DEAR VOLVO OWNER!

Congratulations on your new truck and thank you for your confidence! We hope you will derive great satisfaction and benefit from your truck for many years to come.

This driver's manual contains information tailored for your particular truck. It covers the truck's equipment, care and maintenance, as well as tips for safe and fuel-efficient driving. To help you get the most out of your truck we recommend that you take advantage of our advice and tips.

A warranty booklet and a driver's service document are provided as an addition to the driver's manual and, if the truck is equipped with tachograph, there are also instructions for its use.

Additional information about your truck and its functions can be found online: http://interactiveoverview.volvotrucks.com

If you have any questions or want to know more about your truck, please contact your Volvo dealer.

Volvo Lastvagnar AB
GÖTEBORG

Volvo Action Service - 24/7 Roadside assistance

Volvo Action Service offers roadside assistance around the clock seven days a week. With support from our extensive network across Europe, we can help you with repairs to your truck and its trailer, body, refrigerator, freezer or tyres.

How to use Volvo Action Service

1. Make a phone call

If you encounter problems along the way you only need to make one phone call, regardless of whether you are in your home country or abroad*. The phone numbers are listed on the next page.

For Roadside assistance, please provide the following information:

- Vehicle details, e.g. chassis number.
- Failure symptoms, and any supporting fault codes.
- Location, preferably with GPS coordinates (if the truck is not connected).
- Payment details.

* We can speak 18 different languages

2. The Case Coordinator steps in.

You get connected to a Case Coordinator (at our multi-lingual call centres), who will be your contact during the entire case. The Coordinator also keeps you updated on the developments.

3. When we have reached agreement, the work is started.

Once we have obtained all the required information regarding the fault and secured the method of payment, we will contact the most suitable Volvo workshop to arrange for the necessary repair work to be completed.

If roadside repair is not possible at the location of your vehicle, towing will be arranged and the repair will be carried out at the workshop.

4. When the work is done.

The Case Coordinator will continue to manage the case for you until the vehicle is back on the road. Once the work is completed, the technician will contact the Case Coordinator and provide a status report.

Afterwards, your company will receive an invoice from your home dealer, unless you have agreed upon another form of payment.

Volvo Action Service telephone numbers

Call the free phone number of the country where you are currently located.

Country	Telephone number	Country	Telephone number
Austria	0800 29 89 64	Ireland	1800 55 32 07 1800 70 92 92***
Belgium	0800 159 45	Kazakhstan (to Gent)	8 800 1000 7788***** 88 002 007 766
Belarus	8 820 0321 0003**** 8 800 1000 7788*****	Luxembourg	0800 2560
Switzerland	0800 55 11 78	Norway	800 114 06
Czech Republic	0800 18 72 93	Netherlands	0800 022 52 41
Germany	0800 181 03 00	Portugal	800 80 50 32
Denmark	800 101 57	Poland	00800 321 12 01
Spain	900 99 32 47 900 98 32 51*	Romania	0800 88 65 86
France	0800 90 75 18	Russia	8 800 333 7400 8 800 100 7799*****
Finland	0800 11 32 02	Sweden	020 79 58 27
Great Britain	0800 89 88 39 0800 92 92 92**	Turkey	00800 329 13 22
Greece	00800 321 23 22	Ukraine (to Gent)	8 800 502 9710***** 800 501 194
Hungary	06800 123 61	All other countries	00 32 9 255 67 11 (Not a freephone number)
Italy	800 87 83 56		

* Should only be used by ES customers in ES.
** Should only be used by GB and IE customers in GB.
*** Should only be used by IE and GB customers in IE.
**** Can only be used on fixed phone lines, not mobile.
***** Should only used by BY, KZ, RU & UA customers in BY, KZ, RU & UA

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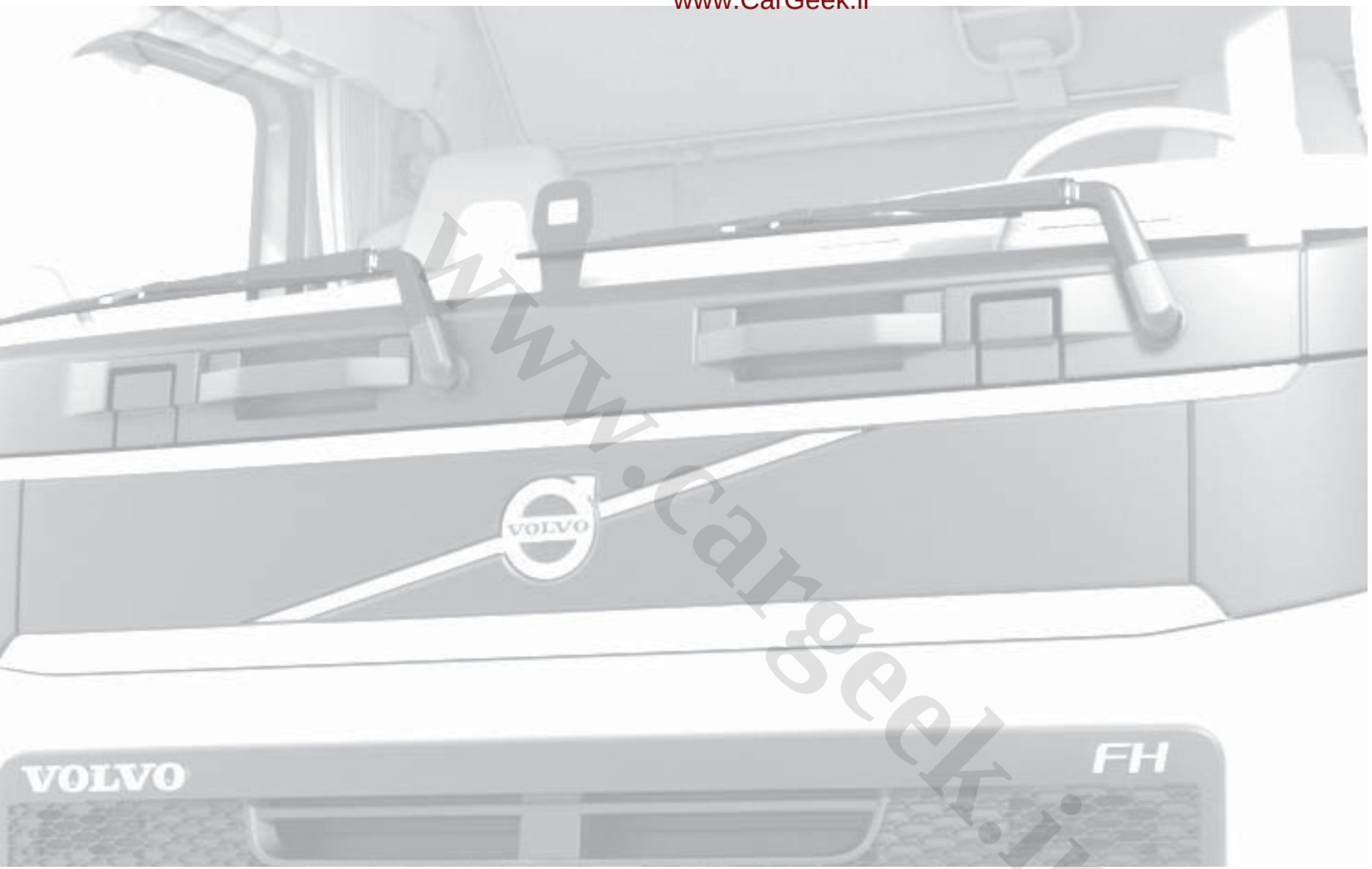


01

INTRODUCTION

Symbols

The following symbols may be found on your truck.
The meaning of the symbols is as follows:

Use protective goggles

Read information in the driver's binder

Keep out of reach of children

Corrosive

Avoid sparks or naked flame

Explosive

A 728011

Read the driver's handbook

The contents of this driver's manual are determined by the equipment, the systems and the functions that the truck has (so-called chassis control). The truck's chassis number is printed at the bottom of each page. Due to the chassis control the driver's manual applies specifically for the truck with this chassis number, and it should be stored in the truck to which it belongs.

Please read through the driver's manual before you drive the truck for the first time. This is a good way to learn more about the functions and equipment the truck has, and to be able to use them properly.

The table of contents in the front of the manual gives you an overview of the chapter structure and contents. In the alphabetical index at the back you can search directly for specific characteristics or functions.

Special texts

The driver's manual uses the following levels of observation and warning texts.

⚠ DANGER

Indicates a potentially dangerous situation that, unless avoided, will lead to death or serious personal injury.

⚠ WARNING

Indicates a potentially dangerous situation that, unless avoided, may lead to fatal injury, serious personal injury or damage to the product.

⚠ CAUTION

Indicates a potentially dangerous situation that unless avoided may lead to minor or moderate personal injury or damage to the product.

ⓘ NOTE

Indicates a situation, use or circumstance that should be emphasised.

Menu text

When the text refers to any of the menus the search path is shown in a table.

Driver Information Display

Main menu 1
↳ Submenu 2
↳ Submenu 3

LVD-system (Logged vehicle data)

The truck is equipped with an electrical system that records different types of information about the truck and how it is being used. The information that is saved concerns mileage, speed, fuel consumption, selected gear and engine speed, amongst other things.

The information is transferred to Volvo Trucks and is used for product development and quality assurance purposes. Volvo Trucks and its authorised workshops will use the information.

Questions regarding the use of the information can be directed to your Volvo workshop or Volvo's marketing company.

Running in

Drive carefully during the truck's first 5 000 km. Keep the engine speed within the green area on the tachometer.

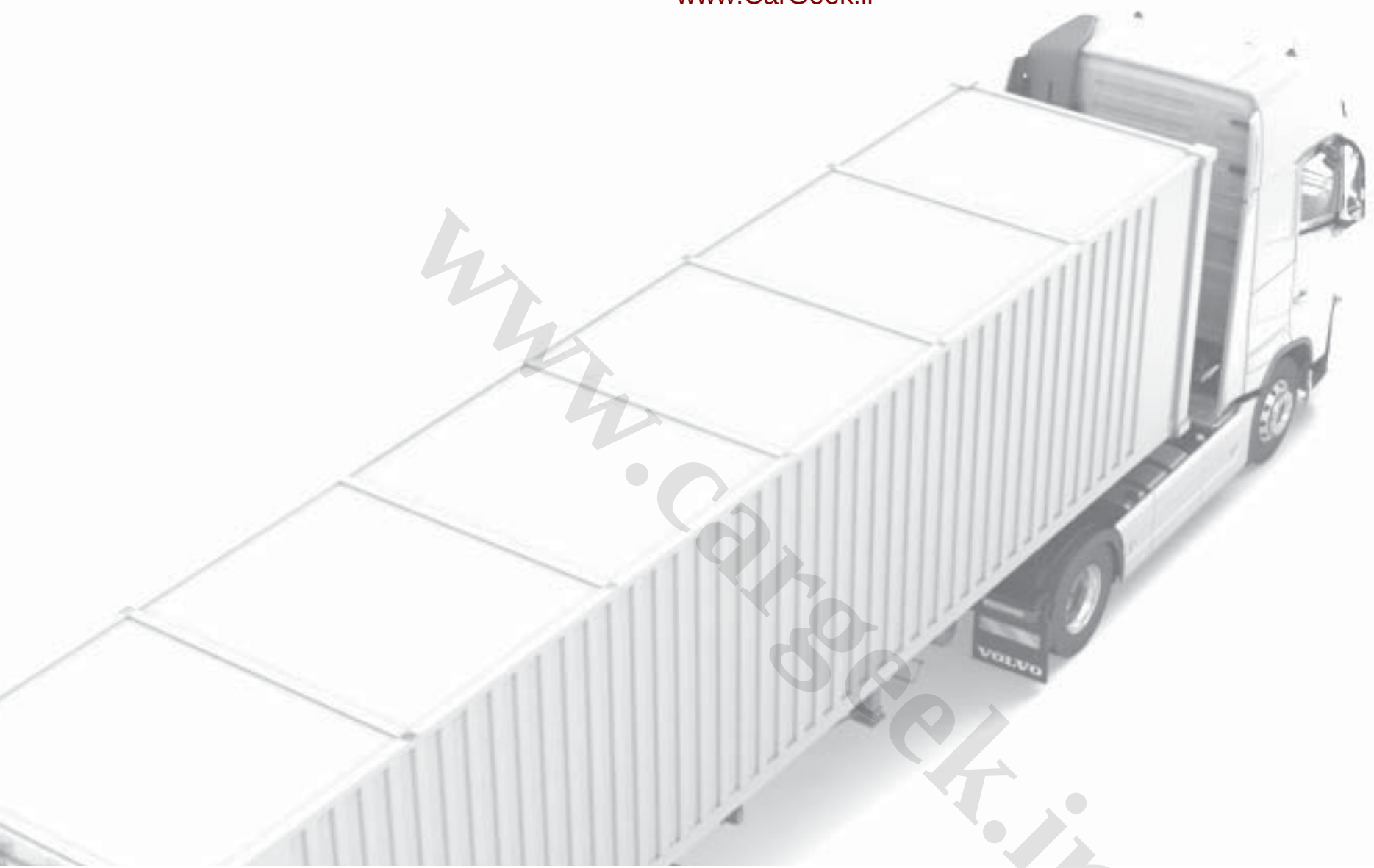
Do not drive fast with a heavy load. Keep an eye on the warning lamps!

REMEMBER to leave the truck for warranty service after 4 weeks operation or 10 000 km mileage, depending on which occurs first. (With vehicles manufactured in Europe the warranty service is only offered if they have automatic transmission, fly-wheel mounted power take-off or all-wheel drive)

All Volvo engines are test driven before delivery. This means that we have control of all inspections and decline all responsibility for any damage caused by careless driving.

ⓘ NOTE
During the first 1 500 km, the truck's power train shall **not** be subject to heavy loads, since this can cause abnormally high temperatures in gears and drives.

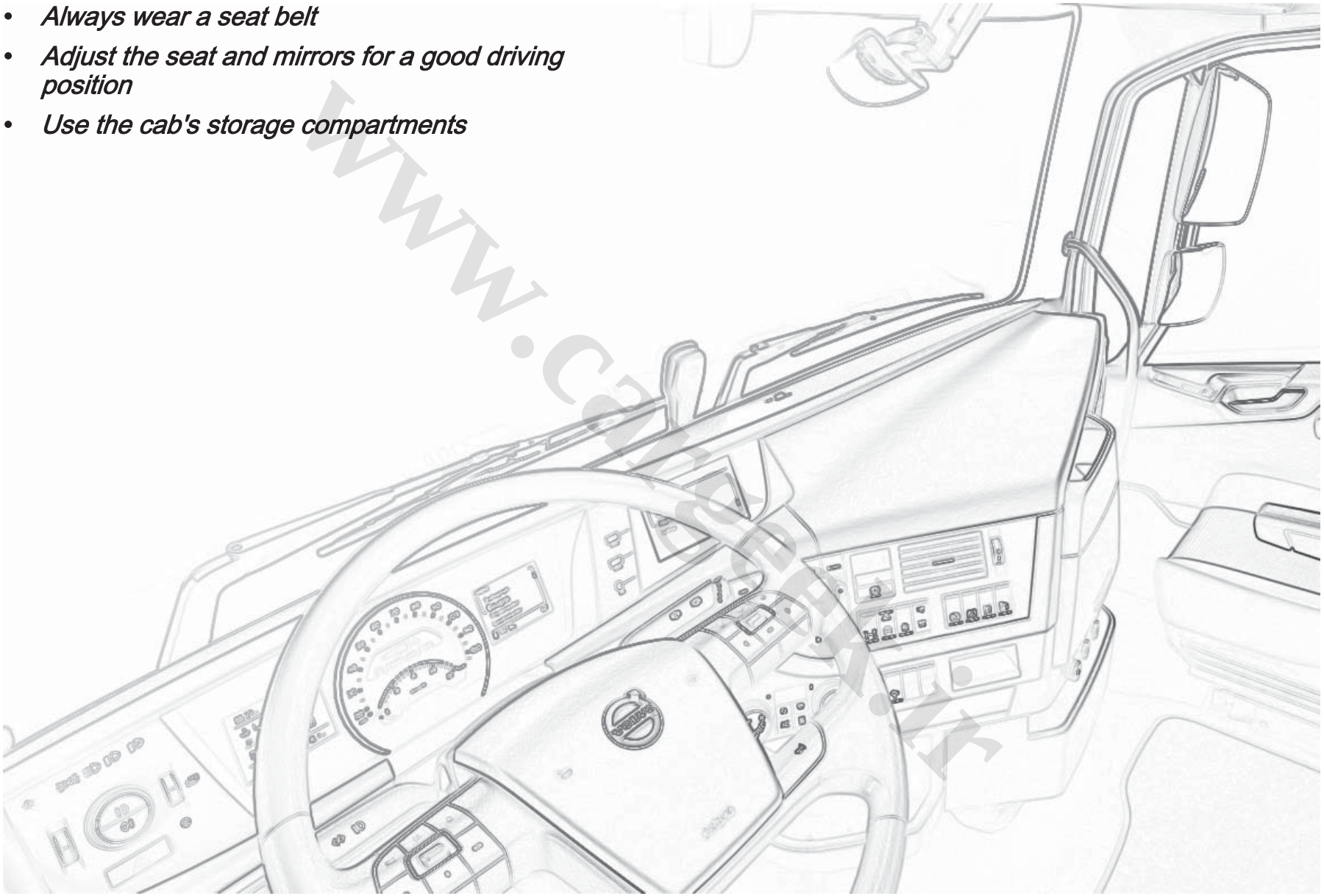
02



DRIVING TIPS

DRIVER ENVIRONMENT

- *Always wear a seat belt*
- *Adjust the seat and mirrors for a good driving position*
- *Use the cab's storage compartments*



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Driver environment

For your safety at work, always wear a seat belt. Remember that it is a legal requirement in many countries.

Driving position

It is important that you sit comfortably and have good visibility while you are driving. Arms and back must have a restful, natural posture. So please devote a little time to adjust mirrors, steering wheel and seat according to your driving position before you start to drive.

If you drive long distances then you should change your driving position at regular intervals. Remember that a reclined driving position could cause injury to your back and neck on uneven road surfaces. For this reason you should straighten the backrest and head restraint when driving on uneven road surfaces.

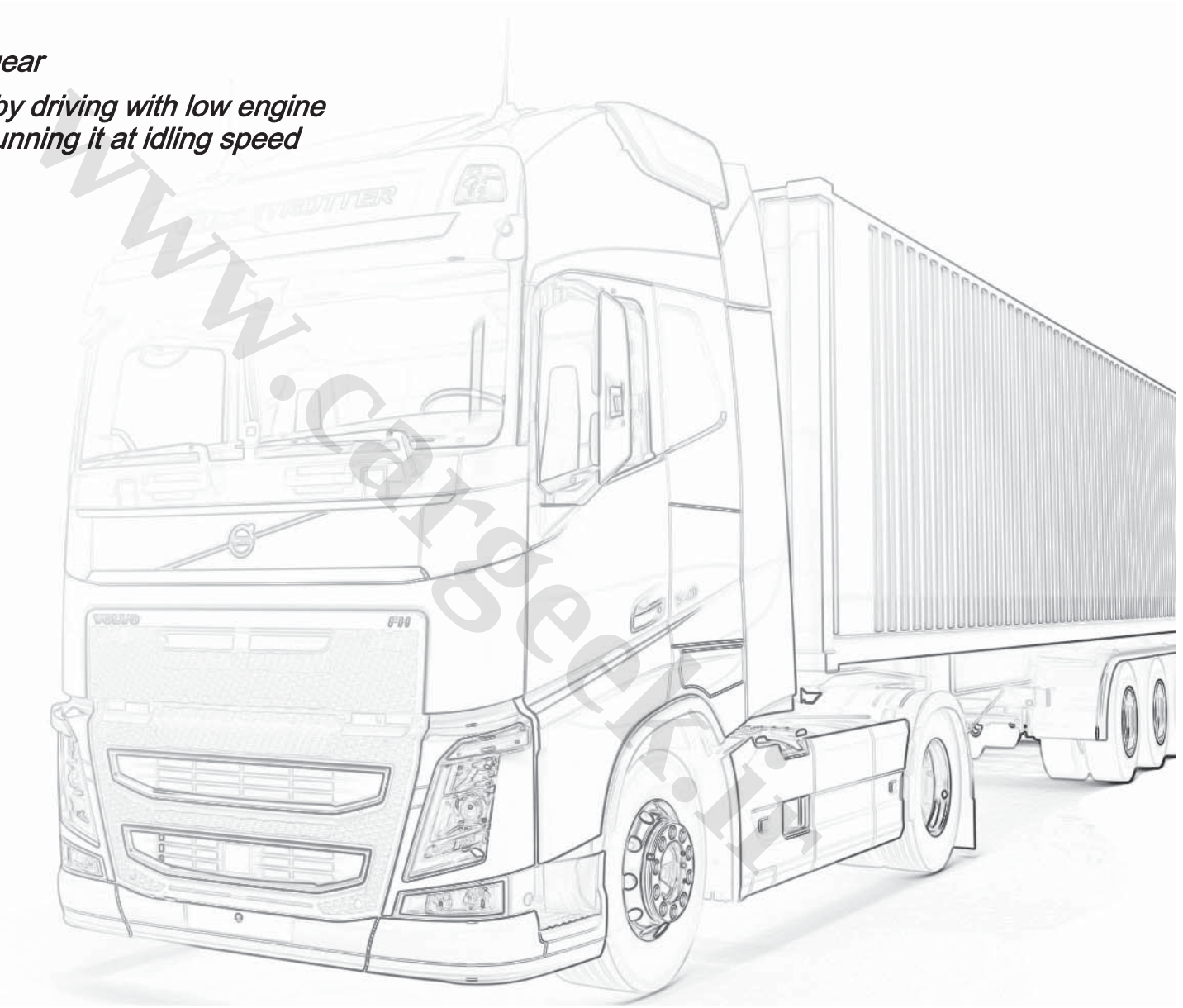
Climate system

You can use the climate system's recirculation function in order to quickly raise or lower the temperature in the cab.

Use the parking heater in order to quickly raise the temperature in a cold cab while driving.

STARTING

- *Avoid cold starting*
- *Start in the lowest gear*
- *Warm up the truck by driving with low engine speeds instead of running it at idling speed*



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Starting

When you start your truck there are several things you can do to start smart, save fuel and reduce wear on the truck.

Avoid cold starting

You can avoid cold starting by using the engine heater.

If you start with a cold engine you should switch on the air intake heating function in your truck. The engine will then be supplied with preheated air which results in an easier and more environmentally-friendly start.

Never rev a cold engine. Warm up the engine by driving gently at low engine speeds instead of letting it run at idling speed while stationary.

Starting technique

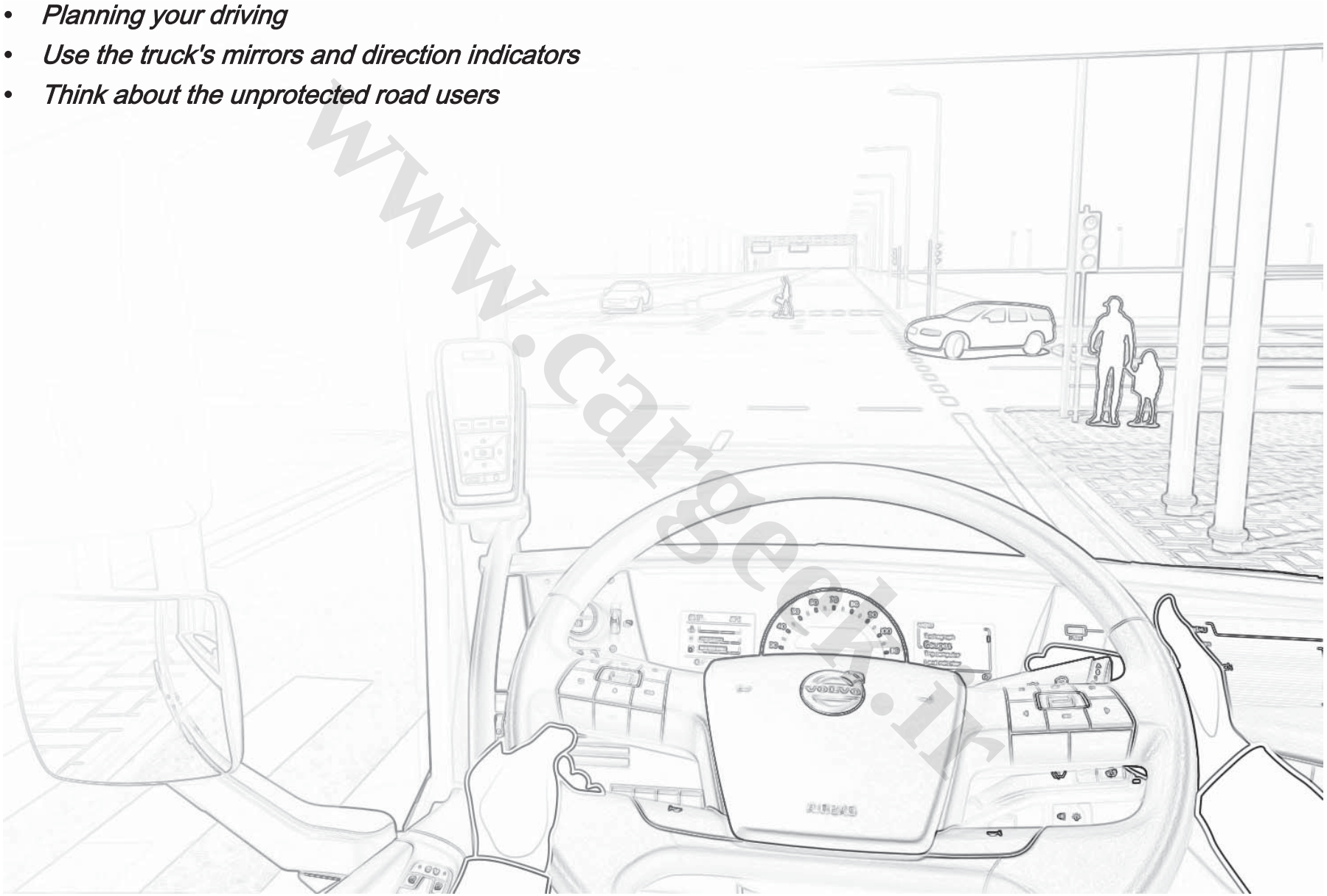
Check the electronic system by depressing the brake lightly. If this test is not carried out then cruise control will not work.

Starting on hills

Activate the hill start aid function in order to brake the truck while starting.

DRIVING IN AN URBAN AREA

- *Planning your driving*
- *Use the truck's mirrors and direction indicators*
- *Think about the unprotected road users*



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Driving in an urban area

When driving in an urban area there are several tricks for driving as efficiently and economically as possible.

Smart driving

The main rule for driving in an urban area is to plan your driving and avoid unnecessary stops. You save fuel as well as the truck's service brakes by using the truck's auxiliary brakes as often as is possible. If you have cruise control you should use it sparingly in heavy traffic. If you use it incorrectly it can lead to unnecessary braking and acceleration, which results in increased fuel consumption.

Think about the softer road users!

Many serious accidents occur between trucks and the softer road users such as cyclists and pedestrians. Correctly adjusted mirrors give you good visibility around the vehicle, but be aware of the blind spots behind and in front of the truck as well as on the passenger side.

Reversing warning unit

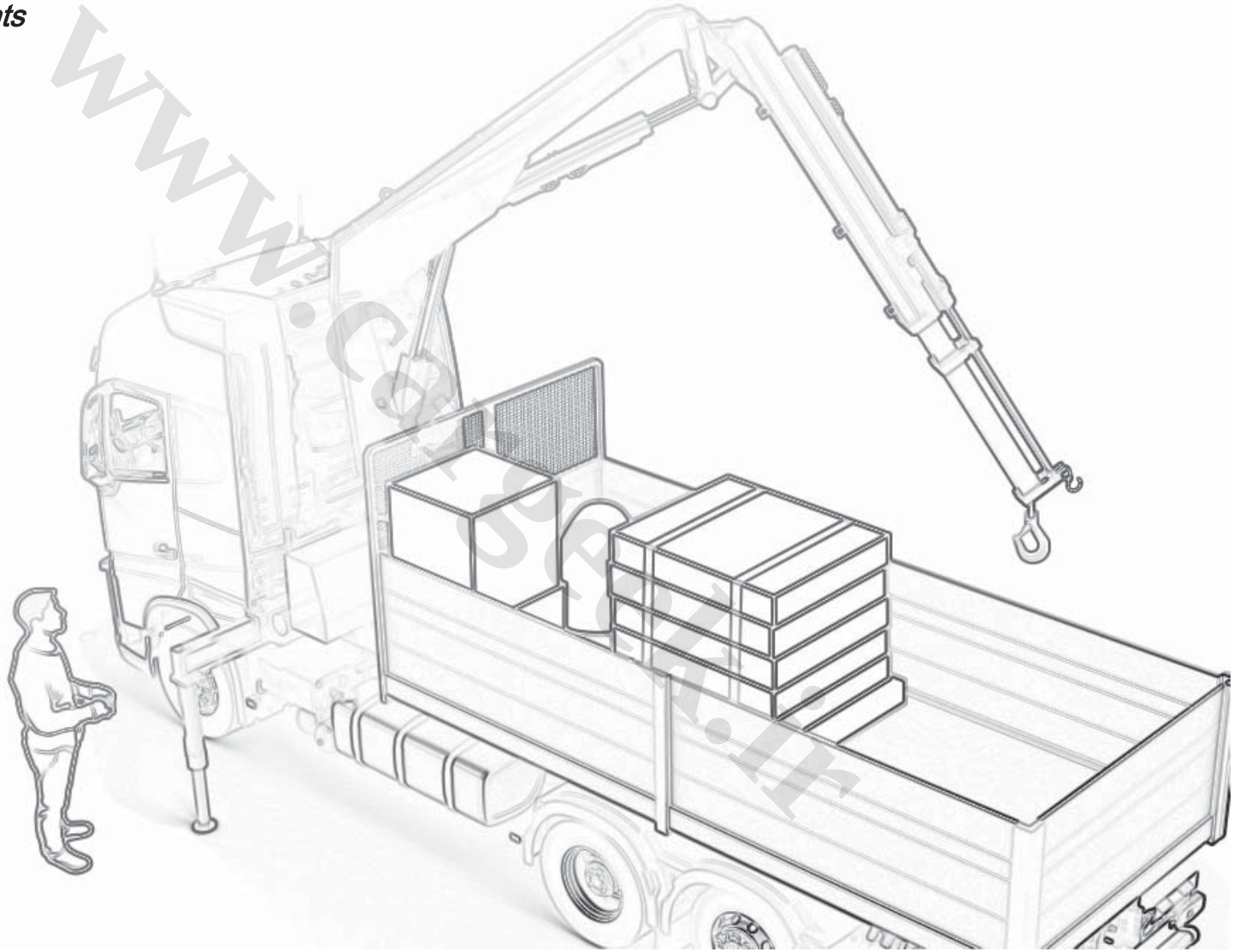
The reversing warning unit is available on your truck in order to prevent accidents while you are reversing. You should always have it activated. The pitch of the reversing warning unit can be set to high, low or silent (reversing warning unit deactivated). Only deactivate the reversing warning unit in controlled environments when it is fully justifiable.

