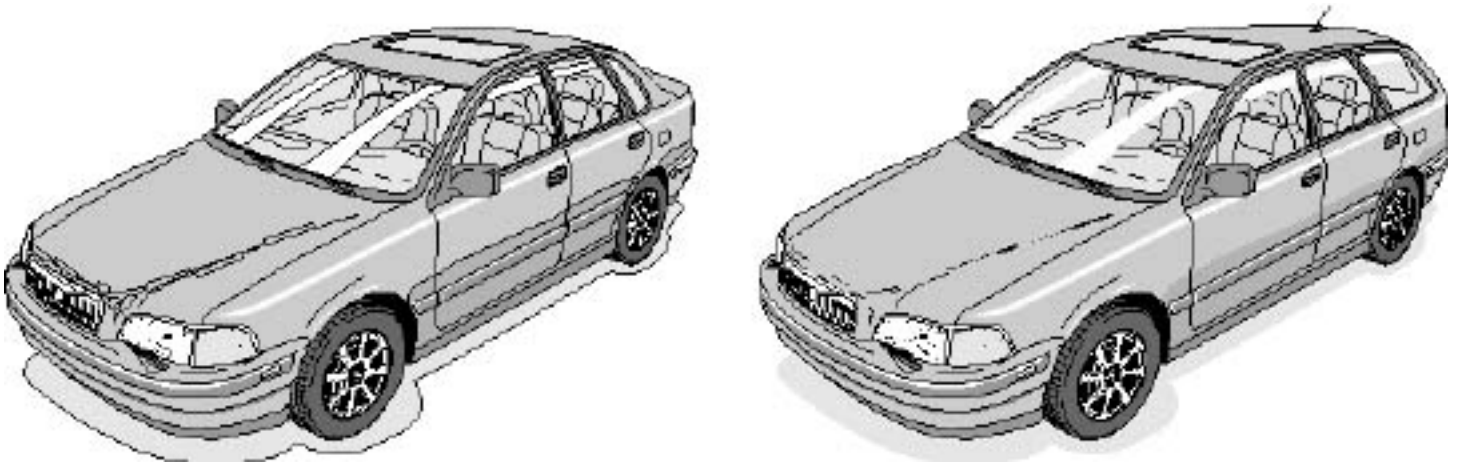


2001 VOLVO S40 & V 40

This manual deals with the operation and care of your Volvo.



Welcome to the worldwide family of Volvo owners. We trust that you will enjoy many years of safe driving in your Volvo, an automobile designed with your safety and comfort in mind. To help ensure your satisfaction with this vehicle, we encourage you to familiarize yourself with the equipment descriptions, operating instructions and maintenance requirements/recommendations in this manual. We also urge you and your passengers to wear seat belts at all times in this (or any other) automobile. And, of course, please do not operate a vehicle if you may be affected by alcohol, medication or any impairment that could hinder your ability to drive.

Your Volvo is designed to meet all applicable safety and emission standards, as evidenced by the certification labels attached to the driver's door opening and on the left wheel housing in the engine compartment.

For further information please contact your retailer, or:

In the USA:

Volvo Cars of North America

Customer Relations

P.O. Box 914

Rockleigh, New Jersey 07647-0914

800-458-1552

We also invite you to visit our Home Page on the Internet at:

<http://www.volvocars.com>

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General information

Important

Before you operate your car for the first time please familiarize yourself with the engine oil consumption information and refueling recommendations on pages 58 and 59. You should also be

familiar with the information in the first three chapters of this manual.

Information contained in the balance of the manual is extremely useful and should be read after operating the vehicle for the first time.

The manual is structured so that it can be used for reference. For this reason, it should be kept in the car for ready access.

Do not export your Volvo to another country before investigating that country's applicable safety and exhaust emission requirements. In some cases it may be difficult or impossible to comply with these requirements. Modifications to the emission control system(s) may render your Volvo not certifiable for legal operation in the U.S., Canada and other countries.

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication. Please note that some vehicles may be equipped differently, depending on special legal requirements and that optional equipment described in this manual may not be available in all markets.

Volvo reserves the right to make model changes at any time, or to change specifications or design, without notice and without incurring obligation.

Shiftlock

When your car is parked, the gear selector is locked in the (P)ark position. To release the selector from this position, turn the ignition key to position II (or start the engine), depress the brake pedal, press the button on the front of the gear selector knob and move the selector from (P)ark.

If it is necessary to manually override the shiftlock system:

- Turn the starting (ignition) key to position I
- Press firmly on the "SHIFTLOCK OVERRIDE" button located at the base of the gear selector
- While holding the override button down, press the button on the front of the gear selector
- Move the selector from the **(P)**ark position.

Keylock

When you switch off the ignition, the gear selector must be in the (P)ark position before the key can be removed.

Anti-lock Brake System (ABS)

The ABS system in your car performs a self-diagnostic test when the vehicle first reaches the speed of approximately 12 mph (20 km/h). The brake pedal will pulsate several times and a sound may be audible from the ABS control module. This is normal.

Fuel filler door

When you lock the doors, the fuel filler door also locks, with a delay of 10 minutes. When all doors are unlocked, the fuel filler door is also unlocked. Your key, keyless remote, and the door lock button in the driver's door control pod will all unlock the fuel filler door. To open the unlocked fuel filler door, press at the forward edge of the door. See pages 39 for information about locking and unlocking features.

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Volvo and the environment

Volvo is committed to the well being of our customers. As a natural part of this commitment, we care about the environment in which we all live. Caring for the environment means an everyday involvement in reducing our environmental impact.

Volvo's environmental activities are based on a holistic view, which means we consider the overall environmental impact of a product throughout its complete life cycle. In this context, design, production, product use, and recycling are all important considerations.

In production, Volvo has partly or completely phased out several chemicals including freons, lead chromates, naphthanates, asbestos, mercury and cadmium; and reduced the amount of chemicals used in our plants 50% since 1991.

In use, Volvo was the first in the world to introduce into production a three-way catalytic converter with a Lambda sond, now called oxygen sensor, in 1976. The current version of this highly efficient system reduces emissions of harmful substances (CO, HC, NOx) from the exhaust pipe by approximately 95% and the search to eliminate the remaining emissions continues. Volvo is the only automobile manufacturer to offer CFC-free retrofit kits for the air conditioning system for all models as far back as the M/Y 1975 240. Advanced electronic engine controls, refined purification systems and cleaner fuels are bringing us closer to our goal.

After Volvo cars and parts have fulfilled their use, recycling is the next critical step in completing the

life cycle. The metal content is about 75% of the total weight of a car, which makes the car among the most recycled industrial products. In order to have efficient and well controlled recycling, many Volvo variants have printed dismantling manuals, indicating the weight and material of individual components. For Volvo, all homogeneous plastic parts weighing more than 1.7 oz. (50 grams) are marked with international symbols that indicate how the component is to be sorted for recycling.

In addition to continuous environmental refinement of conventional gasoline-powered internal combustion engines, Volvo is actively looking at advanced technology alternative-fuel vehicles.

When you drive a Volvo, you become our partner in the work to lessen the car's impact on the environment.

To reduce your vehicle's environmental impact, you can:

- Maintain proper air pressure in your tires. Tests have shown decreased fuel economy with improperly inflated tires
- Follow the recommended maintenance schedule
- Drive at a constant speed
- See an authorized Volvo retailer as soon as possible for inspection if the check engine (malfunction indicator) lamp illuminates, or stays on after the vehicle has started
- Properly dispose of any vehicle related waste such as used motor oil, used batteries, brake pads, etc.
- When cleaning your car, use Volvo's own car care products, all of which have systematically been adapted to the environment

For additional information regarding the environmental activities in

which Volvo Cars of North America, Inc. and Volvo Car Corporation are involved, visit our Internet Home Page at:

<http://www.volvocars.com>



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2001 VOLVO S40 & V 40

Chapter 1 - Occupant safety

pg. 1 Occupant safety

Occupant safety

Not wearing a seat belt is like believing "It'll never happen to me!" Volvo, the inventor of the three-point seat belt, urges you and all adult occupants of your car to wear seat belts and ensure that children are properly restrained, using an infant, car or booster seat determined by age, weight and height. Volvo also believes **no child should sit in the front seat of a car and that no one under 4 feet 7 inches should ride as a passenger in the front seat of any vehicle equipped with a passenger side airbag.**

Fact: In every state and province, some type of child-restraint legislation has been passed. Additionally, most states and provinces have already made it mandatory for occupants of a car to use seat belts.

So, urging you to "buckle up" is not just our recommendation - legislation in your state or province may mandate seat belt usage. The few seconds it takes to buckle up may one day allow you to say, "It's a good thing I was wearing my seat belt".



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pg. 2 Seat belts

Seat belts

Always fasten the seat belts before you drive or ride.

Two lights above the rear view mirror will be illuminated for 4-8 seconds after the starting

(ignition) key is turned to the driving position. A chime will sound at the same time if the driver has not fastened his seat belt. The rear seats are provided with self- retracting inertial reel belts. The front seats are provided with single roller belts with tensioners.

To buckle:

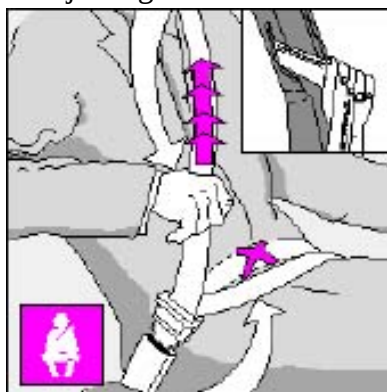
Pull the belt out far enough to insert the latch plate into the buckle until a distinct snapping sound is heard. The seat belt retractor is normally "unlocked" and you can move freely, provided that the shoulder belt is not pulled out too far. The retractor will lock up as follows:

- if the belt is pulled out rapidly
- during braking and acceleration
- if the vehicle is leaning excessively
- when driving in turns

For the seat belt to provide maximum protection in the event of an accident, it must be worn correctly. When wearing the seat belt remember:

- The belt should not be twisted or turned.
- The lap belt must be positioned low on the hips (not pressing against the abdomen).
- The shoulder section of the front seat belts adjusts automatically to the driver's height.

Adjusting the shoulder belt



Lap portion of the seat belt should sit low

Make sure that the shoulder belt is rolled up into its retractor and that the shoulder and lap

belts are taut.

Before exiting the car, check that the seat belt retracts fully after being unbuckled. If necessary, guide the belt back into the retractor slot.

NOTE: Legislation in your state or province may mandate seat belt usage.

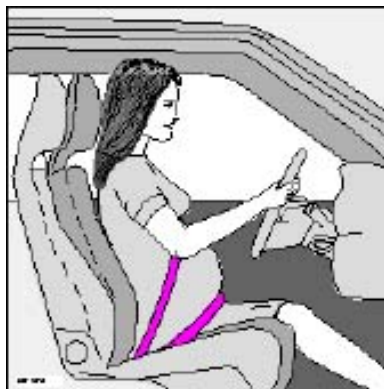
WARNING!

Any device used to induce slack into the shoulder belt portion of the three-point belt system will have a detrimental effect on the amount of protection available to you in the event of a collision. The seat back should not be tilted too far back. The shoulder belt must be taut in order to function properly.

WARNING!

Do not use child safety seats or child booster cushions/backrests in the front passenger's seat. We also recommend that children who have outgrown these devices sit in the rear seat with the seat belt properly fastened.

pg. 3 Seat belts, Head restraints



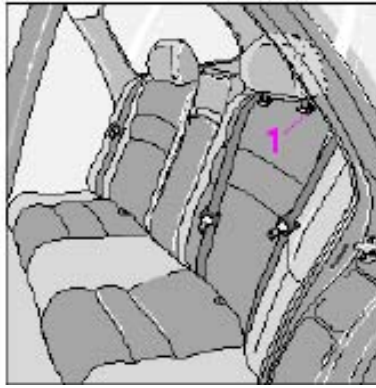
During pregnancy

Pregnant women should always wear seat belts. Remember that the belt should always be positioned in such a way as to avoid any possible pressure on the abdomen. The lap portion of the belt should be located low, as shown in the above illustration.

WARNING!

Never use a seat belt for more than one occupant. Never wear the shoulder

portion of the belt under the arm, behind the back or otherwise out of position. Such use could cause injury in the event of an accident. As the seat belts lose much of their strength when exposed to violent stretching, they should be replaced after any collision, even if they appear to be undamaged. Never repair the belt on your own; have this work done by an authorized Volvo retailer only.

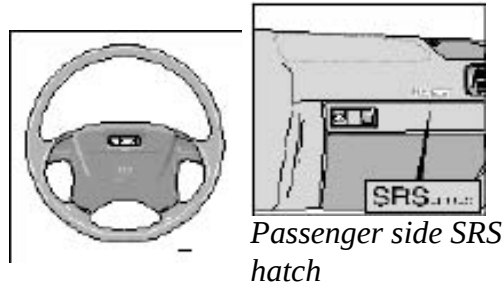


Rear head restraints

The rear head restraints can be adjusted according to the passenger's height. The restraint should be carefully adjusted to support the occupant's head.

The head restraint can be **raised** by pulling straight up or **lowered** by pressing the catch (1) at the base of the left head restraint support and pushing down.

pg. 4 Volvo SRS

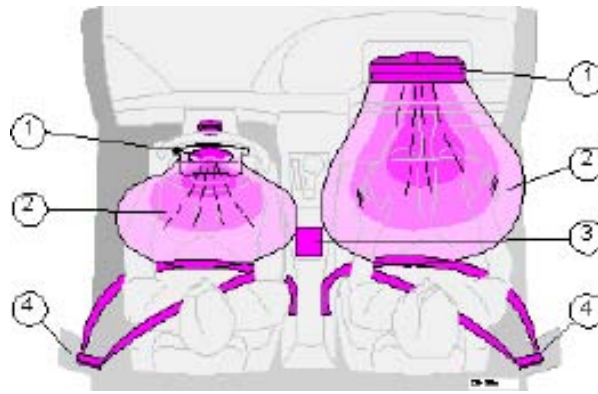


As an enhancement to the three-point seat belt system, your Volvo is equipped with a Supplemental Restraint System (SRS). The Volvo SRS consists of an airbag (2) on both the driver's and passenger's sides and seat belt tensioners in both front door pillars (4). The system is designed to supplement the protection provided by the three-point seat belt system.

The SRS system is indicated by the "SRS" embossed on the steering wheel pad and above the glove compartment, and by decals on both sun visors and on the far right side of the dash.

The airbags are folded and located in the steering wheel hub and above the glove compartment. They are designed to deploy during certain frontal or front-angular collisions, impacts, or decelerations, depending on the crash severity, angle, speed and object impacted. The airbags may also deploy in certain non-frontal collisions where rapid deceleration occurs.

The airbag system includes gas generators (1) surrounded by the airbags (2) and front seat belt tensioners for both of the front seats (4). To deploy the system, the sensor (3) activates the gas generators causing the airbags to be inflated with nitrogen gas. As the movement of the seats' occupants compresses the airbags, some of the gas is expelled at a controlled rate to provide better cushioning. Both seat belt tensioners also deploy, minimizing any seat belt slack.

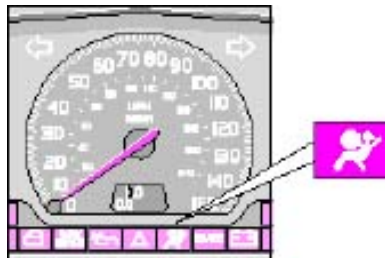


The entire process, including inflation and deflation of the airbags, takes approximately two-tenths of a second.

WARNING!

- As its name implies, SRS is designed to be a **SUPPLEMENT** to - not a replacement for - the three-point belt system. For maximum protection, wear seat belts at all times. Be aware that no system can prevent all possible injuries that may occur in an accident.
- When installing any optional equipment, make sure that the SRS system is not damaged. Do not attempt to service any component of the SRS yourself. Attempting to do so may result in serious personal injury. If a problem arises, take your car to the nearest authorized Volvo retailer for inspection as soon as possible.

pg. 5 Volvo SRS



A self-diagnostic system incorporated into the sensor monitors the SRS, SIPS and IC-system. If a fault is detected, the "SRS" warning light will illuminate. The light is included in the warning/indicator light cluster in the instrument panel. Normally, the SRS warning lamp should light up when the ignition is switched on and should go out after 5 seconds or when the engine is started. Check that this light is functioning properly every time the car is started.

The following items are monitored by the self-diagnostic system:

- Sensor unit
- SRS wiring
- Inflators

WARNING!

Do not use child safety seats or child booster cushions/backrests in the front passenger's seat. We also recommend that children who have outgrown these devices sit in the rear seat with the seat belt properly fastened.

NOTE: Deployment of SRS components occurs only one time during an accident. In a collision where deployment occurs, the air bags and seat belt tensioners activate. Some noise occurs and a small amount of powder is released. The release of the powder may appear as smoke-like matter. This is a normal characteristic and does not indicate fire.

NOTE: NOTE: Volvo's dual-threshold air bags use special sensors that are integrated with the front seat buckles. The point at which the air bag deploys is determined by whether or not the seat belt is being used, as well as, the severity of the collision. Collisions can occur where only one of the airbags deploys.

WARNING!

- Children must never be allowed in the front passenger seat. Volvo recommends that ALL occupants (adults and children) shorter than 4 feet 7 inches (140 cm) be seated in the back seat of any vehicle with a front passenger side airbag.
- Occupants in the front passenger's seat must never sit on the edge of the seat, sit leaning toward the instrument panel or otherwise sit out of position. The occupant's back must be as upright as comfort allows and be against the seat back with the seat belt properly fastened.
- Feet must be on the floor, e.g. not on the dash, seat or out of the window.
- No objects or accessory equipment, e.g. dash covers, may be placed on, attached to or installed near the SRS hatch (the area above the glove compartment) or the area affected by airbag deployment (see illustration).
- There should be no loose articles, e.g. coffee cups, on the floor, seat or dash area.
- Never try to open the SRS cover on the steering wheel or the passenger side SRS seam. This should only be done by an authorized Volvo service technician.
- Failure to follow these instructions can result in injury to the vehicle occupants in an accident.

NOTE: The information on this page does not pertain to the Side Impact Protection System airbags.

When are the airbags deployed?

The SRS system is designed to deploy during certain frontal or frontangular collisions, impacts, or decelerations, depending on the crash severity, angle, speed and object impacted. The SRS sensor is designed to react to both the impact

of the collision and the inertial forces generated by it and to determine if the intensity of the collision is sufficient for the airbags to be deployed.

WARNING!

The SRS is designed to help prevent serious injury. Deployment occurs very quickly and with considerable force. During normal deployment and depending on variables such as seating position, one may experience abrasions, bruises, swellings, or other injuries as a result of airbag(s) deployment.

If the airbags have been deployed, we recommend the following:

- Have the car towed to an authorized Volvo retailer. Never drive with the airbags deployed.
- Have an authorized Volvo retailer replace the SRS system components.
- Use only new, Genuine Volvo Parts when replacing SRS components (airbags, seat belts, tensioners, etc.).

When are the airbags NOT deployed?

Not all frontal collisions activate the SRS system. If the collision involves a nonrigid object (e.g., a snow drift or bush), or a rigid, fixed object at a low speed, the SRS system will not necessarily deploy. Front airbags do not normally deploy in a side impact collision, in a collision from the rear or in a rollover situation. The amount of damage to the bodywork does not reliably indicate if the airbags should have deployed or not.

Seat belts the heart of the Volvo safety system

The heart of the Volvo safety system is the **threepoint seat belt** (a Volvo invention)! In order for the SRS system to provide the protection intended, seat belts must be worn at all times by everyone in the car. **The SRS system is a supplement to the seat belts.**

WARNING!

If your car has been subjected to flood conditions (e.g. soaked carpeting/standing water on the floor of the vehicle) or if your car has become flood damaged in any way, do not attempt to start the vehicle or put the key in the ignition before disconnecting the battery (see below). This may cause airbag deployment which could result in personal injury. Have the car towed to an authorized Volvo retailer for repairs.

Before attempting to tow the car, use the following procedure to override the shiftlock system to move the gear selector to the neutral position.

- Disconnect the battery
- Wait at least one minute
- Insert the key in the ignition and turn it to position 1
- Press firmly on the shiftlock override button (located near the base of the gear selector).

- While holding the override button down, move the gear selector from the park position.

WARNING!

Never drive with the airbags deployed. The fact that they hang out can impair the steering of your car. Other safety systems can also be damaged. The smoke and dust formed when the airbags are deployed can cause skin and eye irritation in the event of prolonged exposure.



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2001 VOLVO S40 & V 40

pg. 8 Volvo Side Impact Protection System (SIPS) airbag



SIPS airbag

As an enhancement to the structural Side Impact Protection System built into your car, the car is also equipped with Side Impact Protection System (SIPS) airbags. The SIPS airbag system consists of airbag modules built into the sides of both front seat backrests (1), wires (2) from these modules to the electronic sensor units (3).

The SIPS airbag system is designed to help increase front seat occupant protection in the event of certain side impact collisions. The SIPS airbags are designed to deploy only during certain side impact collisions, depending on the crash severity, angle, speed and point of impact. The airbags are not designed to deploy in all side impact situations.

NOTE: SIPS airbag deployment (one airbag) occurs only on the side of the vehicle affected by the impact.



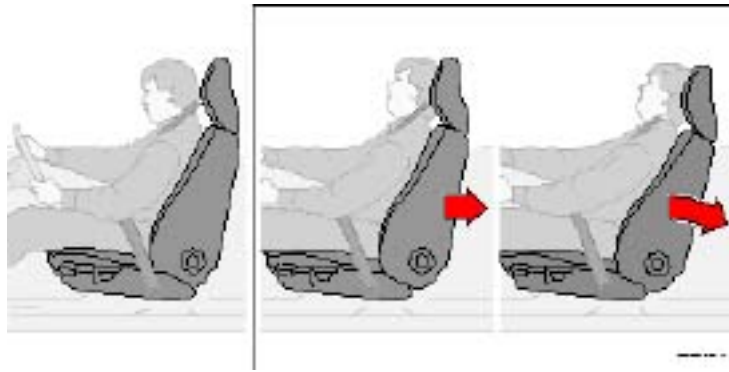
SIPS bag decal inside driver's door

WARNING!

- Never drive with the airbags deployed. The fact that they hang out can impair the steering of your car. Other safety systems can also be damaged. The smoke and dust formed when the airbags are deployed can cause skin and eye irritation in the event of prolonged exposure.
- If your car has been subjected to flood conditions (e.g. soaked carpeting/standing water on the floor of the vehicle) or if your car has become flood damaged in any way, do not attempt to start the vehicle or put the key in the ignition before disconnecting the battery. This may cause airbag deployment which could result in personal injury. Have the car towed to an authorized Volvo retailer for repairs.

WARNING!

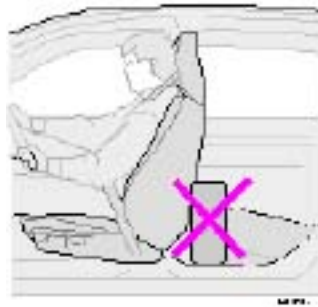
- The SIPS airbag system is a supplement to the Side Impact Protection System and the three point seat belt system. It is not designed to deploy during collisions from the front or rear of the car or in rollover situations.
- The use of seat covers on the front seats must not be used if they are not Volvo original covers or Volvo approved seat covers for SIPS airbags.
- No objects, accessory equipment or stickers may be placed on, attached to or installed near the SIPS airbag system or in the area affected by SIPS airbag deployment.
- Never try to open or repair any components of the SIPS airbag system. This should only be done by an authorized Volvo service technician.
- For best protection from the SIPS airbag system, both front seat occupants should sit in an upright position with the seat belt properly fastened.
- Failure to follow these instructions may increase your risk of injury in an accident.



Whiplash Protection System (WHIPS) - front seats only

The WHIPS system consists of specially designed hinges and brackets on the front seat backrests and head restraints designed to help absorb some of the energy generated in a collision from the rear ("rear-ended").

In the event of a collision of this type, the hinges and brackets of the front seat backrests are designed to change position slightly to allow the backrest/head restraint to help support the occupant's head before moving slightly rearward. This movement helps absorb some of the forces that could result in the whiplash effect.



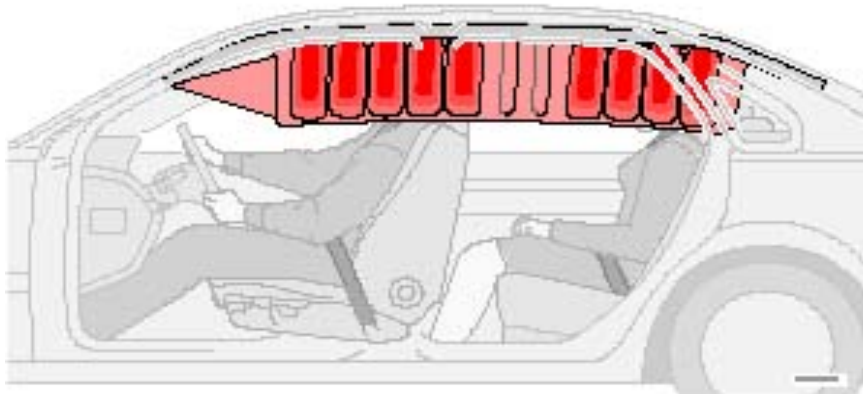
Do not wedge boxes, suitcases, etc. behind front seats

WARNING!

- Boxes, suitcases, etc. wedged behind the front seats (see illustration above) could impede the function of the WHIPS system.
- Any contact between the front seat backrests and the folded rear seat could impede the function of the WHIPS system. If the rear seat is folded down, the occupied front seats must be adjusted forward so that they do not touch the folded rear seat
- The WHIPS system is designed to supplement the other safety systems in your car. For this system to function properly, the three-point seat belt must be worn. Please be aware that no system can prevent all possible injuries that may occur in an accident.

- If your car has been involved in a collision, the front seat backrests must be inspected by an authorized Volvo retailer even if the seats appear to be undamaged. Certain components in the WHIPS system may need to be replaced. Do not attempt to service any component in the WHIPS system yourself.
- If the rear seat backrests are folded down, cargo must be secured to prevent it from sliding forward against the front seat backrests in the event of a collision from the rear. This could interfere with the action of the WHIPS system.
- The WHIPS system is designed to function in certain collisions from the rear, depending on the crash severity, angle and speed.
- Occupants in the front seats must never sit out of position. The occupant's back must be as upright as comfort allows and be against the seat back with the seat belt properly fastened.

pg. 10 IC system (inflatable curtain)



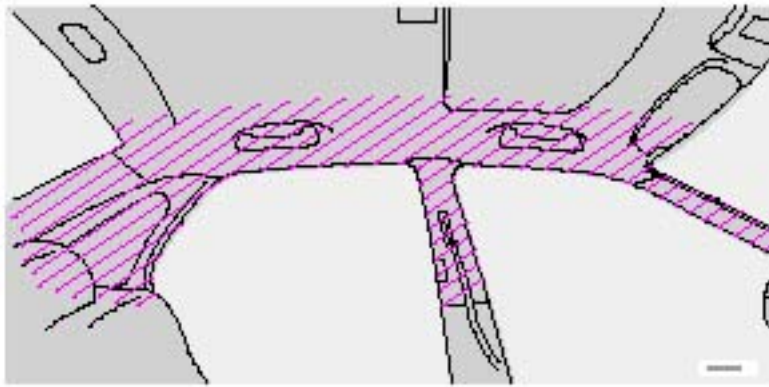
IC system (Inflatable curtain)

The inflatable curtain system is located along the sides of the roof liners, stretching from the center of both front side windows to the rear edge of the rear side windows. The system is designed to help protect the heads of occupants of the front seats and the outboard rear seats in certain side impact collisions.

If an IC system deployment occurs during a collision, it occurs only one time, and occurs only on the side of the vehicle affected by the impact.

The IC and SIPS bag are controlled by the same sensors. Both systems are designed to deploy simultaneously. If the IC deploys, it remains inflated for approximately 3 seconds.

The IC system is designed to afford additional protection to occupants of the front and outer rear seats.



WARNING!

- The IC system is a supplement to the Side Impact Protection System. It is not designed to deploy during collisions from the front or rear of the car or in most rollover situations.
- Never try to open or repair any components of the IC system. This should be done only by an authorized Volvo service technician.
- The inflatable curtains are designed to deploy only during certain side-impact collisions, depending on the crash severity, angle, speed and impact. The inflatable curtains are not designed to deploy in all side impact situations.
- In order for the IC to provide its best protection, both front seat occupants and both outboard rear seat occupants should sit in an upright position with the seat belt properly fastened; adults using the seat belt and children using the proper child restraint system. Only adults should sit in the front seats. Children must never be allowed in the front passenger seat. See page 15 for guidelines. Failure to follow these instructions can result in serious injury to the vehicle occupants.

WARNING!

Failure to follow the instructions on these pages will increase the risk of your child being injured during a sudden stop or collision. In the event of a collision while the integrated booster cushion was occupied, the entire booster cushion and center seat belt must be replaced. The booster cushion should also be replaced if it is badly worn or damaged in any way. This work should be performed by an authorized Volvo retailer only. The booster cushion should be cleaned while in place in the vehicle if possible. If not, please consult your Volvo retailer.

Make sure that the booster cushion is always securely locked in place.

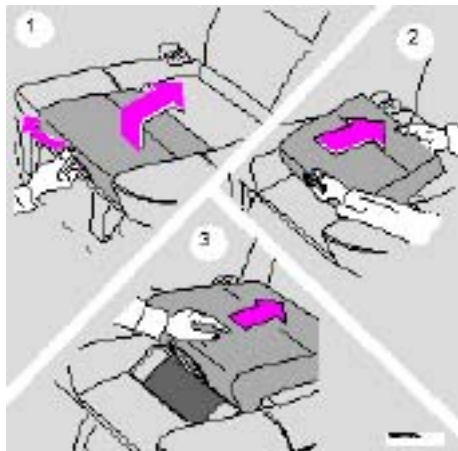
Always put the belt comfortably over the child's shoulder and across their lap.

If the booster cushion is subjected to severe forces in an accident it must be replaced as a whole, inclusive of belt and attachments.

Never leave children unattended in the car.

Integrated booster cushions

Volvo's own integrated booster cushions have been specially designed to help safeguard a child seated in the rear seat. When using an integrated booster cushion, the child must be secured with the vehicle's three point seat belt. The booster cushions are approved for children weighing between 33 and 80 lbs (15 and 36 kg) and between 38 and 54 in (97 and 137 cm) in height.

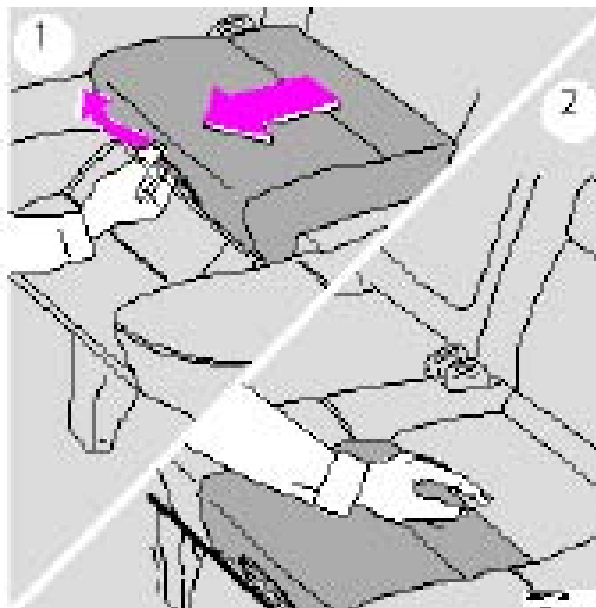


Integrated booster cushion - outboard positions

Outboard integrated booster cushions - Raising

1. Pull the handle at the front of the cushion forward. 2. With both hands push the cushion rearward. 3.

Push the cushion until it locks in place.



Integrated booster cushion - outboard positions

Outboard integrated booster cushions - Lowering

1. Pull the handle at the front of the cushion forward. 2. Push the cushion forward/downward.

NOTE: The booster cushion must be completely lowered before the rear seat backrest can be folded down.

pg. 12 Isofix

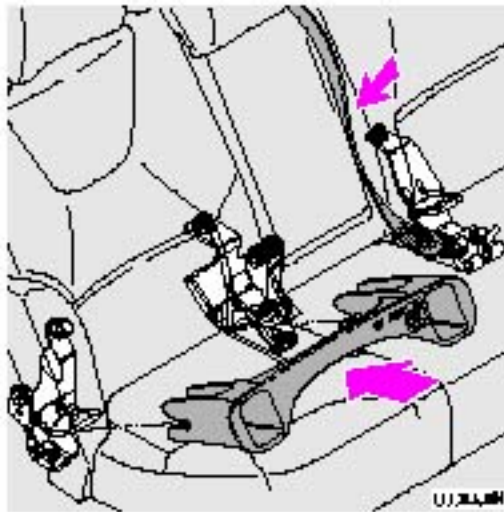
Note: Remove the Isofix guide, if you do not plan to use it for an extended period.

Note: Remove the Isofix guide before folding down the rear seat back.

Isofix fasteners and Isofix guide (option or accessory)

The Isofix fasteners are installed in the rear seat on the outboard positions. The Isofix guide is stored in the trunk next to the spare wheel.

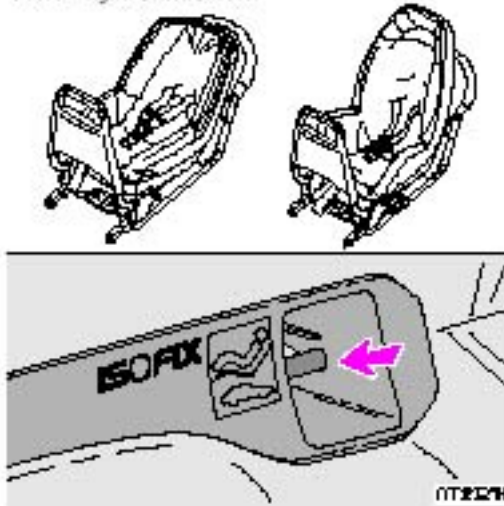
Consult your Volvo retailer for more information on child safety accessories.



Installation of Isofix guide

Installation of the Isofix guide Push or press down the cushion foam in the seat in order to make the Isofix fasteners accessible. Then push both sides of the Isofix guide on to the fasteners before you install a child seat. When installing the Isofix guide on the left side of the rear seat, begin by pushing aside the seat belt towards the middle of the car. The seat belt would otherwise hinder access to the fasteners.

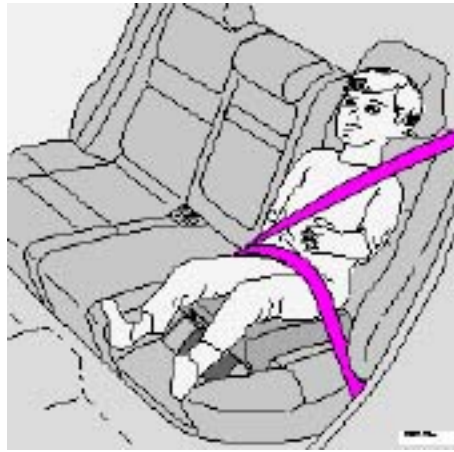
Volvo Isofix Child Seats



Make sure that the fasteners are visible in the holes of the Isofix guide and that the text on the Isofix guide is in upright position.

