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Notice to Owner: Your Volvo has been built to comply with all North American Safety and anti-pollution regulations and evidence of this can be verified from the certification label on the left wheel housing in the engine compartment. For further information regarding these regulations, please consult your local dealer.

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pg. 2 General Information

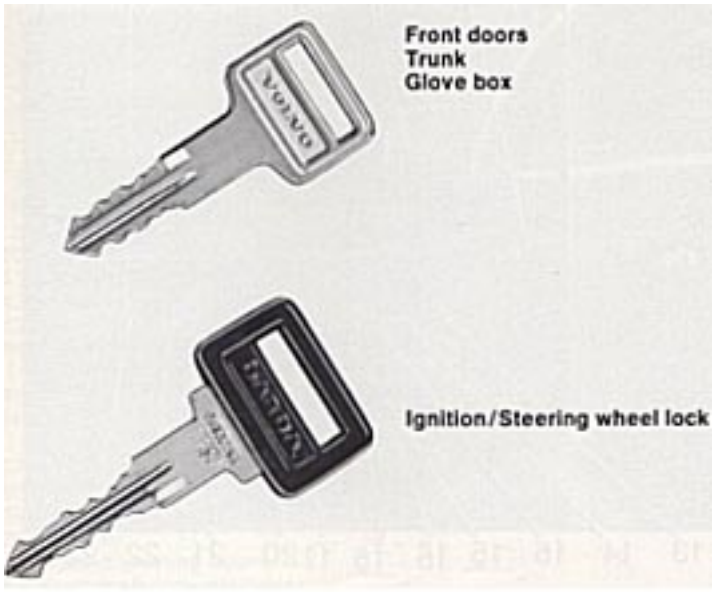
Model versions of the basic Volvo Models 242/244/245

Volvo 242 de Luxe (2 doors)
244 de Luxe (4 doors)
245 de Luxe (Wagon)

Volvo reserves the right to change specifications or design, at any time without notice and without incurring obligation. Designs as shown in this Manual may be altered.

Before moving from one country or state to another it is recommended to check with the Department of Motor Vehicles as emissions and other vehicle regulations may be different.

pg. 3 Keys



Write the key number codes on the inside cover page.
In the event the original keys are lost, duplicates can be ordered from your Volvo dealer.

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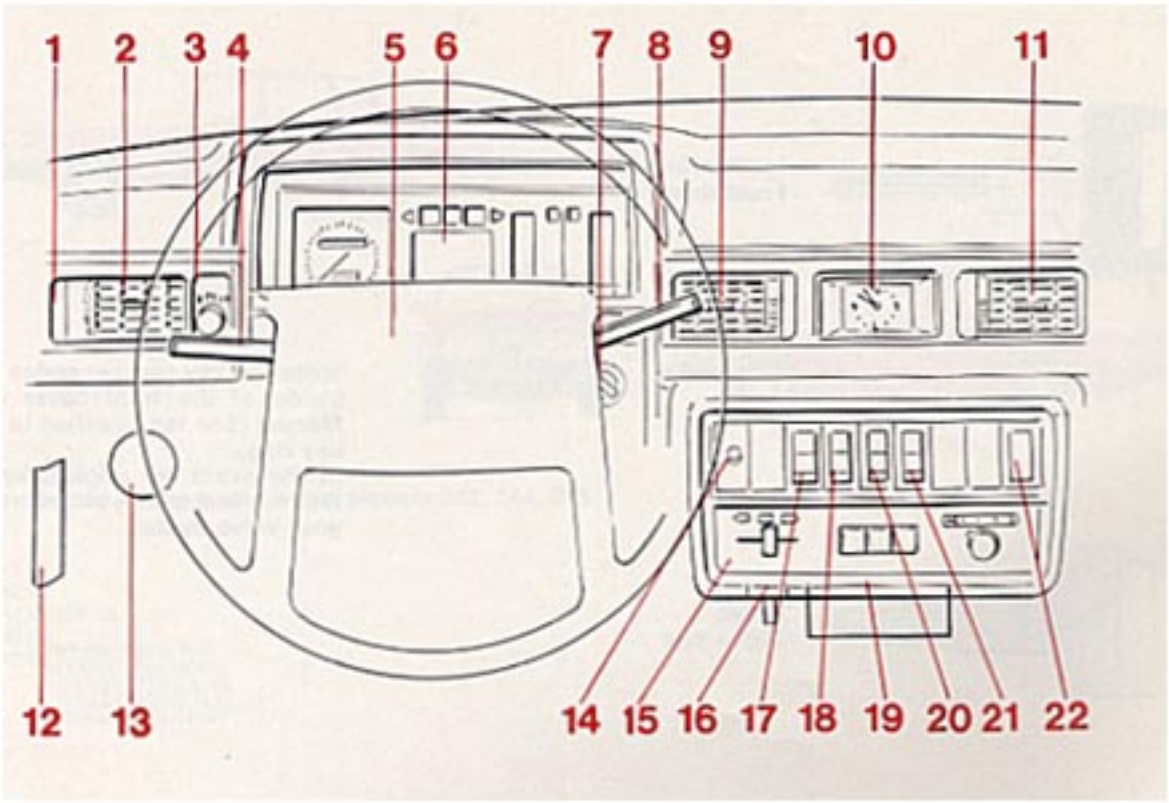
pg. 4 Instruments and controls



pg. 5 Instruments and controls

	See page
1 Defroster outlet, side window	14
2 Fresh air outlet	15
3 Headlights, parking lights	9

4 Turn signals 10
5 Horn -
6 Instruments 6
7 Ignition switch/steering wheel lock 8
8 Wiper/washer 11
9 Fresh air outlet 15
10 Clock 12
11 Fresh air outlet 15
12 Fuse box 64
13 Hood release handle 24
14 Instrument lights 9
15 Heating and ventilation 14
16 Cigarette lighter 12
17 Tail gate window wiper 13
18 Electrically heated rear window 13
19 Ash tray 12
20 Air conditioning 16
21 Hazard warning flasher 13
22 Seat belt reminder light 20

Pages 6-16 will give you a detailed description of the vehicle's instruments and controls.
Note that vehicles may be differently equipped, depending on special legal requirements, etc.

pg. 6 Instruments

A Odometer
Mile reading.

B Speedometer

C Left turn signal indicator (green)

D Parking brake reminder light (red)

E High beam indicator (blue)

F Brake failure warning light (red)

G Right turn signal indicator (green)

H Oil pressure warning light (red)

I Alternator warning light (red)

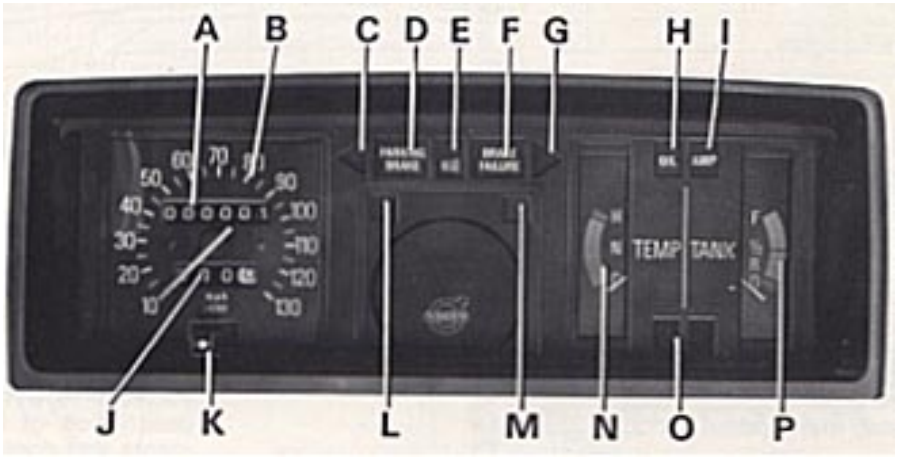
J Trip odometer
(last figure represents 1/10 mile)

K Trip odometer reset knob
Push in to reset

L Reminder light, EGR Service (red)

M Bulb failure warning light (yellow)

N Temperature gauge
The gauge pointer should normally remain inside the green range.
If the pointer enters the red range repeatedly, check coolant level and fan belt tension, see page 49.



O Overdrive indicator light (green)
Lights when overdrive is engaged.

P Fuel gauge
The fuel tank capacity is approx. 60 liters=15.8 US gals/13.2 Imp. gals
F Full
1/2
R Reserve

O Empty
The red range from R to O represents approx. 8 liters=2.5 US gals/2 Imp. gals.

pg. 7 Warning lights

The warning lights described on this page should never be on when driving

These lights will come on when the ignition key is turned on, before the engine is started. The lights should go off once the engine has started. (However, the parking brake reminder light will not go off until the parking brake is fully released.)

D Parking brake reminder light (red)

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

F Brake failure warning light (red)

If the light comes on while driving and the brake pedal can be depressed further than normal, it is an indication that one of the brake circuits is not functioning. Proceed cautiously to a Volvo dealer for an inspection of the brake system.

H Oil pressure warning light (red)

If the light comes on while driving, the oil pressure is too low.
Stop the engine immediately and check the engine oil level, see page 48.
After hard driving, the light will come on occasionally when the engine is idling. This is normal, provided it goes off when the engine speed is increased.

I Alternator warning light (red)

If the light comes on while the engine is running, check the tension of the alternator drive belt as soon as possible. See page 49
NOTE:
This warning light is illuminated if the alternator is not charging. However, **control lights, parking**

brake, brake failure, EGR, and bulb failure will be illuminated at the same time due to the design of the system.

L Reminder light for service of EGR system or oxygen sensor (red)

If the vehicle is equipped with exhaust gas recirculation or oxygen sensor, this light will come on at 15,000 mile intervals, as required by the U.S. Environmental Protection Agency. This is a reminder to have the EGR valve or the oxygen sensor serviced. The light will stay on until reset by servicing dealer.

M Bulb failure warning light (yellow)

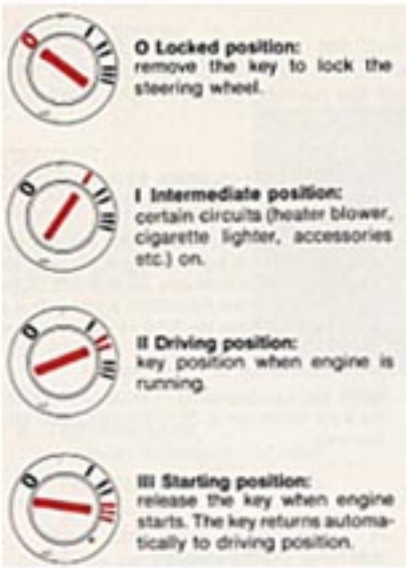
The light will come on if any of the following bulbs are defective:

one of the lower beams
one of the tail lights
one of the license plate lights
one of the brake lights (when the brake pedal is depressed).

Bulb replacement, see page 60-63.

pg. 8 Ignition switch, parking brake

Ignition switch/steering wheel lock



The steering wheel lock might be under tension when the car is parked. Turn the steering wheel slightly

to free the ignition key.
A buzzer will sound if the ignition key is in the ignition lock and the front door on the driver's side is open.
The buzzer goes off when the front door is closed.

Parking brake (hand brake)
The lever is situated between the front seats. The brake is applied to the rear wheels.

Parking brake reminder light
The reminder light PARKING BRAKE on the instrument panel comes on whenever the parking brake lever is not fully released and the ignition is on.

pg. 9 Lighting

Headlights and position lights

All lights off

Parking lights on

Headlights and parking lights on

Switch from upper to lower beams, and vice versa, by moving the turn signal switch lever on the left side of the steering column towards the steering wheel. The lights can be used without switching on the ignition key.

Instrument light rheostat

Clockwise - brighter
Counterclockwise - dimmer.

pg. 10 Turn signals

Turn signals

1 Signal lever engaged for normal turns.

2 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.

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

3 Headlight flasher (headlights off).
Move the lever towards the steering wheel. The headlight high beam will be on until the lever is released.

pg. 11 Wipers

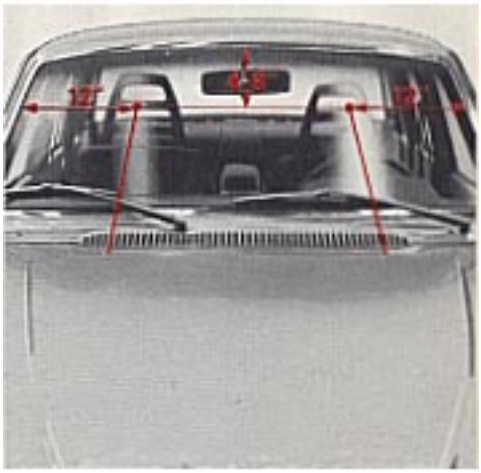
Wiper/washer

1 "Single stroke" position.
Switch returns automatically when released.

2 Wipers, low speed.

3 Wipers, high speed.

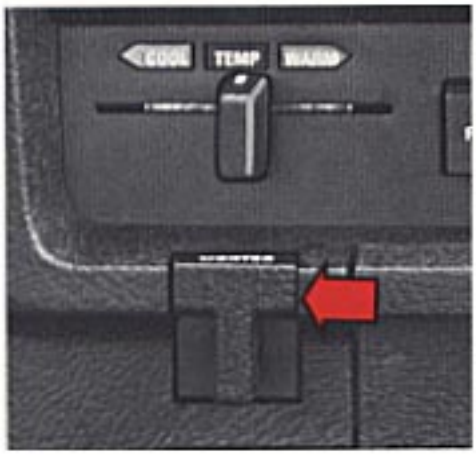
4 Washer.



Adjusting washer nozzles
The nozzle may be adjusted by inserting a needle into the metal insert and rotating the nozzle.
The washer fluid reservoir is located in the engine compartment and holds approx. 6 liters =1.6 US gals /1.3 Imp gals.

pg. 12 Clock, cigarette lighter, ash tray

Clock (some models only)
To reset the hands, push in the reset knob and turn.



Cigarette lighter
To operate, depress the knob fully. When the knob automatically releases, the cigarette lighter is ready for use.

Ash trays
To remove the ash trays depress the center spring and remove.

pg. 13 Tailgate window wiper, el. heated rear window, hazard warning flasher

Tailgate window wiper/washer, (model 245) (17)

0 Off

1 Wiper and washer combined operating.
Move the lever to the first stop and hold it there.

2 Tailgate wiper only
The fluid reservoir is located in the concealed storage area under the floor on the right side of the rear cargo area. Reservoir capacity is approx. 1.5 qts.

Electrically heated rear window (18)

0 Off

1 On
Switch off the rear window heater when the glass is clear of mist or frost. Otherwise the battery will be unduly strained.
Do not place items against the inner surface of the rear window that may damage the printed circuit. Do not scrape the inner surface of the rear window glass with a hard object, otherwise damage to the printed circuit will occur.

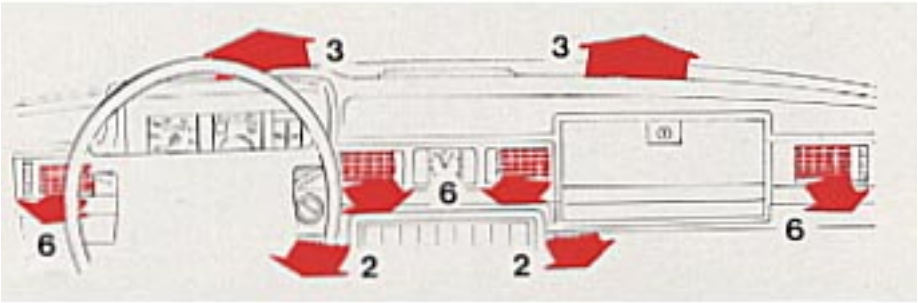
Hazard warning flasher (21)

0 Off

1 On
Four-way flashing is used to indicate that the vehicle is at a standstill and has become a traffic hazard either during daylight or at night.

Note: Regulations regarding the use of the hazard warning flasher may vary from state to state.

pg. 14 Heating and ventilation



Heating system

1 TEMP
Left = cool
Right = warm

2 FLOOR
Out = no air to floor
In = full flow of air to floor

3 DEF (defrost)
Out = low volume air flow to defroster
In = full flow

4 REC (recirculation)
To be used only for cars equipped with air conditioning.

Do not use for heating.