Camera

Use the truck's camera as an aid while reversing.

LOADING AND UNLOADING

- *Secure the load firmly*
- *Use the air suspension's memory system for load and ride heights*



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Loading and unloading

You can make loading and unloading easier and save both time and effort by using the truck's air suspension system.

Air suspension system

The air suspension system is programmable with memory functions. You can store different heights in order to quickly adapt to the loading docks you use on a regular basis. You can also use the air suspension to tilt the trailer downward for disconnecting.

Loading heavy loads

If you want to quickly unload a very heavy load you must lower the truck's air suspension system to its lowest level, otherwise the wheel suspension may be damaged.

When you have loaded or changed the height of the truck you should, if you have adjustable headlamps, reset the lamps according to the new conditions. After which you get better visibility and avoid dazzling other road users.

Securing loads

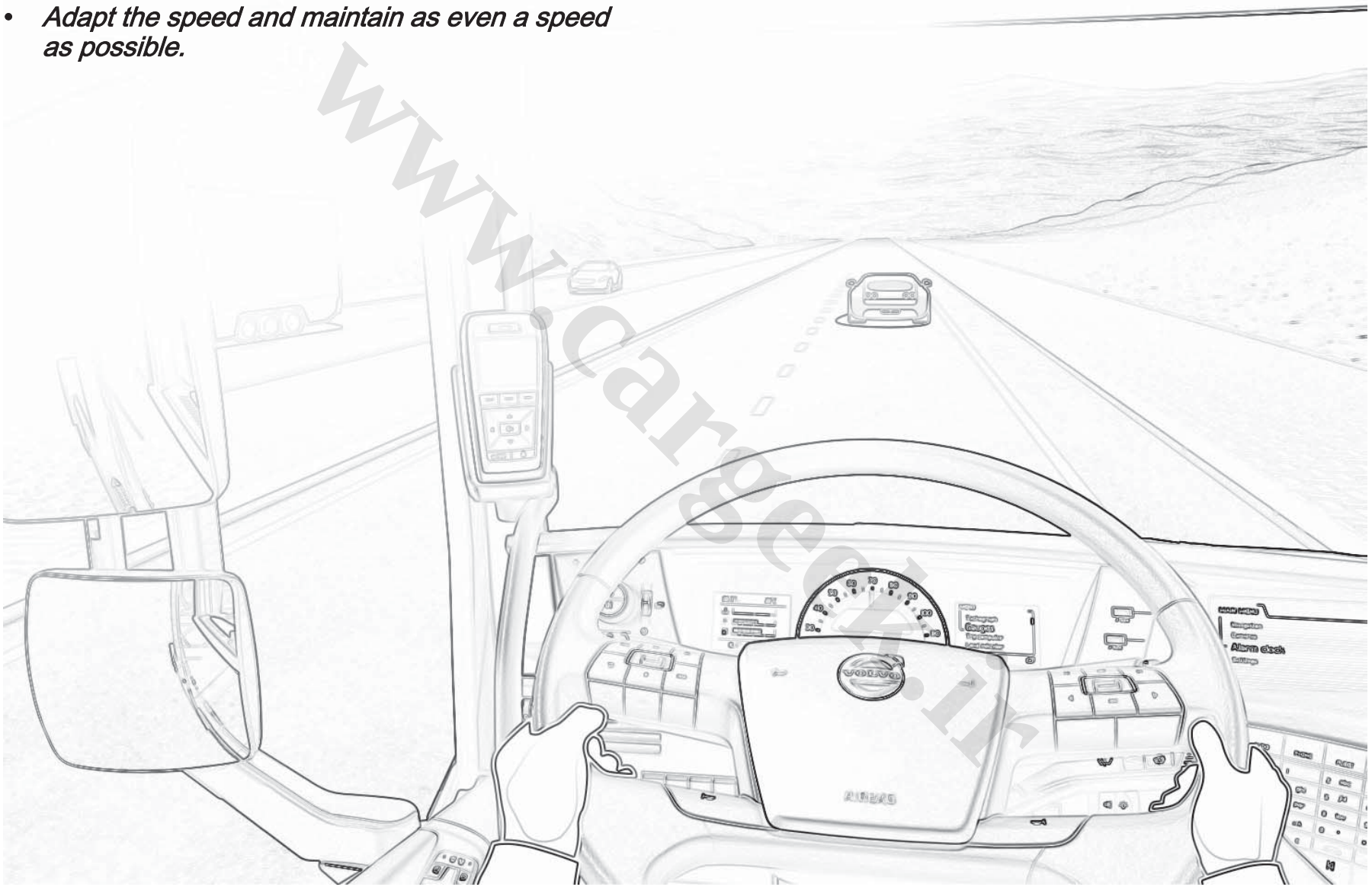
Remember to secure your load in order to avoid accidents and damage to goods and vehicles. A rule of thumb is to secure the load at the front with at least the force equal to the full weight of the load. Secure the load at the rear and sides with at least the force equal to half the weight of the load.

Trailer brake

Use the trailer brake when you are connecting the trailer in order to adjust the position of the fifth wheel. Check that the trailer is properly connected.

DRIVING ON A MOTORWAY

- *Planning your driving*
- *Adapt the speed and maintain as even a speed as possible.*



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Driving on a motorway

There are many ways to drive efficiently and economically when you drive on a motorway. It is important to plan your driving.

Remember that roads with many uphill gradients and bends result in higher fuel consumption.

Cruise control

The truck's cruise control is a good tool for maintaining an even speed. If you use the cruise control then you should get used to disengaging it with one of the foot pedals so that you can act automatically in a critical situation in as few stages as possible.

Adapted speed

It is important to maintain a correctly adapted speed. Higher speed results in increased wind resistance and therefore increased fuel consumption. Remember that doubled speed results in quadrupled wind resistance. You can reduce the truck's wind resistance and therefore reduce fuel consumption by using Volvo's spoiler package.

Alert gear changing

When accelerating, increase to the desired speed as quickly as possible. We recommend that you drive according to the tachometer and maintain the engine speed within the green zone on the gauge. Allow the engine run and use the truck's pulling power at low revolutions. This driving technique saves fuel and reduces wear on the engine and transmission. Remember that too many gear changes may result in increased fuel consumption.

Use the auxiliary brakes

You can reduce the wear on the truck's service brakes by using the truck's auxiliary brakes. If you only use the auxiliary brakes while you are driving it is beneficial to use the service brake regularly in order to prevent the formation of coatings on the brake linings, which could result in impaired braking performance.

You can also use the "Brake blending" function for controlled braking. "Brake blending" assists the auxiliary brakes while you are braking.

Rolling resistance

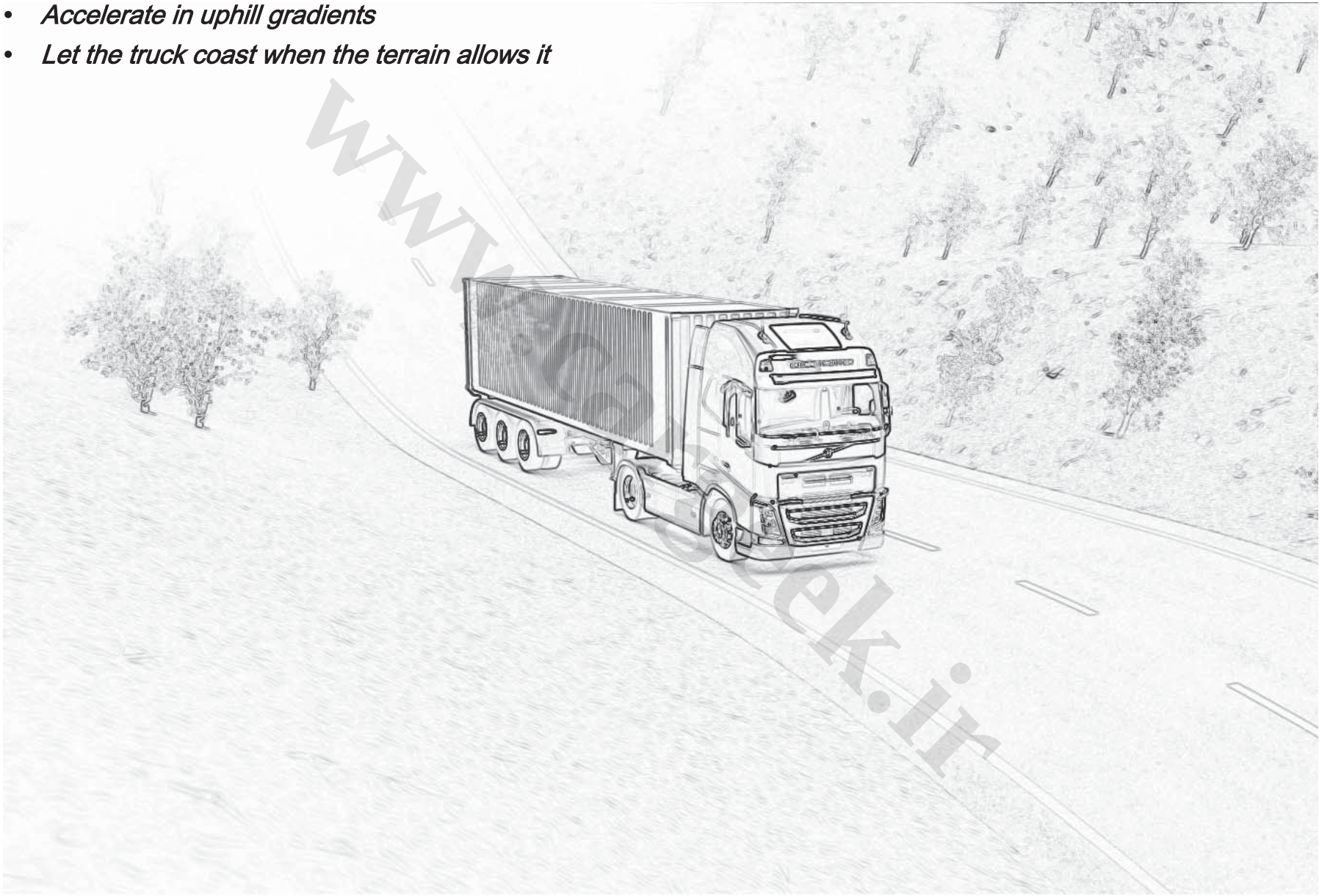
Rolling resistance plays a major role in your fuel consumption. It is important to use correctly adapted tyres and take care to ensure the correct tyre pressure. Check the tyre pressure at least once every 14 days. Incorrect tyre pressure results in increased tyre wear and increased fuel consumption. Check the wheel axle settings on a regular basis at a Volvo workshop.

Bogie lift

Raise the bogie axle while you are driving with an empty truck or with a light load. This way you reduce the friction against the road surface and save fuel.

DRIVING IN HILLY TERRAIN

- *Accelerate in uphill gradients*
- *Let the truck coast when the terrain allows it*



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Driving in hilly terrain

Your driving technique in hilly terrain can make a major difference to fuel consumption.

Uphill

When approaching an uphill gradient you should try to maintain your speed and allow the engine to work hard so that you can quickly reach the crest of the hill. Release the accelerator pedal just before you reach the summit and coast over it. When you change gear try to drive according to the tachometer instead of by engine noise. Maintain the engine speed within the green zone on the gauge and use the truck's pulling power at low revolutions.

Downhill

On downhill gradients you should try to avoid accelerating and instead allow the truck to increase speed by coasting. Control the speed downhill with the truck's auxiliary brakes. Make it a habit to completely remove your foot from the accelerator pedal when you are coasting. Use cruise control sparingly in hilly terrain as excessive use may result in increased fuel consumption.

Automatic gearbox

You can use the truck's "Kick-down" function in order to obtain maximum engine power for driving on a steep hill for example. This will give you an automatic downshift.

DRIVING ON A SLIPPERY ROAD SURFACE

- *Adapt the speed according to road surface*
- *Use the truck's auxiliary systems on difficult road surfaces*

A 728011

Driving on a slippery road surface

Your truck is equipped with several different functions to facilitate driving on slippery road surfaces, but the most important factor for driving safely is that you adapt your speed to the road surface.

TCS

TCS is a system that automatically prevents wheelspin. If you find yourself in a situation where you want to allow the wheels to spin more then you can engage the "Off-road TCS" function. Do not forget to disengage the function when you leave the slippery area.

Differential lock

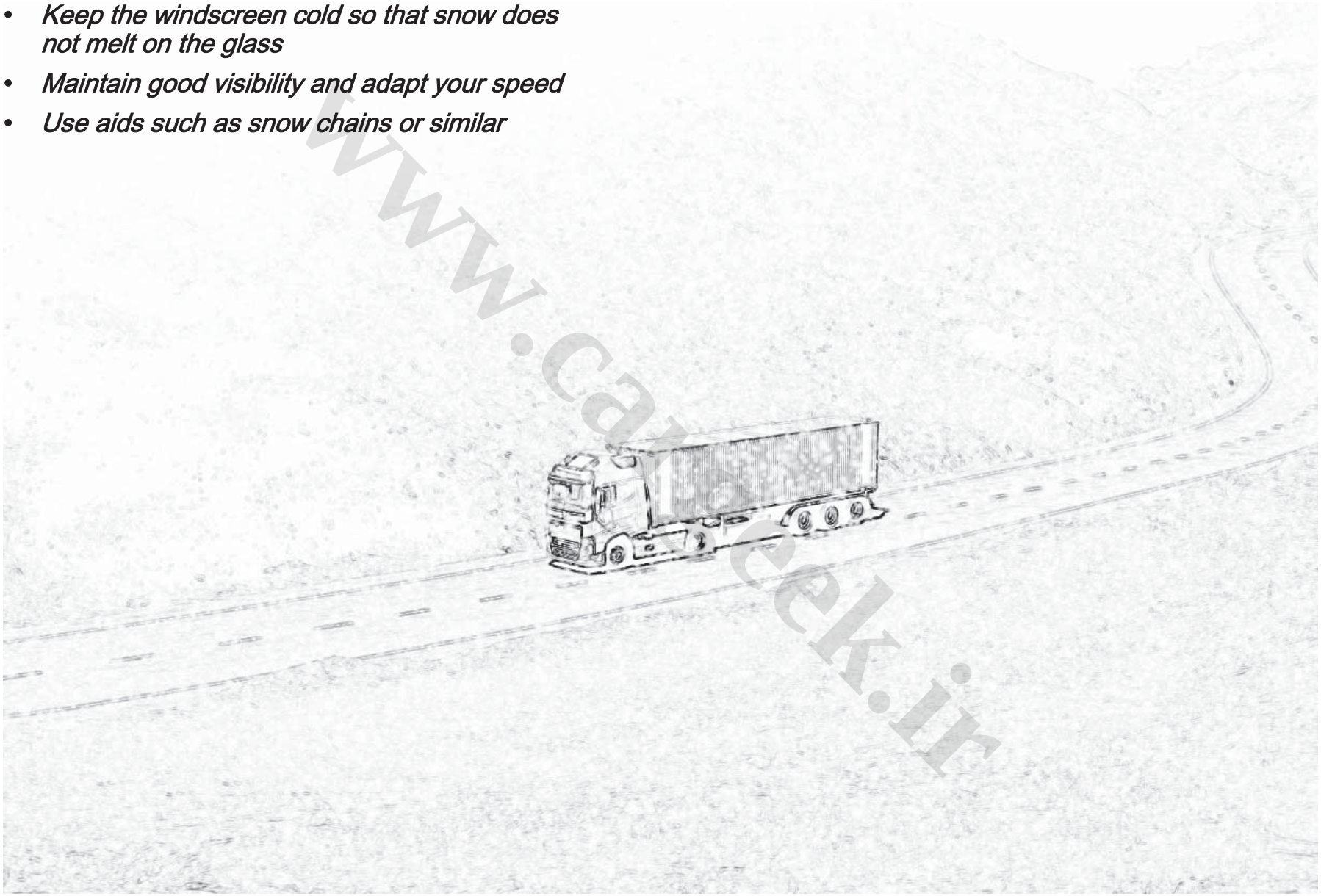
On an extremely slippery surface you can engage the differential lock so that the wheels drive at the same speed. Drive carefully when you have the differential lock engaged. Do not forget to disengage it when you leave the slippery area. If you drive with the differential lock engaged on firm ground you risk damaging the driven axles and wheels.

Bogie weight

For a better grip on slippery road surfaces you can temporarily redistribute the bogie weight to get more weight on the driving axle. The function can be used to drive away when you get stuck, but also for normal driving that requires a little extra grip in order to make good progress. If you are driving in difficult terrain then you can increase the ground clearance by using the air suspension.

DRIVING ON WINTRY ROAD SURFACES

- *Keep the windscreen cold so that snow does not melt on the glass*
- *Maintain good visibility and adapt your speed*
- *Use aids such as snow chains or similar*



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Driving on wintry road surfaces

When driving on wintry road surfaces there are several functions available for you to use.

Climate system

If there is misting or ice on the windows then you can use the climate system's defroster function to clear the windows. In snow flurries for example you should set air distribution to just the floor in order to avoid melting the snow on the windscreen which then freezes in a headwind. Ice or snow on the door mirrors is most easily removed by activating door mirror heating.

Snow chains

If you need to use snow chains remember that snow chains on the front wheel axle should primarily be mounted on the passenger side to avoid damaging the link rod on the driver's side.

DRIVING IN A DUSTY AND SMOKY ENVIRONMENT

- *Use recirculation*
- *Temporarily switch off the smoke detector in the cab*

A 728011

Driving in a dusty and smoky environment

If you are driving in a very dusty environment then you can temporarily switch off the smoke detector in the cab. You can use air recirculation in the cab in order to keep out dust and other unsuitable air. Only use recirculation for short periods. Clean the inside of the windscreen with normal window cleaning agent on a regular basis.

DRIVING IN THE RAIN

- *Maintain good visibility and adapt your speed*
- *Good tread depth on the tyres*

A 728011

Driving in the rain

When driving in rain it is important that you have good visibility and maintain a suitable speed. If your truck is equipped with air conditioning then you can use it to remove moisture from the cab. If you need to remove ice from the window then you can use the climate system's "defroster".

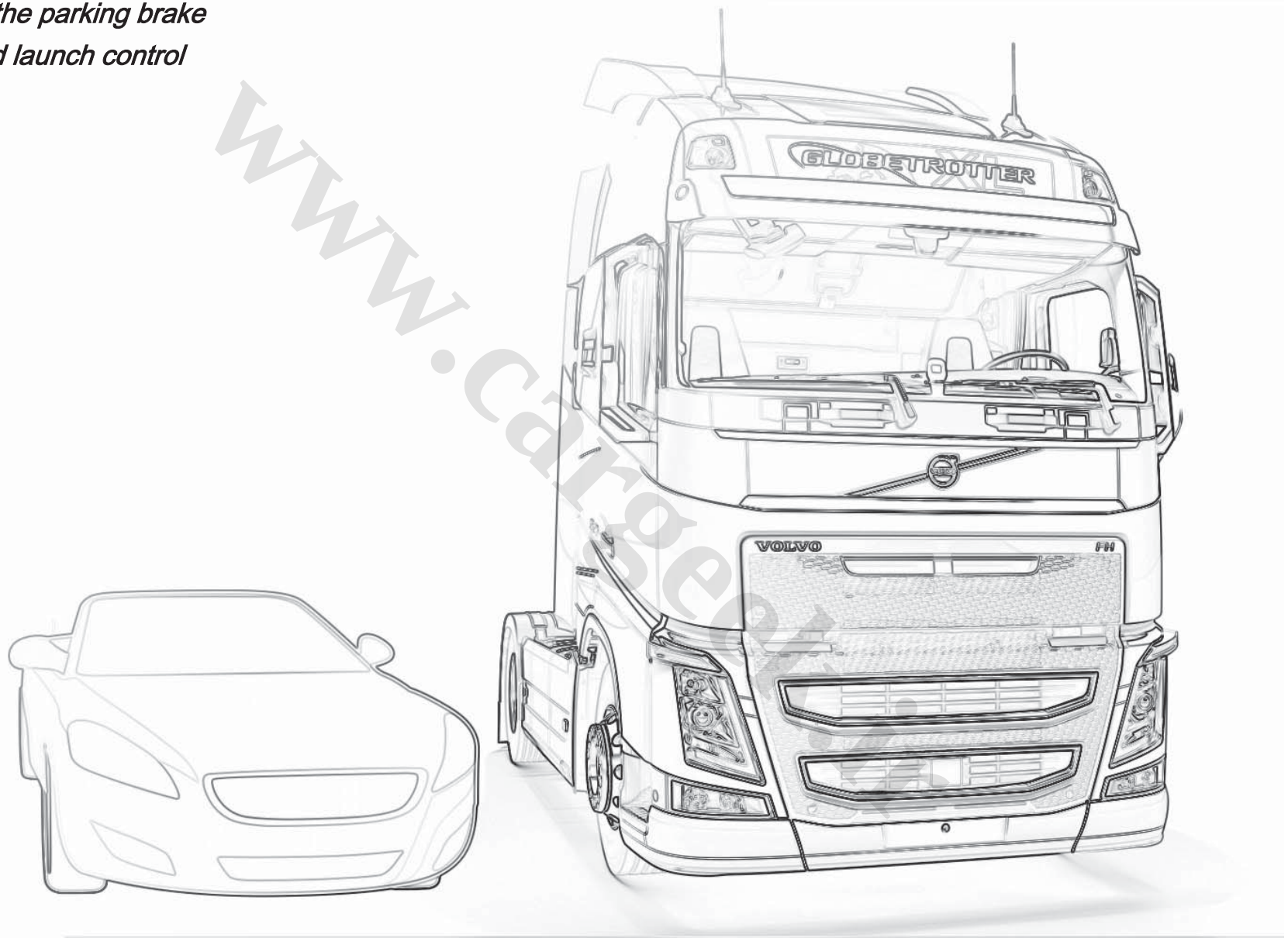
Aquaplaning

The best way to avoid aquaplaning is to:

- have good tread depth on the tyres
- reduce your speed

PARKING

- *Use the parking brake*
- *Avoid launch control*



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Parking

When you stop to park there are several things you should think about:

Avoid launch control

The truck does not need to run at idling speed before driving off. Warm up the engine at low engine speeds. Avoid launch control during normal driving as well. Launch control normally accounts for 5-6 percent of total fuel consumption, of which 50-80% is unnecessary idling.

Hard driving

After a lot of hard driving you should allow the engine to run at idling speed for several minutes while stationary before switching it off in order to reduce wear on the engine.

Parking brake

Perform a brake test if you need to park the truck with a trailer on a hill. This is in order to ensure that the braking force is sufficient even if there is an air leakage on the trailer.

Hot tyres

AdBlue

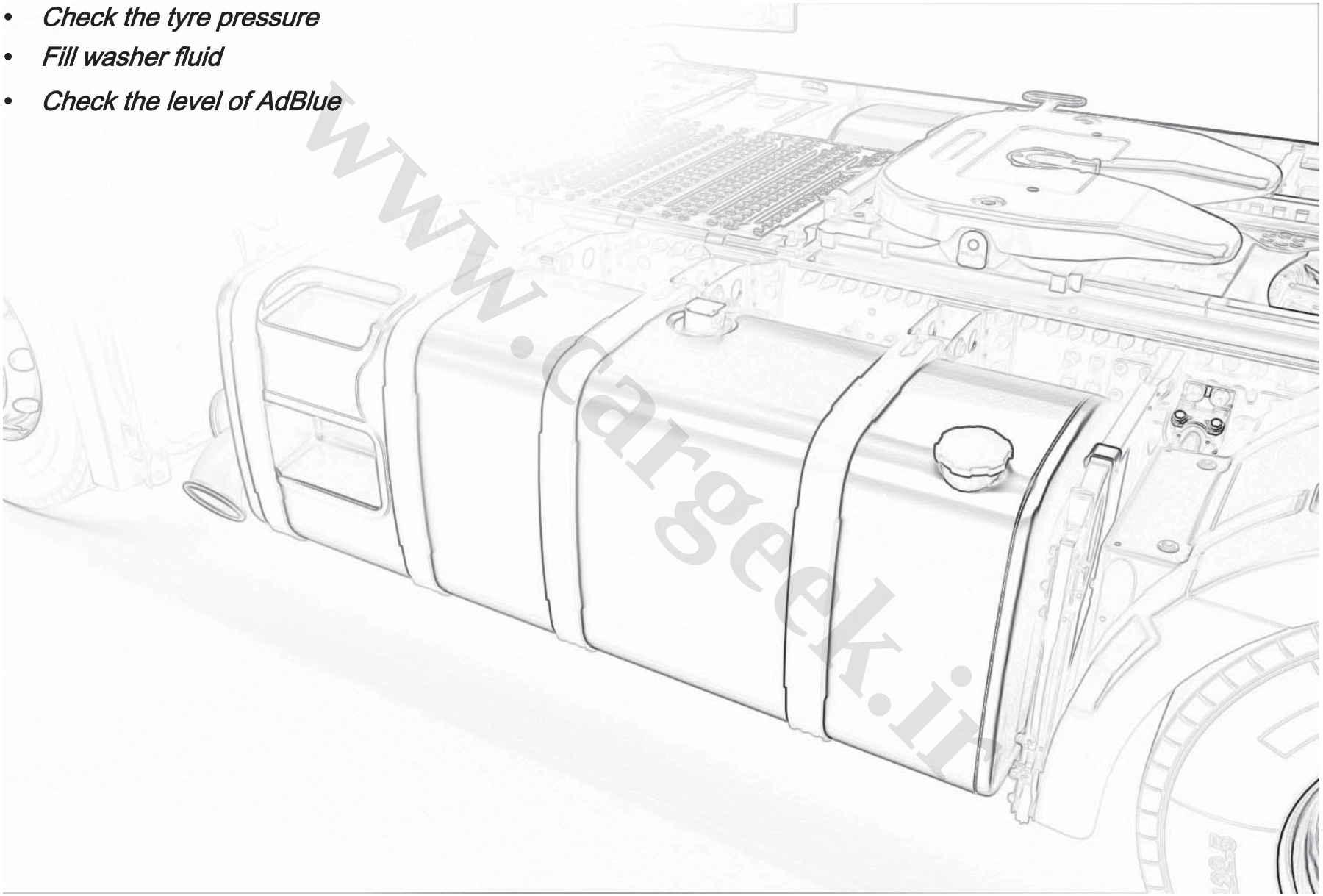
If you drive your truck in a Nordic climate (below 0 °C) then you should wait for 90 seconds before switching off the main switch on the truck. Then the AdBlue solution is cleaned from the system. On trucks with electrically operated main switch you can switch off the current using the remote control.

Hot tyres

The tyres may be hot after driving a long distance. When parking on a gradient and on wintry road surfaces the tyres may melt the surface below to form ice and the truck can slide away. Aim to park on a level road surface.

REFUELLING

- *Check the tyre pressure*
- *Fill washer fluid*
- *Check the level of AdBlue*



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Refuelling

When you stop to refuel you should take the opportunity to check through your truck.

AdBlue

Make it a habit to check the level in the AdBluetank while you are refuelling. Running the engine without AdBlue can damage the SCR system.

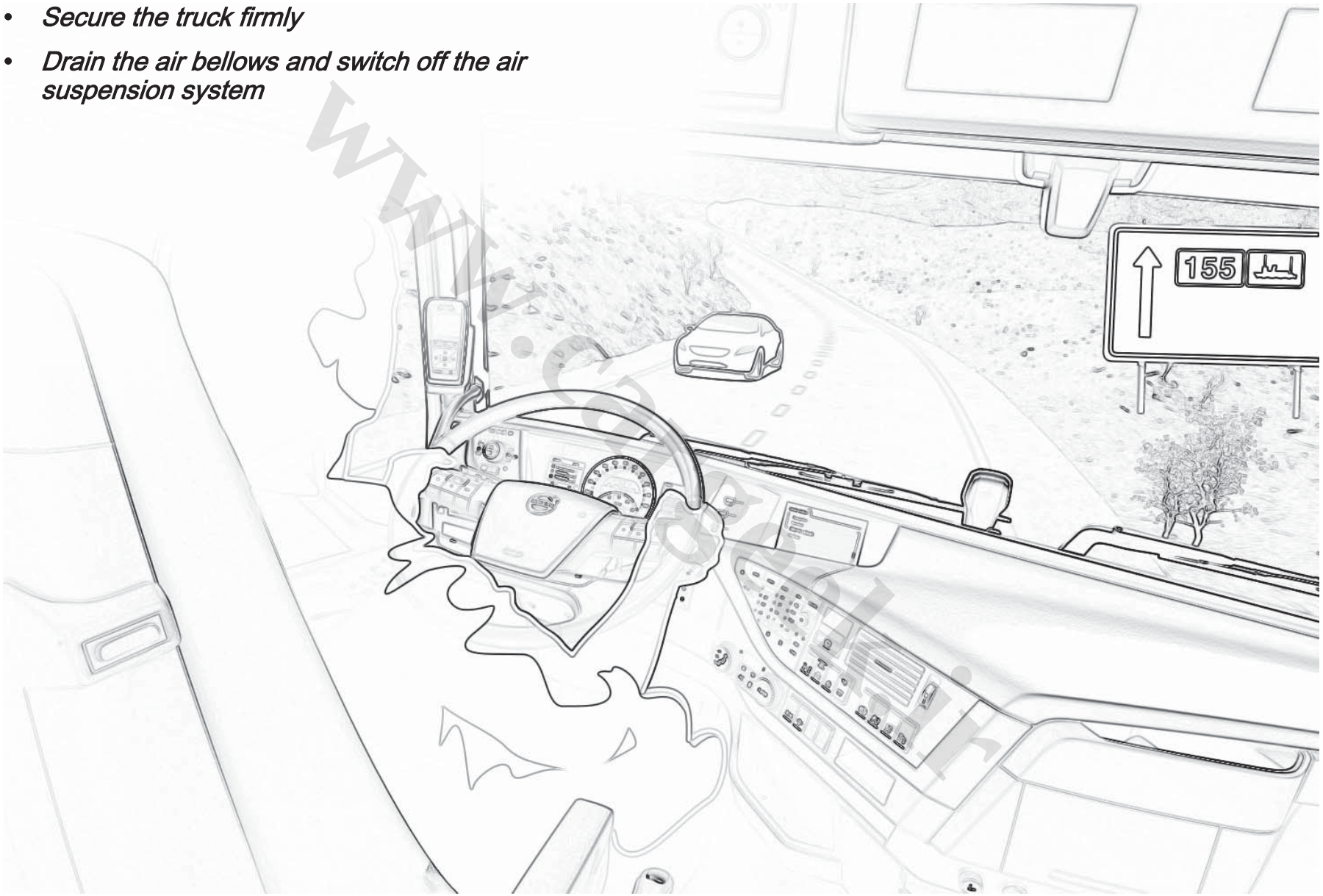
Make sure you wipe up any spillage when filling AdBlue. The solution may react with certain metal surfaces. The AdBluetank is only intended for AdBlue. Other fuels or dirt in the tank can damage the engine and the fuel system.

Correct tyre pressure

Check the tyre pressure while refuelling or at least once every 14 days. Incorrect tyre pressure results in increased fuel consumption and increased tyre wear. The truck's driving characteristics can be affected by incorrect tyre pressure.