WARNING!

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



Integrated booster cushion - outboard positions

The child should be properly seated on the booster cushion. The head restraint should be carefully adjusted to support the child's head. The hip section of the three point seat belt must fit snugly across the child's hips, not across the stomach. The shoulder section of the three point seat belt should be positioned across the chest and shoulder (see illustration). The shoulder belt must never be placed behind the child's back or under the arm.

WARNING!

Do not use child safety seats or child booster cushions/backrests in the front passenger's seat. We also recommend that children who have outgrown these devices sit in the rear seat with the seat belt properly fastened.

Important!

Why Volvo believes no child should sit in the front seat of a car.

It's quite simple really. A front air bag is a very powerful device designed, by law, to help protect an adult. Because of the size of the air bag and its speed of inflation, a child should never be placed in the front seat, even if he or she is properly belted or strapped into a child safety seat. Volvo has been an innovator in safety for over fifty years, and we'll continue to do our part. But we need your help. Please remember to put your children in the back seat, and buckle them up.

Volvo has some very specific recommendations:

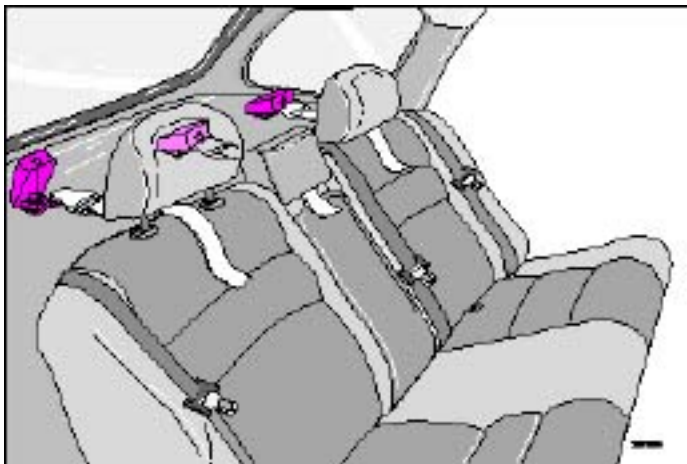
- Always wear your seat belt.
- Air bags are a SUPPLEMENTAL safety device which when used in conjunction with a three-point seat belt can help reduce serious injuries during certain types of severe accidents. Volvo recommends that

you do not disconnect the air bag system in your vehicle.

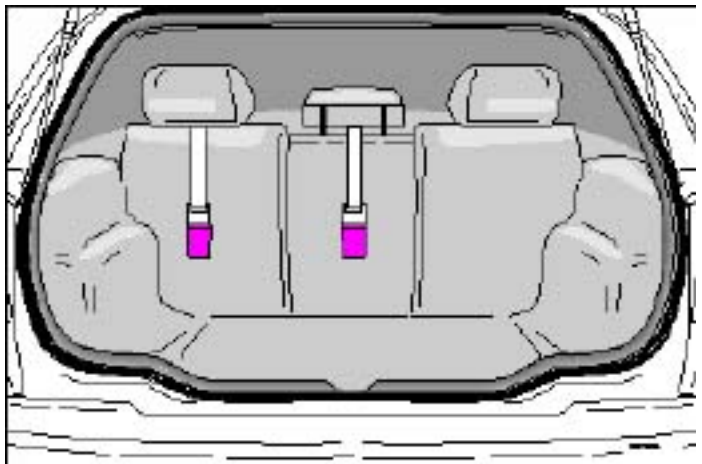
- Volvo strongly recommends that ALL children sit in the rear seat of any vehicle and that they be properly restrained.
- A child should NEVER sit in the front passenger seat of any vehicle equipped with a front passenger side airbag.
- Volvo recommends that ALL occupants (adults and children) shorter than 4 feet 7 inches (140 cm) be seated in the back seat of any vehicle with a front passenger side airbag.

Drive safely!

pg. 14 Child Restraint Anchorages



S40



V40

Child Restraint Anchorages

Volvo cars are fitted with Child Restraint Top Tether Anchorages in the rear seat.

S40: Anchor fittings are factory installed in the middle section of the parcel shelf.

V40: Anchor fitting are factory installed in the left section of the backrest of the rear seat.

Open the cover when you want to use the anchorage point.

WARNING!

Child Restraint Anchorage's 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 or harnesses. The anchorages are not able to withstand excessive forces on them in the event of collision if full harness seat belts or adult seat belts are installed to them. An adult who uses a belt anchored in a Child Restraint Anchorage runs a great risk of suffering severe injuries should a collision occur. Do not install rear speakers which would require the removal of the top tether anchors or interfere with the proper use of the top tether strap. Never remove or loosen the top tethers yourself

pg. 15 Child safety

Child safety

Volvo recommends the proper use of restraint systems for all occupants including children. Remember that, regardless of age and size, a child should always be properly restrained in a car.

Child restraint systems can help protect children in cars in the event of an accident only if they are used properly. However, children could be endangered in a crash if the child restraints are not properly secured in the vehicle. Failure to follow the installation instructions for your child restraint can result in your child striking the vehicle's interior in a sudden stop.

Holding a child in your arms is NOT a suitable substitute for a child restraint system. In an accident, a child held in a person's arms can be crushed between the vehicle's interior and an unrestrained person. The child could also be injured by striking the interior, or by being ejected from the vehicle during a sudden maneuver or impact. The same can also happen if the infant or child rides unrestrained on the seat. Other occupants should also be properly restrained to help reduce the chance of injuring or increasing the injury of a child.

All states and provinces have legislation governing how and where children should be carried in a car. Find out the regulations

existing in your state or province. Recent accident statistics have shown that children are safer in rear seating positions than front seating positions when properly restrained. A child restraint system can help protect a child in a vehicle. Here's what to look for when selecting a child restraint system:

- It should have a label certifying that it meets applicable Federal Motor Vehicle Safety Standards (FMVSS 213) - or in Canada, CMVSS 213.

- Make sure the child restraint system is approved for the child's height, weight and development the label required by the standard or regulation, or instructions for infant restraints, typically provide this information.
- **In using any child restraint system, we urge you to look carefully over the instructions that are provided with the restraint. Be sure you understand them and can use the device properly and safely in this vehicle. A misused child restraint system can result in increased injuries for both the infant or child and other occupants in the vehicle.**
- If your child restraint requires a top tether strap, consult your authorized Volvo retailer for top tether anchorage and installation information.

When a child has outgrown the child safety seat, you should use the rear seat with the standard seat belt fastened. The best way to help protect the child here is to place the child on the integrated booster cushion so that the seat belt is properly located on the hips (see [page 11](#))

Keeping child seats in place (ALR/ELR*)

To make child seat installation easier, each seat belt (except for the driver's belt) is equipped with a locking mechanism to help keep the seat belt taut.

When attaching the seat belt to a child seat:

- Attach the seat belt to the child seat according to the child seat manufacturer's instructions.
- Pull the seat belt out as far as possible.
- Insert the seat belt latch plate into the buckle(lock) in the usual way.
- Release the seat belt and pull it taut around the child seat.

A sound from the seat belt retractor will be audible at this time and is normal.

The belt will now be locked in place.

This function is automatically disabled when the seat belt is unlocked and the belt is retracted.

WARNING!

Do not use child safety seats or child booster cushions/backrests in the front passenger's seat. We also recommend that children who have outgrown these devices sit in the rear seat with the seat belt properly fastened.

pg. 16 Occupant safety

Seat belt maintenance

Check periodically that the seat belts are in good condition. Use water and a mild detergent for cleaning. Check seat belt mechanism function as follows: Attach the seat belt and pull rapidly on the strap.

Volvo Concern for Safety

Safety is the cornerstone of Volvo. Our concern dates back to 1927 when the first Volvo rolled off the production line. Three point seat belts (a Volvo invention), safety cages, and energy absorbing impact zones were designed into Volvo cars long before it was fashionable or required by government regulation. We will not compromise our commitment to safety. We continue to seek out new safety features and to refine those already in our cars. You can help. We would appreciate hearing your suggestions about improving automobile safety. We also want to know if you ever have a safety concern with your car. Call us in the U.S. at: 800-458-1552. Call us in Canada at: 1-800-633-8255.

Occupant safety

How safely you drive doesn't depend on how old you are but rather on:

- How well you see.
- Your ability to concentrate.
- How quickly you make decisions under stress to avoid an accident.

The tips listed below are suggestions to help you cope with the ever changing traffic environment.

- Never drink and drive.

- If you are taking any medication, consult your physician about its potential effects on your driving abilities.
- Take a driver retraining course
- Have your eyes checked regularly
- Keep your windshield and headlights clean.
- Replace wiper blades when they start to leave streaks.
- Take into account the traffic, road, and weather conditions, particularly with regard to stopping distance.

Reporting Safety Defects

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Volvo Cars of North America. If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your retailer, or Volvo Cars of North America. To contact NHTSA, you may either call the Auto Safety Hotline tollfree at 1-800-424-9393 (or 202-366-0123 in Washington, D.C. area) or write to: NHTSA, U.S. Department of Transportation, Washington D.C. 20590. You can also obtain other information about motor vehicle safety from the Hotline.

Volvo strongly recommends that if your vehicle is covered under a service campaign, safety or emission recall or similar action, it should be completed as soon as possible. Please check with your local retailer or Volvo Cars of North America, Inc. if your vehicle is covered under these conditions.



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2 0 0 1 VOLVO S40 & V 40

Chapter 2 - Instruments, switches and controls

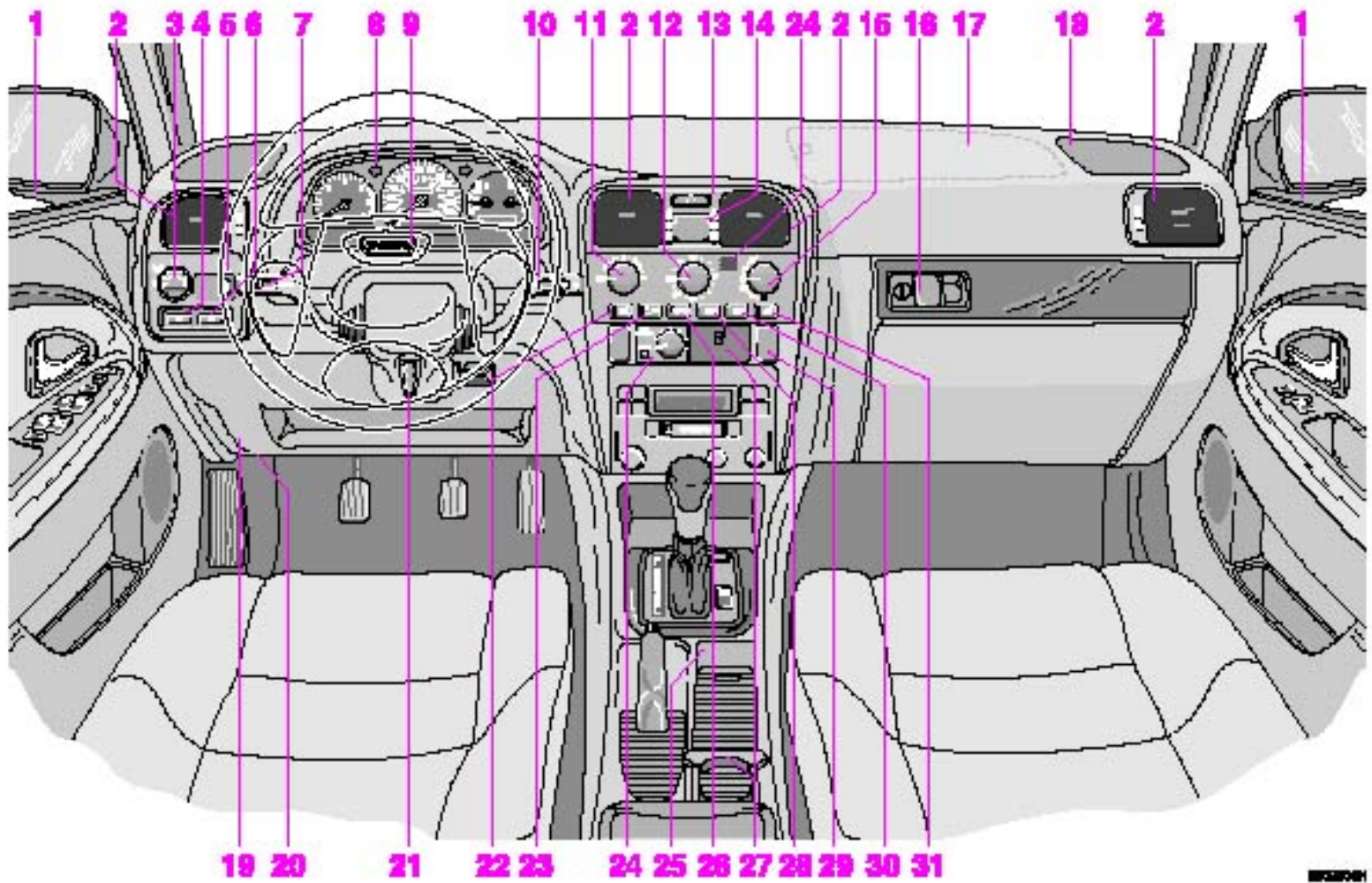
pg. 17 Instruments, switches and controls

Instruments, switches and controls

Instruments, switches, controls etc. are described on the following pages.

<u>Instruments</u>	<u>18</u>
<u>Indicator and warning lights</u>	<u>21</u>
<u>Headlights, Parking lights, Instrument illumination, Fog lights</u>	<u>24</u>
<u>Turn signals, home Safe lighting, Wipers/washers</u>	<u>25</u>
<u>Ignition switch/steering wheel locks, Flashers, Heated rear window/mirrors</u>	<u>26</u>
<u>Trip Computer</u>	<u>27</u>
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<u>Cruise control</u>	<u>31</u>
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pg. 18 Instruments, switches and controls



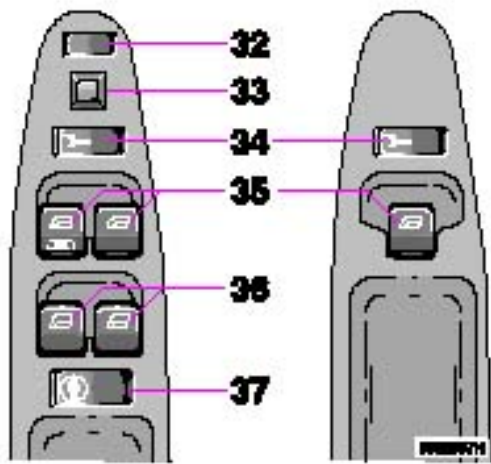
pg. 19 Instruments, switches and controls

Chapter 2 - Instruments, switches and controls

The pages in this section provide detailed descriptions of the vehicle's instruments and controls. Note that vehicles may be equipped differently, depending on special legal requirements.

	Page
1 Adjustable door mirrors	49
2 Air vents	35
3 Headlight switch	24
4 Front foglight switch	24
5 Instrument lighting	24
6 Rear foglight switch	24
7 Turn signals, high/low beams, Home Safe Lighting, cruise control	31

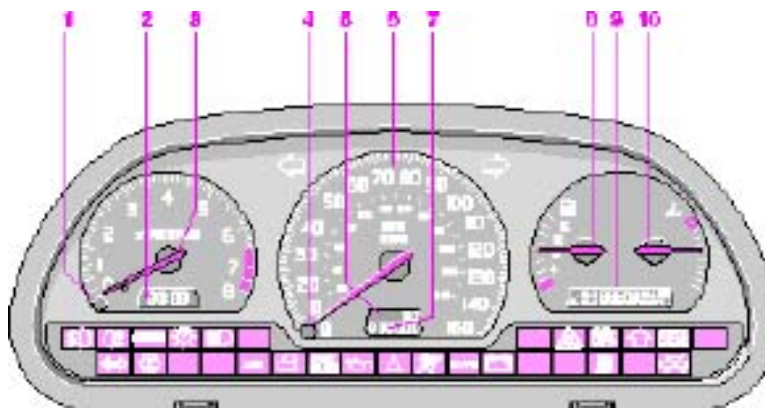
8 Instruments, indicator and warning lights	20
9 Horn	
10 Windshield wash/wipe, headlight wash/wipe	25
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36 Window left and right rear	38
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Controls in center console

Some of the items listed on this page are available on certain models only.

pg. 20 Instruments



1 Clock reset knob

Turn the knob:

Clockwise: advance

Counterclockwise: set clock back The longer the knob is turned, the faster the setting will change.

2 Clock

3 Tachometer

Reads thousands of engine rpm. The needle should never be in the solid red range.

4 Trip odometer reset button

Press the button to reset the trip odometer. The ignition must be switched on.

5 Odometer

6 Speedometer

7 Trip odometer

Used for measuring shorter distances. The last digit indicates 1/10 mile/kilometer.

8 Fuel gauge

Fuel tank capacity: 16 US gallons (60 liters).

When the warning light comes on there is approximately 1.5 US gal. (7 liters) of fuel remaining. See "Refueling" for additional information. When refueling the fuel gauge needle will not register until the volume of gasoline in the tank exceeds 3.5 US gal. (12 liters).

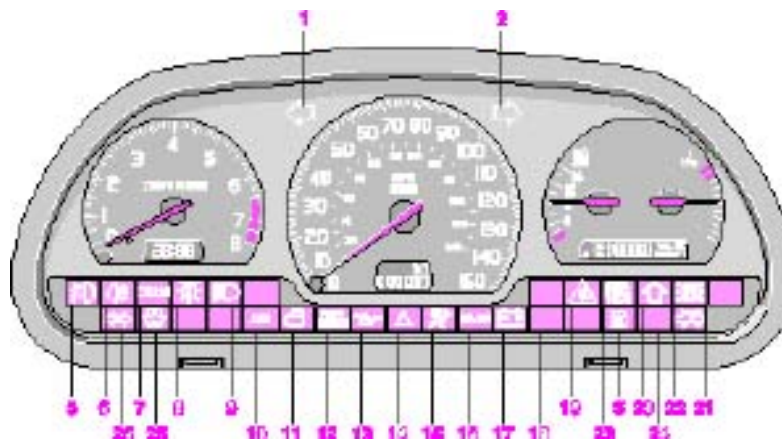
9 Trip Computer/Ambient temperature

NOTE: See [page 27- 29](#) for information on the trip computer.

10 Temperature gauge (engine coolant)

Do not drive the car with the pointer in the red range. The pointer should be approximately midway on the gauge face when driving. If the pointer approaches the red range repeatedly, check coolant level. See [page 117](#).

pg. 21 Indicator and warning lights



1 Turn signal, left

2 Turn signal, right

3 Fuel level low

4 Front fog lights on

5 Rear fog lights on

6 Rear fog lamp on

7 Cruise control

8 High beams on

9 ABS (anti-lock brakes) malfunction

10 Door open

- 11 Parking brake applied
- 12 Low oil pressure
- 13 Hazard warning light on
- 14 Fault in SRS system
- 15 Brake circuit not working (brake fluid level too low) and EBD
- 16 Battery charge failure
- 17 DSA (option)
- 18 Automatic transmission: position W, 4 or 3 or L
- 19 Check engine light
- 20 Immobilizer on
- 21 Service Reminder Indicator
- 22 Low washer fluid level
- 23 Turn indicator trailer (certain models)

Starting check

After a few seconds, all lights except 9 and 20 will go out. Once the engine starts, 9 and 20 will also go out.

* Indicates failure of a brake light, not failure of the braking system (see item 15).

pg. 22 Warning lights

The warning lights described on [pages 22 and 23](#) should never stay on when driving

When the ignition key is turned on and before the engine starts, all of the warning lights should go on to test the function of the bulbs. Should a light not go off after the engine has started, the system indicated should be inspected. However, the parking brake reminder light will not go off until the parking brake has been fully released.



Supplemental Restraint System (SRS)

If the light comes on (or stays on after the vehicle has started), the SRS diagnostic system has detected a fault. Drive to an authorized Volvo retailer for an inspection of the system. See the SRS section for more information.



Check Engine Lamp

If the lamp comes on (or stays on after the vehicle has started), the engine diagnostic system has detected a possible fault in the emission control system. Although driveability may not be affected, see an authorized Volvo retailer as soon as possible for inspection.

Canadian models are equipped with this warning light:

NOTE: If the fuel filler cap is not closed tightly or if the engine is running when the car is refueled, the Check Engine Lamp may indicate a fault. However, your vehicle's performance will not be affected. Use only Volvo original or approved fuel filler caps.



Oil pressure warning light

If the light comes on while driving, stop the car and then stop the engine immediately and check the engine oil level. See [page 114](#). If the light stays on after restart, have the car towed to the nearest authorized Volvo retailer. After hard driving, the light may come on occasionally when the engine is idling. This is normal, provided it goes off when the engine speed is increased.



Parking brake reminder light

This light will be on when the parking brake (hand brake) is applied. The parking brake lever is situated between the front seats.

Canadian models are equipped with this warning light: 

WARNING!

If the fluid level is below the lowest MIN mark in the brake fluid reservoir: DO NOT DRIVE. Tow the car to a Volvo retailer and have the brake system checked and any leakage repaired.



Brake failure warning light

If the light comes on while driving or braking, stop immediately, open the hood and check the brake fluid level in the reservoir. See [page 116](#) for reservoir position.

If the control lamp still stays on, the EBD (Electronic Brakeforce Distribution) is not working.

Drive to your Volvo dealer. See ABS control lamp and also [page 71](#).

Canadian models are equipped with this warning light: 



Bulb failure warning light

The light will come on if one of the brake light bulbs are defective when the brake pedal is pressed.

Check the fuse and bulb. See sections "Replacing bulbs" and "fuses".

pg. 23 Warning lights, Daytime Running Lights

DSA (option)

Dynamic Stability Assistance

This is a system which helps keep the drivewheels from spinning. The light flashes if the road surface is slippery, the wheels are spinning and the system is working.

The control light comes on if a fault occurs in the DSA system. It also comes on if the system is switched off via the switch.

For more information see [page 30](#).

Service reminder indicator

This light will come on according to preset service intervals or after 750 hours of driving or after 12 months, whichever occurs first. It is a reminder to the driver that the service interval has been exceeded. The light will stay on for 2 minutes after start until reset by the servicing retailer.

Anti-lock Brake system (ABS)

If the warning lamp lights up there is a malfunction of the ABS system (the standard braking system will however function). The vehicle should be driven to a Volvo retailer for inspection.

See [page 71](#) for additional information.

Daytime Running Lights:

The S40 and V40 come from the factory with daytime running lights activated. Carry out the following steps if you will deactivate them. These steps may be carried out again to reactivate and deactivate the daytime running lights as desired.

Programming for On or OFF

Turn the headlight switch to position .

Turn the ignition key in position II.

Pull the turn signal lever towards you and hold it while turning the headlight switch to position 0.

WARNING!

Do not activate or deactivate the daytime running lights while driving. Laws in your area may mandate the use of daytime running lights. Check your local laws before deactivating daytime running lights.

pg. 24 Headlights, Parking lights, Instrument illumination, Fog lights

A Headlights and parking lights

0 Switch position

Ignition key in positions 0+I: All lights switched off

Ignition key in position II:

Low beam headlights on (+ front and rear parking lights, license plate light and instrument lighting).

Switch position

Parking lights front and rear.

Ignition key in positions 0, I and II

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

It also switches on the position lights in bumpers, and license plate light (and the instrument lights in position II).

Switch position

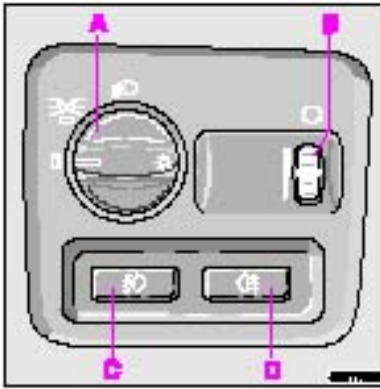
Ignition key in positions 0 and I: All lights off.

Ignition key in position II: Headlights on (+ parking lights front and rear, license plate light, position lights in the bumpers and instrument lights).

Note: You have to turn the light switch to this position in order to switch on high beams.

B Instrument lighting dimmer

Instrument lighting can be dimmed to 6% of maximum lighting.



Rear fog light *

The rear fog light (located in the driver's side tail light cluster) is considerably brighter than the normal tail lights and should be used only when the atmospheric conditions, such as fog, rain, snow, smoke or dust reduce the daytime or nighttime visibility of other vehicles to less than 500 ft (150 meters).

C D Fog lights

Ignition key must always be in position II.

Headlight or parking lights must be activated

- Front fog lights (option): press 

- Rear fog light: press  - headlights or front fog lights must be activated

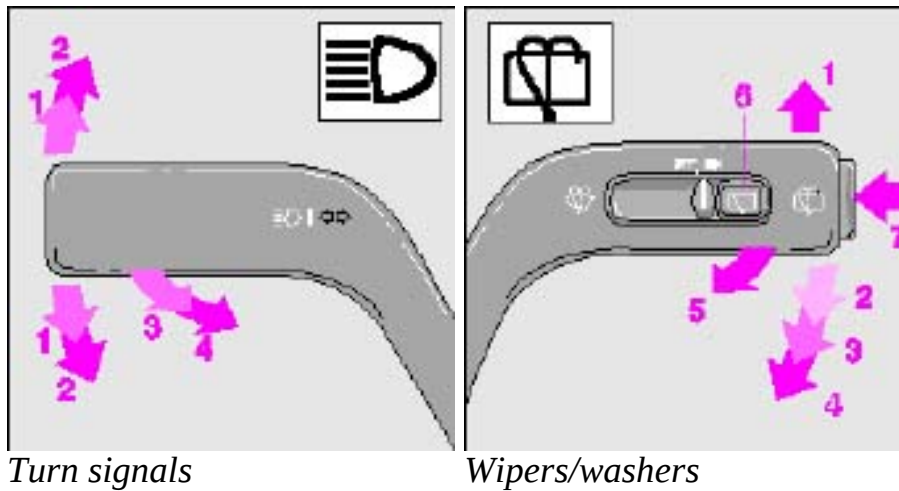
Switching fog lights off

To switch the fog lights off, press the appropriate fog light switch again.

If headlights or parking lights are switched off, the fog lights will also go out. The fog lights are also switched off when the ignition is switched off and must be switched back on manually if required when the ignition is switched on again.

The fog lights switch off automatically when the high beams are switched on.

* By design, there is one rear fog light only, located in the driver's side tail light cluster.



Turn signals

Wipers/washers

Turn signals

1 Lane change position. In maneuvers such as lane changing, the driver can flash the turn signals by moving the turn signal lever to the first stop and holding it there. The lever will return to the neutral position when released.

2 Signal lever engaged for normal turns.

3 High beam/low beam switch (headlights on).
Move the lever towards the steering wheel and release it.

4 Headlight flasher (headlights off).

Move the lever towards the steering wheel. The headlight high beam will be on until the lever is released.

NOTE: A defective turn signal bulb will cause the turn signal indicator and remaining signal lights to flash more rapidly than normal.

Home Safe lighting

When you leave your car at night, you can make use of the exterior courtesy lighting function:

- Remove the key from the ignition switch.
- Pull the turn signal lever towards the steering wheel (as when using the headlight flasher function).

The low beam headlights will now remain on for 30 seconds to light your way.

Repeat the above measures if you want to switch off the Home Safe Lighting.

Wipers/washers

1 "Single sweep" position:

The switch returns automatically when released.

2 Intermittent wiper

The wipers will sweep approximately every 5 seconds (car speed depending).

3 Wipers, normal speed

4 Wipers, high speed

5 Windshield wiper/washer, headlight wiper/washer.

The wipers will make 23 sweeps across the windshield and headlights and 1 additional sweep after 3 seconds.

6 Tailgate window wiper (V40)

The tailgate wiper switch has two positions:

OFF

ON : intermittent and synchronized with windshield wiper

Tip function

When pressing switch 7 briefly the wiper will make one sweep, independent of the interval

Backing up

When the vehicle is put into reverse with the windshield wipers on and tailgate wiper off, the rear window wiper will come on for two sweeps.

7 Tailgate window washer (V40)

The washer keeps working for as long as you keep the button depressed.

The wiper will make 2-3 sweeps after the lever is released and 1 sweep after 3 seconds.



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2001 VOLVO S40 & V 40

pg. 26 Ignition switch/steering wheel lock, Flashers, Heated rear window/ mirrors

O **Locked position:**

Remove the key to lock the steering wheel*

WARNING! Never turn the key to position O while driving or when the car is being towed.

I **Intermediate position:**

Certain accessories, radio, etc. on, daytime running lights off.

II **Drive position:**

Key position when engine is running.

III **Starting position:**

Release the key when the engine starts. The key returns automatically to the Drive position.

* The gear selector must be in the (P)ark position.



ANTI-Theft Immobilizer

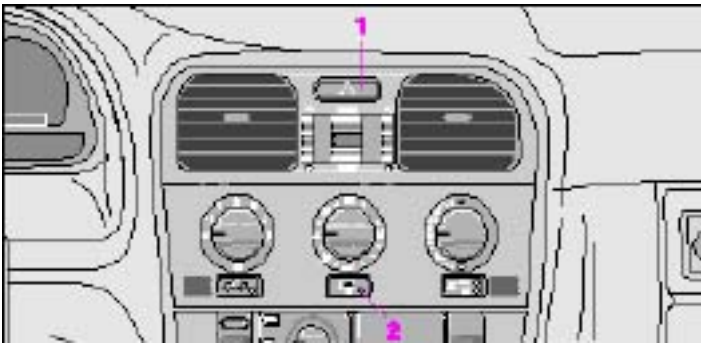
Your car is equipped with a sensor that will not allow the car to be started if the wrong key is used. See [page 40](#) for details.

Starting (ignition) switch/steering wheel lock

If you find it difficult to insert the key in the ignition or to move the steering wheel, the steering wheel lock might be under tension. Turn the wheel back and forth slightly to free the ignition key.

In order to reduce car theft, make sure the steering wheel locks before leaving the car.

A chime will sound if the starting key is left in the ignition lock and the front door on the driver's side is opened.



Hazard warning flashers (1)

The four-way flasher (1) should be used to indicate that the vehicle has become a traffic hazard.

NOTE: Regulations regarding the use of the hazard warning flasher may vary.

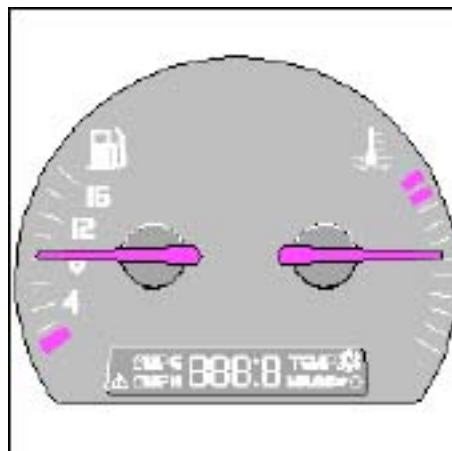
Heated rear window/side-view mirrors (2)

Press the switch (2) to start heating the rear window and side-view mirrors. The control light in the switch will illuminate.

Press the switch again to switch off all heating.

A timer automatically switches off the heating to the side-view mirrors after approximately 6 minutes and to the rear window after approximately 12 minutes. The control light in the switch will go out correspondingly.

pg. 27 Trip Computer (option)



The Trip Computer

The Trip Computer shows seven functions. While driving, it provides information in different ways: automatically and on demand.

With the function selection switch (see next page) the different functions can be selected.

Automatic ...

... on starting up, the display provides information on range and function selected if no warning is given.

... once driving,

- a warning comes on if the fuel tank is nearly empty
- a frost sign will be shown if the ambient temperature is in the icing range **23°F to 36°F (-5°C to + 2°C)**.

See the following pages for more details.

On demand . . .

... you can use the selector switch to call up information on:

- Speed warning - audible (See next page for more information on this feature)
- Average speed
- Current fuel consumption
- Average fuel consumption
- Ambient temperature
- Trip meter
- Range left before tank is empty

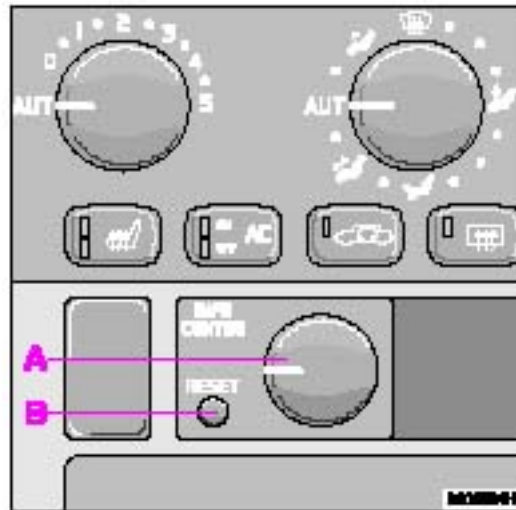
Warning signals

The range, ambient temperature functions can also generate warnings.

These will be automatically displayed, overriding the switch position.

If there is more than one warning at once, range information has priority.

pg. 28 Trip Computer (option)



A. Trip Computer function selection switch B. Reset button

Trip Computer Selector Knob

Function selection knob A

Use this to select one of the six functions.

Reset button B

Resets:

- Average speed
- Average fuel consumption
- Tripmeter

Turn the knob to the required setting, then press reset button B for **1.5 seconds**.

Pressing reset button B for **more than 4 seconds**, will reset all functions.

pg. 29 Trip Computer (option)

Trip Computer functions in detail

1 Average speed

Average speed based on distance traveled since the memory was last reset using reset button B.

2 Current fuel consumption

Gives information about current fuel consumption, updated every second. It is calculated from the amount of fuel injected and the distance traveled.

If the vehicle is standing still (as at a stop sign or traffic signal), the display will show "---".

3 Average fuel consumption

Average fuel consumption from when the Trip Computer memory was last reset using reset button B.

4 Ambient temperature

Indicates the temperature of the outside air (only accurate while driving) approx. 16 inches (40 cm) above road surface.

The warning function comes on if the ambient temperature is between **23°F to 36°F (-5°C and + 2°C)** to warn you that there might be ice on the road.

The temperature and the frost symbol will be shown in the display.

If another function is selected the frost symbol will still be shown in the display.

5 Tripmeter

Shows, in 0.1 mile (0.16 km) increments, distance traveled since last reset. After 999 miles, the display shows 1-mile (1.6 km) increments.

7 Range left before tank is empty

Shows the distance you can travel using the fuel you have left in the tank, based on fuel consumption in the last 10 miles (16 km).

Low range warning

If the calculated range is less than 10 miles, or if the calculated fuel level is less than 1,9 US gal. (4,5 l) the display will show: "**FUEL miles => 0**". ("**FUEL km => 0**")

If another function is selected using the function selection switch the warning disappears.

Note:

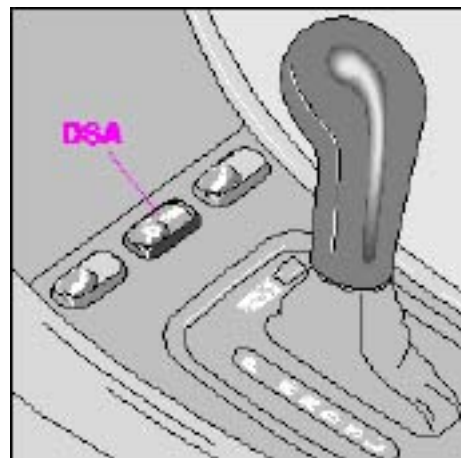
If there is more than one warning at the same time the range will be shown first.