5 FAN (Blower motor)
0 = off
1 = low speed
2 = medium speed
3 = high speed

6 Ventilation outlets
The air flow through the ventilation outlets is not influenced by the position of the FLOOR (2) and DEF (3) controls.

pg. 15 Heating and ventilation

How to . . .
. . . obtain max. heat
1 TEMP >>> WARM

2 FLOOR depressed

5 FAN >>> 2 (or 3)

6 All outlets halfway open.

. . . remove condensation
1 TEMP >>>WARM

3 DEF depressed

5 FAN >>> 2 (or 3)

Always keep front external inlet grille (in front of the windshield) clear of obstructions (snow, ice, etc.).

Fresh air outlets
A Closed
B Open
C Directing air flow horizontally
D Directing air flow vertically

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pg. 16 Air conditioning

Air conditioning (optional)
How to use the air conditioner:

1 FAN
Position 3 for rapid cooling.

2 AIR COND
Push in the button to start the compressor.

3 REC (Recirculation)
Push in for rapid cooling.

4 TEMP
Rotate to COOL for rapid cooling, then set to desired temperature.
To obtain rapid cooling, all windows must be closed. Buttons FLOOR and DEF must be released.
The air output will then be discharged through the four dash outlets which should be fully open.

Note: For rapid removal of condensation from inside glass surfaces, the air conditioner can be switched on. The air conditioner will dehumidify the air inside the vehicle.

Have your Volvo dealer check the system for correct operation yearly.

pg. 17

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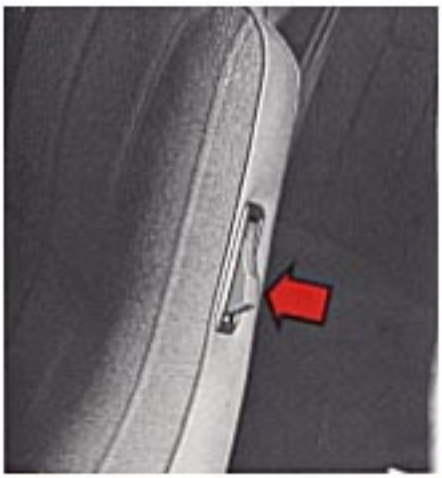
pg. 18 Front seats

Horizontal seat adjustment

Seat back inclination adjustment

Lumbar support adjustment

pg. 19 Front seats



Seat back release, 2-door models
Press the button and fold forward.

Driver seat height
There are two levers, each with three positions, for adjusting the height of the front or the back of the seat.
This means that the seat cushion angle can be adjusted for comfort.
When adjusting the seat in any position check that it is securely latched.

Passenger seat height
The front passenger seat is retained by four brackets, each with three positions. The positions are the same as for the driver's seat. However, this adjustment must be accomplished manually, using appropriate hand tools.

pg. 20 Seat belts

Seat belts, retractable
Fasten the seat belts whenever you drive or ride. Rear seat passengers should also use the seat belts as heavy braking can have serious effects on an unfastened passenger.
Two lights will be illuminated for 4-8 seconds after the ignition key is turned to driving position. One light is located in the instrument cluster and one in the console between the front seats.
A buzzer will sound at the same time if the driver has not fastened his seat belt.

Front seats

To buckle:
Pull the belt out slowly, far enough to insert the latch plate into the buckle, until a snap is heard. The belt should not be twisted or turned. To unfasten, depress red pushbutton in buckle. Let the belts rewind into their retractors.

The seat belts are normally "unlocked". The seat belt locks and cannot be pulled out:

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

Rear seats

Check seat belt mechanism function as follows:
1. Attach the seat belt. Pull rapidly on the strap.
2. Brake hard from approximately 30 mph (50 km/h) or drive in a tight circle (check other traffic first!) Pull on the belt.

In these cases the belt should not be able to be pulled out.

Note that small children (up to the age of 8-10 years) should not use Adult type seat belt.
The front and the rear outboard seats are provided with self-retracting inertia belts.

pg. 21 Seat belts

Seat belts, manually adjustable
The center rear seat belt is a manually adjustable belt. It should always be adjusted to the correct length.
To lengthen, turn the buckle and pull it out, as shown in the picture.

To shorten, pull the upper part of the double webbing.

Maintenance
Check periodically that the anchor bolts are secure and the belt in good condition.
Use water and a detergent for cleaning.
As the seat belts lose much of their strength when exposed to violent stretching, they should be replaced after collision, even though they may appear to be undamaged.
Never modify or repair the belt on your own, but have this done by a Volvo workshop.

pg. 22 Doors and locks

Unlocking front doors
Both front doors can be unlocked by using the key. Turning the key 1/4 turn counterclockwise lifts the lock buttons on the window ledge and the door can be opened by pulling the handle.

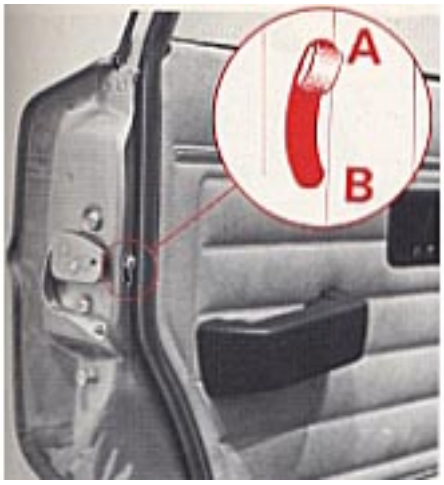
Locking doors
All doors can be locked by depressing the lock buttons. To lock the front doors, press down the lock button and keep the door handle pulled out while shutting the door.

To lock the rear doors, press down the lock button and shut the door. It is not necessary to keep the door handle pulled out.

To open a rear door from inside, the lock button must first be pulled up.
The lock buttons should not be in the down position during driving. In case of an accident, it prevents aid from entering the vehicle.

In wintertime the door locks should be "lubricated" with at suitable agent to prevent freezing. If the lock is frozen, be careful not to break the key in the lock. Thaw the ice by heating the lock or the key.

pg. 23 Rear doors, trunk lid

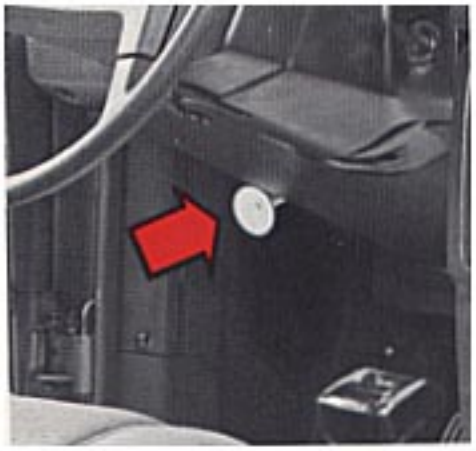


Child safety locks, 244 and 245
The buttons are located on the rear door jambs.

A Normal lock function.
B The door **cannot** be opened from the **inside.**

Trunk lid 242 and 244
To open the lid, turn the knob clockwise.
NOTE: The key must be removed from the lock in order to be able to turn the knob.
The spare wheel jack and tool kit are stowed in the left side of the trunk.

pg. 24 Hood



To open the hood
Pull the release handle (located on the left side under the dash).

Lift the hood slightly, insert a hand under the center line of the hood and depress the safety catch handle.
Open the hood.
Check that the hood locks properly when closing.

pg. 25 Vent windows, rear view mirrors

Rear vent windows, 2-door models
A Open
B Closed

Inside mirror
D Normal position
N Night position, reduces glare from following headlights

Outside mirrors
A Adjustment sideways
B Adjustment up/down

The mirrors should always be adjusted before driving.

pg. 26 Interior lights, sun roof, fuel tank cap

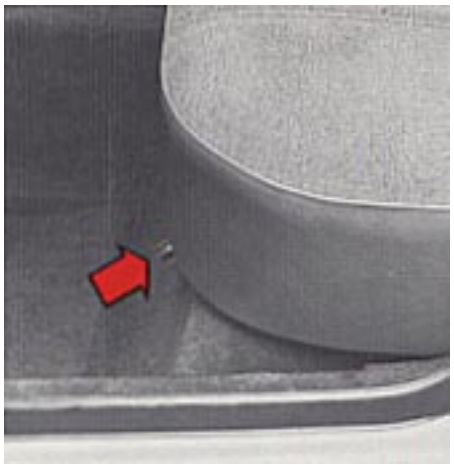
Interior light
1 Light always on.
2 Light always off.
3 Light on when either front door is opened.
Model 245 may be equipped with a light that differs from that in the 242-244.

Sun roof (certain models)
The sun roof is operated by a handle located between the sun visors.
Unfold the handle and turn it counterclockwise to open, clockwise to close.
For safety reasons the handle should always be folded when driving.

Filling fuel
The gas cap is located behind the door on the right rear fender.
When filling, position the cap in the special bracket on the door.

Note: Unleaded fuel is required for certain models. A label on the instrument panel and rear fender, near the filler inlet, will remind owners and filling station attendants of this requirement. Important! It is unlawful to dispense leaded fuel into any vehicle labeled "unleaded Gasoline only".

pg. 27 Rear seat, model 245



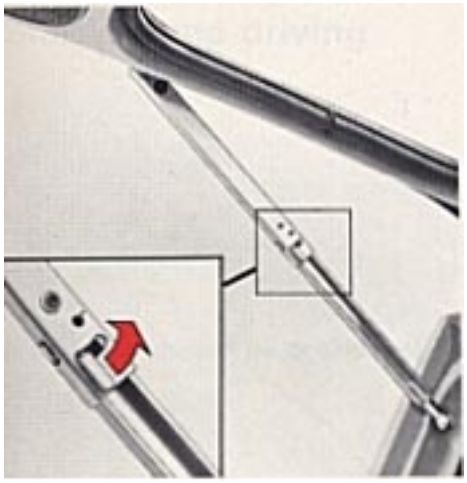
Folding rear seat
Depress either lever located at the front bottom edge of the rear seat cushion (right or left side). Tilt the seat towards the front seat.

Pull up on either of the parallel-connected handles on the rear side of the seat back and fold the seat back forward and down so that it lies flat. The rear seat back and cushion are fixed automatically in their respective positions.
When replacing the rear seat to its normal position, make sure the latches are securely locked and the seat belts lie on top of the seat back so they can easily be used.

pg. 28 Model 245, tailgate

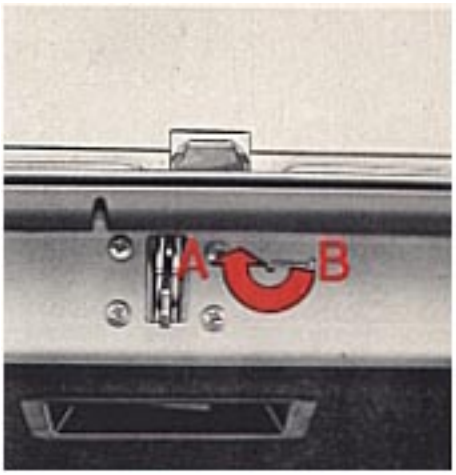
To open from the outside
Use the front door key. Depress the release button located under the tail gate handle.

To open from the inside
Pull out the T-handle located in a recess at the bottom of the tail gate.

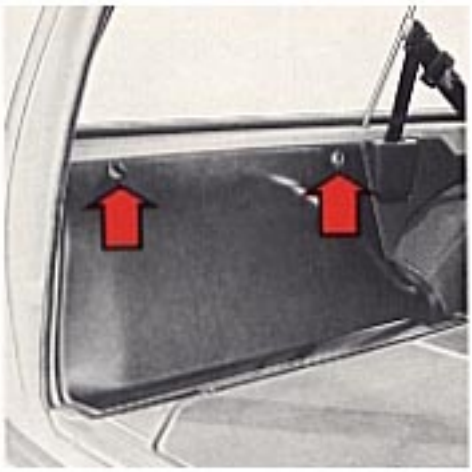


To close
Push the catch upwards and at the same time lift the gate 1/4 inch. Close the gate slowly but firmly.

pg. 29 Tail gate, model 245



Safety catch
A The lid **cannot** be opened from the **inside**.
B The lock functions normally.



Spare wheel
Remove the two thumb screws and lift off the cover. The spare wheel is now accessible.

Concealed storage space
There are two concealed storage areas under the cargo compartment floor. The tail gate window washer fluid reservoir located in the right side area.

pg. 30

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pg. 31 Break in period

STARTING AND DRIVING
A new car should be broken in!

Manual transmission
During the break-in period do not exceed the following speeds:

First 600 miles (1,000 km)
1st gear 20 mph (30 km/h)
2nd gear 35 mph (55 km/h)
3rd gear 50 mph (80 km/h)
4th gear 70 mph (110 km/h)

Note:
Do not use overdrive below 45 mph.

600-1,200 miles (1,000-2,000 km)
1st gear 20 mph(35 km/h)
2nd gear 40 mph (65 km/h)
3rd gear 60 mph (100 km/h)
4th gear 80 mph (130 km/h)

Avoid driving at low speed in high gear. Do not use "kick-down" when driving a car equipped with an automatic transmission during the first 1,200 miles.

Service Inspection
To ensure proper operation the car should be taken to a Volvo dealer after the first 600 miles for a service inspection. The oil in the engine, transmission and rear axle will then be changed. This is very important since the oil rapidly collects impurities during the break in period.
Every Volvo engine is test driven prior to delivery. Volvo is therefore assured that all clearances are satisfactory and **thus accepts no responsibility for damage caused by careless or harsh driving during the break-in period.**

pg. 32 Starting the engine

To start the engine:

1 Enter the car and fasten the seat belt.

2 Apply the parking brake, if not already set.

3 Place the gear selector lever in neutral (position N or P, automatic transmission).

4 Depress the clutch pedal.

5 Do not touch the throttle pedal.

6 Turn the ignition key to starting position. Release the key as soon as the engine starts.

If the engine does not start at once, depress the throttle pedal half way and keep it there until the engine starts.
Avoid repeated short attempts to start (fuel is injected every time the starter is engaged). Allow the starter to operate for a longer time (but not more than 15-20 seconds).
Do not race the engine immediately after starting when cold.

WARNING!
To ensure safe ventilation open the garage doors fully before starting the engine inside the garage . The exhaust gases contain carbon monoxide, which is invisible and odorless but very poisonous.

Engine warm-up - initial driving procedure
Experience shows that engines in vehicles driven short distances are subject to abnormally rapid wear because the engine never reaches normal operating temperature.
It is therefore beneficial to reach normal operating temperature as fast as possible. This is achieved by driving with a light load as soon as possible.

pg. 33 Gear shift positions

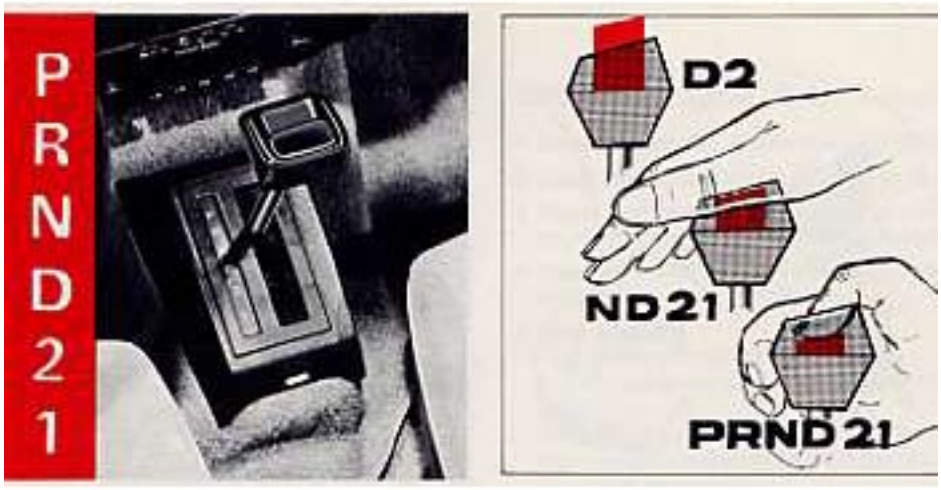
4-speed transmission
Depress the clutch fully when changing gears.

Overdrive (some models only)
The overdrive can be engaged in 4th gear only.

