does not change either up or down.
In position L, 1st gear is locked.

The indicator lamp in the instrument panel lights up when mode W is selected.
Press button W once more in order to disengage the Winter mode.
When mode W is disengaged or the ignition is switched off, the transmission automatically reverts to the previously selected S or E mode.
If the indicator lamp begins to flash, this is an indication of a fault in the automatic transmission. Please contact your Volvo dealer in such an event.

**Not the B5202S.*
***The kick-down facility is always available in these positions.*

Automatic transmission'

Kick-down

When you depress the accelerator pedal all the way to the floor, past the normal full acceleration point, the transmission automatically selects a lower gear to provide the kick-down facility.

When you reach the maximum speed for the gear now selected or if you release the accelerator pedal somewhat from the kick-down position, the transmission will automatically select a higher gear once more. Kick-down can be used to obtain maximum acceleration, for example when overtaking.

The transmission is equipped with a kick-down inhibitor which acts on all gears.

Lock-up

The automatic transmission has a "lock-up" function which reduces engine speed and saves fuel. The principle of lock-up is that the transmission torque converter is dis-enengaged when 2nd, 3rd and 4th gears are selected.

The lock-up function can sometimes be felt as an additional gear change.

Starting and stopping a car equipped with an automatic transmission

1 Move the selector lever to position P.

2 Start the engine with the ignition key.

3 Press the brake pedal and move the selector lever to the required position; the selected gear will be engaged after a slight delay. Engagement will be clearly felt - the car will start to pull somewhat.
The engine must operate at idling speed!
Never press the accelerator until you have felt the gear engage properly!
If you accelerate too soon after selecting a gear, engagement will be jerky and the transmission will be subjected to un-necessary wear.
Disengage the parking brake.

4 Release the brake pedal and accelerate.

The car is stopped in the simplest possible manner: release the accelerator pedal and apply the footbrake.

Move the gear selector lever to position P and engage the parking brake.

A few special hints for owners who use their cars for towing

- On long, steep hills, select position 3 or L if the transmission displays a tendency to hunt between gears.
- When driving down long, steep slopes, select position 3 or L. This will provide the best engine braking power.
- Do not attempt to keep the car at a standstill on an uphill slope by pressing the accelerator; use the brakes instead and avoid the risk of overheating the transmission oil.

Driving through deep water

Drive slowly and carefully through deep water (flooded roads).
The engine may be seriously damaged if water enters the air inlets and reaches electronic components. Do not drive through water deeper than one foot (30 cm).

Remember...

Certain turbo models have reduced ground clearance due to the low-slung design of the chassis, with a risk of scraping against kerbs or banks of snow.

WARNING!

Extra floormats in front of the driver's seat may catch on the accelerator pedal. Ensure that the accelerator pedal is not obstructed.

Do not overheat the engine and cooling system

Cooling system:
The possibility of the cooling system overheating increases, particularly in hot weather, if:
... you drive at full throttle and low engine speed up steep hills and with a trailer.
... the car idles with the air conditioning switched on.
... you switch off the engine directly after driving at high speed.
... you mount extra lamps in front of the grille.
Volvo recommends that you do not mount extra lamps in front of the grille on the 850 Turbo.

To avoid overheating:

- Reduce speed if you are towing a trailer up long, steep inclines.
- Switch off the air conditioner for a while.
- Do not allow the engine to idle unnecessarily.
- Do not switch the engine off immediately when you stop after hard driving.

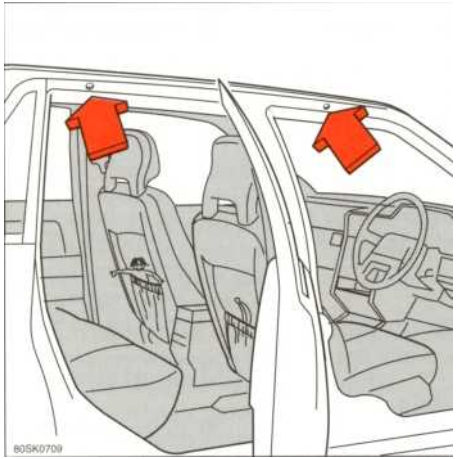
The engine:
Do not maintain an engine speed of over 4500 rpm if driving in hilly terrain with a trailer or caravan as this can raise the oil temperature abnormally.

Loading and handling

Roof racks

- Use a sturdy roof rack which can be securely fitted to the car roof. Your Volvo dealer can supply you with a roof rack which is specially developed for your particular Volvo model.
- Check regularly to ensure that the roof rack is securely fastened to the car.
- Do not load more than 220 lb (100 kg) on the roof.
- Spread the load evenly over the rack.
- Place the heaviest load at the bottom, nearest the car roof.
- Remember that the car's centre of gravity alters with the weight of the load on the roof rack, thus changing the driving characteristics.
- Bear in mind that the frontal area of the car increases with a roof-mounted load, thus increasing fuel consumption.
- Anchor the load securely using strong rope.
- Drive smoothly. Avoid rapid starts, hard cornering and abrupt stops.
- Remove the roof rack when it is no longer needed. This reduces wind resistance and improves fuel consumption.

Note: Roof racks and ski boxes are supplementary transport accessories intended for carrying lightweight cargo. Always place the heaviest load at the bottom and far forward in the car's cargo space. The distance between the roof rack supports is 800 mm and must not be altered (there is reinforcement in the roof). This means that some older ski boxes with a fixed distance between the roof rack supports cannot be used.



Holes for roof rack

Weight distribution affects handling

At the specified kerb weight your car has a tendency to understeer, which means that the steering wheel has to be turned more than seems appropriate for the curvature of the bend. This characteristic, together with excellent weight distribution, ensures good stability and reduces the risk of rear wheel skid. Remember that these properties can alter with the load. The heavier the load in the boot the smaller the car's tendency to understeer. Make sure you do not exceed the car's maximum laden weight or maximum axle weight.

Handling, roadholding and tyres

Tyres play an important part in the handling and roadholding of a car. The type of tyre (radial), size and pressure are important for proper handling. When fitting new tyres, it is therefore very important to fit tyres of the same size and type (and preferably same make) as those previously fitted, and follow the recommendations concerning tyre pressure on 4:3.

Do not drive with the boot open

If you drive with the boot open, exhaust gases (including carbon monoxide) may be drawn into the car. If you are forced to drive for a short distance with the boot open, do as follows:

- Shut all windows
- Shut the sun roof
- Set the heater control to  and switch the fan to full speed, 4.

Hints for owners of caravans and trailers

- **Only approved towing brackets should be used.**
  In order to maximise the strength of the towing eyelet, reinforcements must be mounted on the rear side member.
  Information on approved types can be obtained from your Volvo dealer. The Volvo-designed towing brackets have been tailor-made for your particular Volvo model and any Volvo dealer will assist with installation. To avoid unnecessary wear, clean the towing bracket regularly and grease the towbar ball* and towbar ball pin on detachable towing brackets).
  Note: Bear in mind that the bumpers are designed to absorb impacts and consequently should not be used to mount towing brackets.
- **Your car can be equipped with Nivomat, an automatic level regulating system attached to the rear suspension and whose function it is to compensate for load variations. The Nivomat system operates when the vehicle is in motion. When the engine is switched off, the rear of the vehicle will droop if you are carrying a lot of luggage in the boot or if the vehicle is hitched to a caravan or trailer, but as soon as you start driving the Nivomat system will pump up the rear suspension to the most suitable level.**
- **Increase tyre inflation pressure to the appropriate level for full load. Refer to the table on 4:3 or the rear cover of this owner's manual.**
- **Note that current for the trailer socket cannot be taken from just anywhere in the car's electrical system as this could cause the bulb failure warning system to operate.**
- **Do not tow a heavy trailer when your car is completely new. Wait until it has been driven at least 600 miles (1000 km).**
- **Brakes are subject to considerable strain on long, steep descents. Change down to a lower gear and adjust your speed.**
- **For cars with automatic transmission, refer to 3:9 for further special instructions.**

***Does not apply when using a ball socket with a built-in swing damper.**

- **As the engine is under greater strain when towing a trailer the oil must be changed more often, see page 7:7.**
  Remember that the cooling system and engine can overheat if they are put under more strain than usual, see page 3:9.
- **The maximum permitted trailer weight for an unbraked trailer is 1500 lb (700 kg).**
- **The maximum permitted trailer weight for a trailer with brakes is 3500 lb (1600 kg), at a maximum speed of 50 mph (80 km/h). If you live in a hot climate the trailer weight must not exceed 3200 lb (1500 kg).**
  Note: the above max. weight and speed limits are imposed by VOLVO CAR CORPORATION.
  Bear in mind that national legal requirements may limit both weight and speed even further.
- **Distribute the load in the trailer so that the weight acting on the towing bracket is approx. 110 lb (50 kg) for trailers up to 2600 lb (1200 kg) and 165 lb (75 kg) for trailers above 2600 lb (1200 kg). Note that the weight of the towing bracket (50/75 kg) is included in the permitted load and that the load in the boot may have to be reduced so that axle loads and/or total weight are not exceeded when towing a trailer.**
- **Avoid driving with trailer weights in excess of 2600 lb (1200 kg) on inclines which are steeper than *12%*.**
  Inclines of 15% and more should not be negotiated with a trailer. The load on the driven front wheels may be so low that they begin to spin and make further progress impossible.
  It is not always possible to keep the car and trailer at a standstill with the sole help of the handbrake, with the result that the wheels may begin to slip on the road surface.

WARNING!

Observe the towing recommendations carefully. Otherwise your car may become very difficult to steer and control, placing your safety and that of other road users at risk.

A warning light will indicate a brake circuit failure

The brake pedal will depress more than normal and some extra pressure will be required for normal braking.
If the warning light comes on, stop immediately and check the fluid level in the brake reservoir (its location is described on 7:8). If the fluid level is below MIN in any part of the reservoir, do not drive any further and have the car towed to a dealer for inspection and repair of the leakage.

Moisture on the brake discs and brake pads may affect braking

Driving in heavy rain and slush or passing through an automatic car wash may cause water to collect on the brake discs and pads. This will cause a delay in braking effect when the pedal is depressed. In such situations it is therefore advisable to lightly depress the brake pedal now and again while driving. The heat that is generated will then evaporate any moisture on the brakes.
This should also be done after washing or starting the car in very damp weather.

The brake servo functions only when the engine is running

If your car is being towed or is coasting to a halt with the engine switched off, you will have to depress the brake pedal approximately four times harder than normal because the brake servo is inoperative.

The brake pedal feels stiff and hard.

Severe use of the brakes

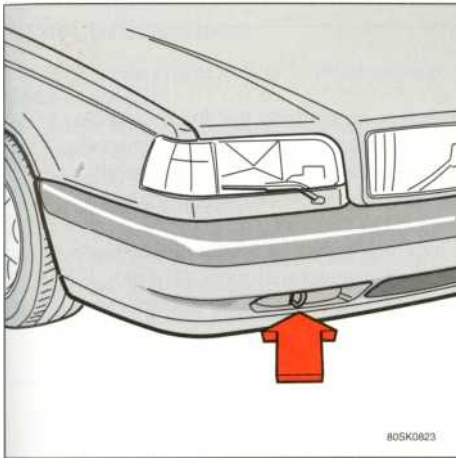
When driving in mountainous areas, the brakes can be subjected to extremely severe loads even if you do not depress the brake pedal particularly hard. Since the car's speed is also quite often very low, the brakes are not cooled as efficiently as when driving on level roads. In order to avoid placing an excessive strain on the brakes, you should always engage a lower gear, using the same gear to descend as you would to ascend the hill. In cars with automatic transmission, engage position 3 or possibly L. In this way, the braking power of the engine is more effectively utilised and it is only necessary to use the footbrake now and again.
Do not forget that if you are towing a caravan or trailer, the brakes will be subjected to more load than normal.

ABS brakes

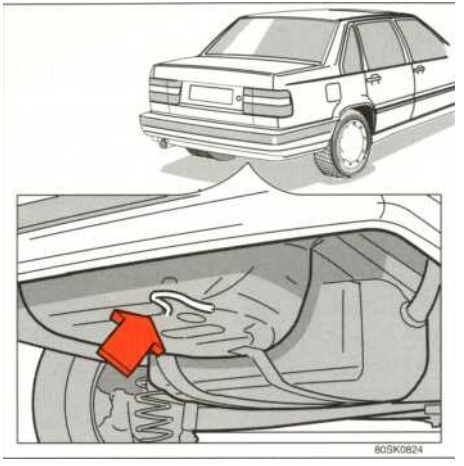
ABS brakes are designed to help prevent brake lock-up under severe braking conditions. The system "senses" when the brakes begin to lock, redistributes the brakes pressure automatically and thereby prevents the wheels from locking.

The ABS system in your car performs a selfdiagnostic test when the vehicle reaches a speed of approximately 20 mph (30 km/h). The brake pedal will pulsate several times and a sound will be audible from the ABS control module. This is normal.

When the system is activated during braking you will feel vibrations in the brake pedal and also hear these pulsations clearly. This is also quite normal.
Do not release the brake pedal when you hear and feel that the ABS system is functioning.
You must depress the brake pedal fully for optimum effect but the ABS system does not increase the total braking capacity of your car. However, it does enable you to steer the car while braking, thus increasing your control and thereby improving the safety of your vehicle.



Towing eyelet front



Towing eyelet rear

Caution! A car with automatic transmission cannot be tow-started! A car with catalytic converter may not be tow-started.
Failure to observe this may result in impairment of the catalytic converter.
If your car has a flat battery, use a car with a charged battery to start your engine. Instructions are on the following page.

The following precautions should be taken if your car has to be towed:

- Unlock the steering wheel so that the car can be steered.
- Bear in mind the maximum speed limit for towed vehicles.
- Remember that with the engine switched off, the brake and steering servo will not work.
- Approximately four times greater brake pedal pressure will be required for braking. In addition, the steering will feel heavier than normal.
- Drive as smoothly as possible. Try to keep the tow line taut so as to avoid unnecessary jerking.

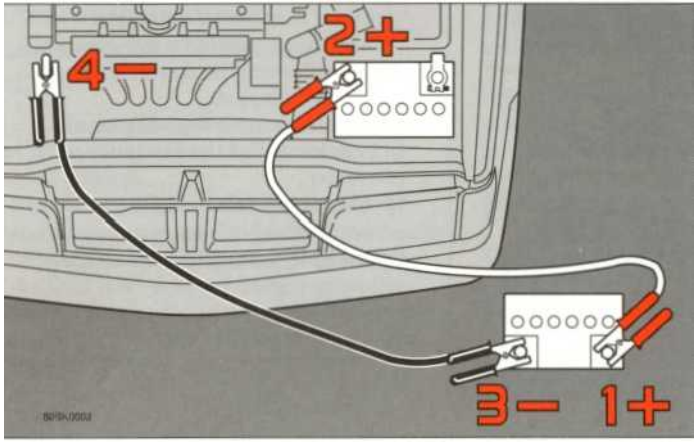
Special instructions for automatic transmissions

- The gear selector has to be in N.
- The highest permitted towing speed is 10 mph (20 km/h). Longest permitted towing distance is 20 miles (30 km).
- The engine cannot be bump-started or tow-started. Refer to the following page for jump starting instructions.

Towing

NOTE! Towing eyelets should only be used for towing the car on the road. They must not be used for towing cars out of ditches, when professional help should be called.

Jump starting



Jump start the car as follows:

If the battery in your car is flat for any reason, you can either use a fully charged spare battery to start your engine or you can "borrow" current from another car's battery. Always check that the clips are attached securely so as to avoid any risk of sparks.
To avoid any risk of explosion, the following procedures are to be followed:

- Check that the battery from which you are borrowing current is a 12 Volt battery.
- If you are using jump leads from another car, stop that car's engine and make sure that the two cars do not touch each other.
- First connect the positive terminals (red battery lead or + sign) of the two batteries using the red jump lead (I and 2 in the diagram above).
- Attach one clamp from the black jump lead to the donor battery's negative terminal, marked with blue, N or a - sign (3).
- Connect the other end of the black lead to a suitable earth point in your car, as far as possible from your own battery. Use for example one of the engine lifting eyelets, no. 4 in the diagram.
- Start the engine of the donor car. Let the engine run for about 1 minute at a higher idle speed than normal, about 1500 rpm.
- Start the engine of the car with the dead battery.
  Note: Do not touch the jump leads or their connections while the engines are being started (risk of sparks), and do not lean over either of the batteries!
- After the car has started, remove the jump lead clamps in the reverse order.

WARNING!

Remember that the batteries, particularly the donor battery, generate hydrogen gas which is explosive. One single spark, which can be created if you attach the batteries incorrectly, is all that is needed for the batteries to explode, causing personal injury and damage to property.
The battery contains sulphuric acid which can cause serious burns. If the acid comes into contact with eyes, skin or clothes, flush with plenty of water. If eyes are affected, seek immediate medical attention.

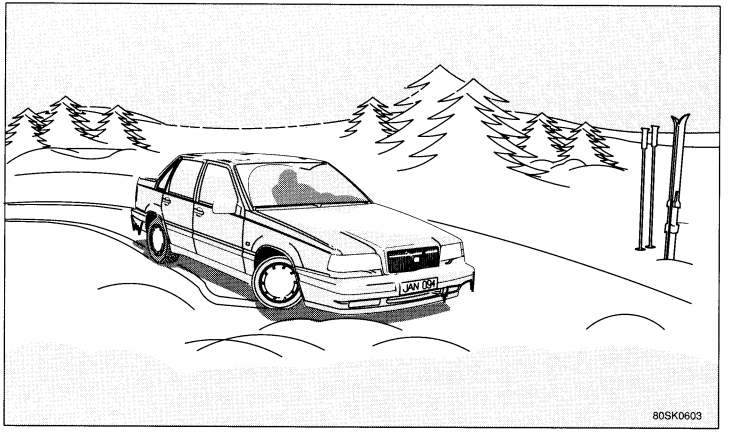
Battery

The battery contains acid which is both corrosive and toxic. It is therefore of great importance that the battery is handled in an environmentally safe way. Consult your Volvo dealer.