FERRY TRANSPORT

- *Secure the truck firmly*
- *Drain the air bellows and switch off the air suspension system*



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Ferry transport

When you drive onto a ferry you should drain the truck's air suspension system. The truck's air suspension system must be fully evacuated of air and switched off when the truck is transported on a ferry.

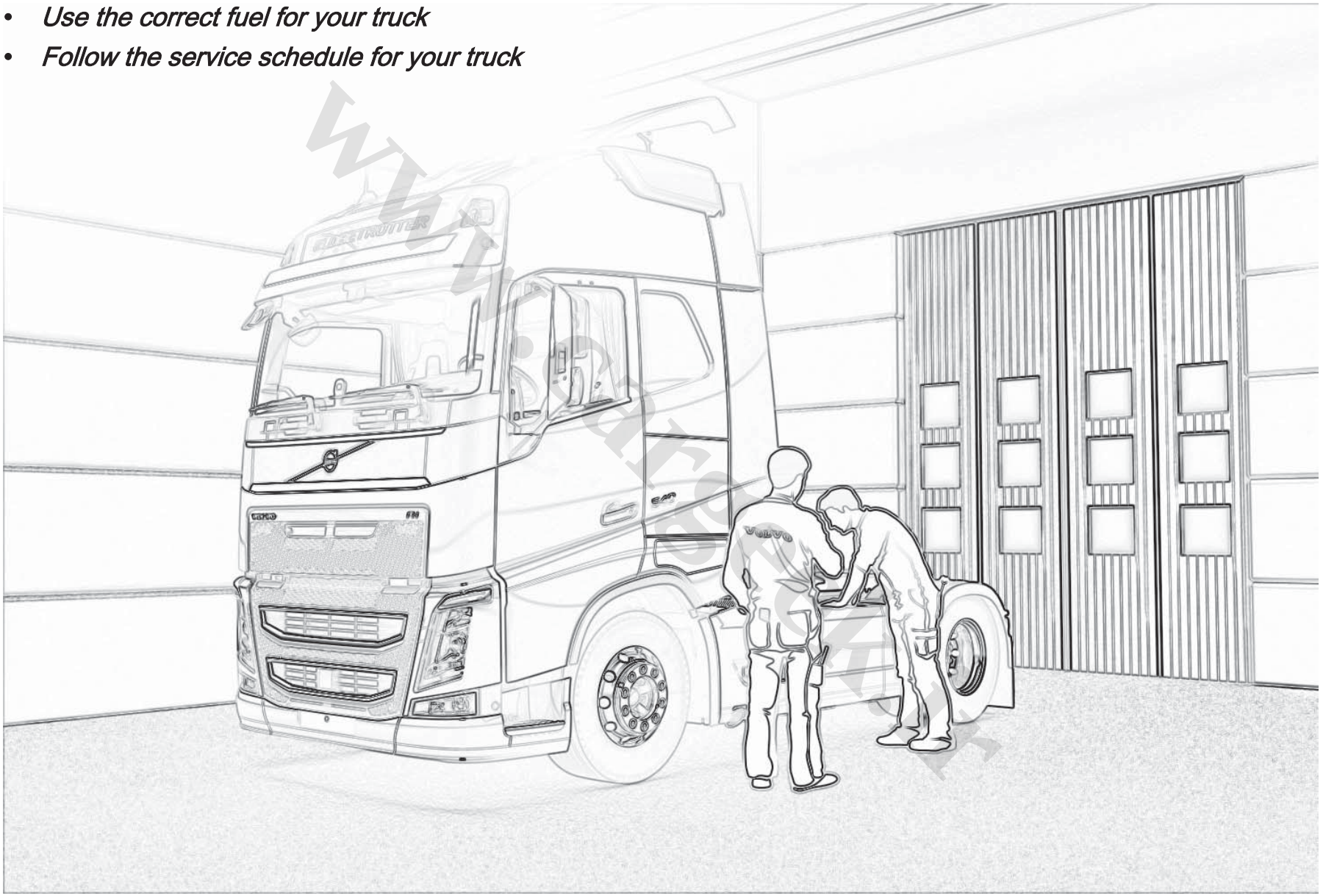
Secure the truck and any load firmly so that they cannot start moving during ferry transport.

Full air evacuation

Use the truck's automatic "Full air evacuation" function to drain the air bellows quickly and effectively.

SERVICE AND MAINTENANCE

- *Use the correct fuel for your truck*
- *Follow the service schedule for your truck*



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Service and maintenance

You can reduce your costs by performing regular maintenance and keeping the truck in good condition. The truck's engine works at its best and lasts longer if you use the fuel and the oils that are recommended by Volvo.

Ask your Volvo workshop to assist you to draw up an individual service schedule for your particular truck.

Wheel alignment

Remember to make regular checks on front wheel alignment and the axles' angles on both tractor and trailer. Wheel alignment is important for keeping fuel consumption low and for reducing wear on the tyres. The tyres wear out least if they are not unevenly loaded or overloaded.

When changing tyres, in the event of a puncture for example, you can utilise the truck's air suspension system to raise the truck.

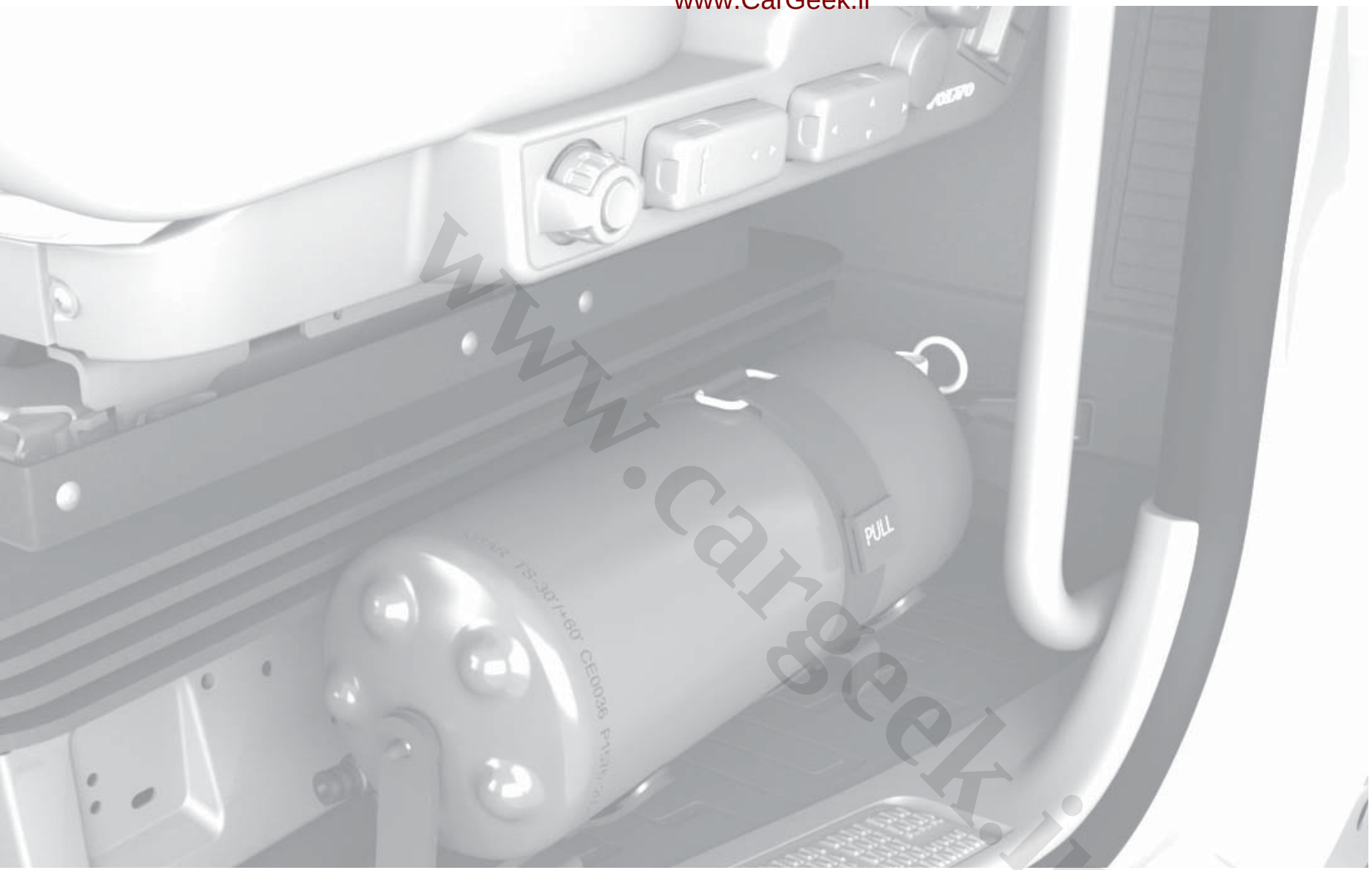
Air system

In order that the air system in the truck should work properly it is important to check the function of the air drier by periodically draining the primary tank or one of the circuit tanks. If water comes out from the air tanks then the air drier's filter insert must be replaced as soon as possible.

During winter, a hissing sound when pressure releases indicates that the heating coil in the air system is operative.

Batteries

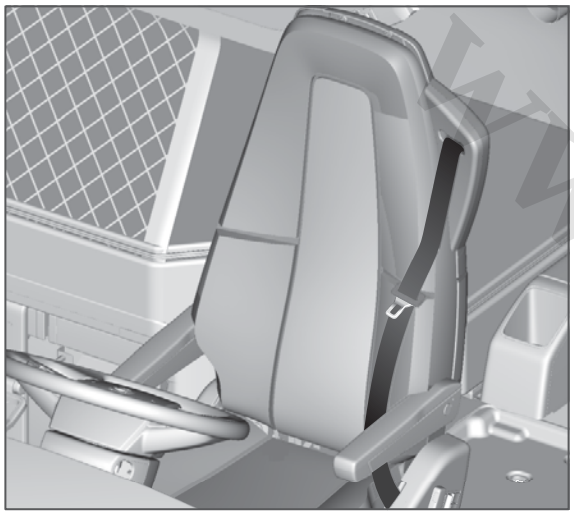
If the batteries shall be disconnected then it is important that the truck is in the "Parked" function mode.



03

SAFETY

Seat belt



Always wear the seat belt while driving! A warning lamp illuminates in the instrument panel if the seat belt is not being worn. At speeds above 15 km/h an acoustic signal is also activated.

Seat belt reminder.

All passengers must use the seat belt.

Seat belt pretensioners

The seat belt on the driver's side is equipped with seat belt pretensioner. In a frontal impact the seat belt pretensioner tightens the seat belt and in this way more effectively grips the belted occupant. The seat belt pretensioner deploys simultaneously with the airbag.

After a collision the seat belt pretensioner must be replaced.

A 728011

Airbag

When does the airbag deploy?

The airbag is located in the centre of the steering wheel and only deploys in the event of a **frontal collision** with a heavy or fixed object.

The airbag will not deploy in a collision with a soft object, such as a snowdrift or a bush, in a collision at low speed or with pure side impact collisions, rear-end collisions or if the truck should overturn.

The extent of the damage to sheet metal in a collision is not a measure of whether or not the system is triggered.

The hazard warning lights are activated automatically when the airbag deploys.

All doors are unlocked via the central locking function at the same time.

⚠ WARNING

The fact that the truck is equipped with an airbag does **not** replace the use of the seat belt! The airbag is **not** deployed in a rear-end collision, side collision or if the truck overturns.
Always wear a seat belt!

If the airbag has inflated

⚠ CAUTION

Never drive with a deployed airbag! The airbag hangs out and makes the truck difficult to steer. Other safety systems may also be damaged. The smoke and dust created during airbag deployment may cause skin and eye irritation in the event of prolonged exposure.

If the airbag has deployed:

- Tow the truck to an authorised Volvo workshop. Do **not** drive with a deployed airbag.
- Have an authorised Volvo workshop replace the components in the system.
- Only Volvo genuine parts should be used when components are replaced (airbag, belts, etc.).

⚠ WARNING

Never attempt to repair any part of the system yourself. Any work in the system may cause malfunctions and serious injury and must only be performed by an authorised Volvo workshop.

Symbol in the event of faults in the airbag.

SMOKE DETECTOR

Temporarily switch off the smoke detector

Press the button once.

The smoke detector is switched off for 10 minutes. Use the function when smoking or driving in a dusty environment. The smoke detector can be switched off both when it is silent and when it has been triggered. When the smoke detector is switched off the lamp flashes every 10 seconds. After 10 minutes the smoke detector is reactivated.

Battery for the smoke detector

When the battery is about to run out a short signal will sound every 45 seconds. Change the battery.

Test the smoke detector at least once every month (battery check) and always after holidays or other long periods of absence.

Check the battery by depressing the button for 5 - 10 seconds. If the battery is in good condition the alarm signal sounds for as long as the button is depressed. When the battery is being checked the smoke detector is switched off for 10 minutes.

The smoke detector should be submitted for inspection every five years. Contact an authorised Volvo workshop.

NOTE
When the battery is being checked the detector is switched off for ten minutes.

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Hot components

Heating

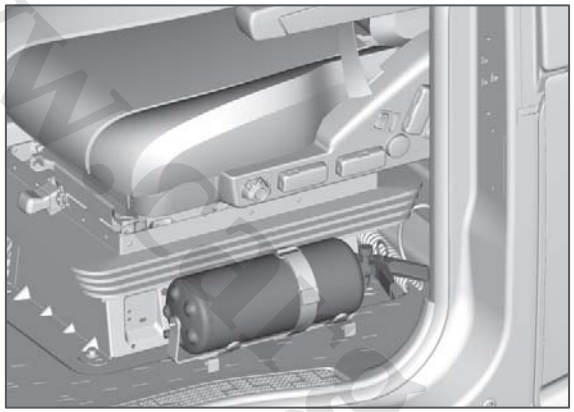
The cleaning process for exhaust gases creates a lot of heat. Exhaust gases and components in and around the exhaust system will therefore become very hot. The truck is designed to cope with this. However, there are several things to bear in mind:

- Keep the area around hot components clean.
- That no heat-sensitive materials are positioned near the exhaust pipe outlet, e.g. during power take-off operation.

Fire extinguisher

Location

The fire extinguisher is located in the doorway next to the driver seat. It can be taken out regardless of whether the driver door is open or closed.



Fire extinguisher location

> **NOTE**
>
> The fire extinguisher can be taken out with the driver door both open and closed.

04

LOCKS AND ALARM

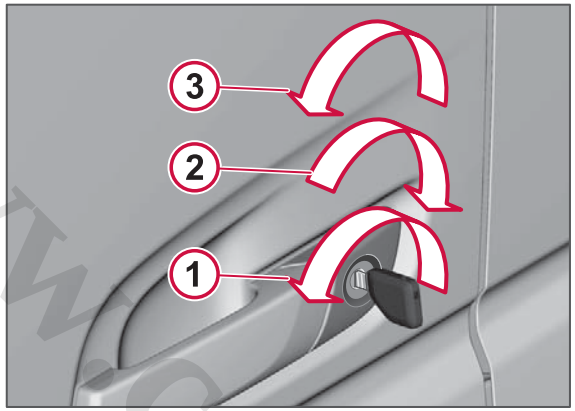
KEY

Overview

All keys have the number that is on the separate number tag. Remove the number tag from the bunch of keys so that no unauthorised persons can see the number. Store or affix the tag in a safe place (there is self-adhesive tape on the rear).

Number tag. Remove the number tag from the key-ring and store it in a safe place.

Key



1 Unlock.
The driver's door is unlocked.

2 Lock.

3 Unlock again.
Both doors are unlocked.

Carry out the sequence 1-3 within three seconds in order to unlock both doors.

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Remote control

Locking

Lock the doors by pressing the LOCK button.
The direction indicators illuminate.

Unlocking

Unlock the driver door by pressing the UNLOCK button.
The direction indicators flash.

Unlock both doors by pressing the UNLOCK button once again.
The direction indicators flash.

Guide lighting

Once the guide lighting is activated the truck's position lights, courtesy lights, side marker lamps, direction indicators and interior lighting are switched on.

Switch on the light by pressing the button for GUIDE LIGHTING.

Switch off the light in one of the following ways:

- press the button for GUIDE LIGHTING
- close the driver door
- turn the key to the first position (accessory position)
- wait until the light goes out automatically.

To replace the transmitter's battery, see Replacing the battery in the remote control page 236.

Panic Alarm

Hold the button on the remote control depressed for a few seconds in order to

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REMOTE CONTROL

activate the truck's horn and direction indicators.

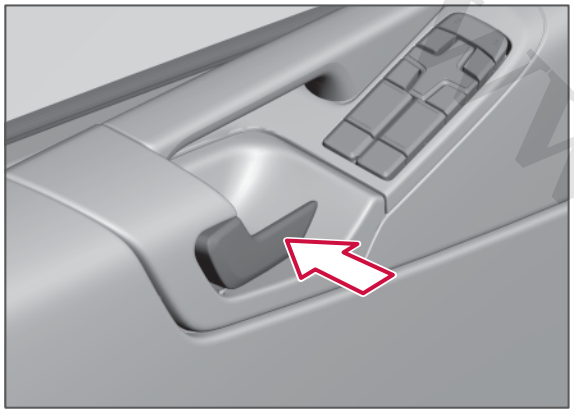
It is possible to lock or unlock the doors and drive off, even when the alarm is activated.

Hold in the button for a few seconds in order to switch off the panic alarm.

Two short presses of the button within three seconds also activate/switch off the panic alarm.

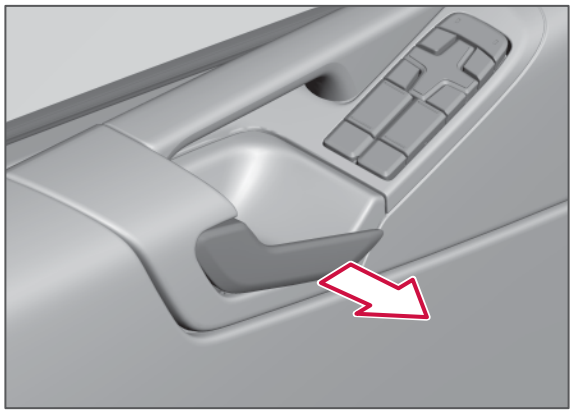
Door handle

Locking



Lock the door by pressing the handle inwards.

Unlocking



Unlock the door by pulling the handle outwards.

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Driver's door control panel

The doors can be locked and unlocked with the control panel in the driver's door, see Door, control panel page 76.

> **NOTE**
>
> Regardless of whether the doors are locked with a key, remote control, driver side's control panel or door handle, it is always possible to open them from inside by using the door handle.

Lockable service cover

Inside the truck's front service cover is a security lock that prevents unauthorised persons from gaining access to the components and systems that are underneath. The security lock also protects against forced entry via the front.

The service cover's security lock is locked when the driver door is locked, regardless of whether it is locked with the transmitter, the key or the driver door's control panel or door handle. When the driver door is unlocked, so is the service cover.

The security lock can be opened manually in an emergency, see Emergency opening service cover page 293.

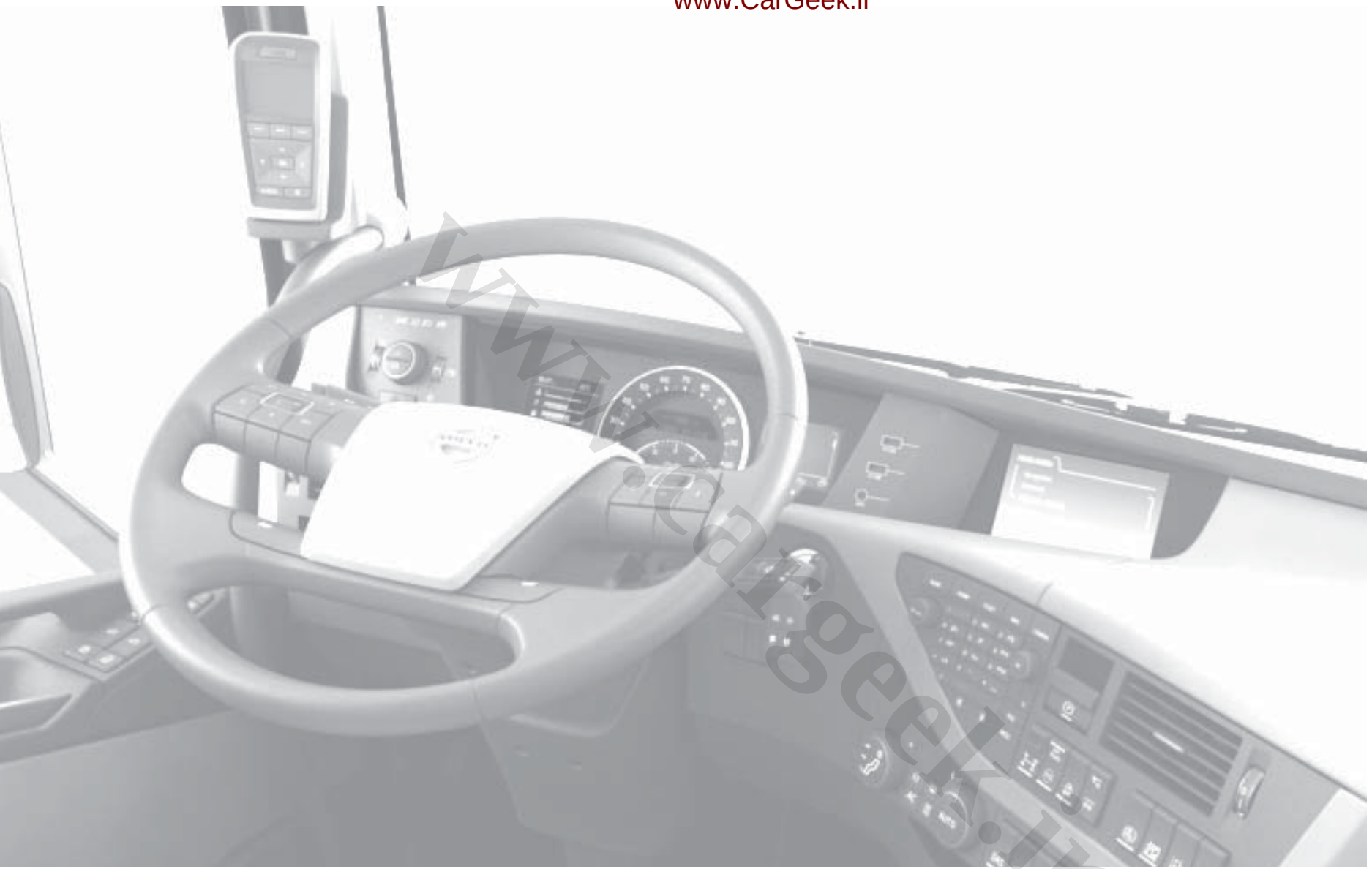
LOCKING AND UNLOCKING

Lockable service cover.

Work Remote Control (Work Remote Control)

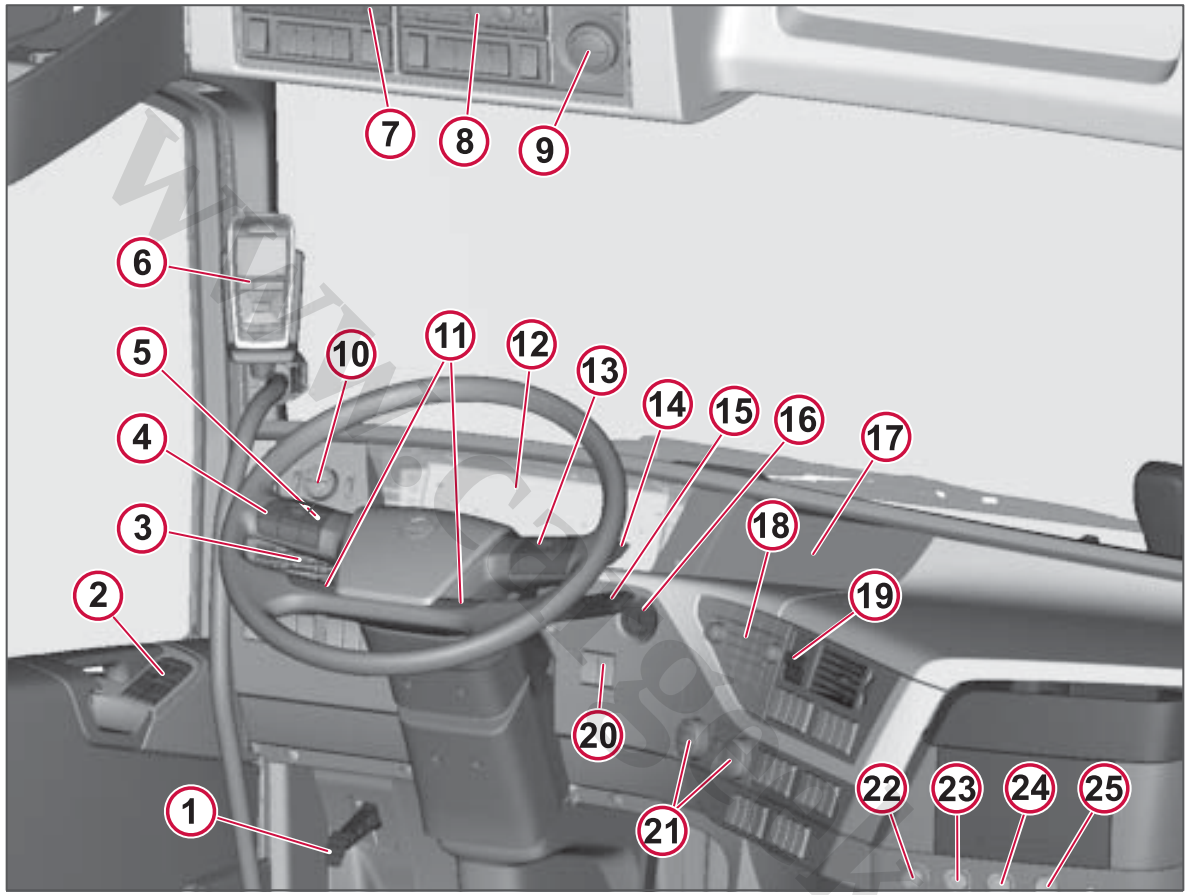
The doors can be locked and unlocked with the work remote control (Work Remote Control).

05



DRIVER ENVIRONMENT

OVERVIEW



Buttons, controls and levers in the driver environment

1 Pedal for steering wheel adjustment
2 Control panel in driver door
3 Direction indicators
4 Keypad in steering wheel
5 Hazard warning lights
6 Extra equipment: Work remote control (Work Remote Control)
7 CD player
8 Tachograph
9 Interior lighting
10 Light switch
11 Horn
12 Instrument cluster
13 Keypad in steering wheel
14 Auxiliary brake
15 Windscreen wipers
16 Starter switch

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17 Secondary display

18 Control panel for secondary display

19 Parking brake

20 VAS emergency button

21 Control panel for climate control system

22 Cigarette lighter

23 12V/10A socket

24 24V/10A socket

25 Emergency alarm

Instruments

1 Information display: clock, outside temperature, trip meter, odometer, fuel gauge, AdBlue gauge, coolant temperature

2 Exterior light indicators

3 Direction indicators

4 Speedometer

5 Centre display: cruise control, gear and auxiliary brake information

6 Control and warning lamps

7 Driver information display

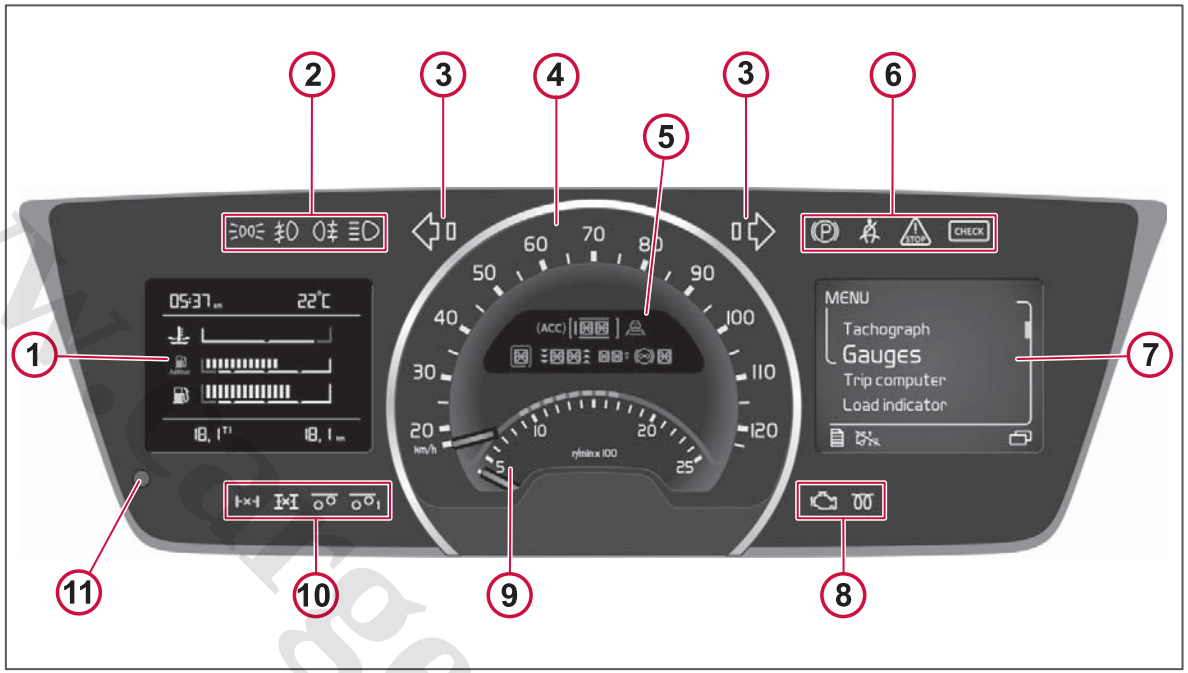
8 Engine related indicators

9 Tachometer

10 Bogie and differential indicators

11 Control for trip meter*

*A brief press on the control switches (11) between trip meter T1 and T2. A long press resets the active trip meter.



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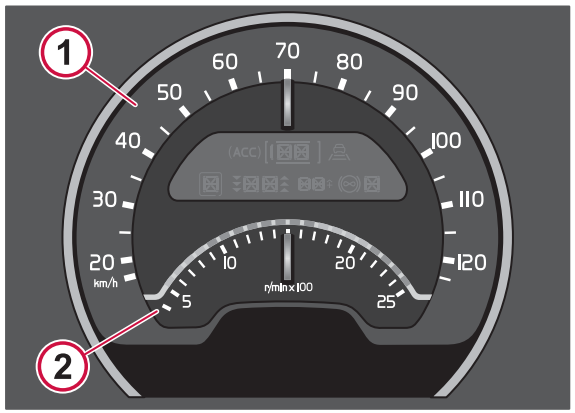
Gauges

Speedometer and tachometer

1 Speedometer

2 The tachometer is divided into a green, a dark and a red zone:
- Use the green zone for normal driving.
- Use the dark zone for engine braking.
- Never allow the engine go into the red zone!