No extra operation of clutch or throttle pedal is normally necessary. **Engagement** is facilitated if the accelerator pedal position is maintained steady.
When **disengaging**, depressing the clutch pedal slightly makes a smooth transfer.
Do **not** use the overdrive at speeds below 45 mph (70 km/h).

Reversing inhibitor
Lift the ring to enter the reverse gear.
The ring locking mechanism prevents reverse gear from being engaged unintentionally.

pg. 34 Automatic transmission



Shift positions
P park
R reverse
N neutral
D drive
2 , 1 low gear

The gear selector can be moved freely between D and 2. The other positions are separated by a lockout which is operated by depressing the selector knob.

Shift gate

Depressing the selector knob slightly allows selection of positions **N** and **1**.
Depressing the selector knob fully allows selection of positions **R** and **P**. This is also necessary when initially bringing the selector out of position **P**.
Depressing the selector knob fully thus permits shifting freely between all positions.

P Parking
Use this position when parked with the engine running or stopped.
Never use P while car is in motion.
The transmission is mechanically locked in position P. Also use the parking brake when parking on grades.

R Reverse
Never use R while car is in motion.

N Neutral
Neutral position = no gear is engaged.

Driving gears
D Drive
D is the normal driving position. Up- and downshift between the three forward gears occurs automatically and is governed by throttle opening and speed.

pg. 35 Automatic transmission

2, intermediate position
Up- and downshift automatically between positions 1 and 2. (low and intermediate) .
No upshift to 3rd gear (top gear).
Position 2 can be used to obtain immediate downshifting to 2nd gear (increased "engine braking effect").
Position 2 can be used...

- for relatively slow highway driving.
- for city driving.
- when driving on mountain roads where precise speed control is desirable.
- for passing.
- to increase "engine braking effect".

Top speed when selecting 2 is 70 mph (110 km/h).

1, low position
If position 1 is selected when driving at high speeds, 2 is engaged first and 1 when the speed has dropped to approx. 30 mph (50 km/h).

NOTE: No upshift once 1 is engaged.

Use position 1 when you want a low gear with no upshift, for instance, when entering and descending steep grades.

Top speed when selecting 1 is 70 mph (110 km/h).

Kick-down
By depressing the throttle pedal briskly (passing the normal full throttle position) automatic shift to a lower gear is achieved.
When approaching the top speed for a particular gear or by releasing the throttle pedal slightly an up-shift will be achieved.
Kick-down can be used for maximum acceleration, for instance, passing at highway speeds.

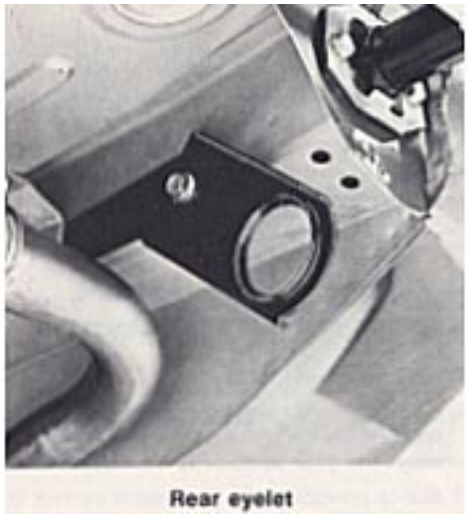
Starting and stopping a car equipped with automatic transmission
1 Fasten the seat belts.
2 Apply the parking brake or the brake pedal to hold the car (to prevent the car from moving when the gear selector is moved).
3 Select position **P** or **N**. (Engine cannot be started in any other position).
4 Start the engine by turning the ignition key.
5 Select the desired gear.
6 Release the brake and accelerate.
To stop the car, release the throttle pedal and apply the brakes.
It is not necessary to move the gear selector. The transmission will down shift automatically.

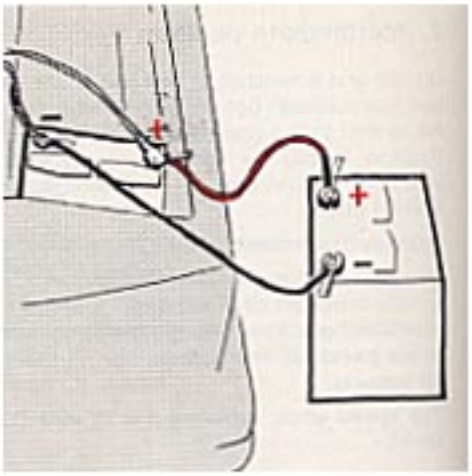
Rocking the car
If the car becomes stuck in snow, sand or mud, it can often be moved by a rocking motion. Move the gear selector rhythmically between **D** and **R** while applying slight pressure to the throttle pedal.

NOTE:
- **Never select P or R while the car is in motion.**
- **The engine should be idling when selecting D, 2, 1 or R with the car standing still.**
- **Never select positions 2 or 1 at speeds above 70 mph (110 km/h).**

pg. 36 Emergency towing (pulling)


Front eyelet


Rear eyelet



Precautionary steps to observe when towing

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

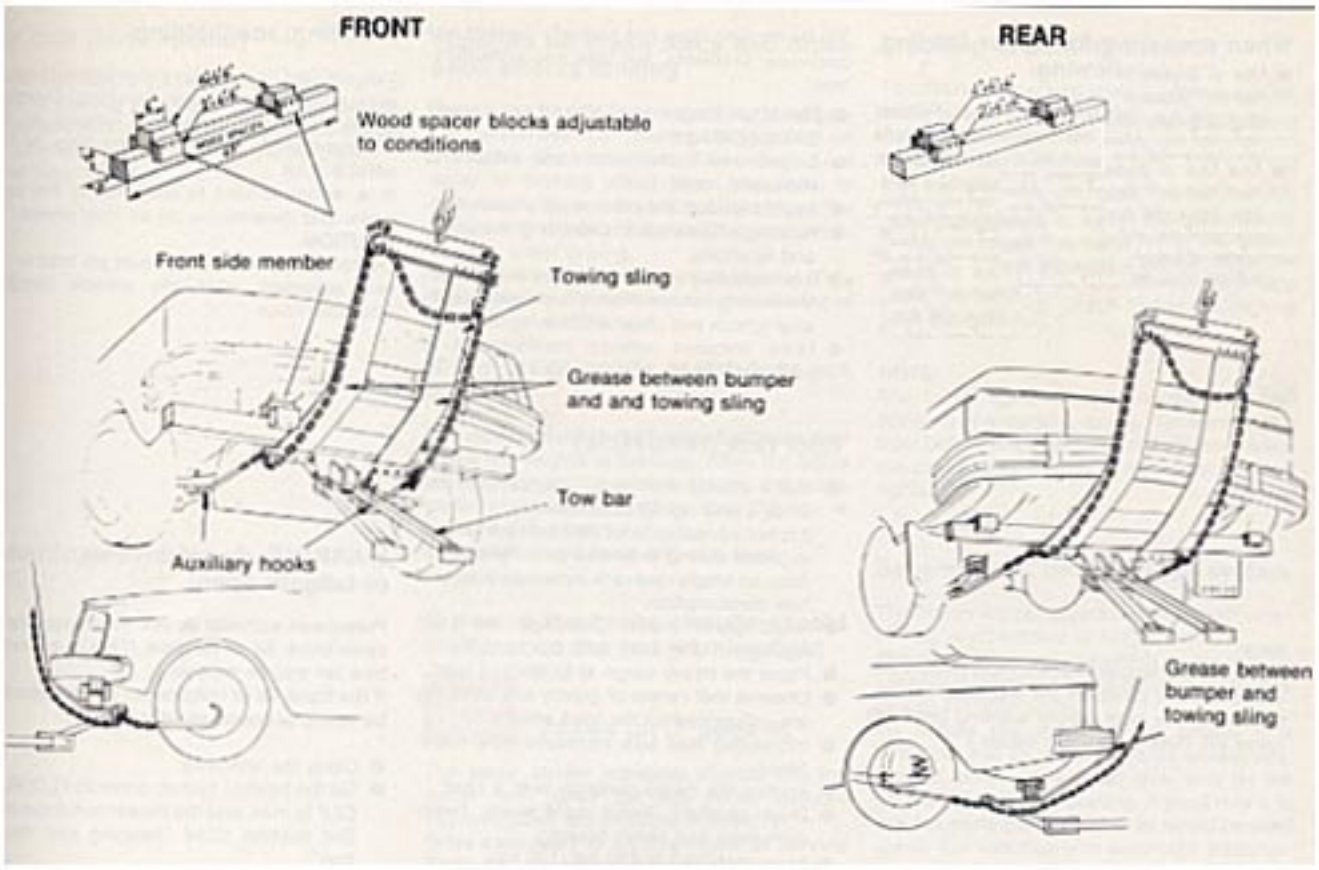
Towing cars equipped with automatic transmission:

- Gear selector in position N. Check transmission oil level (see page 56).
- Maximum speed: 20 mph (30 km/h).
- Maximum distance: 20 miles (30 km).

THE ENGINE CANNOT BE STARTED BY PUSHING OR PULLING THE CAR.

When jump starting, observe that the booster battery + must be connected to the car battery +. The booster battery - must be connected to the car battery-. Any other connection will damage alternator and electronic components.

pg. 37 Towing information



pg. 38 Trailer hauling

When preparing for trailer hauling, observe the following:

- Use an approved trailer hitch (available through Volvo dealers).
- Maximum trailer weight recommended by Volvo is 2,000 lbs (908 kg).

Observe legal requirements.

NOTE:

Additional lighting equipment must be connected to specific points in the electrical system. Otherwise the bulb failure warning light will come on. (See your Volvo dealer.)

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

- the hitch tongue load should not exceed 160-200 lbs (75-90 kgs).
- engine and transmission are subject to increased loads.
- 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.
- more frequent vehicle maintenance is required.

Roof rack

- Use a sturdy roof rack, intended for the vehicle and rigidly attached.
- It is not advisable to let the roof rack remain in place during extended periods of time. Also, an empty roof rack increases drag and fuel consumption.
- Avoid point loads. Distribute the load evenly.
- Place the heavy cargo at bottom of load.
- Observe that center of gravity and handling are influenced by the load weight.
- Increasing load size increases wind resistance.
- Anchor the cargo correctly with a cord.
- Drive carefully. Avoid rapid starts, heavy cornering and heavy braking.
- Max. roof load is 220 lbs (100 kg).

pg. 39 Note

Handling, roadholding

Vehicle load, tire design and inflation pressure are important for proper handling. Therefore check that the tires are inflated to the recommended pressure according to the vehicle load.
It is recommended to use tires of the same make and dimensions on all four wheels.

CAUTION!
Do not mix radial ply and bias ply tires as this will adversely alter the vehicle handling characteristics.

If the brake power assist does not function

The power assist to the brakes functions only when the engine is running. When coasting or towing the brake pedal pressure must be increased 3-4 times.

The brake pedal feels stiff and hard.

Moisture on brake discs and brake pads affects braking.

Rain and slush as well as normal car wash will moisten the brake components. This may affect the friction of the brake pads and a delay in braking effectiveness will be noticed.
When driving in slush or rain, depress the brake pedal now and then in order to heat the brake linings and remove the moisture. This should also be done immediately after washing or starting in very damp weather.

Driving with trunk lid open

Exhaust gases can be sucked into the car. This is especially true for the model 245 (Wagon). Normally this involves no hazard to the passengers, but the following advice should be followed as a safety precautions.

- Close the windows.

- Set the heating system's FLOOR and DEF to max. and the fan to full speed (3). See page 14.

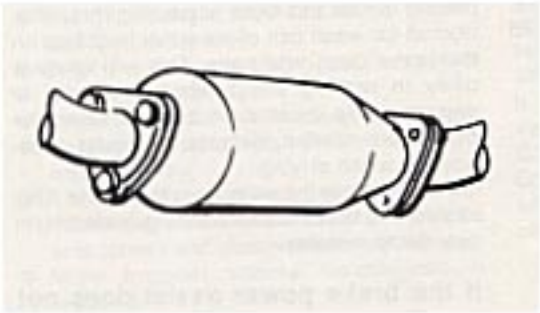
If one of the brake circuits should malfunction the red warning light comes on, (F page 6)
The pedal stroke increases slightly and the pedal feels softer but the pedal pressure required does not increase noticeably.

Drive carefully to a Volvo dealer or Service Station to have the brake system checked.

Severe strain on the brake system.
The brakes will be subject to severe strain when driving in mountains or hilly areas.
The speed is usually low which means that the cooling of the brake 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 and let the engine help with the braking. A good rule is to use the same gear downhill as would be used uphill. For vehicles with automatic transmission use position 2 or in some cases 1.

pg. 40 Catalytic Converter

Catalytic Converter Cautions



- Keep your engine properly tuned. Certain engine malfunctions, particularly involving the electrical, fuel or ignition systems, may cause unusually high 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, repetitive stalls or backfires. A properly tuned engine will help avoid malfunctions that could damage the catalytic converter.
- Remember that tampering or unauthorized modifications to the engine or the vehicle such as:

Altering fuel injection settings or components
Adjusting ignition timing beyond specified limits
Altering emission system components or location or removing components

can cause catalyst or exhaust system overheating, in addition to being illegal.

- 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.
- Excess starter cranking (in excess of one minute) with an intermittently firing or flooded engine, can cause catalyst or exhaust system overheating. This also applies to lengthy pushing or towing of vehicle to start.

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1 9 7 7
VOLVO
242, 244, 245

pg. 41 Maintenance services

MAINTENANCE

Maintenance services
Your Volvo has passed two major inspections before it was delivered to you. One was made at the Volvo factory and one was by the dealer, according to Volvo specifications. When driven 600 miles your car should be brought to the Volvo dealer who will perform a service inspection; engine, transmission and rear axle oils, will be changed.
Following this inspection, maintenance inspections as outlined in this book should be performed every 7,500 miles.
The extended maintenance inspection 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. Retain receipts for all vehicle emission services to protect your emission warranty.
See your "Warranties and Maintenance Records book".

Maintenance inspection 7,500 mile intervals
Volvo advises you to follow the inspection program at 7,500 mile intervals which is outlined in the "Warranties and Maintenance Records book". This maintenance program consists of inspections and services necessary for the proper operation of your car over the next 7,500 miles.
The maintenance inspections includes several checks which require special instruments and tools and therefore must be performed by a qualified technician.

THE FEDERAL CLEAN AIR ACT (USA)
The Clean Air Act requires vehicle manufacturers to furnish written instructions to the ultimate purchaser to assure the proper functioning of those components that control emissions.
The maintenance instructions listed on pages 44, 45 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 "Warranties and Maintenance Records book" for further details.

pg. 42 Gas station checks

Fuel RON 91
Octane rating 91
For vehicles with catalytic converter **unleaded fuel must be used**.
Vehicles not equipped with catalytic converter can use leaded or unleaded gasoline. (see also page 26).

Engine oil
Maintain oil level between the dipstick marks. The distance between the marks represents 1 quart (1 liter). Engine oil **"For API service SE"** SAE 10 W-40.
See also page 48.

Coolant
Maintain fluid level between MAX and MIN marks on expansion tank.
Mixture of 50% anti-freeze and 50% water.

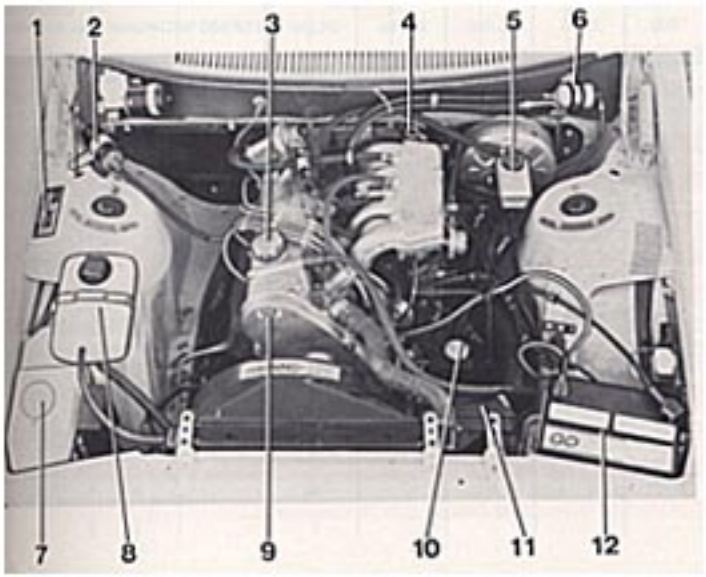
Washer fluid
Washer fluid reservoir.
Water and solvent (wintertime: use windshield washer anti-freeze).