Frost precautions

Here are some points to bear in mind when checking your car before the onset of winter:

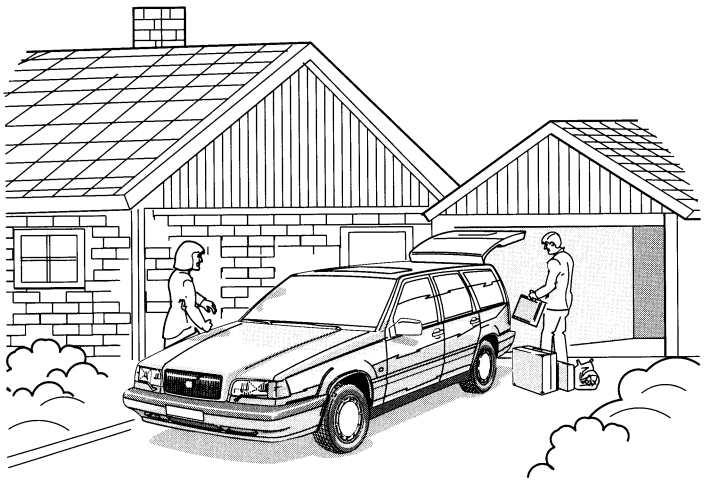
- **Make sure that the engine coolant is of the correct blend to cope with -35 °C without freezing, i.e. that the anti-freeze content is at least 50% or 3.6 litres Volvo original anti-freeze. Use only Volvo original anti-freeze.**
  More information on anti-freeze is to be found on 7:10.
- **Try to keep the fuel tank as full as possible so as to prevent the formation of condensation in the tank.**
- **Use the correct engine oil. The viscosity of the engine oil is of considerable importance.**
  Oil with lower viscosity (thinner oil) makes cold starting easier and reduces fuel consumption while the engine is warming up. For winter use, provided the temperature limits are observed, 5W/30 oil, particularly the synthetic type, is recommended. Be sure to use good quality oil but do not use this cold-weather oil for hard driving in warm climates. See 7:7 or ask your Volvo dealer for more information.
- **The battery is subjected to a far greater strain in the winter since the heater, windscreen wipers, lighting etc. are used more often. Moreover, battery capacity decreases as the temperature drops. In very cold weather, a poorly charged battery can freeze and be rendered useless. It is therefore advisable to check the state of charge more frequently and spray an anti-rust oil on to the battery terminals.**
- **To prevent the reservoir, hoses and nozzles of the windscreen/ headlight washer system from freezing and to avoid damage to the washer pump, add washer solvents containing de-icer. This is most important since dirt is often splashed onto the windscreen and headlights during winter driving, thus requiring frequent use of the washers and wipers.**
- **Use Volvo Teflon lock spray or grease in the locks. These items can be purchased from your Volvo dealer. Note: avoid the use of de-icing sprays since these can impair the locking function.**
- **When driving in temperatures below 15T (-10 °C), we recommend the use of Volvo's radiator guard to help the engine reach normal operating temperature as quickly as possible. This guard should not be used when towing a trailer.**



Long distance trips

Before a long distance trip

It is always worthwhile thoroughly checking your car before driving long distances. Your dealer will also be able to supply you with spare bulbs, fuses and wiper blades to take on your journey.



When you check your car, the following are worth noting:

- **Check that the engine runs smoothly and that the fuel consumption is normal.**
- **Check the engine and gearbox for signs of oil, coolant and fuel leakage.**
- **Check the levels of the various fluids in the engine compartment.**
- **Check the condition of the drive belts.**
- **Check the state of charge of the battery.**
- **Examine the tyres carefully, including the spare.**
- **Check the brakes.**
- **Check the lighting.**
- **Warning triangles are required by law in some countries. Check that your car is equipped as necessary.**
- **Before travelling to countries with traffic on the other side of the road, the headlights should be adjusted to avoid blinding oncoming traffic. Cover the triangular section of headlight lens with black tape.**
- **Please consult your Volvo dealer if you intend driving in countries where it is difficult to obtain unleaded petrol or petrol with the appropriate octane rating.**

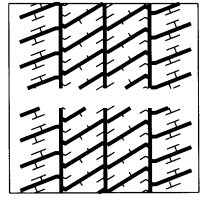
Wheels and tyres - important to the car's driveability

The handling and riding comfort of the car can vary considerably depending on the inflation pressure and the type of tyres fitted. Read the following pages carefully.

Tread wear indicators, winter tyres, special wheel rims

Tread wear indicators

A tread wear indicator is a section of the tread with a shallower groove and is incorporated into each tyre. The tyre should be changed as soon as this section becomes clearly evident, thus showing that only 1.6 mm tread thickness is left. Tyre treads below 1.6 mm have very poor grip in rain or snow.



Wear indicator exposed. Tyre is worn. Replace.

How to improve tyre economy

- Maintain correct inflation pressure.
- Drive smoothly. Avoid fast starts, hard cornering and heavy braking.
- Remember that tyre wear increases with speed.
- If you are rotating the wheels keep them on the same side as they were so that they revolve in the same direction as prior to rotation.
- Correct wheel alignment is very important.
- Balance the wheels if necessary.
- Do not scrape the tyres against the kerb when parking.

Flat spots

All tyres become warm during use. On cooling, when the vehicle is parked, the tyres have a tendency to distort slightly forming flat spots. These flat spots can cause vibrations similar to the vibrations caused by unbalanced wheels. They do however disappear when the tyre warms up. The tendency to form flat spots depends on the type of cord used in the tyre. Remember that in cold weather, it takes longer for the tyre to warm up and thus longer for the flat spot to disappear.

Snow tyres, tyre chains

In winter, we recommend that you use *185/65* R15 winter tyres on steel rims (includes 850 turbo).
Use winter tyres on all four wheels.
NOTE! Certain wheel rims from other Volvo models may be used. Ask your Volvo dealer for further information.

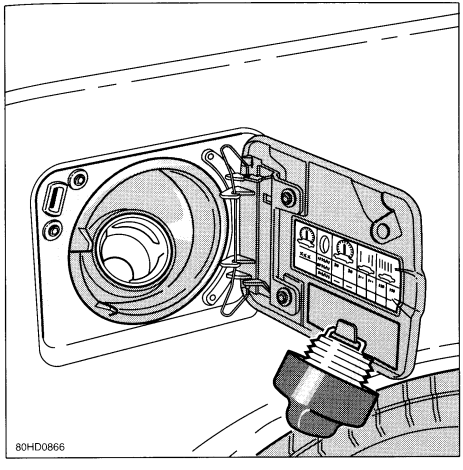
Studded tyres should be run-in for 300-600 miles (500-1000 km) during which the car should be driven as smoothly as possible to give the studs the opportunity of embedding properly in the tyres. The car tyres should have the same rotational direction throughout their entire lifetime. In other words, if you wish to switch the wheels around, make sure that the same wheels are always on the same side of the car.

Snow chains may only be fitted on the front wheels and only in combination with certain Volvo approved wheel/rim combinations. The chains must have fine links and they should not project markedly from the tyres as this could cause them to scrape against the brake calipers, spring strut or other components.
To avoid this, we do not recommend the use of conventional snow chains on 205/55 R15, 205/50 R16 tyres or tyres of the same width or wider. Volvo has approved snow chains for all Volvo approved wheel/rim combinations, with the exception of 17" rims.
Note: Never exceed 30 mph (50 km/h) if snow chains are fitted.
Do not drive with snow chains on bare road surfaces since this causes considerable wear on both the snow chains and the tyres.
Never use grip links since the space between the brake discs and the wheel rims is inadequate.

CAUTION!

Special wheel rims
The only approved "special wheel rims" are those which have been tested and approved by Volvo. Ask your Volvo dealer if in doubt.

Inflation pressures and tyre wear



Tyre pressure label

Inflation pressure is of great importance!

Check tyre inflation pressures regularly. The correct tyre pressures are shown in the label located on the inside of the fuel filler flap and in the table on the right. These pressures apply for both summer and winter tyres.

Incorrect tyre pressures adversely affect the handling and ride of the vehicle and cause rapid wear.

Note that the temperatures shown in the table refer to cold tyres (current outside temperature). The tyres warm up after just a few kilometres and their inflation pressure rises. This is perfectly normal and you should not reduce tyre pressure if you happen to check the tyres while they are still warm. However, you should nevertheless increase tyre pressure if it is too low.

Bear in mind that inflation pressure can also be affected by the outside air temperature; it is thus best to check your tyre pressures outdoors while the tyres are cold.

Cold inflation pressures in kPa

The figures in brackets indicate lbs/sq. inch (psi)

Tyre dimension		mph (km/h)	1-3 occupants		Full load, towing	
			Front	Rear	Front	Rear
185/65 R 15 195/60 R 15 205/55 R 15	sedan	0-100 (0-160)	220(32)	200(29)	230(33)	250(36)
		100- (160-)	250(36)	250(36)	280(41)	280(41)
	estate	0-100 (0-160)	220(32)	210(30)	240(35)	280(41)
		100- (160-)	250(36)	250(36)	260(38)	310(45)
205/55 R 15 205/50 R 16 185/65 R 15 *	sedan Turbo	0-100 (0-160)	230(33)	210(30)	250(36)	250(36)
		100- (160-)	280(41)	260(38)	290(42)	290(42)
	estate Turbo	0-100 (0-160)	230(33)	220(32)	250(36)	280(41)
		100- (160-)	280(41)	270(39)	290(42)	320(46)
Spare tyre T115/70 R 15 "Temporary spare"		0-50 (0-80)	420(60)	420(60)	420(60)	420(60)

***Winter tyres only**

General information

General information regarding wheels and tyres

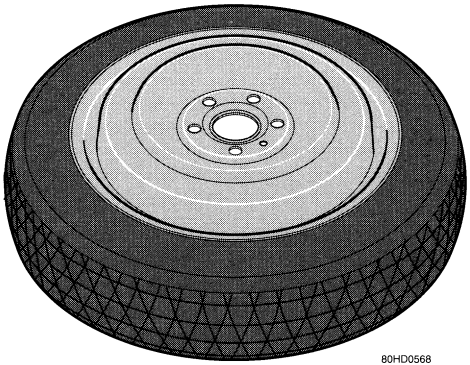
The type designation is stamped onto the side of the tyre, e. g. 195/60R 15 87V. This designation is coded as follows:

195 tyre width in mm
60 tyre profile. Ratio between section height and tyre width, expressed as a percentage
R radial tyre
15 tyre inner diameter in inches
87 code number for maximum tyre load, in this case 1200 lb (545 kg)
V speed rating, in this case indicating that the tyre is approved for a maximum speed of 150 mph (240 km/h).

These tyres have good road-holding characteristics and they offer very safe handling on dry and wet surfaces, even at high speeds. It should be noted, however, that the tyres have been developed to offer these features on snow-free surfaces. For optimum road holding on icy or snow-covered roads, we recommend Volvo winter tyres.
When replacing a tyre, be sure that the new tyre is of the same type (radial), dimension or designation and preferably also of the same make as the other three, otherwise there is a risk that the roadholding characteristics of the car may be altered. Your Volvo dealer can supply tyres which are specially designed for your particular model of car.

Bear in mind when changing wheels

Always use a chalk marking to indicate the position of the standard wheels before fitting winter tyres (i.e. front left, front right etc.).
Each rim features an extra hole which has to be aligned with the guide stud located on the brake disc.
This guide stud ensures that the wheel is always fitted in its exact original position if it has to be replaced for any reason, such as a tyre change or puncture repair. Exact alignment guarantees excellent wheel balance.
Tyres should be stored hanging or lying, never standing.



"Temporary spare" tyre on steel rim

"Temporary spare" (certain markets only)

Experience shows that the spare tyre is seldom used nowadays. It may lie unused for 4 or 5 years before it is brought out and used as a road tyre for another 4 or 5 years. It is not advisable to use such an old tyre since rubber ages. For this reason, Volvo has developed a new type of spare tyre which is only intended to be used for the short period during which the standard tyre is being repaired or replaced.
This special spare tyre is known as the Temporary spare. It has the following designation: T 115/70 R 15. It weighs less than half a conventional tyre. Tyre inflation pressure should be 420 kPa (60 psi) irrespective of the load in the car and the axle to which the tyre is attached. This tyre meets all existing legal requirements and it is strong enough to cope with the maximum permitted axle load. If this tyre is destroyed, you can purchase a new replacement from your Volvo dealer.

Note: The temporary spare may only be used as a temporary replacement for a wheel with a flat tyre and must be replaced as soon as possible with a standard tyre.
Only one wheel of this type may be fitted to a car at any time. Remember also that this tyre used in combination with standard tyres may have an effect on the handling of the car. The permitted maximum speed using a temporary spare is therefore 50 mph (80 km/h), although the tyre itself is suitable for higher speeds.

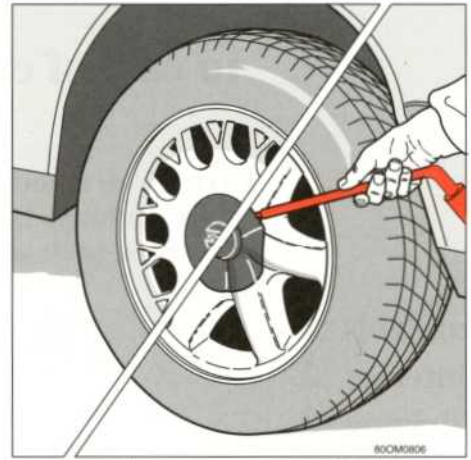
In case of emergency...

Even if you maintain your car in good running order, there is always the possibility that something may go wrong such as a puncture, blown fuse or bulb etc.

Changing wheels

Undo the wheel bolts

The spare wheel is located under the carpet in the boot floor. The jack and crank are secured inside the wheel recess.
Don't forget to correctly display the warning triangle, which is stored in the boot.



Insert the socket spanner and twist

Apply the parking brake and engage 1st gear or reverse gear (manual gearbox) or P (automatic transmission). Place chocks in front of and behind those wheels which stay on the ground.

On cars with aluminium rims and a cover, remove the cover using a socket wrench.

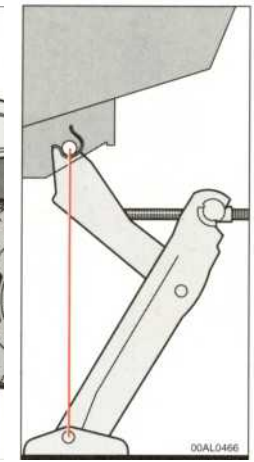
Pull the hubcap straight off

Cars with steel wheels have a detachable hubcap.
Remove as follows: grip with both hands and pull straight out. When fitting the hubcap, ensure that its hole for the valve is aligned with the tyre valve.

Undo the wheel bolts

Loosen the wheel bolts 1/2-1 turn with the socket spanner. The bolts are loosened by rotating the tool anti-clockwise.

There is a jack attachment located in the middle on each side of the car. Pull out the handle and press it down to release the crank. Position the jack on the stud in the jack attachment as shown in the diagram.



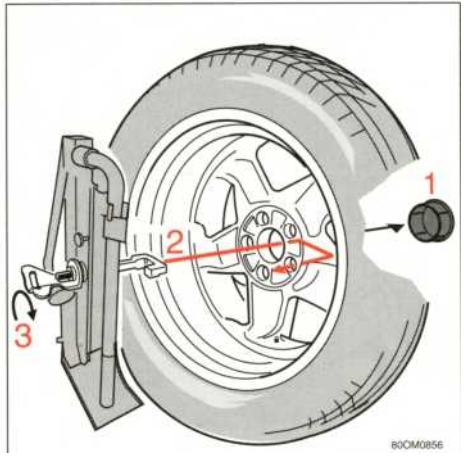
Stand next to car

NB! Crank the jack base down until it lies flat against the ground. Check once again that the jack is inserted into the attachment point as in the diagram and that the base plate is horizontal under the attachment.

Jack up the car until the wheels are clear of the ground.

Remove the wheel bolts and lift off the wheel. Take care not to damage the threads on the wheel bolts.

Changing wheels



Securing the jack to the rim (certain models)

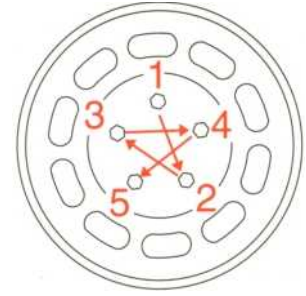
WARNING!

- The jack should stand on firm level ground.
- Never crawl under the car when it is raised.
- The jack supplied with the car should always be used when changing wheels. Axle stands or a garage jack must be used in all other cases.
- Apply the parking brake, engage first or reverse gear (manual) or position P (automatic).
- Place chocks in front of and behind the wheels still on the ground. Use thick wooden blocks or large stones.
- The jack should be kept well greased.