If another function is selected, the ambient temperature will be shown.

Low fuel warning

See 'Fuel gauge' [page 20](#).

pg. 30 Dynamic Stability Assistance (DSA) (option)



Dynamic Stability Assistance

Your car can be fitted with Dynamic Stability Assistance (DSA). This is a system that helps prevent wheel spin. It comes on automatically each time you start the car. It operates automatically at all speeds if one or both driven wheels start spinning. The ABS sensors tell the engine management system that the wheels are turning at different speeds. The engine management system then reduces power to the engine via the fuel injectors in 16 steps until no further wheel spin occurs.

This improves stability on winding and slippery roads, inclines and when accelerating from a standstill.

Switching DSA off

The system comes on automatically each time you start the engine. Switch DSA off by pressing the switch and holding it down for more than half a second. The control light will come on to show that DSA is switched off.

We recommend that you switch the system off whenever you use the "Special Spare" tire that does not match the diameter of your other tires.

Switching DSA on

If DSA is switched off, switch it on by pressing the DSA button. The system will also switch on automatically whenever you restart the car.

Self-test

When you switch the ignition on, the control light on the dashboard should come on briefly (until 2 seconds after starting the engine).

If the light stays on, this means there is a fault detected in the system.

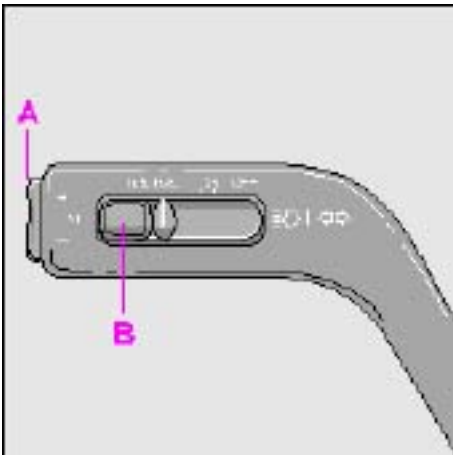
Control light

Light stays on continuously:

- (2 sec.) self-test running during start-up
- system not working because:
- switched off
- system error

Light flashing:

- Wheelspin, system in operation



Cruise control

The cruise control switches are located on the turn signal lever. The indicator light on the instrument panel (see page 19) will come on when cruise control is engaged.

To engage and set the desired speed:

1. Set switch (B) to ON.
2. Accelerate to the desired cruise speed.
3. Press the + or - area of the SET button (A) to set the desired speed.

NOTE: The cruise control cannot be engaged at speeds below 22 mph (35 km).

Braking

This will automatically disengage the cruise control. The previously selected cruise speed is retained in the memory and by momentarily setting the switch to the RESUME position, that speed will be reengaged.

If the cruise control is already engaged, the cruising speed can be increased or decreased by depressing the SET button (A) towards either + or -. One short press on the button corresponds to a speed change of approx. 1.5 mph (2.0 km/h). When the button is released, the vehicle will maintain the current speed.

If the actual speed falls below 70% of the set speed or if the wheels spin or lock, the cruise control will disengage automatically.

Note: When driving up steep hills with the cruise control engaged, the transmission may shift intermittently. You can avoid this by manually selecting a lower gear or changing the driving mode.

Acceleration

Momentary acceleration, such as for passing, does not interrupt cruise control operation. The previously selected speed will be maintained without having to set the switch to RESUME.

To disengage the cruise control system:

1) Set switch (B) to OFF, depress the brake pedal or move the gear selector to position N.

Or

2) Switching off the starting (ignition) switch will automatically disengage the cruise control system.

Or

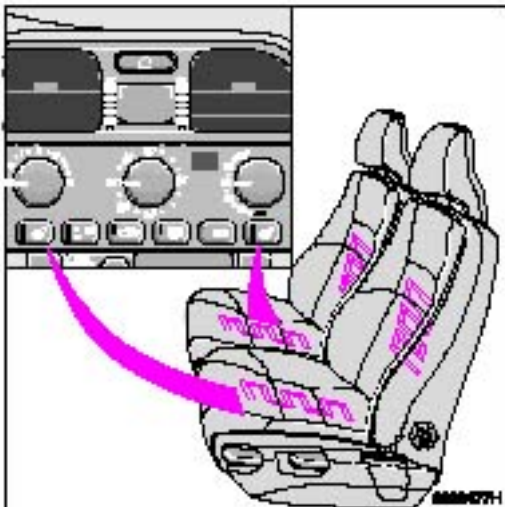
3) If the switch B is pressed briefly to the right. (Tip off function)

WARNING!

The cruise control should not be used in heavy traffic or when driving on wet or slippery roads. Do not use or resume cruise control in reverse gear.

NOTE: When the ignition is switched off, any information stored in the cruise control memory is erased.

pg. 32 Heated front seats (certain models), Parking brake



Heated front seats

The front seat heating can be switched on and off as desired:

- Press the button once for full heating. Both LEDs in the button will light up.
- Press the button again for reduced heating. One LED in the button will light up.
- Press the button a third time to completely turn off the heating.

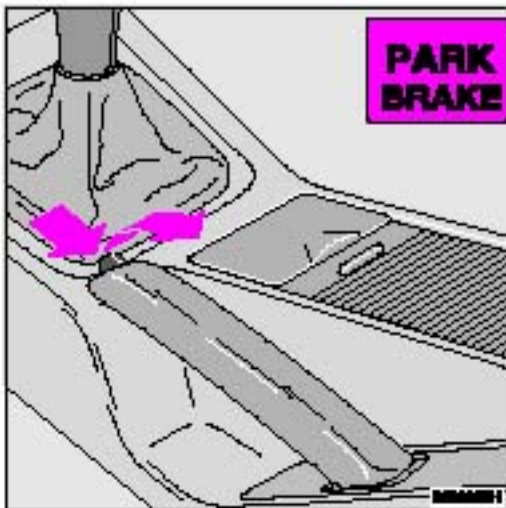
While driving, the seat heating for the passenger seat should be switched off when the seat is not occupied.

When you restart the engine, the system will resume the same seat heating level it had before the engine was switched off.

Auto seat heating

Note: If the outside temperature is below 32 °F (0 °C) and the engine is cold, the heating of the **driver's seat** will start automatically to high comfort level as soon as the engine is running.

If you want to disconnect the "Auto seat heating" function, do as follows: Press the button for more than 3 seconds. The LEDs will **light** for 5 seconds to confirm your choice. If you want to reactivate the "Auto seat heating" press the button for more than 3 seconds. The LEDs will **flash** for 5 seconds to confirm your choice.



Parking brake lever

Parking brake (hand brake)

The lever is situated between the front seats. The brake is applied to the rear wheels.

Canadian models are equipped with this warning light: 

WARNING!

Always use the parking brake (hand brake) when parking. On hills, also turn the front wheels toward the curb.

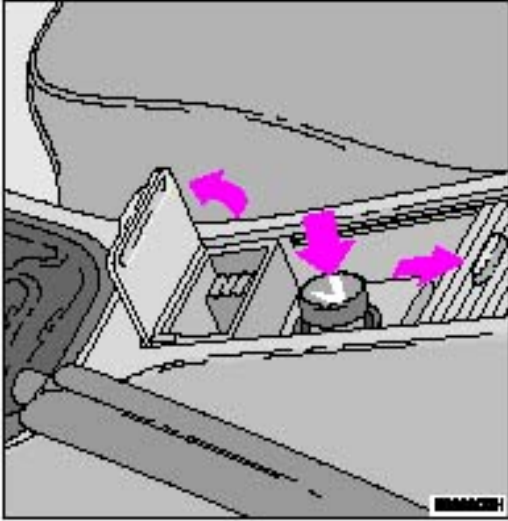
The indicator light in the instrument panel will light up even if the parking brake is only applied only slightly. Be sure to pull the lever up firmly.



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pg. 33 Ashtrays, Auxiliary socket, Cupholders



Ashtray

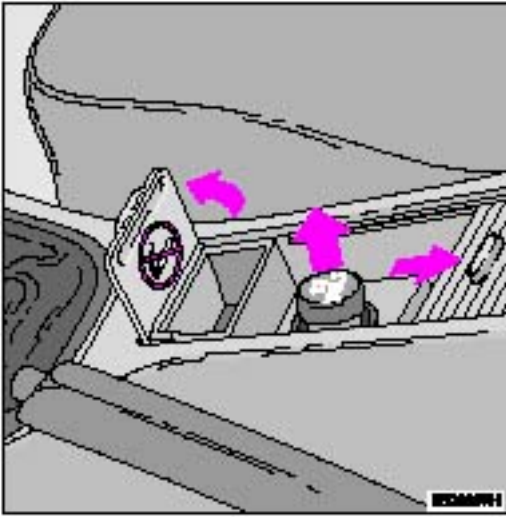
Lighter

Press in the lighter. When it has become sufficiently hot, after about 6-8 seconds, it will spring back ready for use.

The lighter socket has a 120 W output.

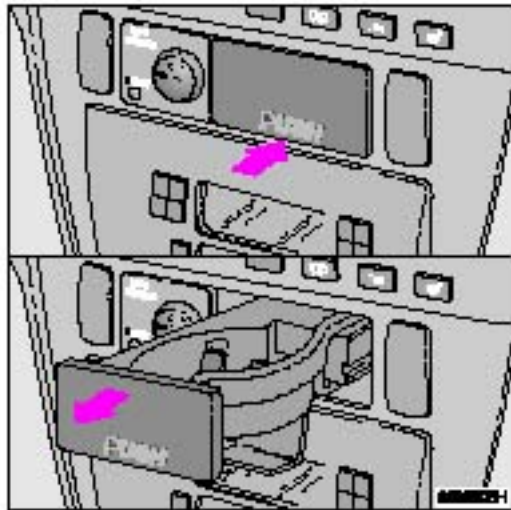
Ashtray

Lift the lid to open the ashtray. To empty the ashtray, grip it on the short sides, and pull straight upwards.



Electrical outlet

The outlet cover should always be in position if the outlet is not being used as a power source.

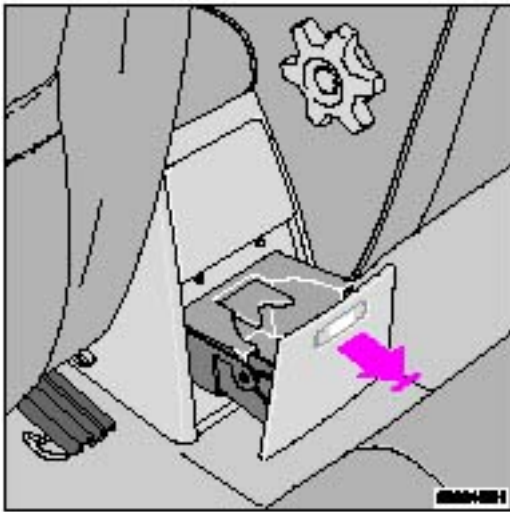


Cupholders - front

To open the cupholders, press lightly on the push panel. The holder will open part-way. Pull it out to open it fully. To close it, push it in until latch.

CAUTION: Be careful when using cupholders. Use them to carry only capped beverages. A spilled hot liquid can scald you or your passengers. Spilled liquids can also damage upholstery, carpeting and electrical components.

pg. 34 Cupholders, Steering wheel adjustment

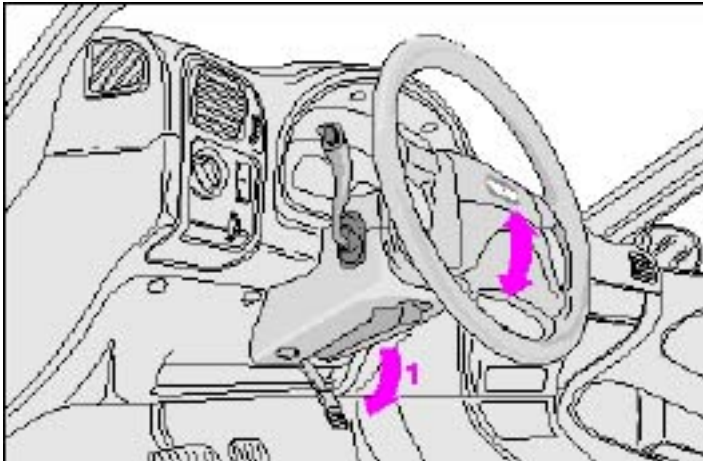


Cupholders - rear

To open the cupholder, press lightly on the push panel. The holder will open part-way. Pull it out to open it fully. To close it, push it in until it latches.

CAUTION: Be careful when using cupholders. Use them to carry only capped beverages. A spilled hot liquid can scald you or your passengers. Spilled liquids can also damage upholstery, carpeting and

electrical components.



Steering wheel adjustment

The steering wheel can be adjusted vertically. Press the lever (1) in the steering column downwards. Adjust the steering wheel to the position that suits you. Press the lever up again to lock the wheel in position.

WARNING!

Never adjust the steering wheel while driving.

Heating and air conditioning

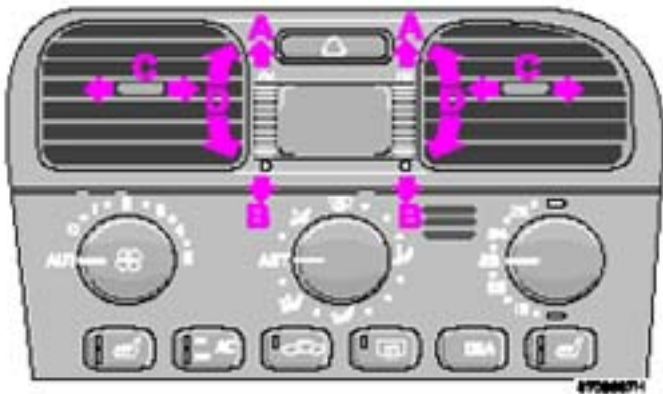
Your Volvo is equipped with a heating system combined with air conditioning. Depending on which function you select, warm or cool/cold air is distributed to the different parts of the passenger cabin. A slight amount of condensation may be emitted from the air vents when the air conditioning is initially switched on. This can occur when both humidity and ambient temperature are high and is normal.

Cabin air filter (optional)

The cabin air filter must be changed every 15,000 miles (24,000 km) to ensure proper ventilation. Under extreme conditions, the filter may need to be changed more often.

Remarks:

- If it has snowed, brush the snow away from the air inlet grille at the base of the windshield.
- A clean windshield will help avoid fogging.



Air vents (dash)

A Open

B Closed

C Directing air flow horizontally

D Directing air flow vertically

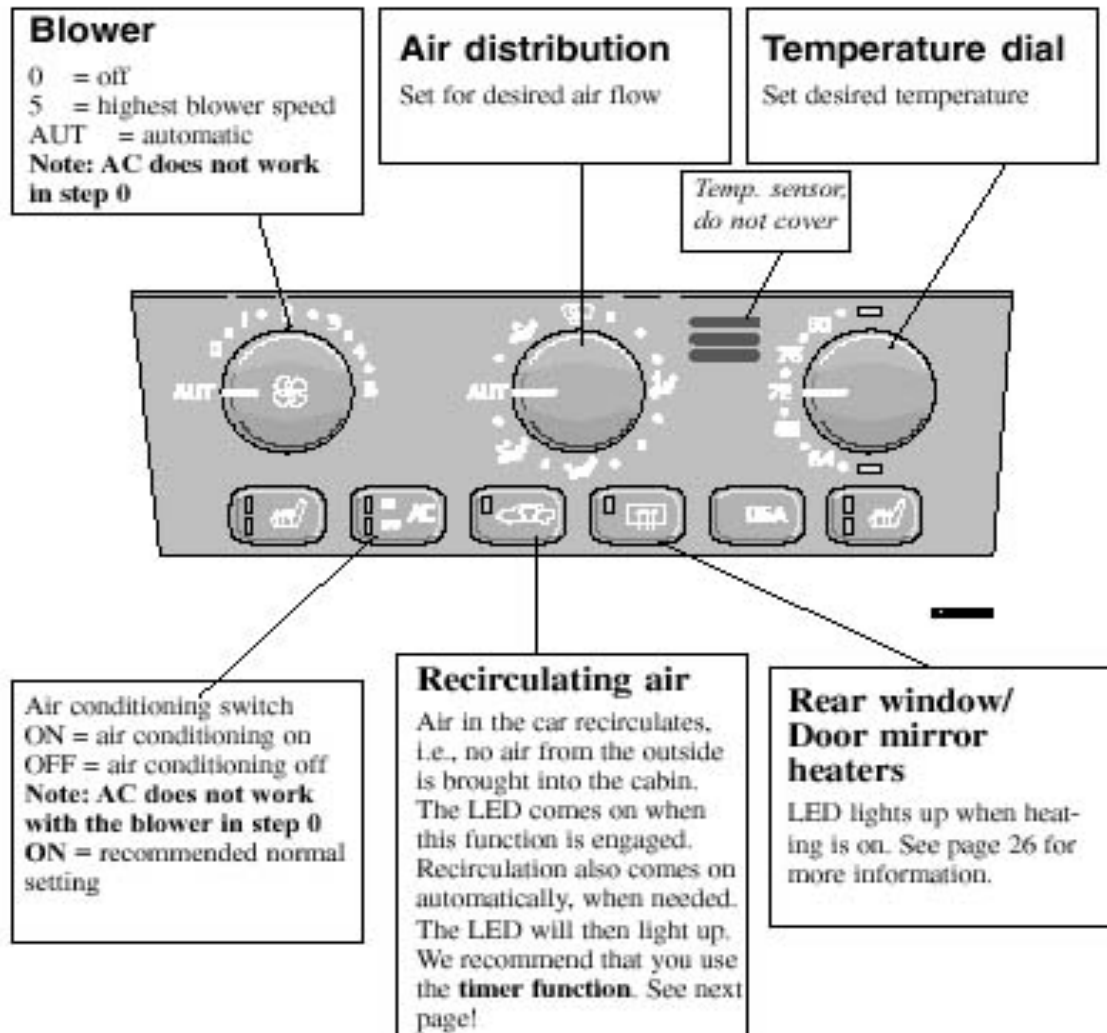
Refrigerant

Volvo cares about the environment. The air conditioning system in your car contains a CFC-free refrigerant - R134a. This substance will not deplete the ozone layer. The system contains 1.98 lbs (0.9 kg) R134a and uses ZXL 100PG (PAG) oil.

NOTE: All maintenance on the climate control systems should be carried out by an authorized Volvo

service technician only.

pg. 36 Heating, ventilation and air conditioning (Electronic Climate Control)



AUT For greatest convenience, air distribution is automatically regulated



Air through panel vents



Defrost. Air to windshield and side windows. Recirculation will not function regardless of button setting.



Air to floor, windshield and side windows.



Air through floor vents.



Bi-level. Air through floor and panel vents.

Faulty in the ECC system

If there is a fault in the air conditioning unit, **all LEDs** in the system will flash for 20 seconds. If this fault still exists next time you start the car you should contact your Volvo retailer.

pg. 37 Heating, ventilation and air conditioning (Electronic Climate Control)

Automatic setting



Set the blower control and air distribution selector knobs to "AUT" and set the desired temperature dial. The blower will automatically select the best speed to maintain cabin temperature.

Optimum defrosting



Set the air distribution selector to  and move the blower control to the position AUT (as far to the left as possible). The AC system will be on at this time even if the AC OFF button is depressed and the blower will run at its maximum speed. When the windows have cleared, move the function selector knob to the "AUT" position.

Additional information

- When the air conditioning system is used, it will function best if it is left on continuously, and not switched off intermittently.
- Always keep the air inlet grille at the base of the windshield free of snow.
- Water under the vehicle in hot weather can be the result of condensation from the air conditioning system and is normal.
- The air conditioning system functions only at temperatures just above 39° F (4° C).

Recirculation : Use the recirculation setting for a few minutes if you wish to exclude exhaust fumes from the cars around you. With this setting, no outside air is brought in from outside the car. To avoid risk of accumulation of stale air and mist inside the car, recirculation goes off automatically after 10-15

minutes. Adjust the temperature with the temperature selector. Windows may mist up when this setting is used in cold or damp weather.

Recirculation - Timer

The timer function minimizes the risk of ice, misting and bad air. Carry out the following: press the REC-switch for more than 3 seconds. The LED flashes for 5 seconds. The air in the car recirculates for approx. 5 - 12 minutes. Each time you press the switch the timer function is activated. If you wish to switch off the timer function, press the switch for more than 3 seconds again. The LED lights for 5 seconds to confirm your selection.

Recirculation

can also be used to cool down with the fan in the manual position.

NOTE: When driving with the sun roof or windows open, to help maintain stable passenger cabin temperature, use the blower control to manually regulate the blower speed.

- If the panel vents are open, a certain amount of air will always flow through, regardless of the position the air distribution selector is in. To increase the flow of air to either

the floor or the windows, close the panel vents and open the outer vents.

- The panel vents may emit some condensation when the air conditioning is initially switched on and is normal.

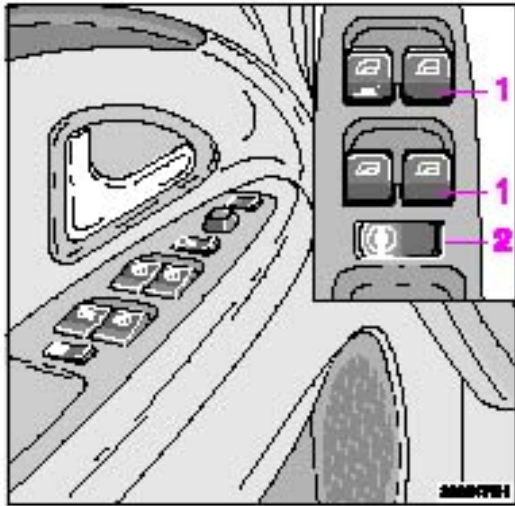
This may occur if the ambient temperature and humidity are high.

- The sunlight sensor (located at the top of the dashboard in the speaker frame at the passenger side) should not be covered in any way as this could cause incorrect information to be sent to the ECC system.

- The air conditioning is momentarily disengaged during full-throttle acceleration.

Difficult weather conditions

When driving in very humid conditions, heavy rain, sleet, etc., it may be better to use the manual rather than the automatic setting to defrost the windows. Set the function selector knob to "Defrost"  or  and the fan speed to mid-range. Also shut the center air vents.



1- Switches for opening/closing the windows

2- Cutout switch, rear windows

Electrically operated windows

The electrically operated windows are controlled by switches in the door armrests. In addition, the driver's door armrest provides convenient controls for all electrically operated windows. Windows can be operated with the ignition key in position I or II. To lower the window, press the switch; to raise, raise the switch. The switch for the driver's window has an add AUTO DOWN feature. Press the switch briefly and release to open the window fully. This can be interrupted by pressing the switch quickly once again.

Rear window locking switches

To prevent small children opening the windows via the rear door switches, use the locking switch in the driver's door.

LEFT side of switch: Windows in the rear seat cannot be operated. Only the driver can operate these windows.

RIGHT side of switch: Windows in the rear seat can be operated by the switches in the rear seat. Always remember to turn off power to the window winders (by removing the ignition key) if you leave children unattended in the car.

WARNING!

- Always remove the ignition key when the vehicle is unattended.
- Make sure that children's hands are clear before raising the windows.
- Never leave children unattended in the car.



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Chapter 3 - Body and interior

pg. 39 Body and interior

Body and interior

The seats, sun roof, mirrors, etc. are described on the following pages.

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<u>Doors and locks</u>	<u>41</u>
<u>Remote keyless entry system</u>	<u>42</u>
<u>Alarm</u>	<u>43</u>
<u>Trunk/Tailgate/Glove compartment</u>	<u>45</u>
<u>Child safety locks</u>	<u>46</u>
<u>Front seats</u>	<u>47</u>
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pg. 40 Keys



Key

The key activates all locks (ignition switch/steering wheel lock, all doors including the fuel filler door, trunk/tailgate, and the glove compartment).

Immobilizer (start inhibitor)

Each of the keys supplied with your car is electronically coded. When the key is inserted into the ignition switch, the code is transmitted to and compared with a code stored in the start inhibitor module. The car can only be started if a properly coded key is used.

If you misplace a key, take the other keys to an authorized Volvo retailer. The existing code in the start inhibitor module and all the keys will be erased as an antitheft measure and a new code will be programmed in.

NOTE:

You should never keep more than one of your ignition keys on the ring at the same time. This could cause conflicting signals to be transmitted to the ignition switch, making it impossible to start the car.

This device complies with part 15 of the FCC rules. Operation is subject to the following condition: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

pg. 41 Doors and locks

Doors and locks

Your car is equipped with a central locking system.

The key, used on the driver's door, the remote control, or central locking button, will lock/unlock all doors, trunk/tailgate.

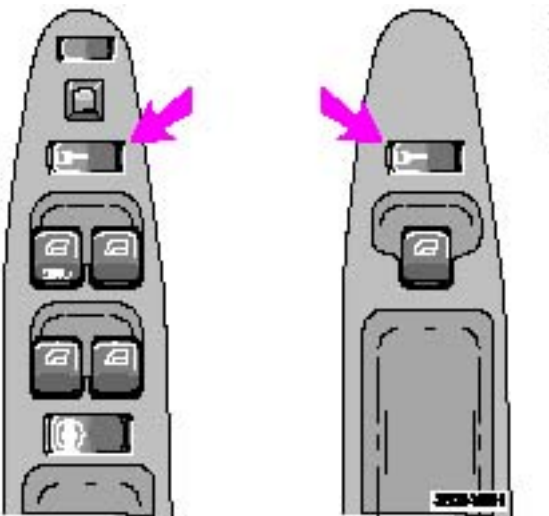
Turn the key once to unlock the driver's door and the fuel filler door.

Turn the key again within 10 seconds to unlock other doors, trunk/tailgate.

One turn with the key towards "lock" in the driver's door locks all doors, trunk/tailgate and fuel filler door with a 10 minutes delay in the fuel filler door.

WARNING!

If the doors are locked while driving, this may hinder rapid access to the occupants of the car in the event of an accident. (Also see information on "Child safety locks").



Central locking button

Central locking switch

You can use the button to lock or unlock all doors (unlock only for 25 seconds after locking by remote).
LEFT side of button: lock RIGHT side of button: unlock

Note: If the key is in the ignition switch and you close the driver's door, the driver's door will be immediately unlocked again in order to prevent accidentally locking the car with the keys left inside the car.

pg. 42 Remote keyless entry system

Remote keyless entry system

Your car is equipped with a remote control transmitter. This transmitter uses a radio frequency which will allow "keyless" entry into the passenger compartment or the trunk. You will be supplied with two coded key ring transmitters, which will enable you to lock/unlock all doors and the trunk/tailgate and fuel filler door from a distance of 10-15 feet (3-5 meters).

The Remote also activates/deactivates the alarm system that comes standard with this car.

The car can also be locked/unlocked with the key.

Using the remote control

- Press the **LOCK** button once to lock all doors and trunk/tailgate.
- Press the **UNLOCK** button **once** to unlock the driver's door and the fuel filler door only. Press this button again (within 10 seconds) to unlock other doors, trunk/tailgate.
- Press the **OPEN trunk/tailgate** button to unlock the tailgate/trunk.



This device complies with FCC rules Part 15. Operation is subject to the following two conditions: (1)

This device may not cause harmful interference and (2) this device must accept any interference that may be received, including interference that may cause undesired operation.

NOTE: If only the driver's door is unlocked, the lock will automatically reengage (re-lock) and the alarm will be set after 2 minutes unless the door has been opened (see [page 44](#)).

The lock/unlock and alarm features can also be utilized by using the keys. See section: Doors and Locks on [page 41](#).

WARNING!

Volvo does not recommend using the transmitter to lock the doors from inside the car. The alarm would be activated and would sound when one of the doors is opened. The doors must not be locked using the remote transmitter while the vehicle is occupied. In case of an accident, this may hinder rapid access to the occupants of the vehicle.

Remote control not functioning.

If the remote control is not functioning the car can be started as follows:

Open the driver's door with the key.

Note: The remote control will not function if a key is left in the ignition switch.

pg. 43 Alarm

Alarm

The radio signal emitted from the transmitter, which is used to set/unset the alarm, is a "rolling code" signal. This means that the signal is changed randomly for each transmission and is intended to help prevent unauthorized recording of the code.

When armed (set), the alarm continuously monitors a number of points on the car. The following conditions will set off the alarm:

- The hood is opened
- The trunk/tailgate is opened
- A door is opened
- The ignition switch is tampered with

The alarm will sound for 30 second intervals, with a 10 second pause between intervals. This function cannot be interrupted.

- If the battery or the siren are disconnected, the alarm will sound for five minutes

Arming (setting) the alarm

Press the LOCK button on the remote control, lock the car using the key in the driver's door . One long flash of the turn signals will confirm that the alarm is set.

Disarming the alarm

Press the UNLOCK button on the remote control or unlock the driver's door with the key.

Turning off (stopping) the alarm

If the alarm is sounding, it can be stopped by pressing the UNLOCK button on the remote control or by unlocking the driver's door with the key.

Visual alarm signal

If the alarm is set off, a visual alarm signal is given by flashing all turn signals and turning on the interior lighting for approximately 5 minutes.

Audible alarm signal

If the alarm is set off, an audible alarm signal is given by the backup siren. One alarm cycle lasts for 30 seconds.



"Panic" function

In an emergency situation, this feature can be used to attract attention, if you are within 10-15 feet (3-5) meters of the car. .

Activate the "panic" function by pressing the red panic button on the remote control for at least 3 seconds or by pressing this button twice within 3 seconds. The turn signals will flash, the interior lights

will go on and the alarm will sound.

The "panic" alarm can be turned off after 5 seconds by pressing any of the buttons on the remote control or it will stop automatically after 25 seconds.

NOTE: This button will **NOT** unlock the car.

pg. 44 Alarm

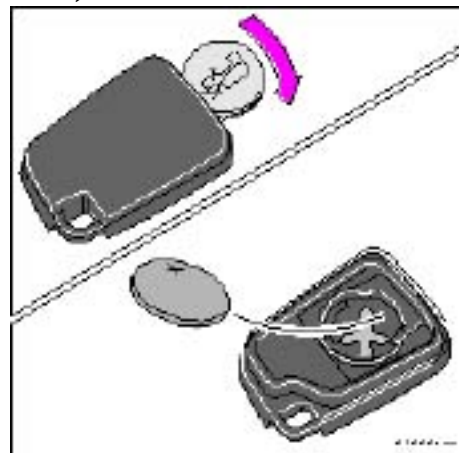
LED alarm status signals

The status of the alarm system is indicated by the red LED at the right side of the dash:

- LED off - the alarm is not armed (set)
- LED flashes once per second - the alarm is armed (set)
- LED flashes rapidly before the ignition is switched on - the alarm has been triggered
- LED flashes rapidly for 15 seconds after the ignition has been switched on - a fault has been detected in the alarm system. Contact a Volvo retailer.

Automatic relock

If only the driver's door is unlocked with the remote control, the lock will automatically reengage (re-lock) and the alarm will be set after 2 minutes unless the door has been opened.



Batteries

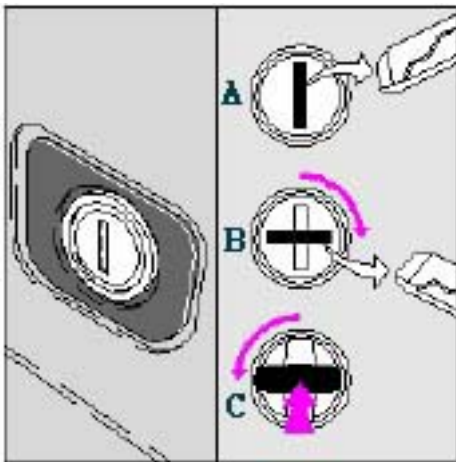
Each remote transmitter is powered by two three-volt batteries, type CR 2016. If the range of the

transmitter is noticeably reduced, this indicates that the battery is weak and should be replaced.

Replacement: Open the remote control by twisting a coin in the ring between front and back (leave the ring in place). Replace the batteries. Reinstall the cover, making sure it is secured tightly.

CAUTION: Do not attempt to service or repair any components of the alarm system yourself. This should only be done by an authorized Volvo retailer.

pg. 45 Trunk/Tailgate, Glove compartment



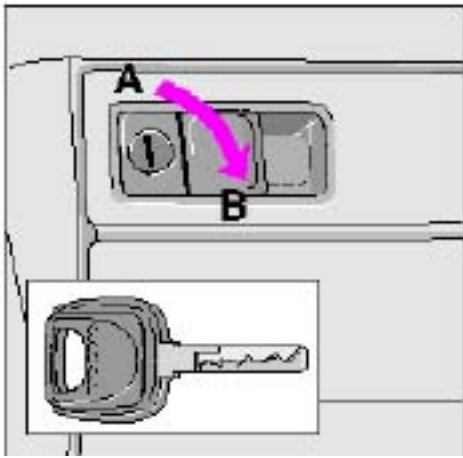
Opening/unlocking the trunk/tailgate

The trunk/tailgate locks are incorporated in the central locking system and are locked or unlocked when the driver's door is locked/unlocked.

A - Remove key vertically: Trunk/tailgate remains locked (disconnected from the central locking system).

B - Turn key clockwise and remove: Trunk/tailgate are locked/unlocked with the central locking system).

C - Turn key counterclockwise: Insert key and open lock without using central locking system. The key cannot be removed.



Glove compartment

The glove compartment can be locked with the key.

A unlocked

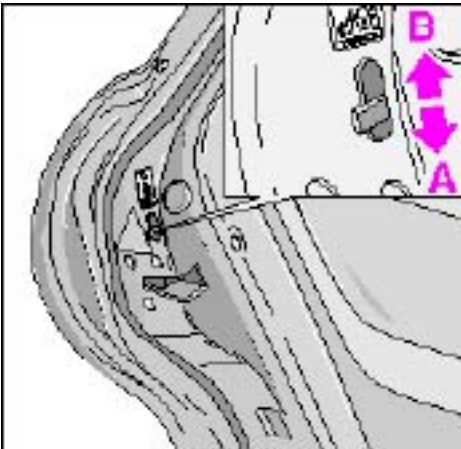
B locked



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pg. 46 Child safety locks



Location and setting of child safety lock

Child safety locks

The controls are located on the rear door jambs.

A The door cannot be opened from the inside. Normal operation from the outside.

B The door can be opened from the inside.

WARNING!

Remember, in the event of an accident, the rear seat passengers cannot open the doors from the inside with the buttons in position A.

pg. 47 Manually operated front seats

1 Height adjustment

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

Lever A = adjustment of front section

Lever B = adjustment of rear section

WARNING!

Do not adjust the seat while driving. The seat should be adjusted so that the brake pedal can be depressed fully. In addition, position the seat as far rearward as comfort and control allow. The seat rails on the floor must not be obstructed in any way when the seat is moved.