Brake fluid
Check, without removing the cap, that the level is above the MIN mark.
Brake fluid DOT 3 or DOT 4(SAE J 1703).

Battery
Acid level 1/4" - 3/8" above plates. Use distilled water only, **never** add acid.

WARNING! battery gases are explosive.

pg. 43 Engine B 21F



Engine B21F
1 Data plate
2 Ignition coil
3 Oil filler cap, engine
4 Oil dipstick, engine
5 Brake fluid reservoir
6 Fuel filter
7 Washer fluid reservoir
8 Expansion tank
9 Engine identification number
10 Oil reservoir, power steering
11 Air Cleaner
12 Battery

pg. 44 Servicing

1977
MAINTENANCE SCHEDULE
242 244 245

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

Maintenance Operation	Miles	600	7,500	15,000	22,500	30,000	37,500	45,000
EMISSION CONTROL SYSTEM								
I ENGINE MECHANICAL COMPONENTS								
Engine Oil and Filter *		R	R	R	R	R	R	R
Engine Coolant						R		
Cooling System Hoses and Connections		I		I		I		I
Engine Drive Belts		I	I	I	I	I	I	I
Torque Cylinder Head Bolts		A						
Torque Manifold Bolts		A						
Valve Clearance		I		I		I		I
Camshaft drive belt		A		A		A		R
Vacuum Fittings, Hoses and Connections		I		I		I		I
II ENGINE FUEL SYSTEM								
Fuel (Line) Filter						R		
Fuel (Tank) Filter				I		I		I
Air Cleaner Filter						R		
Idle RPM		A		I		I		I
Mixture Ratio		I		I		I		I
Fuel System Cap, Tank, Lines and Connections		I				I		
Fuel Injection Electrical Connections				I		I		I
Oxygen Sensor				R		R		R
Electrical connections in oxygen sensor system				I		I		I

*Change oil at least every sixth month.
However, adverse conditions (like hot ambient temperatures, trailer pulling, hill climbing, driving long distances at high speeds, extended periods of idling or low speed operation, short trip operation at freezing temperatures) require oil changes more frequently (every three months).

pg. 45 Servicing

1977
MAINTENANCE SCHEDULE
242 244 245

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

Maintenance Operation	**Miles**	600	7,500	15,000	22,500	30,000	37,500	45,000
EMISSION CONTROL SYSTEM								
III ENGINE IGNITION COMPONENTS								
Spark Plugs(see also page 52)				R		R		R
Distributor Advance Mechanism						I		
Ignition Timing		I		I		I		I
Distributor Cap and Rotor				I		I		I
Ignition Wiring				I		I		I
Vacuum Advance Delay Valve						R		
IV ENGINE CRANKCASE VENTILATION SYSTEM								
PCV Nipple (Orifice)				I		I		I
Ventilation Hoses				I		I		I
V ENGINE EXTERNAL EMISSIONS								
Exhaust Gas Recirculation Components**				**I		**R		**I
Air Injection Reactor System				I		I		I
Catalytic Converter Mounting Bolts		A		A		A		A
Reset Service Indication for EGR or Oxygen Sensor				A		A		A
VI ENGINE EVAPORATIVE EMISSIONS								
Evaporative Control Canister								R

** EGR valve to be cleaned at 15,000 mile service intervals.

pg. 46 Servicing

1977
MAINTENANCE SCHEDULE
242 244 245

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

Maintenance Operation	**Miles**	600	7,500	15,000	22,500	30,000	37,500	45,000
DRIVE TRAIN								
Manual Transmission Oil		R	I	I	I	R	I	I
Automatic Transmission Oil 1)		I	I	I	I	I [2]	I	I
Rear Axle Oil		R	I	I	I	I	I	I
BRAKES								
Inspect brakes, replace components as necessary.				I		I		I
Change Brake Fluid								R
STEERING								
Tire Wear (Align front end if needed.)		I	I	I	I	I	I	I
Check power steering fluid level.		I	I	I	I	I	I	I
BODY								
Trunk, Door and Hood Hinges and Latches.		L	L	L	L	L	L	L

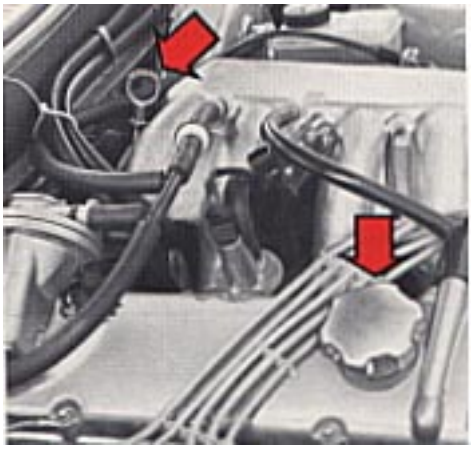
1) Check the oil level (at least every sixth month).
2) For cars used for hard driving, or in hilly terrain etc, perform preventive service including oil change should be carried out every 30,000 miles.

pg. 47 Servicing

The following items should be checked weekly by the driver. This only takes a few moments.	Description on page
Engine oil level	48
Brake fluid	57
Radiator coolant level	59
Battery water level	42
Tire pressure, all five tires	85
Operation of all lights	-
Horns	-

Windshield wipers	-
Level of windshield fluid	-
The following should also be carried out regular intervals.	Description on page
Washing	68
Polishing	68
Cleaning	69
Rust protection	69

pg. 48 Engine oil



A oil dipstick
B oil filler hole

Checking oil level
Check the oil level each time you stop for gasoline. The level should be between the dipstick marks. It must not drop below the lower mark. On the other hand, it should not exceed the upper mark since excessive oil consumption will result. The distance between the dipstick marks represents 1 quart of oil.

To add oil or change oil
Add oil of the same kind as already used.
Multigrade oils, Service SE classification are recommended.
All year round SAE 10W-40, SAE 10W-30
Above +14°F (-10°C) SAE 20W-50

At very low temperatures (below 0°F) multigrade oil SAE 5W-20 or SAE 5W-30 is recommended. However, this oil should not be used when the temperature is continuously above 32°F.
Oil and oil filter cartridge are replaced the first time at the 600 mile inspection. Subsequent oil and filter changes are made at 7,500 mile intervals or **at least every sixth month.**
However, under adverse conditions such as high ambient temperatures, trailer pulling, hill climbing,

driving long distances at high speeds, extended periods of idling or low speed operation, short trip operation at freezing temperatures oil changes are required more frequently (every three months).
Drain the oil after driving while it is still hot.
Capacity excl. filter 3.5 US qts/3.0 Imp. qts.
incl. filter 4.0 US qts/3.4 Imp. qts.

Changing oil filter
Replace the oil filter at every oil change. If the oil filter for any reason is changed separately 1/2 qt. of oil should be added.

pg. 49 Cooling system

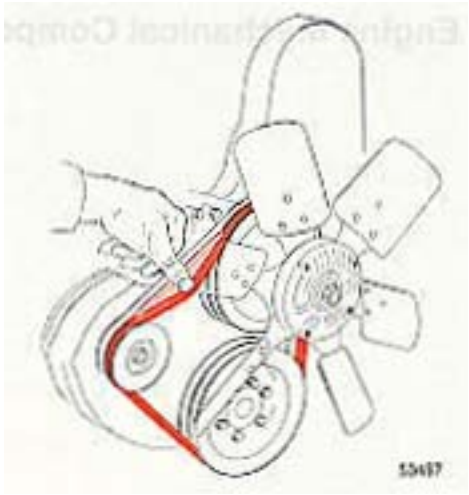
Changing coolant
Every two years or 30,000 miles the cooling system should be drained, flushed and refilled.
Remove the expansion tank cap.
Loosen the hose at the bottom of the radiator and open the drain cock on right side of the engine block.

Fill coolant through the expansion tank.

The heater controls should be fully open when draining and filling.
Add coolant until the level is up to the MAX mark or slightly above.

Start engine and run until hot. Check the cooling system connections for tightness. Also re-check the coolant level.
Capacity: 10 US qts./9 Imp. qts.

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



Drive belts
The belt tension can be checked by depressing the fan belt at a point midway between the alternator and fan. It should be possible to press down the belt about 5-10 mm (3/8"). This also applies to other drive belts.

pg. 50 Emission control systems

I Engine Mechanical Components

Torque cylinder head bolts
The cylinder head bolts should be torqued at the 600 mile inspection to ensure proper sealing of the head gasket.

Torque manifold nuts
The manifold nuts should be torqued at the 600 mile inspection. A loose manifold could alter air/fuel ratio and cause an increase in emission and/or poor driveability.

Valves
The valve clearance should be checked every 15,000 miles.

Camshaft drive belt
The camshaft drive belt tensioner should be adjusted every 15,000 miles.
Replace the drive belt every 45,000 miles.
An incorrectly tensioned drive belt will impair exhaust emission as the valves will open and close incorrectly.

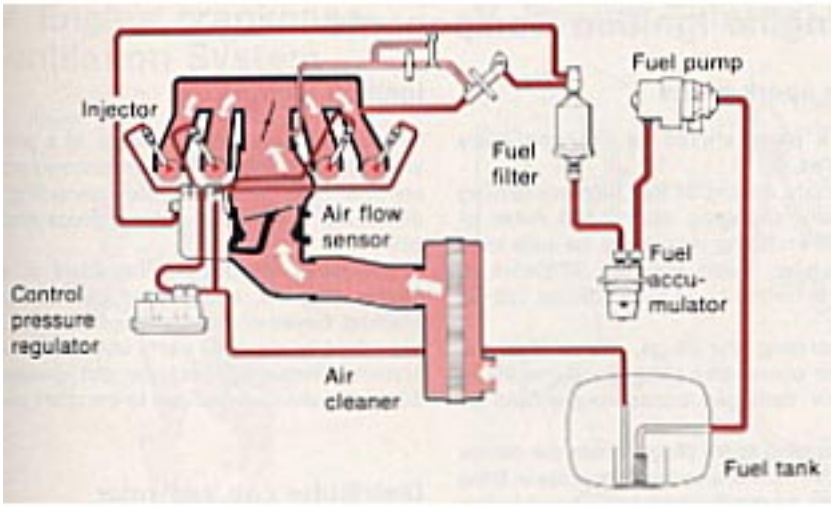
Vacuum fittings, hoses and connections
Unstable idle, misfiring or poor emission control is often caused by leaking vacuum hoses or connections. Check hoses and connections on distributor vacuum unit, EGR valve and connections, heater control servo systems and hydraulic brake servo.

II Engine Fuel System

Fuel
91 octane RON (Research Octane Number) unleaded fuel permitted for all models and **required** for certain models (with catalytic converter).
A label on the instrument panel and on the rear fender, near the filler inlet, will remind of this requirement. **It is unlawful to dispense leaded fuel into a vehicle labeled "unleaded gasoline only".**

CI system
The B21F engine is provided with a fuel injection system called the CI system (Continuous Injection), which means that the injectors are open and inject fuel as long as the engine is operating.
This system has few moving parts, is reliable and meets the exhaust emission standards at maximum efficiency.
Air supplied to the engine is continuously measured and determines the amount of fuel injected.
The air flow is regulated by the throttle valve.
The air flow sensor and the fuel distributor are integrally built as a single unit. A lever is actuated by the air flow to produce continuous fuel distribution.

pg. 51 Emission control systems



Oxygen sensor system
This is a self-tuning engine control system designed to reduce emissions and improve fuel economy. An oxygen sensor monitors the composition of the exhaust gases leaving the engine. The exhaust gas analysis is fed into an electronic unit which continuously influences a frequency valve. This adjusts the air-fuel ratio to provide optimum conditions for combustion and efficient destruction of the three major pollutants (hydrocarbons, carbon monoxide and nitrous gases) by a 3-way catalytic converter.

Change oxygen sensor unit and Inspect electrical connections of oxygen sensor system
The oxygen sensor must be replaced every 15,000 miles.
At the same time the electrical connections of the oxygen sensor system should be inspected for chafing and corrosion.
Replace as necessary.

Special instructions for work on the fuel injection system
Extreme cleanliness is essential when working on the injection system. Great care must be observed. Injection system service should be handled by qualified technicians, using equipment intended for this service.

Fuel (line) filter
The fuel filter is located on the firewall. This filter is to be changed every 30,000 miles. The filter is replaced as one complete unit.
Filter replacement should be made in a shop.

Fuel (tank) filter
A filter is installed in the suction line in the fuel tank. Its function is to prevent any dirt in the tank from

being sucked up to the fuel pump. The filter should be cleaned every 15,000 miles.

Air cleaner
Replace the air cleaner cartridge with a new one every 30,000 miles. The cartridge should be replaced more often when driving under dirty and dusty conditions. No cleaning of any kind is to be made between the above mentioned intervals.

pg. 52 Emission control systems

Checking and adjusting idling speed and mixture ratio
These checks should be made every 15,000 miles.
The idling speed should be adjusted at the 600 miles inspection.

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

Inspection of fuel injection electrical connections
The electrical connections and fuel lines in the injection system should be checked for chafing and corrosion every 15,000 miles.

III Engine Ignition Components

Change spark plugs
The spark plugs should be changed every 15,000 miles.
However, city driving or fast highway driving require changing after 7,500 miles of driving. Tightening to 14.5-21.7 ft. lbs. (20-30 Nm). When fitting new plugs, be sure to fit the right type:
Volvo no 273545 (Bosch W 175 T 30 or corresponding).
When changing the spark plugs, check that the suppressor connectors are in good condition. Cracked or damaged connectors should be replaced.
When changing spark plugs, clean the cables and cable terminals, also the rubber seals. If the car is driven on roads where salt is used during the winter, coat the cables with silicone spray.

Ignition timing
Distributor advance mechanism
The ignition timing should be inspected at the 600 miles inspection and after that every 15,000 miles. All adjusting work should be done with the proper equipment. The distributor is one of the most sensitive units in the engine and careless handling can lead to decreased engine output and high fuel consumption or even serious damage to the engine.
The distributor advance mechanism should be checked every 30,000 miles.

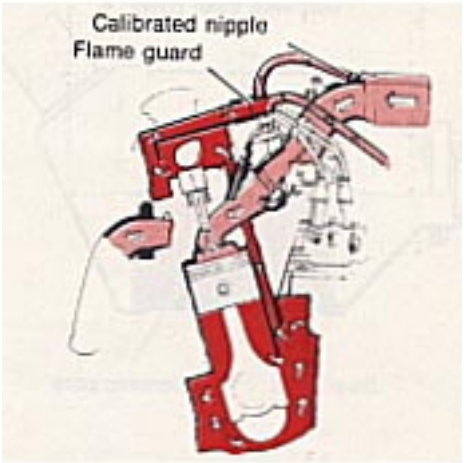
Ignition wiring
The ignition system consists of a primary and secondary system. The secondary systems are the high tension leads connecting the distributor cap with the spark plugs and the coil.
These wires should be inspected at each engine tune-up, and should be replaced if cracked, frayed or damaged from abrasion. It is important to clean all parts of this secondary system thoroughly because dirt greatly reduces the available voltage to the spark plugs.

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

Timing Delay Valve
This valve should be replaced every 30,000 miles. A clogged valve will impair fuel economy.

pg. 53 Emission control systems

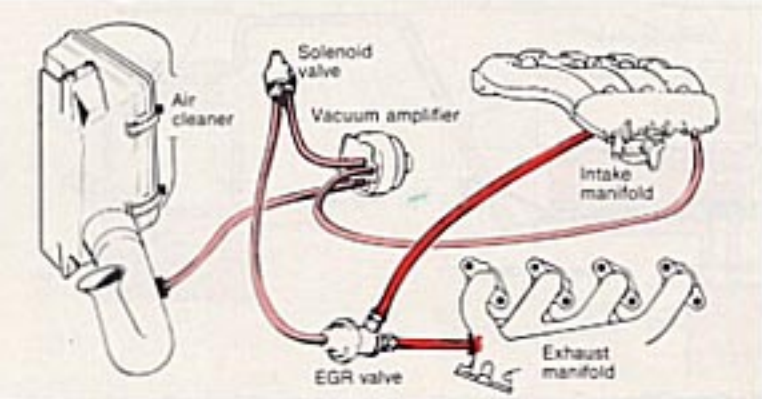
IV Engine Crankcase Ventilation System



Crankcase ventilation
The engine is provided with positive crankcase ventilation which prevents crankcase gases from being released into the atmosphere.
Instead, the crankcase gases are admitted to the intake manifold and cylinders.