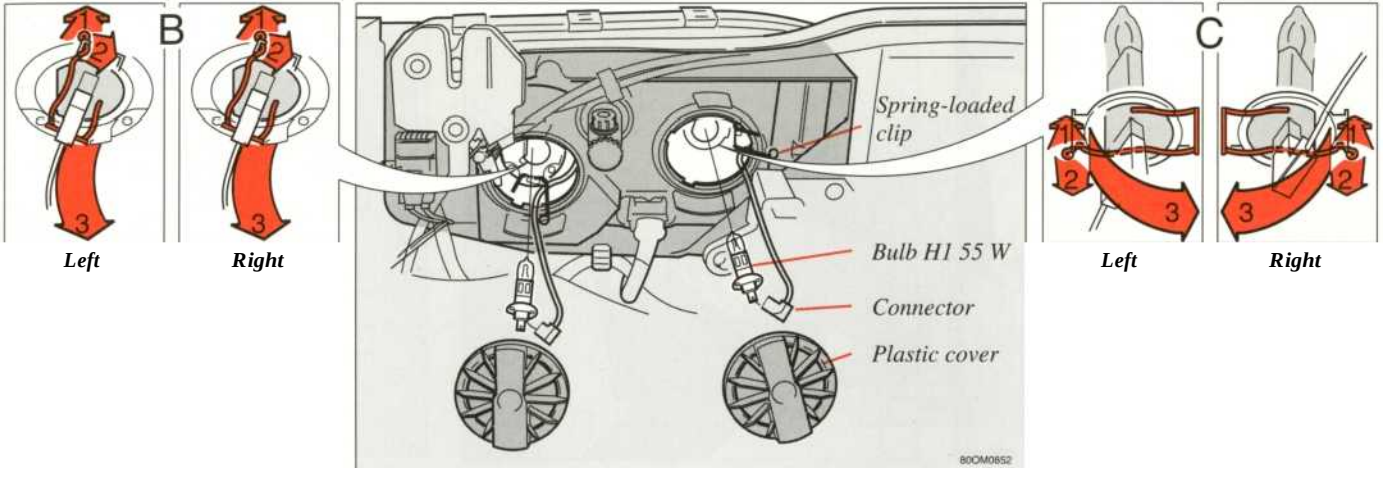
Fitting

- Clean the mating surfaces of the wheel and hub.
  NOTE! Do not grease wheel bolts.
- Mount the wheel, aligning the small guide stud on the brake disc with the extra hole in the wheel. Refit the wheel bolts.
- Lower the car so that the wheel cannot rotate. Tighten the wheel bolts diagonally a little at a time. Tightening torque 110 Nm (11.0 kpm). It is important to get the correct torque so check using a torque wrench
- Refit the hubcap. The symbol on the rear of the hubcap should face towards the tyre valve. (Applies to steel wheels).
- Always secure the jack and crank according to the diagram in the boot to prevent them from rattling.

NOTE! Long, chromed wheel bolts must not be used with steel rims.



Tighten wheel bolts diagonally



Left-hand lamp housing (right-hand housing is reversed)

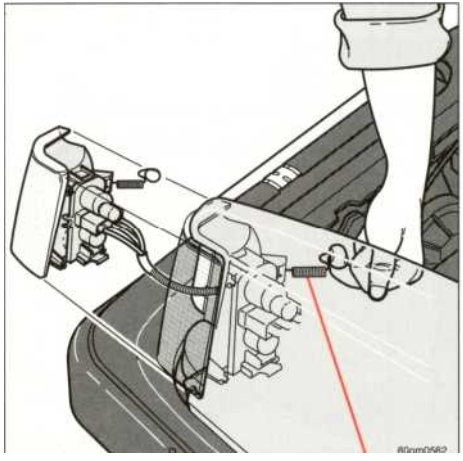
Headlight bulb replacement

Bulbs are replaced from the engine compartment.

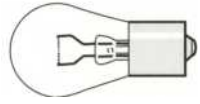
Note! Do not remove the connector before the bulb has been removed from the lamp housing! Never touch the glass of bulbs. Grease and oil from your fingers give off fumes when heated and coat the reflector, quickly ruining it.

- **Switch off the lights and turn the ignition key to position 0!**
- **Open the bonnet.**
- **Turn the plastic cover anti-clockwise and remove it.**
- **The bulb on the right-hand side is replaced more easily if the diagnostic unit and the pipe (A) are removed.**
- **B: Press the spring-loaded clip towards the headlight housing glass (1) and move it to the side (2). Then press the clip down (3).**
- **C: Press the spring-loaded clip towards the headlight housing glass (1) and move it downwards (2). Then press the clip to the side (3).**
- **Remove the bulb and connector.**
- **Disconnect the connector.**
- **It is important that the connector is correctly connected to the bulb. See illustration. Insert the new bulb without touching the glass with your fingers.**
- **Refit in reverse order to remove.**
- **Check that the bulb works.**

Replacing bulbs



Parking light
1-pin bulb
5W BA 15s

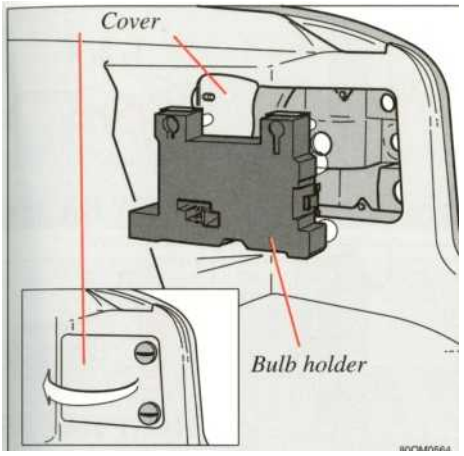


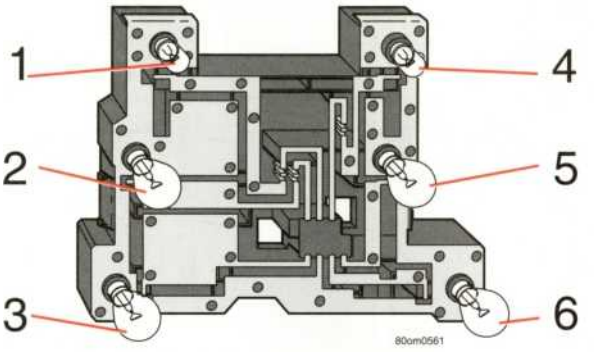
Direction indicator
1-pin bulb
21 W BA 15s

Spring ***Light housing*** ***Bulb holder***

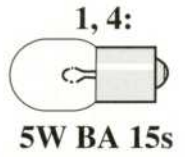
Replacing bulbs in front corner housing

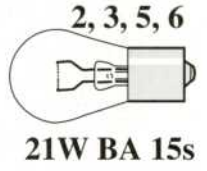
- **Switch off the lights and turn the ignition key to position 0.**
- **Open the bonnet.**
- **Loosen the spring which retains the light housing.**
- **Withdraw the entire light housing; separate the bulb holder from the light unit.**
- **Leave the connector with its wires in the bulb holder.**
- **Remove the bulb from the bulb holder by pressing in and turning it anti-clockwise.**
- **Insert a new bulb and refit the bulb holder in the light unit. Check that the bulb works.**





Bulb location in the bulb holder





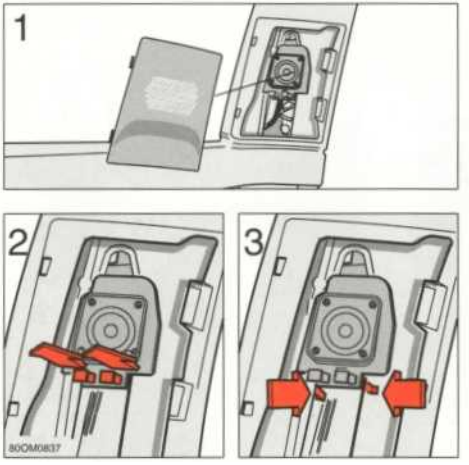
Replacement of rear light unit bulbs (4-door)

1 Tail light
2 Direction indicator
3 Brake light
4 Tail light
5 Reversing light
6 Rear fog light

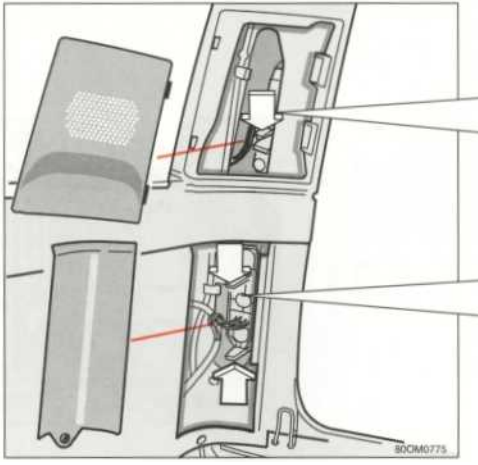
All the bulbs in the rear light unit are replaced from inside the boot. Do as follows:

- Switch off the lights and turn the ignition key to position 0.
- Open the rear light cover. The cover is secured by two twist clips.
- Loosen and remove the bulb holder. The bulbs are located in the bulb holder.
- Let the connector with its wires remain attached to the bulb holder.
- Remove the bulb by pressing in and turning a few mm anti-clockwise.
- Insert a new bulb into the bulb holder and replace the holder. Check that the bulb works. Refit the cover.

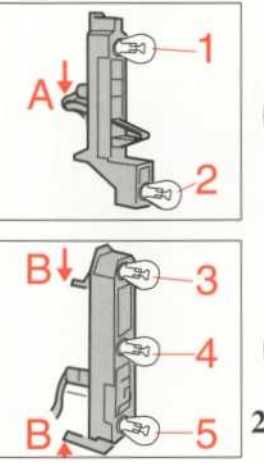
Replacing bulbs

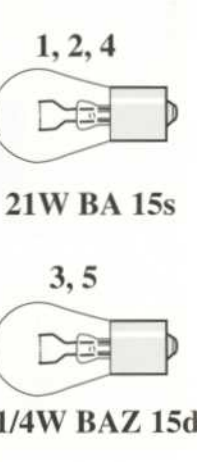


*Speaker**



Lamp location, right side





Bulb location in the bulb holder

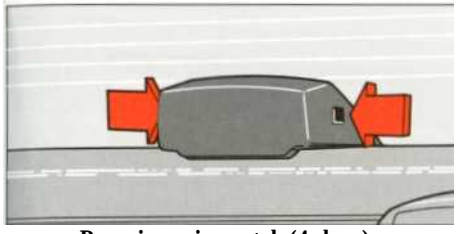
Replacement of rear light unit bulbs (5-door)

1 Direction indicator
2 Brake light
3 Tail light
4 Reversing light
5 Tail light/ Rear fog light

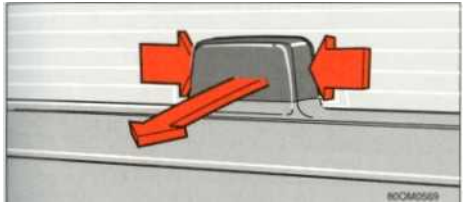
All the bulbs in the rear light unit are replaced from inside the boot.
Procedure:

- **Switch off the lights and turn the ignition key to position 0.**
- **Remove the upper cover from the light unit, using a srewdriver. Remove the lower cover by taking off the side panel first and then the cover.**
- **Remove the speaker* in the upper cover.**
- **Press in the plastic catches (A or B) and take out the bulb holder. The bulbs are located in the bulb holder.**
- **Leave the connector and cables connected to the bulb holder.**
- **Remove the bulb by pressing it inwards and turning it a few millimetres anti-clockwise.**
- **Insert a new bulb into the bulb holder and replace the holder. Check that the bulb works and refit the cover.**

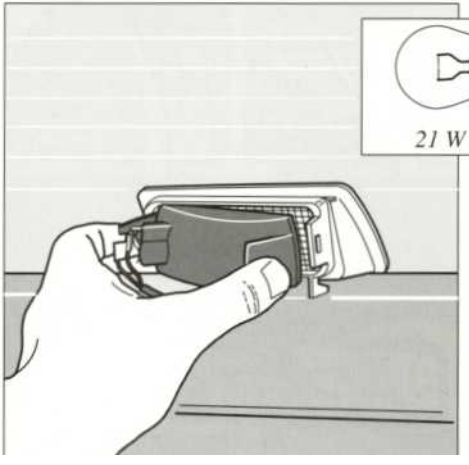
***extra equipment**



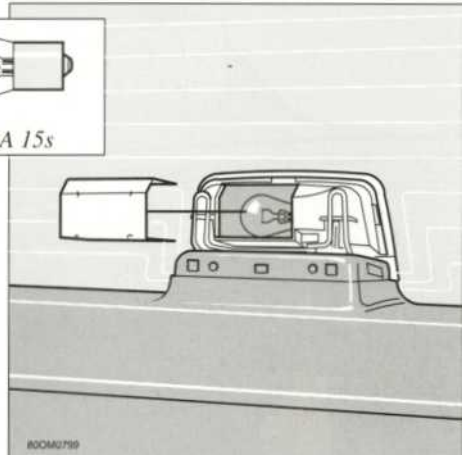
Press in spring catch (4-door)



Pull backwards/downwards (5-door)



Press in the catches (4-door)



Remove the protective plate (5-door)

High-level brake lights (certain markets)

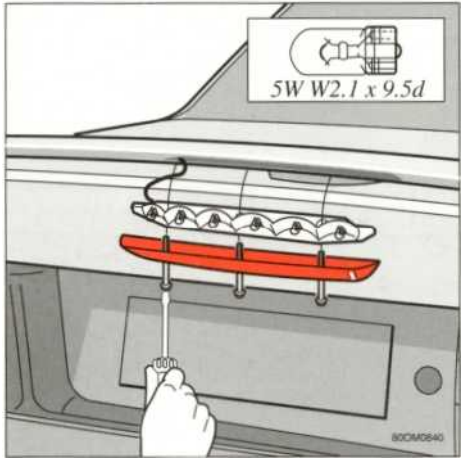
4-door model

- Turn the ignition key to position 0.
- Press in the two catches.
- Pull the cover backwards.
- Press in the catches on the reflector.
- Replace the bulb.
- Refit the reflector. Check that the light works before refitting the cover.

5-door model

- Turn the ignition key to position 0.
- Use both hands to grip the sides of the cover and pull the cover backwards/downwards.
- Remove the protective plate.
- Remove the bulb by pressing inwards and turning a few millimetres anti-clockwise.
- Insert a new bulb and refit the protective plate. Before refitting the cover, check that the light works.

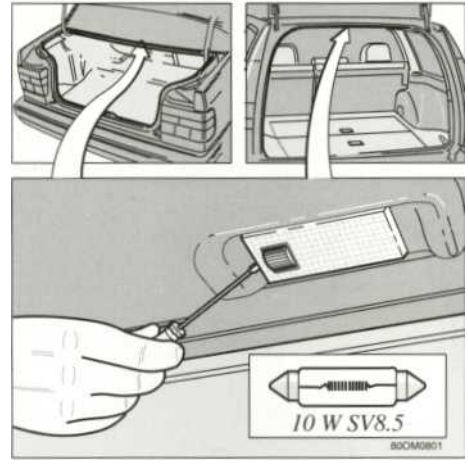
Bulb replacement



Screwdriver for glass lens

Spoiler brake light (certain markets)

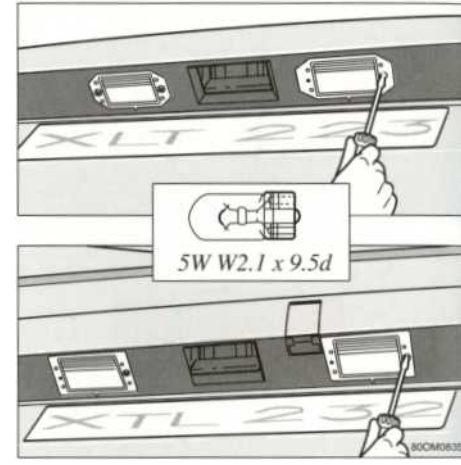
Switch off the lights.
Unscrew the three screws.
Insert a screwdriver and turn gently to loosen the lamp holder and lens. Replace the bulbs and refit the lamp holder and lens.



Insert screwdriver and turn

Boot light

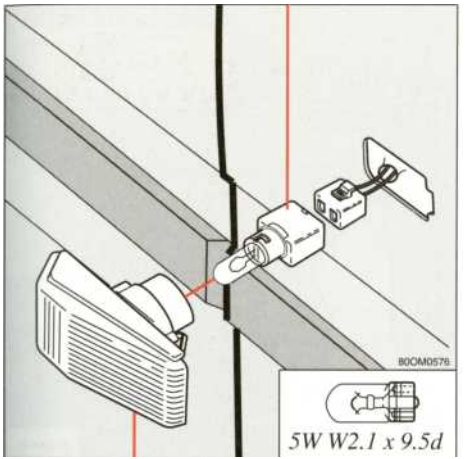
Switch off the lights.
Press in the catch with a screwdriver and remove the bulb holder. Replace the bulb and refit the bulb holder.



Phillips screwdriver for glass lens

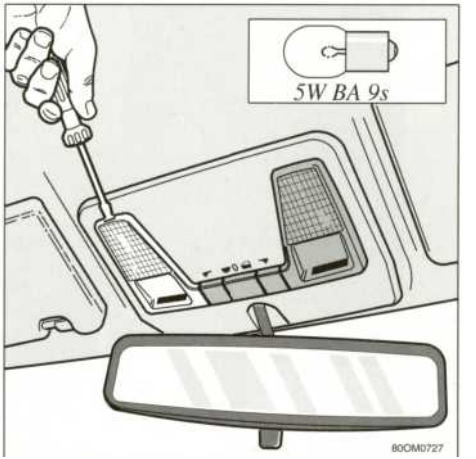
Number plate lamps

Switch off the lights.
Unscrew the two screws.
Insert the screwdriver and turn gently to loosen the glass lens. Replace the bulb and re-install the glass lens.



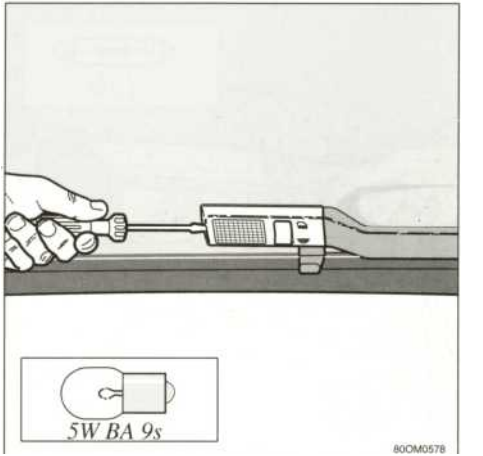
Side direction indicators

This bulb is replaced from outside the car. Slide the lens forward and pull out the rear edge. The whole lens unit can then be pulled out. Turn the bulb holder 1 /4 turn but do not disconnect the wires from the bulb holder. Pull the blown bulb straight out.