2 Forward-rearward seat adjustment

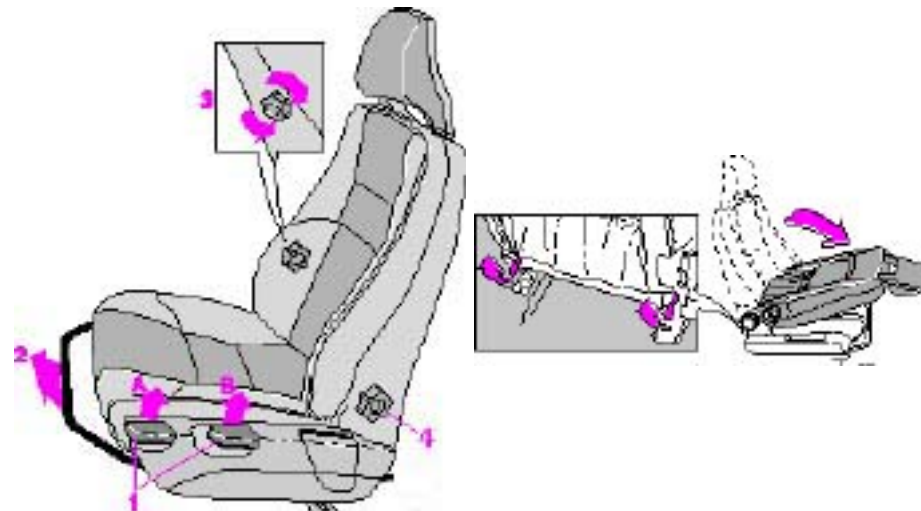
Pull the control upward, then slide the seat forward or rearward to the desired position. Make sure that the seat is properly secured when you release the control.

3 Lumbar support

Use this control to adjust softer or firmer lumbar support.

4 Backrest tilt

Rotate the control to tilt the backrest rearward and or forward.



Folding front seat

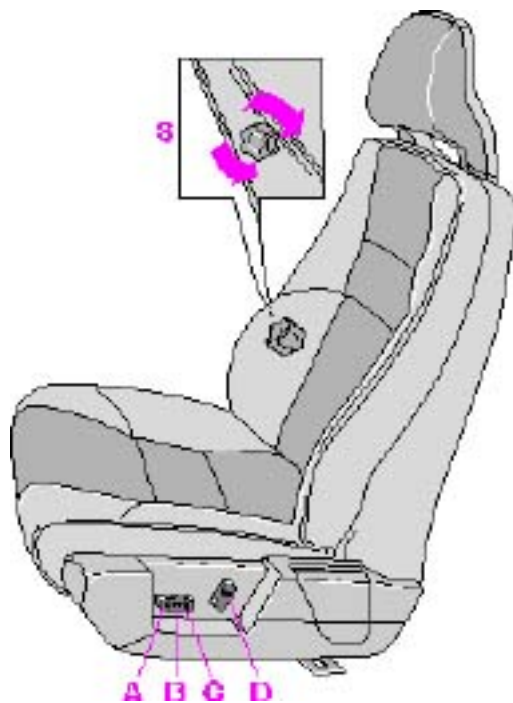
The seat backrest can be folded down to the horizontal position for carrying long loads. To fold down the backrest:

- Move the seat as far rearward as possible
- Adjust the backrest tilt to the most upright position
- Lift the catches on the lower rear side of the backrest
- Without releasing the catches, push the backrest forward
- Move the seat as far forward as possible

pg. 48 Electrically operated seat - option

3 Lumbar support

Use this control to adjust softer or firmer lumbar support.



Power seat control panel

Electrically operated seats

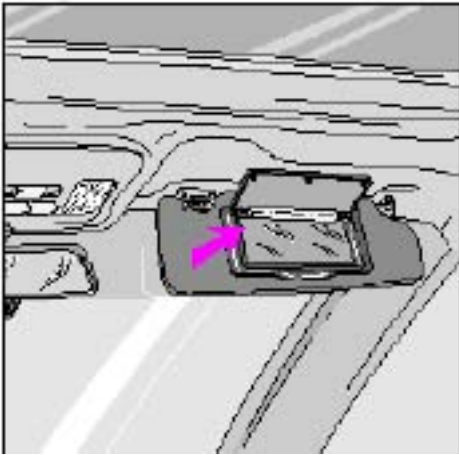
- A Seat front (raise/lower)
- B Forward - rearward
- C Seat rear (raise/lower)
- D Backrest tilt

WARNING!

The power driver's seat is operable with the ignition OFF. Therefore, children should never be left unattended in the car.

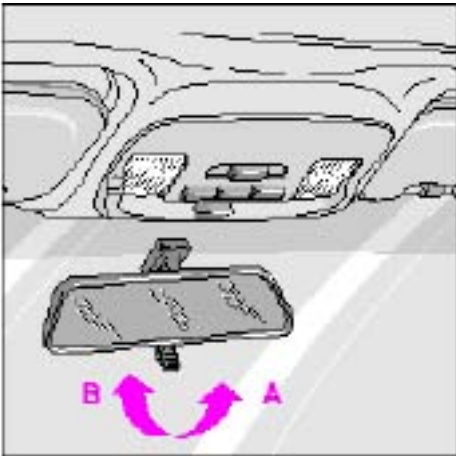
Note! The electrically operated drivers seat has an overload protector that activates if the seat is blocked by an obstacle. If this happens, wait for about 20 seconds before using the seat again.

pg. 49 Rear/side-view/vanity mirrors



Vanity mirrors

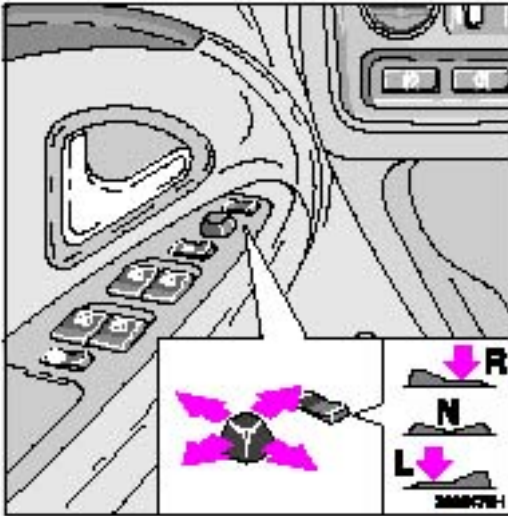
The light illuminates when the cover is opened.



Rearview mirror

B Normal position

A Night position, reduces glare from following headlights



Electrically operated side-view mirrors

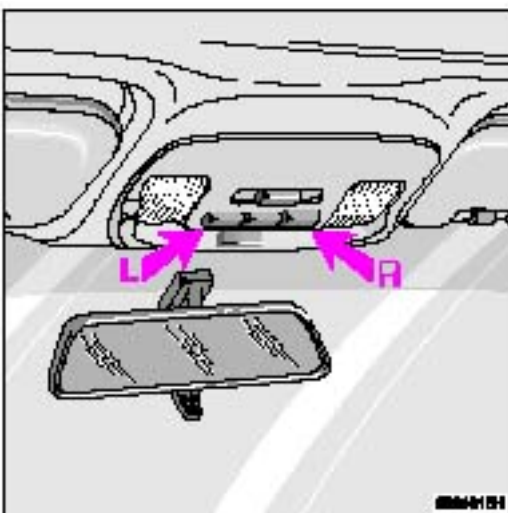
The switches for setting the two outer door mirrors are furthest forward on the driver's door armrest.

Toggle the switch to position L for the left mirror and to position R for the right mirror. Adjust the position by tilting the adjustment knob. When you have set the position, toggle the switch again into position N.

WARNING!

The mirrors should always be adjusted prior to driving. Objects seen in the wide-angle right side-view mirror are closer than they appear to be.

pg. 50 Courtesy lighting front and rear, Sun roof (option)

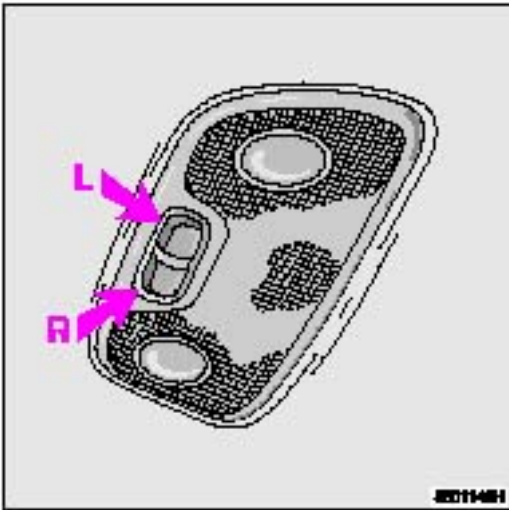


Front lighting

Courtesy lighting front and rear

The courtesy lights can be turned on by pressing the button L, and off by pressing the button R. The lights are also on a timer that turns the lights on for 30 seconds if:

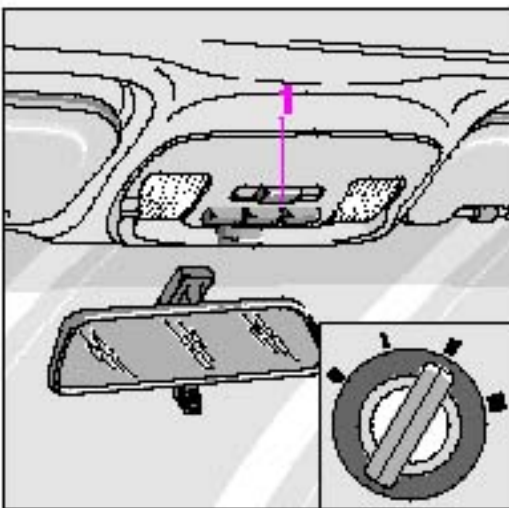
- You unlock the car from the outside with the key or remote control.
- You switch off the ignition (turn the key to position 0).



Rear general lighting

The courtesy lights stay on for 10 minutes if one of the doors is left open after the car is unlocked. The courtesy lights switch off if:

- The engine is started.
- The car is locked from the outside with the key or remote control.



Electrically operated sun roof

The ignition key must be in position II. The sunroof has an "AUTO OPEN" function. Press the left side of the toggle switch once, briefly, and release to automatically open the sun roof to the driving position. The driving position reduces rumbling wind noise. Press and hold the switch to open it the rest of the way (fully open position).

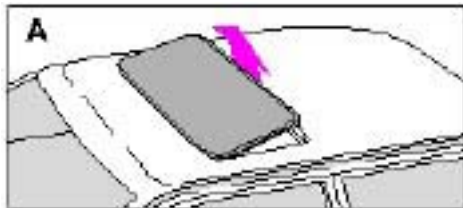
pg. 51 Sun roof (option)

Ventilation position (A)

Press the button (1) shortly once on the right-hand side to open the sunroof to maximum ventilation. If you press the button again on the left- or right-hand side then the sunroof will stop. The left-hand side of the button must be pressed and held to close the sunroof completely.

Sliding position (B) Press the button (1) shortly once on the left-hand side to open the sunroof . The sunroof will stop in the "driving position" (*). Press and hold the button again on the left-hand side and the sunroof will slide to fully open position(**). During sliding, the sunroof will stop by pressing the button again on the left-or right-hand side.

The right-hand side of the button must be pressed and held to close the sunroof completely.



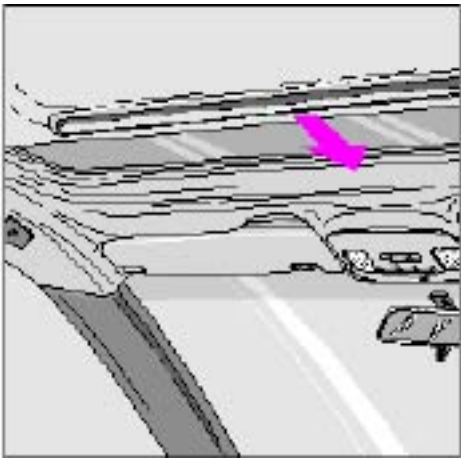
Ventilation position



Sliding sun roof

(*) Driving position : A position where the sunroof is not fully open. This is to alleviate 'booming noise' during driving.

(**) Fully open position : This position is not recommended while driving.



NB: Do not close the sunscreen with the sunroof open. This may prevent it working properly.

Sunscreen The sunroof also comes with a manually operated sunscreen. This automatically opens with the sunroof.

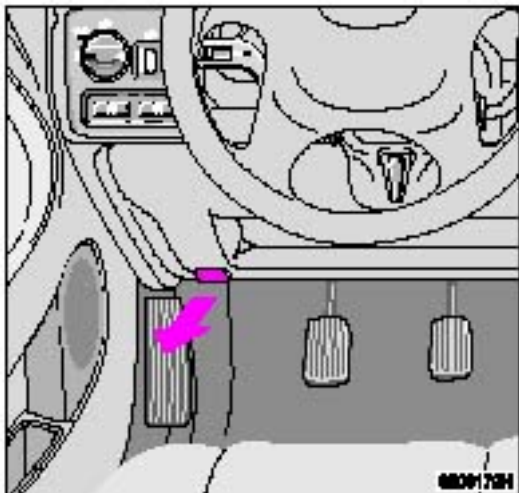
WARNING!

The sun roof must never be obstructed in any way when in operation.

* A position where the sun roof is not quite fully open. This position helps alleviate "rumbling" wind noise.

See [page 98](#) for instructions on manually closing the sun roof.

pg. 52 Hood, Luggage cover



Hood release lever under dashboard

To open the hood

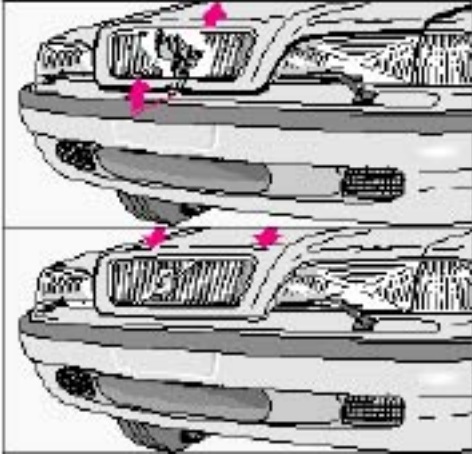
- Pull the lever located under the left side of the dash to release the hood locks.

- Lift the hood slightly.
- Push the release control on the inside of the lower edge of the grille upward and lift the hood.

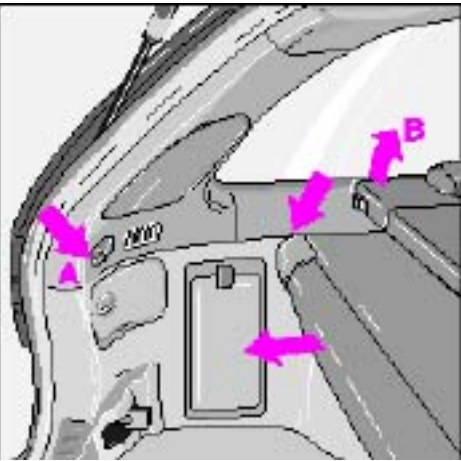
WARNING!

Check that the hood locks properly when closed.

Hood release control under grille



Press the hood securely into place when closing



Luggage cover attachment points

Luggage cover (V40)

Pull out the luggage cover (underneath the parcel shelf), and hook it on to the pins (A) in the rear pillars in the luggage compartment.

Removing luggage cover:

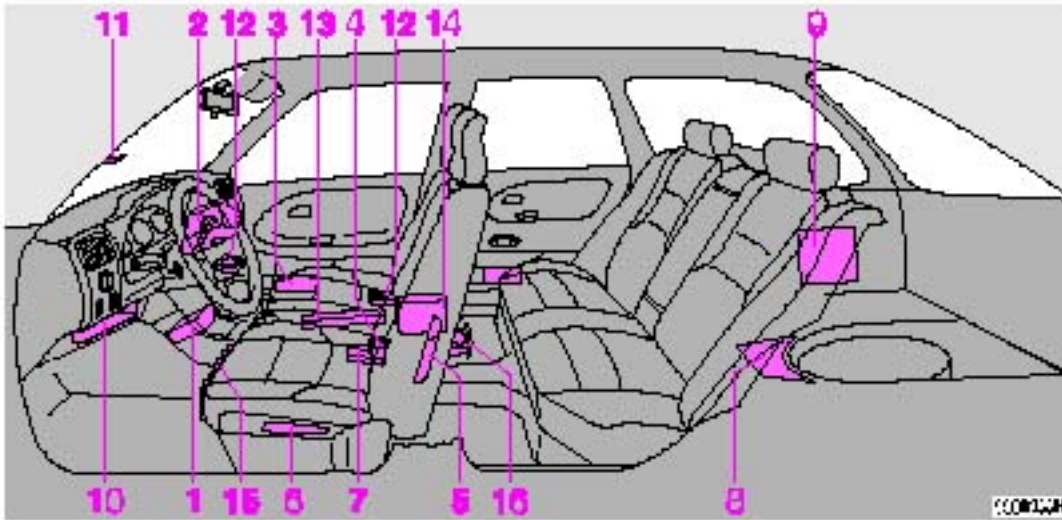
- Raise the rear edge (B) of the hat shelf and slide the shelf out toward the rear.
- Install in reverse order, making sure that the hat shelf seats firmly around the side mounting pins.



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2001 VOLVO S40 & V40

pg. 53 Storage compartments

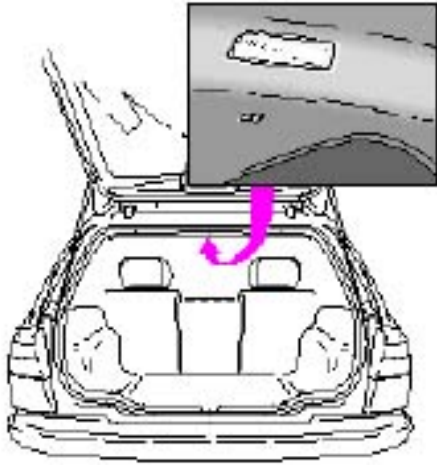


- 1 Storage compartment in the center console
- 2 Lockable glove box
- 3 Storage compartment
- 4 Storage compartment in the center console
- 5 Pocket in seat backrest
- 6 Storage compartment by seat
- 7 Cupholder in center console
- 8 Storage compartment by spare wheel
- 9 Storage compartments in the luggage area wheel arches
- 10 Map shelf
- 11 Clip for parking receipts, etc
- 12 Cupholder
- 13 Storage compartment
- 14 Storage compartment
- 15 Storage compartment by seat
- 16 Cupholder

WARNING!

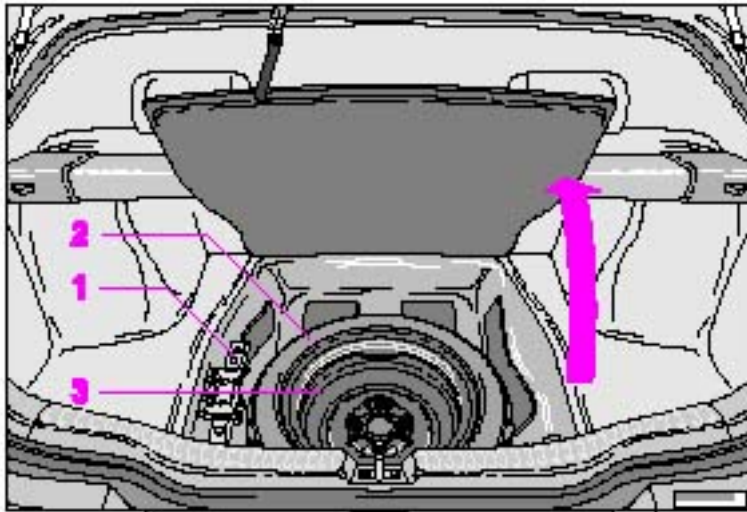
Packages on the rear window shelf can obscure vision and may become dangerous projectiles in the event of a sudden stop or an accident.

pg. 54 Cargo space light, Spare tire, Jack



Cargo space light

The light comes on when the trunk/tailgate is opened.



1 - Jack, 2- Spare tire, 3 - Tool bag

Spare tire

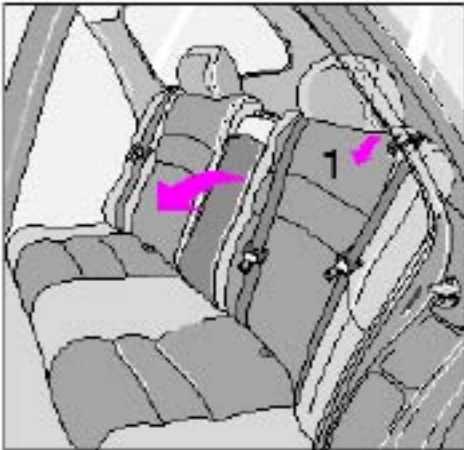
The spare tire is located under the carpet in a special well under the floor of the trunk/cargo compartment. The jack is next to the spare wheel.

WARNING!

Make sure the jack and spare tire are properly secured in position after use. They must be properly fastened to help keep them in place in the event of a sudden stop.

NOTE: See [pages 84](#) for information on how the jack should be used.

pg. 55 Folding rear seats



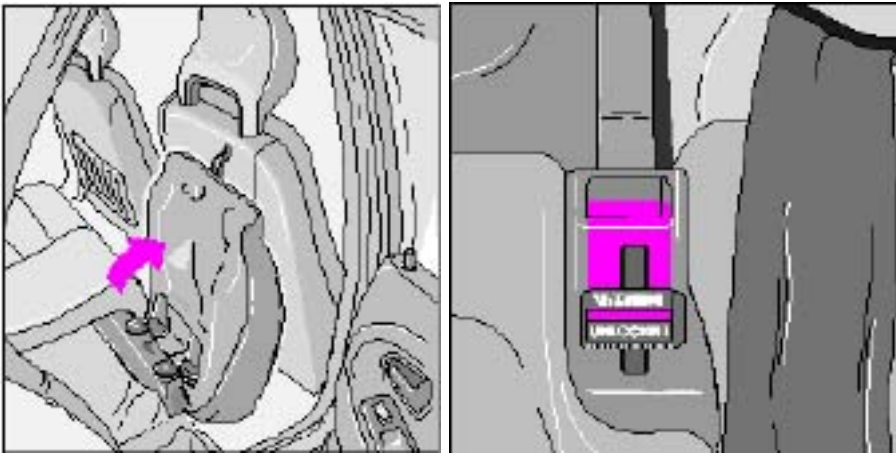
Folding rear seat

The rear seat is split into two sections so that each section can be folded separately.

- Remove the headrests (see [page 3](#)).
- Put the belts over the upright section of the back rest. The center seatbelt can stay where it is.
- Pull the catch (1) forward and fold the backrest down.
- When returning the backrests to the upright position, make sure that the seatbelts are not caught and twisted.

Flat load space

- Pull the rear seat cushion up against the front seats.
- Remove the headrests (see [page 3](#)).
- Fold the back rest down.



Lock indicator (V40)

WARNING!

Any contact between the front seat backrests and the folded rear seat could impede the function of the WHIPS system. If the rear seat is folded down, the occupied front seats must be adjusted forward so that they do not touch the folded rear seat.

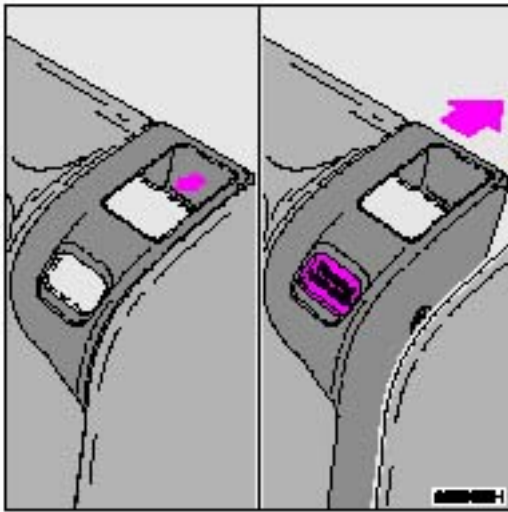
WARNING!

When the backrest is in the upright position, it must always be correctly locked in place. The **red lock indicator** (V40) is **VISIBLE** when the backrest is **NOT** locked in position and not visible when the backrest is correctly locked in place.

When the rear seat is folded down, do not place heavy objects against the backs of the front seats. This places a severe strain on the folded down backrest of the rear seat. Be sure to secure cargo. Cargo must not be stacked higher than the top of seatbacks. This will reduce the possibility of luggage, etc. becoming projectiles during sudden maneuvers, rapid braking or an accident.

WARNING!

Cover sharp edges on the load to help prevent injury to occupants. Secure the load to help prevent shifting during sudden stops.



INSTRUCTION

ROLL BELT AROUND LUGGAGE. CLIP INTO THE LUG. PULL BELT ALL THE WAY OUT AND THEN LET IT ROLL BACK IN.

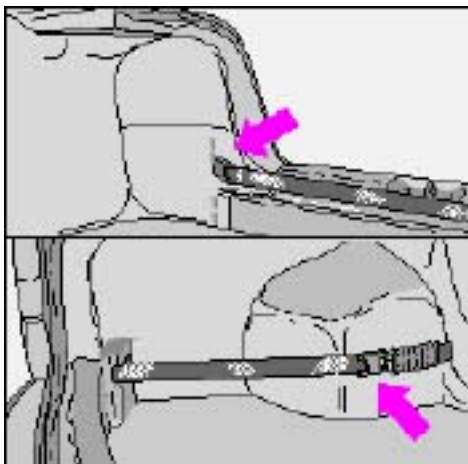
ATTENTION

MAX. LOAD IN BELT 25 KG (55 LBS)

BAG MUST BE IN PROPER POSITION, NO SHARP OR POINTED EDGES, KEEP CENTRE OF GRAVITY OF LUGGAGE CLOSE TO TRUNK FLOOR.

FAILURE TO FOLLOW THE ABOVE INSTRUCTIONS MAY RESULT IN OCCUPANTS BEING INJURED IN CRASH SITUATION.

LUGGAGE BELT COULD BE DAMAGED DURING A CRASH STOP OR CRASH.



Luggage strap

There is a belt in the rear wall of the trunk/cargo space to help hold luggage in place.

This can be locked in the left-hand wheel arch or in the right rear wall.

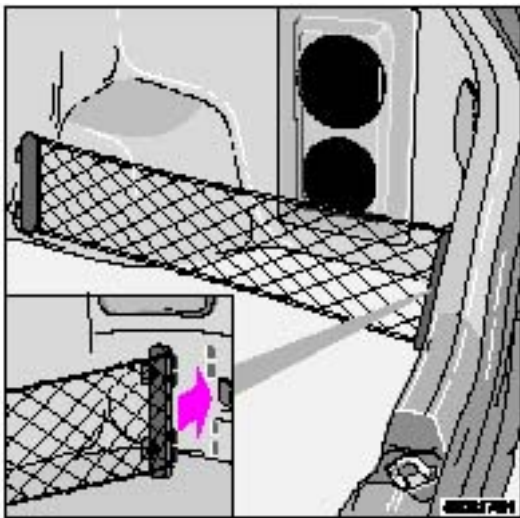
The backrest should be in upright position and avoid sharp or pointed edges. Keep the center of gravity of the luggage close to the trunk floor.

Function :

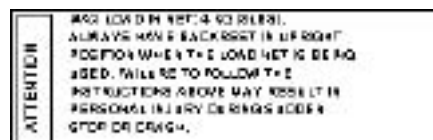
Pull the belt around the luggage, lock it in place, pull it all the way out and then let it retract. The belt will then be taut.

To release, unclip the belt and let it roll up completely.
Inspect the belt for damage after an accident or sudden stop.

pg. 57 Side cargo net (option), Cargo net



Side cargo net



Side cargo net

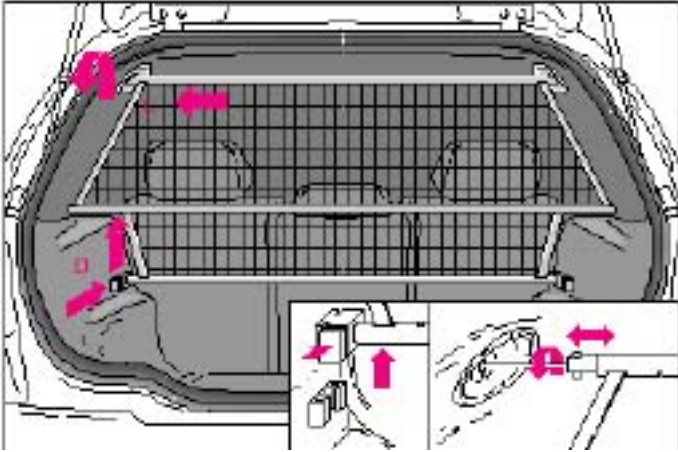
A load net is fitted to the rear wall or right-hand wheel arch to prevent small loose loads shifting.

Installing: Insert the hooks in the slots provided and press the clips into place.

Releasing: Press the clips together and remove net from the slots.

WARNING!

Never use this net to secure sharp or heavy objects. In such cases, secure the object using the luggage strap (see [page 56](#)). Always have backrest in upright position when loadnet is being used!



Cargo net

Cargo net (accessory, V40)

Install:

- With the backrests upright, remove hat shelf.
- Unfold the net and install the bars. (Upper and lower)
- Push outer parts (C) inwards and place the upper bar of the net in the slots.
- Click the lower bar in the lugs (D) on the wheel arches. (To remove, push the buttons)
- Replace the hat shelf if needed.

Remove:

- Push the buttons on the lower bar and remove the bar from the lugs.
- Push the upper bar to the left and turn it slightly. The right hand side will come loose.
- Remove the bars from the lugs and fold the net.

pg. 58 Weight distribution, Handling, roadholding, Roof racks

Weight distribution affects handling

At the specified curb weight your car has a tendency to understeer, which means that the

steering wheel has to be turned more than might seem appropriate for the curvature of a bend. This ensures good stability and reduces the risk of rear wheel skid. Remember that these properties can alter with the vehicle load. The heavier the load in the trunk (max. 220 lbs, 100 kg), the less the tendency to understeer.

Handling, roadholding

Vehicle load, tire design and inflation pressure all affect vehicle handling. Therefore, check that the tires are inflated to the recommended pressure according to the vehicle load. See "Tire pressure" section.

Loads should be distributed so that capacity weight or maximum permissible axle loads are not exceeded.



Holes for roof rack

Roof rails/racks

Roof racks are available as Volvo accessories. Observe the following points when in use:

- Place heavier cargo at the bottom of the load.
- Observe that the center of gravity and handling are influenced by load weight.
- Increasing load size increases wind resistance and thus adversely affects fuel economy.
- Anchor the cargo correctly with appropriate tie-down equipment.
- Drive carefully. Avoid rapid starts, fast cornering and hard braking.
- See your Volvo retailer for cross bars adapted to V40 models equipped with rails.

WARNING!

Avoid single-point loads. Distribute the load evenly.

Max. roof load is 220 lbs (100 kg) when Volvo approved removable roof racks are attached to the points indicated in the illustration. For permanent roof racks, check the rack manufacturer's weight specifications.



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2 0 0 1 VOLVO S40 & V40

Chapter 4 - Starting and driving

pg. 59 Starting and driving

Starting and driving

This section on starting and driving contains items such as starting the engine, operating the gear selector, towing, trailers, etc.

[Fuel requirements, Refueling](#) [60](#)

[Driving economy](#) [62](#)

[Starting the engine](#) [63](#)

[Automatic transmission](#) [64](#)

[Points to remember](#) [66](#)

[Emergency towing](#) [68](#)

[Vehicle towing information](#) [69](#)

[Jump starting](#) [70](#)

[Proposition 65 Battery Warning](#) [70](#)

[Brake system, ABS](#) [71](#)

[Electronic Brake-Force Distribution \(EBD\)](#) [72](#)

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[Long distance trips](#) [74](#)

Trailer towing 75

pg. 60 Fuel requirements

NOTE ENGINE OIL:

Although some oil consumption occurs during normal engine operation, more oil is consumed when the engine is new as the internal parts generate higher friction while wearing in to each other. **From the time the engine is new until the first service is performed, the oil consumption could be higher than normal. For this reason, it is especially important to check the oil every time you refuel your car during this period. See [page 114](#).**

Deposit control gasoline (detergent additives)

Volvo recommends the use of gasoline containing deposit control additives. These additives have shown to be efficient in keeping injectors and intake valves clean. Consistent use of deposit control gasolines will help ensure good driveability and fuel economy. If you are not sure whether the gasoline contains deposit control additives, check with the service station operator.

Unleaded fuel

Each Volvo has a three-way catalytic converter and must use only unleaded gasoline. U.S. and Canadian regulations require that pumps delivering unleaded gasoline be labeled "UNLEADED". Only these pumps have nozzles which fit your car's filler inlet. It is unlawful to dispense leaded fuel into a vehicle labeled "unleaded gasoline only". Leaded gasoline damages the three-way catalytic converter and the heated oxygen sensor system. Repeated use of leaded gasoline will lessen the effectiveness of the emission control system and could result in loss of emission warranty coverage. State and local vehicle inspection programs will make detection of misfueling easier, possibly resulting in emission test failure for misfueled vehicles.

NOTE: Some U.S. and Canadian gasolines contain an octane enhancing additive called methylcyclopentadienyl manganese tricarbonyl (MMT). If such fuels are used, your Emission Control System performance may be affected, and the Check Engine Lamp located on your instrument panel may light. If this occurs, please return your vehicle to an authorized Volvo retailer for service.

pg. 61 Fuel requirements, Refueling

Octane rating

Volvo engines are designed for optimum performance on unleaded premium gasoline with an octane rating. AKI of 91, or above. AKI (ANTI KNOCK INDEX) is an average of the Research Octane Number, RON, and the Motor Octane Number, MON. $(RON + MON/2)$.

The minimum octane requirement is AKI 87 (RON 91).

Gasoline containing alcohol and ethers

"Oxygenated fuels"

Some fuel suppliers sell gasoline containing "oxygenates" which are usually alcohols or ethers. In some areas, state or local laws require that the service pump be marked indicating use of alcohols or ethers. However, there are areas in which the pumps are unmarked. If you are not sure whether there is alcohol or ethers in the gasoline you buy, check with the service station operator. To meet seasonal air quality standards, some areas require the use of "oxygenated" fuel.

Volvo allows the use of the following "oxygenated fuels; however, the octane ratings listed on this page must still be met.

Alcohol — Ethanol

Fuels containing up to 10% ethanol by volume may be used.

Ethanol may also be referred to as Ethyl alcohol, or "Gasohol".

Ethers — MTBE

Fuels containing up to 15% MTBE may be used.

Refueling

The fuel tank is designed to hold approximately: 16 US gallons (60 liters) with sufficient volume left over to accommodate possible expansion of the fuel in hot weather.

Fuel filler door

The fuel filler door (on the left rear fender) is unlocked along with the car's central locking system.

Open fuel filler cap slowly during hot weather.

See [page 97](#) in case the fuel filler door does not unlock along with the central locking system

CAUTION:

- Do not refuel with the engine running *. Turn the ignition off or to position I. If the ignition is on, an incorrect reading could occur in the fuel gauge.
- After refueling, close the fuel filler cap by turning it clockwise until it *clicks* into place *.
- Avoid spilling gasoline during refueling. Gasolines containing alcohol can cause damage to painted surfaces, which may not be covered under the New Vehicle Limited Warranty.
- Do not use gasolines containing methanol (methyl alcohol, wood alcohol). This practice can result in vehicle performance deterioration and can damage critical parts in the fuel system. Such damage may not be covered under the New Vehicle Limited Warranty.
- Do not overfill the fuel tank. Overfilling could damage the emission control system.