Cleaning PCV valve
The calibrated positive crankcase ventilation (PCV) valve should be removed and cleaned every 15,000 miles. Rubber hoses should be checked for damage at the same time. Replace if necessary.

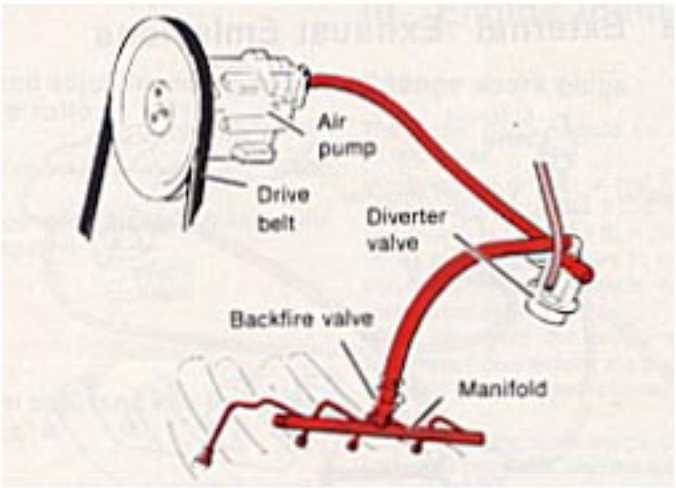
V Engine External Exhaust Emissions



Exhaust Gas Recirculation Components
Inspect EGR valve, pipe and manifold nipple at 15,000 miles service intervals.
To remind the driver about the EGR service or the oxygen sensor service, there is a special service reminder light (see page 7) which comes on at 15,000 miles intervals.

This is a reminder to have the EGR valve or the oxygen sensor serviced. The light will stay on until reset.

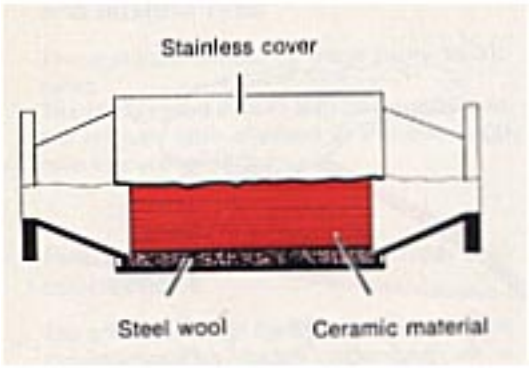
pg. 54 Emission control systems



Air Injection Reactor System
This system admits fresh air to the hot exhaust gases in the exhaust manifold. The fresh air will burn the unburned portion of the exhaust gases to reduce hydrocarbon and carbon monoxide contents.
The air pump is located on the right side of the engine and driven by a belt.

The air is drawn into the air pump via an air filter. The compressed air is fed out of the pump through the diverter valve. This valve has two functions. It regulates the air pump pressure. It also shuts off the air delivery when using the engine to brake. If the system was allowed to operate under this condition, fresh air mixed with the overly rich vapor would cause a backfire.
The backfire valve admits air into the exhaust manifold but prevents return of exhaust gas to the air pump incase of a backfire or air pump malfunction, such as drive belt damage.

Air Injection Reactor check
This system should be checked every 15,000 miles. Hoses and connections should be checked for leaks and condition. Check the diverter valve and backfire valve operation. Check the operation of the air pump and that there is no excessive noise.
The exhaust emissions will be incorrect if the AIR System does not operate properly.



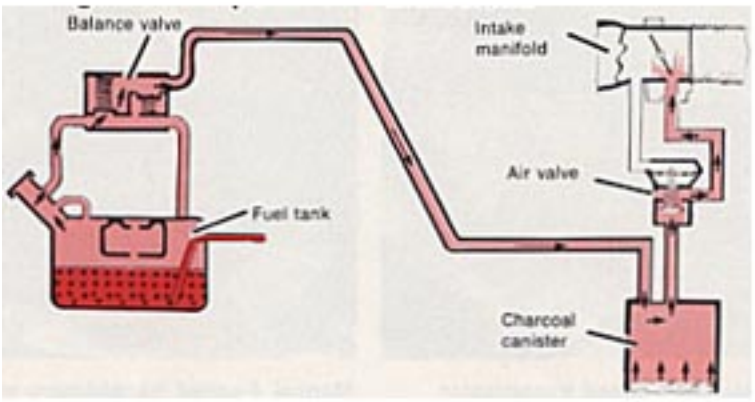
Catalytic Converter
This is a supplementary device in the exhaust system, designed to clean the remaining dirty exhaust gases.
This device is mainly a container with a ceramic material insert, designed to let the exhaust gases pass through channels in the insert. The channel walls are covered by a thin layer of platina-palladium. These metals act as catalysts, permitting a chemical process without actually taking part in it.
The CO content will increase if the Catalytic Converter is damaged.

pg. 55 Emission control systems

NOTE:
Vehicles with Catalytic Converter must use unleaded fuel only. Otherwise the Catalytic Converter will be destroyed.

Torque catalytic converter mounting bolts (certain models)
The catalytic converter mounting bolts should be torqued every 15,000 miles.

VI Engine Evaporative Emissions



Evaporative Control Systems

Vehicles intended for the North American market are equipped with a gas evaporative control system, which prevents gas fumes from being released into the atmosphere.

The system consists of an expansion tank in the fuel tank, a check valve at the fuel tank and a charcoal filter in the engine compartment. The components are interconnected by hoses which channel fuel fumes from the fuel tank to the charcoal filter where they are stored until the engine is started and then drawn into the engine fuel induction system.

Evaporative Control Canister

Replace the canister every 45,000 miles.

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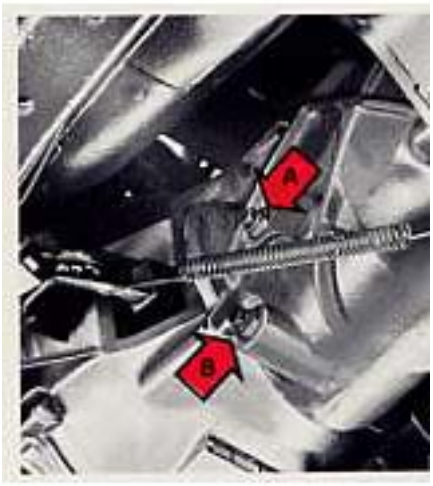
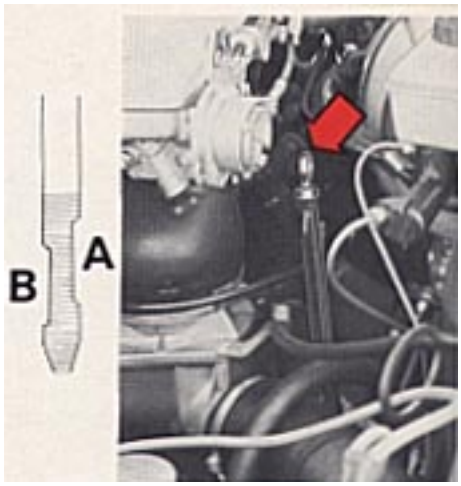
pg. 56 Transmission oil



Manual 4-speed transmission, M45
Capacity: 0.8 US qts = 0.75 liters
Fluid type: Automatic Transmission Fluid Type F
Replace: at 600 miles and every 30,000 miles.
The oil level should be up to the filler plug (A). Drain the oil immediately after driving, while it is still hot, through plug(B).

Manual 4-speed transmission with overdrive, M46
Capacity: 2.4 US qts = 2.3 liters
Fluid type: Automatic Transmission Fluid Type F
Replace: at 600 miles and every 30,000 miles.
The oil level should be up to the filler plug(A).
Transmission and overdrive are lubricated by the same oil. Therefore, when the oil is drained through plug B, also remove cover on the overdrive and clean the strainer.



Automatic transmission

Capacity:	7.0 US qts = 6.5 liters
Fluid type:	Automatic Transmission Fluid type F(FLM).
Replace:	no oil changes necessary under normal driving conditions.

When checking fluid level, the car should be on level ground in PARK position with the engine idling. If topping up is necessary, fill through the dipstick tube.
NOTE: The dipstick has graduations for hot (A) and cold (B) transmission fluid. When checking the fluid level, use a clean rag that will not leave lint.

pg. 57 Rear axle, power steering, brake fluid

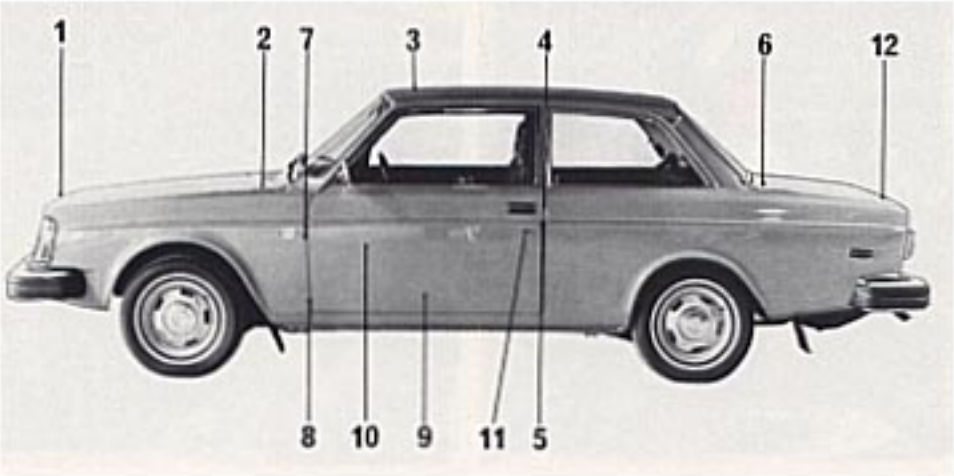
Rear axle oil
Capacity: 1.7 US qts - 1.6 liters
Oil type: API GL-5 (MIL-L-2105 B or C)
Viscosity: SAE 90

Replace: at 600 miles only.
The oil level should be up to the filler plug (A).
Drain rear axle oil through drain plug (B).
When the temperature is steadily below 15° F= -10° C, use API GL-5 SAE 80W oil.
Cars equipped with limited slip differentials should use oils with proper additives.

Power steering(optional)
Capacity: 0.8 US qts = 0.75liter
Fluid type: ATF
Replace: no fluid change required.
Check fluid level with engine idling and after driving while the fluid is still hot. Wipe the reservoir clean.
The fluid level should be within the markings on the dipstick which is attached to the cover.

Brake fluid
Fluid type: DOT 3 or DOT 4 (SAE J 1703)
Replace: every third year or 45,000 miles.
Check, without removing the cap, that the level is above the "MIN" mark of the fluid reservoirs.
Always entrust brake fluid changing to a Volvo dealer.
Change brake fluid every year when driving under extremely hard conditions: mountain driving etc.

pg. 58 Lubrication

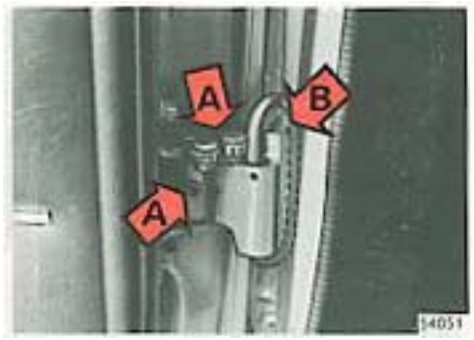


Chassis maintenance

To simplify maintenance of your Volvo, the vehicle has been equipped with ball joints, steering rods and propeller shafts that do not require regular lubrication.

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

Door Hinges and door stop



A. grease B. oil

No. Lubricating point	Lubricant
1 Hood lock	Paraffin wax
2 Hood hinges	Oil
3 Sun-roof wind deflector	Oil
4 Door lock outer sliding surfaces	Paraffin wax

5 Striker Plate	Paraffin wax
6 Trunk lid hinges	Oil
7 Door hinges	Grease
8 Door hinges	Grease
Door stop	Oil
9 Front seat slide rails and latch devices	Paraffin Wax, oil Silicon grease
10 Window regulator	Oil, Grease
Locking device (Accessible after door upholstery panels removed)	Silicone grease
11 Key holes	Lock oil
12 Trunk lid lock	Lock oil

pg. 59 Coolant

Check coolant level

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

Top up with coolant

Top up with coolant by filling the expansion tank when level is at the "MIN" mark. Use a mixture of 50 percent anti-freeze/summer coolant and 50 percent water all the year round. Top up to the "MAX" mark.

NOTE: Do not top up with water only. Water by itself reduces both the rust-protective and anti-freeze qualities of the coolant. It can also cause damage to the cooling system if it should freeze.

NOTE: In warm climates where there is little risk of frost, water can be used without anti-freeze. We recommend, however, to add a rust inhibitor.

pg. 60 Note, Replacing bulbs

This car is equipped with an alternator

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

1 A battery connection to the wrong terminal will damage the diodes. Before connections are made, check the polarity of the battery with a voltmeter.

2 If booster batteries are used for starting, they must be properly connected to prevent the diodes from being damaged.
The ground lead from the booster battery must be connected to the ground terminal of the car battery and the positive lead from the booster battery to the positive terminal.

3 If a fast charger is used for charging the battery, the battery leads should be disconnected.

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

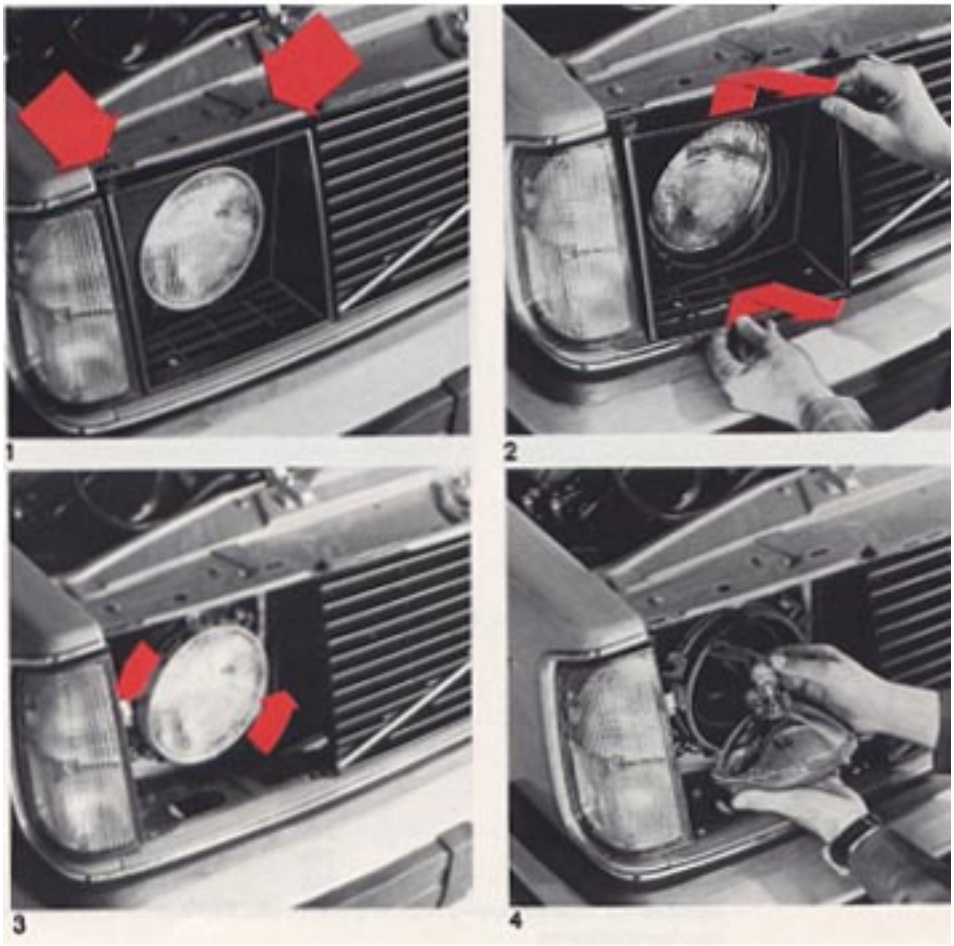
5 If any electrical welding work is performed on the vehicle, the ground lead and all the connecting cables of the alternator must be disconnected and the welder wires placed as near the welding point as possible.