Roof-mounted courtesy lights

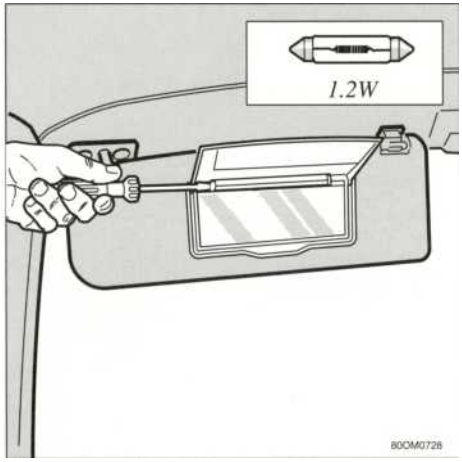
Switch off the lights.
Insert a screwdriver and turn gently to loosen the glass lens. Replace the bulb and press the glass lens back into place.



Rear reading lights

Switch off the lights.
Insert a screwdriver and turn to loosen the light unit. Replace the bulb and press the light unit back into place.

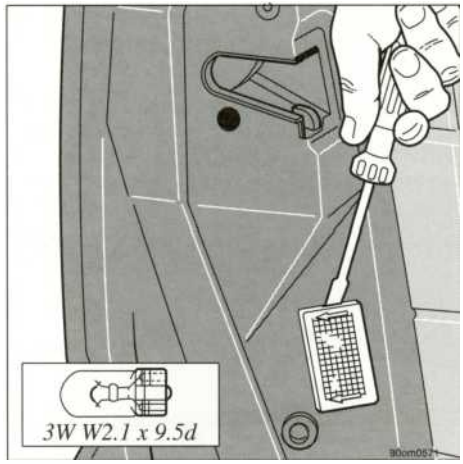
Bulb replacement



Insert a screwdriver and turn

Vanity mirror

Insert a screwdriver under the lower edge and turn to loosen the glass lens.
Prise out and replace the blown bulb.
First press the lower edge of the glass lens back into place above the four catches and then press the upper edge.



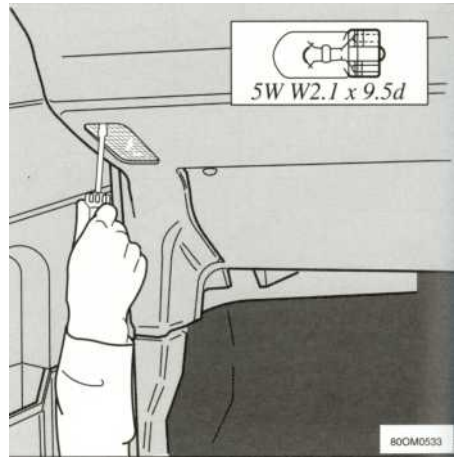
Insert the screwdriver and turn gently (rear door)

Door-open warning lights

All doors are equipped with red warning lights. Do as follows to replace a bulb:

Front: Slide the light unit upwards and lift it out; twist off the bulb holder. Pull the blown bulb straight out. Replace the bulb and refit the bulb holder.

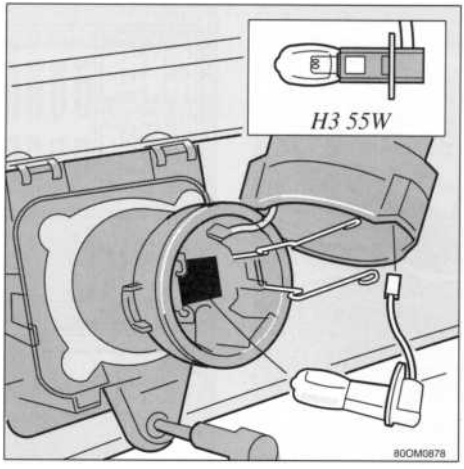
Rear: Insert a screwdriver and turn gently to loosen the glass lens. Pull the blown bulb straight out. Replace the bulb and press the glass lens back into place.



Insert a screwdriver and turn

Footwell lights

Insert a screwdriver and turn gently to loosen the glass lens. Withdraw the light unit, bend the tabs on the plate out of the way and remove the plate. Replace the bulb and refit the plate. Press the light back into place.



Front foglight in the spoiler

Front foglights (extra equipment)

Switch off lights.

Turn the plastic cover anti-clockwise and remove it.

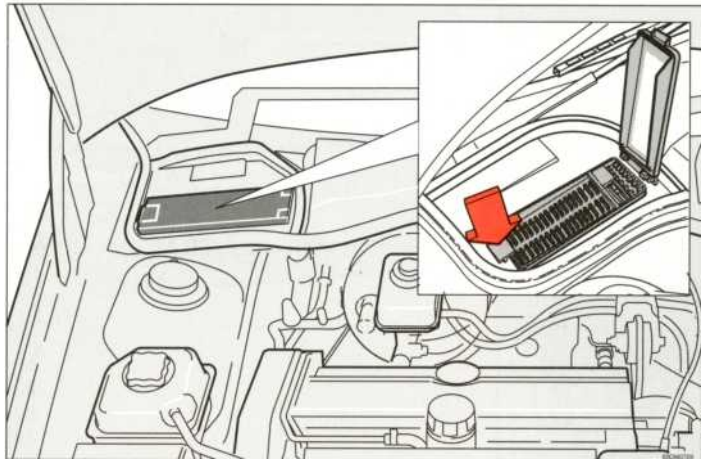
Release the spring clip and move it to the side.

Replace the bulb and refit the components in reverse order.

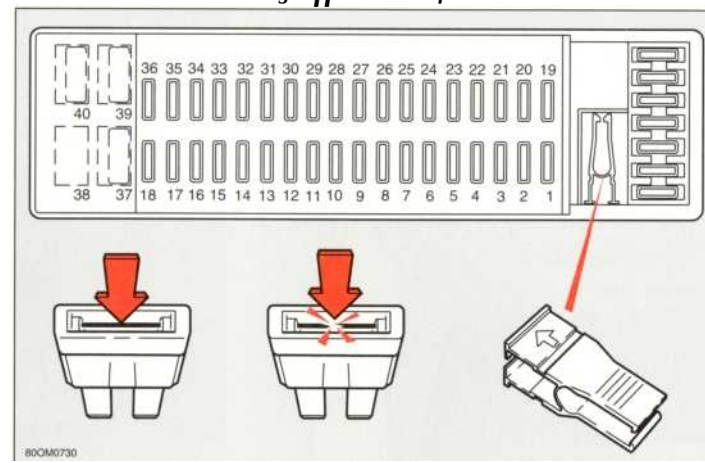
Other bulbs

These bulbs may be difficult to replace. Let your Volvo dealer attend to them.

Fuse replacement



Numbering offuses in the fuse box



Sound fuse *Blown fuse* *Fuse tool*

Fuse replacement

If an electrical component fails to function, it is likely that a fuse has blown due to a temporarily overloaded circuit. The fuses are located in the central fuse box in the engine compartment. To obtain access to the central fuse box, lift up the cover. There is a label on the rear of the cover which indicates the positions of the various fuses.

The easiest way of checking if a fuse has blown is by removing it to have a look at it. Refer to the list of fuses to check which fuse you should look for.
Simply pull the fuse straight out and look at it from the side to see if there is a break in the curved wire. If there is, fit a new fuse of the same amperage and colour - the designation is printed on the fuse.
Never use a fuse with an amperage which is too high.

If several fuses blow one after the other in the same position in the fuse box, this is an indication that there is a fault in the car's electrical system. Have the electrical system checked by your Volvo dealer.
In order to make handling of the fuses more convenient, we have included a small pair of fuse pliers, secured inside the fuse box together with four spare fuses.

No.		Amperage
1	Fuel injection; Ignition system; Automatic transmission	15 A
2	Fuel pump	15 A
3	Interior courtesy lights	10 A
4	–	
5	Cabin fan, fan speed 4*	30 A
6	Central locking system	25 A
7	Audio system	15 A
8	Air pump	40 A
9	ABS; TRACS	30 A
10	Electrically heated rear seat	15 A
11	Electrically heated rear window and rear-view mirrors	30 A
12	Brake lights	10 A
13	Hazard warning flashers; Headlight flasher	15 A
14	ABS; TRACS	30 A
15	Radio; Interior courtesy lights; Door-open warning lights; Remote controlled central locking system	10A
16	Power aerial, Electrical connection for trailer, Accessories	30 A
17	-	
18	Front foglight, Auxiliary headlamps	15 A
19	Main beam, left	15 A
20	Main beam, right; Main beam indicator light	15 A
21	Dipped beam, left	15 A
22	Dipped beam, right	15 A

No		Amperage
23	Left hand parking lights, front and rear, Number plate lights	10 A
24	Right hand parking lights, front and rear	10 A
25	Rear fog light; Rear fog light indicating lamp	10A
26	Electrically heated front seats, Electrically operated rear view mirrors	25 A
27	Reversing lights; Direction indicators; TRACS	15 A
28	Cruise control; Electrically heated rear window; Seat belt reminder, Bulb failure sensor	10 A
29	ABS; TRACS	15 A
30	Cigar lighter	10 A
31	Fan; speeds 1-3; air cond**. compressor; Automatic air conditioning	25 A
32	Audio system	10A
33	Electrically operated seat; Headlight alignment, Rear window wash/wipe	15 A
34	Windscreen/headlight wash/wipe; Horn	25 A
35	Rheostat; Electrically operated sun roof	10 A
36	-	
***37	Electrically operated windows; Electrically operated sun roof	AUT/CB
***38	-	
***39	Electrically operated seat, left	AUT/CB
***40	Electrically operated seat, right	AUT/CB

*Does not apply to climate units without recirculation.

"Climate units without recirculation, also speed 4.
***This fuse is located under the cover; it is an automatic circuit breaker which does not normally need to be replaced.

Troubleshooting

The previous sections have already dealt with instructions for action in the event of a breakdown. This section contains information which may help you rectify certain problems yourself so that you can continue your journey.

THE ENGINE DOES NOT START OR IS DIFFICULT TO START

The instructions for starting the engine have not been followed: see 3:4.

Start the engine in accordance with the instructions.

The battery is poorly charged or flat

Start the vehicle with an auxiliary battery (see 3:14).
Recharge the battery.
Find out why the battery is poorly charged.

Poor connection in the electrical system

Check all the electrical leads in the ignition system, battery, starter motor.

No fuel reaching the engine

Check if there is fuel in the tank.
Check that none of the hoses/connections in the fuel system are loose or kinked.
Check that the fuel pump fuse has not blown (fuse no. 2).

Fault in the ignition system

Check the spark plugs (electrode gap should be 0.7 mm); wipe them clean.
Check that all the electrical leads in the ignition system are correctly connected and clean.

Blocked air filter/fuel filter

Replace filter.

ELECTRICALLY OPERATED SUN ROOF CANNOT BE SHUT

No current supply to sun roof motor

The overload circuit breaker (no. 37 in the fuse box) has been activated. Wait approx. 20 seconds for the circuit breaker to cool down.
Check fuse no. 35.

IMBALANCE, VIBRATION OR HEAVY STEERING DURING DRIVING

Wheel imbalance

Have the wheels re-balanced.

Insufficient oil in power steering pump

Check the level and add oil. See 7:8.

ENGINE OVERHEATS

Radiator hoses cracked or leaking

Check the radiator hoses and replace if necessary.

Insufficient coolant

Check the coolant level and add as necessary. See 7:10.

Electric cooling fan

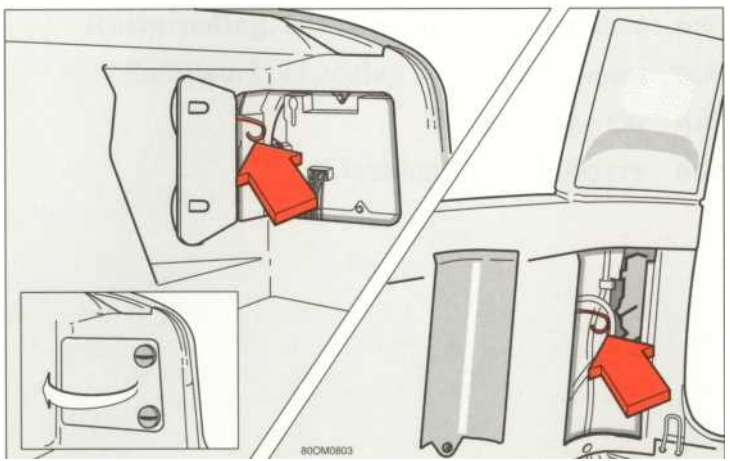
Check that the electric cooling fan functions properly.

FUEL FILLER FLAP DOES NOT OPEN

Faulty motor in fuel filler flap

4-door model
Remove the cover panel on the right light unit, pull on the hook and the filler flap can now be opened.

5-door model
Remove the side cover on the right, and the cover of the bottom right tail light. Pull on hook and the flap can now be opened.



Emergency release for, fuel filler flap

Car care

Proper car care involves much more than just the appearance of your car inside and out. It involves maintenance of the rustproofing layer, which should be checked regularly and any damaged areas rectified. It also involves checking and treatment of the paintwork to prevent the formation of rust.

Rustproofing

Rustproofing, checking and maintenance

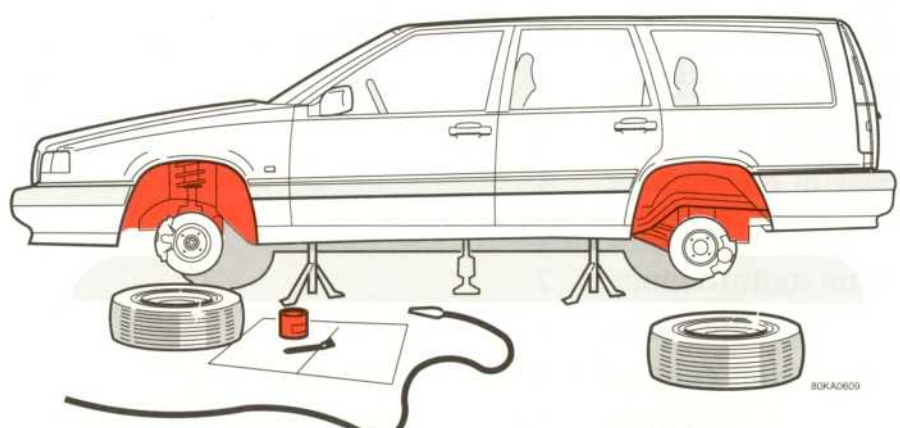
Your Volvo has been carefully and thoroughly rustproofed at the factory. The underbody and wheelarches were sprayed with a thick, durable rustproofing compound and the beams, internal cavities and sealed sections were sprayed with a low-viscosity penetrating rustproofing agent.

What can you as a car owner do to retain this excellent rustproofing in prime condition?

There are two very effective means of maintaining the rustproofing of your car:

- Keep your car clean! Use a high-pressure spray on the chassis components, underbody, wheelhousings and wing edges to keep them free from dirt.
- Let your Volvo dealer carry out a regular check on your car's rustproofing layer and make any improvements which are necessary.

Supporting frame anchorages, control arms, spring anchorages and spring strut plates.



The visible rustproofing

You should regularly check and touch-up the visible rustproofing. If it is necessary to touch-up the rustproofing, you should do it immediately to prevent the penetration of moisture under the rustproofing layer. Consult your Volvo dealer.
If you wish to do this work yourself, wash and dry the car and make sure that the surface to be treated is thoroughly dry and free from all traces of dirt. Use spray-on or brush-on rustproofing compounds.

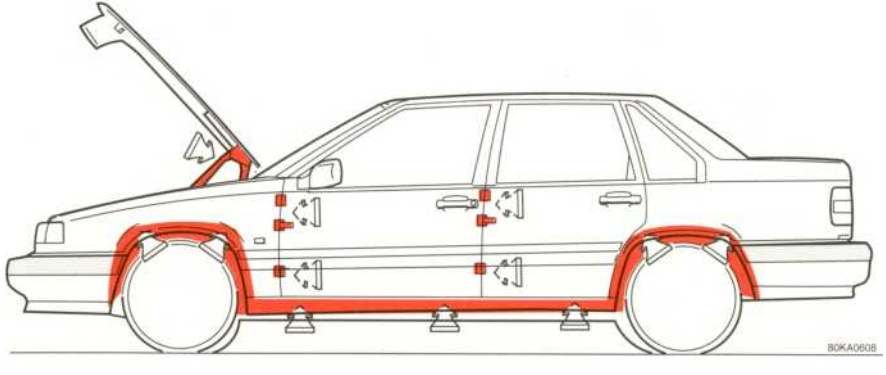
There are two different types of rustproofing compound:
Thin (transparent) for use on visible sections.
Thick, for sections of the underbody and wheelhousings which are most vulnerable to wear of the rustproofing layer.

Parts of the body which may need to be touched-up with the recommended rustproofing compounds are:

- Visible welded seams and panel seams (thin compound)
- Underbody and wheelhousings (thick compound)
- Door hinges (thin compound)
- Bonnet hinges and locks (thin compound)

After completion of all work on the car, remove excess rustproofing compound with a cloth soaked in white spirit.

When the car leaves the factory, the engine compartment is sprayed with a transparent wax-based compound which is resistant to normal non-aromatic engine cleaners. If, however, you use an engine cleaner which contains solvents such as white spirits or turpentine (particularly cleaners which contain emulgents), it will be necessary to apply a suitable wax-based rustproofing compound to re-obtain the original protection.
Suitable waxes can be obtained from your Volvo dealer.



Paintwork damage

Paint offers protection against rust

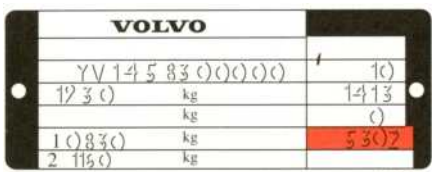
The paint layer constitutes an important part of the car's rustproofing system and it should therefore be checked regularly. Paintwork requires immediate attention to avoid the formation of rust. The following are the most common forms of paintwork damage which you can touch-up yourself:

- minor stone chips and scratches
- flaking, e.g. wing edges and sills.

When touching-up the paintwork, the surface to be treated should be clean and dry and it should have a temperature in excess of +15 °C.

Colour code

Make sure that you have the correct colour. Check the colour code number which is stamped onto the product plate on the left wing inner panel.