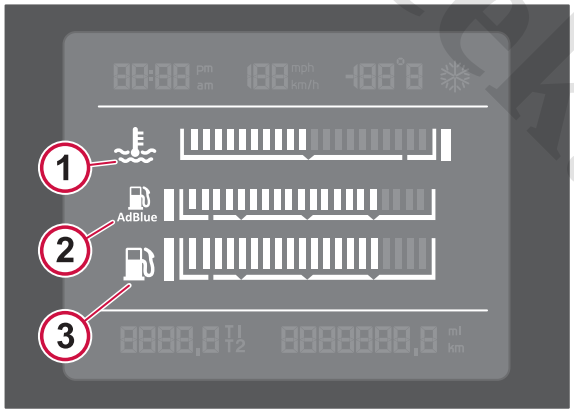


Temperature and level gauges

1 Stop immediately if the red warning lamp to the right of the bar is illuminated! Allow the engine to run at idling speed until the warning lamp has switched off and the temperature has started to fall. Under normal driving conditions the bar should stay below the red zone.

2 The gauge shows the approximate amount of AdBlue in the tank. The warning lamp for low level is located to the left of the bar. When it illuminates there is less than 10 % of AdBlue left in the tank.

3 The gauge shows the approximate amount of fuel in the tank. The warning lamp for low level is located to the left of the bar. When it illuminates there is less than 10 % of fuel left in the tank.



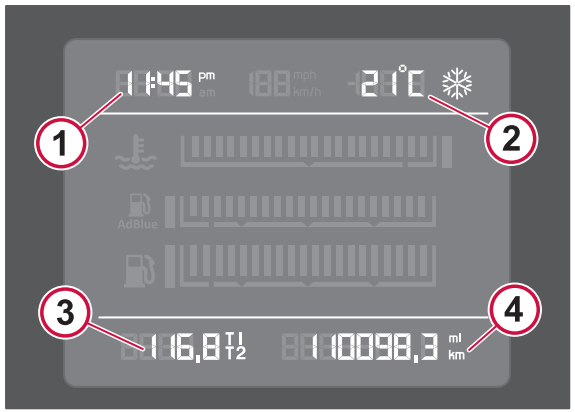
Clock, outside temperature, trip meter

1 Clock

2 Outside temperature. The snowflake symbol warns in the event of a risk of icy conditions.

3 Trip meter

4 Odometer (total)



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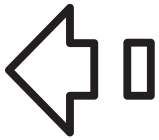
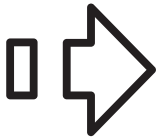
INSTRUMENTS

Symbols

Symbols	Meaning	Comment
	Direction indicator tell-tale left The arrow flashes for the truck, the rectangle for any trailer.	The symbol flashes at double speed in the event of a lamp fault.
	Direction indicator tell-tale right The arrow flashes for the truck, the rectangle for any trailer.	The symbol flashes at double speed in the event of a lamp fault.
	Stop, there is a fault on the truck	Illuminates together with another symbol or with a message in the display, and an acoustic signal.
	Seat belt reminder	
	Parking brake applied	When the red indication in the lever for parking brake is illuminated at the same time.
	Check	Illuminates together with another symbol or together with a message in the display, as well as an acoustic signal.

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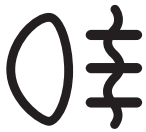
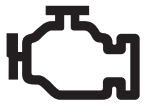
Symbols	Meaning	Comment
	Main beam on	
	Front fog lights on	
	Rear fog lights on	
	Position lights on	
	Emissions related fault	Contact an authorised Volvo workshop; a fault has occurred in the engine which can have negative environmental effects.
	Pre heat on	

INSTRUMENTS

Symbols	Meaning	Comment
	Differential lock between wheels engaged	Symbol flashes
	Differential lock between axles engaged	Symbol illuminates
	Bogie lift	For more information, see Bogie functions page 153
	Bogie lift trailer	

All red warning symbols, and the symbol for emissions related faults, are always illuminated at full intensity. Other symbols are dimmable via the instrument lighting's control on the light switch.

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In the event of instrument failure

Three modes may occur in the event of instrument failure. Contact an authorised Volvo workshop as soon as possible in order to have the fault rectified.

No functions in the instrument:

No function at all, neither display nor backlight works, warnings, etc., will fail to appear.

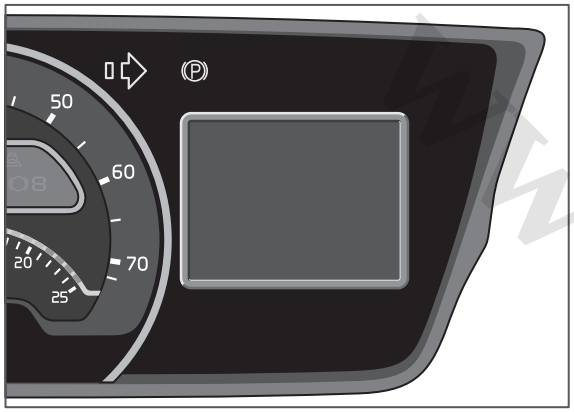
Passive instrument:

The backlight is working. The symbol for emissions related fault will illuminate. Otherwise no function, all warning etc. will fail to appear.

Fault in individual instrument function, e.g. gauge or display view:

Warnings will be shown, but without being specified.

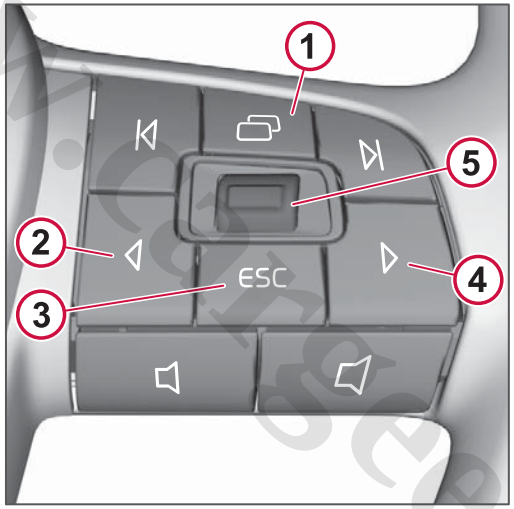
Driver Information Display



Navigation

The display is controlled using the keypad in the steering wheel.

Press the "Confirm selection" button in order to open the main menu on the driver information display.



1 Focus change between navigation in the driver information display or the secondary display.

2 Navigate left.

3 Escape (cancel/go back).

4 Navigate right.

5 Navigate up/down. Confirm selection/OK (press).

Menu

The menu options shown in the driver information display depend on the truck's equipment. For safety reasons not all menus are available while driving.

- ► **Tachograph**, see Tachograph page 70
- ► **Gauges**
- ► **Trip computer**
- ► **Load indicator**, see Load indicator page 174
- ► **Heater timers**, see Starting the parking heater with the timer page 97
- ► **Favourites display**
- ► **Settings**
- ► **Maintenance**

Gauges

The gauges that are available depend on the truck's equipment:

- Axle load distribution
- Brake supply pressure
- Speedometer
- Battery status
- Volt/Ampere meter
- Volt meter

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- Engine oil level
- Engine oil temperature
- Engine oil pressure
- Gearbox oil temperature
- Turbo boost pressure
- Driver Alert Support
- Date
- Differential lock
- Bodywork

Most of the gauges can be selected as favourite view, see Favourites display page 61.

Units in the gauges can be changed in the settings menu, see Units page 62.

Trip computer

The trip computer's opening view shows the fuel consumption's instantaneous value (white bar), average value (Ø) and set fuel consumption target (T).

If the truck is stationary fuel consumption per hour is shown.

Browse with the up/down button to show

- Trip meter 1 and 2
- Distance to empty
- Leg fuel consumed

One long press on the button resets the average fuel consumption or fuel consumption for the distance, in the respective view.

Trip meter 1 and 2 are reset with the button on the instrument, see Instruments page 54.

Favourites display

Driver information display

Favourites display
↳ Single/Multi

Most gauges and information from the trip computer can be selected as favourite view in the display. Select "Single" to show one information field across the whole display. Select "Multi" to show up to three information fields simultaneously. An empty field can also be selected.

Select favourite view:

- Tachograph activity
- Fuel consumption
- Average consumption
- Instantaneous consumption
- Distance to empty tank
- Gauges, see Gauges page 60
- Trip meter 1
- Trip meter 2
- Gauges for bodywork
- Soot level
- Empty field

There are two speedometers in "Favourites display", one for km/h and one for mph.

Browse between the views using ◁, ▷ or the up/down button. Press to confirm a selection. Press ESC to return to the previous view.

Settings

In this menu you can make settings for a number of functions. The menu options that are available depend on the truck's equipment. For information on menu options that are not presented here, see the relevant section in the driver's manual.

► **Language**

► **Display**

► **Load indicator**, see Load indicator page 174

► **Vehicle**, see Traction Control System (TCS) page 141, see Axle load distribution page 154

► **Trip computer**

- **Drive time alert**
- **Time & date**
- **Units**
- **Climate**, see Settings in the climate menu page 96

Certain settings are connected to the driver card and are saved as personal settings in the truck. The next time the same driver card is used these settings will remain.

Language

Driver Information Display

Settings
↳ Language

In this menu you can set language. The language setting applies to all the truck's displays.

Displays

Driver Information Display

Settings
↳ Display

In the display's settings you can:

- Adjust the brightness.
- Activate/deactivate the light sensor.

With the light sensor activated the instrument lighting is regulated automatically in order to ensure the readability of the instrument in bright conditions. It is also possible to change the brightness of the instrument using the control on the light switch, see Light switch page 77. If the control is set to a high level then the light sensor has reduced effect.

Trip computer

Driver Information Display

Settings
↳ Trip computer

Here you can reset the values for the trip computer and usage data.

Fleet setting

Driver Information Display

Settings
↳ Trip computer
↳ Fleet settings

This menu is password protected. The fleet setting provides the haulier with the option to check the driving by selecting an engine speed limit, a speed limit and a fuel consumption target. If the engine speed limit or speed limit is exceeded then this is recorded, see Usage data page 63.

When the truck is delivered from the factory the password is: 0000.

Time & date

Driver Information Display

Settings
↳ Time & date

Set the time and date format to be shown in the display.

Date display can be selected as a favourite view.

Settings for time and date are made in the tachograph. The tachograph has separate instructions for use which are supplied in the outer compartment of the packaging for the manual.

Units

Driver Information Display

Settings
↳ Units

Select which unit will be shown in the display for

- distance (km or miles)
- speed (km/h or mph)
- volume (litres, US gallons or IMP gallons)
- fuel consumption (km/l, l/100 km, mpg US gallon or mpg IMP gallon)
- weight (kg or pounds)
- pressure (psi or bar).

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Maintenance

Information about maintenance and about the use of the truck is collected in this menu. For more information on menu options that are not presented here, see the relevant section in the driver's manual.

- ► **Vehicle messages**.
- ► **Usage data**
- ► **Brake wear**, see Brake linings page 284
- ► **Vehicle data**
- ► **Diagnostics**
- ► **Water draining**, see Water separator page 255
- ► **Fuel priming**, see Priming page 254
- ► **P-heater cleaning**, see Heater maintenance page 252

Vehicle message

Driver Information Display

Maintenance
↳ Vehicle messages

Vehicle messages are displayed in the driver information display, sometimes a symbol is illuminated at the same time in the instrument cluster. Acknowledge the message with ESC after you have read it.

Messages are stored in this menu and a symbol in the display's bottom row indicates that one or more vehicle messages are active. The messages are sorted in order of severity. Browse between the messages with the up/down button. The symbol is shown for as long as the message has not been addressed, and the message is shown every time the truck is started.

Red symbol *Yellow symbol* *White symbol*

Symbols for active vehicle message:

- Red warning message (most critical).
- Yellow warning message (medium critical).
- White information message (least critical).

Usage data

Driver Information Display

Maintenance
↳ Usage data

Information is collected in the usage data about how the truck is used during driving.

- Distance
- Average fuel consumption
- Fuel consumed
- Over-revolution time
- Uneconomical revolution time
- Fuel consumed during uneconomical revolutions
- Average speed
- Overspeed time
- Engine hours
- Idle time
- Idle fuel consumption
- PTO time
- PTO fuel consumed
- Cruise control time

Vehicle data

Driver Information Display

Maintenance
↳ Vehicle data

- Distance
- Fuel consumption
- Engine hours
- Idle time
- Power take-off time
- Engine revolutions

Diagnostics

Driver Information Display

Maintenance
↳ Diagnostics

You can find information on the control units included in the truck in this location. If a control unit has one or more fault codes then this will also be listed here.

The "Instrument test" menu option provides the facility to carry out a number of tests on the instrument and loudspeakers.

- Symbol test - Illuminates all symbols and lamps in the instrument.
- Gauge test - The dial gauges move slowly from minimum to maximum value at first, and then quickly.
- Display test - Illuminates all displays in the instrument and all segments included in the left-hand display and centre display.
- Speaker test - Loudspeaker in the instrument and radio sound tested.

Press ESC to cancel a test.

Reset service data

Driver information display

Maintenance
↳ Reset service data

Reset service data after replacement of the truck's batteries, see Batteries page 259, or changing the air drier's desiccant, see Checking the air drier page 283.

Symbols

The following symbols may be shown on the bottom row in the driver information display and they indicate the status of certain functions in the truck.

The truck's equipment determines which symbols may be shown.

Symbols for body builder functions may also appear, see separate instructions for use for bodywork equipment.

Symbol	Meaning
	Vehicle Messages, see Vehicle message page 63

Symbol	Meaning
	Focus change
	ABS fault, truck, see ABS page 145
	ABS fault, trailer
	Fault in brakes, see Monitoring the wheel brakes page 145
	Stability system fault
	Stability system engaged (flashing)

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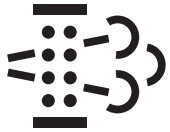
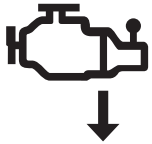
Symbol	Meaning
	Dynamic bending lights, see Dynamic bending light page 78
	Airbag, see Airbag page 39
	High exhaust temperature
	Lane change support
	Engine start blocked
	Traction control function, see Traction Control System (TCS) page 141

Symbol	Meaning
	Automatic differential lock, see Automatic differential lock DLC (Diff lock control) page 146
	Load-levelling is not allowed
	Levelling ferry transport
	Hill start aid, see Hill start aid page 144
	Temporary speed limitation
	Stretch brake

Symbol	Meaning
	Water draining, see Water separator page 255
	Fuel priming, see Priming page 254
	Regeneration
	Load-levelling
	Power take-off, see Power take-off page 170
	Immobiliser

DISPLAYS

Symbol	Meaning
	Engine heater timer, see Starting engine heater only page 98
	Parking heater timer, see Starting the parking heater with the timer page 97
	Alarm clock
	AdBlue

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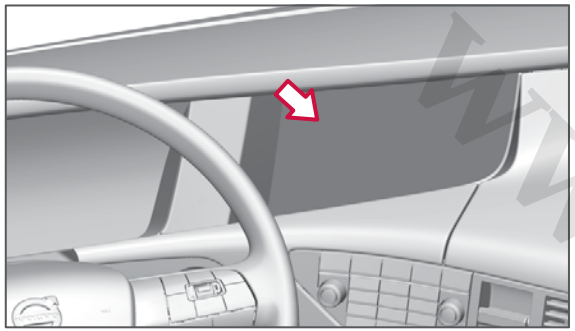
Secondary display



The secondary display shows information from the infotainment system, such as audio and phone, but also from Dynafleet, the navigation system and reversing camera if these functions are available.

Control panel

The control panel has buttons for audio, phone, navigation, Dynafleet and camera. One press on the button opens a pop-up menu in the display. Several presses browse between the different functions within each respective area. The phone menu is opened directly.

Navigation

The display is controlled using the control panel or the steering wheel keypad.

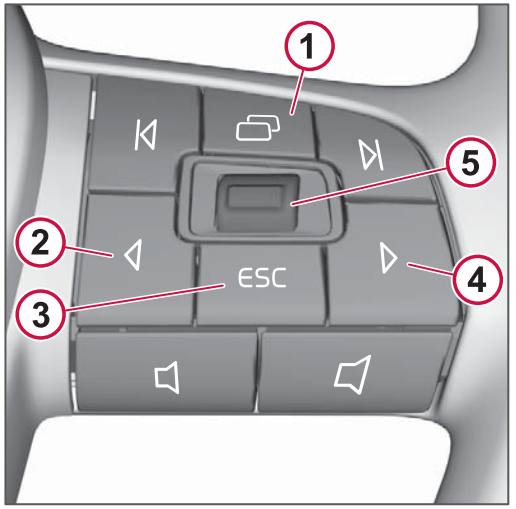
Control panel

Turn the OK button to browse up and down in the menus. One press confirms a selection.

To go back a level, press ESC. Hold the button depressed to access the main menu.

Use the on/off button to switch off the current function and close the whole system.

Keypad in the steering wheel



1 Focus change between navigation in the driver information display or the secondary display.

2 Navigate left.

3 Escape (cancel/go back).

4 Navigate right.

5 Navigate up/down. Confirm selection/OK (press).

Menu

The menu options shown in the secondary display depend on the truck's equipment. A greyed out menu option means that this function is not available.

- **Phone**, see Bluetooth handsfree page 203
- **Audio**
  - CD, see CD player page 199
  - Radio, see AM/FM page 196
  - iPod/USB, see iPod page 200, see USB page 201
  - AUX, see AUX page 201
  - Audio settings, see Audio Settings page 202
- **Dynafleet**, see ActivateDynafleet page 182
- **Navigation**, see Activating navigation page 205
- **Cameras**, see Activating the camera page 152
- **Alarm**
- **Settings**
  - Brightness
  - Contrast

Alarm/Alarm clock

In the menu for the clock you can set the alarm, change time, set repetitions, select alarm signal or switch off the alarm.

A symbol in the display's top row indicates that the alarm is activated.

Symbol for activated alarm.

Settings

Secondary display

Settings
↳ Brightness

Display brightness can be adjusted via the menu. Use the up/down button to set the desired brightness. Confirm with "OK".

Light intensity also changes when the instrument lighting is adjusted with the control on the light switch, see Light switch page 77.

Display in rear control panel

The rear control panel with display is located above the bed area on the rear cab wall.

The control panel has direct buttons for controlling interior lighting and audio volume.

Depending on the truck's equipment a number of functions can be controlled from the display's menu, e.g. doors, windows, roof hatch and audio system.

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Navigation

The display is controlled using the buttons under and to the right of the display. Navigate up/down with the buttons to the right and use the lower buttons to select the function.

Menu

The menu options shown in the display depend on the truck's equipment. See also the respective sections in the driver's manual.

- **P-climate**, see Starting the parking heater from the rear control panel page 98
- **Alarm**
- **Infotainment**, see Selecting audio source from the rear control panel page 195
- **Doors** (Lock/Unlock)
- **Windows** (Open/Close)
- **Light**, see Lighting button in rear control panel page 100
- **Roof hatch** (Open/Close)
- **Settings**

  Display mode (Black or White background)

  Brightness (Increase/Decrease)

Alarm/Alarm clock

In the menu for the clock you can set the alarm, change time, select alarm signal or switch off the alarm.

A symbol is shown in the display when the alarm is activated.

Symbol for activated alarm.

TACHOGRAPH

General
The tachograph has separate instructions for use which are supplied in the outer compartment of the packaging for the driver's manual.

The tachograph records speed as well as drive and rest times. It is an efficient tool for helping to plan and log driving and work.

Driver Information Display
The driver information display can be user-customised for the tachograph. You can select to view current activity, drive time for current shift, drive time this week or drive time for two weeks under Tachograph in the driver information display's menu.

In the event of a fault in the tachograph or its write function this is advised in the driver information display.

Driver Information Display

MENU
↳ Tachograph
↳ Current tachograph activity (Drive time, Break time, Work time, Rest time or Available time)
Full day drive time
Drive time this week / Two week's drive time

Favourites display
Tachograph activity can be selected in the driver information display's menu, under Favourites display. If this has been selected then the current activity is displayed (Drive time, Break time, Work time, Rest time or Available time) as well as the time for this as a favourite in the display. For more information about Favourites, see Favourites display page 61.

Drive time alert
Activate Drive time alert under Settings in the driver information display's menu in order to set the desired drive time. The alarm alerts 15 minutes before the set time expires.

The alarm can be set for between 15 minutes and 4 hours.

Driver Information Display

MENU
↳ Settings
↳ Drive time alert

Mandatory messages	Meaning
PREPARE FOR A BREAK	Warning after 4 hours and 15 minutes of continuous driving.
TAKE A BREAK	Warning after 4 hours and 30 minutes of continuous driving.
Selectable messages	**Meaning**
PREPARE FOR A BREAK	Option to determine when the warning "PREPARE FOR A BREAK" should be given (see Drive time alert). Can be set between 15 minutes and 4 hours.

Display messages
The driver information display shows information and messages for the tachograph. This concerns, for example, the driver card's expiry date and an alert for when it is time to take a break.

Settings
Some settings that can be made for the tachograph are connected to the driver card's ID.

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Direction indicators

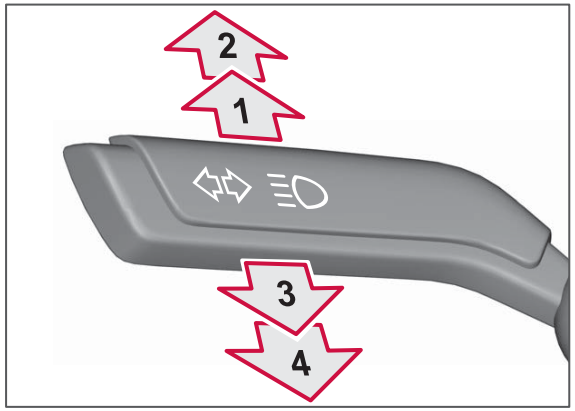
The lever has two positions up and down. Two positions are spring-loaded and two positions are fixed.

1 Right-hand turn signal for as long as the lever is held in the spring-loaded position.

2 Turn signal to the right.

3 Left-hand turn signal for as long as the lever is held in the spring-loaded position.

4 Turn signal to the left.



Windscreen wipers

1 Windscreen wiping at normal speed for as long as the hand lever is held in the spring-loaded position.

2 Intermittent wiping.

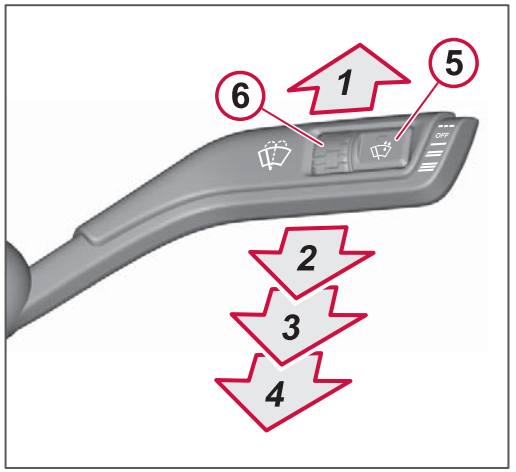
3 Windscreen wiper, normal speed.

4 Windscreen wiper, high speed.

5 Switch the rain sensor on and off (can only be switched on when the windscreen wiper is switched off).

6 Scroll wheel.

Use the scroll wheel to adjust the time interval for intermittent wiping and rain sensor sensitivity. Scrolling upwards increases the sensitivity. When the rain sensor is activated the LED lamp on the hand lever is illuminated.

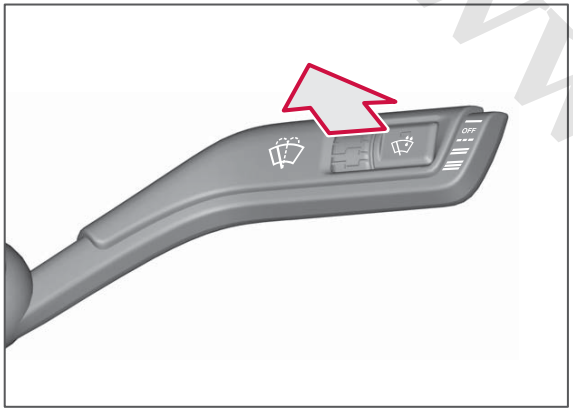


NOTE

If the temperature is below 0 °C and the door is opened when the truck is stationary then the rain sensor is switched off. It is switched on again when the truck's speed exceeds 5 km/h or by activating the rain sensor again.

Windscreen washer

Pull the lever towards you to start the windscreen washer, windscreen wipers and headlamp washers.



Parking brake

Release automatically

The parking brake can be disengaged automatically.

1 Start the engine.

2 Engage a gear.

3 Depress the accelerator pedal.

The parking brake will not be disengaged automatically if a door is open. The display will show a message when automatic disengagement is possible.

> **⚠ CAUTION**
>
> If the parking brake is not disengaged immediately, stop driving and release manually or check the conditions for automatic disengagement. The clutch and power transmission may otherwise be damaged.

Release manually

1 Keep your foot on the accelerator or brake pedal.

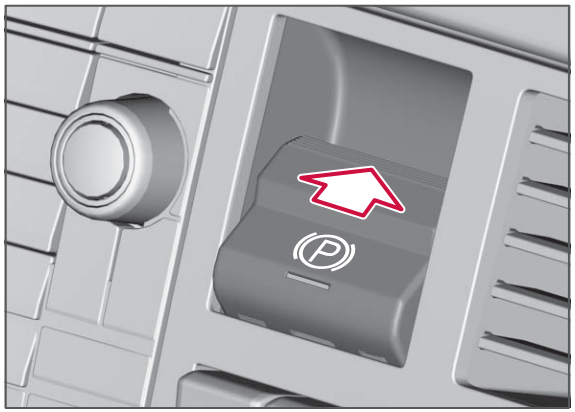
2 Depress and release the lever for the parking brake.

If the gear selector is in position "A" "M" or "R".

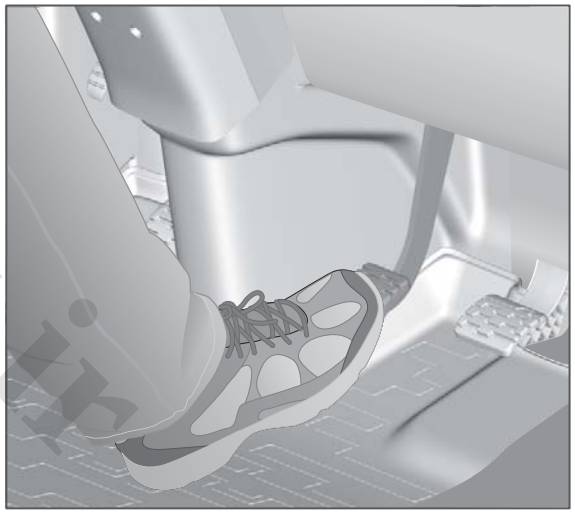
1 Press the lever for the parking brake.

2 Depress the accelerator pedal.

The symbol in the instrument and the indicator in the lever are switched off.



Disengaging the parking brake



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NOTE

It is only possible to disengage the parking brake with the starter key in the position for "Accessory" or higher.

In the event of faults in the service brake

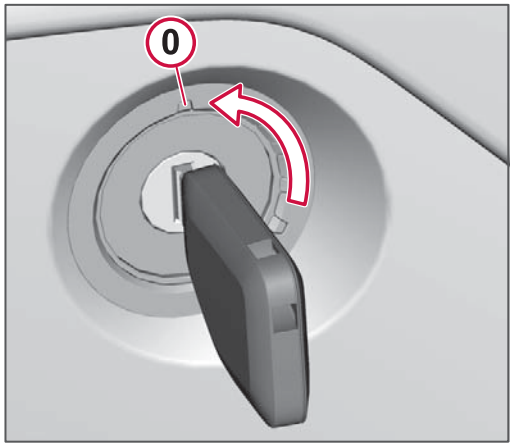
When a fault in the service brake is indicated in the display the lever must be depressed for a slightly long time and then released in order to disengage the parking brake.

Apply automatically

The parking brake is applied automatically.

- Turn the key to the 0 position.

The brake is applied and a symbol in the instrument illuminates and a red indicator in the lever illuminates.



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Symbol in the instrument

DANGER

Always check that the symbol in the instrument and the indicator in the lever for applied parking brake are illuminated before you leave the cab.

NOTE

The indicator in the lever will be illuminated for a moment after the key has been removed from the starter switch.

Service position

In order to disengage automatic application, depress and hold the lever for the parking brake while turning the key to the 0 position at the same time.

A text in the driver information display shows that the parking brake is in service position.

Service position is exited when the parking brake is applied manually or the speed exceeds 40 km/h.

CAUTION

The parking brake's warning sound will not be active in service position.

Apply manually

- Pull the lever to the end position (past the click) in order to apply the parking brake.

The brake is applied and a symbol in the instrument illuminates and a red indicator in the lever illuminates.

NOTE

The tractor and trailer can be braked gradually while driving by pulling the lever. Even if the lever is pulled to the end position (past the click) the brake is disengaged when lever is released at speeds above 7 km/h.

Trucks with braked trailer

When the truck's parking brake is applied the trailer's service brake is used as well.

However, the trailer's brakes will be released if there is an air leak in the system.

It is therefore important to check that the truck's braking force is sufficient for the whole vehicle combination when parking on a hill.

Brake test

1 Apply the parking brake (the service brake must **not** be applied).

2 Then pull the lever to the end position one more time (past the click) and hold it in that position.

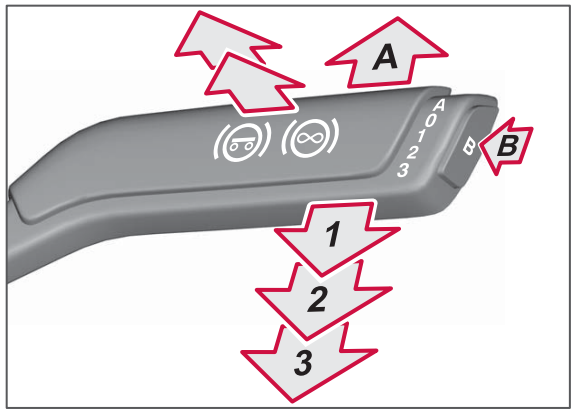
The brakes on the trailer are released temporarily. Check that the truck is stationary.

If the truck does not remain still, chock the wheels with chocks.

Brake test for trailer.

> **NOTE**
>
> Carry out a brake test when parking on a hill.

Auxiliary brakes



A	Automatic position
0	Auxiliary brake disengaged
1-3	Manual positions
B	Braking program
Towards you	Trailer brake

A number or letter in the centre display shows which position the lever is in. The symbol for auxiliary brake is shown when the function is active.

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Auxiliary brake in the centre display.

Automatic position A

In position "A" the auxiliary brake acts together with the normal wheel brakes when the brake pedal is depressed ("Brake blending").

If the cruise control is engaged, it uses the auxiliary brakes to maintain the set speed.

Manual positions 1-3

The auxiliary brake is engaged incrementally for every step you move the hand lever. An authorised Volvo workshop can change how much the auxiliary brake is engaged in the different positions.
Release the accelerator pedal for the auxiliary brake to take effect.

In order for the auxiliary brakes to function when the accelerator is released during driving,

- truck must be in gear, and
- engine speed must be at least 1000 rpm, but preferably as high as possible without entering the tachometer red zone
- cruise control must be switched off.