Replacing bulbs
The replacement of bulbs in the various lighting units is shown on the following pages. Make sure when installing bulbs, that the guide pin on the socket fits into its corresponding recess.
When installing bulbs, do not touch the glass with your fingers. The reason for this is that grease, oil or any other impurities can be carbonized onto the bulb and damage the reflector.

Replacing bulbs for instrument lighting and heater control lighting
Due to the location of the bulbs, their replacement should be carried out by a Volvo dealer.

Replacing bulbs for side marker lights
Remove the two Phillips screws which hold the lens. The bulb can now be removed by pressing it inwards and turning it slightly counterclockwise.

pg. 61 Replacing bulbs



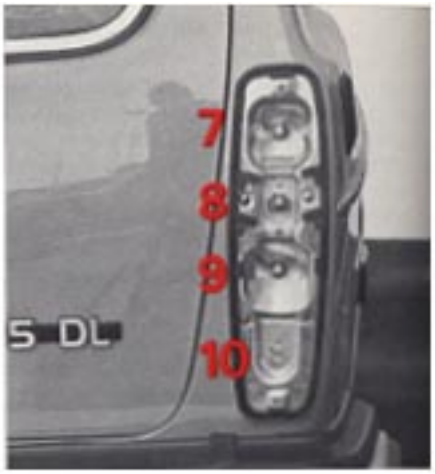
Replacing sealed beam headlamp units

1. Press the two plastic screws down and turn them 1/4 turn and remove them.
2. Lift up the rim slightly and remove it forwards.
3. Turn the chromed ring slightly counterclockwise. Remove the chromed ring and lift out the headlamp unit.
4. Disconnect the socket contact.

Installation is done in the opposite way. Check that chromed ring is retained by all four clips.

Check headlight alignment.

pg. 62 Replacing bulbs



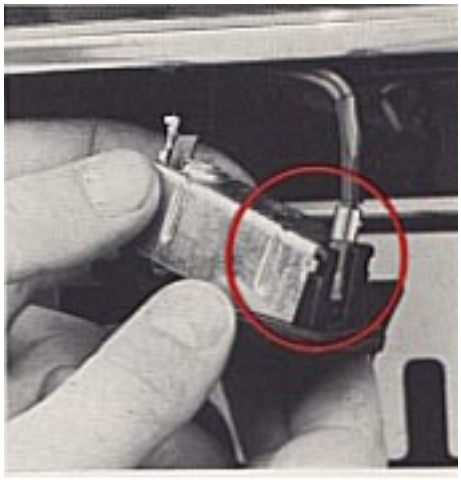
		Power W/cp	Socket	US bulb No
1 Front position, side marker light	242, 244, 245	5/4	Ba 15 s	67
2 Front turn signal	242, 244, 245	21/32	Ba 15 s	1073
3 Rear turn signal	242, 244	21/32	Ba 15 s	1073
4 Back-up light	242, 244	21/32	Ba 15 s	1073
5 Tail light	242, 244	5/4	Ba 15 s	67
6 Stop light	242, 244	21/32	Ba 15 s	1073
7 Rear turn signal	245	21/32	Ba 15 s	1073
8 Back-up light	245	21/32	Ba 15 s	1073
9 Stop light	245	21/32	Ba 15 s	1073
10 Tail light	245	5/4	Ba 15 s	67

Remove the Phillips screws retaining the lenses. Replace bulb by slightly depressing and turning counterclockwise.

pg. 63 Replacing bulbs

License plate light

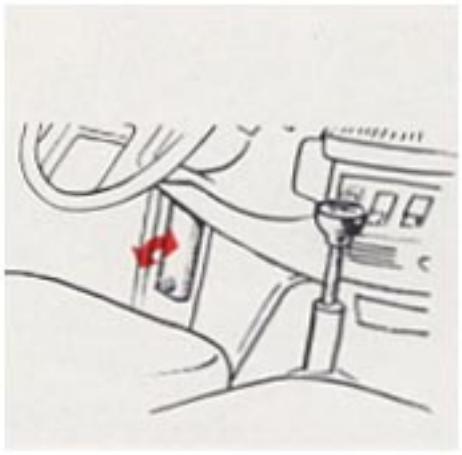
Insert a screwdriver through the opening in the housing and depress the catch tab.
Pull out the housing assembly.



Pull out the cover end which is not provided with a lock pin.
Replace bulb.
When re-installing, first locate the lock pins (see picture) and then press on the cover.
Check that the rubber gasket is positioned and press the housing assembly into place.

Interior light
Insert a screwdriver through the opening in the right side of the housing and depress the catch tab. Pull down the housing assembly and replace the bulb.

pg. 64 Fuses



Replacing fuses
The fuse box is positioned in front of the left front door pillar.
The cover is removed by turning the small knob at the bottom a 1/4 turn.
When replacing fuses, check that right amperage is used.
Never use fuses of higher amperage. If one fuse often melts take the car to your Volvo dealer for fault-tracing.
Reading downwards the fuses protect the following:

1 Lighter, Rear wiper/washer	8 A
2 Windshield wiper/washer, Heater fan, Horn	16A
3 Rear demist, Overdrive	16A
4 Glove compartment light, Back up lights, (El. heated seat), Air conditioning	8A
5 Instrument, Turn signals, Warning lights, Relay, fuel injection system, (Seat belt warning)	8A
6 Hazard, Engine compartment light	8A
7 Clock, Fuel pump	8A
8 Stop lights, interior light	8A
9 Buzzer ignition switch	8A
10 Spare	8A
11 Left parking and side marker, (Rear fog lights)	8A

12 Right parking and side marker lights, Instrument and panel lights, Seat belt light, Ash tray light, Shift positions light	8A

pg. 65 Wheels and tires

General
The car is equipped with pressed steel wheels.

If possible, the wheels should always be used on the same side throughout their lifetime. This is particularly important for studded winter tires, otherwise the studs may loosen and come off.

Snow tires
Studded snow tires should also have a running-in period of between 300-600 miles (500-1,000 km). During this period try to avoid driving hard round bends and at high speeds, also hard braking and acceleration.
Radial type tires, with or without studs are recommended for winter use.
Tire **chains** can be used on the rear wheels only providing that the chains are **finelinked** and do not project so much from the tire that they can rub against the brake caliper or other components.
Strap-on emergency chains must not be used since the space between the brake calipers and the wheel rims does not allow sufficient clearance.

Check tire wear pattern
Check the tires at regular intervals for damage and abnormal wear, also for particles which can become imbedded in the tread. Have them balanced if necessary. Poorly balanced wheels will rapidly increase the wear on the tires and affect riding comfort.

To observe when replacing wheels
To avoid re-balancing, mark and re-install wheels in the same location and same position as before removal.

Tire 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" (1.5 mm) is left on the tread, these strips show up and warn the car owner that the tire should be replaced.

Check tire pressure
Check the tire inflation pressure regularly when refueling. See page 85 for the correct tire pressure.
When driving, the tire temperature and pressure rises in relation to the speed of the vehicle and its load. **Normally the pressure should only be checked when the tires are cold**. When the tires are warm, a change in pressure should take place only when air must be added into the tires.
Excessively low tire pressure is one of the most common reasons for tire wear. Tires which are

insufficiently inflated will increase the required steering effort and cause higher fuel consumption. Too high air pressure tends to affect the riding comfort.

pg. 66 Wheel changing

Changing a wheel
The spare wheel, jack and tool kit are stowed in the trunk compartment. When the car is to be raised up, the jack should be on level, firm ground.

Avoid creeping under the car when it is raised by the jack. There is a risk that the car may slide off the jack, especially if the ground is soft.

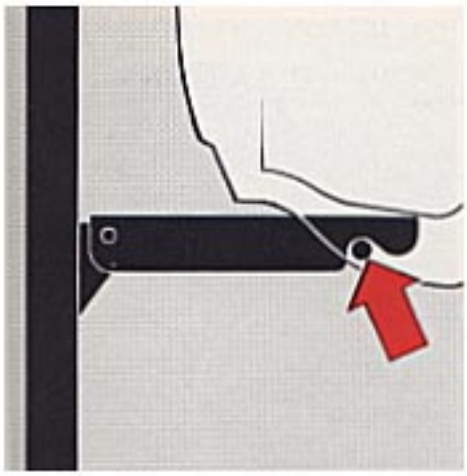
Before the vehicle is raised up, the parking brake should be applied and one of the gears engaged.
Also block one of the wheels standing on the ground.
With automatic transmission, the selector should be in Park.

Removing
Remove the wheel cap with the screwdriver provided in the tool kit.

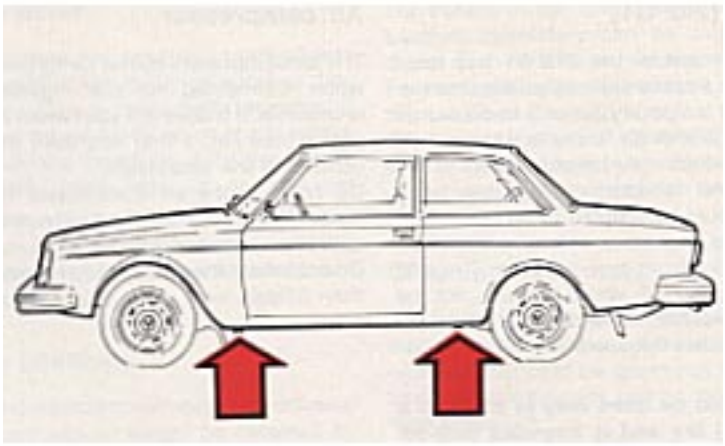
Loosen the wheel nuts 1/2-1 turn with the wrench provided in the tool kit. All of the wheel nuts have right hand threads which can be loosened by turning the wrench counterclockwise.

Insert the lifting arm of the jack into the appropriate jack attachment next to the wheel to be changed.

pg. 67 Wheel changing



Make sure the arm goes in all the way.
Raise up the side of the car high enough to lift the wheel off the ground.



Unscrew the wheel nuts completely and remove the wheel. Be careful when removing the wheel that the stud threads are not damaged.

Installation

- Clean the contact surface between wheel and hub.
- Install the wheel.
- Tighten the nuts until the wheel makes good contact with the flange.
- Lower the vehicle and tighten the nuts alternately. (Tightening torque: 72-100 ft. lbs.)
- Fit the wheel cap.

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

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pg. 68 Washing, cleaning

Washing
The car should be washed at regular intervals since dirt, dust, insects and tar spots adhere to the paint and may cause damage. During the winter, special care should be observed to wash off all road salt residue as soon as possible in order to prevent corrosion.

When washing the car, do not expose it to direct sunlight. Soften up the dirt on the underside with a water hose. Then rinse the entire body with a light spray until the dirt has loosened. Wash the dirt off with a sponge, using plenty of water. Use preferable luke-warm water.
A detergent can be used to facilitate washing.
Special detergents are now available on the market - even household detergent can be used.
A water soluble grease solvent may be used in cases of sticky dirt. However, use a washplace equipped with a drainage separator.
A suitable mixture is about 1 1/2 - 3 1/2 fl. oz. (5-10 cl) of fluid dish washer to 2.6 US gals. =2.2 Imp. gals (10 liters) of water. Asphalt spots and tar pittings can easily be removed with kerosene or Tar Removers but this should be done after washing. When a detergent is used, the car should be rinsed with clean water.
Then dry carefully with a soft clean chamois cloth. Use a separate chamois cloth for windows. Using the same chamois cloth can cause greasy smears on the windows. When washing the car, remember to clean the drain holes in doors and bottom rails.

Chromed parts
Chromium-plated and anodized parts should be washed with clean water as soon as they become dirty. This is particularly important if you drive on gravel roads or on roads where salt is used during the winter. After the car has been washed, apply wax or an anti-rust preparation.
Stains on chrome trim can be removed with commercially available chrome cleaner. Do not use abrasive compounds or steel wool.

Polishing (waxing)
Polishing and waxing are not necessary unless a glossy surface can no longer be obtained by normal car washing.
Normally, polishing is not required during the first year after delivery, however, waxing may be beneficial.
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.

pg. 69 Cleaning

Cleaning the upholstery
The upholstery in your Volvo is a combination of fabric and plastic or leather and plastic.
Generally 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 stain remover.
The **plastic** in the upholstery can be washed with a mild detergent or in more difficult cases with a household detergent.
Leather upholstery can be cleaned with a damp cloth or with saddle soap.
For more difficult spots, consult an expert for the choice of cleaning agent.
On no account must gasoline, naphtha or similar cleaning agents be used on the plastic or the leather since these can cause damage the plastic and leather.

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

Rubber mats can be washed with household detergent and rinsed off with water.

Anti-rust treatment
Your Volvo has been rust protected at the factory. On external surfaces a heavy coat of wear resistant material has been used, while on the internal surfaces a lighter rust protector is used.
The exterior rust protection should be inspected regularly or at least once per year. If the rust protection has been penetrated a repair should be made as soon as possible to prevent moisture from creeping between the metal and coating. Carefully clean and remove any rust prior to repair of the rust protective coating.
The internal rust protection should normally be renewed first time after 36 months and then at least every 24th month.

pg. 70 Paint touch-up

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

Note: Use the paint code which you will find on the Vehicle Designation plate on the wheel housing

when ordering touch-up paint from your Volvo dealer.

Minor stone chips and scratches
Material:
Primer - brush on type
Surface finish - brush on type
(The paint pen head also contains grinding paste for subsequent treatment.)
Penknife or similar
Brush

Note: When touching-up, the car should be well cleaned and dry and have a temperature above +15°C (60°F).

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

Deep scratches down to the bare metal:
1 Scrape or sand the damaged surface lightly and break the edges of the scar.

2 Apply the rust remover. (watch eyes and skin!), wait a few minutes and then rinse carefully with water.
3 Thoroughly mix the primer and apply it with small brush or match.

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

pg. 71 Paint touch-up

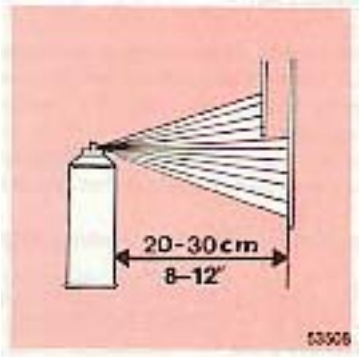
5 If there is a longer scratch, you may want to mask to protect surrounding paint.

Touching-up flaking fender edges and sills
Material:
Primer - spray
Surface finish - spray
Sand paper (H 150 - 300 grit)
Thinner

Note: When touching-up the car, it should be well cleaned and dry and have a temperature exceeding +15°C(60°F).

Mask with tape and paper prior to painting larger surfaces. Remove the masking immediately after application of the last paint coat, before the paint starts to dry.
Touching-up is as follows:
1 Remove paint flakes.
2 Sand the damaged surface and wash it clean with thinner.
Apply the rust remover. (watch eyes and skin!), wait a few minutes and then rinse carefully with water.

3 Shake the spray can for at least 1 minute. Spray on the primer. Move the can slowly and evenly forwards and backwards over the spot and about 20-30 cm (8-12 in.) from the surface. Protect the surrounding surfaces with suitable paper.



4 When the primer has dried, apply the surface enamel in the same way. Spray on several times and allow the paint to dry a minute or so between each application.

pg. 72 Long distance trips

Prior to a long distance trip
Have your car checked at a Volvo dealer. Preventive maintenance will alleviate undue breakdown. Take along a Volvo dealer directory.
The main items to check are listed below:
1. Brakes, front wheel alignment and steering gear.
2. Engine running condition.
3. Fuel system operation.
4. Oil levels.
5. Cooling system. Check for leaks or doubtful hoses.
6. Tires. Replace worn tires.
7. Battery. Clean terminals.
8. Tool equipment.
9. Lighting.
10. Drive belts for tightness and wear.

pg. 73 Cold weather

During the fall have your Volvo dealer winterize your car.