Colour code

Minor stone chips and scratches

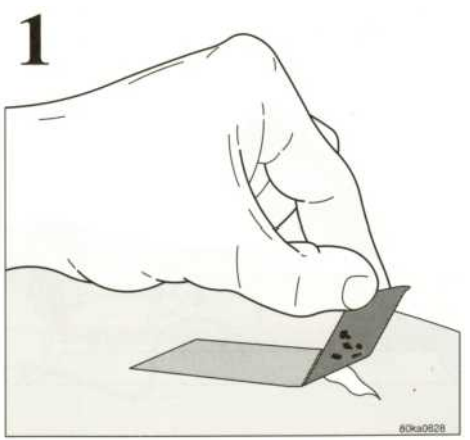
Materials:

- Tin of primer
- Tin of paint or touch-up pen
- Brush
- Masking tape

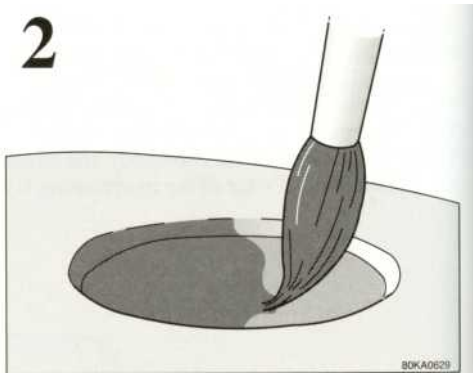
If the stone chip has not penetrated down to the metal and an undamaged layer of paint remains, the touch-up paint can be applied as soon as the spot has been cleaned.

If the stone chip has penetrated down to the metal, proceed as follows:

- Place a strip of masking tape over the damaged surface. Then pull off the tape so that any loose flakes of paint adhere to it (diagram 1).



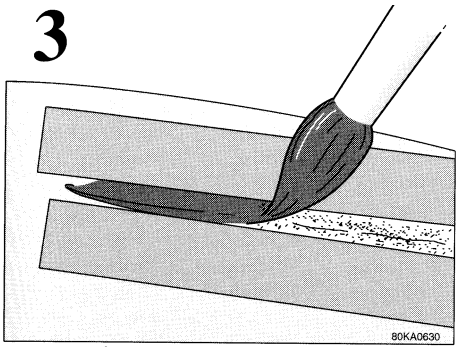
- Stir the primer well and apply it to the damaged area with a fine brush or matchstick (diagram 2).



Brush on primer

- When the primer has dried, apply a surface coat of paint with a brush.
  Make sure that the paint has been well stirred and apply it thinly in several layers, allowing it to dry between each application.

- **For scratches proceed as already described but it may be advisable to use masking tape to protect the undamaged paintwork surrounding the scratches (diagram 3).**



Mask surrounding areas if necessary

- **Wait a day or two before applying the finishing coat. Use a soft rag to apply the grinding paste and polish off any blemishes. Apply the paste sparingly.**

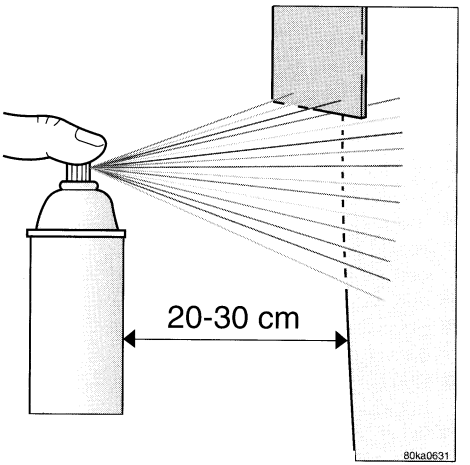
Touching-up wing edges and sills

Materials:

- **Primer (aerosol spray)**
- **Paint (aerosol spray)**
- **Masking tape**

When large surfaces have to be repainted, suitably mask the surrounding area with masking tape and paper. Remove the masking immediately after the final coat has been sprayed on, before the paint dries.

- **Remove loose paint flakes with masking tape.**
- **Shake the aerosol can for at least 1 minute. Spray on the primer. Move the spray can slowly and regularly from side to side, about 20-30 cm from the surface, as shown in the diagram. Use cardboard sheets to protect the surrounding area.**



Hold the aerosol vertically

- **When the primer has dried, apply the surface enamel in the same way. Spray on several times and allow the paint to dry for a few minutes between each application.**

Washing

Wash the car often!

The car should be washed as frequently as possible, particularly during the winter when road salt and moisture can easily start corrosion.

The car can be washed as follows:

- Hose off dirt underneath the car body (wheel-arches, wing edges etc.)
- Hose down the entire car to soften up any dirt etc., but avoid spraying water directly onto the locks.
- Wash with a sponge (with or without detergent) using plenty of water. Use preferably tepid but not hot water.
- If the car is exceptionally dirty, first wash it with a cold degreasing agent. This agent may only be used if the car is washed in a special area with a floor-mounted grid featuring a sewage separator.
- Dry with a clean, soft chamois leather.
- Electrically-operated radio aerials (extra equipment) should be dried thoroughly.
- Wash the wiper blades using a nail brush and tepid washing-up liquid.
- When cleaning (washing) the engine, avoid aiming the nozzle at the distributor or the rear section of the engine.
  After cleaning the engine, the spark plug wells should be inspected for water and blown dry if necessary.

Suitable detergents

Car wash detergent or a dessertspoon of ordinary washing-up liquid diluted in 10 litres of water.
Spots on trim mouldings around windows, wings and doors can be removed using a suitable car polish. Never use abrasive cutting paste or steel wool.

CAUTION!

When the car is driven away immediately after being washed, always gently apply the brakes several times as the car is moving in order to dry off the brakes.

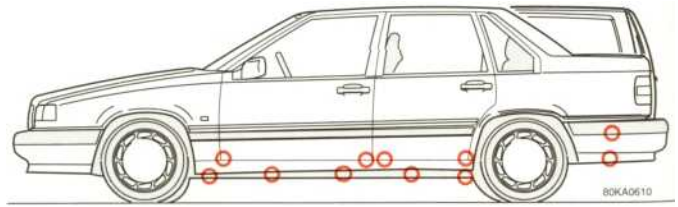
WARNING!

Do not wash the engine compartment when the engine is warm! Fire hazard!

Bear in mind!

Remove bird spillings from paintwork as soon as possible, since they contain chemicals which affect and discolour the paint very quickly. Discolouration cannot be polished away. When using a high-pressure wash, make sure that the spray gun nozzle is at least 30 cm away from the car body. Do not spray directly onto the door, boot or bonnet locks

Note: When washing the car, remember to remove any dirt accumulation from all the drainage holes.



Drainage holes

Automatic car washes, polishing and waxing

Automatic car washes

An automatic car wash is a simple and quick way to clean your car, but it is worth remembering that it can never be as thorough as when you yourself go over the car with sponge and water; the machine's brushes cannot always touch the car at the best angle. Keeping the underbody clean is most important, especially in wintertime. Not all car washes have facilities for washing the underbody.

Before driving into an automatic car wash, make sure that any extra equipment fitted to the car body (e.g. extra driving lights) are secure, otherwise there is a risk of the machine dislodging them. Unscrew or retract the radio aerial. You should also place the headlight wiper blades below the lower stop to prevent the machine's brushes from damaging the wiper mechanism. Do not forget to return the wiper arms to their original position after washing the car.

Use only automatic washes with clean brushes.

We recommend that you do not wash your car in an automatic car wash for the first six months or so because the paint will not have hardened sufficiently. Hand-wash the car during this period.

Polishing and waxing

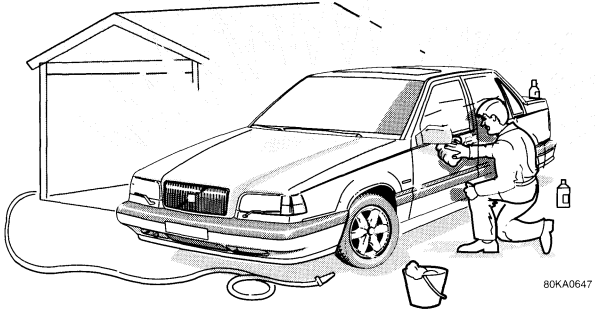
Polish and wax the car when the surface begins to lose its lustre and when you wish to give it an extra protective layer, for example before the onset of winter. It is not normally necessary to polish the car during the first year after delivery, although waxing may be beneficial during this period. Wash and dry the car thoroughly before polishing and/or waxing. Remove tar spots with white spirit. More stubborn spots may be removed using a fine rubbing compound intended for car paintwork. First polish with the polishing agent and then wax, either with a fluid or solid wax.

Read the instructions carefully. Note that many commercially available products contain both polish and wax.

A wide range of polymer-based car waxes are available nowadays. Polymer waxes are easy to use and produce a long-lasting high gloss finish which protects the bodywork against oxidation, road dirt and fading.

Bumper

Use normal car wash detergent. Never use petrol or thinners. Use de-natured alcohol for difficult spots. To avoid scratches on painted bumpers do not wipe with paper. Petrol or diesel spills should be cleaned off immediately.



Cleaning the upholstery

Cleaning the upholstery

Removal of stains from cloth upholstery
Dirty cloth upholstery can be treated using special detergents which are available through your Volvo dealer. Other chemicals may impair the fire-resistant properties of the upholstery.
It is always best to remove stains immediately, before they have dried. Stains should be dissolved, not rubbed in or scrubbed away with a hard brush.

Removal of stains from vinyl
Never scrape or rub a stain. Never use strong stain removing agents. Wipe with a mild detergent and lukewarm water.

Removal of stains from leather upholstery
Wipe the soiled leather surface with a soft moist cloth.
Never use strong detergents, petrol, alcohol etc.
We recommend the use of Volvo's leather-care kit once or twice a year so as to keep the leather supple and comfortable.

Stain removing agent

Use Volvo's fabric cleaner.

Otherwise we recommend the following method:
Ammonia solution: 1 teaspoon ammonia (approx. 90%) mixed with 3 dl water.
Ammonia/soap solution: The above ammonia solution is mixed with 1 dl soap suds. Soap suds can be made from such substances as colourless cosmetic soap which is dissolved in lukewarm water.

Removing stains from fabrics and floor mats

Remove stains as soon as possible.
Scrape off the dirt with a blunt knife or similar instrument. Soak up as much of the dirt as possible with clean white rags and remove the surplus with a vacuum cleaner so that surrounding dirt is not dissolved. Moisten a clean white rag with solvent and apply to the soiled area. Now remove the solvent and dirt with clean cotton wool. Repeat until the stain disappears.

Bear in mind:

- **Take extra care when removing stains such as ink, lipstick and other colouring agents since the solvent may dissolve the colour and spread the stain.**
- **Use solvents sparingly. Too much solvent can damage the seat padding.**
- **Always start from the outside of the stain and work towards the centre.**

Cleaning the seat belts

Use lukewarm water and a mild synthetic detergent.

Service - an investment!

An investment which will pay dividends in the form of reliability, durability and longer service life, as well as trade-in value when the time comes to change to a newer car.

Volvo Service

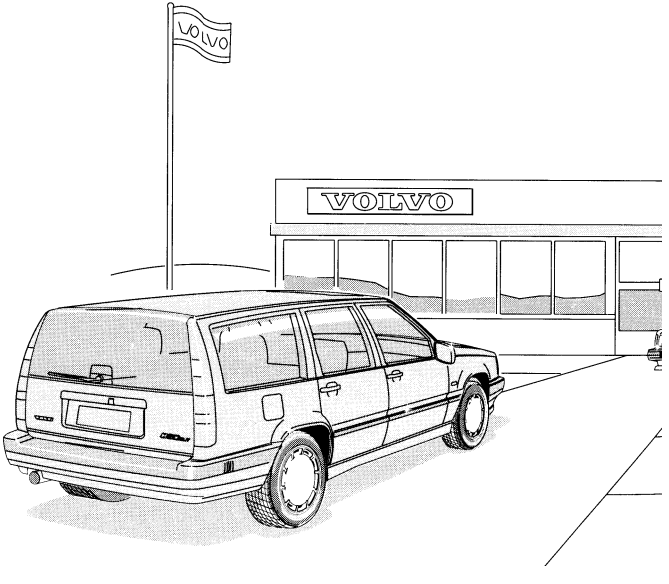
The service undergone by your Volvo

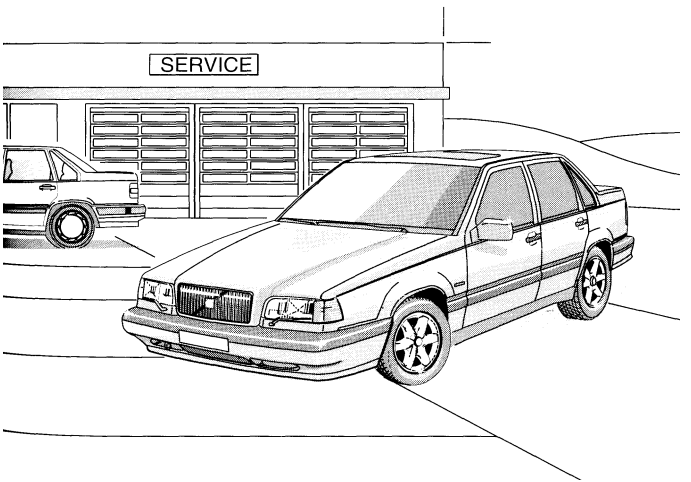
Your Volvo underwent two inspections before it came to you. The first test was carried out at the factory and the second was the predelivery service carried out by your dealer in accordance with Volvo standards.

The Volvo Service Programme

In order to benefit continually from the high level of safety and reliability provided by your Volvo, you should follow The Volvo Service programme specified in the Service booklet*. We strongly recommend that the work listed in these service schedules be entrusted to your Volvo dealer who has the expertise, technical information and special equipment needed to ensure that the work is done to the high standards which you as a Volvo owner have the right to expect. You can also rest assured that your Volvo dealer will use only genuine Volvo replacement parts which are of the same high quality as the parts used by the factory in manufacturing your Volvo car in the first place. The Volvo Service programme has been worked out to correspond to the needs of the average motorist. If you think that your car may have exceptional service needs contact your dealer. He can draw up a service programme that is tailor-made for your car!

***U.K. - Service Record book**





Remember ...

Regular service is necessary to keep your car in good running order. A neglected service can result in the exhaust system emitting an unacceptably high level of gases harmful to the environment. Servicing is best done by a Volvo workshop, since Volvo workshop personnel are specially trained to deal with our products and they have access to specialised tools and reliable service literature. Your Service Booklet* should be stamped (U.K. only - and the invoices inserted) after each service. A properly stamped Service Booklet is an indication that the car has been well maintained and will influence its market value. More information can be obtained from your Service Booklet.
U.K. - The maintenance check list should be inserted in the Service Record book.

Important

If our warranty is to apply we insist on the following conditions: that the car maintenance is carried out in accordance with the instructions in this manual;
and that both service inspections and repairs are carried out by an authorised Volvo workshop.
For more details refer to your Service booklet*.

***U.K. - Service Record book**

Volvo Service

The following precautions must be observed when carrying out repairs to the vehicle:

CAUTION!

The car's ignition system operates at very high voltages. The entire ignition system is subject to lethal voltage levels.
Do not touch the spark plugs, ignition coil or HT leads when the engine is running or when the ignition is switched on.

Always turn off the engine for the following:

- **Connection of engine test and diagnostic equipment to the vehicle (timing light, tach-dwell tester, ignition oscilloscope etc.).**

Disconnect the battery for the following:

- **Replacement of ignition components such as plugs, coil, distributor, HT leads etc.**
- **The SRS (Airbag) system's earth connection under the driver's seat should not be undone. Do not earth other electrical components under the driver's seat. The SRS (Airbag) system's function may be impaired if it is improperly earthed.**

Battery

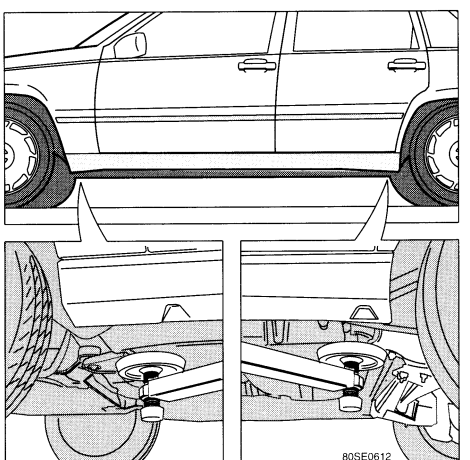
- **Check that the battery cables are correctly connected and properly tightened.**
- **Never attempt to remove the battery with the engine running.**
- **The battery should be disconnected when a boost charger is used.**
- **Switch off the radio before disconnecting the battery. If your radio has an anti-theft code and the battery is disconnected, the radio code has to be re-entered in order for the radio to function.**

CAUTION: Certain turbo models have reduced ground clearance due to the low-slung design of the chassis. Please observe caution when lifting the car on a hoist.