Braking program

1 Move the hand lever into manual position.

2 Depress button "B" on the end of the hand lever.

3 B is shown in the centre display.

When the brake program is engaged, the gearbox changes to the gear which gives the best auxiliary brake effect.

Disengage the brake program by pressing the button "B" again or by depressing the accelerator pedal.

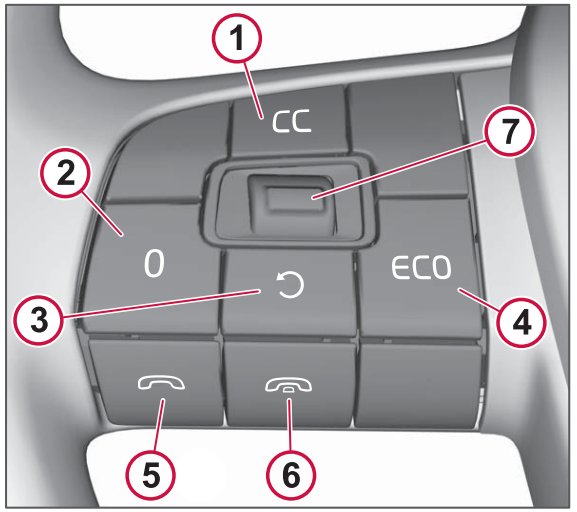
Trailer brake

Pull the hand lever towards you to the first or second position to activate the trailer brake.

Speed must be less than 5 km/h for the brake to be engaged. The brake is disengaged if the speed exceeds 7 km/h or when the hand lever is released.

Steering wheel

Keypad left



1 Activate cruise control CC (Cruise Control).

2 Disengage cruise control.

3 Resume the previously set speed.

4 Change the permissible overspeed.

5 Answer phone.

6 End call.

7 Increase/decrease speed (up/down). Select speed (press).

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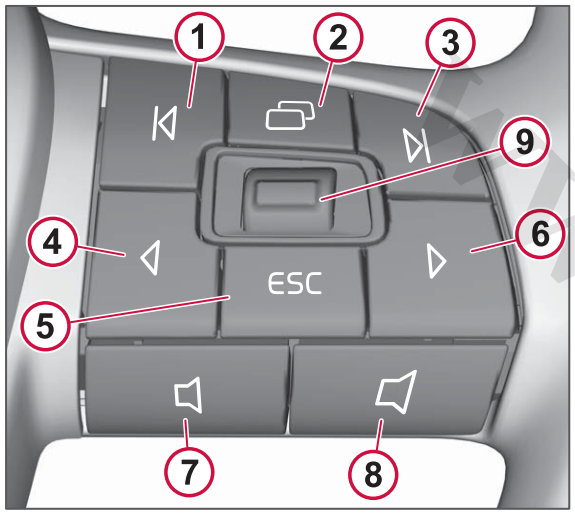
Keypad right



1 Change track/search.

2 Focus change between navigation in the driver information display or the secondary display.

3 Change track/search.

4 Navigate left.

5 Escape (cancel/go back).

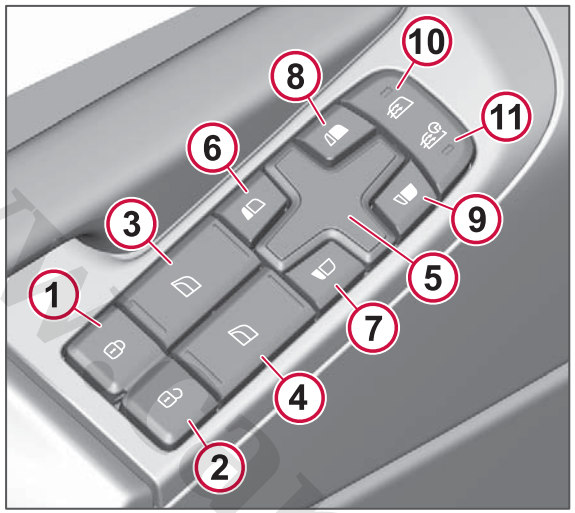
6 Navigate right.

7 Reduce volume.

8 Increase volume.

9 Navigate up/down. Confirm selection/OK (press).

Door, control panel



1. Locking the doors

Lock both doors by pressing the LOCK button once.

2. Unlocking the doors

Unlock both doors by pressing the UNLOCK button once.

3 and 4. Electric window lifts

The window lifts are operated with buttons 3 and 4.

Open window:

Both window lifts move automatically to open position with a shorter press on the button.

Close window:

The driver door window lift moves automatically to closed position with a shorter press on the button. This function has pinch protection.

The passenger door window lift is operated manually to closed position.

5. Joypad control

Adjust the selected rear view mirror with the joypad control.

6, 7, 8 and 9. Electrically operated rear view mirrors

Select the mirror to be adjusted with buttons 6, 7, 8 or 9. The lamp illuminates in the button.

Adjust the mirror with the joypad control (5).

10 and 11. Heated rear view mirrors

Depress button 10 to start the defroster. The heating is switched on until the engine is switched off.

Depress button 11 to start the defroster for 30 minutes.

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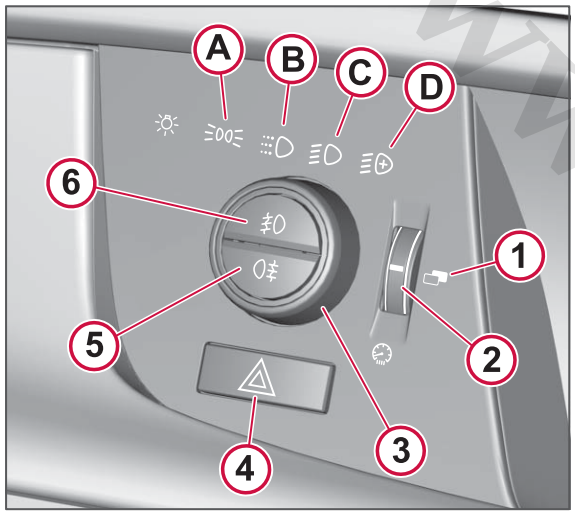
Lighting

Light switch



1 Instrument lighting day/night, presets. Press the scroll wheel.

2 Instrument lighting, dimmer.

3 Lighting switch.

4 Hazard warning lights.

5 Fog light rear.

6 Fog lights front.

Display brightness can also be changed via the respective menu: driver information display, see Displays page 62 and secondary display, see Settings page 68.

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Instrument lighting in night mode

When the instrument is set in night mode only the most important information is shown in the instrument, such as e.g. speed. Some information will not be shown in this mode.

Instrument lighting, dimmer

Instrument lighting brightness can be adjusted. The brightness is then automatically adjusted from the set value to shine more brightly in strong ambient light.

Selection of headlamps

A. Parking lights.

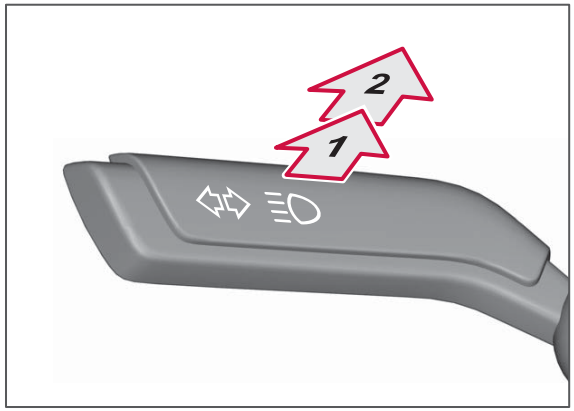
B. Daytime running lights.

C. Main beam/dipped beam.

D. Main beam, auxiliary lamps (spotlights) and dynamic bending lights.

> NOTE
>
> Certain spotlights also need to be activated with a button in the panel.

Main beam

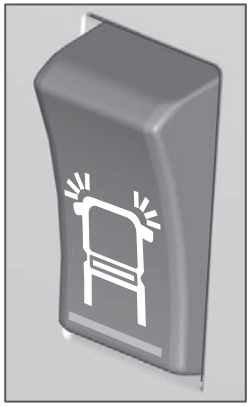


Main beam

For a quick flash of the main beam, pull the main beam stalk switch towards you one step. The position is spring-loaded.

For constant main beam, pull the main beam stalk switch towards you to end position. The position is spring-loaded. Disengaging the main beam is performed in the corresponding way.

Static cornering light



Static cornering light

Static Cornering Light, Static cornering light, lights up dark areas during left and right turns.

The light is activated using the switch on the instrument panel and the light switch in position "C" or "D".

The light on each side is switched on when

- the speed is below 40 km/h

and

- the direction indicator for either direction is switched on.

Dynamic bending light

With this function the light follows the movements of the steering wheel. This is in order to maximise the output from the lighting in bends and at intersections. The function is only active when the truck is moving forward.

The function is activated with the light switch in position D.

In the event of a fault in the function the system will attempt to centre the beam pattern and a fault message will be shown in the driver information display. If centring is not possible there will be a prompt to "ADJUST MANUALLY & CONTACT WORKSHOP" shown in the driver information display. Then the lamp modules should be checked so that they shine straight ahead so as not to dazzle oncoming traffic. If they are not shining straight ahead then they must be adjusted manually, see Dynamic bending light adjustment page 243.

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General

You can control a selection of truck functions at up to 25 metres away using the truck's work remote control. This is particularly useful for loading, unloading and work around the truck. When the work remote control is not in use it is charged in the charging station on the driver's side.

The work remote control in its charging station

If the work remote control is not fitted in its charging station when you are driving then there will be a warning in the driver information display. The warning is acknowledged with ESC.

> **NOTE**
>
> The work remote control is not protected against extreme temperatures and can become overheated. For this reason, store the work remote control away from direct sunlight, such as on the instrument panel behind the windscreen.

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Technical specifications

- **Range:** up to 25 metres
- **Operating time:** 3 hours (operating time refers to the time when the display is switched on and the work remote control is used, after 30 seconds of inactivity the screen saver is activated).
- **Standby time:** 50 hours (standby time is counted when the work remote control is not fitted in the charging station, after an hour the work remote control goes into sleep mode).
- **Charging time:** 3-4 hours for a discharged battery. If the battery is fully discharged then the work remote control must be fitted in the charging station in order to be used. The work remote control is charged in its charging station regardless of whether the ignition is on or off.

> **NOTE**
>
> When it is cold it may take more than 4 hours to charge the work remote control. In extreme cold, charging the work remote control can take a very long time! Park in a garage or heat the cab if you need to charge the work remote control and it is below -15 °C outside.

Using the handset

Displays

The top of the display contains symbols that describe the active functions, battery charging and the work remote control's reception. The symbols are listed in the table earlier in this chapter.

The functions that can be used in the work remote control depend on the truck's equipment, as well as which other functions are used. For safety reasons, not all menus are selectable during driving and are then temporarily greyed-out in the display.

Buttons

The handset has the following buttons:

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1 **STOP** - Immediately stops all air suspension control.

2 **Shortcut -** Program your own shortcuts for frequently used functions or menus.

3 **Navigation buttons -** Navigate between the menus in the display. The buttons correspond to the symbols in the display.

4 **OK** - Confirms a selection.

5 **ESC/ON/OFF** - Escape (ESC) is obtained by a quick press of the button. ESC scrolls backwards in the menu navigation.
ON and OFF are obtained by a longer press of the button. ON and OFF switch the handset on and off.

6 **Lock -** Under this menu is the button lock for the handset.

The automatic button lock for the handset is activated when it is not in use. The button lock is deactivated by pressing the lock button and then OK.

Pop-up windows are closed via ESC or by waiting.

Pressing the lock button (6) gives you the following options:

- **Lock truck** (shown if the truck is unlocked)
- **Unlock truck** (shown if the truck is locked)
- **Button lock**

Scroll to the option you want and confirm with OK. You can go back by using ESC.

The truck's central locking can also be activated by holding the lock button depressed for 2 seconds.

Relationship between the display and the navigation buttons

Navigating in the menus

The location of the navigation buttons corresponds to the symbols in the display. The symbol to the right of the display is then activated by pressing the right-hand navigation button and the corresponding one for the other symbols, see figure. Use ESC to go back to the previous menu.

The work remote control's functions

General

Starter key function mode, see Function positions page 114 together with the truck's equipment determines which functions can be used in the work remote control. The functions are grouped according to the context in which they are used. The display's start menu may have a different appearance depending on the functions you have in the truck.

Using "Settings" you can select which views are shown in the display.

"MENU" is available in the lower edge of the display. Here you can make light settings, use manual and preset height adjustment, engine control, body builder functions, gauges, and load indicator. "MENU" also contains the work remote control's setting options.

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MENU

You can make the following selections under "MENU".

Work Remote Control

MENU
↳ Load indicator
Level control
Lights
Engine control
PTO/AUX
Equipment gauges
Settings

Example

Show load distribution

Use "Load indicator" to see the front and rear axle load, the weight of any trailer and the total weight. Both indicated weight on all rear axles and total bogie/ tridem weight are shown on bogie and tridem, see page 174.

Switching work lights off and on

The work lights can be switched off and on under "Lights".

Controlling engine speed

If the engine is running then its speed can be controlled via the work remote control. Go to the "Engine control" menu and control the speed with the navigation buttons (you can also control idling and restart).

Switching the power take-off off and on

The power take-off for the engine and gearbox can be switched off and on with the work remote control. You can find these functions under "PTO/AUX".

Display gauges

Up to three gauges can be shown simultaneously in the display. The gauges can either show a value or a status bar.

1 Select "Equipment gauges" to select gauge.

2 Browse and select from the available gauges.

Settings

Menu -> Settings

Work Remote Control

MENU
↳ Settings

You can find the following options under "Settings".

- **Button lock** - sets the time interval for the button lock
- **Shortcut buttons** - connect the shortcut buttons (2) either to activation of a function or to a desired menu
- **Start menu -** replace the functions shown in the start menu
- **Scenarios** - create and store settings
- **AUX** - adjust symbols and name
- **Lights** - switch the lighting off and on, adjust the symbols
- **Display mode** - select lights, automatic or dark display view
- **Brightness** - sets display brightness

Example

The following are examples of selections that can be made under "Settings":

Creating shortcuts

1 Go to "Shortcut buttons".

WORK REMOTE CONTROL (WORK REMOTE CONTROL)

2 Select "Set" to program the shortcut buttons (select "View" to see the existing shortcuts).

3 Press the button you want to program.

4 Select "Go to menu" if you want the shortcut button to lead you to a particular point in the menus. If you want a special function to be activated directly with the shortcut button then select "Activate function" instead.

5 Select the function or menu position in the list.

6 Finish with OK.

Adapting the display's start menu

1 Go to "Start menu".

2 Select "Set start menu" (you can also select "Reset start menu").

3 Select display position (up, right, left) with the navigation buttons.

4 Select "Go to menu" if you want to add a particular point in the menus on the location. If instead you want to add a scenario (i.e. a group of functions) there, then select "Scenarios".

5 Select the function or menu position in the list.

6 Finish with OK.

Adjusting scenarios

1 Go to "Scenarios".

2 Select "Custom scenario 1 or 2".

3 Select "Name" to adjust the name of the scenario.

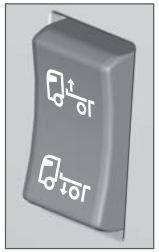
4 Select "Go to menu" in order to select a menu that you should enter when you activate the scenario.

5 Select "Save" when done.

Air suspension

You can raise and lower the wheel axles for different ride and load heights with the work remote control. The engine need not be running for the height to be adjustable, but the air pressure in the system must be sufficient. Height adjustments can be made at low speeds with the work remote control.

The switch in the instrument panel can also be used for height adjustment of the rear axle. The truck goes automatically to drive mode when you start to drive (a warning is given first, but when speed is increased the truck goes to drive mode).



Switch for height adjustment

Work Remote Control

MENU
↳ Level control

- **RECALL LOADING LEVEL**- go to preset load height
- **Manual control -** manual height adjustment
- **Go to drive level** - go to ride height
- **Go to ferry level** - go to ferry transport height
- **Go to swap high** - go to high swap body height
- **Go to swap low** - go to low swap body height
- **Reset drive level**- restore ride height
- **Edit loading levels** - adjust load height

ⓘ NOTE
If the truck is in ferry transport mode, then drive level must be activated before you can regulate the height.

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Example

You can make the following selections under "Manual control".

Work Remote Control

- Level control
  - Manual control
    - Loading level
    - Drive level
    - Swap body level

You can raise and lower the truck's rear axle manually, adjust the roll or pre-program ride, load or swap body heights under "Manual control".

Setting the height

1 Go to "Loading level" to set a load height. You can also select "Drive level" or "Swap body level" depending on what you want to set.

2 Adjust the height of the rear axle using the up and down navigation buttons. You can use the Hold function, see separate description. When an axle reaches its max or min position the arrow for adjustment is switched off.

3 Adjust the roll by means of "Roll" (the roll cannot be adjusted in ride height). How much roll you can have depends on how much load you have. At full and empty load roll is not possible at all.

4 Select whether you want to save your load height (you can update a previous setting or create a new one).

5 Finish with "Save" if you want to save or "ESC" if you do not want to save.

Useful functions

Hold

You can activate the Hold function by holding the up or down button depressed. The display then shows "Press OK to enable HOLD". Press "OK" to activate the Hold function. The display shows "Press OK to confirm stop" when the Hold function is active. Press "OK" in order to exit the Hold function.

Roll

The truck's roll can be adjusted in order to facilitate loading against non-horizontal loading docks or where the ground under a loading dock is not horizontal. To be able to use this function, the air system in the truck must be activated. Roll is activated together with height adjustment in the work remote control.

Roll is load-dependent, which means that the maximum possible roll varies between different load cases. At full and empty load tilt is not possible at all. If roll is possible then this is indicated in the work remote control.

Other body builder functions

Some other body builder functions can be controlled by means of the work remote control. These body builder functions are configured by the body builder.

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WORK REMOTE CONTROL (WORK REMOTE CONTROL)

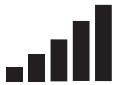
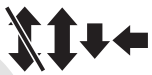
Display symbols

Intro

The tables below describe the symbols that can appear in the work remote control's display. There is a large number of body builder functions. These are not listed in the tables. Contact your body builder to find body builder functions for your truck.

Status bar

Symbol	Meaning	Description
	Battery status	Indicates remaining battery capacity. Shown in the status bar.
	Lock/unlock	Shows whether the truck is locked or unlocked. You can lock and unlock the truck with the handset.
	Engine, speed	

Symbol	Meaning	Description
	Signal strength	The bars indicate the signal strength between the work remote control and the truck. Crossed-out bars mean that the work remote control has no communication with the truck. No functions are available.
	Height indication	Adjustment not permitted. Manual adjustment. Ferry transport height. Ride height.
	Lights	Shown in the status bar if any of the exterior lights are switched on.

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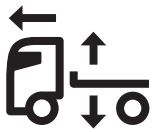
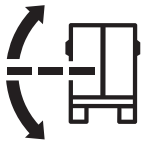
Lights

Symbol	Meaning	Description
	Warning lights	Switches warning lights off and on.
	Flashlight	Switches flashlight off and on.
	Work lights, trailer	Switches the work lights in the trailer off and on.
	Reversing light	Switches the reversing light off and on.

Symbol	Meaning	Description
	Work lights, cab	Switches the work lights on the rear of the cab off and on.
	Work lights, fifth wheel	Switches the fifth wheel's work lights off and on.
	Auxiliary lamps, front	Switches the auxiliary lamps in the front off and on. When the auxiliary lamps are activated they are synchronised with the headlamps.
	Auxiliary lamps, roof	Switches the auxiliary lamps on the roof off and on. When the auxiliary lamps are activated they are synchronised with the headlamps.

WORK REMOTE CONTROL (WORK REMOTE CONTROL)

Air suspension

Symbol	Meaning	Description
	Alternative load height	Adjust the load height manually.
	Alternative ride height	The truck's height is adjusted to ride height.
	Preset load height	Store a load height in the memory.
	Roll	Adjusts the truck's roll. Used when a loading dock is tilted or loading takes place on a hill.

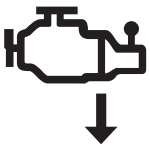
Symbol	Meaning	Description
	Height mode, ferry transport	Drains the air bellows and switches off the air system.
	High swap body level	The truck's height is adjusted to high swap body height.
	Low swap body level	The truck's height is adjusted to low swap body height.

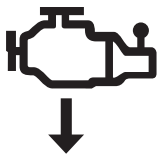
Load indicator

Symbol	Meaning	Description
	Load distribution	

Symbol	Meaning	Description
	Load distribution	Distribution of the weight between the driven axles.

Power take-off

Symbol	Meaning	Description
	Gearbox-mounted power take-off	Gearbox-mounted power take-offs can be engaged or disengaged.

Symbol	Meaning	Description
	Engine mounted power take-off	Engine-mounted power take-offs can be engaged or disengaged.

Engine, speed

Symbol	Meaning	Description
	Preset engine speed	Pre-programming the engine speed.

SWITCH

General

Switches that may be fitted in your truck are shown on the following pages.

The switches that are available in your particular truck depend on the truck's equipment and may therefore deviate from the table below.

Movable switches

The location of the majority of the switches can be easily adapted to your requirements. A few of the switches cannot be moved for safety reasons. Contact an authorised Volvo workshop for more information.

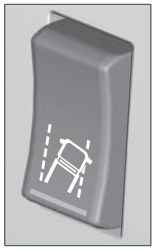
Reduced traction control, see page 141

Hill start aid, see Hill start aid page 144

Lane change support (LCS)

Forward collision warning (FCW)

Driver alert support (DAS)

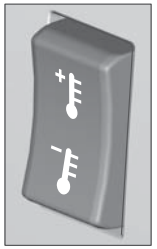


Lane keeping support (LKS)

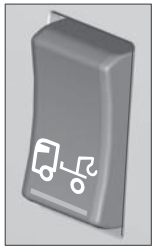
Cab tilt, see page 229

Movement detector switched off

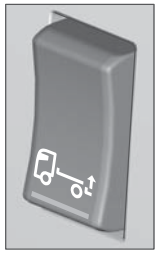
Parking heater, see page 96



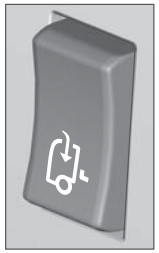
Temperature adjustment



Crane



Tail-lift



Roof hatch, see page 108

Sun blind, see page 107

Anti-slip device, chain

Anti-slip device, sand aggregate

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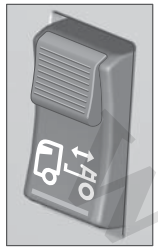
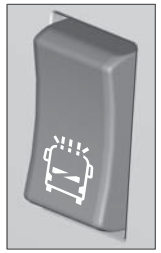
Twist lock



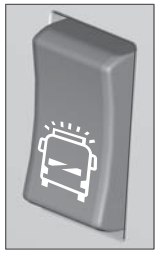
Repositioning, fifth wheel

Gearbox-mounted power take-off

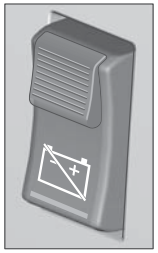
Engine mounted power take-off, see page 170



Identification light



Globetrotter sign



ADR main switch

Steering lock, rear axle

Reversing Warning, see page 151

Warning lamp, roof

Interior lighting, see page 100

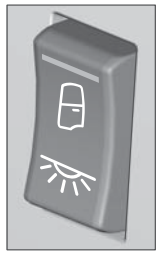
Interior lighting, night

Emergency button, Volvo Action Service, see page 2

Emergency button, Volvo Action Service, see page 2

Work lights, cab rear

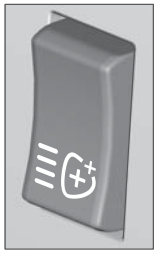
Work lights, fifth wheel



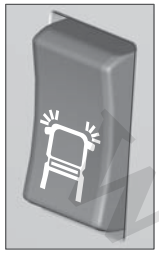
Automatic interior lighting

Folding side mirrors

SWITCH



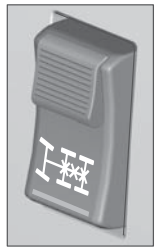
Auxiliary lamps, headlamps



Static cornering light, see page 78

Height for ferry

Kneeling



Differential lock, rear, see page 146

Alternative load distribution.

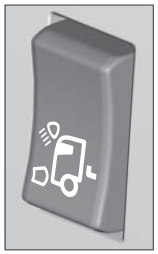
Headlamps, roof

Headlamps, front

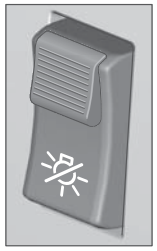
Alternative load height

Alternative load height

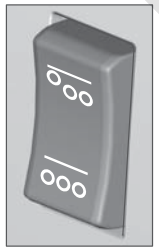
Alternative ride height



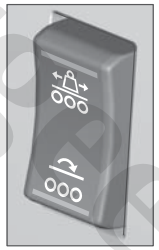
Plough lights



Lighting off (military)



Bogie lift, see page 153



Alternative load distribution/Maximum traction, see page 154

Automatic engine speed control

Temporary speed limitation

Reversing light

Automatic reversing light

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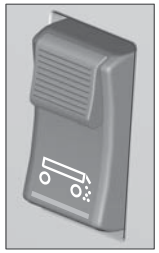
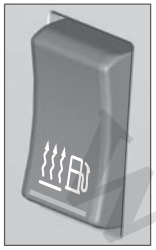


Spreader beam, trailer



Fuel heater

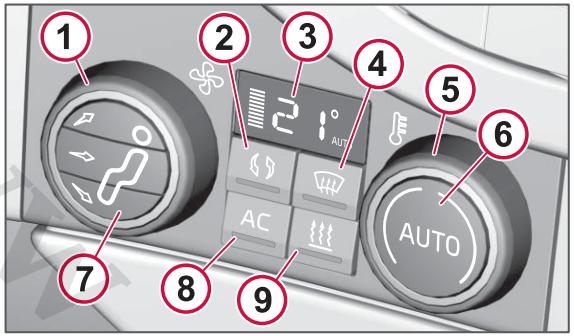
Climate control system

The climate control system cools or heats, as well as dehumidifies the air in the driver's cab. Sensors detect the temperature and atmospheric humidity in the cab in order to allow enable control of the air supply according to the prevailing climate.

It is normal to have condensation water dripping under the truck when it is hot outside.

The system remembers the settings made in the climate control system when the truck is switched off. When the truck starts next time it will have the same settings.

Control panel



1 Fan speed
2 Recirculation
3 Display, indicating fan speed and temperature
4 Defroster
5 Temperature
6 AUTO function
7 Air distribution
8 Air conditioning (AC)
9 Parking heater

The indicator in the button illuminates when the function is activated.

Sensor location

- A temperature sensor is located beside the power outlets for 12V and 24V on the instrument panel.
- The outside temperature sensor is fitted in a spoiler behind the headlamp, near the foot step by the right-hand front corner.
- A sun sensor is fitted in the centre top of the instrument panel and detects if the sun is shining into the cab.
- The humidity sensor is located at top centre on the inside of the windscreen, where it detects the atmospheric humidity and temperature by the windscreen. In the event of a risk of misting the automatic fan speed to the windscreen is increased, and also the heat if necessary.

NOTE

Do not cover or block the sensors with clothing or other objects. Nor should you place any heat sources such as a coffee maker or cups with hot drinks under the temperature sensor.

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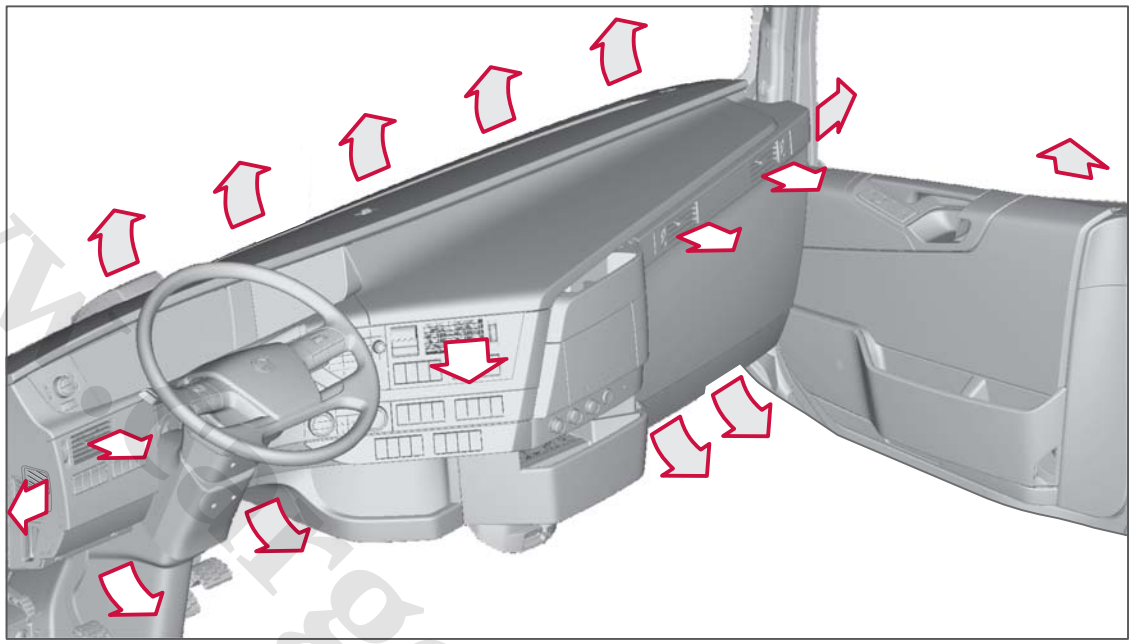
Air distribution

The incoming air is distributed through different nozzles.

Always allow the ventilation nozzles on the instrument panel to be open. Regardless of how the air distribution is set there will always be a small amount of air from these for the temperature distribution in the cab to be optimal.



NOTE

Do not cover the ventilation nozzles with clothing or similar. Nor should you fit optional equipment or accessories so that any of the ventilation nozzles is blocked. A good ventilation function cannot be guaranteed in such cases!

CAUTION

It is not permissible to fit an air cleaner of the type O3 Air cleaner in the cab as such a device can affect the climate control system's ventilation function adversely, and also cause damage to plastic surfaces and seals on the instrument panel.

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Setting the ventilation nozzles

The ventilation nozzles on the driver's side have four positions:

1 Closed (0).

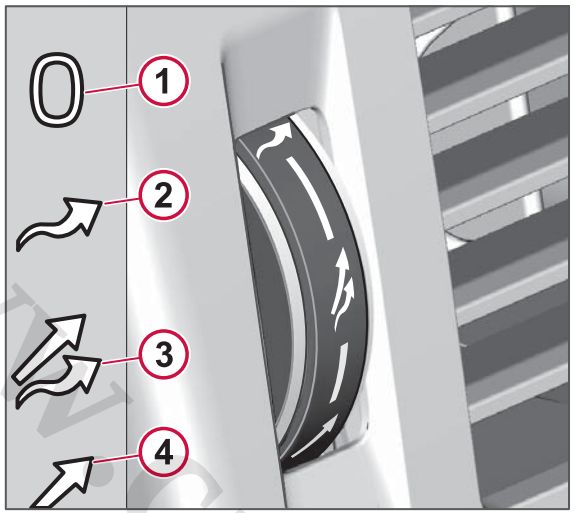
2 Diffuse.
Provides a uniform and draught-free ventilation. The airflow is low and cannot be aligned laterally.