Engine cooling system
A good quality anti-freeze/summer coolant should be used all the year round. The cooling system should always contain water plus anti-freeze and rust inhibitor, even during the summer. Experience has also

shown that extremely weak anti-freeze solutions (10-25 percent) are very unfavorable from the point of view of rust protection. For this reason, the quantity of anti-freeze/summer coolant should amount to about 50 percent of the solution, that is 5.0 US qts. = 4.3 Imp qts = 4.8 liters, this lowers the freezing point to -31° F (-35° C).
Alcohol must not be used as an anti-freeze agent since it evaporates at normal engine temperature.

Engine fuel system
During the wintertime with large variations in temperature, condensation forms in the fuel tank and can impair the running of the engine. This can be eliminated by adding special additives to the fuel. There is less risk of condensation forming in the fuel tank if it is kept full.

Engine lubricating system
During the winter, multigrade oil 10W-40 should be used in the engine. At very low temperatures (below 0° F), multigrade oil SAE 5W-20 or SAE 5W-30 is recommended. These oils reach the lubricating points in the engine more easily at low temperature and also facilitate cold starting. See page 48.

Electrical system
The electrical system in the vehicle is subject to great stresses during the winter than during the warm summer months, because the electrical equipment and starter motor are used more often. Since the capacity of the battery is also considerably lower at low air temperature, it should also be checked more often and, if necessary, charge the battery. If the battery voltage is excessively low, it may become damaged by frost.

Brake system
During cold weather the brakes are subject to splash and condensation which can result in the parking brake freezing up if applied for long periods of time. Use of first or reverse gear on a manual transmission or position "P" on an automatic transmission is preferable during these conditions. See page 39.

Windshield washers
Anti-freeze should also be added to the water container for the windshield (rear window) washer. This is particularly important during the winter because the windshield frequently becomes dirty and is often splashed with water which rapidly freezes and thus necessitates the frequent use of the windshield washer and wipers. Your Volvo dealer can supply you with suitable anti-freeze for this purpose.

Anti-freeze for door locks
Lubricate the outside locks with a suitable anti-freeze. Such agents are commercially available and should be used before the first frost.

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pg. 75 Service diagnosis

The diagnosis outlined below is only intended to serve as a guide to locate and temporarily correct minor faults. Causes of unsatisfactory performance should be investigated and corrected by your Volvo dealer.
NOTE: The points indicated by an asterisk (*) should be checked by your Volvo dealer.

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

Possible cause	Correction
Weak battery or dead cell.	With the ignition switch in the "Driving" or "On" position, check to see if the warning lights on the dashboard come on and if they stay on when the starter is engaged. If the lights do not come on or if they go off when the starter is engaged, the battery is discharged or see below.
Loose or corroded battery cable terminals.	Check battery terminals and clamps, clean or replace if necessary. Check that the starter cable is tightened. The ground strap, which connects the body to the rear of the engine, should also be checked for corrosion or looseness.
Open circuit between ignition/starter switch and ignition terminal on starter.	The circuit is closed if a clicking sound is heard from the starter when it is engaged. If no clicking sound is heard, check that the blue wire at the starter is tightened. If still no clicking sound is heard, the ignition switch or the wire is defective.
Starter motor defective.	If the above checks have been performed, and no fault is evident, the starter may be defective.
	NOTE: In this case the headlight intensity will not dim when the starter is engaged.

pg. 76 Service diagnosis

Condition: Starter motor operates but engine does not start

Possible cause	Correction
Intake system leaking.	Check that the flexible air intake hose, connecting the air cleaner and intake manifold is tight and not damaged.
No fuel reaching engine.	Check for fuel in the tank. Check fuses No 7.
No spark.	Remove one spark plug wire and unscrew the radio interference suppressor. Hold the wire approx. 3/8" from the valve cover and run the starter. If there is no spark, check: that the high tension lead from the coil to the distributor cap is connected and that the wires to the distributor and coil are connected.
Spark plugs, high tension leads or distributor cap worn (defective).	Clean the parts with a dry cloth or spray with a moisture remover.
Cold start injector out of order.	Test the cold start injector function with cold and hot engine.*
Rest pressure incorrect.	Test rest pressure and the fuel system for leaks.*
	If no fault is found following the above steps, contact your Volvo dealer.

pg. 77 Service diagnosis

Condition: Erratic idle (misfiring)

Possible cause	Correction
Intake system leaking.	Check that the flexible air intake hose, connecting the air cleaner and intake manifold is tight and not damaged.
Exhaust Gas Recirculation Valve leaking.	Test the valve function.*
Spark plugs, high tension leads or distributor cap worn (defective)	Clean distributor cap and leads, check the cap for cracks.
Worn spark plugs.	Remove, clean or replace spark plugs.
Cold start injector leaking.	Test the injector function.*
Uneven compression.	Test compression.*

Condition: Engine stalls at irregular intervals

Possible cause	Correction
Defective wires.	Check wire terminals at: fuel pump, fuse No. 7, coil, distributor, ignition switch, relays and air flow sensor.
Intake system leaking.	Check that the flexible air intake hose, connecting the air cleaner and intake manifold is tight.
Low idle.	Adjust.*
Fuel filter clogged.	Clean fuel tank filter and replace line fuel filter.
Exhaust Gas Recirculation Valve seizing.	Replace valve.* (Engine will stall at idle.)

pg. 78 Service diagnosis

Condition: Low top speed, loss of power

Possible cause	Correction
Air filter clogged.	Check air filter.*
Throttle misadjusted.	Check that the throttle touches the high speed stop when the accelerator is fully depressed.*
Fuel filter clogged.	Clean fuel tank filter and replace fuel line filter.*
Incorrect timing or dwell angle.	Check and adjust.*

Condition: Excessive fuel consumption

Possible cause	Correction
Fuel lines leaking.	Check tightness.
Spark plugs worn.	Replace plugs.
Incorrect timing.	Check/adjust.*
Air filter clogged.	Check/replace.*
Control pressure incorrect.	Check/replace control pressure regulator.*

Cold start injector leaking.	Replace injector.* (A leaking cold start injector also causes uneven idle and hard starting.)

pg. 79 Service diagnosis

Condition: Dieseling

Possible cause	Correction
Injector leaking.	Check air flow sensor plate and rest pressure.*

Condition: Misfiring at highway driving speed

Possible cause	Correction
Spark plugs fouled.	Drive the vehicle in a lower gear and keep the engine rpm higher for a few miles in order to remove carbon deposit on the spark plugs. If this procedure is not effective, clean or replace the spark plugs if necessary.

Condition: Deceleration backfiring

Possible cause	Correction
Diverter valve faulty.	Check diverter valve operation.*

pg. 80 Specifications

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

1 V.I.N. (Vehicle Identification Number)
V.I.N. plate is located on the body on the left windshield pillar. The V.I.N. is also stamped on the right hand door pillar.

2 Vehicle Emission Control Information

Your Volvo has been built to comply with all North American safety and anti-pollution regulations and evidence of this can be verified from the certification labels on the left wheel valance. For further information regarding these regulations, please consult your Volvo dealer.

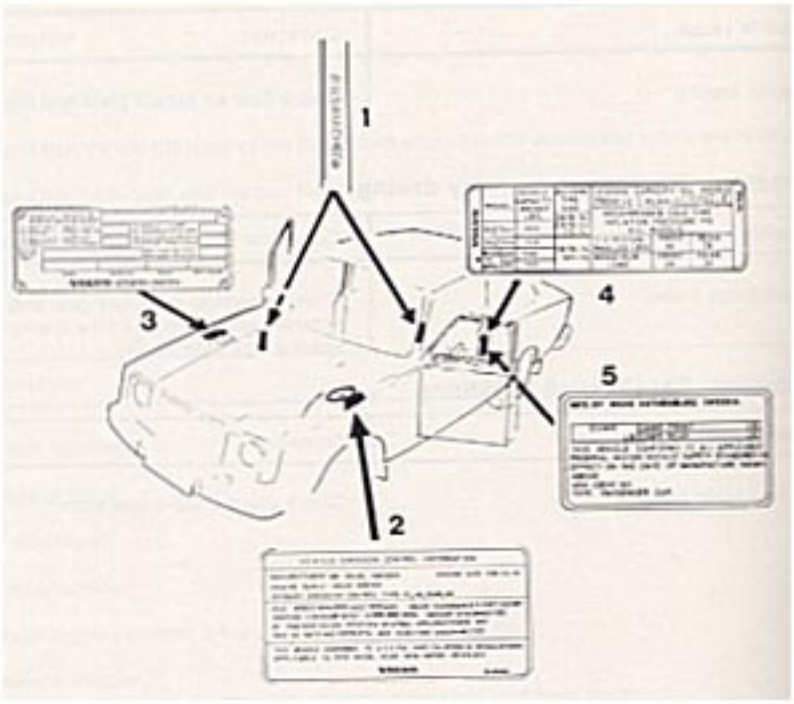
3 Model Plate

Vehicle Identification Number (VIN), Version Identification Code (VIC) with information on engine type, emission equipment, etc, codes for color and upholstery, GVW: on wheel valance.

4 Loads and Tire Pressures

5 FMVSS specifications

These two labels are located on the left front door opening.



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VOLVO
242, 244, 245

pg. 81 Specifications

Dimensions and weights	**242**	**244**	**245**
Length	192.6" (489 cm)	192.6" (489 cm)	192.6" (489 cm)
Width	67.3" (171 cm)	67.3" (171 cm)	67.3" (171 cm)
Height, curb weight	56.5" (144 cm)	56.5" (144 cm)	57.5" (146 cm)
Wheelbase	104.0" (264 cm)	104.0" (264 cm)	104.0" (264 cm)
Ground clearance (full load)	4.9" (12.5 cm)	4.9" (12.5 cm)	
Track, front	56.3" (143 cm)	56.3" (143 cm)	56.3" (143 cm)
Track, rear	53.5" (136 cm)	53.5" (136 cm)	53.5" (136 cm)
Turning circle (between curbs)	32.5' (9.8 m)	32.5' (9.8 m)	32.5' (9.8 m)
Curb weight (depending on type)	2844-3060 lbs (1291-1389 kg)	2886-3106 lbs (1310-1410 kg)	3071-3271 lbs (1394-1485 kg)
Gross vehicle weight (GVW)	4030 lbs (1830 kg)	4030 lbs (1830 kg)	4300 lbs (1950 kg)
Capacity weight	920 lbs (420 kg)	920 lbs (420 kg)	1120 lbs (520 kg)
Permissible axle weight, front	1885 lbs (855 kg)	1885 lbs (855 kg)	1885 lbs (855 kg)
Permissible axle weight, rear	2180 lbs (990 kg)	2180 lbs (990 kg)	2600 lbs (1180 kg)
Max. trailer weight	2000 lbs (908 kg)	2000 lbs (908 kg)	2000 lbs (908 kg)
Max. hitch load	160-200 lbs. (75-90 kg)	160-200 lbs. (75-90 kg)	160-200 lbs. (75-90 kg)

Cargo Space	**245**
Length with rear seat up	44.5" (113 cm)
Length with rear seat down	74.0" (188 cm)
Maximum width	53.1" (135 cm)

Height	32.7" (83 cm)
Volume with rear seat up	42 cu. ft. (1.2 m3)
Volume with rear seat down	71 cu. ft. (2.0 m3)
Cargo opening, maximum width	45.7" (116 cm)
Cargo opening, maximum height	30.7" (78 cm)

Capacities

Fuel tank	15.8 US gals/13.2 Imp. gals. 60 liters
Cooling system	10 US qts/8.5 Imp. qts 9.5 liters (of which expansion tank = 1 US qts/0.5 Imp. qt. (0.6 liter))
Oil capacity:	
- engine, oil change	3.5 US qts/3.0 Imp. qts. (3.35 liters)
- engine, incl. oil filter	4.0 US qts/3.4 Imp. qts. (3.85 liters)
transmission(M45)	0.8 US qts /0.7 Imp. qts. (0.75 liters)
(M46)	2.4 US qts/2.2 Imp. qts. (2.3 liters)
(BW 55)	7 US qts/5 Imp. qts. (6.5 liters)
rear axle	1.4 US qts/1.2 Imp. qts. (1.3 liters)
steering gear, power	0.8 US qts/0.6 Imp. qts. (0.7 liters)

pg. 82 Specifications

ENGINE

4-cylinder in-line liquid-cooled gasoline engine. Cylinder block in special cast iron. Bores directly in the block.
Cylinder head in light-alloy. Separate inlet and exhaust passages.
Single, overhead camshaft.
Engine lubrication is provided by a gear pump driven from the crankshaft. Full-flow type oil filter.
Exhaust emission control accomplished by fuel injection. Air Injection Reactor and Exhaust Gas Recirculation (some models also equipped with catalytic converter). Closed crankcase ventilation system and evaporative emission control system.

Type designation	**Volvo B21 F**
Output (SAE J 245) at/rpm	102 hp[1)]/5200

Max. torque (SAE J 245) at/rpm	114 ft.lbs. (163 Nm)/2500
Number of cylinders	4
Bore	3.62" (92 mm)
Stroke	3.15" (80 mm)
Displacement	2.13 liters
Valves	overhead
Valve clearance, inlet and exhaust at normal operating temp.	0.012-0.020" (0.30-0.50 mm) when checking 0.010-0.018" (0.40-0.45 mm) when adjusting

1) With catalytic converter: 99 hp

Cooling system

Type:	Positive pressure, closed system
Thermostat begins to open at	189°F (87°C)
fully open at	207°F (97°C)
Fan belts, designation	HC-38 X 925

Fuel system

The engine is equipped with fuel injection system.

pg. 83 Specifications

Ignition System

Firing order 1-3-4-2

Ignition setting, vacuum regulator disconnected, at 750 rpm

US models (VIC 453 and 459)	12°+/-2°
Canada models (VIC 452 and 455)	15°+/-2°
Spark plugs	Volvo Part No. 273545 (Bosch W 175 T 30*)
Spark plug gap	0.028-0.032" (0.7-0.8 mm)
Tightening torque	14.5-21.7 ft. lbs. (20-30 Nm)
Distributor, direction of rotation	Clockwise

ELECTRICAL SYSTEM

12 V, negative ground.

Voltage-controlled alternator.

Single-wire system with chassis and engine used as conductors.

Voltage	12 V
Battery, type	Tudor 6 EX 45 o.p. *
-Capacity	60 Ah
-Electrolyte, specific gravity	1.28
-Recharge at	1.21
Alternator , rated output	770 W
- max. current	55 A

* or corresponding

Lights, 12 V	**US bulb No.**	**Power**	**Socket**	**No. of bulbs**
Headlights	7" Type 2	Sealed Beam		2
Position Lights, front	67	5 W/4 cp	Ba 15s	2
Turn Signals, front	1073	21 W/32 cp	Ba 15s	2
Turn Signals, rear	1073	21 W/32 cp	Ba 15s	2
Tail lights	67	5 W/4 cp	Ba 15s	2
Stop Lights	1073	21 W/32 cp	Ba 15s	2
Back-up Lights	1073	21 W/32 cp	Ba 15s	2
Side Marker Lights	57	3 W/2 cp	S 8.5	2
The following bulbs may be obtained from your nearest Volvo dealer.				
Rear ash tray Light		1.2 W	W1.8d	1
License Plate Light		5 W	S 8.5	2
Interior Light		10 W	S 8.5	1(245:2)
Glove Locker Light		2 W	Ba9s	1
Instrument Panel Light		2 W	Ba7s	3
Control Panel Light		1.2 W	W1.8d	3
Shift positions, Auto Transmission		1.2 W	W1.8d	1
Engine Compartment Light		15 W	S 8.5	1
Warning Lamps				

Charging	1.2 W	W1.8 d	1
Turn Signals	1.2 W	W1.8 d	2
Brake Failure	1.2 W	W1.8 d	1
Parking Brake	1.2 W	W1.8 d	1
Headlights	1.2 W	W1.8 d	1
Oil Pressure	1.2 W	W1.8 d	1
Overdrive	1.2 W	W1.8 d	1
Warning Flashers	1.2 W	W1.8 d	1
El. Heated Window	1.2 W	W1.8 d	1
EGR Reminder	1.2 W	W1.8 d	1
Seat Belts	2 W	Ba9s	2
Bulb Failure	1.2 W	W1.8 d	1

pg. 84 Specifications

Front End
Suspension is of the McPherson type with the shock absorber mounted in a strut in the coil spring.
Rack and pinion steering gear.
Power steering is optional.
Safety steering column.