Jacking up the car

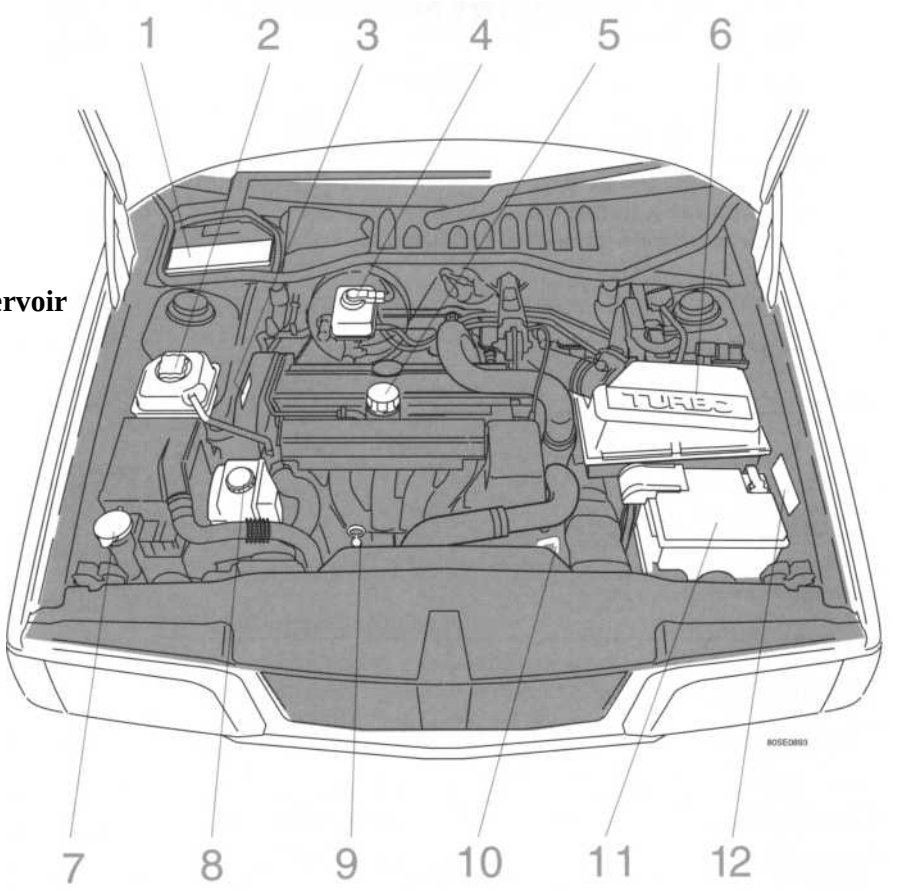
If a garage jack is used to lift the car, the two jacking points should be used. They are specially reinforced to bear the weight of the car.
A garage jack can also be placed under the front of the engine support frame and under the reinforced plate in the spare wheel well.
Take care not to damage the splash shield under the engine. Ensure that the jack is positioned so that the car cannot slide off it. Always use axle stands or similar structures.

If a two-post hoist is used to lift the car, the front and rear lift arms should be positioned under the lifting anchorages of the door sill. The lifting anchorages are marked with arrows on the side of the door sill. The jack arms should be placed on the reinforced jacking points behind and in front of these arrows and not on the door sill arrows. See illustration.



Engine compartment

1 **Fuse box**
2 **Expansion tank, coolant**
3 **Engine type designation**
4 **Clutch/brake fluid reservoir**
5 **Oil filler cap, engine**
6 **Air filter**
7 **Windscreen/headlight washer fluid reservoir**
8 **Power steering fluid reservoir**
9 **Oil dipstick, engine**
10 **Oil dipstick, automatic transmission**
11 **Battery**
12 **Product data plate**



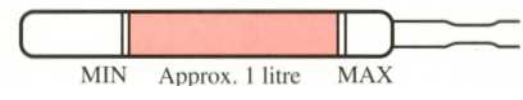
WARNING!

Electric cooling fan:
The cooling fan can start up again even after the engine has been turned off.

Engine oil

Check the engine oil level every time you refuel your car

It is particularly important to check the oil during the running-in period. Park the car on a level surface and wait at least 3 minutes after the engine has been switched off so that the oil has sufficient time to return to the sump. The most reliable measurement can be obtained with a cold engine before it is started. Wipe the dipstick with a clean cloth. The oil level should lie within the marked area of the stick.
The difference between the MAX and MIN markings represents approx. 1 litre.



Draining the engine oil

The drain plug is located at the rear of the oil sump.
Drain the oil when it is warm.

WARNING!

Do not spill oil on the exhaust pipe. Fire risk!

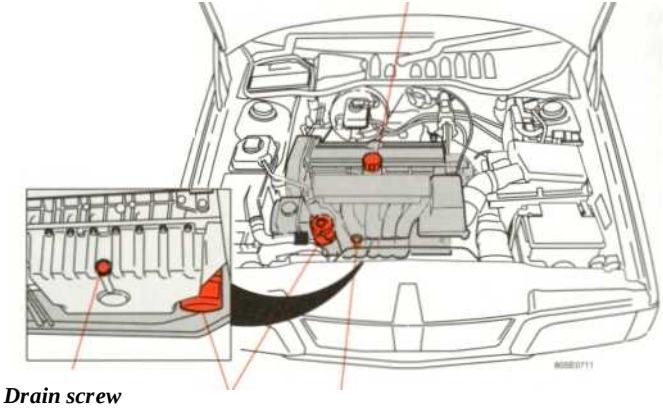
Change the oil filter together with the engine oil

First remove the protective shield under the engine, then remove the old filter. Fit a new filter in accordance with the instructions on the filter.

Top up with oil if necessary

Use the same type of oil as that already in the engine. Refer to the following page.
After an oil change, the oil level will lie between the two marks on the dipstick, i.e. halfway between the MAX and MIN markings, which is entirely normal. Do not add too much oil as this will result in excessive oil consumption.
NOTE! Screw down the oil filler cap after filling with oil.

Oil fillercap



Drain screw *Oil filter* *l Oil (lipstick*

WARNING!

The oil may be very hot.
When you replace the oil, remember that prolonged and repeated contact with engine oil can lead to serious skin disorder

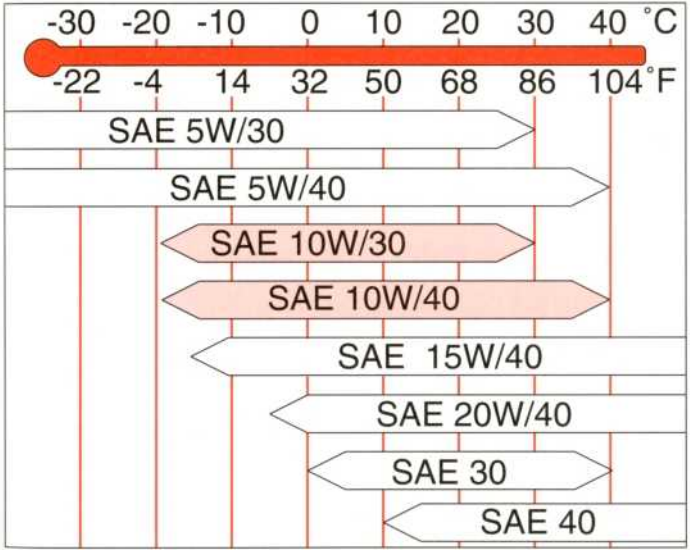
Environment: If you change the oil yourself ensure that waste oil and the filter are disposed of properly. Your Volvo dealer can help you.

Oil quality:

CCMC G4/G5.
Oil which meets CCMC G5 is recommended for turbocharged engines.

Synthetic or semi-synthetic oils may be used if they fulfil the quality requirements as specified above.
Oil additives should not be used unless recommended by an authorised Volvo workshop.

Viscosity: (stable ambient temperatures)



SAE 15W/40 or SAE 20W/40 oils are recommended for use in extreme driving conditions that involve excessive oil consumption and high oil temperatures, e.g. mountain driving with frequent decelerations or fast motorway driving. Note, however, the lower temperature limits.

Oil capacity

5.3 litres incl. filter
(Turbo: +0.9 litres if the oil cooler is drained).

Oil and filter change

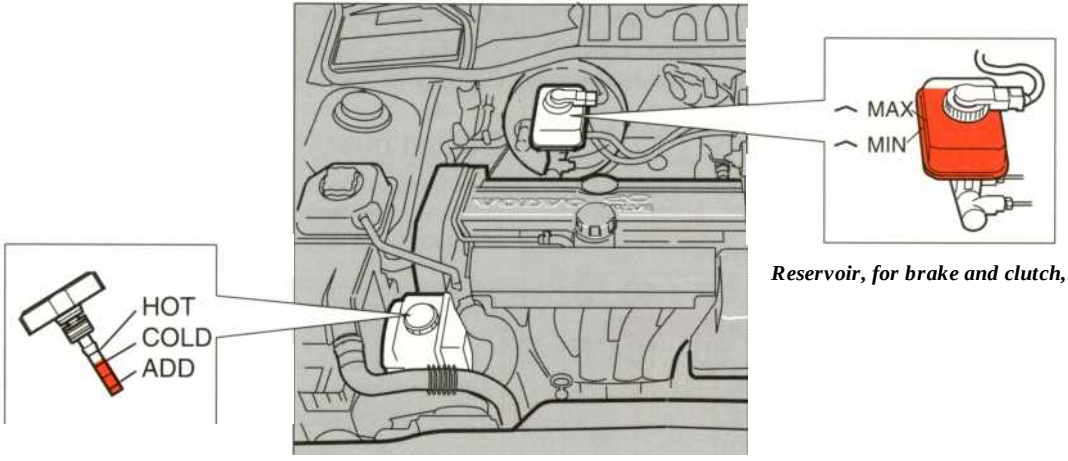
The oil and oil filter are changed in accordance with the schedule indicated in the table below. Change at either the specified mileage or the specified time interval, whichever occurs first.

Driving conditions	Change interval, oil+filter
	G4/G5-oil, Turbo: G5-oil
Unfavourable, e.g. see below	Every 5,000 miles (7,500 km) or every 6 months
Normal	Every 10,000 miles (15,000 km) or once per year

Unfavourable conditions

- prolonged driving in dusty/sandy areas
- prolonged driving with attached trailer/caravan
- prolonged driving in hilly terrain
- prolonged driving at extremely high speeds (above 100 mph, 150 km/h)
- prolonged idling, stop-start driving
- at low temperatures (under 0 °C), driving mainly short distances (less than 7 miles, 10 km)

Power steering, clutch brake fluid



Oil reservoir for power steering fluid

Reservoir, for brake and clutch, fluid

Power steering

The dipstick has different ratings for warm and cold oil. The oil level before the engine is started must never be higher than the COLD mark. After the oil has warmed up because the car has been driven, the level may not be higher than the HOT mark. Top up when the level is at the ADD mark.

Oil quality: ATF oil.
Check the level at every service. There is no need to change the oil.

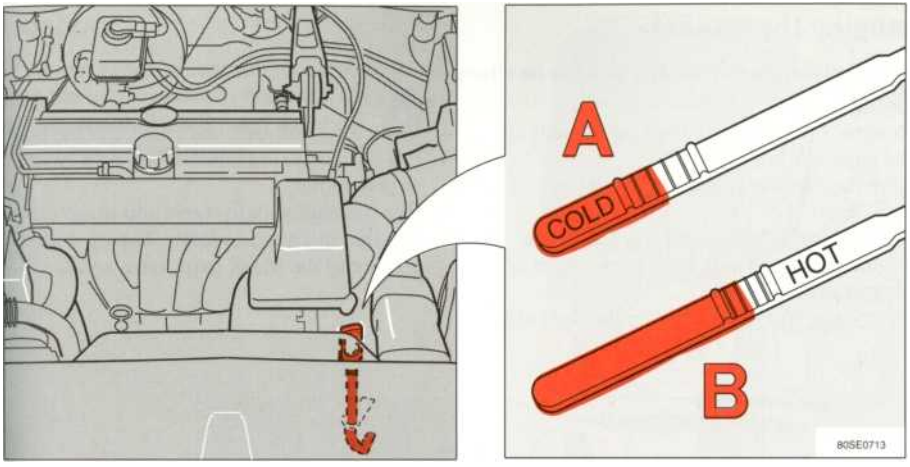
Brake and clutch fluid

The brake and clutch fluid share the same reservoir.
The fluid level should be between the MIN and MAX markings.

Fluid type: Brake fluid pref. DOT 4+ (or DOT 4).
Check the level regularly.
Fluid change every second year.

Note: The fluid should be changed every year if the brakes are used frequently and severely (e.g. when driving in mountainous areas) or if the car is run in tropical regions with high humidity. The fluid change is not included in any service but you should ensure that it is carried out when the car is taken for service to a Volvo dealer.

Transmission oil (automatic transmission)



The dipstick handle is yellow

A Cold transmission oil - oil temperature +40° C. This temperature is reached after the engine has been run at idling speed in an enclosed workshop or garage. At oil temperatures below +40° C, the oil level may be below the MIN mark.

B Warm transmission oil - oil temperature +80° C. This temperature is reached after driving for about 30 minutes. At oil temperatures above 90° C, the oil level may be above the MAX mark.

Note: The engine should be idling when the transmission oil level is being checked.

Automatic transmission

To check the oil level:
Park the car on a level surface and allow the engine to idle. Slowly move the gear selector lever through all the gear positions and then back to P. Wait for two minutes and then check the oil level. In the diagram above you can see that the dipstick has a "cold" and a "hot" side. The oil level should be between the MIN and MAX marks. Wipe the dipstick dry with a lint-free cloth.

Top up if necessary via the dipstick tube.
The difference between the MIN and MAX marks is 1/2 litre. Do not overfill as this might result in the ejection of oil from the transmission.
Too little oil, on the other hand, can negatively affect the operation of the transmission, particularly in cold start conditions.

Oil quality: ATF oil which meets both the Dexron II E and Ford Mercon specifications.

WARNING!

The oil may be extremely hot!

Coolant

Coolant mixture

Never top with water alone! Use a mixture of 50% Volvo anti-freeze and *50%* water all year round.
Note! The engine is made of aluminium alloy which is why it is important that only Volvo original anti-freeze is used. It offers exceptional protection against corrosion!
Never mix different types of anti-freeze.
Anti-freeze prevents corrosion in the summer and also prevents the formation of ice in winter.
Before leaving the factory, the car is filled with a coolant which provides protection down to -35 °C.

Cooling system capacity: approx. 7.2 litres (turbo 7.0 litres)

Check the coolant level regularly!

The level should be between the MAX and MIN marks on the expansion tank. Top up with coolant when the level drops to the MIN mark. If you need to top up, unscrew the expansion tank cap carefully if the engine is warm to release excess pressure.

WARNING!

If you need to fill coolant when the engine is warm unscrew the cap slowly to release the pressure.

Changing the coolant

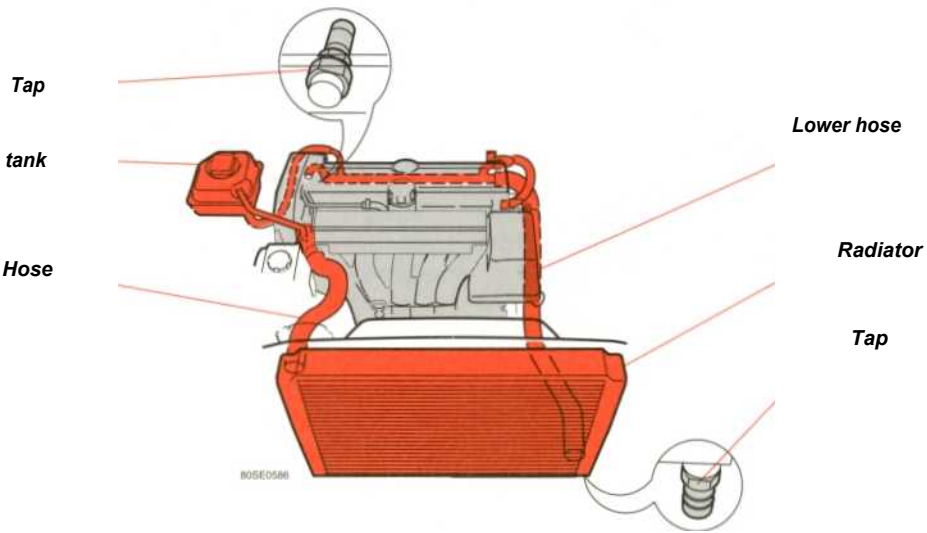
The coolant does not normally need to be changed

Draining

1 Remove the expansion tank cap (slowly if the engine is hot).
2 Turn the cabin temperature control to max. heat.
Open the drain taps at the rear left of the engine block and at bottom right corner of the radiator.
3 Disconnect the lower hose on the right side.

Filling

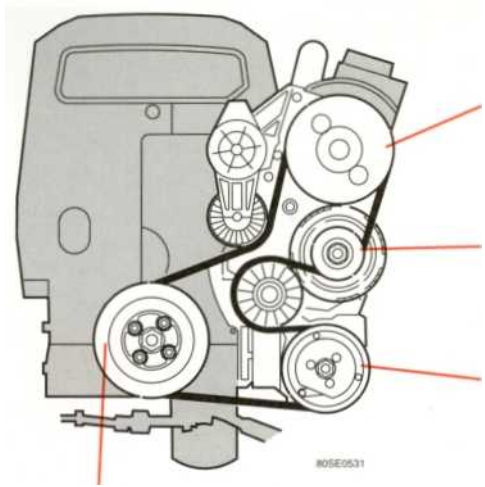
4 Close the drain taps and reconnect the hose.
5 Fill the expansion tank to the MAX mark or just above.
6 Run the engine until warm and make certain that there are no leaks. Top up with coolant to the MAX mark once again.



Coolant

If you replace the coolant yourself, ensure that the used coolant is disposed of in an environmentally safe way. Ask your Volvo workshop for assistance.

Drive belt for alternator, power steering and air conditioning



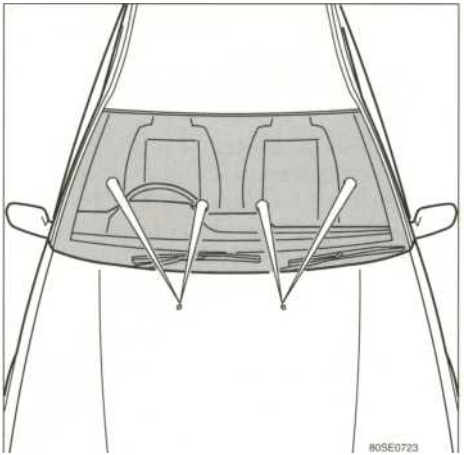
Automatic belt tensioner

The drive belts have an automatic belt tensioner. Belt tension neither can nor should be adjusted. Do not attempt to check the belts yourself, they will be checked in connection with workshop service.