3 Spot/diffuse, mix.
Maximum airflow with uniform distribution, limited possibility to align laterally.

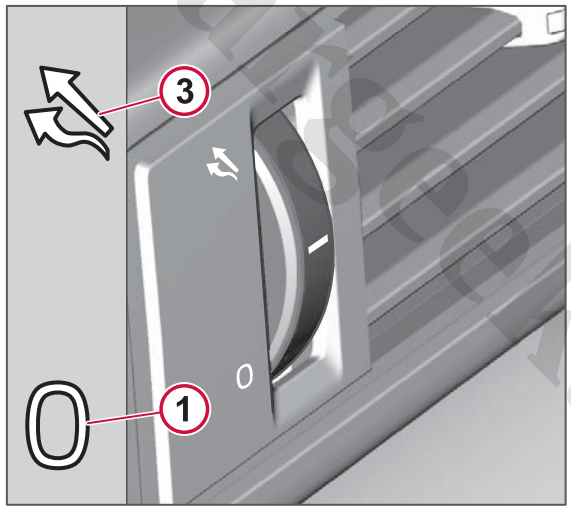
4 Spot.
Concentrated airflow which can be aligned in the desired direction.

Use the wheel control to set the desired airflow. The flow is adjustable variably between 0 and diffused position. Maximum airflow is obtained in the third position: spot/diffuse, mix.

The ventilation nozzles on the passenger side have two positions, closed and open. The airflow is adjustable variably between these positions and is adjustable vertically and laterally using the control in the centre.



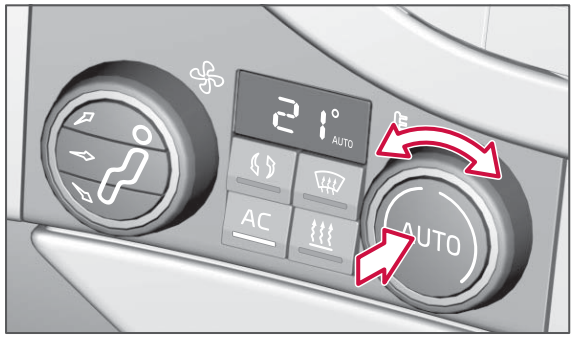
Driver's side ventilation nozzle.



Passenger side ventilation nozzle.

Settings

Setting the desired temperature



- Make sure that all the ventilation nozzles in the instrument panel are open.
- Set the desired temperature with the knob.
- Press AUTO.

The AUTO function regulates fan speed, air distribution and the AC function automatically, so that the selected temperature is reached. Previously selected settings will then be switched off.

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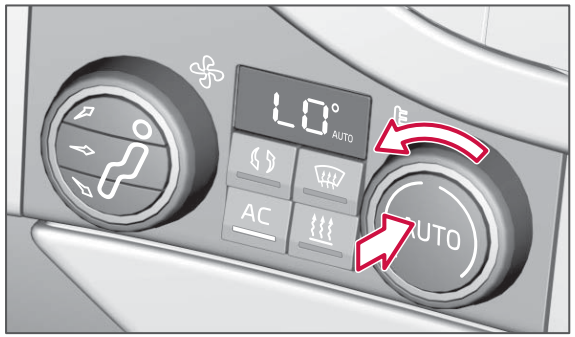
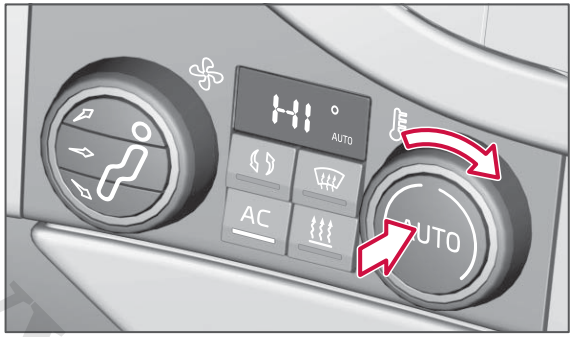
> **NOTE**
>
> The temperature selected corresponds to the perceived temperature by taking into account the circumstances in and around the truck (e.g. outside temperature, air speed, solar radiation) and not the temperature that a normal thermometer would show.

If any setting is changed manually then the AUTO symbol in the display is switched off. Other functions will continue to be controlled automatically in order to achieve the desired temperature.

If the fan knob is turned anticlockwise and the fan indication in the display goes out, the fan and air conditioning are switched off.



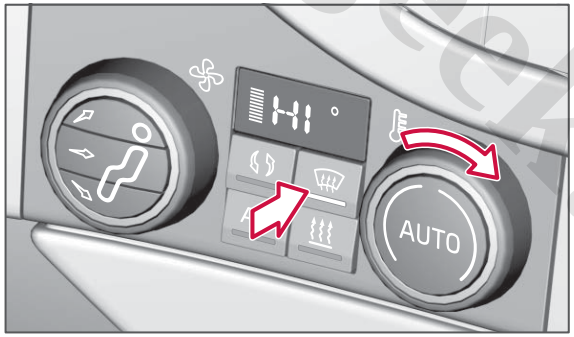
Setting for as cool as possible.



Setting for as warm as possible.

Tip!
Switch on the parking heater until the desired temperature is reached when you want to quickly raise the temperature in a cold cab while driving.

Remove mist and ice from windows



- Press the defroster. The fan increases to maximum speed, AC is activated and recirculation is disengaged if it has been started.
- Set the temperature to as warm as possible.

When the defroster function is switched off the climate control system returns to the previous settings.

In cold outside temperature the windscreen can become so warm that any snow flurries melt on the windscreen. This may cause the wiper blades to freeze solid. In which case, select air distribution to the floor only instead (the defroster function is switched off).

In cold outside temperature misting/ice may form on the side windows. To avoid this, switch off the inner panel nozzles and aim the outer ones towards the side windows.

Polish the inside of the windscreen with normal window cleaning agent in order to reduce the risk of misting. Polish more often if someone smokes inside the cab.

Recirculation

Press "recirculation" to circulate the air in the cab. This function closes all air inlets and is used to block out bad air.

The AUTO symbol in the display is switched off when recirculation is activated. Functions other than recirculation will continue to be controlled automatically.

An air quality sensor measures the quality of the incoming fresh air and activates the recirculation function automatically if the air contains a lot of exhaust gases and contaminants.

NOTE

Do not use the recirculation in high atmospheric humidity, heavy rain or low outside temperature. To avoid misting on the windows requires an inflow of fresh air and the air conditioning to be running.

Settings in the climate menu

Driver Information Display

Settings
↳ Climate

You can change the climate control system's standard settings in the climate menu for the following:

- fan speed in the AUTO function (High, Normal, Low)
- humidity sensor (On or Off)
- AC mode (Economy or Standard). In economy mode the use of the air conditioning compressor is minimised in order to save energy.

Using the parking heater

The parking heater heats the engine and cab area when the engine is switched off. The heater can be started directly from the control panel or with the timer.

The functions AUTO, air distribution, AC and defroster are available when the heater is switched on.

For the parking heater to be able to start the outside temperature must be lower than 20 °C, and the set cab temperature must be higher than the measured temperature.

NOTE

The heater must be shut off when fuelling.

NOTE

Check before starting the parking heater that the combustion air and exhaust openings are not blocked, and that there is no visible damage to the exhaust or combustion air hoses.

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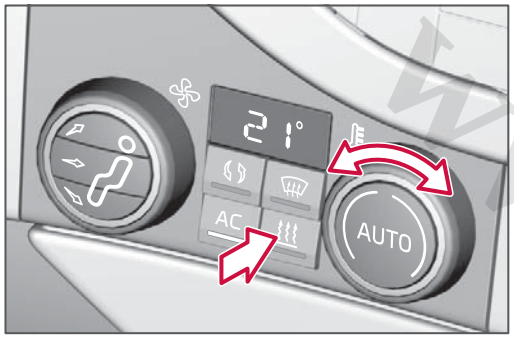
Starting the parking heater



1 Make sure that the ventilation nozzles in the instrument panel are open.

2 Press the button.

3 Set the desired temperature with the knob.

If the truck is started before the set temperature has been reached then the parking heater will continue to operate until the correct temperature has been obtained, then it is switched off automatically.

Switching off the parking heater

Switch off the heater by pressing the switch again (the lamp in the switch goes out).

> **NOTE**
>
> The main switch must not be switched off before the heater has stopped.

Starting the parking heater with the timer

The timer setting is made in the driver information display. The vehicle must be stationary when the setting is made. There is the facility to have a total of three start times programmed into the timer.

Adding a new time

Driver Information Display

Heater timers
↳ Parking climate
↳ New time

1 Enter the time when the heating should be finished.

2 Enter the desired cab temperature.

3 Select whether the setting should apply once or recur "Daily", "All weekdays" or "Weekends".

4 When the setting has been made it is confirmed with a message in the display.

A symbol in the display's bottom row indicates that the timer is activated.

Activating/deactivating a time

1 Go to the "Heater timers" menu and select the time for activation/ deactivation.

2 Select "On" or "Off" with ◁ or ▷.

3 When the change has been made it is confirmed with a message in the display.

Changing a time

1 Go to the "Heater timers" menu and select the time to be changed.

2 Confirm the time and change the settings.

3 When the change has been made it is confirmed with a message in the display.

Deleting a time

Driver Information Display

Heater timers
↳ Parking climate
↳ Delete

Select the time to delete and confirm.

Starting the parking heater from the rear control panel

1 Make sure that all the ventilation nozzles in the instrument panel are open.

2 Go to the "P-climate" menu.

3 Select "TURN ON" to start the parking heater.

4 Go to "Temp" to set the desired temperature.

Switching off the parking heater from the rear control panel

1 Go to the "P-climate" menu.

2 Select "TURN OFF" to switch off the parking heater.

Activating the timer from the rear control panel

If there is a countdown time programmed then it can be activated/deactivated from the rear control panel.

1 Go to the "P-climate" menu.

2 Select "TIMERS".

3 Select desired countdown time.

4 Select "TURN ON" or "TURN OFF" to activate/deactivate the timer.

> **NOTE**
>
> Programming to add or remove a time in the timer must be carried out via the menu in the driver information display.

Starting engine heater only

Driver Information Display

Heater timers
↳ Engine heater

It is possible to start the engine heater only (i.e. without the cab being warmed up) using the timer. Activate, deactivate, change or delete a previously programmed time, or add a new time in the menu.

When the setting has been made it is confirmed with a message in the display. A symbol in the display's bottom row indicates that the timer for the engine heater is activated.

Automatic switching off

The heater is switched off automatically when:

- The flame goes out during operation and does not relight within 90 seconds.
- The heater overheats.
- Battery state of charge is too low or too high.
- Combustion has not started after two start attempts.
- The main switch is switched off.

The operating time for the heater is limited to 10 hours with direct start and to 2 hours with timer start.

Information about maintenance of the heater is available in the chapter Maintenance, see page 252.

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Driver seat

Overview

1 Fold the backrest.

2 Seat damping.
The hardest setting corresponds to almost a fixed seat.

3 Preset memories.

4 Tilt the seat and move the seat cushion lengthwise.

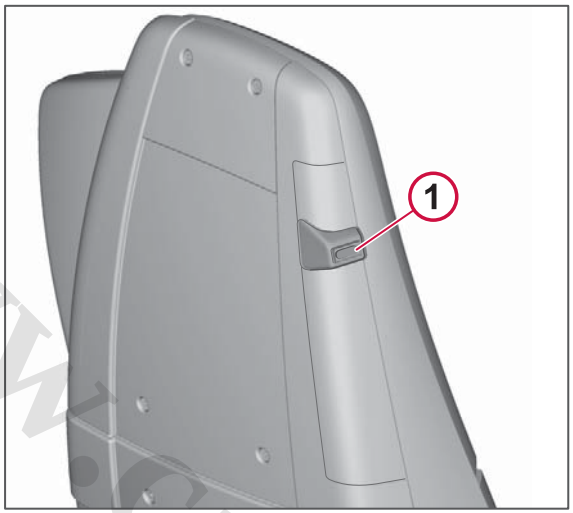
5 Ventilation (optional equipment).
Use position 1 for maintaining the correct climate comfort and position 2 for quickly reaching the correct climate comfort.

6 Seat heating.

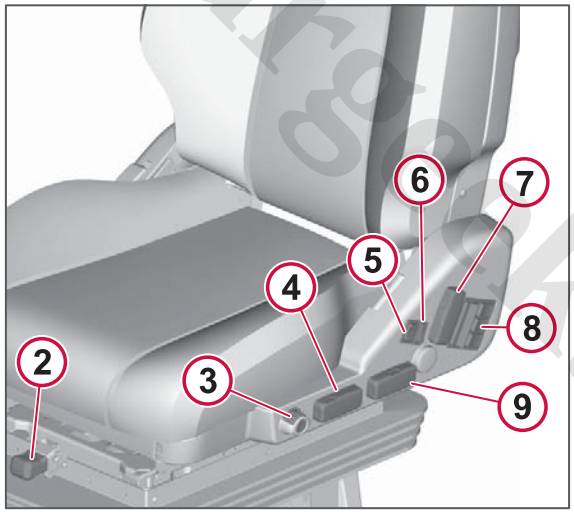
7 Upper section: Tilt the upper section of the backrest.
Lower section: Tilt the whole of the backrest.

8 Adjust lumbar support and side support.

9 Move the whole seat up or down and lengthwise.



Fold the backrest (the seat in the figure is equipped with a belt in the seat).



Seat controls.

Storing a position in the memory

1 Adjust the seat.

2 Select memory 1, 2 or 3 by turning button 3 to position 1, 2 or 3.

3 Press and hold button 3 until you hear a beep.
The position is stored.

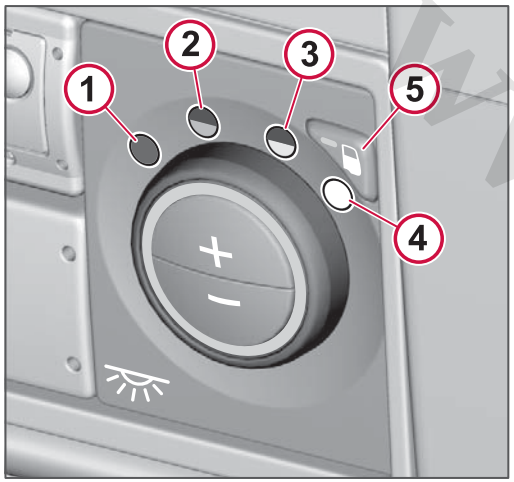
Retrieving a position from the memory

1 Select memory 1, 2 or 3 by turning button 3 to position 1, 2 or 3.

2 Press button 3 once.
The seat will revert to the stored position.

The reset is interrupted if one of the controls is moved while the seat is returning to the position.

Interior lighting



Lighting controls in the front shelf

The lighting in the cab is controlled using a control fitted above the driver area. The light in the cab can be changed as required in four different positions (1-4). Automatic door lighting (5) switches on the interior lighting when the door is opened or the engine is switched off.

1 Lighting Off

2 Night lighting (red)

3 Normal lighting

4 Max lighting

5 Automatic door lighting On/Off

The reading lights can be used for a certain time even when the lighting is switched Off.

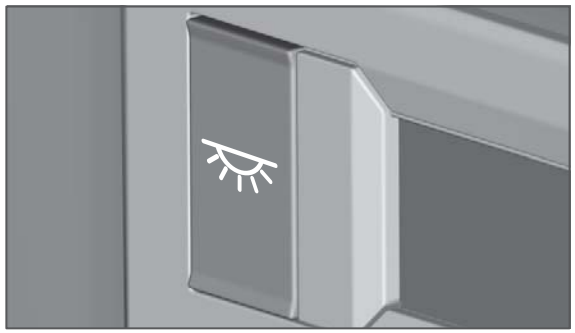
Adjusting the light level

Adjust the light level in the cab with the + and - buttons. It is possible to have different light levels for each position (2-4). The latest dimmer level remains in memory.

Lighting button in rear control panel

It is possible to switch the interior lighting on and off from the rear control panel, as well as to change the light mode and dimming level.

- Press the button to switch on the interior lighting. Change to the desired light mode in the display menu.
- Change the dimming level with repeated short presses on the upper or lower section of the button.
- A long press on the lower section of the button switches off the interior lighting.



Direct button interior lighting.

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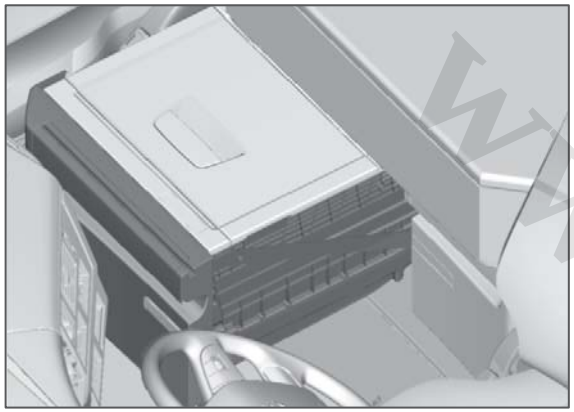
Fridge



Safety instructions

- Do not under any circumstances do any work in the refrigerant circuit.
- The refrigerator box is not designed for storing corrosive materials or solvents.
- Never cover air ducts or ventilation openings.
- Defrost in good time in the event of ice formation in the refrigerator box.
- Never use sharp tools to remove ice or to remove objects that are frozen in.
- Never use cleaning agents that contain abrasives, acids, alkalis or solvents.
- When the refrigerator box shall be scrapped a specialist must be consulted in order to recycle the internal components.
- A rapid charger may only be connected to the truck's batteries when the refrigerator box is disconnected.

Temperature

The temperature is adjusted as required using the control panel with digital display that is located on the right-hand side of the refrigerator box. Use the plus and minus buttons to select temperature within the range of +2 °C to +12 °C in the cold storage.

Usage

The refrigerator box is designed for storing refrigerated foods. If you want to use it for cooling medicines you must check that it fulfils the requirements that apply for cooling medical products. All materials contained in the refrigerator box are approved for contact with food. The refrigerant is CFC-free.

Starting the refrigerator box

Hold the switch depressed (1) for approx. 1 second. A green symbol (5) illuminates in the display and the compressor starts. The compressor only starts if battery voltage exceeds 24.2 V. If the battery voltage is lower then a red symbol (4) is illuminated in the display and fault code E1 is shown. For more information, , see Voltage protector page 102 At start-up the display will show the latest selected temperature for approx. two seconds, then the current temperature in the refrigerator box is shown.

Adjust the temperature by holding down the temperature selectors marked "—" (2) or "+" (3). The selected temperature is shown in the display (6) for approx. two seconds. The green thermometer symbol (5) flashes until the desired temperature is reached and then illuminates with a constant glow. When the temperature rises to a level that is above the selected temperature the compressor starts and the symbol starts to flash in green while the compressor is operating.

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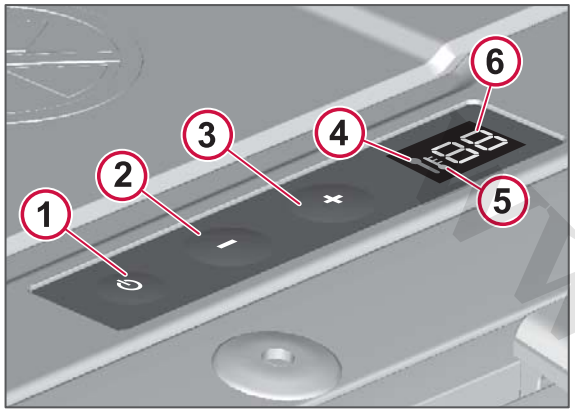

Switching off the refrigerator box

Hold the switch depressed (1) for approx. 1 second. The green symbol in the display goes out and the compressor stops. If the refrigerator box is not being used for a time then it must be thoroughly cleaned in accordance with the instructions. After cleaning the cover must be in fully open position for at least 24 hours in order to allow all the moisture to disappear and to avoid odour from occurring.

Timer function with ignition switched off

When the ignition key is turned to OFF a timer function is activated so that the power supply to the refrigerator box is maintained for an additional 24 hours, only then is the power supply to the refrigerator box switched off.

> **NOTE**
>
> If the main switch is switched off the power supply to the refrigerator box is switched off directly, without any timer delay.

Make a habit of switching off an empty refrigerator box if you leave the truck for a longer stop without switching off the main switch.

Changing countdown time

The preset time in the timer can be changed at an authorised Volvo workshop.

If the countdown time shall be set to more than 24 hours then this can cause problems when charging the batteries. Make sure that

- the batteries are fully charged before the truck is parked for a week's rest for example
- driving time is sufficient after a break so that the batteries have time to be fully charged.

> **CAUTION**
>
> A set countdown time longer than 24 hours may mean that battery capacity and service life is impaired.

Voltage protector

To protect the batteries against discharging the compressor is switched off automatically if the voltage drops too low. If the battery voltage is or has been too low then a red symbol is illuminated in the display and the compressor does not start. The voltage switch disengages at 22.8 V and restarts again at 24.2 V. If the symbol illuminates even though battery voltage is normal then this is because the voltage has previously been too low. In which case, start the truck's engine to create a voltage spike that automatically resets the voltage switch.

Tilting the cab

Before the cab is tilted the refrigerator box must be emptied of its contents and switched off. Close the refrigerator box door before tilting the cab.

Cleaning

Clean the refrigerator box with a cloth with warm water and normal dishwashing detergent. Check that water does not penetrate into in the gaskets or into the switch. Wipe dry with a dry cloth. Clean the refrigerator box, both inside and out at regular intervals, or whenever it gets dirty.

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Defrosting

The humidity of the air may cause ice formation, which means that the cooling output decreases. Defrost in good time by removing all food products. Place them in another refrigerator or freezer so that they remain cold. Switch off the refrigerator box and leave the door open. Allow the ice to melt and then wipe the water out thoroughly. Clean with a cloth with warm water and normal washing detergent, then it is ready for starting.

Fault tracing

If the refrigerator box is not working, first check that the voltage switch has not been triggered. Also check the fuse for the refrigerator (F75), see Blade fuses and relays page 264. If the fault persists, check the fault codes below and contact an authorised Volvo workshop.

If the prism on the outside of the refrigerator box illuminates in green then the refrigerator box is working correctly. If the prism illuminates in red then there is a fault in the refrigerator box and the box must then be pulled out for the fault code on the display to be checked.

NOTE

If the prism is switched off then the refrigerator box is not operating at all. Restart the refrigerator box with the switch.

- Faults are indicated by a symbol in the display flashing RED.
- Each fault has a fault code that is shown in the display.
- A symbol in the display always illuminates GREEN when the selected temperature has been reached. The symbol flashes GREEN when the compressor is working in order to achieve the selected temperature.

E3 Fault codes	
Fault code	**Type of fault**
E1	The voltage guard has released
E2	The condenser fan circuit is overloaded
E3	The compressor does not start
E4	Compressor speed is too low
E5	The electronic unit's overheating protection has released
E6	NTC fault
E7	Communication error (display)
E8	Tilting sensor

Tips on saving energy

- Allow warm goods to cool down properly before they are stored in the refrigerator box.
- Defrost as soon as a lot of ice has formed in the refrigerator box.
- Do not keep the refrigerator/freezer space at too low a temperature.
- Do not open the door except when necessary.
- Never leave the door open during normal operation.

Microwave oven

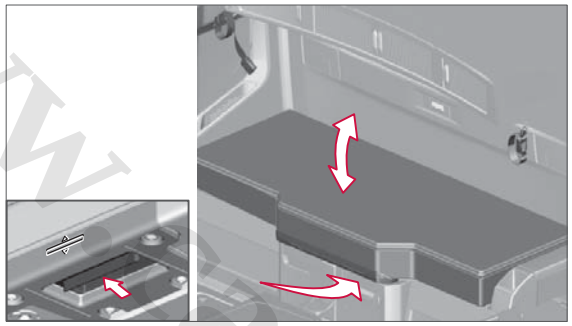
The truck is equipped with a microwave oven. The microwave oven has a turntable plate and is specially adapted for use in your truck. For safety reasons the microwave oven must only be used when the truck is parked.

A separate owner's manual is supplied with the microwave oven.

> **NOTE**
>
> Make sure the microwave oven is empty, closed and that its door is closed before the cab is tilted.

Bed

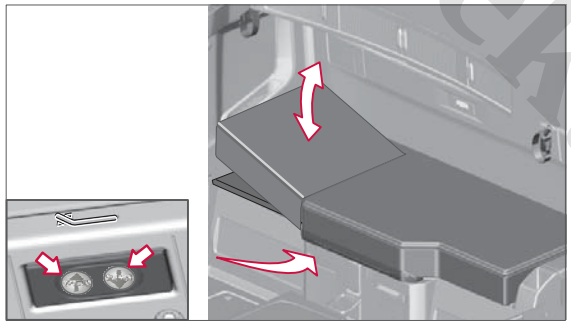
Storage compartments are available under the bed. To lift the bed, hold in the handle on the underside of the bed and lift.



Raising the head end

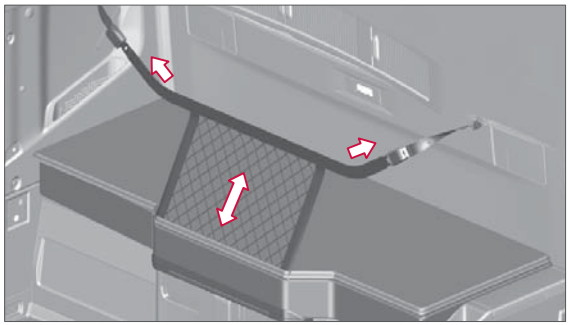
The head end of the bed can be raised for a more comfortable seating position.

To raise or lower the head end, hold in the corresponding button on the control on the underside of the bed.



Bed netting for lower bunk

Set up the bed net when someone is lying in the bed during a journey, or in order to secure any load stored in the bed. The passenger bench backrest must be in the upright position.



Bed net's anchorages

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Relax seat

The relax seat can be rotated 90 degrees. To rotate the seat, the backrest must be in the upright position and the seat moved forward halfway. The seat cushion should also be tilted to its lower position.

1 Tilt the whole of the backrest.

2 Tilt the upper section of the backrest.

3 Heating (optional equipment).

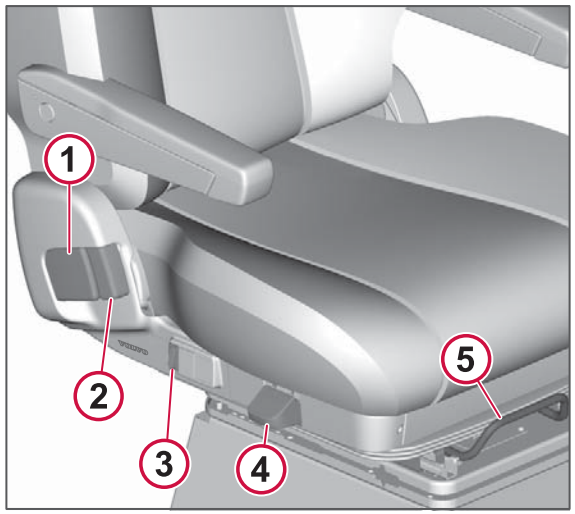
4 Seat cushion tilt.

5 Move the whole seat lengthwise.

6 Move the whole seat lengthwise.

7 Rotate the seat.

8 Tilt the whole of the backrest.



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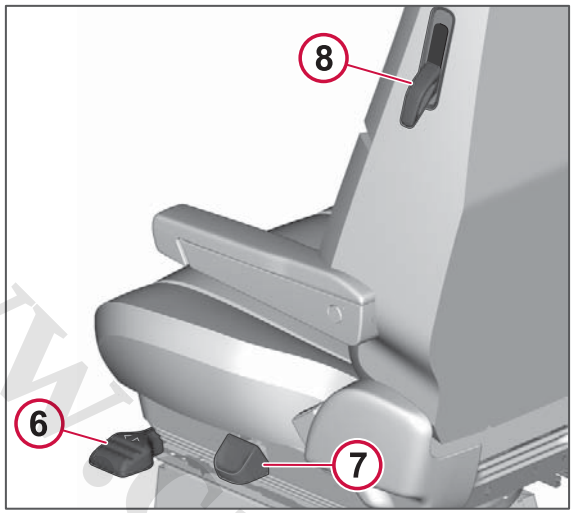


Rotating the relax seat

1 Set the backrest in the upright position (1, 8).

2 Tilt the seat cushion to the lower position (4).

3 Move the seat to a position halfway between front and rear position (5, 6).

4 Lift hand lever (7) and rotate the seat.

⚠ WARNING

When the seat is rotated, it may obscure the driver´s view in the rear view mirrors. Therefore, do not drive the truck with the relax seat rotated.

ELECTRICAL POWER OUTLET

Electrical power outlet

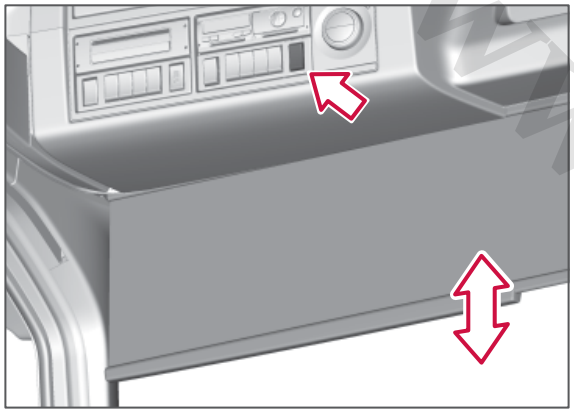
Power outlets (24V and 12V) are available in the instrument panel and in the rear section of the cab. These are intended for optional equipment.

There is a power outlet in the storage compartment at the foot of the bed.

> **NOTE**
>
> The cigarette lighter socket is not intended to be used as a power outlet.

Sun blind

Use the switch to lower and raise the sun blind.



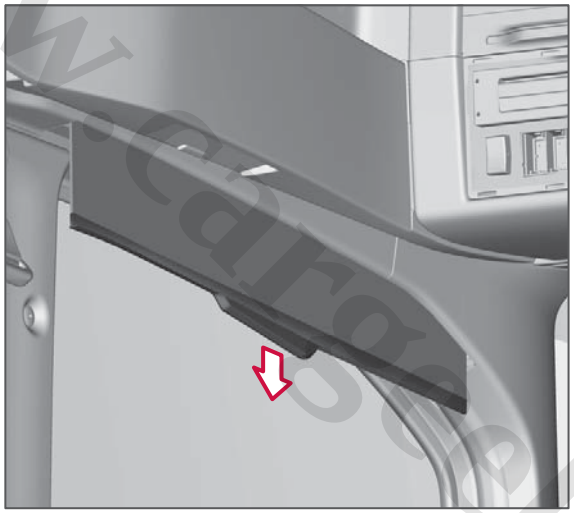
Adjustment of the sun blind

Switch for sun blind

Side window

The side windows are equipped with sun blinds that can be lowered and raised manually.

> **NOTE**
>
> The side window's sun blind can be lowered a maximum of 25 cm.