**** If the fuel filler cap is not closed tightly or if the engine is running when the car is refueled, the Check Engine Lamp may indicate a fault. However, your vehicle's performance will not be affected. Use only Volvo original or approved fuel filler caps.***

pg. 62 Driving economy

Economical driving conserves natural resources

Better driving economy may be obtained by thinking ahead, avoiding rapid starts and stops and adjusting the speed of your vehicle to immediate traffic conditions. Observe the following rules:

- Bring the engine to normal operating temperature as soon as possible by driving with a light foot on the accelerator pedal for the first few minutes of operation. A cold engine uses more fuel and is subject to increased wear.
- Whenever possible, avoid using the car for short trips. Short trips do not allow the engine to reach normal operating temperature.
- Drive carefully and avoid rapid acceleration and hard braking.
- Do not exceed posted speed limits.
- Avoid carrying unnecessary items (extra load) in the car.

- Maintain correct tire pressure. Check tire pressure regularly (check when tires are cold).
- Remove snow tires when threat of snow or ice has ended.
- Note that roof racks, ski racks, etc., increase air resistance and thereby fuel consumption.
- Avoid using automatic transmission kickdown feature unless necessary.
- Avoid using the air conditioning when it is not required. When engaged, the air conditioner's compressor places an additional load on the engine. However, please note that fuel consumption is lower with the air conditioning on than it is when driving with the air conditioning switched off and the windows down.
- Utilizing the fuel consumption modes in the Trip Computer can help you "learn" how to drive more economically.

Other factors which decrease gas mileage are:

- Worn or dirty spark plugs
- Incorrect spark plug gap
- Dirty air cleaner
- Dirty engine oil and clogged oil filter
- Dragging brakes
- Incorrect front end alignment

Some of the above mentioned items and others are checked at the standard Maintenance Service intervals.

NOTE: The automatic transmission's (D)rive position should be used as often as possible to help improve fuel economy.

WARNING!

It is recommended that tires of the same make and dimensions be used on all four wheels (including the use of snow tires). Do not use bias ply tires as this will adversely alter vehicle handling characteristics. Maintain correct tire pressure.

WARNING!

Do not drive with trunk lid open! A warning light in the instrument panel will indicate that the trunk is open. Poisonous exhaust gases may enter via the open trunk lid. If the trunk lid/tailgate must be kept open for any reason, proceed as follows:

- Close the windows.
- Set the ventilation system control to air flow to floor, windshield and side windows and blower control to its highest setting.

Starting and stopping

1. Fasten the seat belt.

WARNING!

Before starting, check that the seat, steering wheel and mirrors are adjusted properly. Make sure the brake pedal can be depressed completely. Move the seat closer if necessary. Refer to section "front seats".

2. Make sure the gear selector is in the Park position.

3. **Without touching the accelerator pedal**, turn the ignition key to the starting position. Allow the starter to operate for up to 5 seconds. Release the key as soon as the engine starts. If the engine fails to start, repeat step 3.

For cold starts at altitudes above 6000 ft (1800 meters), depress the accelerator pedal halfway and turn the key to the starting position. Release the pedal slowly when the engine starts. Depress the brake pedal and release the parking brake.

4. To release the gear selector from the (P)ark position, the ignition key must be in position II and the brake pedal must be depressed.

NOTE: Your car is equipped with a **KEYLOCK** system. When the engine is switched off, the gear selector must be in the (P)ark position before the starting key can be removed from the ignition switch.

5. Select the desired gear. The gear engages after a slight delay which is especially noticeable when selecting R.

CAUTION:

The engine should be idling; never accelerate until after you feel the gear engage! Too rapid acceleration immediately after selecting a gear will cause harsh engagement and premature transmission wear.

NOTE: Selecting P or N when idling at a standstill for prolonged periods of time will help prevent overheating of transmission oil.

Ignition sleep mode

If the key is turned to "drive" position (see See [page 26](#)) for several minutes without the engine running, the car's starting system will power down to "sleep" mode. To start the car, momentarily turn the key back to the "locked" position. Then start the car as you would normally do.

WARNING!

Always place the gear selector in Park and apply the parking brake before leaving the vehicle. Never leave the car unattended with the engine running.

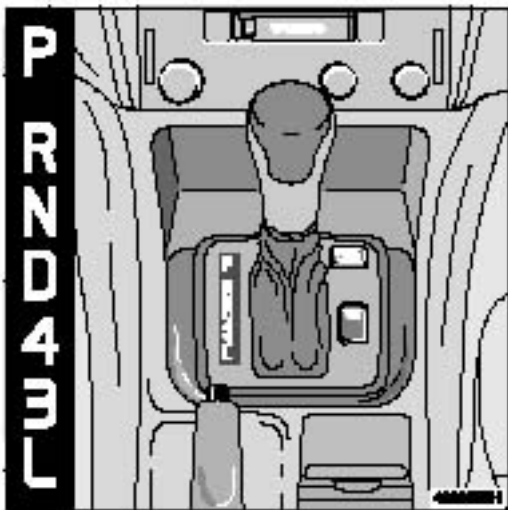
Always open the garage doors fully before starting the engine inside a garage to ensure adequate ventilation. The exhaust gases contain carbon monoxide, which is invisible and odorless but very poisonous.

CAUTION:

Never race the engine **immediately after starting**. Oil flow may not reach some lubricating points fast enough to prevent engine damage.

Do not race the engine just prior to switching off!

pg. 64 Automatic transmission



Gear selector positions

P Park

The transmission must be in Park position to start the engine, and to allow removal of the key from the

ignition when you leave the car. The car should be stationary when you select P! In the position P the transmission is mechanically locked. Always apply the parking brake when parking!

R Reverse

The car must be at a standstill before you select Reverse gear.

N Neutral position

The N position is the neutral position. The engine can be started, but no gear is selected. Apply the parking brake when the car is stationary with the gear selector in position N.

D Driving position

D is the normal driving position. The gear selector automatically shifts up and down between the transmission gears, based on the level of acceleration and the speed. The car should be stationary when you select D from position R.

4 Low gear position

Shifting up and down between the 1st, 2nd, 3rd, and 4th occurs automatically. Shifting up to Drive does not occur. Position 4 can be used:

- for mountain driving
- for driving with trailer
- to increase the engine braking

3 Low gear position

Shifting up and down between the 1st, 2nd, and 3rd occurs automatically. The 4th and Drive gears will not be engaged. Position 3 can be used:

- for mountain driving
- for driving with trailer
- to increase the engine braking

L Low gear position

Choose position L if you want to drive with the 1st or 2nd gear engaged. Position L gives the best possible engine braking effect when, for example, mountain driving. Shifting up to 5th does not occur. Position 4 can be used:

- for mountain driving
- for driving with trailer
- to increase the engine braking

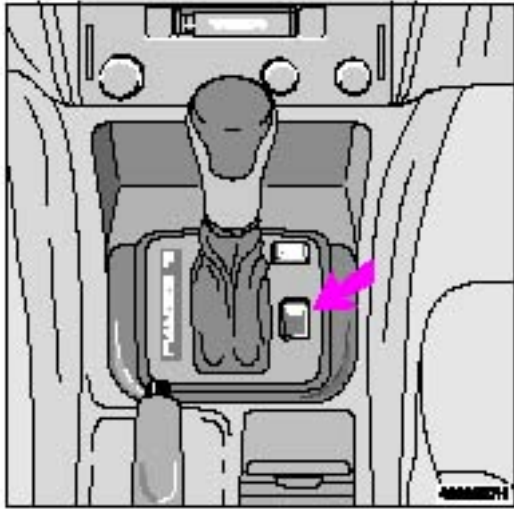
Downshifting protection

There is a built in protection in the transmission which prevents over revving in the engine when you select one of the low gear positions.

Shift lock

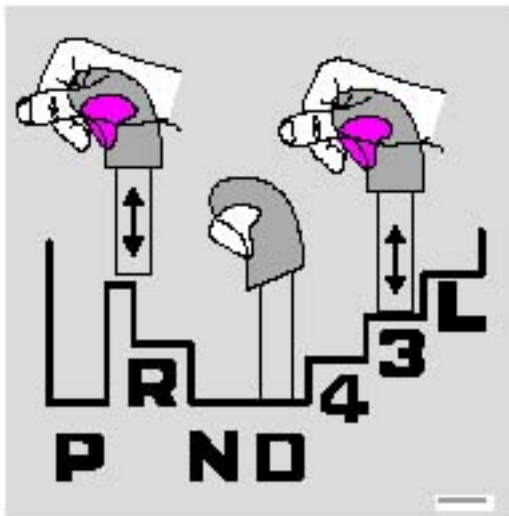
In order to move the gear selector from P position to the other gear positions the key must be in driving position (position II) and the brake pedal must be depressed. See [page 97](#) how to move the gear selector manually in case of flat battery.

pg. 65 Automatic transmission



W - Winter/Wet Weather

Use the W button to turn the Winter/Wet Weather function on or off. The Winter/Wet Weather function limits downshifting during acceleration, helping to reduce wheel spin. Because downshifting is limited in W mode, performance may seem sluggish and fuel economy may be reduced. W mode is recommended for acceleration from a standstill on rain-slicked roads.



Automatic transmission -shift gate positions

The gear selector can be moved freely between N and D. Selections of other positions are obtained by

depressing the selector knob prior to moving the selector. Slightly depressing the selector knob allows selection of positions R, N, D, 4, 3 and L. Fully depressing the selector knob allows selection of position P. This is also necessary when initially bringing the selector out of position P. Fully depressing the selector knob permits shifting freely between all positions.

Kick-down

Automatic shift to a lower gear (kick-down) is achieved by depressing the accelerator pedal fully and briskly. An upshift will be achieved when approaching the top speed for a particular gear or by releasing the accelerator pedal slightly. Kick-down can be used for maximum acceleration or when passing at highway speeds. Avoid using the kick-down function during the break-in period (first 1,200 miles of vehicle operation).

Transmission Lamp

If the indicator lamp (see [page 21 item 18](#)) begins to flash, this is an indication of a fault in the automatic transmission. The Check Engine Lamp will also light up if a fault is detected. If the transmission does not shift properly, place the gear selector in position L. Please contact your Volvo retailer if this occurs.



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2001 VOLVO S40 & V40

pg. 66 Automatic transmission, Points to remember

Special tips automatic transmission

- Vehicle performance and fuel economy will be adversely affected by prolonged driving in **Winter/Wet mode**. Volvo recommends using this mode only when starting in extremely slippery conditions.
- For driving down steep hills and when driving for prolonged periods at low speeds, position L should be selected. Avoid, however, repeated changes since this can cause overheating of the transmission oil. For driving on long continuous uphill gradients, select position 4.
- Never select P or R while the car is in motion.
- When initially selecting positions D, 4, 3, L or R, your right foot should press firmly on the brake pedal to ensure that the car is standing still with the engine idling.
- The gear selector should not be downshifted to L at speeds above 75 mph (125 km/h). **Always observe posted speed limits.**
- Do not hold the car stationary on an incline by using the accelerator pedal. Instead, apply the hand brake (parking brake). This prevents the transmission oil from becoming overheated.
- When towing a trailer, select shift position 4.
- While towing a trailer in hilly terrain, do not drive continuously at engine speeds above 4500 rpm to help avoid high engine oil temperatures.

Cooling system

The risk for engine overheating is greatest, especially in hot weather, when:

- Towing a trailer up steep inclines for prolonged periods at wide open throttle and low engine rpm.

- Stopping the engine suddenly after high speed driving (so-called "after-boiling" can occur).
- To avoid overheating, the following rules should be followed:

Do not drive for prolonged periods at engine speeds above 4500 rpm if you are towing a trailer in hilly terrain.

Reduce speed and downshift when towing a trailer up long, steep inclines. The risk of overheating can be reduced by switching off the air conditioning system for a short time.

Do not let the engine idle unnecessarily for prolonged periods.

Do not mount auxiliary lamps in front of the grill.

When the risk of overheating is imminent, or in the event of overheating (the temperature gauge goes repeatedly into, or stays continually in, the red section), the following precautions should be taken:

- Switch off the air conditioning system.
- Pull off the road, away from traffic, stop the car and put the gear lever into neutral. **Do not stop the engine immediately! Let the engine idle.**
- Switch the heater to full (maximum) position. Increase the engine speed to approx. 2001 rpm (twice idling speed) until the temperature begins to drop.

See "Coolant" to check and top-up the coolant level if necessary.

CAUTION: Drive slowly and carefully if going through standing water (i.e. flooded roadways, etc.). Damage to engine could result if excess water is ingested through the air intake system.

Never drive the vehicle in water deeper than 1 foot (300 mm). See flood warning on [page 8](#).

pg. 67 Points to remember

Electrical system

When replacing the battery or when carrying out work involving the electrical system, the

following should be observed:

- A battery connection to the wrong terminal will damage the electrical system. Before connections are made, check the polarity of the battery with a voltmeter.
- If booster batteries are used for starting, they must be properly connected to minimize the risk of the electrical system being damaged. For correct connection, see "Jump starting" section.
- Never disconnect the battery circuit (for example, to replace the battery) while the engine is running or the ignition is switched on, as this will immediately ruin the generator. Always make sure that all the battery connections are properly tightened.
- If any electrical welding work is performed on the vehicle, the battery's ground lead (negative cable) and all the connecting cables of the generator must be disconnected and the welder cables placed as near the welding points as possible.
- The radio must be turned off before the battery is disconnected.
- The anti-theft code must be re-entered before the radio will function properly.
- The electrical system in your car is designed to accommodate Volvo accessories.

Three-way catalytic converter

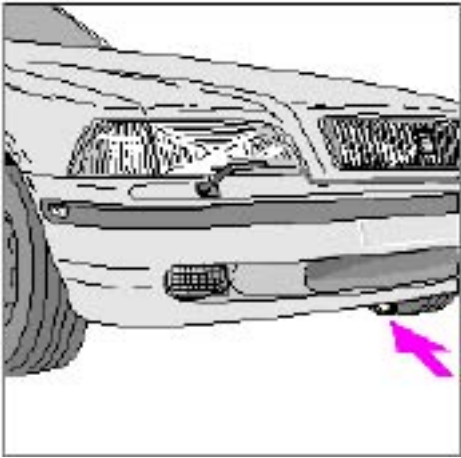
- Keep your engine properly tuned. Certain engine malfunctions, particularly involving the electrical, fuel or distributor ignition systems, may cause unusually high three-way catalytic converter temperatures. **Do not continue to operate your vehicle if you detect engine misfire, noticeable loss of power or other unusual operating conditions, such as engine overheating or backfiring.** A properly tuned engine will help avoid malfunctions that could damage the three-way catalytic converter.
- Do not park your car over combustible materials, such as grass or leaves, which can come into contact with the hot exhaust system and cause such materials to ignite under certain wind and weather conditions.
- Excessive starter cranking (in excess of one minute), with an intermittently firing or flooded engine, can cause three-way catalytic converter or exhaust system overheating.
- Remember that tampering or unauthorized modifications to the engine or the vehicle may be illegal and can cause three-way catalytic converter or exhaust system overheating. This includes:
 - Altering fuel injection setting or components.

- Altering emission system components or location or removing components.
- Repeated use of leaded fuel.

Note: Unauthorized modifications to the engine or vehicle may also void your warranty.

NOTE: Unleaded fuel is required for cars with three-way catalytic converters.

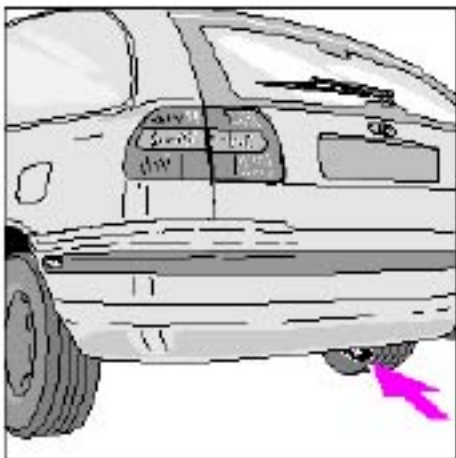
pg. 68 Emergency towing (pulling of vehicle)



Front eyelet

Precautions when the car is in tow

- Steering must be unlocked.
- Gear selector in position N.
- Maximum speed: 50 mph (80 km/h).
- Maximum distance with front wheels on ground: 50 miles (80 km).
- If the battery is dead, it is not possible to release the gear selector by pressing the brake pedal. Release the gear selector manually (see Shiftlock override information on [page 97](#)).



Rear eyelet

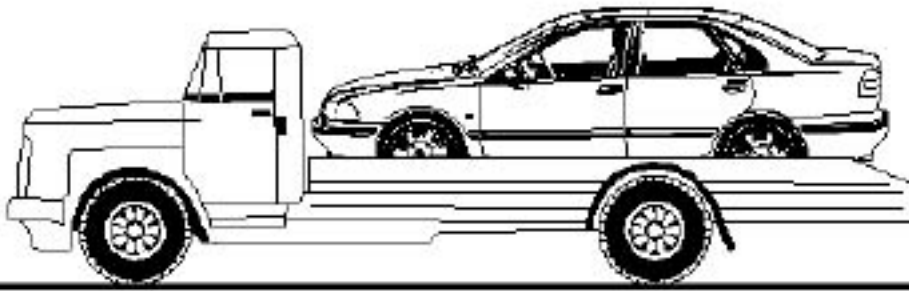
WARNING!

- Remember that the power brakes and power steering will not function when engine is not running. The braking system will function but the brake pedal pressure required is 3 - 4 times above normal and greater steering effort must be exerted.
- The towing eyelets must not be used for pulling another vehicle out of a ditch or for any similar purpose involving severe strain.
- Do not use the towing eyelets to pull the car up onto a flat bed tow truck.

CAUTION:

- Please check with state and local authorities before attempting this type of towing, as vehicles being towed are subject to regulations regarding maximum towing speed, length and type of towing device, lighting, etc.
- If the car's battery is dead, the engine must be jump started using an auxiliary 12 V battery (see [page 70](#)).
- If the car is being towed on a flat bed truck, the towing eyelets must not be used to secure the car on the flat bed. Consult the tow truck operator.

pg. 69 Vehicle towing information



Towing cars with front wheel drive

Volvo recommends the use of flat bed equipment.

If wheel lift equipment must be used, please use extreme caution to help avoid damage to the car. **In this case, the car should be towed with the rear wheels on the ground if at all possible.**

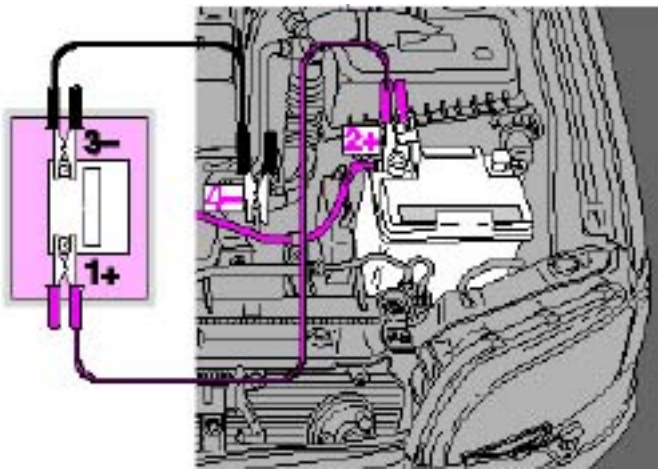
If it is absolutely necessary to tow the vehicle with the front wheels on the ground, please refer to the towing information on the previous page.

CAUTION:

- Sling-type equipment applied at the front will damage radiator and air conditioning lines.
- It is equally important not to use sling-type equipment at the rear or apply lifting equipment inside the rear wheels; serious damage to the rear axle may result.
- If the car is being towed on a flat bed truck, the towing eyelets must not be used to secure the car on the flat bed. Consult the tow truck operator.

WARNING!

Do not use the towing eyelets on the car to pull the car up onto a flat bed tow truck.



Jump starting

If the 12-volt booster battery to be used is in another car, check that the cars are not touching to prevent premature completion of a negative circuit. Note the position of the battery.

- First connect the booster battery positive (+) terminal (1) to car battery positive (+) terminal (2).
- Then connect the booster battery negative (-) terminal (3) to a stationary solid metal part on the engine at a point away from the battery (4).

Do not connect the jumper cable to any part of the fuel system or to any moving parts. Avoid touching hot manifolds.

After the engine has started, first remove the negative (-) terminal jumper cable. Then remove the positive (+) terminal jumper cable.

CAUTION: Improper hookup of jumper cables or use of other than 12-volt batteries could result in damage to equipment and/or the battery.

WARNING!

- Never expose the battery to open flame or electric spark.
- Do not smoke near the battery.
- Batteries generate hydrogen gas which is flammable and explosive.
- Battery fluid contains sulfuric acid. Do not allow battery fluid to contact eyes, skin, fabrics or painted surfaces. If contact occurs, flush the affected area immediately with water. Obtain medical help immediately if eyes are affected.

Failure to follow the instructions for jump starting can lead to personal injury.

NOTE: Refer to [page 119](#) for information on properly maintaining the battery.

PROPOSITION 65 WARNING!

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm. Wash hands after handling.

pg. 71 Brake system

Anti-lock Brake System (ABS)

If the warning lamp lights up there is a malfunction of the ABS system (the standard braking system will however function) and the vehicle should be driven cautiously to a Volvo retailer for inspection. The Anti-lock Braking System (ABS) helps to improve vehicle control (stopping and steering) during severe braking conditions by limiting brake lock-up. When the system "senses" impending lock-up, braking pressure is automatically modulated in order to help prevent lock-up, which could lead to a skid.

The system performs a self-diagnostic test when the vehicle first reaches a speed of approximately 4 mph (6 km/h).

To obtain optimal effect from the ABS system, constant pressure should be kept on the brake pedal while the system is modulating the brakes. Do not pump the brake pedal.

The switching of the ABS modulator will be audible and the brake pedal will pulsate at this time. Please be aware that ABS does not increase the absolute braking potential of the vehicle. While control will be enhanced, ABS will not shorten stopping distances on slippery surfaces.

Brake circuit malfunction

If one of the brake circuits should malfunction, the red warning light will come on, the pedal stroke increases slightly, the pedal feels softer and extra pressure is required for normal braking. If the light comes on while driving or braking, stop immediately and check the brake fluid level in the reservoir.

WARNING!

If the fluid level is below the MIN mark in either section of the reservoir: DO NOT DRIVE. Have the car towed to a Volvo retailer and have the brake system checked and any leakage repaired.

Moisture on brake discs and brake pads affects braking

Driving in rain and slush or passing through an automatic car wash can cause water to collect on the brake discs and pads. This will cause a delay in braking effect when the pedal is depressed. To avoid such a delay when the brakes are needed, depress the pedal occasionally when driving through rain, slush etc. This will remove the water from the brakes. Check that brake application feels normal. This should also be done after washing or starting in very damp or cold weather.

Severe strain on the brake system

The brakes will be subject to severe strain when driving in mountains or hilly areas or towing. The speed is usually low which means that the cooling of the brakes is less efficient than when driving on level roads. To reduce the strain on the brakes, it is advisable not to use the brakes excessively. Instead, shift into a lower gear, position 3 or in some cases, L (automatic transmission) and let the engine help with the braking. Do not forget that, if you are towing a trailer, the brakes will be subjected to greater load than is normal.



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pg. 72 Electronic Brake-force Distribution (EBD)

Electronic Brake-force Distribution (EBD)

EBD is an integrated part of the ABS system. EBD regulates the hydraulic pressure to the rear brakes to help provide optimal braking capacity.

If the **Brake failure warning light**  and **ABS**  **warning light** come on at the same time, this could indicate a fault in the brake system. If the brake fluid level is above the MIN mark, drive carefully to an authorized Volvo retailer and have the brake system inspected.

WARNING!

If the fluid level is below the MIN mark in the reservoir, **DO NOT DRIVE**. Have the car towed to an authorized Volvo retailer and have the brake system inspected.

pg. 73 Winter driving

Cold weather precautions

If you wish to check your car before the approach of cold weather, the following advice is worth noting:

- Make sure that the **engine coolant** contains 50 percent antifreeze: that is, 3.2 qts. (3 liters) Volvo Genuine Coolant/Antifreeze. This gives protection against freezing down to -31°F (-35°C). See section "Coolant". **The use of "recycled" antifreeze is not approved by Volvo. Different types of antifreeze may not be mixed.**
- Try to keep the **fuel tank** well filled - this prevents the formation of condensation in the tank. In addition, in extremely cold weather conditions it is worthwhile to add fuel line de-icer before refueling.
- The viscosity of the engine oil is important. Oil with low viscosity (thinner oil) improves cold-weather

starting as well as decreasing fuel consumption while the engine is warming up. For winter use, 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 or in warm weather. **See section "Engine oil" for more information.**

- The load placed on **the battery** is greater during the winter since the windshield wipers, lighting, etc. are used more often. Moreover, the capacity of the battery decreases as the temperature drops. In very cold weather, a poorly charged battery can freeze and be damaged. It is therefore advisable to check the state of charge more frequently and spray an anti-rust oil on the battery posts.

- Volvo recommends the use of snow tires on all four wheels for winter driving - see section "Wheels and tires".

- To prevent the **washer fluid reservoir** from freezing, add washer solvents containing antifreeze (see [page 118](#) for the location of the washer fluid reservoir). This is important since dirt is often splashed on the windshield during winter driving, requiring the frequent use of the washers and wipers. The Volvo Washer Solvent should be diluted as follows:

Down to 14° F (-10° C): 1 part washer solvent and 4 parts water

Down to 5° F (-15° C): 1 part washer solvent and 3 parts water

Down to 0° F (-18° C): 1 part washer solvent and 2 parts water

Down to -18° F (-28° C): 1 part washer solvent and 1 part water

- When driving in temperatures below 15° F (-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.

- Use Volvo Teflon Lock Spray in the locks.

- **Power steering fluid:** Use Pentosin CHF 11 S if your car is used mainly in areas with temperatures below freezing point.

NOTE: Avoid the use of de-icing sprays as they can cause damage to the locks.

* Synthetic oil is not used when the oil is changed at the normal maintenance service intervals.

Before a long distance trip

It is always worthwhile to have your car checked at a Volvo retailer before driving long distances. Your retailer will also be able to supply you with bulbs, fuses, spark plugs and wiper blades for your use in the event that problems occur.

If you prefer to check the car yourself, please note the following:

- Check that engine runs smoothly and that fuel consumption is normal.
- Check engine oil and engine coolant levels, and for possible fuel leakage.
- Check condition of drive belts.
- Check state of charge of battery.
- Examine tires carefully (the spare tire as well), and replace those that are worn. Check tire pressures.
- The brakes, front wheel alignment, and steering gear should be checked by your Volvo retailer only.
- Check all lights, including high beams.
- Reflective warning triangles are legal requirement in some states.
- Have a word with your Volvo retailer if you intend to drive in countries where it may be difficult to obtain correct fuel.
- Consider your destination. If you will be driving on snowy or icy roads, consider snow tires.
- Check for fluid leakage

pg. 75 Trailer towing

When preparing for trailer towing, observe the following:

Maximum trailer weight recommended by Volvo is:

- **Trailers without brakes:** 1100 lbs (455 kg)

- **Trailers with brakes:** 2001 lbs (908 kg),
- **Max tongue load:**
(w/o brakes) 110 lbs (50 kg)
(with brakes) 165 lbs (75 kg)

Observe the legal requirements of the state/province in which the vehicles are registered.

All Volvo models are equipped with energy-absorbing shock-mounted bumpers. Trailer hitch installation should not interfere with the proper operation of this bumper system.

- **Gradients over 12% or at heights over 3000ft (1000 m).**

Deduct 220 lbs (100 kg) from the maximum permitted trailer weight for each additional 1500 ft (500 m) or each additional % gradient.

- Do not attempt to drive **gradients steeper**

than 15% with a trailer. The load on the powered wheels/front wheels is then so low that they may slip and bring the car to a standstill. Do not rely on the handbrake alone to hold the car stationary when it has a trailer attached: the wheels may slide along the ground. Chock the wheels with blocks or stones.

- Volvo recommends the use of Volvo trailer hitches which are specially designed for the car. For trailer weights exceeding 2001 lbs (908 kg), use only a trailer hitch offered as a Genuine Volvo Accessory.

Trailer towing does not normally present any particular problems, but take into consideration:

- Increase tire pressure to recommended full. See section "Wheels and tires".
- Engine and transmission are subject to increased loads. Therefore, engine coolant temperature should be closely watched when driving in hot climates or hilly terrain. Use a lower gear and turn off the air conditioner if the temperature gauge pointer enters the red range.
- Avoid overload and other abusive operation.
- Hauling a trailer affects handling, durability, and economy.
- It is necessary to balance trailer brakes with the towing vehicle brakes to provide a safe stop (check and observe State/Local regulations).

- Do not connect the trailer's brake system directly to the vehicle's brake system.
- More frequent vehicle maintenance is required.
- Remove the ball and drawbar assembly when the hitch is not being used.
- Volvo recommends the use of synthetic engine oil when towing a trailer over long distances or in mountainous areas.

NOTE: Refer to section "Automatic transmission" for additional trailer hauling tips.

WARNING!

- Bumper attached trailer hitches must not be used on Volvos, nor should safety chains be attached to the bumper.
- Trailer hitches attaching to the vehicle rear axle must not be used.
- Never connect a trailer's hydraulic brake system directly to the vehicle brake system, nor a trailer's lighting system directly to the vehicle lighting system. Consult your nearest authorized Volvo retailer for correct installation.
- When towing a trailer, the trailer's safety wire must be correctly fastened to the hole or hook provided in the trailer hitch on the car. The safety wire should never be fastened to or wound around the drawbar ball.

NOTE: The car is equipped with a transmission oil cooler as standard equipment. This cooler helps prevent overheating of the transmission during times of increased load, as when towing a trailer.



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Chapter 5 - Wheels and tires

pg. 77 Wheels and tires

Wheels and tires

The handling and riding comfort of the vehicle is dependent on the inflation pressure and the type of tires fitted. Read the following pages carefully.

<u>General information, Wear indicator, Tire economy, Flat spots</u>	<u>78</u>
<u>Snow chains, Snow tires, Studded tires</u>	<u>79</u>
<u>Inflation pressure</u>	<u>80</u>
<u>Uniform tire quality grading</u>	<u>81</u>
<u>"Special spare" tire</u>	<u>82</u>

pg. 78 Wheels and tires

General information

Your vehicle is equipped with tires according to the tire information label located on the inside of the fuel filler door

The following is an **example** of a tire designation code 195/60R15:

195 = tire width in mm.

60 = tire profile. This is the relationship (in percent) between the section height and width of the tire.

R = radial tires.

15 = diameter in inches.

The tires have good road holding characteristics and offer good handling on dry and wet surfaces. It should be noted however that the tires have been developed to give these features on snow/icefree surfaces. However, for optimum road holding on icy or snow covered roads **we recommend suitable winter tires on all four wheels**. When replacing tires, be sure that the new tires are the same size designation, type (radial) and from the same manufacturer, on all four wheels. Otherwise there is a risk of altering the car's roadholding and handling characteristics.

NOTE: When storing wheel/tire assemblies (e.g. winter tires and wheels), either stand the assemblies upright, or suspend them off the ground. Laying wheel/tire assemblies on their sides for prolonged periods can cause wheel and/or tire damage.

Wear indicator

The tires have a so-called "wear indicator" in the form of a number of narrow strips running across or parallel to the tread. When approx. 1/16" (1.6 mm) is left on the tread, these strips become visible and indicate that the tire should be replaced.

Tires with less than 1/16" (1.6 mm) tread have a very poor grip in rain or snow.

When replacing worn tires, it is recommended that the tire be identical in type (radial) and size as the one being replaced. Using a tire of the same make (manufacturer) will prevent alteration of the driving characteristics of the vehicle.

To improve tire economy:

- Maintain correct tire pressure. See the tire pressure label on the inside of the fuel filler door.
- Drive smoothly: avoid fast starts, hard braking and tire screeching.
- Tire wear increases with speed.
- Correct front wheel alignment is very important.
- Unbalanced wheels impair tire economy and driving comfort.
- If the wheels are rotated, they should be kept on the same side of the car so that they revolve in the same direction as prior to rotation.

- Hitting curbs or potholes can damage the tires and/or wheels permanently.

Flat spots

All tires become warm during use. After cooling, when the vehicle is parked, the tires 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 tire warms up. The degree to which flat spots form depends on the type of cord used in the tire. Remember that, in cold weather, it takes longer for the tire to warm up and consequently longer for the flat spot to disappear.

CAUTION: The car must not be driven with wheels of different dimensions or with a spare tire other than the one that came with the car. The use of different size wheels can seriously damage your car's transmission.

pg. 79 Wheels and tires

Snow chains

Snow chains can be used on your Volvo with the following restrictions:

- Snow chains should be installed on front wheels only. Use only Volvo approved snow chains.
- Snow chains may only be mounted on approved snow tires 195/55 R15. Consult your Volvo retailer.

If accessory, aftermarket or "custom" tires and wheels are installed and are of a size different than the original tires and wheels, chains in some cases CANNOT be used. Sufficient clearances between chains and brakes, suspension and body components must be maintained.

- Some strap on type chains will interfere with brake components and therefore CANNOT be used.

Consult your Volvo retailer for additional snow chain information.

Snow tires, studded tires *

Tires for winter use:

Owners who live in or regularly commute through areas with sustained periods of snow or icy driving conditions are strongly advised to fit suitable winter tires to help retain the highest degree of traction.

It is important to install winter tires **on all four wheels** to help retain traction during cornering, braking, and accelerating. Failure to do so could reduce traction to an unsafe level or adversely affect handling. Do not mix tires of different design as this could also negatively affect overall tire road grip. **Volvo recommends 195/55 R15 winter tires on 15" steel rims on all S/V 40 models.**

Winter tires wear more quickly on dry roads in warm weather. They should be removed when the winter driving season has ended.

Studded tires should be run-in 300-600 miles (50-1000 km) during which the car should be driven as smoothly as possible to give the studs the opportunity to seat properly in the tires. The car tires should have the same rotational direction throughout their entire lifetime. In other words, if you wish to rotate the wheels, make sure that the same wheels are always on the same side of the car.

NOTE: Please consult state or provincial regulations restricting the use of studded winter tires before installing such tires.

CAUTION:

- Check local regulations regarding the use of snow chains before installing.
- Always follow the chain manufacturer's installation instructions carefully. Install chains as tightly as possible and retighten periodically.
- Never exceed the chain manufacturer's specified maximum speed limit. (Under no circumstances should that limit be higher than 30 mph (45 km/h).
- Avoid bumps, holes or sharp turns when driving with snow chains.
- The handling of the vehicle can be adversely affected when driving with chains. Avoid fast or sharp turns as well as locked wheel braking.

* Where permitted.

pg. 80 Wheels and tires

Checking and correcting tire pressure

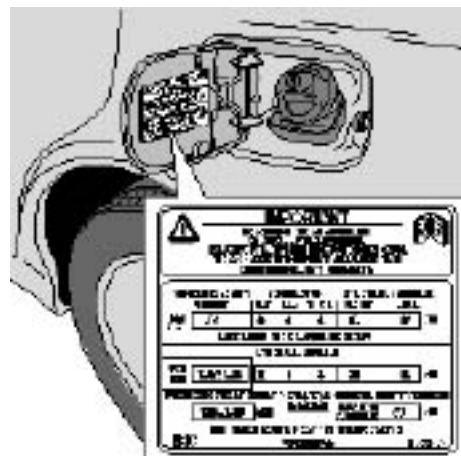
- Refer to the tire pressure label located on the inside of the fuel filler door. The tire pressures shown on the top line of the label will provide best fuel economy. The tire pressures shown on the second line will provide a softer ride, but may reduce fuel economy.
- Check the tire pressure when refueling.
- The tire pressure should be corrected only when the tires are cold.
- With warm tires, correct only when the pressure is too low. The tire temperature rises after driving just a few miles.