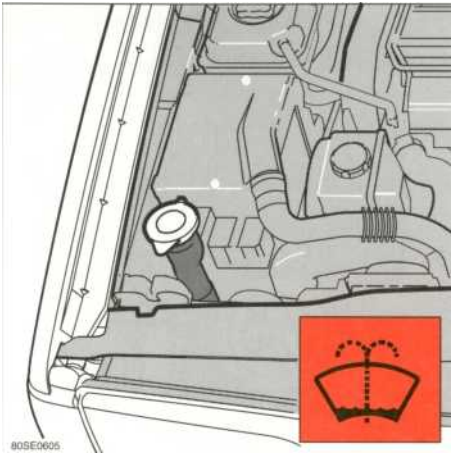
Leave belt replacement to the Volvo dealer

Owing to the location of the belts it may be difficult for you to replace them. It is advisable to let your Volvo dealer do this work. Genuine Volvo drive belts must always be used.

Windscreen wipers, headlight wipers



Adjustment of the spray angle



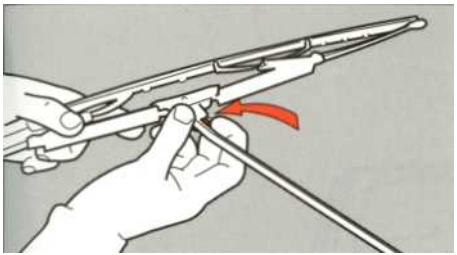
Filler pipe

Adjustment of the washer nozzles

The washer spray should strike the windscreen as shown above.
Use a small screwdriver to adjust the vertical position of the nozzle.

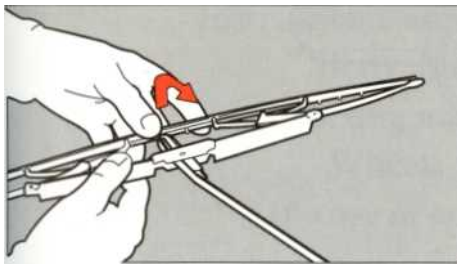
Washer reservoir

The windscreen and headlight washers (and the rear window washer on the 5-door model) share the same fluid reservoir. It is located under the bonnet and it has a capacity of approx. 4.5 litres.
The reservoir should be filled with a washer solvent containing de-icer in cold weather to prevent the reservoir and hoses from freezing. There is a filter next to the washer reservoir.

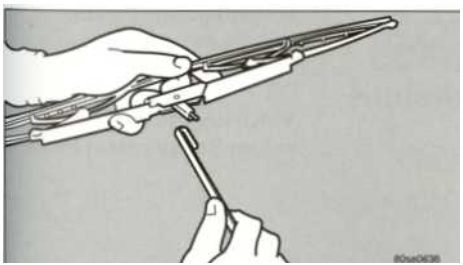


Replacing windscreen wiper and rear window wiper blades (5-door)

Lift off the wiper arm from the windscreen and hold the blade at right angles to the arm. Press in the clip at the back of the arm.

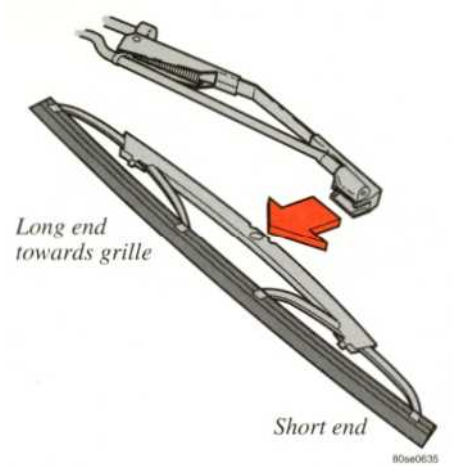


Pull the whole wiper blade downward so that the arm's eyelet passes through the hole in the wiper blade attachment.



Fit the new blade in reverse order to the above instructions and check that it is properly attached to the wiper arm.

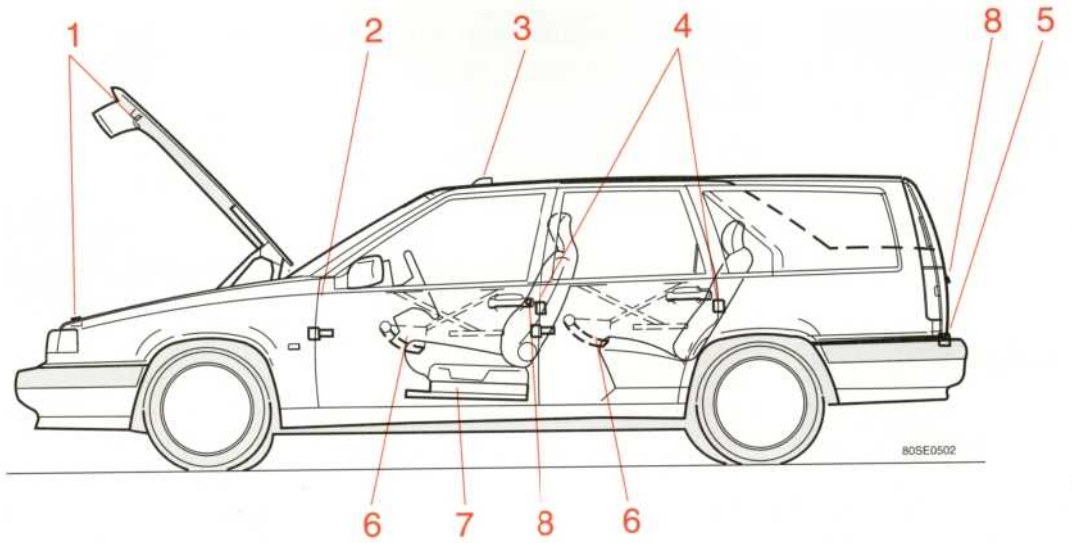
Use a nailbrush and lukewarm water containing a few drops of washing-up liquid to clean the wiper blades.
If the blades still leave marks on the windscreen, fit new ones.



Replacing headlight wiper blades

Pull the wiper blade forwards and withdraw the wiper blade, pulling it outwards. Press the new blade into place.
Check that the new blade is properly attached to the wiper arm.

Body lubrication



Lubrication point* (total points)	Lubricant
1 Bonnet lock and latch (only metal parts) (3)	Oil
2 Door stop, bearing (4)	Oil
3 Sun roof wind deflector (1)	Oil
4 Door lock outer slide surfaces (4)	Oil
	Low temperature grease

Lubrication point* (total points)	Lubricant
5 Boot lock (1)	Low temperature grease
6 Window winder (4)	Oil, grease
7 Front seat slide rails (4) and lock mechanisms (2)	Oil
8 Door locks (3)	Volvo Lock Lubricant or Low Temperature Grease.

*Several of the lubricating points mentioned here are not included in an ordinary service.

Specifications

This chapter contains data which you may find useful.

Type designations

In all correspondence concerning your vehicle and when ordering parts, the type designation. chassis, engine numbers and Vehicle Identification Number (VIN) should always be quoted to facilitate matters.

1 Type and model year designation
Chassis number
Stamped in the engine compartment below the windscreen.

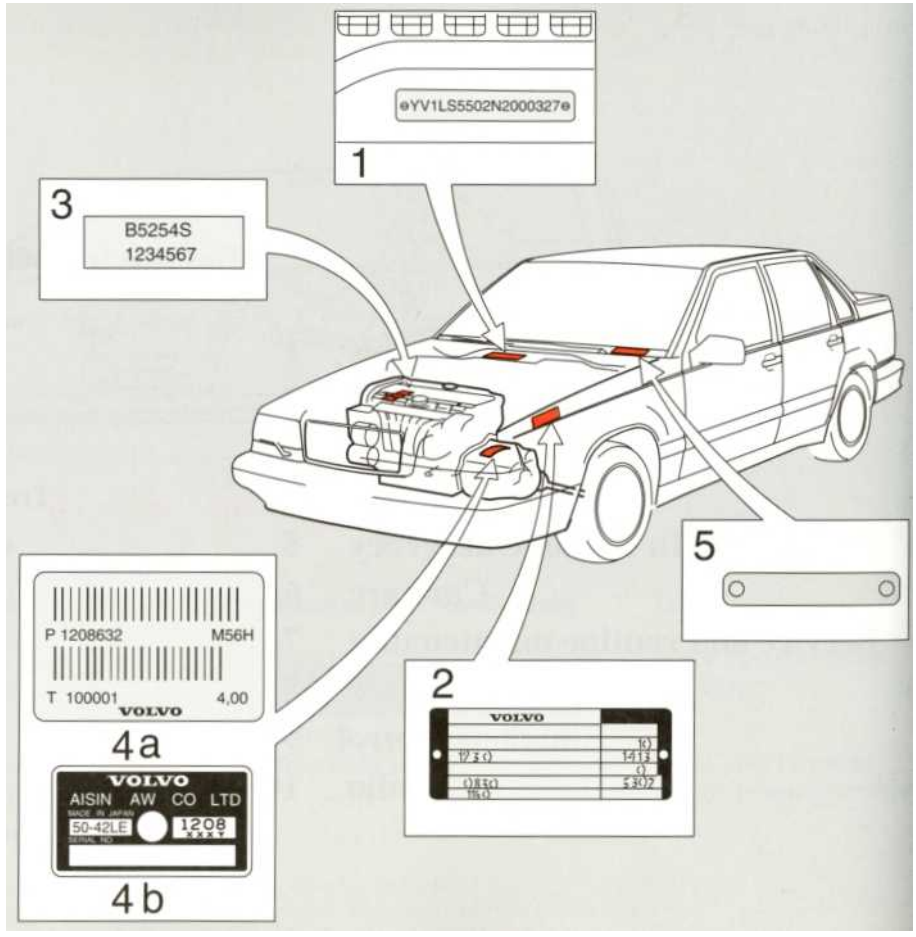
2 Type designation, max. permissible loads and code numbers for colour and upholstery
On a plate on the wheel arch liner behind the right headlight.

3 Engine type designation, part and manufacturing serial numbers
On upper side of engine block, beside the water pump.

4 Gearbox type designation and manufacturing serial number
a: Manual gearbox: on the front
b: Automatic transmission: on upper side

5 Vehicle Identification Number (VIN)*
VIN plate is located on the top left of the dashboard.

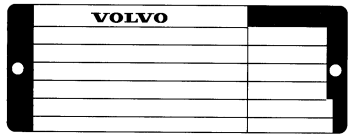
*U.K. only.



Dimensions and weights.

	4-door	5-door
Length	466 cm	471 cm
Width	176 cm	176 cm
Height	142 cm	144 cm
Wheelbase	266 cm	266 cm
Track, front	152 cm	152 cm
Track, rear	147 cm	147 cm
Turning circle	10.2 m	10.2 m

Type designation plate with weight-related specifications on wheel arch liner behind right headlight.



Gross vehicle weight
Max. axle load, front
Max. axle load, rear

Kerb weight (see registration certificate)
Permitted load = gross vehicle weight - kerb weight
Max. roof load 220 lb (100 kg)
Max. trailer weight* 3,500 lb (1,600 kg)

* see 3:11 for more exact details.

Note: The car's load should be adjusted so that neither gross vehicle weight nor axle load limits are exceeded.

Note!
When judging the amount of oil consumption, note that the oil may become diluted, making it difficult to take an accurate reading of the level.
For example, if a vehicle is used for repeated short trips and consumes a normal amount of oil, the dipstick may not show any drop in the oil level at all, even after 600 miles (1000 km) or more. This is because the oil is gradually diluted with fuel or moisture, making it appear that the oil level has not changed.

The diluting ingredients evaporate when the vehicle is then driven at high speeds, as on motorways, making it appear that oil is consumed at an excessive rate after driving at high speeds.

Capacities

Fuel tank	**73 litres**
Cooling system	**7.2 litres**
Turbo...	**7.0 litres**
Engine oil	
incl. oil filter	**5.3 litres**
excl. oil filter	**5.0 litres**
Turbo..	**+0.9 litres if the oil cooler is drained**
Gearbox oil	
manual 5-speed	**2.1 litres**
automatic	**7.6 litres**
Power steering fluid	**0.8 litre**
Washer reservoir	**4.5 litres**
Brake and clutch system fluid	**0.6 litre**
Air Conditioning R134a	**825 g**
	750 g**

"Certain markets

Load area, 5-door model

Length with rear seat folded up	**105 cm**
Length with rear seat folded down	**182 cm**
Maximum width of load opening	**120 cm**
Maximum height of load opening	**76 cm**

Oils

Petrol engines

Oil quality: CCMC G4/G5.
Oil which meets CCMC G5 is recommended for turbocharged engines.

Viscosity: See 7:7.

Synthetic or semi-synthetic oils may be used if they fulfil the quality requirements as specified above.
Oil additives should not be used unless recommended by an authorised Volvo workshop.

Capacity: 5.3 litres (incl. filter)
Turbo: +0.9 litres if the oil cooler is drained.

Gearbox

Oil quality: Manual, Volvo synthetic gearbox oil 97308.

Automatic, Volvo synthetic gearbox oil 97337.
Oils which meet both the Dexron II E and Ford Mercon specifications.

Capacity:	**Manual**	**2.1 litres**
	Automatic	**7.6 litres**

Power steering

Oil quality: ATF oil.

Capacity: approx. 0.8 litre

Brake and clutch fluid

Fluid type: Brake fluid pref. DOT 4+ (or DOT 4)

Capacity: approx. 0.6 litre.

Air conditioning

Refrigerant:	**R134a**
Volume:	**825 grammes**
	750 grammes (certain markets)
Oil type:	**ZXL 100 PG (PAG)**

Engine

	B5202S (10 valves)	B5252S (10 valves)	B5204S (20 valves)
Type designation	B5202S (10 valves)	B5252S (10 valves)	B5204S (20 valves)
Output	93 kW/104 rps (126 hp at 6250 rpm)	106 kW/90 rps (144 hp at 5400 rpm)	105 kw/108 rps (143 hp at 6500 rpm)
Torque	170 Nm/80 rps (17.3 kpm at 4800 rpm)	206 Nm/60 rps (21.0 kpm at 3600 rpm)	176 Nm/63 rps (17.9 kpm at 3800 rpm)
No. of cylinders	5	5	5
Bore	81 mm	83 mm	81 mm
Stroke	77 mm	90 mm	77 mm
Cubic capacity	1,984 cc (1.98 1)	2,435 cc (2.44 1)	1,984 cc (1.98 1)
Compression ratio	10.0:1	10.0:1	10.3:1
No. of valves	10	10	20
Valve clearance	self-adjusting	self-adjusting	self-adjusting
Firing order	1-2-4-5-3	1-2-4-5-3	1-2-4-5-3
Ignition setting, idling	5 B.T.D.C. at 850 rpm (self-adjusting ± 8)	10° B.T.D.C. at 850 rpm (self-adjusting ± 8°)	10° B.T.D.C. at 850 rpm
Spark plugs	Volvo P/N 271727-0 (Bosch FR7DC/Champion RC9YC)	Volvo P/N 271727-0 (Bosch FR7DC/Champion RC9YC)*	Volvo P/N 271603-3 (Bosch FR6DC/ Champion RC7YC)*
electrode gap	0.7-0.8 mm	0.7-0.8 mm	0.7 mm
tightening torque	25 Nm	25 Nm	25 Nm
Rec. octane rating	95 RON Unleaded (min. 91 octane unleaded)	95 RON Unleaded (min. 91 octane unleaded)	95 RON Unleaded (min. 91 octane unleaded)
Fuel system	Fenix 5.2	Fenix 5.2	LH-Jetronic 3.2
Idle speed	non-adjustable	non-adjustable	non-adjustable

*** or corresponding**

Use the correct type of petrol

Note: Cars equipped with catalytic converters must always be run on unleaded petrol in order to avoid damaging the catalytic converter.

Specifications

Engine

Type designation	B5254S (20 valves)	B5204T (20 valves)	B5234T (20 valves)
Output	125 kw/103 rps (170 hp at 6200 rpm)	155 kw/83 rps (210 hp at 5000 rpm)	166 kw/88 rps (225 hp at 5280 rpm)
Torque	220 Nm/55 rps (22.4 kpm at 3300 rpm)	300 Nm/37-82 rps (30.6 kpm at 2200-4900 rpm)	300 Nm/33-88 rps (30.6 kpm at 2000-5280 rpm)
No. of cylinders	5	5	5
Bore	83 mm	81 mm	81 mm
Stroke	90 mm	77 mm	90 mm
Cubic capacity	2,435 cc (2.44 l)	1,984 cc (1.98 l)	2,319 cc (2.32 l)
Compression ratio	10.5:1	8.4:1	8.5:1
No. of valves	20	20	20
Valve clearance	self-adjusting	self-adjusting	self-adjusting
Firing order	1-2-4-5-3	1-2-4-5-3	1-2-4-5-3
Ignition setting, idling	10° B.T.D.C. at 850 rpm	6° B.T.D.C. at 850 rpm	6° B.T.D.C. at 850 rpm
Spark plugs	Volvo P/N 271727-0* (Bosch FR7DC/Champion RC9YC)**	Volvo P/N 271766-8 (Champion RC7GYC)**	Volvo P/N 271766-8 (Champion RC7GYC)**
electrode gap	0.7-0.8 mm	0.7-0.8 mm	0.7-0.8 mm
tightening torque	25 Nm	25 Nm	25 Nm
Rec. octane rating	95 RON Unleaded (min. 91 octane unleaded)	95 RON Unleaded (min. 91-98 octane unleaded)	95 RON Unleaded (min. 91-98 octane unleaded)
Fuel system	LH-Jetronic 3.2	Motronic 4.3	Motronic 4.3
Idle speed	non-adjustable	non-adjustable	non-adjustable

Use the correct type of petrol

Note: Cars equipped with catalytic converters must always be run on unleaded petrol in order to avoid damaging the catalytic converter.

***Volvo P/N. 271603-3 (Bosch FR6DC/Champion RC7YC)** are recommended for consistent demanding driving.**
**** or corresponding**

B5234T5

Increase power output to 177 kW (240 hp) by temporarily raising boost pressure for a maximum of 30 seconds.

The temporary increase in boost pressure also affects the torque, which increases to 330 Nm at between 3000-4800 rpm. This only applies to models fitted with a manual gear-box.

Volvo recommends 98 RON lead-free petrol for the best performance with the B5234T5, but will run on any fuel with an octane rating of 91-98.