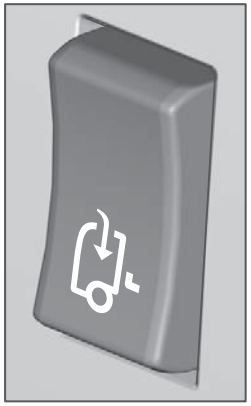


Sun blind, side window

ROOF HATCH

Opening the roof hatch

Depress the lower section of the switch to open the roof hatch. Depress the upper section of the switch to close the hatch. If the truck is de-energised or an electrical fault has occurred then the hatch can be opened and closed manually, see Emergency operation of the roof hatch page 294.

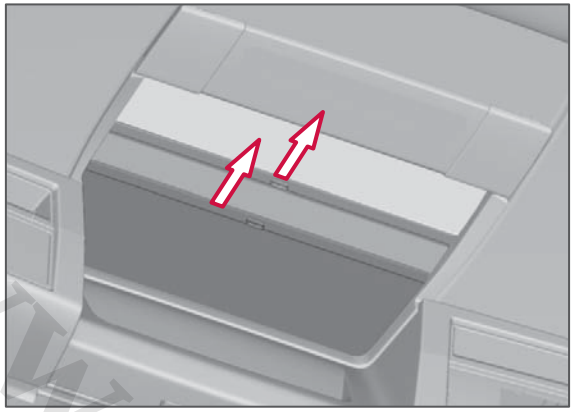


Control for roof hatch.

Mosquito net and sun blind

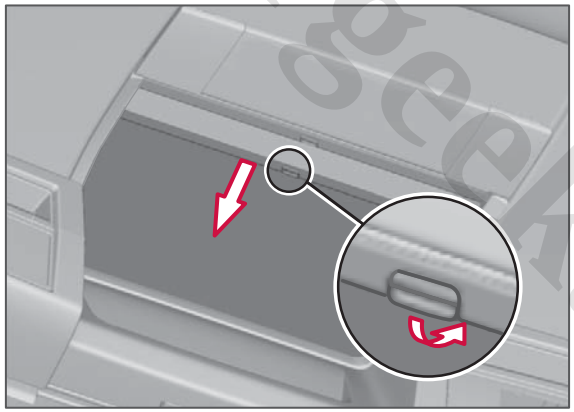
The roof hatch is equipped with mosquito net and sun blind. The mosquito net and sun blind have two positions: open and closed.

Pull the mosquito net using the handle and make sure that it engages before the sun blind is drawn.



Drawing the mosquito net and sun blind.

> **NOTE**
>
> To open the sun blind the handle must be tilted before it can be moved back. The same applies for the mosquito net.

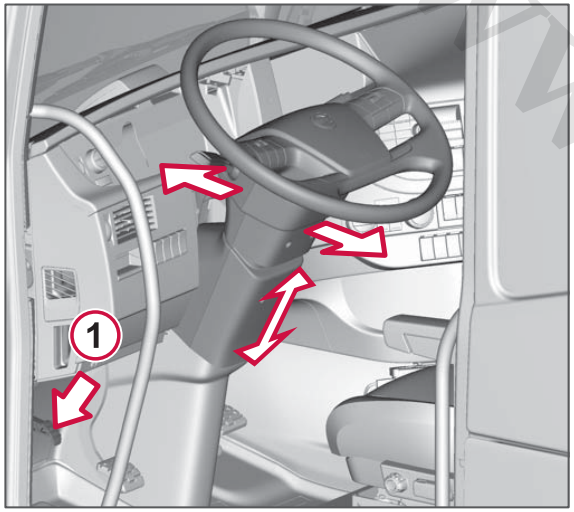


Tilt the handle when opening the sun blind and mosquito net.

Steering wheel adjustment

1 First adjust the seat.

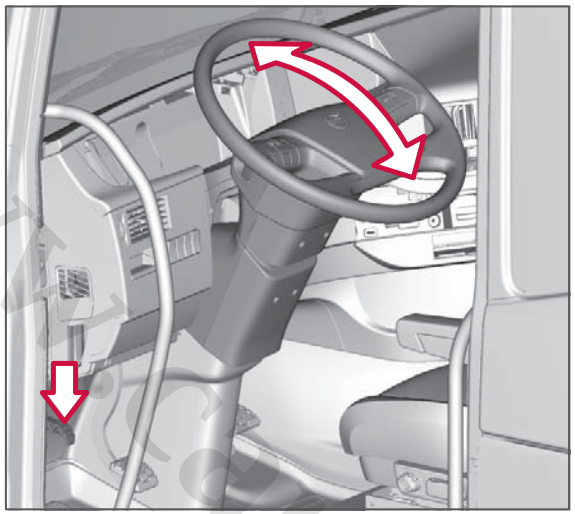
2 Fully depress the pedal (1).



3 Adjust the steering wheel for height and reach.

4 Release the pedal. The steering wheel is locked in its new position.

5 Depress the pedal again to the first position.



6 Set the angle for the steering wheel.

7 Release the pedal. The steering wheel is locked in its new position.

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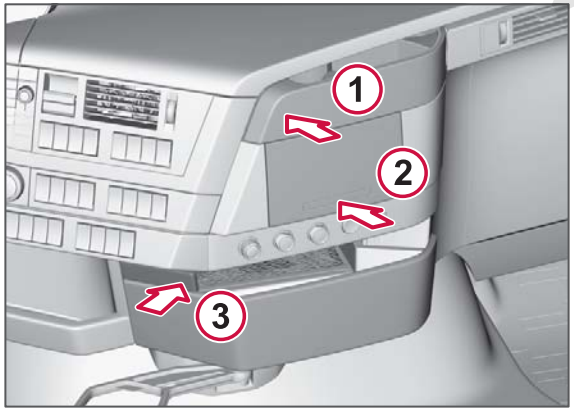
STORAGE

Storage compartment

The truck is equipped with interior as well as exterior storage compartments.

Instrument panel

There are storage compartments in the space in the centre of the instrument panel.



1 Cup holder and storage (press gently at the arrow).

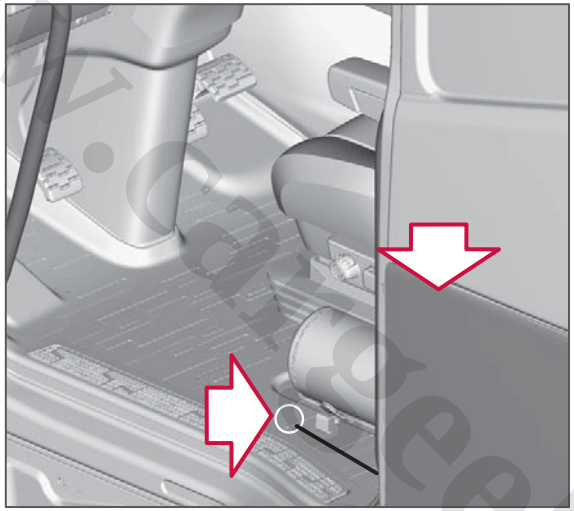
2 Storage tray, the bottom can be pulled out (press gently on the lower section of the cover plate).

3 Storage compartment (press the button at the arrow).

Luggage compartment

The boot lid is opened by pulling on the wire inside the door. At the first click the hatch remains locked. Pull the wire further to open the hatch.

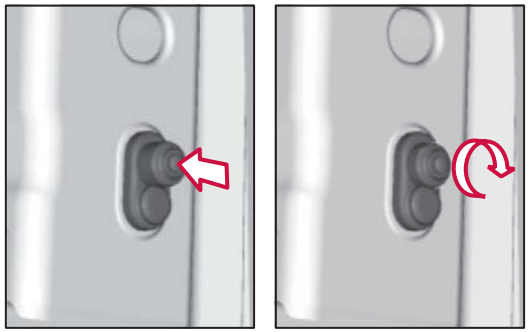
The trucks two warning triangles, and other emergency equipment, are contained in the luggage compartment.



Opening wire for boot lid.

Switching off the lighting

Hold in the door switch and turn clockwise to switch off the lighting when the luggage compartment door is open.



Door switch for lighting.

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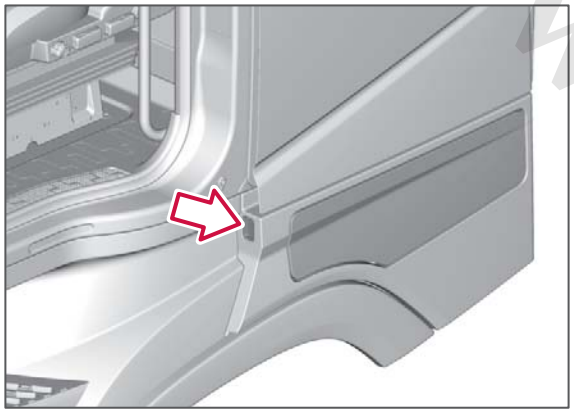
Extra storage compartment

The truck is equipped with an extra storage compartment located under the luggage compartment. The door for the extra storage compartment is opened with a button, see illustration.



Opening the storage compartment.

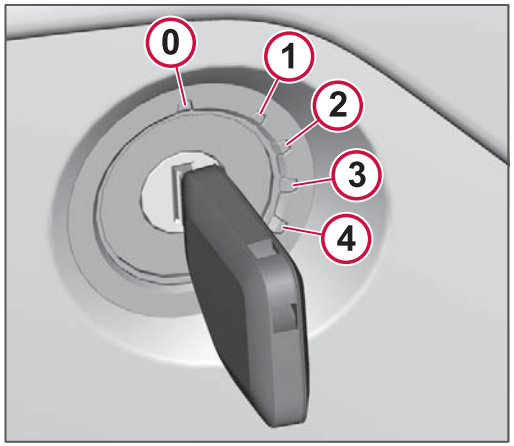
The extra storage compartment is completely separated from the luggage compartment and can therefore be easily used for storing tools and equipment, etc.

06

STARTING AND DRIVING

Function positions

There are many systems in the truck that drain the battery. In order to have control over the consumption and to ensure that the engine can start there are different function positions available. The subdivision is adapted according to the functions required in different situations.



0: Parked/Living
1: Accessory
2: Driving
3: Pre heat
4: Crank

Parked (0)

A minimum of functions. This function is used when the truck is parked and not in use.

Examples of active functions: burglar alarm, central locking.

The truck is automatically set in "Parked" mode after 12 hours when the key is in position "0" or has been removed.

The timer's time value of 12 hours can be adjusted by an authorised Volvo workshop. Note that an extended period of time involves a risk of discharging the batteries.

If the battery shall be disconnected then the truck must be forced to function mode "Parked" , see page 115.

Some functions will be active after the 12 hours.

Parking heater timer

The parking heater timer will continue to be active. The heater can then be pre-programmed to start after a weekend for example, see Starting the parking heater with the timer page 97.

Refrigerator box timer

The refrigerator box has a timer that is set to 24 hours. The timer starts to count down when function mode "Living" is activated. This means that the refrigerator will work for another 12 hours when "Parked" is activated, see Timer function with ignition switched off page 102.

The time value for the refrigerator box timer can be adjusted by an authorised Volvo workshop. Note that an extended period of time involves a risk of discharging the batteries.

Living (0)

The functions you need for living in the cab.

Examples of active functions: radio, interior lighting, heater, alarm clock and tail lift.

"Living" is activated with the key in position "0" or key removed. This mode is dimensioned to handle approx. one overnight stop with normal consumption.

The truck changes over to "Parked" after 12 hours. To return to "Living" insert the key into the starter switch once again to activate a further 12 hours.

Some body builder functions will only be active for 4 hours.

Unlocking with the remote control will also activate "Living".

> **NOTE**
>
> Heater, TV, refrigerator and microwave oven are large consumers of electricity. They should therefore be used with the restraint when the power supply is only coming from the truck's batteries.

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Accessory (1)

The functions you need in order to work with the truck when the engine is switched off.

Examples of active functions: Dynafleet, tail lift, work lights, radio, interior lighting, heater, alarm clock.

"Accessory" is activated with the key in position "1". This mode is active for as long as the key is in position "1".

Driving (2)

All functions are active. The truck is ready for starting or is started.

"Driving" is activated with the key in position "2".

Pre heat (3)

When it is cold outside the intake air to the engine needs to be preheated. Many functions are switched off temporarily in order to ensure adequate current for the starter element.

"Pre heat" is activated with the key in the spring-loaded position "3". Then release the key and wait for the symbol for Pre heat to go out.

Symbol for Pre heat.

Crank (4)

Starter motor working. Many functions are switched off temporarily in order to ensure that the engine can be started.

"Crank" is activated with the key in the spring-loaded position "4".

Trickle charging

To keep the batteries in good condition, follow the recommendations for trickle charging , see Batteries page 259.

Main switch

There is no main switch, but a timer control sets the truck in function mode "Parked".

Function mode "Parked" does not involve a battery disconnection.

> **NOTE**
>
> Detach the battery cables if battery disconnection is required, e.g. for repair or extended parking of the truck. The electrical system must be in function mode "Parked" when this is done.

Function mode "Parked"

When the battery shall be disconnected it is important that the electrical system is in function mode "Parked". The button for the hazard warning lights can be used to set the truck in "Parked".

1. Remove the starter key from the starter switch.
2. Press and release the button for the hazard warning lights.
3. Press the button again within 2 seconds and hold it depressed for 5 seconds.
4. Wait 30 seconds.
5. Disconnect the ground connection.

DAILY INSPECTION OF THE TRUCK

The inspection is optimally performed by carrying out the following points in the cab and then walking around the truck. Start at the driver's door, and continue in front of the cab and around the truck.

- Apply the parking brake.
- Switch on the lighting.
- Turn on the hazard warning lights.
- Check for any fault messages.

Pay particular attention to fault messages about the engine oil level and the coolant level.

For coolant, see page 281.

For engine oil, see page 270.

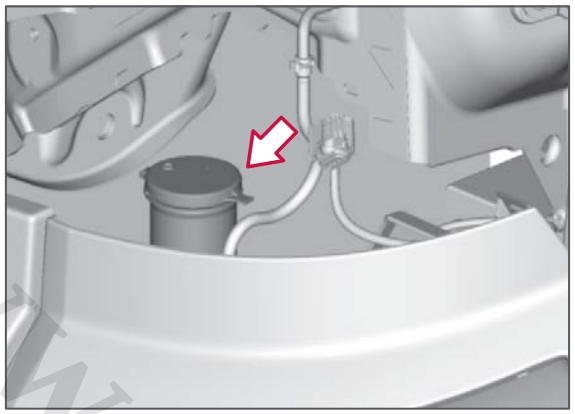
1 Lighting

Headlamps and other lighting must work. If necessary, see Replacing bulbs page 237.

2

Windscreen cleaning and headlamp cleaning have a common tank, which holds about 15 litres of washer fluid. Use Volvo's washer fluid. When the level drops to the lowest alarm level, the headlamp washing is switched off in favour of windscreen washing.

A filter is fitted under the filler cap. Do not fill washer fluid without the filter.

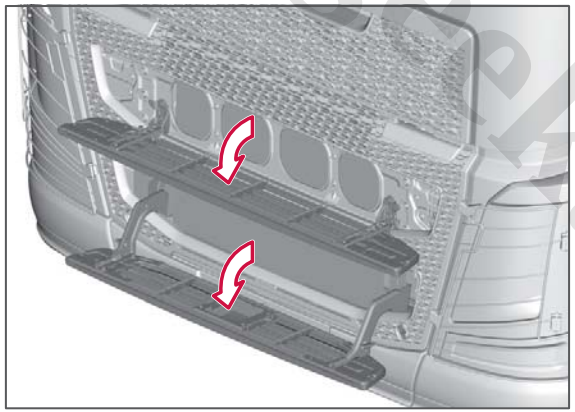


Filling for washer fluid.

3 Windows and mirrors

Windows and rear view mirrors must be intact and clean.

There are two foot steps that can be folded out in the front of the truck. Use them to access the windscreen and windscreen wipers.



Fold down the foot step.

4 Checking for leaks

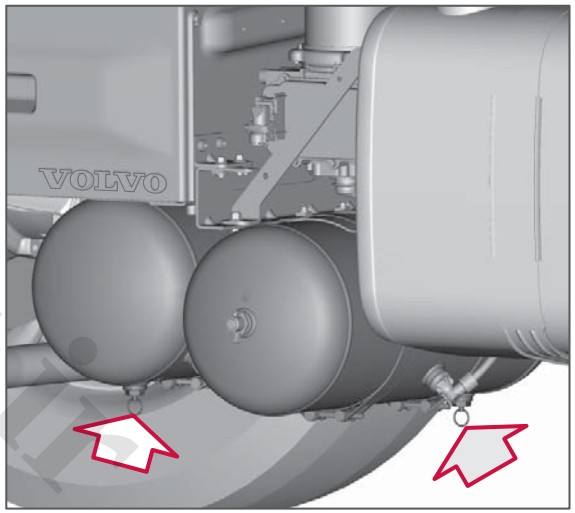
Check that there are no traces of leaks under the truck.

5 Tyres

Check that there are no cracks and stones in the tyres. For more information about the tyres, see Tyres page 246.

6 Air tanks

Check that there is no condensation water in the air tanks. Water in the air tanks is a sign that the air drier is not working, see Brake system page 283.



Examples of tanks.

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7 Load securing

Check that the load is properly secured.

STARTING

Starting instructions

Put the gear selector in the neutral or tilted position or the engine will not start.

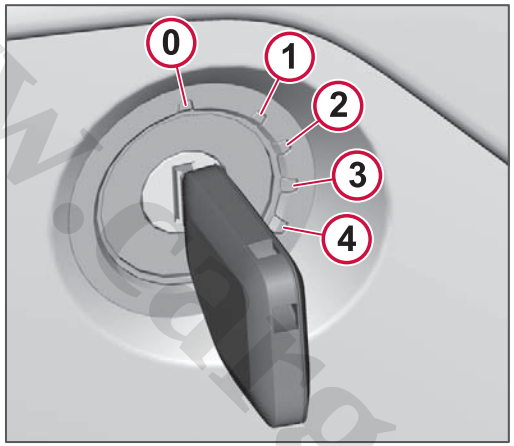
If the air pressure to the gearbox is too low then a symbol and a message are shown on the display. Wait until the message clears before driving. Then move the gear shift lever to A, M or R to drive.

Low air pressure to the gearbox.

Starting the engine

1 Check that the parking brake is applied.

2 Turn the starter key to position (2) "Driving".

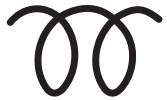


3 The engine has pre heat. Turn the starter key to the pre heat position and release the key.

⚠ WARNING

Do not use start gas. An explosion can cause considerable damage.

4 Wait until the symbol for Pre heat goes out.



5 Run the starter motor by turning the key to position (4) "Start". If the engine does not start then the start attempt will be automatically stopped after 15 seconds.

ⓘ NOTE

If the electric column lock has been unlocked then it is not possible to start the engine. Jerk the steering wheel so that the lock is unlocked.

ⓘ NOTE

If the overheating protection is triggered then a message is shown on the driver information display. The message shows the time for which the starter motor must cool before it is possible to start the truck again, normally 10-15 minutes.

6 Hold down the brake pedal for a few seconds to enable the cruise control. The air suspension is activated first after the parking brake is released or when the air suspension handset is used.

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7 Check that no fault messages remain when the engine is started and that the air pressure is normal.

Warming up

Warm up the engine by driving at low engine speeds instead of letting it run at idling speed. Avoid lugging and high engine speeds.

Limited engine speed

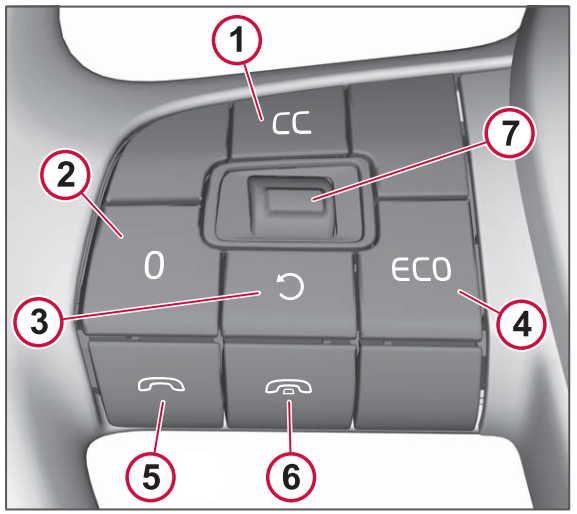
If the temperature of the coolant is below 50 °C when the engine is switched on the engine speed will be limited to 1000 rpm for 15 seconds.

Raised engine speed idle

To ensure the power supply, trucks equipped with Euro 4/5 engines have a raised engine speed idle when it is cold. The engine's control system determines when the engine speed should be raised and this cannot be influenced manually by the driver. With launch control it is very important to engage neutral position, so as not to overload clutch and gearbox.

Engine speed

The engine speed can be temporarily changed to suit the work being carried out. Use the left-hand steering wheel keypad.



Keypad in the steering wheel.

-Button "1" activates constant engine speed.

-Button "2" Short press: restores engine speed to idle.
Long press: switches off the function.
In the basic version the clutch and brake pedal also restore the engine speed when they are used.

-Button "3" increases the engine speed to a pre-programmed value, normally 1000 rpm.

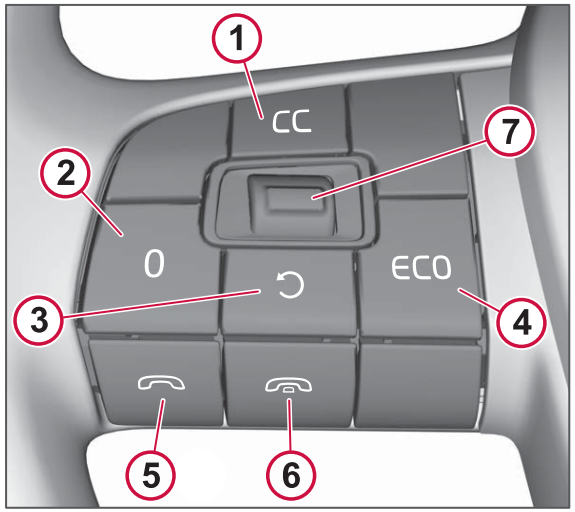
-Button "7" increases/decreases engine speed.

Change engine speed idle

The preset engine idle speed can be changed permanently, for example, if there is excessive vibration after bodybuilding.

Recommendations:

- The temperature of the coolant should exceed approx. 50 °C.
- The truck should remain stationary with the engine idling (the accelerator pedal must not be depressed) when the adjustment is started.



Procedure:

1 Release the accelerator pedal and depress the brake pedal. The brake pedal must be depressed throughout the setting. The raised engine speed function must not be active.

2 Hold button "3" depressed for at least two seconds. The engine speed drops to the lowest adjustable value.

3 Release the button.

4 Change the engine speed with the increase/decrease button "7".

5 Hold button "3" depressed for at least two seconds. A message in the driver information display shows that the change has been saved.

6 Release the button.

7 Release the brake pedal.
The new engine speed idle is set.

If an error has been made during the adjustment sequence then the previous engine speed idle will be retained.

Stopping the truck

When the Truck is stationary:

- Apply the parking brake.
- Move the gear shift lever to N, neutral.
- Switch off the engine.

⚠ CAUTION

Always apply the parking brake and put the gear shift lever in N position when the truck is parked or whenever the driver leaves the driver area.

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Switch off the engine

After heavy loading the engine must be cooled down by running it at idling speed before it is switched off. This avoids heat stress in the engine and the hot components such as the turbocharger have time to cool down.

⚠ CAUTION

Let the engine cool at idling speed before you switch it off.

Refuelling with diesel

Always refuel fully! (Dual tanks that are connected to each other must be filled separately.) Refuel after the day's driving in order to avoid condensation in the fuel tank due to temperature differences.

CAUTION

Always use sulphur-free fuel.

NOTE

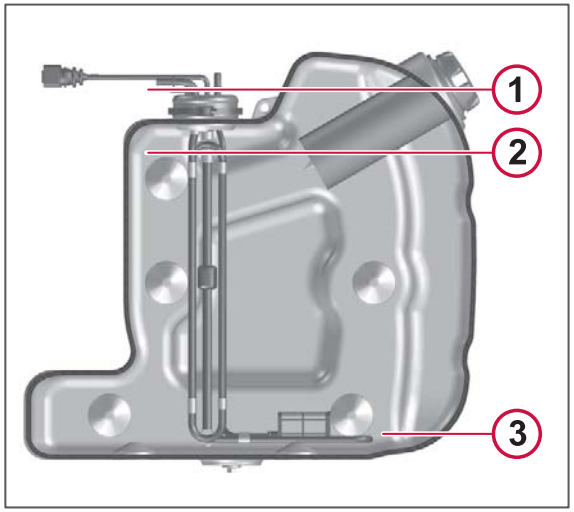
Exercise the utmost cleanliness when handling diesel fuel. Be careful to filter the fuel from your own tank or own drum and ensure that all containers are clean.

Filling with AdBlue

- Check the level in the tank at each filling in order to ensure that AdBlue is always available. Running the engine without AdBlue may damage the SCR system.
- The AdBlue urea solution must fulfil ISO standard 22241-1 (previously DIN 70070).
- The tank for AdBlue is fitted on either the right or left-hand side of the truck.
- Tank nozzle and tank opening are designed so as not to fit other filling equipment. The tank cap is blue and marked with the text AdBlue.
- As standard filling equipment is not used, be vigilant about cleanliness and about not filling AdBlue in the fuel tank.
- Information about filling stations that supply AdBlue is available on www.findAdBlue.com.

WARNING

If you fill AdBlue from a canister or pump without a stop function it is important not to overfill the tank. Pay attention to the amount of AdBlue you pour in so that you do not risk overfilling. If the tank is overfilled then AdBlue may leak out through the air vent pipe.
If the tank is overfilled and the fluid in it freezes (temperature below -11 °C) then the tank and hoses can be permanently damaged.



1 Overfilled.
2 Max level.
3 Min level.

NOTE

Filling of fluids other than AdBlue can cause problems with the SCR-system. In the event of problems in the SCR-system a symbol illuminates together with a message in the display. Contact an authorised Volvo workshop to rectify the problem.

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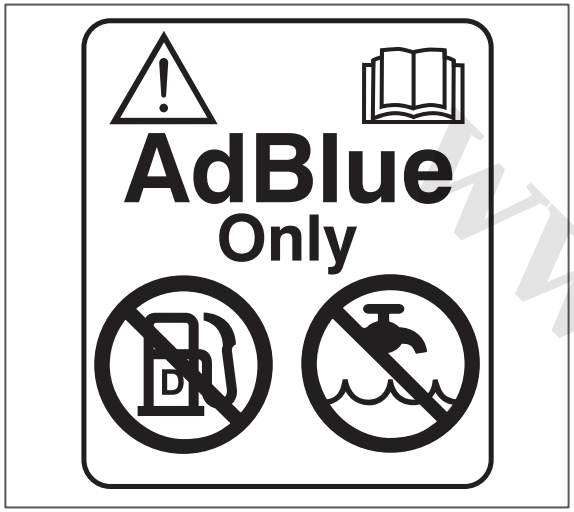

Decal.

CAUTION

Never fill AdBlue in the fuel tank or fuel in the AdBlue tank. It can lead to damage to the engine and fuel system.

For more information about AdBlue and the exhaust gas cleaning system, see Exhaust cleaning SCR page 220.

Measures after spillage

NOTE

AdBlue spillage must not be allowed to enter the normal drainage system.

- AdBlue is not classed as being hazardous to the environment but should still be handled with care.
- In the event of contact with the skin – rinse with plenty of water and remove contaminated clothing.
- In the event of contact with the eyes – rinse thoroughly for several minutes. Seek medical attention if necessary.
- If inhaled – breathe fresh air and call for medical help if necessary.
- Do not allow AdBlue to come into contact with other chemicals.
- AdBlue is not flammable. If AdBlue is exposed to high temperatures, it will be reduced to ammonia and carbon dioxide.
- If AdBlue is spilled on the truck, wipe off the excess and rinse with water. AdBlue is corrosive with metals such as copper and aluminium. It can also cause damage to alloys such as brass.
- Spills may form white crystals of concentrated AdBlue on the truck. Rinse these crystals off with water.
- If spilt on a connector, the connector must be replaced, AdBlue is highly corrosive and will therefore damage the connector.

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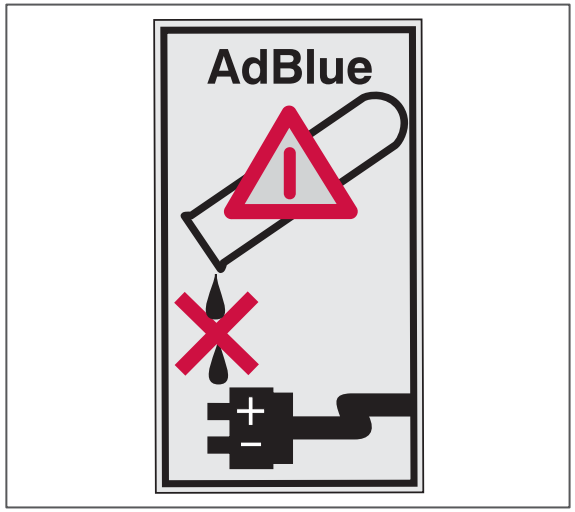


Warning decal for AdBlue.

CAUTION

AdBlue is highly corrosive and may damage connectors. If AdBlue enters connectors and cables then these must be replaced. Cleaning on its own is not sufficient.

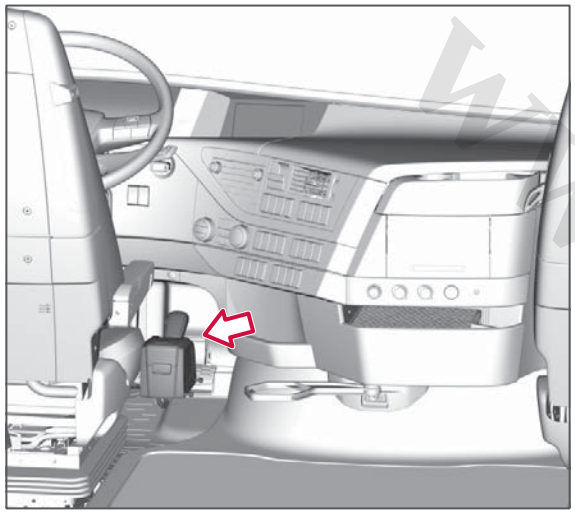
Inspection during refuelling

Tyre pressure

Check tyre pressure every 14 days at least.

Use the tyre manufacturer's recommendations for the correct values for tyre pressure or, see Recommended tyre pressure page 246.

I-Shift



I-Shift is an automated manual gearbox with 12 forward gears and 4 reverse gears. Clutch and gear changing are handled fully automatically so that the driver can concentrate on the traffic. The driver can also choose to change gear manually. The gear shifter is fitted on the driver seat.

I-Shift is supplied with different software packages. Since certain functions are optional not everything in this description applies to your particular gearbox.