Vehicle loading

The tires on your Volvo will perform to specifications at all normal loads when inflated as recommended on the tire information label* located on the inside of the fuel filler flap. This label lists both tire and vehicle design limits.

Do not load your car beyond the load limits indicated.

*Please note that the tire information label indicates pressure for both comfort and fuel economy.



Tire pressure label on fuel filler door

pg. 81 Wheels and tires

Uniform tire quality grading

All passenger car tires must conform to Federal Safety Requirements in addition to these grades

TREADWEAR

The treadwear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded 150 would wear one and one half (1 1/2) times as well on the government course as a tire graded 100. The relative performance of tires depends upon the actual conditions of their use, however, and many depart significantly from the norm due to variation in driving habits, service practices and differences in road characteristics and climate.

TRACTION

The traction grades, from highest to lowest, are AA, A, B, and C, as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked C may have poor traction performance.

WARNING!

The traction grade assigned to this tire is based on braking (straight-ahead) traction tests and does not include cornering (turning) traction.

TEMPERATURE

The temperature grades are AA (the highest), A, B, and C, representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperature can cause the material of the tire to degenerate and reduce tire life, and excessive temperature can lead to sudden tire failure. The grade C corresponds to a level of performance which all passenger car tires must meet under the Federal Motor Safety Standard No. 109. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.

UNIFORM TIRE QUALITY GRADING LOCATING THE GRADE

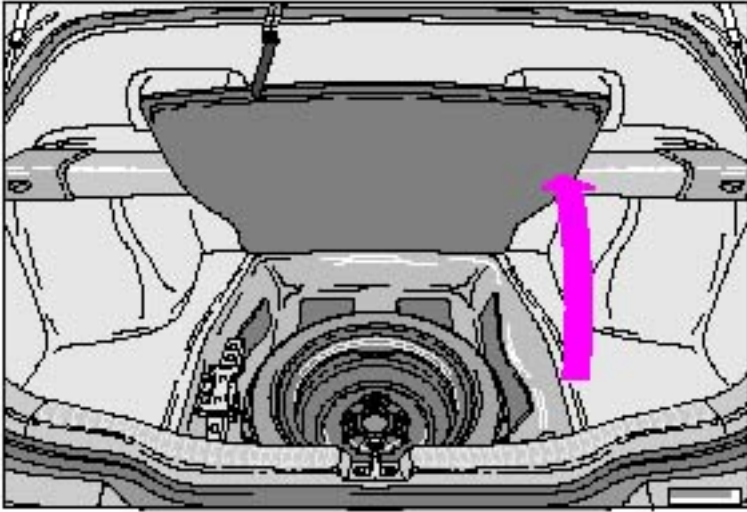
Quality grades can be found where applicable on the tire sidewall between tread shoulder and maximum section width.

Treadwear 200 Traction AA Temperature A

WARNING!

The temperature grade for this tire is established for a tire that is properly inflated and not overloaded. Excessive speed, underinflation, or excessive loading, either separately or in combination, can cause heat buildup and possible tire failure.

pg. 82 Spare tire



Special Spare

The spare tire in your car is called a "Special Spare". It has the following designation: 124/90 R15 96M.

Recommended tire pressure (see the bottom line of the decal on the fuel filler door) should be maintained irrespective of which position on the car the Special Spare tire is used on.

In the event of damage to this tire, a new one can be purchased from your Volvo retailer.

WARNING!

Current legislation prohibits the use of the "Special Spare" tire other than as a temporary replacement for a punctured tire. In other words, it must be replaced as soon as possible by a standard tire. Roadholding, etc., may be affected with the "Special Spare" in use. Do not, therefore, exceed 50 mph (80 km/h).

CAUTION: The car must not be driven with wheels of different dimensions or with a spare tire other than the one that came with the car. The use of different size wheels can seriously damage your car's transmission.

CAUTION: We recommend that you switch the DSA system off whenever you use the "Special Spare" tire that does not match the diameter of your other tires. See [page 30](#).



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Chapter 6 - In case of an emergency

pg. 83 In case of an emergency

In case of an emergency

Even if you maintain your car in good running condition, there is always the possibility that something might go wrong and prevent you from driving, such as a punctured tire, blown fuse or bulb, etc. For additional information, see section "ON CALL Road Assistance".

[Tool kit, Jack](#) [84](#)

[Changing a tire](#) [85](#)

[Replacing bulbs](#) [87](#)

[Replacing fuses](#) [93](#)

[Replacing wiper blades](#) [96](#)

[In case of emergency](#) [97](#)

[Manually closing the sun](#) [98](#)
[roof](#)

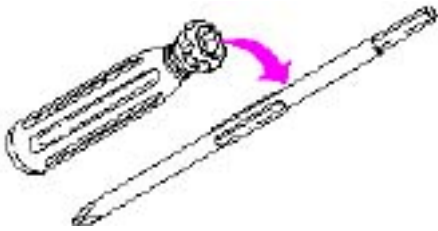
pg. 84 Tool kit, Jack

Tool kit and jack

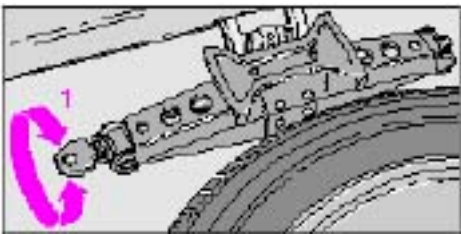
The tool kit and jack are under the carpet in the cargo space floor, next to the spare wheel.

Contents of tool kit

1. Combined screwdriver/socket wrench
2. Lug wrench
3. Crank (for the jack)
4. Gloves



The screwdriver is combined with the socket wrench. The tools can be alternated by pulling the shaft out of the handle and reinserting the opposite end of the shaft into the handle.



Removing the jack

Take the spare wheel out.

Tighten the jack slightly by turning the axle (1) and remove it from the retaining clip.

Replacing the jack

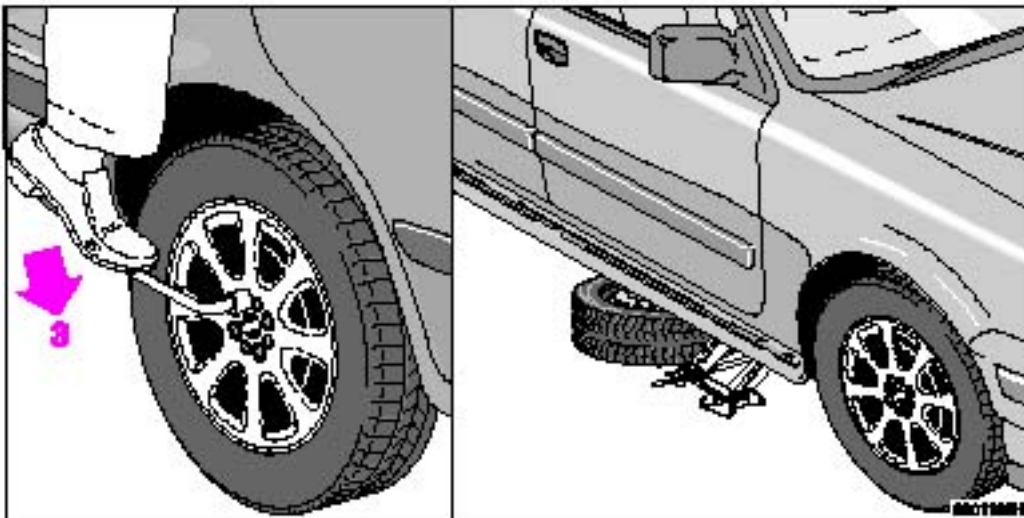
Put the jack in the clip and turn axle (1) until the jack is securely in place.

Replace the tools in the same place.

WARNING!

- The jack (see the following pages) must be correctly placed in the jack attachment.
- Be sure the jack is on a firm, level, non-slippery surface.
- Never allow any part of your body to be extended under a car supported by a jack.
- Use the jack intended for the car when replacing a wheel. For any other job, use stands to support the side of the car being worked on.
- Apply the parking brake and put the gear selector in position P.
- Block the wheels standing on the ground, use rigid wooden blocks or large stones.
- The jack should be kept well-greased.
- Use gloves

pg. 85 Wheel changing



Loosen wheel bolts

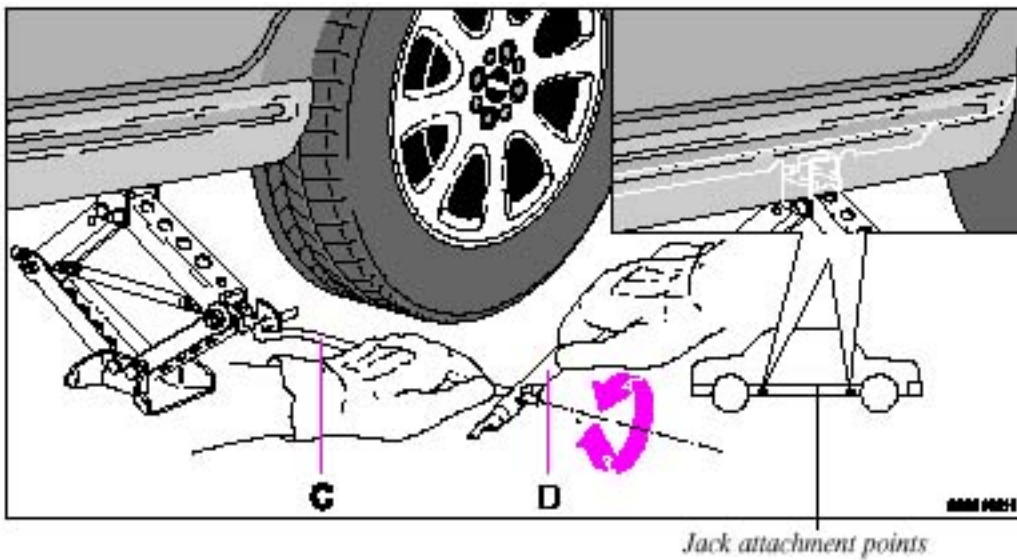
Changing a wheel

- Engage the parking brake.

- Put the gear selector in (P)ark.
- **Get all the passengers to move to a safe place outside the car.**
- **Close all doors.**
- Block the wheels remaining on the ground with wooden blocks, stones or something similar.
- Pull the wheel cover off the wheel (steel rims) or use the flat end of the lug wrench in the tool kit (1) (alloy rims) and twist it to loosen the wheel cap (2).
- With the car still on the ground, use the lug wrench to loosen the wheel lugs 1/2 - 1 turn. Position the lug wrench so that you apply force in a downward direction. Never lift up on the lug wrench to loosen or tighten lugs.
- Turn the bolts counterclockwise to loosen. If necessary, press down on the lug wrench with your foot to loosen the lugs (3) .

CAUTION:

- The car must not be driven with wheels of different dimensions or with a spare tire other than the one that came with the car. The use of different size wheels can seriously damage your car's transmission.
- Correct tightening torque on wheel bolts must be observed. The wheel bolts should never be greased or lubricated. Extended, chromed wheel bolts must not be used with steel rims, as they make it impossible to fit the hub caps.



Attaching the jack

There are two jack attachment points located on each side of the car. These attachment points are marked by arrows on the outside of the cover over the bottom sill (see illustration).

Check that the **doors are closed** and stay closed all the time the car is jacked up.

- Position the jack under the two notches closest to the wheel to be changed (1).
- Attach the crank to the jack (C).
- Attach the lug wrench (D) to the crank.
- Raise the jack by cranking it clockwise. **Be sure the jack engages the attachment point correctly. The base of the jack must be flat on a level, firm, non-slippery surface. Before raising the car, check that the jack is still correctly positioned in the attachment point.**
- Raise the car until the wheel to be changed is lifted off the ground.
- Unscrew the wheel bolts completely and carefully remove the wheel so as not to damage the thread on the studs.

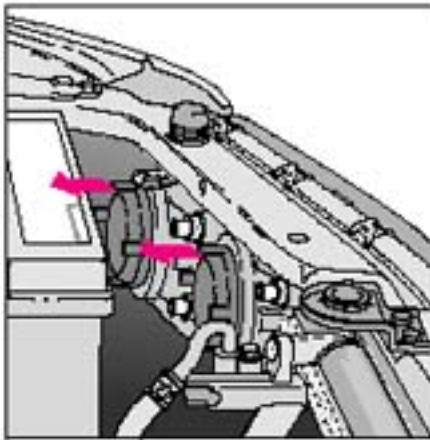
WARNING!

The jack must be correctly placed in the jack attachment.

Installing the wheel

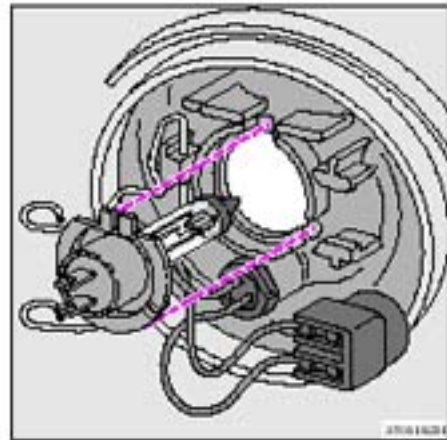
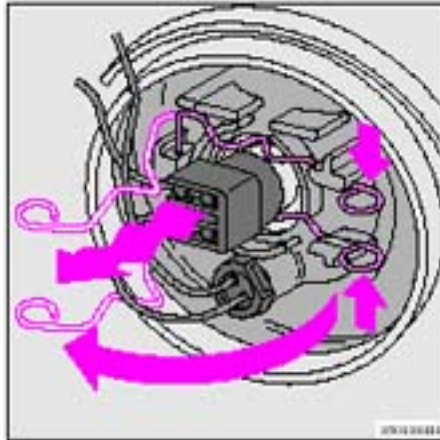
Clean the contact surfaces on the wheel and hub. Lift the wheel and place it on the hub. Install the wheel bolts crosswise and tighten until snug by turning clockwise. Lower the vehicle to the ground and alternately tighten the bolts to 81 ft. lbs. (110 Nm). Install the wheel cover (where applicable).

pg. 87 Replacing bulbs



Remove cover

Remove cover

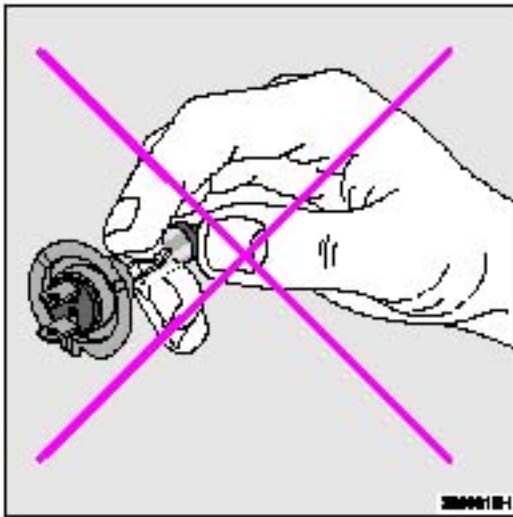


Removing high/low beam headlight bulbs

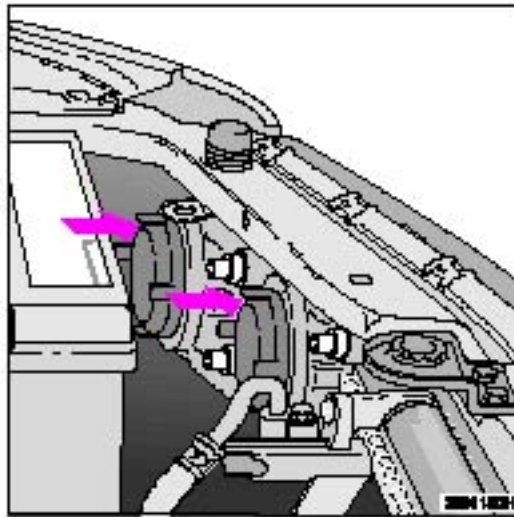
- Your car is fitted with separate high and low beam bulbs.
- Switch off the lights and remove the ignition key.
- Open the hood.
- Pull off the rubber cover from the rear of the bulb unit to be replaced.
- Release the retaining spring and withdraw the connector/bulb from the headlight unit. Pull the bulb out of the connector.

NOTE: Never touch the glass of a bulb with your fingers: this could leave traces of grease or oil on the glass which then evaporate and may damage the reflector.

pg. 88 Replacing bulbs



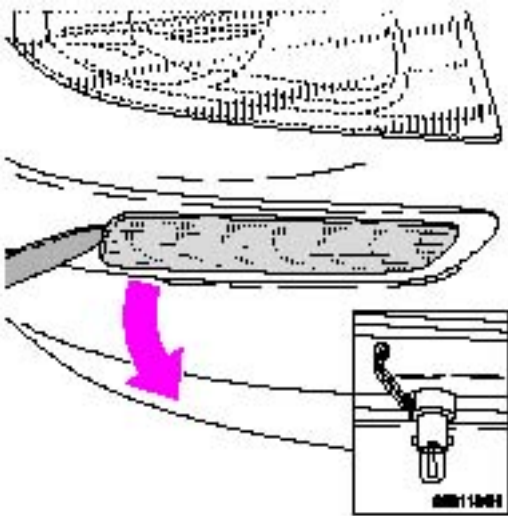
Replacing cover



Installing high/low beam headlight bulbs

- Insert the new bulb in the headlight unit
- Reconnect the connector and wiring.
- Press the retaining spring over the connector/bulb until it clicks into position.
- Reinstall the rubber cover at the rear of the headlight unit.
- Put the hard plastic cover in place above the headlight housing and press the tab down to secure the cover.

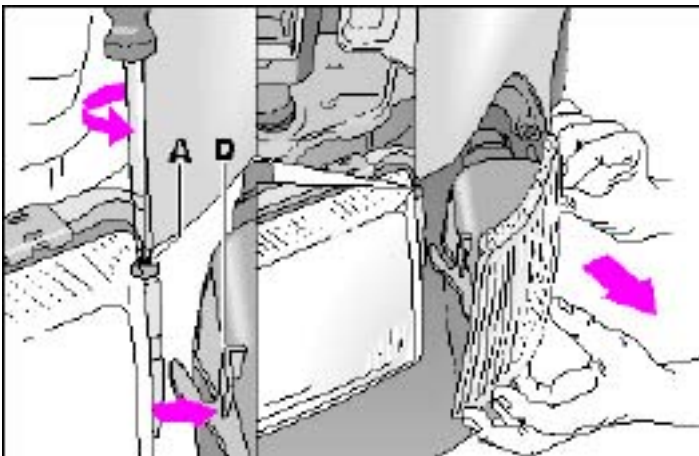
NOTE: Never touch the glass of a bulb with your fingers: this could leave traces of grease or oil on the glass which then evaporate and may damage the reflector.



Side marker lamp replacement

Slide the lamp insert backward and pull out. Try to loosen the lamp insert with your fingers if possible. Otherwise use a stiff piece of plastic or wood to protect the paint. Turn the bulb holder counter-clockwise and pull out. Replace with a new bulb. Press in the bulb holder and twist clockwise. Reinstall the lamp insert by pressing it into the bodywork.

pg. 89 Replacing bulbs

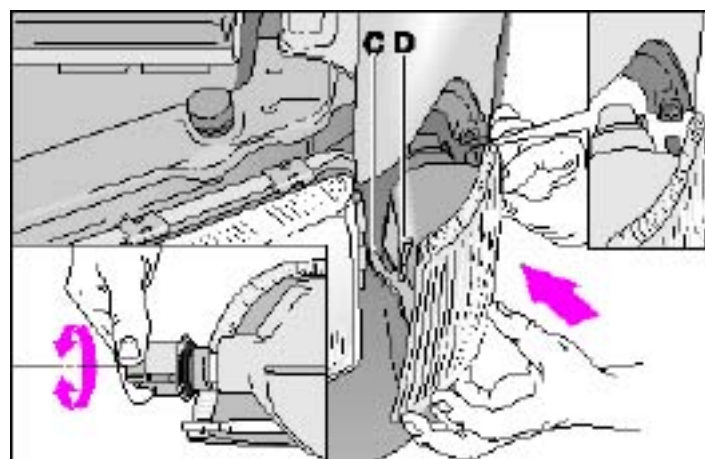


Front direction indicators and parking lights

Removing the bulb:

- Loosen the screw (A) between the headlight and direction indicator housings (max. 2 complete turns counterclockwise), using the screwdriver supplied in the tool kit.
- Press clip D and move the direction indicator housing forward.

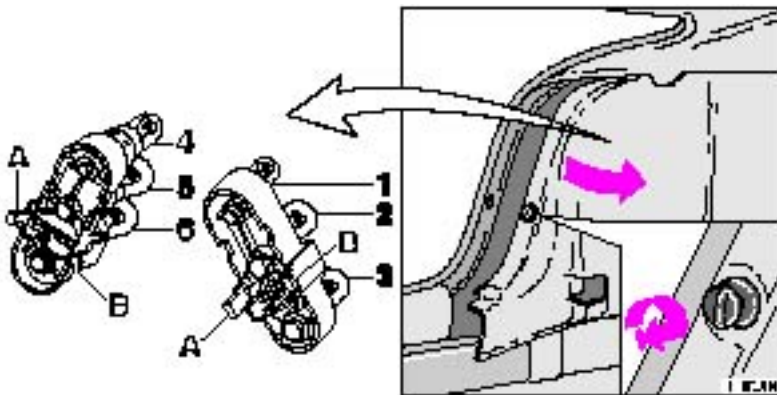
- With the wiring still attached, turn bulb holder slightly counterclockwise and withdraw it from the lamp housing.
- Pull the bulb to remove.



Replacement

- Insert a new bulb in the holder.
- Reinsert the bulb holder in the lamp housing and turn it clockwise until it clicks into place.
- Press the lamp housing into place.
Make sure that locating pin B fits into the hole in the fender and slotted hole (C) around the screw.
- Tighten the screw.

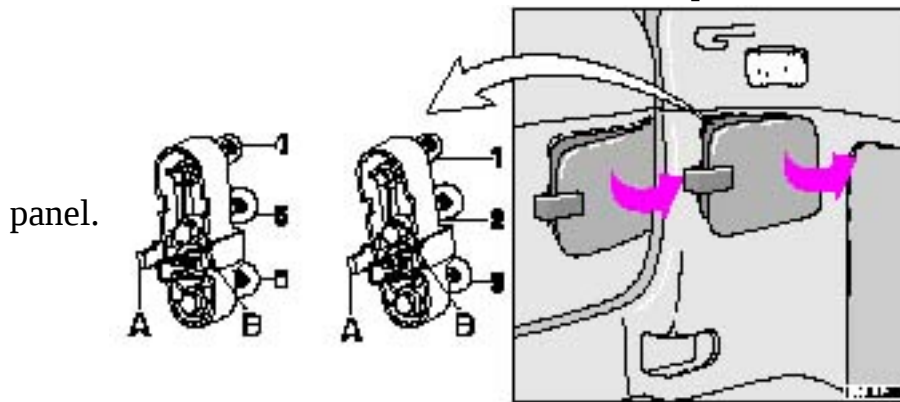
pg. 90 Replacing bulbs



Replacement of rear light bulbs - S40

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

- Switch off the lights and remove the ignition key.
- Turn the clip 90° and pull it out. Fold the panel in the boot towards the middle so as to get access to the bulb holder.
- Push catches A and B in and remove the bulb holder. The bulbs are held 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 degrees counterclockwise.
- Insert a new bulb into the bulb holder and replace the holder. Check that the bulb works and refit the



Replacement of rear light bulbs - V40

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

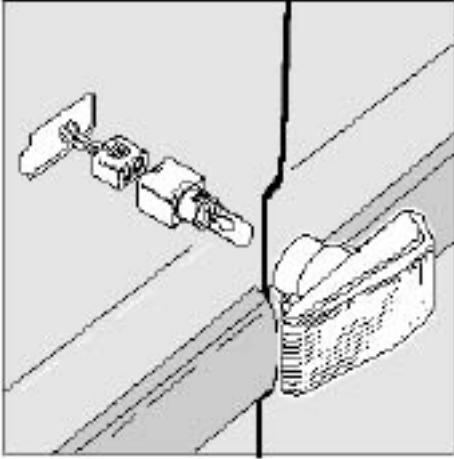
- Switch off the lights and remove the ignition key.
- Open the cover in the panel
- Push catches A and B in and remove the bulb holder. The bulbs are held in the bulb holder.
- Leave the connector and cables connected to the bulb holder.
- Remove the bulb by pressing it inwards and turning it a few degrees counterclockwise.
- Insert a new bulb into the bulb holder and replace the holder. Check that the bulb works and refit the cover.

1 Tail light (rear parking light) 5W

2 Direction indicator 21W

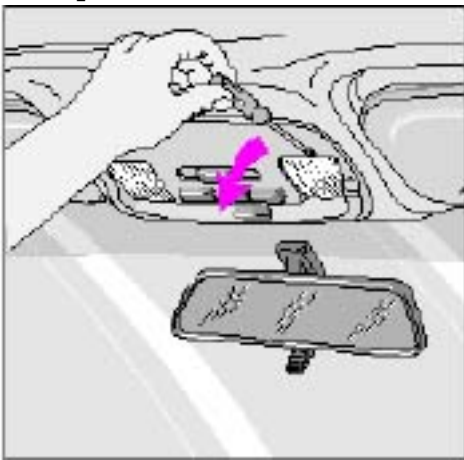
- 3 Brake light 21W
- 4 Tail light 5W
- 5 Backup light 21W
- 6 Rear fog light (LH side only) 21W

pg. 91 Replacing bulbs



Side direction indicator

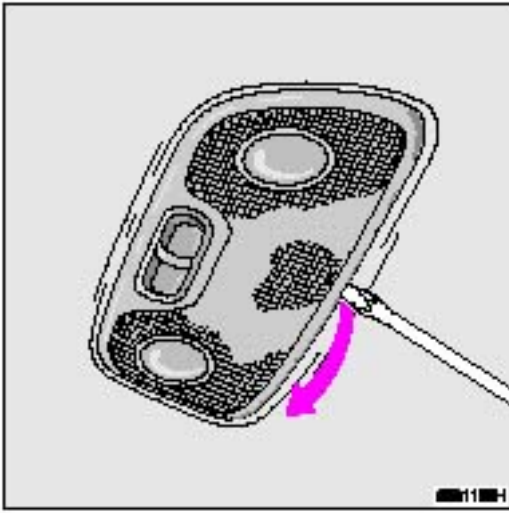
1. Slide the lens forward and pull out the rear edge.
2. Pull out the entire lens/bulb unit.
3. With the lens toward you, turn the bulb holder 1/4 turn (the wires should not be disconnected from the holder) and pull out the bulb holder from the lens unit.
4. Pull the old bulb straight out and press a new one into place.
5. Replace the entire unit in the reverse order.



Insert screwdriver, turn and pull downward

Front courtesy lights

- Switch off the ignition.
- Insert a flat screwdriver and turn carefully to loosen the glass lens.
- Replace the bulb and press the glass lens back into place.



Insert a screwdriver and turn

Rear reading lights

- Switch off the ignition.
- Insert a screwdriver and turn to loosen the lens unit.
- Replace the bulb and press the lens unit back into place.



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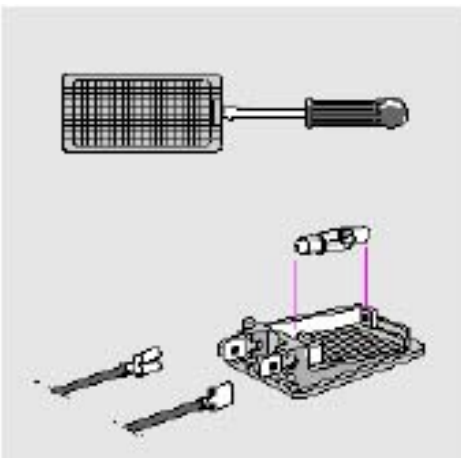
pg. 92 Replacing bulbs



Insert a screwdriver and turn

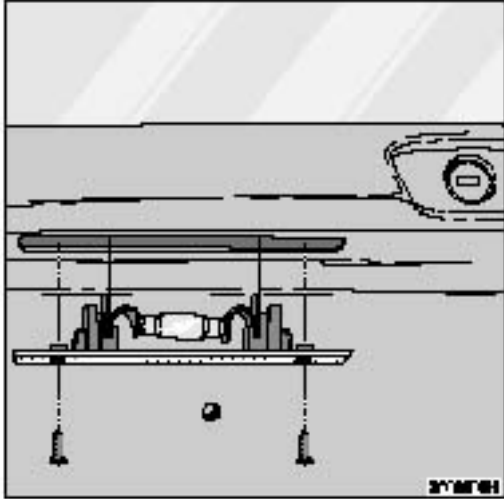
Vanity mirror

- Switch off the ignition.
- Insert a screwdriver under the lower edge and turn to loosen the glass lens.
- Pull out the bulb and replace it.
- Press the lower edge of the lens into place above the four catches.
- Press the upper edge of the lens into place.



Trunk/cargo compartment light

- Press in the catch with a flat screwdriver and remove the lens.
- Pull the bulb out of the holder and replace it.
- Press the glass lens into position.

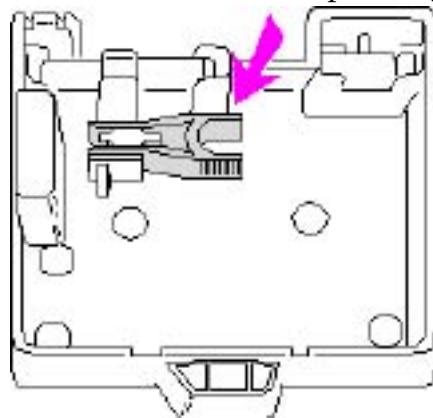


Replacing number plate lighting - V 40

Switch off all lights and remove the ignition key. Remove the screws and take out the lamp housing. Replace bulb. Reinstall and screw the lamp housing into place again. **NOTE:** Other bulbs may be difficult for the owner to replace. Let your Volvo retailer replace these bulbs if necessary.

pg. 93 Replacing fuses

Fuse removal tool in passenger compartment fuse box



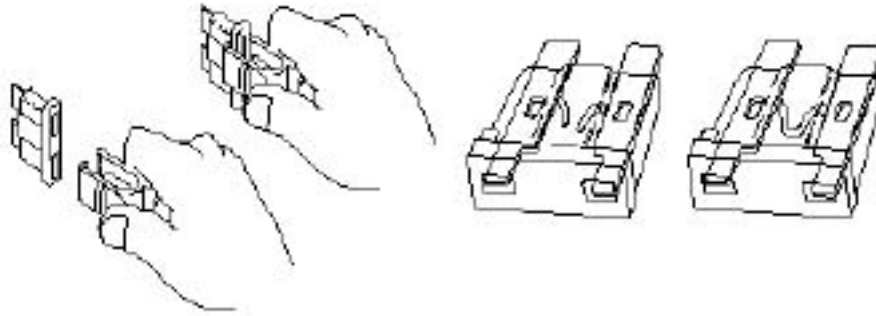
Replacing fuses

If an electrical component fails to function, it is likely that a fuse has blown due to a temporary circuit overload.

The fuse boxes are located in the engine compartment (see [page 94](#)) and in the passenger compartment (see [page 95](#)).

A label on the inside of each cover indicates the amperage and the electrical components that are

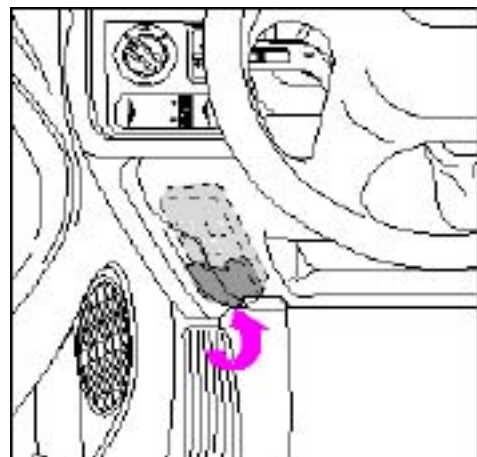
connected to each fuse.



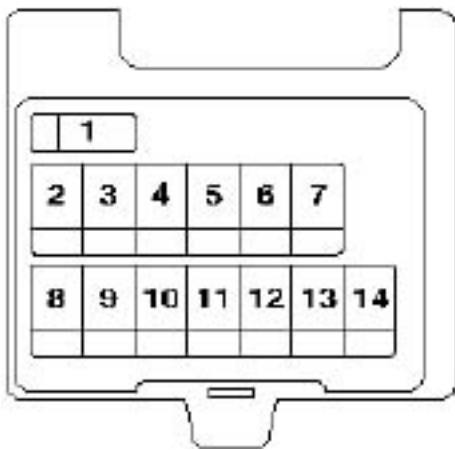
Defective fuse Intact fuse

The easiest way to see if a fuse is blown is to remove it. Pull the fuse straight out. From the side, examine the curved metal wire to see if it is broken. If so, put in a new fuse of the same color and amperage (written on the fuse). Spare fuses are stored in the fuse box cover. If fuses burn out repeatedly, have the electrical system tested at a Volvo retailer. If you find it difficult to remove a fuse, you will find a special fuse tool clipped in the fuse box.

pg. 94 Fuses

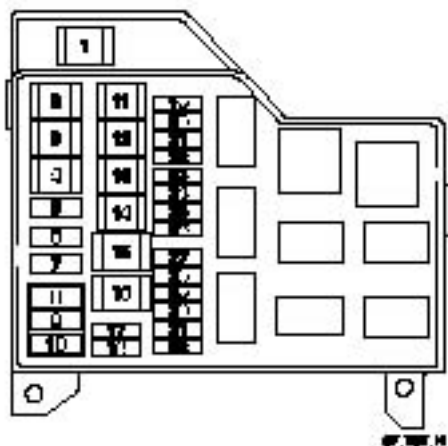
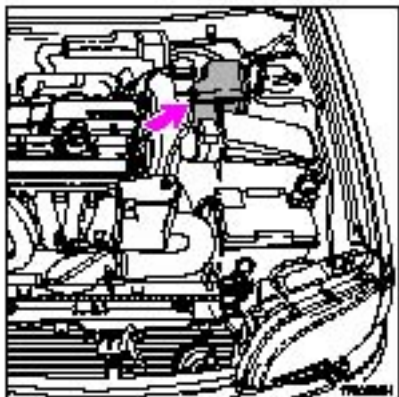


NOTE: If a trailer hitch has been installed, two supplementary fuses will be added to the cable harness near the right tail light.