Engine

Type designation	B5234T5 (20 valves) Manual	B5234T5 (20 valves) Automatic
Output	166 (177*) kw/88 (94*) rps (225 (240*) hp at 5280 (5600*) rpm)	166 (177*) kw/88 (94*) rps (225 (240*) hp at 5280 (5600*) rpm)
Torque	300 (330*) Nm/33-88 (50-80*) rps (30.6 (33.7*) kpm at 2000-5280 (3000-4800*) rpm)	300 Nm/33-88 (33-94*) rps (30.6 kpm at 2000-5280 (2000-5600*) rpm)
No. of cylinders	5	5
Bore	81 mm	81 mm
Stroke	90 mm	90 mm
Cubic capacity	2,319 cc (2.32 l)	2,319 cc (2.32 l)
Compression ratio	8.5:1	8.5:1
No. of valves	20	20
Valve clearance	self-adjusting	self-adjusting
Firing order	1-2-4-5-3	1-2-4-5-3
Ignition setting, idling	6° B.T.D.C. at 850 rpm	6° B.T.D.C. at 850 rpm
Spark plugs	Volvo P/N 271766-8 (Champion RC7GYC)**	Volvo P/N 271766-8 (Champion RC7GYC)**
electrode gap	0.7-0.8 mm	0.7-0.8 mm
tightening torque	25 Nm	25 Nm
Rec. octane rating	98 RON Unleaded (min. 91-98 octane unleaded)	98 RON Unleaded (min. 91-98 octane unleaded)
Fuel system	Motronic 4.3	Motronic 4.3
Idle speed	non-adjustable	non-adjustable

*With a maximum 30 seconds of "overpressure".
**or corresponding

Use the correct type of petrol

Note: Cars equipped with catalytic converters must always be run on unleaded petrol in order to avoid damaging the catalytic converter.

Cooling system

Type	**Pressurized**
Capacity	**7.2 litres**
	7.0 litres (Turbo)
Thermostat starts opening at	**90 °C**
	87 °C (Turbo)

Front suspension

Spring strut suspension with integrated shock absorbers and control arms linked to the support frame. Power-assisted rack and pinion steering. Safety steering column.

Toe-in	0.33° ± 0.1°
Camber	0° ± 1.0°
Caster	3.35° ± 1.0°

Rear suspension

Delta-link axle, individual rear wheel suspension with longitudinal support arms, double link arms and track rods.

Toe-in	0.07° ± 0.18°
Camber	-1° ± 0.5°

Timing belt

Service interval: 80,000 miles (120,000 km)

Fuel, octane rating

Norm DIN 51600	**B 5202S/5252S/5204S/5254S**
	B 5204T/5234T/5234T5*
recommended	**95 unleaded**
minimum	**91 unleaded**

***98 octane, unleaded fuel is recommended for B5234T5.**

Power transmission

Manual
Single-disc dry plate clutch. All-synchromesh gearbox with synchromesh on all gears including reverse; integrated final drive. Operation via floor-mounted gear lever. Overdrive.

Automatic
4-speed fully automatic electronically controlled transmission comprising a hydraulic torque converter with a lock-up function; planetary gear, integrated final drive.
Operation via floor-mounted gear selector lever. Overdrive.
Drive shafts with symmetrical joint location.

Final drive ratios:

	B5202S	B5252S	B5204S	B5254S
Automatic	**3.16:1**	**2.74:1**	**3.16:1**	**2.74:1**
Manual	**4.45:1**	**4.00:1**	**4.45:1**	**4.00:1**

	B5204T	B5234T	B5234T5
Automatic		**2.54:1**	**2.54:1**
Manual	**4.00:1**	**4.00:1**	**4.00:1**

Manual gearbox

Type designation	M 56H
Ratios	
1st gear	3.07:1
2nd gear	1.77:1
3rd gear	1.19:1
4th gear	0.87:1
5th gear	0.70:1
Reverse	2.99:1

Automatic transmission

Type designation	AW 50-42LE
Ratios	
1st gear	3.61:1
2nd gear	2.06:1
3rd gear	1.37:1
4th gear	0.98:1
Reverse	3.95:1

Recommended min. and max. speeds, mph (km/h)

1st	2nd	3rd	4th	5th Overdrive
0-25	10-45	20-75	30 <	45 <
(0-40)	(20-70)	(30-120)	(50 <)	(70 <)

Engine speeds

Engine	Highest permitted constant engine speed	Permissible for brief periods only, while accelerating - max.
B5202S	6300 r/m	6500 r/m
B5252S	6000 r/m	6300 r/m
B5204S	6500 r/m	6800 r/m
B5254S	6300 r/m	6800 r/m
B5204T	6200 r/m	6500 r/m
B5234T	6200 r/m	6500 r/m
B5234T5	6200 r/m	6500 r/m

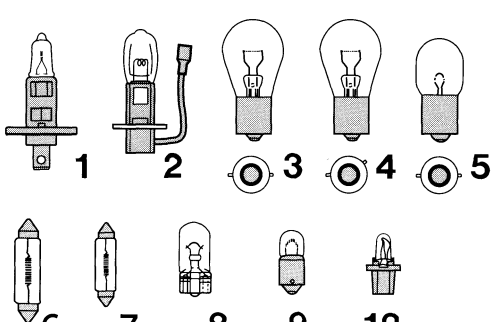
Electrical system

12-volt system with voltage-regulated alternator.
Single-pole system where body and engine frame are used as conductors. Negative pole connected to body.

Voltage	**12 Volt**
Battery, capacity	**520 A/100 min**
	420 A/75 min*
electrolyte, specific gravity	**1.28**
recharged at	**1.21**
Alternator max.current	**1400 W (100A)**
	1120 W (80A)**
Starter motor, output	**1.4 kW**

***Certain markets**
****Cars without air conditioning or automatic transmission.**

Bulbs, 12 V:



Bulbs	Rating	Socket	Fig. no.
Headlight	55 W	H 1	1
Front foglights	55 W	H 3	2
Front parking light	5 W	BA 15s	5
Direction indicator, front	21 W	BA 15 s	3
rear	21 W	BA 15 s	3
side	5 W	W 2.1x9.5 d	8
Tail light***	5 W	BA 15 s	5
Tail light****	21/4 W	BAZ 15d	4
High-level brake light	21 W	BA 15 s	3
Brake light	21 W	BA 15 s	3
Spoiler brake light	5 W	W 2.1x9.5 d	8
Reversing light	21 W	BA 15 s	3
Rear fog light***	21 W	BA 15 s	3
Rear fog light****	21/4 W	BAZ 15d	4
Number plate light	5 W	W 2.1x9.5 d	8
Door-open warning light	3 W	W 2.1x9.5 d	8
Footwell light	5 W	W 2.1x9.5 d	8
Roof-mounted courtesy light	5 W	BA 9s	9
Rear reading light	5 W	BA 9s	9
Boot light	10 W	SV 8.5	6
Glove box light	2 W	BA 9 s	9
Vanity mirror light	1.2 W		7
Instrument lighting	3 W	W 2.1x9.5 d	8
Illumination, control panel	1.2 W	W 2x4.6 d	10
gear selector lever (automatic transmission)	1.2 W	W 2x4.6 d	10
rear ashtray	1.2 W	W 2x4.6 d	10
seat belt lock	1.2 W	W 2x4.6 d	10
Warning/control lights in instrument panel	1.2 W	W 2x4.6 d	10

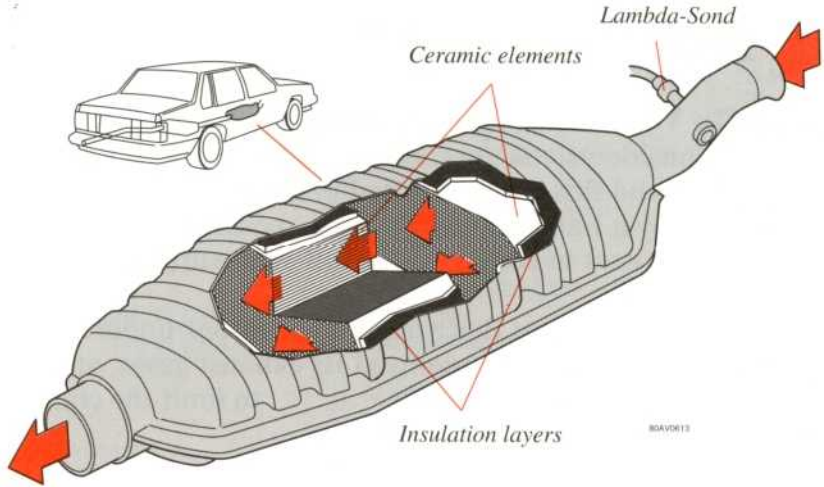
***Sedan**
****Estate**

Emission control

The Volvo Car Corporation has a long tradition of involvement in environmental considerations. As early as 1970, we began work on the development of cleaner engines and this effort resulted in the three-way catalytic converter which is regulated by a Lambda Sond oxygen sensor. Volvo was the first manufacturer of passenger cars to engage in the full-scale supply of cars with this system to the USA, way back in 1976.

It is also important that you as a car owner understand which of the car's components can affect the contents of its exhaust gases, and which measures are necessary to limit the emission of harmful exhaust gases.

Catalytic converter



Catalytic converter

This is a supplementary device in the exhaust system, designed to clean exhaust gases. It consists mainly of a container with a ceramic material insert, designed to let the exhaust gases pass through channels in the insert. The channel walls are covered by a thin layer of platinum-rhodium. These metals act as catalysts - taking part in and accelerating a chemical reaction without being consumed by it.

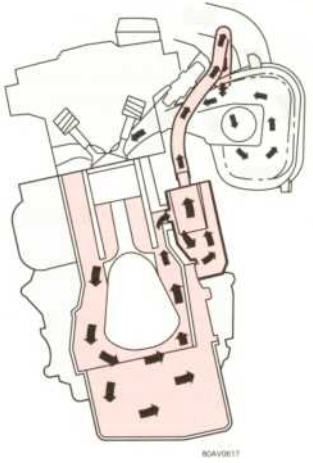
CAUTION!

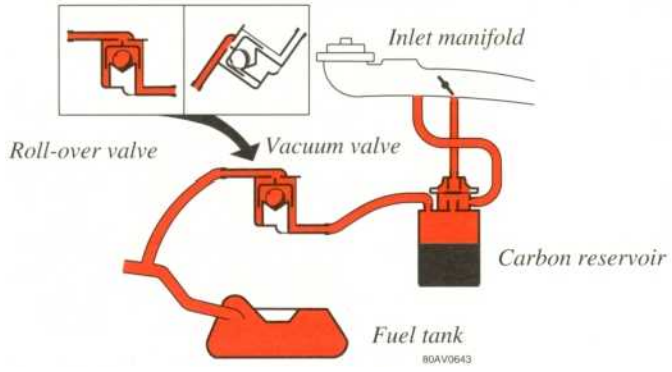
Vehicles equipped with catalytic converters must always be run on unleaded petrol. Otherwise, the catalytic converter will become ineffective. See "Fuel requirements".

Lambda-Sond (oxygen sensor) system

This is an emission control system designed to reduce emissions and improve fuel economy. An oxygen sensor monitors the composition of the exhaust gases leaving the engine. The value provided by this analysis of the exhaust gases is fed into an electronic system which constantly regulates the injectors. The unit adjusts the air-fuel ratio to provide optimum conditions for combustion and efficient reduction of the three major pollutants (hydrocarbons, carbon monoxide and nitrous gases) by means of a 3-way catalytic converter.

Positive crankcase ventilation, fuel evaporation system





Positive crankcase ventilation

Crankcase ventilation prevents the emission of crankcase gas into the surrounding air. Instead, these gases are sucked via the inlet manifold down into the cylinders where they aid the combustion process.

Crankcase ventilation, inspection

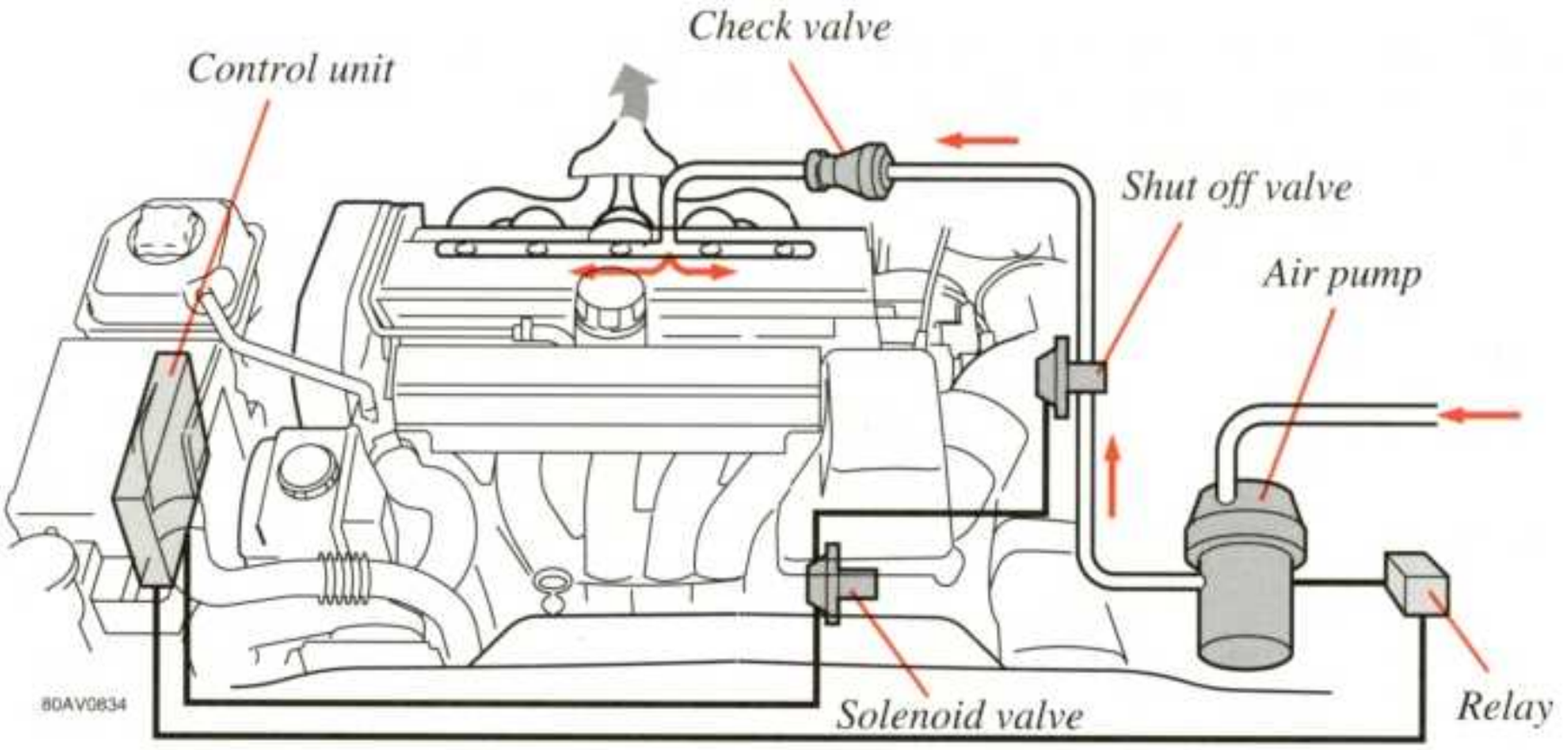
The system is cleaned and the condition of the rubber hoses and their degree of blockage should be checked according to the Volvo Service Programme. The rubber hoses should be replaced if they are in poor condition. The calibrated nipple should be removed and cleaned. The flame barrier should be replaced.

Fuel evaporation system

Cars equipped with catalytic converters have a fuel evaporation system which prevents the emission of fuel vapour into the air.
The system consists of an equalizing reservoir in the fuel tank, a "Roll-Over" valve ahead of the fuel tank and a carbon filter cannister with integrated vacuum valve in the left wheel-housing on the wheelarch liner.

The various components are interconnected by hoses which lead the gases from the fuel tank to the filter. These gases are stored there until the engine is started, when they are sucked into the engine inlet manifold during acceleration (not at idle speed).

Air pump system



Air pump system (B5202S, B5252S certain markets)

When the engine is being started from cold, an electrical air pump which draws air to the exhaust channels is activated. This starts an afterburning process which means smaller hydrocarbon and carbon monoxide (HC and CO) emissions and reduces the catalytic converted warm-up period.

The pump starts when the car has been started and is moving. It stays working until the catalytic converter has reached normal working temperature.

The pump whines softly, this is normal.

As part of the intensive efforts being invested in the improvement of the environment, it is important that you as a car owner understand which components may affect the contents of the exhaust gas and which measures need to be adopted to limit the emission of harmful exhaust gases.

Low exhaust emission therefore requires ...

... as regards service:

- That the car receives regular service in accordance with the Volvo Service Programme. The implication of this concept is dealt with in greater detail on 7:2 and in the Service booklet. We recommend that you schedule your car for service just prior to the annual roadworthiness (MOT) test.

... as regards engine components:

- That the engine receives proper lubrication. 7:6 describes the replacement of engine oil and the oil filter.
- That the exhaust system is totally free from leakage and is in sound condition.

... as regards the fuel system:

- That the pipes and connections are sound and free from leakage.
- That the fuel and air filters are not blocked.
- That the engine controls function smoothly.
- That cars with catalytic converters are always driven on unleaded petrol.

... as regards the ignition system:

- That the spark plugs are undamaged and have the correct electrode gap.

Environmental protection

Environmental protection

Volvo works with many different aspects of environmental protection. We use a new chlorine-free refrigerant in our air conditioning units. This refrigerant is completely safe for the ozone layer and contributes only minimally to the greenhouse effect. Asbestos-free brakes, engines equipped with catalytic converters and engines which can be run on methanol are examples of the Volvo Car Corporation's tireless efforts to minimise the impact of motoring on the environment.

The use of genuine Volvo parts, the maintenance of the ignition and fuel systems, and other service measures we carry out are directly aimed at reducing emission levels. We would also like to emphasise the environmentally safe way in which authorised Volvo workshops dispose of ecologically dangerous products such as lubricants, used coolants etc.

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