Front wheel alignment
The alignment specifications apply to an unloaded car but include fuel, coolant and spare wheel.
Toe-in : 3/16"= 0.17+/- 0.06" (4.5 +/- 1.5 mm)manual steering
1/8"= 0.12+/- 0.06" (3.0 +/- 1.5 mm)power steering
Camber : +1° to +1 1/2°

POWER TRANSMISSION

Cable-operated clutch on the single, dry-plate type.
Floor-shift operated manual transmission has four synchromesh forward gears and one reverse.
Overdrive available on some models.
Optional automatic transmission.
Hypoid type final drive. Limited slip differential is optional.

Clutch

Clutch release arm play approx 1/8" (3mm)

Transmission

Type designation:	**M45**	**M46**	**AW55 BW55**
Reduction ratios:			
1st gear	3.71:1	3.71:1	2.45:1
2nd gear	2.16:1	2.16:1	1.45:1
3rd gear	1.37:1	1.37:1	1.00:1
4th gear	1.00:1	1.00:1	-
Overdrive	-	0.80:1	-
Reverse	3.68:1	3.68:1	2.21:1
Rear axle			
	3.91:1	3.91:1	3.91:1

Speeds in mph (km/h) at 1000 engine rpm

Transmission:	**M45**	**M46**
Rear axle ratio	3.91:1	3.91:1
1st gear	5.0(8.1)	5.0(8.1)
2nd gear	8.6(13.9)	8.6(13.9)
3rd gear	13.6(21.9)	13.6(21.9)
4th gear	18.7(30.0)	18.7(30.0)
Overdrive	-	23.3(37.5)
Reverse	5.1(8.2)	5.1(8.2)

pg. 85 Specifications

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

Rear axle ratio	1st gear	2nd gear	3rd gear	4th gear
3.91:1	-25(-40)	10-44(20-70)	20-70(30-110)	25- (44)*

*45 mph(70 km/h) with overdrive engaged

Tool kit
Wheel nut and spark plug wrench.
2 screwdrivers (1 Phillips, 1 standard)
Tommy bar.
2 open end wrenches

Tires

Car model	Tire	Recommended tire infl. pressure cold tires, psi (kPa)				Max. permitted inflation pressure psi (kPa)	Capacity weight, lbs
		1–3 persons		Full load			
		Front	Rear	Front	Rear		
242/244	CR 78–14 / 175 R 14	26 (180)	28 (190)	26 (180)	32 (220)	32 (220)	920
	DR 78–14 / 185 R 14	26 (180)	28 (190)	26 (180)	32 (220)	32 (220)	1 095
245	DR 78–14 185 R 14	26 (180)	28 (190)	26 (180)*	32 (220)*	32 (220)	1 095

* For driving with full load, speed must be limited to 75 mph.

pg. 86 Customer information

Consumer information

Acceleration and passing ability
Vehicle stopping distance

Tire reserve load

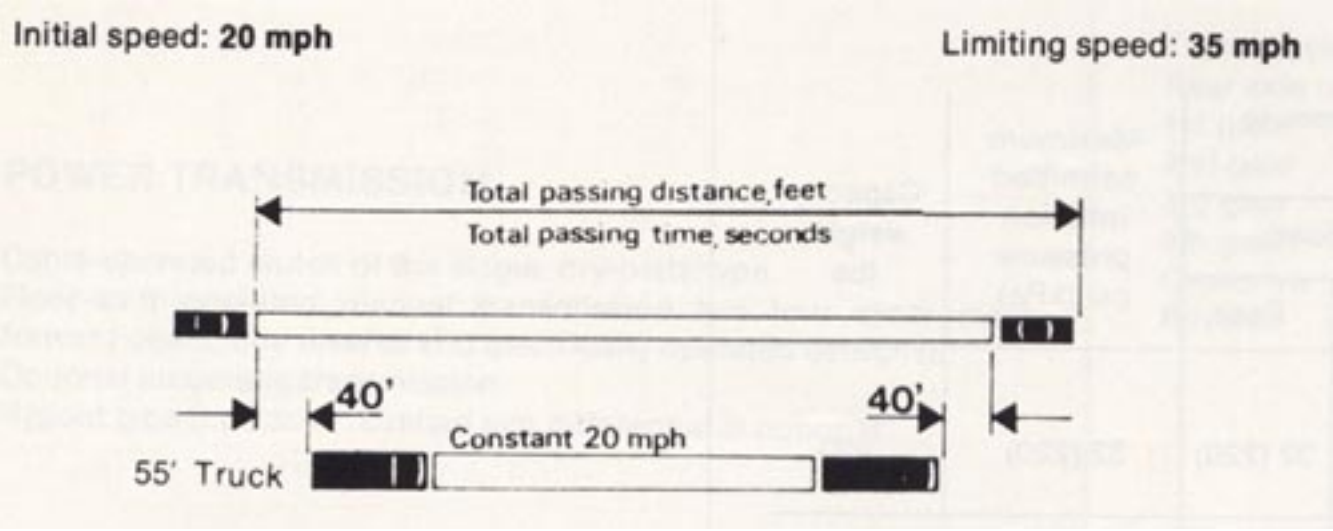
The information concerning the 1977 Volvo 242, 244 and 245 shown in the following pages is presented in accordance with Federal requirements for comparison with other makes and models. The exacting test procedures established by the National Highway Traffic Safety Administration were followed to obtain the figures.

Notice: This information represents results recorded by skilled drivers under controlled road and vehicle conditions and the information may not be applicable to other conditions.

Acceleration and Passing ability

This chart indicates passing times and distances that can be met or exceeded by 1977 Volvo 242, 244 and 245 in the situations diagramed below.

Low speed



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

Federal specification vehicles (identified by engine code numbers 451, 452 or 455 in the Version Identification Code, VIC)	Low speed	
	Feet	Seconds
242/244 Std Transmission	414	8.9
242/244 Overdrive	414	8.9
242/244 Automatic	420	9.2
245 Std Transmisson	414	8.9
245 Overdrive	414	8.9
245 Automatic	427	9.4

California specification vehicles (identified by engine code number 453 in the Version Identification Code, VIC)	Low speed	
	Feet	Seconds
242/244 Std Transmission	414	8.9
242/244 Overdrive	414	8.9
242/244 Automatic	424	9.3
245 Std Transmission	414	9.0
245 Overdrive	414	9.0
245 Automatic	427	9.4

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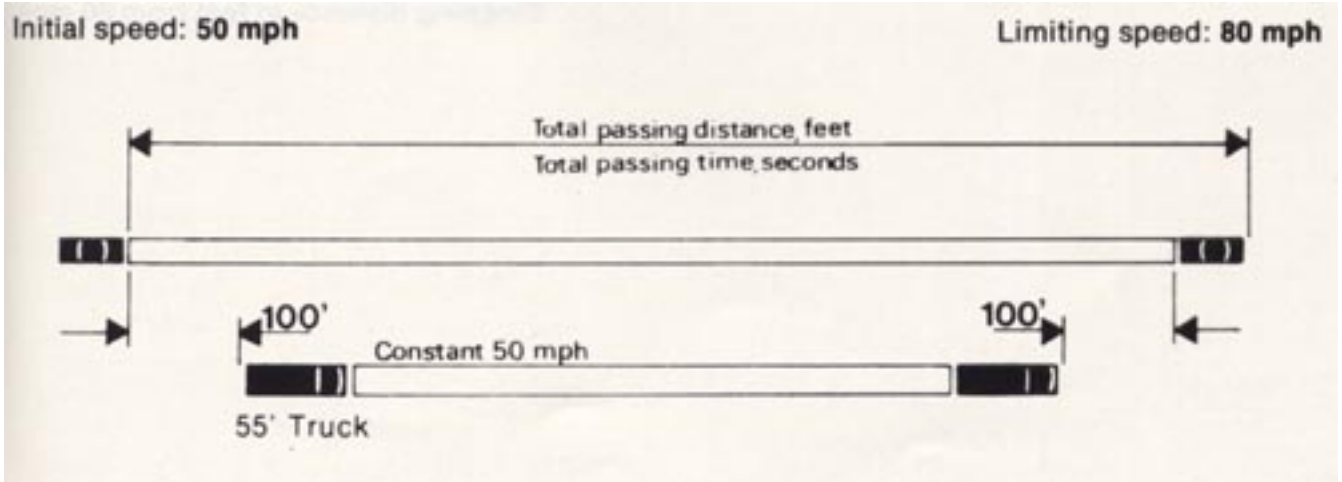
High speed

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



Federal specification vehicles (identified by engine code numbers 451, 452 or 455 in the Version Identification Code, VIC)	High speed	
	Feet	Seconds
242/244 Std Transmission	1323	14.5
242/244 Overdrive	1323	14.5
242/244 Automatic	1395	15.4
245 Std Transmission	1362	15.0
245 Overdrive	1362	15.0
245 Automatic	1418	15.8

California specification vehicles (identified by engine code number 453 in the Version Identification Code, VIC)	High speed	
	Feet	Seconds
242/244 Std Transmission	1346	14.8
242/244 Overdrive	1346	14.8
242/244 Automatic	1408	15.6
245 Std Transmission	1418	15.8
245 Overdrive	1418	15.8
245 Automatic	1467	16.1

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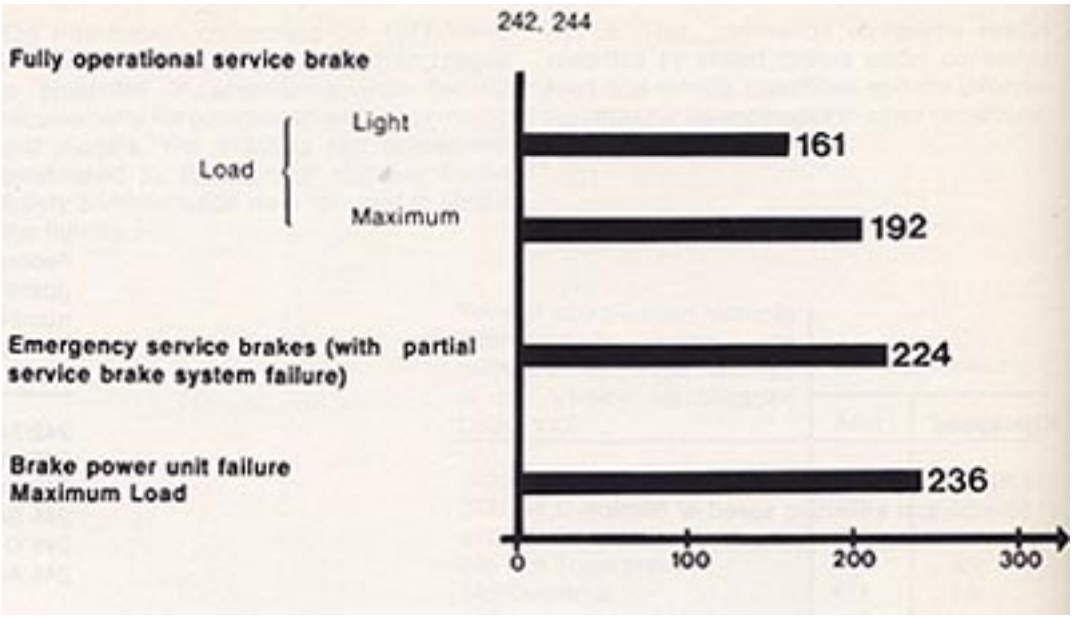
Vehicle Stopping Distance

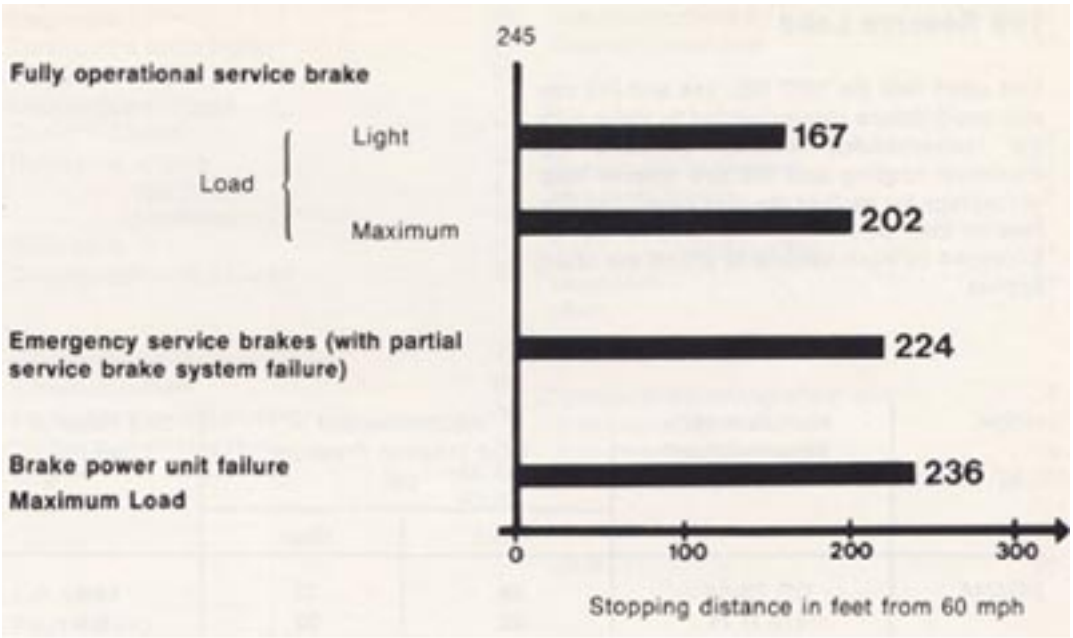
This chart indicates braking performance that can be met or exceeded by 1977 Volvo 242 and 244 without locking the wheels, under different conditions of loading and with partial failures of the braking system. This information represents results recorded by skilled drivers under controlled road and vehicle conditions. The information may not be applicable to other conditions which may be less favorable.



pg. 89 Customer information

Vehicle Stopping Distance

This chart indicates braking performance that can be met or exceeded by 1977 Volvo 245 without locking the wheels, under different conditions of loading and with partial failures of the braking system. This information represents results recorded by skilled drivers under controlled road and vehicle conditions. The information may not be applicable to other conditions which may be less favorable.



pg. 90 Customer information

Tire Reserve Load

This chart lists the 1977 242, 244 and 245 tire size designations recommended by Volvo with the recommended inflation pressure for maximum loading and the tire reserve load percentage for each of the tires listed. The tire reserve load percentage indicated is met or exceeded by each vehicle to which the chart applies.

Model	Manufacturer's Recommended Tire Size	Recommended Cold Inflation Pressure psi		Tire Reserve Load (%)
		Front	Rear	
242/244	CR 78–14	26	32	11.4
	175 R 14	26	32	8.5
	DR 78–14	26	32	17.4
	185 R 14	26	32	17.3
245	DR 78–14	26	32	1.5
	185 R 14	26	32	4.4

The difference, expressed as a percentage of tire load rating, between (a) the load rating of a tire at the vehicle manufacturer's recommended inflation pressure at the maximum loaded vehicle weight and (b) the load imposed upon the tire by the vehicle at that condition.

WARNING. Failure to maintain the recommended tire inflation pressure or to increase tire pressure as recommended when operating at maximum loaded vehicle, or loading the vehicle beyond the capacities specified on the tire placard affixed to the vehicle, may result in unsafe operating conditions due to premature tire failure, unfavorable handling characteristics and excessive tire wear. The tire reserve load percentage is a measure of tire capacity not of vehicle capacity. Loading beyond the specified vehicle capacity may result in failure of other vehicle components.

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Tire Pressures

Car model	Tire	Recommended tire infl. pressure cold tires, psi (kPa)				Max. permitted inflation pressure psi (kPa)	Capacity weight, lbs
		1–3 persons		Full load			
		Front	Rear	Front	Rear		
242/244	CR 78–14 175 R 14	26 (180)	28 (190)	26 (180)	32 (220)	32 (220)	920
	DR 78–14 185 R 14	26 (180)	28 (190)	26 (180)	32 (220)	32 (220)	1 095
245	DR 78–14 185 R 14	26 (180)	28 (190)	26 (180)*	32 (220)*	32 (220)	1 095

* For driving with full load, speed must be limited to 75 mph.

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