Fusebox, Passenger compartment

No. Components	Amperage
1 Blower motor, ECC	25
2 Cigarette lighter, Accessories	20
3 Accessories, Power windows, Power mirrors	10
4 ECM for DSA/ABS/CEM.	10
5 Seat heating	20
6 Illumination of switches: Winter, DSA back-up lights, CEM, Turn indicators	15
7 Cruise control, Shiftlock, SRS, Alarm	10
8 Hazard warning flasher, Central doorlock activated, flasher	15
9 Audio system, Cigarette lighter, Accessories	15
10 Wiper/Washer front	20
11 SRS, ECM for DSA/Engine/Transmission, Combined instrument panel, Immobilizer	10
12 Sun roof, heater/AC, Alarm, Seatbelt reminder	15
13 OBD II connector, Brake lights	15
14 Front wiper, headlamp wipers, Wiper/washer rear	20



Fusebox - Engine compartment

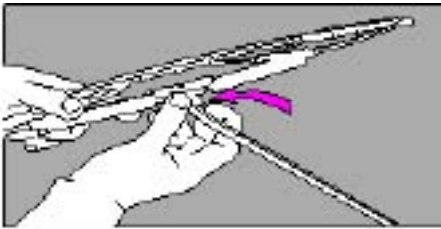
No. Components	Amperage
1	120
2 Supply to fuses 11/B 1,2,8 and 13	40
3	...
4	...
5 Rear window and side-mirror heaters	25
6 Driver's power seat	25
7	...
8* ECC, courtesy lights, ignition lock, Siren, Combined instrument panel	10
9* Central locking, alarm	20
10* Audio	15
11 ECM for immobilizer. engine relays	20
12 Power windows, Power mirrors	30
13 Radiator fan	30
14 Starter motor, supply to fuses 11/B 3-7, 9-12 and 14	40
15 ABS	50
16 Reserve	--
17 Fuel pump	15
18 Engine components	10
19 Foglights	20
20 Reserve	--
21 High beam L	15
22 High beam R	15

23 Parking lights	10
24 Parking lights	10
25 TCM	10
26	
27 Electric socket rear	15
28 Main light	15
29 Horn	15
30 Charger AC, fan AC	15
31 VAC pump (AT)	10
32 Reserve	--

*To be able to remove these fuses, you must FIRST PULL UP the yellow fuseholder (transport fuse) by hand and then use the special fuse tool to remove the fuse. See [page 93](#).

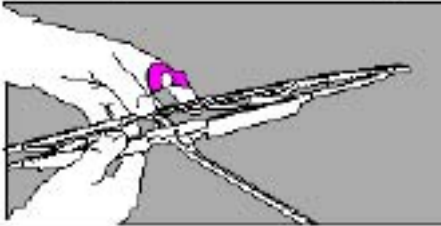
NOTE: Before you pull up the transport fuse holder, make sure that you know the radio code, since this code will be erased from the radio when pulling up the fuseholder!

pg. 96 Replacing wiper blades



Replacing wiper blades

Lift the wiper arm off the windshield and hold the blade at right angles to the arm. Pinch the end of the plastic clip located at the back of the arm.



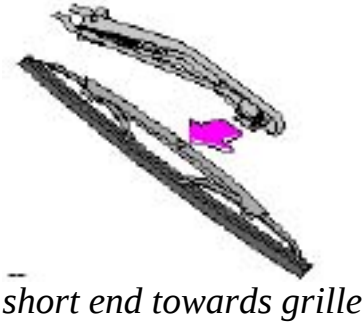
Slide the wiper blade along the arm to release it from the hook.



Install the new blade (installation is the reverse of removal) and make sure that it is properly attached to the wiper arm.

NOTE: For reasons of safety, you should change the windshield wiper blades as soon as they start to leave marks on the windshield or fail to wipe efficiently and cleanly.

To obtain maximum lifetime from a set of wiper blades, clean them with a stiff-bristle brush and warm, soapy water as part of a normal car wash.



Replacing headlight wiper blades (certain models)

Pull the wiper blade in the direction indicated by the arrow in the illustration to remove it. Press the new wiper blade into place. Check that the new blade is properly attached to the wiper arm.

Cleaning the outside of the windshield and wiper blades

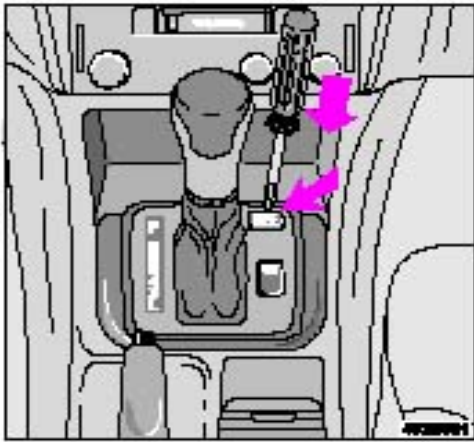
If the windshield/tailgate is not clear after using the wiper(s) or if the blade chatters when running, wax or other material may be on the blade or on the surface of the glass.

Clean the glass with a suitable cleaning agent. The glass is clean if beads do not form when you rinse it with water.

Clean the wiper blade by wiping vigorously with a cloth soaked in full strength windshield washer solvent. Then rinse the blade with water.

Wiper blades should be checked on a regular basis and replaced when worn.

pg. 97 In case of emergency



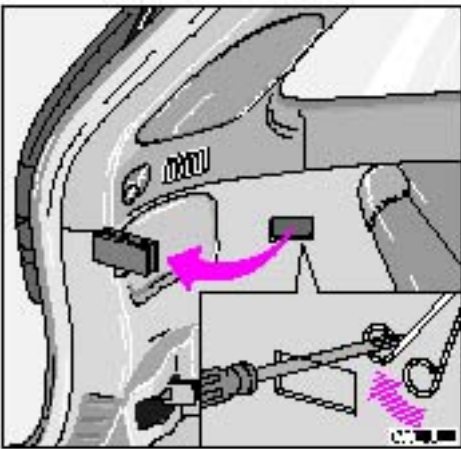
Shiftlock override button

Shiftlock override button

Shiftlock release

The gear selector is locked in the (P)ark position. To manually release the shiftlock:

- Turn the starting (ignition) key to position I
- Press firmly on the "SHIFTLOCK OVERRIDE" button located at the base of the gear selector
- While holding the override button down, press the button on the front of the gear selector
- Move the selector from the (**P**)ark position.



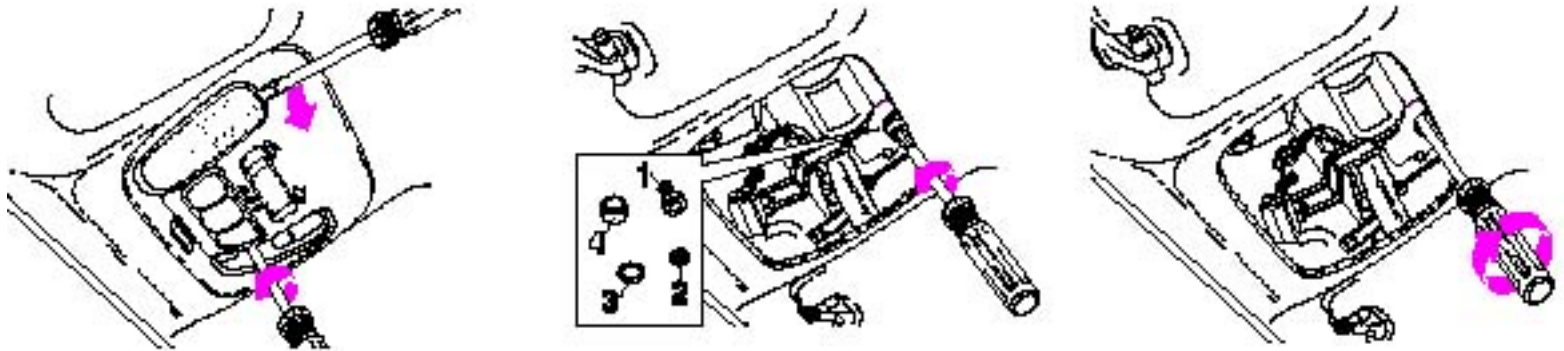
Manually operating the fuel filler door

If the fuel filler door does not unlock together with the central locking system:

- Remove the plastic cover in the storage area on the left side of the trunk.

- Pull the eyelet firmly

pg. 98 In case of emergency



Manually closing the sun roof

To manually close the sun roof, use the socket wrench supplied in the tool kit (see [page 84](#)).

- Remove the courtesy light lenses.
- Undo the screws and remove the courtesy light cover.
- Remove the cap from the screw with the screwdriver.
- Remove the screw (1), washer (2), spacer(s) (3) and collar.
- Turn the screwdriver back into the handgrip to make it into a socket wrench. Fit this onto the sun roof motor drive shaft and close the sun roof by turning clockwise.

NOTE:

If you wind too far, the sun roof will move into the ventilator position. Rewind until the roof shuts again.



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Chapter 7 - Car care

pg. 99 Car care

Car care

Car care includes not only maintaining the appearance of the car, but also protecting the car exterior from the effects of air pollution, rain, mud or road salt. The paintwork should also be touched up immediately, if damaged, to prevent rust formation.

[Paint touchup](#) [100](#)

[Washing](#) [101](#)

[Automatic car washing, Polishing and waxing](#) [102](#)

[Cleaning the upholstery](#) [103](#)

pg. 100 Paint touch up

Paint touchup

Paint damage requires immediate attention to avoid rusting. Make it a habit to check the finish regularly when washing the car for instance. Touchup if necessary.

Paint repairs require special equipment and skill. Contact your Volvo retailer for any extensive damage.

Minor scratches can be repaired by using Volvo touchup paint.

NOTE: When ordering touchup paint from your Volvo retailer, use the paint code indicated on the

model plate. The plate is located in the rear wall of the engine compartment (fire wall).

Minor stone chips and scratches

Material:

Primer can

Paint touchup bottle

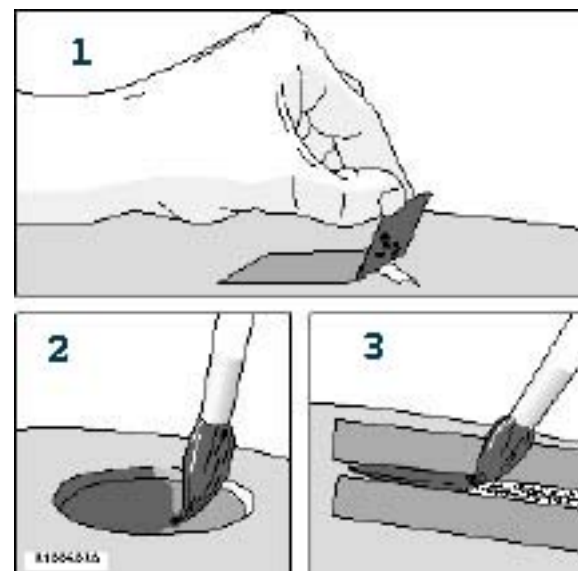
Brush

Masking tape

NOTE: When touching up the car, it should be clean and dry. The surface temperature should be above 60° F (15° C).

Scratches on the surface

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



Deep scratches

1. Place a strip of masking tape over the damaged surface. Pull the tape off so that any loose flakes of paint adhere to it.

2. Thoroughly mix the primer and apply it with a small brush.

When the primer surface is dry, the paint can be applied using a brush. Mix the paint thoroughly; apply several thin paint coats and let dry after each application.

3. If there is a longer scratch, you may want to protect surrounding paint by masking it off.

Washing the car

- The car should be washed at regular intervals since dirt, dust, insects and tar spots adhere to the paint and may cause damage.

NOTE: It is particularly important to wash the car frequently in the wintertime to prevent corrosion, when salt has been used on the roads.

- When washing the car, do not expose it to direct sunlight. Use lukewarm water to soften the dirt before you wash with a sponge, and plenty of water, to avoid scratching.
- **Bird droppings:** Remove from paintwork as soon as possible. Otherwise the finish may be permanently damaged.
- A detergent can be used to facilitate the softening of dirt and oil.
- A water-soluble grease solvent may be used in cases of sticky dirt. However, use a wash place equipped with a drainage separator.
- Dry the car with a clean chamois and remember to clean the drain holes in the doors and rocker panels.
- The power radio antenna (sedans) must be dried after washing.
- Tar spots can be removed with kerosene or tar remover after the car has been washed.
- A stiff-bristle brush and lukewarm soapy water can be used to clean the wiper blades. Frequent cleaning improves visibility considerably.
- Wash off the dirt from the underside (wheel housings fenders, etc.).
- In areas of high industrial fallout, more frequent washing is recommended.

CAUTION: During high pressure washing, the spray nozzle must never be closer to the vehicle than 13" (30 cm). Do not spray into the locks.

- When washing or steam cleaning the engine, avoid spraying water or steam directly on the electrical components or toward the rear side of the engine.
- After cleaning the engine, the spark plug wells should be inspected for water and blown dry if necessary.

Suitable detergents

Special car washing detergents should be used. A suitable mixture is about 2.5 fl. oz. (8.5 cl) of detergent to 2.6 US gal. (10 liters) of warm water. After washing with a detergent the car should be well rinsed with clean water.

WARNING!

- When the car is driven immediately after being washed, apply the brakes several times in order to remove any moisture from the brake linings.
- Engine cleaning agents should not be used when the engine is warm. This may constitute a fire risk.

NOTE: When washing the car, remember to remove dirt from the drain holes in the doors and sills. Bumpers: Wash the bumpers with the same cleaning agent used on the rest of the car. Never clean the bumpers with gasoline or paint thinner. Difficult spots can be removed with denatured alcohol. To avoid scratches, do not dry the bumpers with paper.

pg. 102 Automatic car washing, Polishing and waxing

Automatic washing simple and quick

Brushless car washes are recommended. An automatic wash is a simple and quick way to clean your car, but it is worth remembering that it may not be as thorough as when you yourself go over the car with sponge and water. Keeping the underbody clean is most important, especially in the winter. Some automatic washers do not have facilities for washing the underbody.

Before driving into an automatic wash, make sure that side view mirrors, auxiliary lamps, etc., are secure, otherwise there is risk of the machine dislodging them. You should also lower the antenna (sedans).

We do NOT recommend washing your car in an automatic wash during the first six months because the paint will not have hardened sufficiently.

Polishing and waxing

Normally, polishing is not required during the first year after delivery, however, waxing is recommended.

Before applying polish or wax the car must be washed and dried. Tar spots can be removed with kerosene or tar remover. Difficult spots may require a fine rubbing compound.

After polishing use liquid or paste wax.

Several commercially available products contain both polish and wax.

Waxing alone does not substitute for polishing of a dull surface.

A wide range of polymer-based car waxes can be purchased today. These waxes are easy to use and produce a long-lasting, high-gloss finish that protects the bodywork against oxidation, road dirt and fading.

Note: Polishing removes oxidized paint from the surface. This is normal. Therefore, when polishing, it may be noticed that traces of paint color remain on the polishing cloth. This is also normal.

Note: Machine buffing is not recommended.

pg. 103 Cleaning the upholstery

Cleaning the upholstery

The **fabric** can be cleaned with soapy water or a detergent. For more difficult spots caused by oil, ice cream, shoe polish, grease, etc., use a clothing/fabric stain remover.

The **plastic** in the upholstery can be cleaned with a soft cloth and mild soap solution.

Leather upholstery/suede-like upholstery (Alcantara™) can be cleaned with a soft cloth and mild soap solution. For more difficult spots, Volvo offers a leather care kit.

Under no circumstances should gasoline, naphtha or similar cleaning agents be used on the plastic or the leather since these can cause damage.

Clean only with lukewarm water and mild soap solution.

Cleaning floor mats

The floor mats should be vacuumed or brushed clean regularly, especially during winter when they should be taken out for drying. Spots on textile mats can be removed with a mild detergent. Make sure

the carpets are properly secured in the fixation points on the floor.

Bear in mind

- Take extra care when removing stains such as ink or lipstick since the coloring can spread.
- Use solvents sparingly. Too much solvent can damage the seat padding.
- Start from the outside of the stain and work toward the center.



2 0 0 1 VOLVO S40 & V 40

Chapter 8 - Volvo Service

pg. 105 Volvo Service

Service - an investment

An investment which will pay dividends in the form of improved reliability, durability and resale value.

<u>Label information</u>	<u>106</u>
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<u>Power steering fluid, Brake fluid reservoir</u>	<u>116</u>
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<u>Battery maintenance</u>	<u>119</u>
<u>Proposition 65 Battery Warning</u>	<u>119</u>

1 Vehicle Emission Control Information

Your Volvo is designed to meet all applicable emission standards, as evidenced by the certification label on the underside of the hood. For further information regarding these regulations, please consult your Volvo retailer.

2 Vacuum hose routing (underside of hood)

3 Loads and Tire Pressures (on inside of fuel filler door)

4 Model plate

Vehicle Identification Number (VIN). Codes for color and upholstery, etc. The plate is located in the engine compartment.

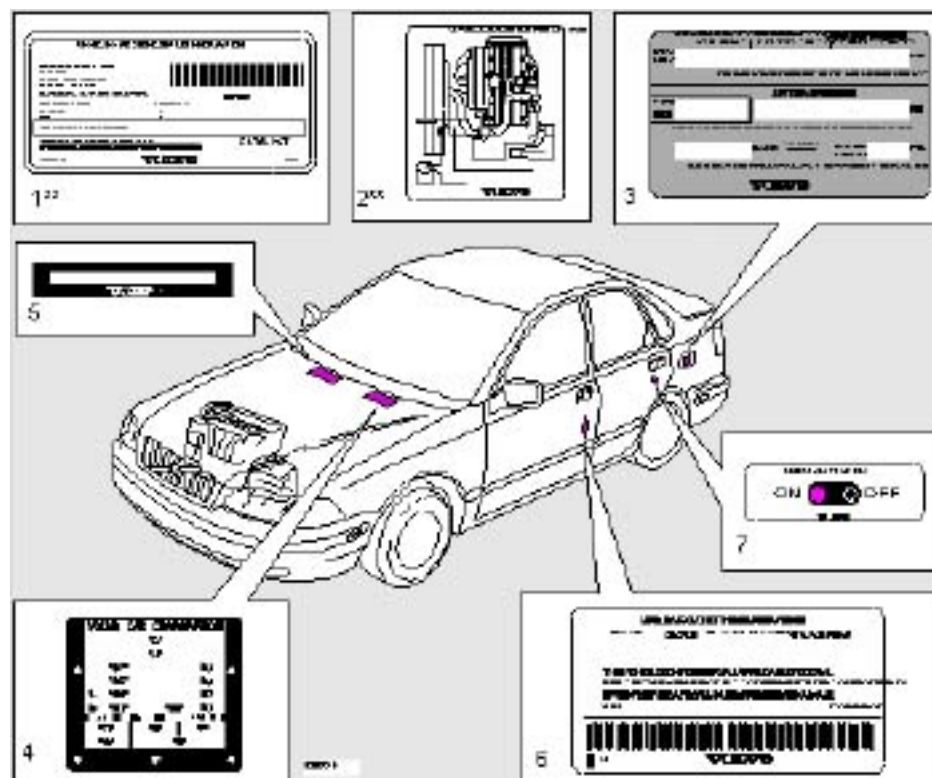
5 Vehicle Identification Number (VIN) *

The VIN plate is located on the top left surface of the dashboard.

6 Federal Motor Vehicle Safety Standards (FMVSS) specifications (USA) and Ministry of Transport (CMVSS) standards (Canada)

Your Volvo is designed to meet all applicable safety standards, as evidenced by the certification label on the facing side of the driver's door. For further information regarding these regulations, please consult your Volvo retailer.

7 Child safety latch label



* The Vehicle Identification Number (VIN) should always be quoted in all correspondence concerning your vehicle with the retailer and when ordering parts.

** These decals are located on the underside of the hood.

All specifications are subject to change without notice.

pg. 107 Maintenance service, Warranty

Maintenance service

Volvo advises you to follow the service program which is outlined in the "Warranty and Service Records Information booklet". This maintenance program contains inspections and services necessary for the proper function of your car. The maintenance services contain several checks which require special instruments and tools and therefore must be performed by a qualified technician. To keep your Volvo in top condition, specify time-tested and proven Genuine Volvo Parts and Accessories.

The Federal Clean Air Act U.S.

The Clean Air Act requires vehicle manufacturers to furnish written instructions to the ultimate purchaser to assure the proper functioning of those components that control emissions. The maintenance instructions listed in the "Servicing" section of this Manual represent the minimum maintenance

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

Maintenance services

Your Volvo has passed several major inspections before being delivered to you, according to Volvo specifications. The maintenance services outlined in this book should be performed as indicated. The extended maintenance service intervals make it even more advisable to follow this program. Inspection and service should also be performed any time a malfunction is observed or suspected. It is recommended that receipts for vehicle emission services be retained in the event that questions arise concerning maintenance. See your "Warranty and Service Records Information booklet".

Applicable warranties

In accordance with U.S. Federal Regulations, the following list of applicable U.S. warranties is provided.

- New Car Limited Warranty
- Parts and Accessories Limited Warranty
- Corrosion Protection Limited Warranty
- Seat belt and Supplemental Restraint Systems Limited Warranty
- Emission Design and Defect Warranty
- Emission Performance Warranty

These are the Federal warranties; other warranties are provided as required by state law. Refer to your separate "Warranty and Service Records Information booklet" for detailed information concerning each of the warranties.

pg. 108 Maintenance schedule

2001 MAINTENANCE SCHEDULE S40/V40

**For complete maintenance information, please refer to your
Warranty and Service Records Information Booklet.**

A= Adjust (Correct if necessary)

R= Replace

I= Inspect (Correct or Replace if necessary)

L= Lubricate

Maintenance Operation	thousand miles	7.5	15	22.5	30	37.5	45	52.5	60	67.5	75	82.5	90 ²
	(thousand km)	(12)	(24)	(36)	(48)	(60)	(72)	(84)	(96)	(108)	(120)	(132)	(144)
EMISSION SYSTEM MAINTENANCE													
Engine oil and filter ¹		R	R	R	R	R	R	R	R	R	R	R	R
Engine drive belt (accessory belt) ²									I				
Air cleaner filter					R				R				R
Spark plugs					R				R				R
Automatic transmission fluid			I		I		I		I		I		I
Timing belt - all engines ³													

1) See section "Engine oil" for detailed information.

NOTE: The oil should be changed at these intervals, after 750 hours of driving or after 12 months, whichever occurs first.

2) For services beyond 90,000 miles (144,000 km), please refer to the Warranty and Service Records Information Booklet".

3) For proper functioning of the vehicle and its emission control systems, the timing belt and tensioner must be replaced every 105,000 miles (168,000 km).

2001 MAINTENANCE SCHEDULE S40/V40

A= Adjust (Correct if necessary)

R= Replace

I= Inspect (Correct or Replace if necessary)

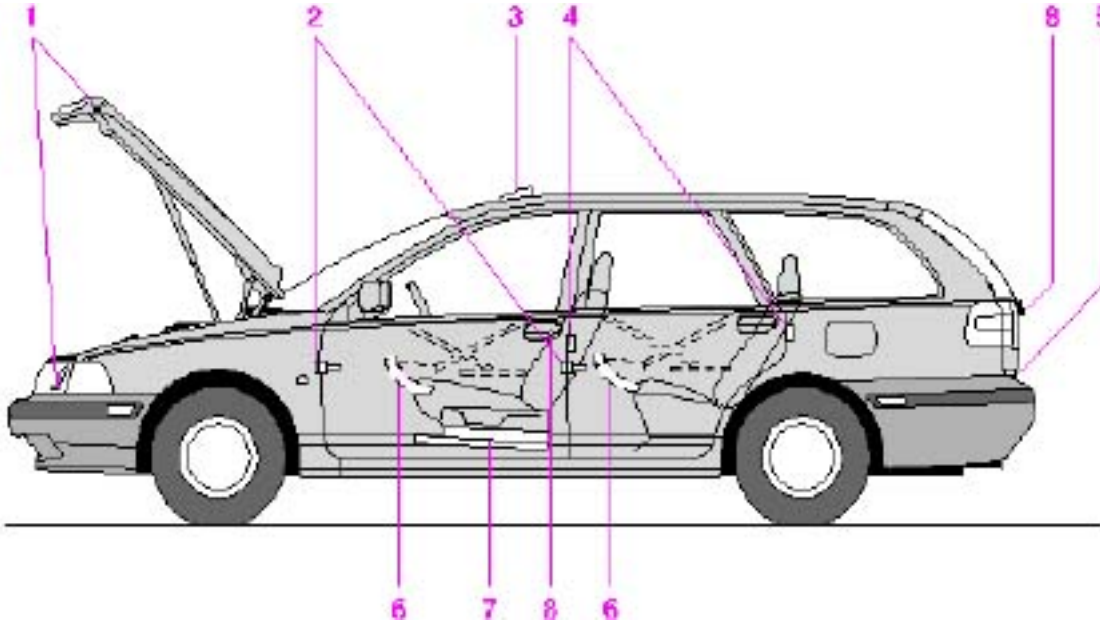
L= Lubricate

<TD ALIG

Maintenance Operation	thousand miles	7.5	15	22.5	30	37.5	45	52.5	60	67.5	75	82.5	90
	(thousand km)	(12)	(24)	(36)	(48)	(60)	(72)	(84)	(96)	(108)	(120)	(132)	(144)
EMISSION SYSTEM MAINTENANCE													
Engine													
Fuel line filter ¹													
PCV nipple (orifice)/hoses, clean									I				I
Battery (check charge and electrolyte level)		I	I	I	I	I	I	I	I	I	I	I	I
Brakes													
Inspect brake pads, replace components as necessary			I	I	I	I	I	I	I	I	I	I	I
Brake fluid level ² - check			I	I	I		I		I		I		I
Steering/suspension													
Tires ³ , check pressure, wear and condition		I	I	I	I	I	I	I	I	I	I	I	I
Check power steering fluid level					I		I		I		I		I
Body													
Power antenna (clean)			L		L		L		L		L		L
Trunk/hood, hinges and latches													

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pg. 113 Lubrication



No. Lubrication point

- 1 Hood lock and latch
- 2 Door stop and hinges
- 3 Sun roof wind deflector (visible when sun roof is open)
- 4 Door lock catch plate
- 5 Trunk/tailgate lid lock
- 6 Window winder (on inside of door)
- 7 Front seat side rail and latch
- 8 Door locks

lubricant

Oil
Oil
Oil
Low temperature grease
Oil
Low temperature grease
Oil, grease, low temperature grease
Oil
Volvo teflon lock spray

To avoid rattles and unnecessary wear, the body should be lubricated at regular service intervals. This should be done by an authorized Volvo retailer.

pg. 114 Engine oil

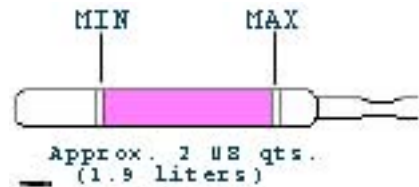
Checking the oil level

The oil level should be checked every time the car is refueled. This is especially important during the period up to the first service.

CAUTION: Not checking the oil level regularly can result in serious engine damage if the oil level becomes too low.

Park the car on a level surface and wait for at least 3 minutes after the engine has been switched off. Be sure the oil level is maintained between the upper and lower marks on the dipstick. If oil is added, it should reach the MAX mark on the dipstick. Low oil level can cause internal damage to the engine and overfilling can result in high oil consumption. The distance between the dipstick marks represents approx. 2 US qts (1.9 liters).

NOTE: The engine must be stopped when checking the oil. Do not fill to the max when the engine is hot



WARNING!

Oil spilled on a hot exhaust pipe constitutes a fire risk.

Draining the oil

Drain the oil after driving while the oil is still warm.

WARNING!

The oil may be very hot.

If you change the engine oil and filter yourself, your Volvo retailer can assist you in disposing of the used oil. Engine oil can be harmful to your skin gloves should be worn when performing this work.

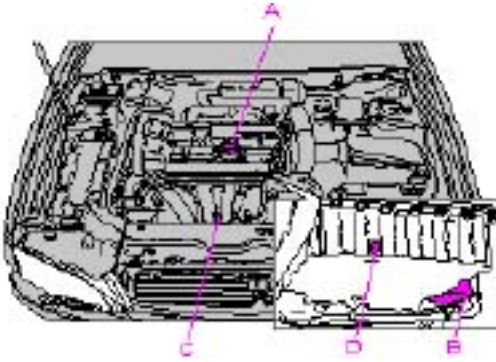
To add or change oil

Add oil of the same kind as already used.

Capacity (including filter): 5.7 US qts (5.4 liters).

Capacity (excl. filter): 5.3 US qts (5.0 liters).

The oil filter should be replaced at every oil change.



A- Oil filler cap, B- Oil filter, C- Oil dipstick, D- Drain plug

pg. 115 Engine oil

Oil quality

Meeting minimum ILSAC specification GF-2, including ACEA A1, API SJ, SJ/CF and SJ/Energy Conserving.

Depending on your driving habits, premium or synthetic oils may provide superior fuel economy and engine protection. Consult your Volvo retailer for recommendations on premium or synthetic oils. **Oil additives must not be used unless advised by an authorized Volvo retailer.**

Volvo recommends use of oil with a quality rating equal to or higher than ILSAC GF-2. Equivalent and better oils include ACEA A1, API SJ, SJ/ CF, and SJ/Energy conserving. Lower quality oils may not offer the same fuel economy, engine performance, or engine protection.

Oil viscosity (stable ambient temperatures) Operation in temperate climates

Incorrect viscosity oil can shorten engine life. Under normal use when temperatures do not exceed 86 °F, SAE 5W/30 will provide good fuel economy and engine protection. See the viscosity chart at right.

Operation in hot climates

When temperatures exceed 86 °F in your area, Volvo recommends, for the protection of your engine, that you use a heavier weight oil, such as SAE 10W/30. See the viscosity chart at right.

Extreme engine operation

Synthetic oils meeting SAE 10W/30 and complying with oil quality requirements are recommended for

driving in areas of sustained temperature extremes (hot or cold), when towing a trailer over long distances, and for prolonged driving in mountainous areas.

Changing oil and oil filter

Oil and oil filter changes should be made at 7,500 mile (12,000 km) intervals.

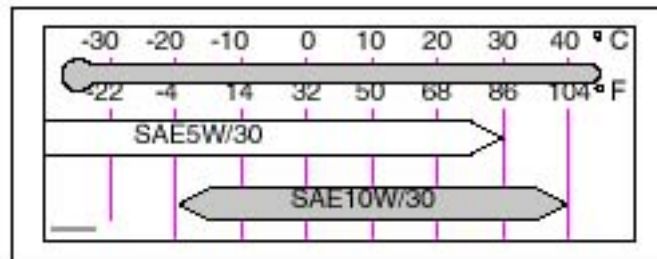
Extra oil additives must not be used unless advised by an authorized Volvo retailer. Synthetic oil is not used when the oil is changed at the normal maintenance service intervals.



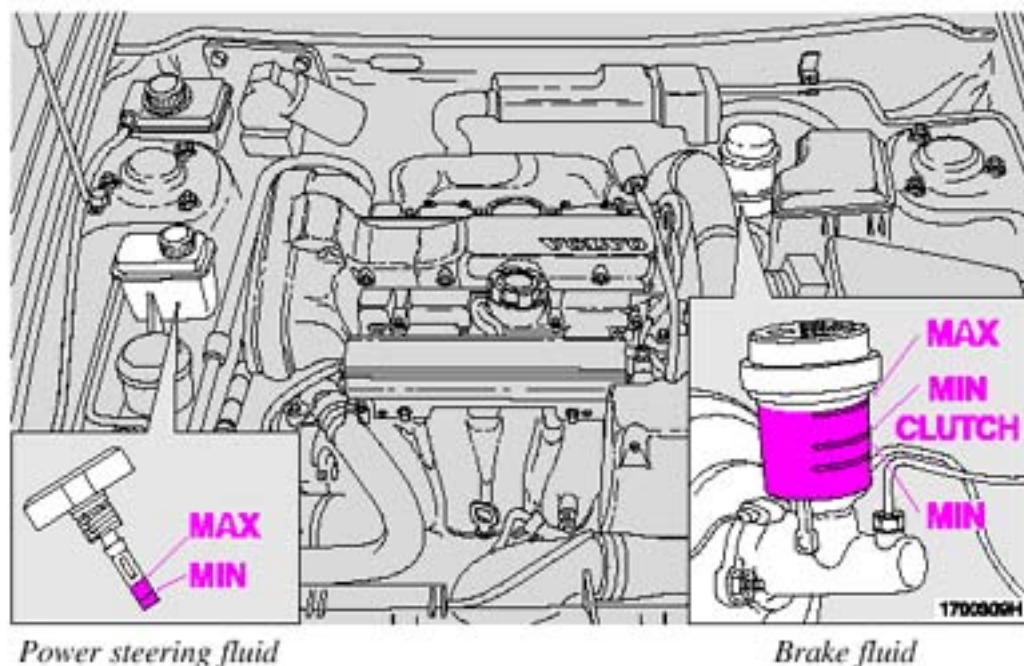
The API Service Symbol "donut" is divided into three parts:

- The top half describes the oil's performance level.
- The center identifies the oil's viscosity.
- The bottom half tells whether the oil has demonstrated energy-conserving proper-ties in a standard test in comparison to a reference oil.

Viscosity (stable ambient temperatures):



pg. 116 Power steering fluid, Brake fluid reservoir



Power steering fluid

The power steering fluid level must never be higher than the **MAX** mark. The level should always be above the MIN mark. Check the level at every service.

Fluid type: ATF oil.

Replace: No fluid change required

Brake system

The brake fluid level should be between the MIN and MAX marks.

Fluid type: DOT 4+

Replace: Every second year or 30,000 miles (48,000 km). The fluid should be replaced once a year or every 15,000 miles (24,000 km) when driving under extremely hard conditions (mountain driving, etc.)

Check, without removing the cap, that the level is above the "**MIN**" mark of the fluid reservoir.

Always entrust brake fluid changing to an authorized Volvo retailer.

Check coolant level

The cooling system must be filled with coolant and not leak to operate at maximum efficiency. Check the coolant level regularly. The level should be between the "MAX" and "MIN" marks on the expansion tank. The check should be made with particular thoroughness when the engine is new or when the cooling system has been drained.

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

Changing coolant

Normally, the coolant does not need to be changed.

Capacity: Approx. 6 US qts. (5.7 liters)

Coolant: Volvo Genuine Coolant/Anti-freeze only.

NOTE: Do not top up with water only. Water by itself reduces the rust protective and antifreeze qualities of the coolant and has a lower boiling point. It can also cause damage to the cooling system if it should freeze.

WARNING!

If the engine is warm and you are going to top up coolant, unscrew the coolant expansion tank cap slowly in order to allow any excess pressure to escape.

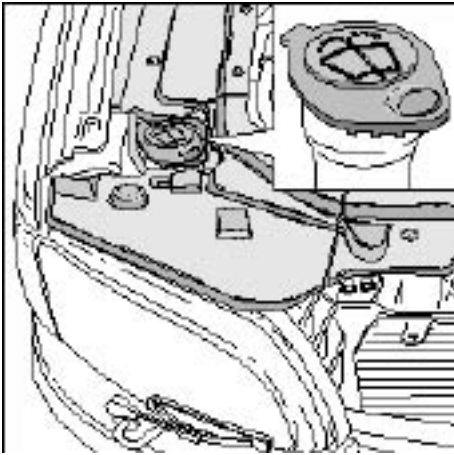
CAUTION: The cooling system must always be kept filled to the correct level. If it is not kept filled, there can be high local temperatures in the engine which could result in damage. Different types of antifreeze/coolant may not be mixed.

Automatic belt tensioner

The drive belts have an automatic belt tensioner. Belt tension can not be adjusted. Do not attempt to check the belts yourself, they will be checked in connection with workshop service.

Leave belt replacement to the retailer

It is advisable to let your retailer do this work.

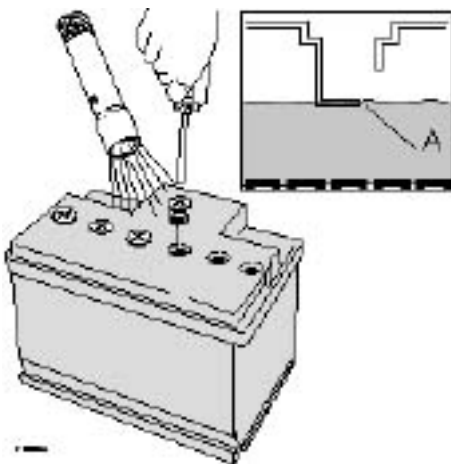


Washer fluid reservoir

The washer fluid reservoir is located in the engine compartment and holds approx. 3.9 US qts. (3.75 liters).

During cold weather, the reservoir should be filled with windshield washer fluid containing antifreeze.

pg. 119 Battery maintenance



Correct fluid level

Battery maintenance

Driving habits and conditions, climate, the number of starts, etc. all affect the service life and function of the battery. In order for your battery to perform satisfactorily, keep the following in mind:

- Check the fluid level in the battery every 6 months or every 7,500 miles* (12,000 km).

The fluid level in each battery cell should be checked - use a screw driver to open the caps and a flashlight to inspect the level.

- If necessary, add **distilled water** to approximately 0.4 in. (10 mm) above the plates in the cell or to the level indicator. See the illustrations above.
- Check that the battery cables are correctly connected and properly tightened.
- The battery cable should be disconnected from the battery when using a battery charger.
- Switch off the radio before disconnecting the battery. If your radio has an antitheft code and the battery is disconnected, the radio code has to be reentered in order for the radio to function.

* More frequently in warm climates.

PROPOSITION 65 WARNING!

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm. Wash hands after handling.

Battery warning symbols



Wear protection
goggles



See inside for
details



Keep away from
children



Corrosive



No smoking,
no open
flames,
no sparks



Explosion



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Chapter 9 - Specifications

pg. 121 Specifications

Specifications

This chapter contains facts and figures pertaining to the technical specifications of your car.

[Oil/fluids specifications](#) [122](#)

[Engine specifications](#) [123](#)

[Cooling/fuel/distributor ignition systems](#) [124](#)

[Front/rear suspensions](#) [125](#)

[Transmission, Capacities, Vehicle](#) [125](#)
[loading](#)

[Electrical system/bulbs](#) [126](#)

[Dimensions/weights](#) [127](#)

[ON CALL road assistance](#) [128](#)

pg. 122 Oil/fluid specifications

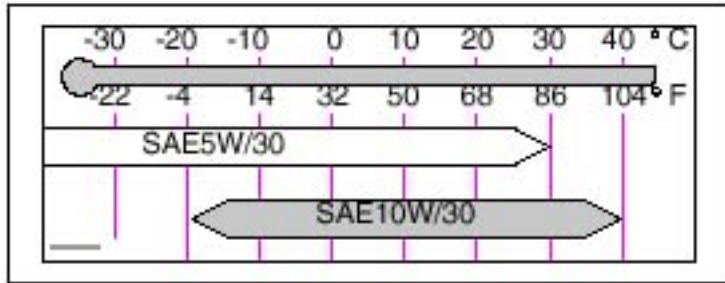
Oil quality

Meeting minimum ILSAC specification GF-2, including ACEA A1, API SJ, SJ/CF and SJ/Energy Conserving.

Depending on your driving habits, premium or synthetic oils may provide superior fuel economy and engine protection. Consult your Volvo retailer for recommendations on premium or synthetic oils. **Oil additives must not be used unless advised by an authorized Volvo retailer.**

Volvo recommends use of oil with a quality rating equal to or higher than ILSAC GF-2. Equivalent and better oils include ACEA A1, API SJ, SJ/CF, and SJ/Energy conserving. Lower quality oils may not offer the same fuel economy, engine performance, or engine protection.

Viscosity (stable ambient temperatures):



Engine oil	Quality: Meeting minimum ILSAC specification GF-2, including ACEA A1, API SJ, SJ/CF and SJ/Energy Conserving.	Capacity (incl. filter): 5.7 US qts (5.4 liters). Capacity (excl. filter): 5.3 US qts (5.0 liters)
Automatic transmission fluid	Quality: ATF Dexron III and Mercon	Capacity: 8 US qts. (7.6 liters)
Power steering fluid	Quality: ATF oil	Capacity: 1.05 US qts. (1 liters)
Brake fluid	Quality: DOT 4+	Capacity: 0.42 US qts. (0.4 liters)

All specifications are subject to change without notice.

pg. 123 Engine

Engine

Liquid-cooled, gasoline, inline, 4-cylinder, turbocharged engine. Aluminum alloy cylinder block with cast-iron cylinder liners cast directly into the block. Aluminum alloy cylinder head with double overhead camshafts and separate intake and outlet channels.

Engine lubrication is provided by an eccentric pump driven from the crankshaft. Full-flow type oil filter. Exhaust emission control is accomplished by multiport fuel injection, a heated oxygen sensor and a three-way catalytic converter.

Designation:	Volvo B 4204 T3
Output	162 hp at 5100 rpm (121 kw at 5100 rpm)
Max torque	177 ft. lbs. at 1800-4800 rpm (240 Nm at 1800-4800 rpm)
Number of cylinders	4
Bore	3.27" (83 mm)
Stroke	3.54" (90 mm)
Displacement	1.95 liters
Compression ratio	9.0:1
Number of valves	16
Valve clearance	mechanical

All specifications are subject to change without notice.

pg. 124 Specifications

Cooling system

Type: Positive pressure, closed system

Thermostat begins to open at 186° F (90° C)

Coolant: Volvo original coolant/antifreeze

Capacity: 6 US qts. (5.7 liters)

Fuel system

The engine is equipped with a multipoint fuel injection system.

Distributor ignition system

Firing order: 13-4-2

Distributor ignition setting: Not adjustable

Spark plugs: Champion RC8PYP or equivalent

Spark plug gap: 0.03" (0.75 mm)

Tightening torque: 18.4 ft. lbs. (25 Nm)

WARNING!

The distributor ignition system operates at very high voltages. Special safety precautions must be followed to prevent injury. Always turn the ignition off when:

- Replacing distributor ignition components e.g. plugs, coil, etc.
- Do not touch any part of the distributor ignition system while the engine is running. This may result in unintended movements and body injury.

All specifications are subject to change without notice.

Replacing spark plugs

The spark plugs should be changed according to your service program in your Warranty booklet. However, city driving or fast highway driving may necessitate changing after 15,000 miles (24,000 km) of driving. When installing new plugs, be sure to fit the right type and use correct torque, see "Specifications". When changing the plugs, check that the suppressor connectors are in good condition. Cracked or damaged connectors should be replaced. When changing the spark plugs, clean the terminals and the rubber seals.

Front suspension

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

The alignment specifications apply to a car at curb weight (without passengers or cargo).

Toe-in measured on the wheel rims: 2.1 mm +/- 0.7 mm

Toe-in measured on tire sides: 2.6 mm +/- 0.8 mm

Rear suspension

Multilink individual rear wheel suspension with longitudinal support arms, double link arms and track rods.

Toe-in measured on the tire sides: 2.6 mm +- 0.8 mm

pg. 125 Specifications

Power transmission

Automatic transmission: AW 50-50

4speed automatic electronically controlled gearbox comprising a hydraulic torque converter with a lockup function; planetary gear, integrated final drive.

Operation via a floor mounted gear selector lever. Drive shafts with symmetrical joint location. Overdrive.

Final drive ratio 2.76:1

Reduction ratios

1st gear 4.77:1

2nd gear 2.99:1

3rd gear 1.96:1

4th gear 1.32:1

5th gear 1.02:1

Reverse 3.23:1

Capacities

Fuel tank : 16 US gal. (60 liters)

Cooling system : 6 US qts. (5,7 liters)

Engine oil (incl. filter) : 5.7 US qts. (5.4 liters)

Engine oil (excl. filter) : 5.3 US qts. (5.0 liters)

Automatic transmission : 8 US qts (7.6 liters)

Power steering fluid : 1.05 US qts (1 liters)

Washer fluid reservoir : 3.9 US qts. (3.75 liters)

Brake system : 0.42 US qts (0.4 liters)

Vehicle loading

The tires on your Volvo should perform to specifications at all normal loads when inflated as recommended on the tire information label. The label is located on the inside of the fuel filler flap. The label lists both tire and vehicle design limits. Do not load your car beyond the load limits indicated.

WARNING!

Improperly inflated tires will reduce tire life, adversely affect vehicle handling and can possibly lead to failure resulting in loss of vehicle control without prior warning.

All specifications are subject to change without notice.

pg. 126 Specifications

Electrical system

12 Volt, negative ground.

Voltagecontrolled generator. Singlewire system with chassis and engine used as conductors.

Battery

Voltage: 12 Volt, capacity: 600 A/100 min

The battery contains corrosive and poisonous acids. It is of the utmost importance that old batteries are disposed of correctly. Your Volvo retailer can assist you in this matter.

Generator

Rated output: 120 A

Bulbs

Bulb	US no.	Power	Socket	No/bulbs
Headlights				
High beam	H7	55W	-	2
Low beam	H7	55W	-	2
Parking lights and Turn signals, front	3457NA	26/7W/30/2.2cp	W2.5 16q	2
Turn signals, rear	1156	21W/32cp	BA 15 s	2
Side direction indicators	-	5W	W 2.1x9.5 d	2
Tail lights	67	5W/4cp	BA 15 s	4
Brake lights	1156	21W/32cp	BA 15 s	2
Backup lights	1156	21W/32cp	BA 15 s	2
Rear fog light	1156	21W/32cp	BA 15 s	1
Front fog lights	H3	55 W	PK22.5	2
License plate light (S40)	-	5 W	W 2.1x9.5 d	2
License plate light (V40)	-	5 W	SV8.5	2
Door step courtesy lights	-	10W	SV8.5	2
Trunk light	-	5 W	SV 8.5	1
Vanity mirror lights	-	1.2 W	SV5.5	2
Front courtesy lights	-	5 W	SV5.5	2
Rear reading lights	-	5 W	W 2.1x9.5 d	2

All specifications are subject to change without notice.

pg. 127 Specifications

Dimensions

Length	S40/V40	178.0 in. (452 cm)
Width	S40/V40	67.7 in. (172 cm)
Height	S40/V40	55.9 in. (142 cm)
Wheel base	S40/V40	100.4 in. (255 cm)

Track, front	S40/V40	57.1 in. (145 cm)
Track, rear	S40/V40	57.9 in. (147 cm)
Turning circle:	S40/V40	34.8 ft. (10.6 m)
Cargo capacity:		
	S40 (rear seat up)	39.8 in. (101 cm)
	S40 (rear seat down)	68.5 in. (174 cm)
	V40 (rear seat up)	40.2 in. (102 cm)
	V40 (rear seat down)	68.9 in. (175 cm)
	Max width of load opening	27.6 in. (67 cm)
	Max height of load opening	20.1 in. (51 cm)

Weights

Gross Vehicle Weight (GVW):

S40	3910 lbs (1775 kg)
V40	3960 lbs (1795 kg)

Capacity Weight:

S40	826 lbs (375 kg)
V40	826 lbs (375 kg)

Permissible axle weight, front:

S40	2090 lbs (950 kg)
V40	2090 lbs (950 kg)

Permissible axle weight, rear:

S40	1870 lbs (850 kg)
V40	1920 lbs (870 kg)

Permissible axle weight total:

S40	3920 lbs (1780 kg)
V40	3970 lbs (1800 kg)

Curb weight:

S40	2990 lbs (1360 kg)
V40	3040 lbs (1380 kg)

The max permissible axle loads or the gross vehicle weight must not be exceeded.

Max roof load *	220 lbs (100 kg)
Max trailer weight (w/o brakes)	1000 lbs (455 kg)
(with brakes)	2001 lbs (908 kg)
Max tongue weight **	110 lbs (50 kg)

* For permanent roof racks, check the manufacturer's weight specifications.

** Please refer to section "Trailer towing"

WARNING!

When adding accessories, equipment, luggage and other cargo to your vehicle, the total loaded weight capacity of the vehicle must not be exceeded.

All specifications are subject to change without notice.

pg. 128 Road Assistance



Your new Volvo comes with a four year road assistance program named ONCALL. Additional information, features, and benefits are described in a separate information package in your glove compartment.

If you have misplaced your package, dial:

In the U.S.A.

1-800-63-VOLVO (1-800-638-6586)

In Canada:

1-800-263-0475



Volvo supports Voluntary Mechanic Certification by the A.S.E. (pertains to the USA only). Certified mechanics have demonstrated a high degree of competence in specific areas. Besides passing exams each mechanic must also have worked in the field for two or more years before a certificate is issued. These professional mechanics are fully able to analyze vehicle problems and perform the necessary service procedures to keep your Volvo at peak operating condition.



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Chapter 10 - Audio systems

pg. 129 Audio systems

Audio systems

This chapter describes the audio system in your car.

[Anti-theft](#) [130](#)

[Audio system HU-415](#) [131](#)

[Audio system HU-615](#) [132](#)

[CD player HU-615](#) [137](#)

[Advanced user mode](#) [141](#)

[Technical data audio](#) [142](#)

pg. 130 Anti-theft code - HU-415 and HU-615



Anti-theft code

The radio features anti-theft circuitry. If the set is removed from the vehicle or if the battery power is disconnected, a special code must be entered to enable operation of the set.

Refer to the radio code card supplied with your vehicle. Volvo recommends that you store your radio code card in a safe place.

To enter the code

After installation or when the set has been disconnected from power, the set displays "input CODE *****" when it is switched on. Enter the 4-digit code using the **1-20/DISC** knob. Select a number for a digit by rotating the **1-20/DISC** knob. And then push the knob to enter the number. Repeat the procedure for all 4 digits.

If the correct code is entered the set is ready to use.

If you enter an incorrect code you must enter the correct code again from the beginning.

Incorrect code

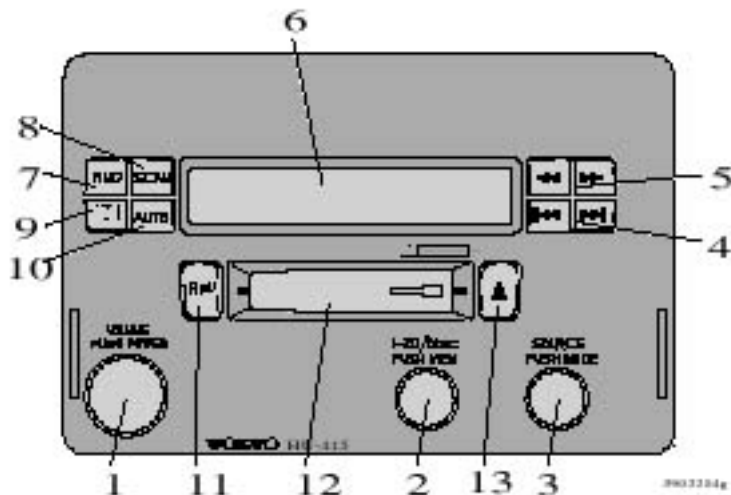
If an incorrect code has been entered "Error" is displayed. Enter the correct code. After three unsuccessful coding attempts the set will lock and remain locked for two hours. "OFF" is displayed.

During this waiting period:

- the battery must be connected
- the ignition key must be turned to position I > LI? the unit must be turned on Make sure the headlights are turned off to help prevent battery drain.

Enter the code again once 2 hours have elapsed.

pg. 131 Audio system HU-415



1. Switch On/off (push) Volume (turn)
2. Selector knob:
Select the channel (turn)

CD changer - Selecting disc (turn)

Program radio frequency in a channel (push)

3. Selector knob for choosing (turn) :

Radio

Cassette

CD changer

Mode knob (push) for setting: Bass, Treble, Fader and Balance

4. Radio - Station seek up/down

Cassette position - Selecting next/previous track

CD position - Selecting next/previous track

5. Radio - Manual station selection

Cassette position - Fast winding forward/ backwards

CD-position - Fast winding forwards/ backwards

6. Display

7. Random for CD (Description for CD is applicable when a CD Changer is connected)

8. SCAN

9. Dolby B NR noise reduction

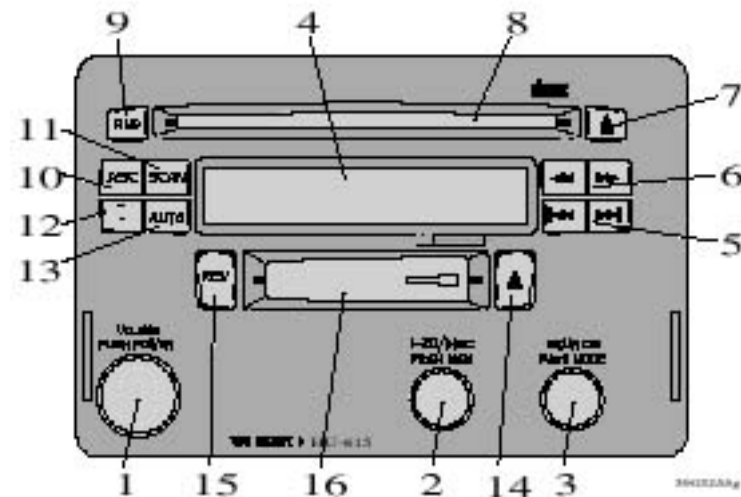
10. Auto store of radio stations

11. Tape direction selector/

12. Cassette opening

13. Tape eject

pg. 132 Audio system HU-615



1. Switch On/off (push)

Volume (turn)

2. Selector knob:

Select the channel (turn)

CD changer - Selecting disc (turn)

Program radio frequency in a channel (push)

3. Selector knob for choosing (turn) :

Radio

Cassette

CD changer

Mode knob (push) for setting: Bass, Treble, Fader and Balance

4. Display

5. Radio - Station seek up/down

Cassette position - Selecting next/ previous track

CD position - Selecting next/previous track

6. Radio - Manual station selection

Cassette position - Fast winding forward/reverse

CD-position - Fast winding forwards/ backwards

7. Random for CD (Description for CD is applicable when a CD Changer is connected)

8. CD opening

9. Random for CD

10. ASC - Active sound control

11. SCAN

12. Traffic information

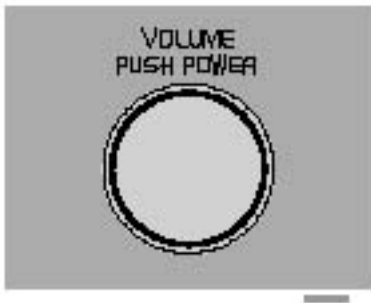
13. Dolby B NR noise reduction

14 Tape eject

15 Tape direction selector/

16. Cassette opening

pg. 133 Audio system

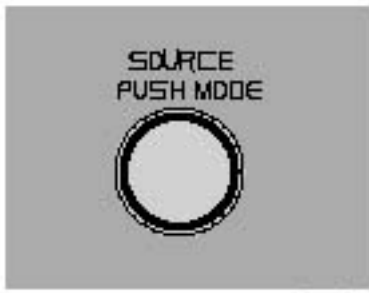


Switch on/off

Press button to switch on or turn off the radio.

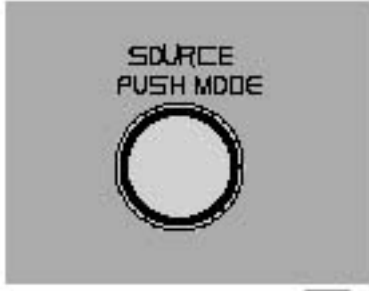
Volume control

Turn knob clockwise to increase volume. Volume control is electronic and does not have an end stop.



Bass, Treble and Balance left-right

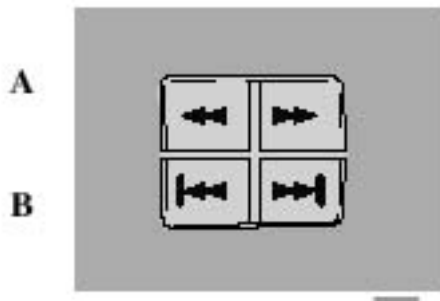
Press the "SOURCE" button to bring up Bass, Treble or Balance. Adjust using plus or minus buttons. The selected function is shown in the display.



Radio Band selector

Turn the "SOURCE" knob to select FM or AM. The station and Band are displayed. You can also select cassette deck, CD or CD changer, if connected, with this knob.

pg. 134 Audio system

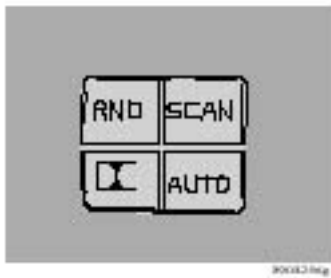


A - Setting station

Press the left side of the button to select lower frequencies and the right side for higher frequencies. Set frequencies are displayed.

B - Station seek up/down

Press on the left or right sides of the button to seek lower or higher frequencies. The radio seeks the next audible station and sets it. Press the button again if you wish to continue seek.

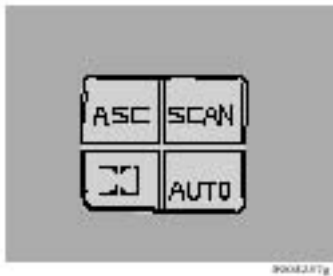


Auto store of radio stations

This function seeks and stores up to 10 strong AM or FM stations in a separate memory. This function is especially useful in areas where you are not familiar with the radio stations.

1. Press the "AUTO" button. A number of stations with strong signals (maximum 10) from the set wavelength are now stored automatically in the memory. "AUTO" is displayed. If there is no station with sufficient signal strength "NO STATION" is displayed.
2. Turn "1-20/DISC" button if you wish to change to another of the preset stations. A new station is set with every turn.

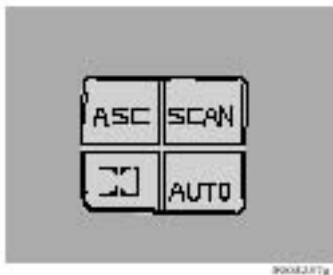
pg. 135 Audio system



Scan function

Press the SCAN button to start the station scan function. When a station is found, scanning stops for several seconds, after which scanning will continue.

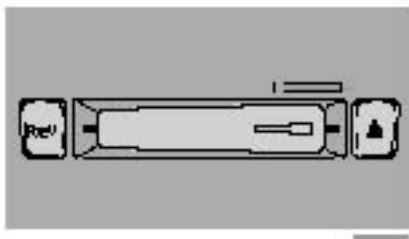
Press the SCAN button when a station has been found if you would like to listen to that station and to discontinue the scan function.



Active sound control (ASC)

The ASC (Active Sound Control) automatically adapts volume to vehicle speed. Press the ASC button for several seconds to switch this function ON or OFF. "ASC ON" or "ASC OFF" will be shown in the display for several seconds.

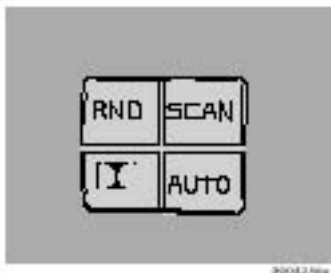
pg. 136 Cassette

**Cassette opening**

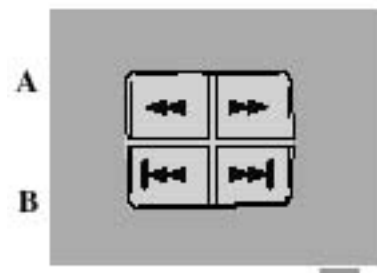
Slide cassette into the cassette opening with the tape to the right (side 1 or A upwards). TAPE A or TAPE B is displayed. When one side has finished playing, the unit will automatically begin playing the other side. If a cassette is already installed in the cassette deck, select cassette play by turning the "SOURCE" knob.

Tape eject

If you press the button, the tape stops and the cassette is ejected. To select a new program source turn the "SOURCE" knob. The cassette can be inserted or ejected even when the unit is switched off.

**Dolby B Noise reduction**

The function is preset. Carry out the following if you wish to switch it off: hold the button  depressed until the Dolby symbol in the display goes out. Press the same button again to reactivate the Dolby function.

**A - Fast winding**

The tape can be wound forward with "  " and backwards with "  ". During fast winding "FF" (forward) respectively "REW" (backward) is displayed. Fast winding is interrupted if you press the button again.

B - Next track, Previous track

If you press "▶▶|" button the tape automatically winds forward to the next track. If you press "|◀◀" button the tape automatically winds backwards to the previous track. For the function to operate there must be at least 5 seconds break between the tracks.

pg. 137 CD Player

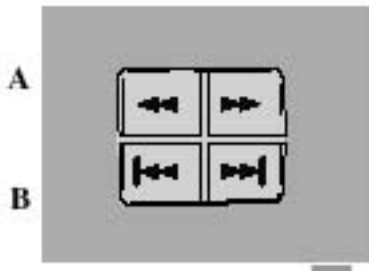


CD player - on

Insert a CD disc. If you have already done this, select CD by turning the "SOURCE" knob.

CD eject

If you press this button the CD stops playing and the disc is ejected. NOTE: For traffic safety reasons you have twelve seconds to handle the ejected CD disc. Then the CD disc reinserts again.



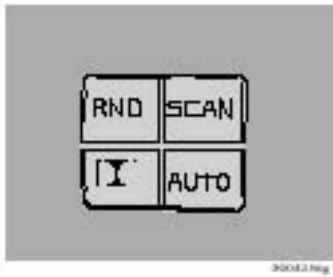
A - Fast winding

Press "◀◀" or "▶▶" to seek within a track.

B - Skipping or Selecting a track

Press "▶▶|" to skip to the previous track or "|◀◀" to skip to the next track. The track number is shown in the display.

pg. 138 CD Player



Random

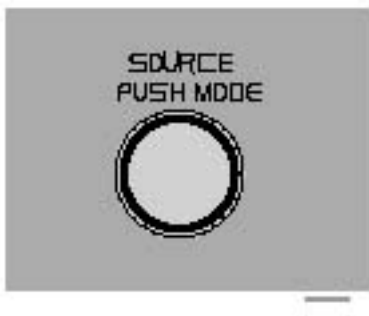
Press "RANDOM" to connect the random function. The unit plays tracks from the disc in random order. "RND" (random) is displayed as long as the function is activated.



Scan

Press "SCAN" for a longer period to connect the scan function. The unit plays the first 10 seconds of each track. "SCAN" is displayed as long as the function is activated.

pg. 139 CD Changer

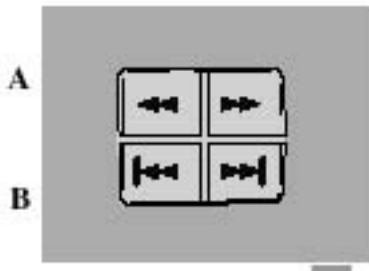


CD changer - on

Turn "SOURCE" to activate CD changer position. The CD changer continues playing the disc and track that was playing last. If the CD changer magazine is empty "LOAD CARTRIDGE" is displayed.

Selecting disc

Turn the "1-20 DISC" knob. The disc number and track is displayed.



A - Fast winding

Press "▶▶" or "◀◀" to seek within a track.

B - Skipping or Selecting a track

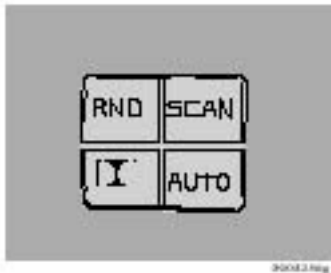
Press "▶|" to skip to the previous track or "◀|" to skip to the next track. The track number is shown in the display.

pg. 140 CD Changer



Random

Press "RND" to connect the random function. The unit plays tracks from the magazine in random order. "RANDOM" is displayed as long as the function is activated.



Random

Press "RND" to connect the random function. The unit plays tracks from the magazine in random order. "RANDOM" is displayed as long as the function is activated.



Scan

Press "SCAN" for a longer period to connect the scan function. The unit plays the first 10 seconds of each track. "SCAN" is displayed as long as the function is activated.

pg. 141 AUM (Advanced User Mode)

AUM (Advanced User Mode)

- With the radio switched off, press and hold the volume wheel down for at least 5 seconds to start the AUM function.
- Turn the 1-20/DISC knob to choose an AUM function (see function list on the right).
- When the function has been chosen, the function's default position flashes. Press the 1-20/DISC knob to choose an alternative (e.g. ON/OFF, LOW/MID/HIGH, etc., depending on the function).
- Continue to choose function/alternative.

To reset all AUM functions to factory settings, turn the 1-20/DISC knob until "SET TO DEFAULT" is shown in the display, and then press the same knob. All AUM settings are reset to default position and the radio reverts to normal status (music, news, etc.).

To save any changes and revert to normal position, turn the 1-20/DISC knob until "BACK and SAVE" are shown in the display, and press the same knob.

To revert to normal position without saving the changes, turn the 1-20/DISC knob until "BACK without SAVE" is shown in the display, and press the same knob.

AUM functions (starting position "**default**" is underscored)

- SET TO DEFAULT (See left-hand column).
- AF SWITCHING ON/OFF (automatic frequency update) - The AF function ensures that the strongest available transmitter for a program is selected.
- REGIONAL ON/OFF (regional radio program) - This function makes it possible to continue to listen to a regional transmitter, even if the signal is weak.
- EON (Enhanced Other Networks) LOCAL/DISTANT - This function determines whether the radio program you are listening to is to be switched off before e.g. a traffic report or news broadcast (if these functions are selected) only if the signal is strong (LOCAL) or whether the radio must also try to capture

weaker signals (DISTANT).

- NETWORK ALL/TUNED - With this function you can decide whether the radio program you are listening to is to be switched off before e.g. a traffic report or news broadcast (if these functions are selected) only if the report is on the channel you are listening to, e.g. P1 (TUNED), or whether the program is to be switched off regardless of which radio channel the report/broadcast is on (ALL).
- LANGUAGE - Choose the language to be used in the display (English, German, French or Swedish).
- ASC (Active Sound Control) ON/OFF - The ASC function automatically matches the sound volume to the speed of the car.
- ASC TABLE - Choose level of the ASC function (LOW/MID/HIGH)..
- SRC ON/OFF - Use this function to activate/deactivate the function which reduces the noise in poor reception conditions. The function is normally used when the radio is in AM mode.
- SRC TABLE - Choose level of SRC function (LOW/MID/HIGH).
- TAPE DOLBY ON/OFF - Activates/ deactivates Dolby noise reduction when you listen to a cassette tape (HU 405/605).
- BACK and SAVE (See left-hand column).
- BACK without SAVE (See left-hand column).

pg. 142 Technical data - Audio

HU-415

Output: 4 x 25 W

Impedance: 4 Ohm.

Voltage required: 12 V, negative ground

Radio

Frequency: U (FM) 87.5 - 108 Mhz

M (AM) 522 - 1611 kHz

L (AM) 153 - 279 kHz

HU-615

Output: 4 x 25 W

Impedance: 4 Ohm.

Voltage required: 12 V, negative ground

Radio,br> Frequency: U (FM) 87.5 - 108 Mhz

M (AM) 522 - 1611 kHz

L (AM) 153 - 279 kHz

Alarm

"Alarm!" is displayed when an alarm message is sent. The function is used to warn the driver of serious accidents or catastrophes, collapsed bridges, earthquakes or nuclear accidents for example.

Dolby noise reduction is manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double D symbol  are trademarks of Dolby Laboratories Licensing Corporations.



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2 0 0 1 VOLVO S40 & V 40

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2001 VOLVO S40 & V 40

Back Cover

Back Cover

WARNING!

Detergents and solvents

Do not use gasoline containing lead or benzene as a detergent or solvent. Both lead and benzene are toxic and may be hazardous to your health.

Installation of optional equipment/use of mobile telephones

Incorrectly installed optional equipment, alarm systems or the use of mobile telephones which are not connected to a suitable antenna can cause faults in the car's electronic control systems. Your car is equipped with an accessory connector located under the dashboard on the driver's side. Please consult your Volvo retailer if you have any questions before connecting accessory or optional equipment to the vehicle's electrical system.

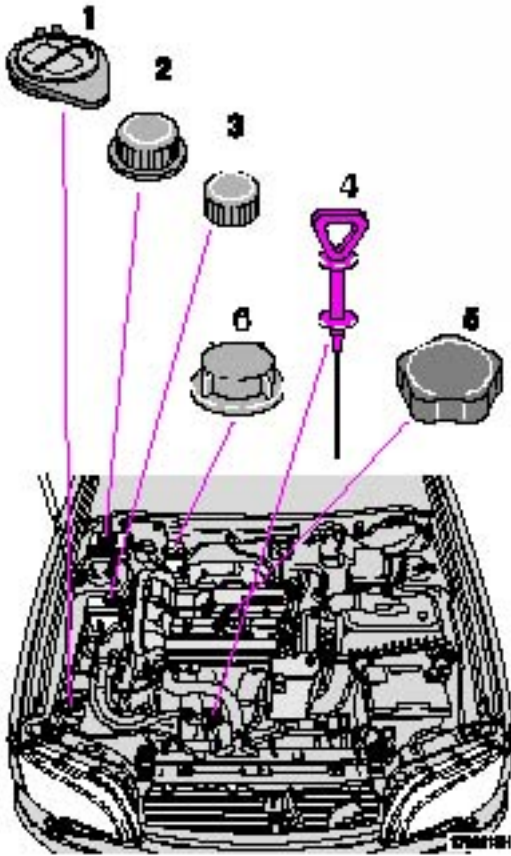
Carbon monoxide

Carbon monoxide is a poisonous , colorless and odorless gas which is present in all exhaust gases. If you ever smell exhaust fumes inside the vehicle, make sure the passenger compartment is ventilated and immediately return the vehicle to your retailer for correction.

Never sit in a parked or stopped car for any extended amount of time, nor have it unattended while the engine is running.

Never operate the engine in confined, unventilated areas.

Octane rating, see [page 61](#)



The following should be checked regularly: *

1 Washer fluid reservoir should be filled with water and solvent (wintertime: windshield washer anti-freeze). See [page 118](#).

2 Coolant level should be between the expansion tank marks. Mixture: 50% anti-freeze and 50% water. See [page 117](#).

3 Power steering - When cold, the level must not be above the MAX mark. Top up if necessary with ATF fluid. See [page 116](#).

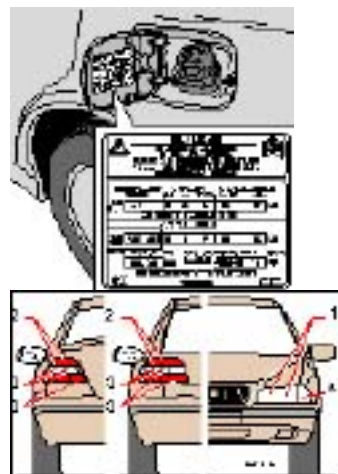
4 Engine oil level should be between the dipstick marks. The distance between the marks represents approx. 2 US qts. (1.9 liters). See [page 114](#).

5 Oil filler cap

6 Brake fluid - check, without removing the cap, that the level is above the MIN mark. Use brake fluid DOT 4+. See [page 116](#).

* Engine oil should be checked each time the car is refuelled.

Tire pressure, see label located on inside of fuel filler door.



1 (2x) 55W	H7
2 5 W	BA 15s
3 21 W	BA 15s
4 4W	BA 9s

Volvo Car Corporation

Göteborg, Sweden



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