Program packages

Gearboxes have different characteristics and functions depending on the program package that is installed. When the hand lever is tilted the program package the gearbox is equipped with is shown as a pop-up message in the driver information display, see Tilting the gear shift lever page 130.
The following program packages are available:

- Basic (TP-BAS is shown in the display) is the standard program for the gearbox.
- Distribution & Construction (TP-DICON is shown in the display) includes functions that make the truck even easier to manoeuvre, such as brake program and several functions that interact with EBS.
- Long haul & Economy (TP-FUEC is shown in the display) includes functions that improve the fuel consumption and make the truck more easily manoeuvrable. The program package includes the same functions as in the Distribution & Construction package, and the Smart cruise and freewheel function I-Roll.
- Long haul & Economy+ (TP-FUEC2 is shown in the display) has the same functions as Long haul & Economy with the addition of I-See, which uses the memory of previous sections of road in order to further improve fuel consumption and driveability when cruise control is active.
- Heavy Duty transport (TP-HD is shown in the display) is optimised with regard to driveability and comfort for heavy loads. The mode can be deselected for lower weights for improved fuel consumption and greater comfort.

On delivery from the factory this truck was equipped with the program package, Heavy Duty transport (TP-HD).

Basic is the basic program and the other programs include optional equipment. The options available depend on which program package has been specified. See the table on the next page.

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	Program packages				
Function	Basic	Distribution & Construction	Long haul & Economy	Long haul & Economy+	Heavy Duty transport
Power take-off functions	X	X	X	X	X
Gear selection adjustment	X	X	X	X	X
Drive mode selection	X	X	X	X	X
Shift strategy	X	X	X	X	X
Performance shift	X	X	X	X	X
Temperature monitoring gearbox oil	X	X	X	X	X
Heavy start engagement	X	X	X	X	X
Enhanced shift strategy		X	X	X	X
Launch control		X	X	X	X
I-Roll			X	X	X
Smart cruise control			X	X	X
Heavy duty control					X
I-See				X	

GEARBOX

The table below shows additional optional functions that are available for each program package respectively.

	Program packages				
Possible options	**Basic**	**Distribution & Construction**	**Long haul & Economy**	**Long haul & Economy+**	**Heavy Duty transport**
Enhanced power take-off functions	X	X	X	X	X
Enhanced gear selection adjustment in Auto inc. kick-down		X	X	X	X
Enhanced performance - poor roads		X	X	X	X

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Function description

Standard characteristics

Power take-off functions
Facilitates power take-off operation.

Predefined split gear positions determine the split gear to be engaged when one or two transmission power take-offs are engaged. Setting software parameters is made possible by adapting gear selection to engine speed limitation. This means that gear selection is adapted to the limitations on engine speed due to bodywork functions.

Gear selection adjustment
Provides the option to adjust gear selection with the gear shift lever's buttons when engine braking is in automatic mode.

Drive mode selection
Provides the option to choose between the "Economy" and "Performance" driving programs.

Shift strategy
Automatic choice of start gear.

Performance shift
Allows adjustment of automatically selected gear when engine braking.

Temperature monitoring gearbox oil
Shows the gearbox oil temperature in the driver information display.

Heavy start engagement
Starting with increased engine speed in performance mode in 1st gear, which gives higher starting torque. This function raises the engine speed in order to facilitate heavy starts. This is useful if the truck is stuck in soft ground for example.

Optional characteristics

Enhanced shift strategy
Works together with ECS and EBS to select the best gear for easy manoeuvring in difficult areas or to obtain the maximum effect from the auxiliary brakes.

Launch control
Allows the engine to drive the wheels at idle without the clutch slipping, which can be useful when driving in traffic queues for example.

I-Roll
Automatic engagement and disengagement of the freewheel function in order to reduce fuel consumption. When the accelerator pedal is released, the driveline is disengaged so that the truck can coast freely and the engine is controlled to its engine speed idle.

Smart cruise control
Only active when cruise control is activated. The function saves fuel by deactivating the auxiliary brakes in certain situations. The function improves the cruise control function by disengaging the auxiliary brake at the end of downhill gradients.

Heavy duty control
Matches gear change strategies and clutch operations with high total weights (>85 tonnes).

GEARBOX

I-See

I-See is a set of fuel functions that uses information about approaching road topography (uphill and downhill gradients) in order to optimise gear selection, achieve lower fuel consumption and improve driveability when cruise control is active.

For I-See to function requires that the road you are driving on is saved from earlier. The first time you drive on a road with cruise control active a sensor records the road's topography. This information is combined with geographical coordinates from the truck's GPS system and is saved in the system's memory. The next time you drive the same route I-See uses the saved information to predict when crests and hills are due and automatically adapts acceleration, gear strategies and the truck's speed for more efficient driving.

I-See includes the following functions:

Before uphill gradient	The truck's speed increases slightly before the truck reaches an uphill gradient in order to increase the driving time in top gear and avoid changing down unnecessarily on the uphill gradient.
On uphill gradient	Lowers the downshift limit slightly when driving on an uphill gradient, in order to avoid changing down unnecessarily on the uphill gradient.
Before downhill gradient	Avoids unnecessary acceleration ahead of an approaching downhill gradient.
On downhill gradient	Disengages the truck's driveline slightly before the truck reaches a downhill gradient. This causes a certain reduction in sped, which means the truck can take advantage of the natural acceleration created in the downhill gradient.
On downhill gradient	Dampens the truck's speed on downhill gradients on which the truck would otherwise accelerate to an excessive speed.
Between downhill and uphill gradients	Carries with it the kinetic energy from the downhill gradient into the uphill gradient by disengaging the driveline at the end of the gradient.

NOTE

Not all functions are activated on all sections of road, but only when necessary, and when cruise control is set at 60 km/h or more.

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Enhanced power take-off functions
Additional functions that support power take-off driving.

Enhanced gear selection adjustment in Auto inc. kick-down
Makes it possible to select a gear in automatic mode even when the accelerator pedal is depressed. There is also a kick-down function to maximise the truck's acceleration.

Enhanced performance - poor roads
Enhanced performance program for difficult conditions on poor roads in forests, construction sites or off-road driving, for example.

Gear shifter
The gear shifter is fixed to the seat and the gear shift lever can be tilted to allow the driver to move freely around the cab without being hindered by the lever.

Gear shift lever

At the top of the gear shift lever is a button (1) that is used for lowering the gear shift lever to a horizontal position. On the side of the gear shift lever facing the driver seat is a +/− button (2) with one spring-loaded position up and one down, as well as zero-position in the centre. On the front there is also a gear shift lever lock (3) to prevent accidental engagement of a gear. The lock must be depressed for the following gear changes:

- From N to R.
- From N to any of the forward gears.

The lock does not need to be pressed when the gear shift lever is moved from A to M.

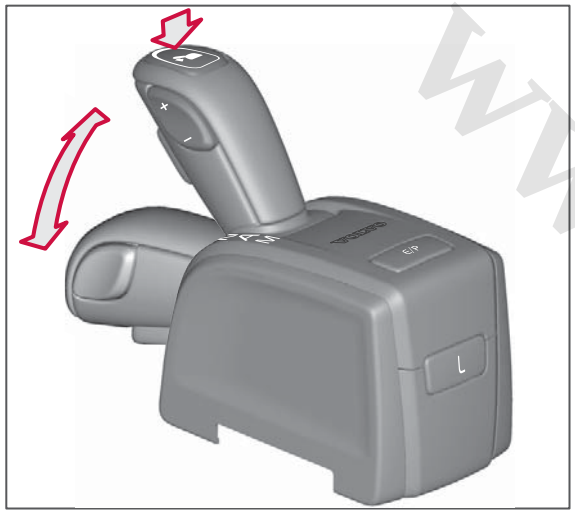
The gear shift lever can always be moved to N without having to press a button.

Gear shift lever positions

The gear shift lever position can be changed between five different positions.

R	Reverse. Changing up and down is performed using the +/– button on the gear shift lever.
N	Neutral position. No gear engaged.
A	Automatic position. The gearbox will automatically select the correct gear with respect to load, incline, speed and acceleration.
M	Manual position. Changing up and down is performed using the +/– button on the gear shift lever.
F	The gear shift lever is tilted.

Tilting the gear shift lever



The gear shift lever can be tilted to horizontal position in order to be unobstructive and allow easy movement between the driver seat and other parts of the cab.

To tilt the hand lever:

- Make sure the hand lever is in neutral position N.
- Press in the button on top of the gear shift lever and tilt the hand lever forwards, past the reverse position R, to the horizontal position.

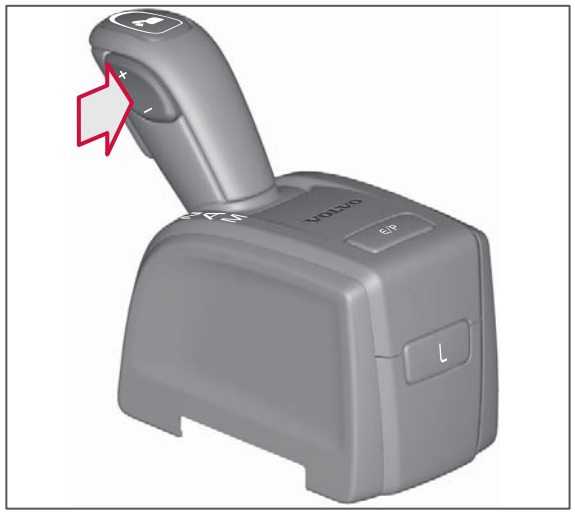
To tilt the hand lever up:

- Move the hand lever up, past the reverse position R, until it locks in neutral N.

When the hand lever is tilted information on the program package the gearbox is equipped with is shown as a pop-up message in the driver information display.

Button functions

Changing up and down



The +/− button is used to:

- Change up or down one step at a time during manual gear changing.
- Adjusting gears in automatic mode.
- To select split gear in neutral position when using a power take-off.
- To select reverse gear.
- To select a starting gear in automatic mode.

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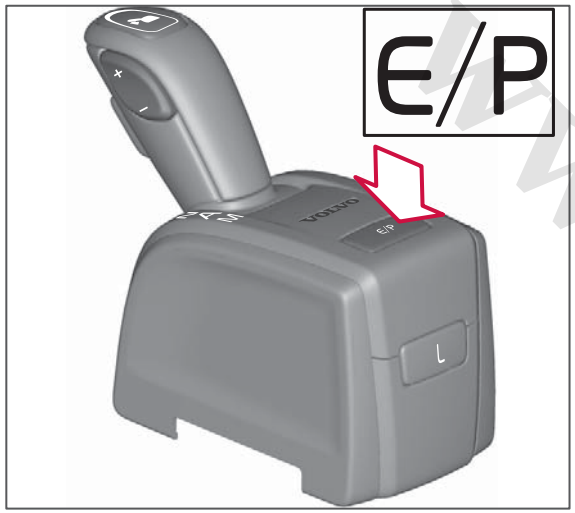
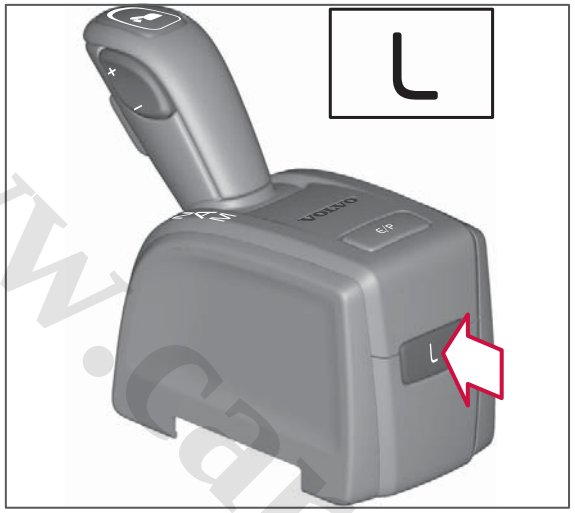
Economy/Performance (E/P)



There is an economy and power button (E/P) on top of the gear shifter. This is used to:

- Switch between the economy and performance program (also in enhanced performance mode if it is specified).
- Activate the Heavy Duty program by pressing in the button for at least three seconds.

Limp home (L)



L is used to activate the limp home function that allows the truck to be moved if there is a fault in the gearbox, see Action in the event of gearbox malfunction page 303.

Displays

Centre display

The centre display shows which lever positions, which gear and which drive mode are currently in use. There is also information about the available gears down/up (max. three arrows are shown) in the current position.

Centre display.

R	reverse 1-4
N	neutral (N1 low split, N2 high split)
A	automatic 1-12
M	manual 1-12
F	tilted hand lever

The following drive modes are available (depending on which program package is installed on the truck):

E	economy
E+	I-Roll possible

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IS	I-See active
P	performance
P+	enhanced performance mode for difficult conditions on poor roads
B	brake program
HD	Heavy Duty

Starting instructions

Put the gear selector in the neutral or tilted position or the engine will not start.

If the air pressure to the gearbox is too low then a symbol and a message are shown on the display. Wait until the message clears before driving. Then move the gear shift lever to A, M or R to drive.

Low air pressure to the gearbox.

Stopping the truck

When the Truck is stationary:

- Apply the parking brake.
- Move the gear shift lever to N, neutral.
- Switch off the engine.

⚠ CAUTION

Always apply the parking brake and put the gear shift lever in N position when the truck is parked or whenever the driver leaves the driver area.

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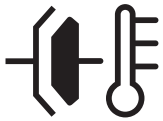
Clutch

The clutch is the dry plate type, i.e. no torque converter. For this reason, never slip the clutch in too high a gear to start the truck. If the clutch overheats then a message and a symbol are shown in the display.



Overheated clutch.

If the message is shown when the vehicle is started and the truck is already moving, continue to drive.

If the message is shown when the vehicle is started and the truck is stationary, move the gear shift lever to the position A or position R and run the engine at idling speed until the message clears.

When starting in manual mode, choose 1st gear to avoid straining the clutch.

⚠ CAUTION

Never hold the truck stationary on an uphill gradient using the accelerator pedal. The clutch risks overheating, which can increase the risk of clutch breakdown.

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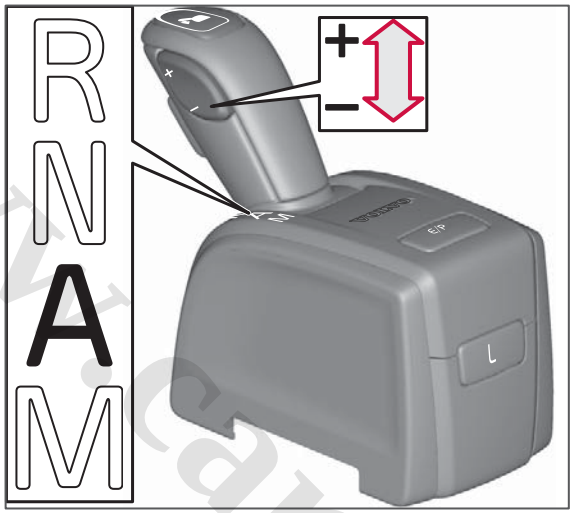
Automatic gear changing



The simplest way to drive the truck is to use the automatic mode (A). Gear changing is automatic and the driver can concentrate on the actual driving.

When changing gear the system checks clutch, gearbox and engine acceleration. The system selects gear and gear changing point so that driving is optimised based on accelerator pedal position, truck weight, road gradient, truck acceleration, etc.

Automatic driving is recommended as often as possible in order to use the gearbox's potential to its maximum.

In automatic mode, it is also possible adjust the gears up or down manually.

The arrows in the centre display indicate how many steps you can change up or down.

Automatic choice of starting gear

The gearbox selects the most suitable starting gear with respect to weight and the road's inclination.

Adjusting the starting gear

You can also manually select a starting gear by using the + and – buttons.

Keep the minus button depressed and move the lever to the A or M position to quickly select starting gear 1. This can be advantageous when marshalling, for example, when changing between forward and reverse gears.

After the trailer has been disconnected (electrically) from the tractor the lowest starting gear is used until the truck has been driven forward a few metres in order to provide smooth manoeuvring. When the air suspension is set in manual mode for height adjustment, such as when manoeuvring, starting gear 1 is selected automatically for a slow and smooth start.

I-Roll

I-Roll (freewheel) is activated in different ways depending on whether or not cruise control is active. When driving without cruise control I-Roll can be activated if

the hand lever for the auxiliary brake is in position A and E+ is shown in the display. When driving with cruise control I-Roll can be activated regardless of the position of the hand lever for the auxiliary brake. When I-Roll is activated the split gear is set in neutral position, N is shown as the gear in the display and the engine runs at idling speed.

If the cruise control is active:

- I-Roll is engaged on downhill gradients when the speed exceeds the set driving speed (e.g. 80 km/h). The set permissible overspeed must be 4 km/h or more, see Changing overspeed page 150.
- I-Roll is disengaged when the speed exceeds the selected overspeed or below, or just below, the set driving speed (for example 80 km/h).
- The I-Roll function also includes the "Smart cruise control" that deactivates the auxiliary brakes at the end of downhill gradients to further save fuel.

If the cruise control is not active:

- I-Roll is engaged when the accelerator pedal is released and the road is flat or slopes gradually up- or downhill.
- I-Roll is disengaged when the brake pedal is depressed, the accelerator pedal is depressed, the hand lever for the auxiliary brake is set in position 0, 1, 2, 3 or if the gear shift lever is set to position M.

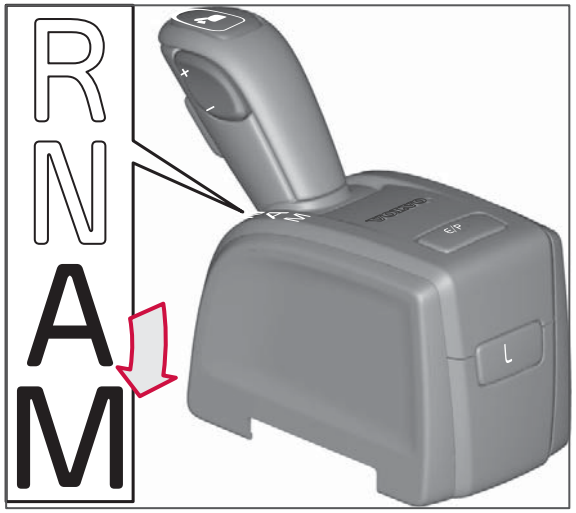
Deactivate I-Roll by pressing the minus button on the gear shift lever or by moving the auxiliary brake lever to the 0 position.

Locking gear

Examples of when automatic upshift or downshift is not desirable may be:

- When the truck approaches a crest of a hill and you want to prevent an unnecessary down-change.
- On an uphill gradient with a flat section.
- When driving on poor surfaces.

When automatic up or down-changing is not required, move the hand lever from position A to M. No further gear changing will now take place and the gear that is engaged remains engaged.



To return to automatic gear changing again, move the hand lever back to A.

The function can be used in all forward gears (1 to 12).

NOTE

There is risk of over revving when the gear is locked.

NOTE

If the truck is stopped with an unpermitted starting gear engaged in the M mode then the starting gear is automatically selected.

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> **CAUTION**
>
> Starting in too high a gear strains the clutch a lot which increases the risk for clutch breakdown.

Drive modes

There are four drive modes:

- Economy
- Performance
- Braking program
- Heavy Duty

Economy

When the engine is started the economy program is always engaged. The economy program is optimised for best fuel consumption and is used when driving under normal conditions. When the program is engaged E or E+ is shown in the display.

Performance

The performance program is engaged/ disengaged with the E/P button. When the program is engaged P is shown in the display. For trucks with enhanced performance program P+ is shown in the display.

The performance program gives priority to driveability at the expense of optimal fuel consumption and is used for driving in hilly terrain and off-road. The performance program generally provides higher engine speed than the economy program and a lower starting gear is selected. Trucks equipped with the enhanced performance program P+ have more functions suited for driving in hilly terrain and off-road.

The program remains activated until the economy program is selected, or until the gearbox detects that the program is no longer required and returns to the economy program. This automatic program change is made for fuel economy reasons.

The function P+ is optional.

Brake program

A special brake program can be engaged with the button "B" on the lever for the auxiliary brake. When the program is engaged B is shown in the centre display. See the section on auxiliary brake.

Heavy Duty

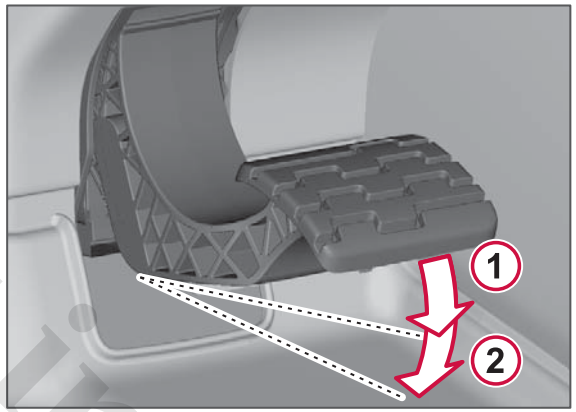
The Heavy Duty program (Heavy duty control) should be used for driving heavy transport. The Heavy Duty program is activated/deactivated by means of the E/P button being held depressed for at least three seconds. When the program is engaged HD is shown in the display. The selection remains even if the ignition is switched off.

When the Heavy Duty program is activated start gear 1 is selected automatically.

The function is optional.

Kick-down

Kick-down is obtained when the accelerator pedal is fully depressed (2). Kick-down optimises gear selection and throttle for maximum acceleration, which often leads to downshifting. Kick-down works in both the economy and performance programs, but not in the manual mode or in the enhanced performance program.



Position 1 = full throttle.
Position 2 = kick-down.

Kick-down optimises vehicle performance at the expense of optimal fuel consumption. For minimum fuel

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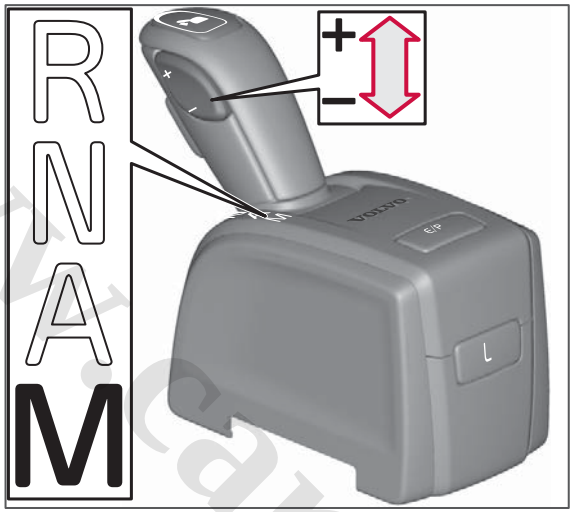
consumption, only use kick-down when necessary. The accelerator pedal always has a kick-down mode, but access to the function is an option.

Manual gear changing



You can drive the truck exclusively with manual gear changing or take over from the automatic gear changing system when you wish. Gear changing takes place by first pulling the hand lever to the manual position. The M and +/- button on the side of the hand lever is then used to select the gear.

For a new gear, the +/– button must be pressed once for each gear step upwards or downwards, to the desired gear.

Press several times on the +/– button in sequence to shift through several gears at once.

Gear changing takes place as soon as the +/– button is released.

NOTE

Do not release the accelerator pedal during gear changing.

NOTE

If the truck is stopped with an unpermitted starting gear engaged in the M mode then the starting gear is automatically selected.

CAUTION

Starting in too high a gear strains the clutch a lot which increases the risk for clutch breakdown.

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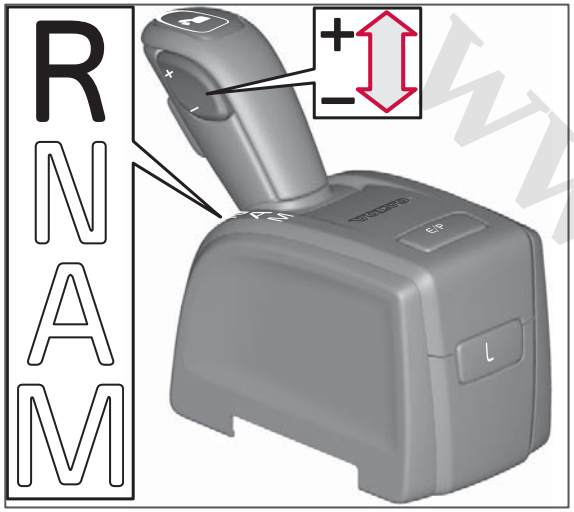
Reverse gears



The gearbox has four reverse gears (R1 to R4). The system will select R1 automatically when the gear shift lever is moved to R when the truck is stationary.

When driving, it is possible to shift between gears R1 and R2 and between R3 and R4. To change gear between R2 and R3 the truck must be stationary.

Manual gear shifting takes place using the +/– button on the gear shift lever.

NOTE

The gear shift lever lock must be pressed in before the gear shift lever can be moved from N to R.

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CAUTION

Starting in too high a gear strains the clutch a lot which increases the risk for clutch breakdown.

Driving tips

Fuel economy driving

I-Shift is optimised for best fuel consumption in relation to the truck's situation. For optimum fuel economy, choose to drive in lever position A for as much of the time as possible. Only select position M when the driving conditions require manual intervention.

I-Roll

For normal driving the gear shift lever must be in position A and the auxiliary brake lever in position A in order that I-Roll shall be accessible. Use I-Roll as much as possible, such as during shallow downhill gradients.

Set the cruise control's speed slightly lower and instead increase the ECO level (overspeed). This gives more opportunities when I-Roll can be activated and saves fuel.

Preventing downshift

In some cases it is better to remain in a higher gear even if the engine speed is low. For example, just before the crest of a hill where you can make it over the crest without slowing down, which saves fuel. While driving, hold in the plus button until the truck starts to accelerate again in order to avoid changing down.

Preventing upshift

To prevent upshifting, e.g. when driving uphill, the minus button can be held depressed until the truck starts to slow down.

The function can also be used before an uphill gradient in order to obtain higher engine speed on the uphill gradient. Downshifting works as normal in such cases.

Maximum possible downshift

To obtain the greatest possible downshift, e.g. just before a steep hill:

1 Hold the minus button depressed and move the gear shift lever from position A to position M.

2 Release the minus button.

This results in a large downshift step in order to immediately obtain a high engine speed. Hold the hand lever in position M for as long as you want to avoid a new gear change.

Saving brakes

Use engine braking primarily to slow to a stop in order to save the service brakes. Brake program B can be used in the event of heavier braking. A downshift then takes place, which increases the braking performance of engine braking.

Queue driving

The "Launch control" function makes it possible to drive the truck forward at idling speed, which may be appropriate when driving in traffic queues.

Activation from stationary:

1 Select position A or position M.

2 Release the brake.

3 Depress the accelerator pedal.

4 Release the accelerator pedal once the truck starts to move forward.

When the brake pedal is depressed or it becomes so heavy that the engine risks stopping, the clutch is disengaged in order to prevent the engine from stopping. To return to queue driving, press the accelerator pedal.

In position A, with the "Enhanced gear selection adjustment in Auto inc. kick-down" option, it is also possible change up and down in order to adapt speed to the traffic. The gearbox increases the engine speed slightly in order to be able to change gear. (Upshifting in position M leaves the launch control mode.)

NOTE

The truck does not need to be stationary for the function to be activated.

NOTE

At low speeds and gears, queue driving is activated automatically. Depress the brake pedal to inactivate.

Driving on poor roads and in difficult conditions

In hilly or difficult driving conditions, e.g. forestry, construction or off-road driving, it can be useful to select the drive program P+ (option), which means fewer gear changes. Gear selection is optimised for a higher engine speed in order to increase response and acceleration at the expense of optimum fuel consumption. This also provides a greater tolerance for changes in road's gradient.

- Select manual mode in order to prevent unplanned gear changing, e.g. on a soft road surface or sudden terrain changes that automatic gear changing cannot predict.
- The minus button can be held depressed in order to prevent changing up when driving uphill for example. This function can also be used before an uphill gradient in order to obtain higher engine speed on the uphill gradient.

- To achieve maximum possible downshift, e.g. just before a steep uphill gradient, hold in the minus button, move the gear shift lever from position A to position M and then release the minus button.

Under normal driving conditions, return to drive program E for optimised fuel consumption.

Disengaging

If rapid disengagement is required, e.g. in slippery conditions, move the gear shift lever to position N, neutral.

Starting when stuck

1. Rocking free

On slippery surfaces, such as snow or sand, the truck can be rocked free by gently depressing and releasing the accelerator pedal. This gradually extends the wheel ruts that you are stuck in.

1 Make sure the differential locks are fully engaged, see Differential lock page 146.

2 Deactivate TCS, see Traction Control System (TCS) page 141.

3 Select drive program P/P+.

4 Depress and release the accelerator pedal gently in a smooth, pumping rate.

2. Heavy starting

When stuck with a heavy load on a gradient or on a soft road surface:

1 Select drive program P/P+ or HD.

2 Select start gear 1.

3 Fully depress the accelerator pedal.

4 Hold the accelerator pedal in position even if there is a warning for overloaded clutch.

The engine provides additional torque to help with driving away.

The function should be used right at the first start attempt if it is a particularly heavy start, because most torque is obtained with a cold clutch.

⚠ WARNING

Starting in too high a gear strains the clutch a lot which increases the risk for clutch breakdown.

3. Jerk starting

(Only for drive program P+.)

For starting when stuck, the truck can be worked loose by means of the engine providing extra torque for a short time. The engine is set at a slightly higher engine speed and the engine speed is then decreased using the clutch, which provides extra torque for a short time. The function can be used if the truck is stuck in deep mud, for example.

1 Select drive program P+.

2 Move the gear shift lever to position A or position M, gear 1, or to position R.

3 Press and hold the minus button.

4 Fully depress the accelerator pedal (the engine speed will increase to 1300 rpm).

5 Release the minus button. The clutch is engaged.

Full engine brake (VEB/VEB+)

Engine braking performance is slightly limited in low gears in order to enhance comfort when driving in automatic mode. When the maximum engine braking is required, such as for construction driving, move the gear lever to position M and change gear manually.

Extra down-changing for maximum engine brake in low gears

For comfort reasons the brake program is deactivated in low gears. To obtain

maximum braking force, e.g. for construction driving, press the button "B" on the lever for the auxiliary brake repeatedly, which results in downshifting each time. This way a higher engine speed and maximum engine braking are obtained.

Another way to achieve higher engine speeds, thereby improving engine braking, is to press the minus button repeatedly.

Changing driving direction

Direction of travel, forward (A or M) or backward (R), can be changed while driving by means of the gear shifter without the brake pedal being used. The truck must therefore not be stationary, but instead it brakes slowly automatically, and when stopping changes gear to the new direction of travel.

> NOTE
>
> The function must only be used when marshalling.

Rocking to empty the platform

This method can be used to loosen loads that have got stuck on the truck's platform.

1 Select drive program P.

2 Accelerate and brake hard.

3 Repeat in the opposite direction, if required.

Driving on rollers

Sometimes the truck's driven axle is used to drive a wheel washing facility before driving on public roads. Normally, it is not possible to upshift when the front wheels are stationary. In order to upshift in these situations, proceed as follows:

1 Depress the accelerator pedal until the rear wheels start spinning.

2 After ten seconds it is possible to change up to high range.
The display shows E^.

It may be difficult to manage to change gear while coasting without the rear wheels losing momentum. For this reason, it is also possible to start in a gear higher than 6.

> NOTE
>
> During coasting the traction control function (TCS) will be switched off, see Switching off the TCS page 142.

Traction Control System (TCS)

With traction control, TCS (Traction Control System), you obtain better stability and traction. TCS automatically reduces wheelspin by reducing engine torque. At speeds below 40 km/h TCS also works as an automatic limited slip differential clutch and brakes the wheel that is spinning.

Symbol in the display when the TCS is working.

Normal function

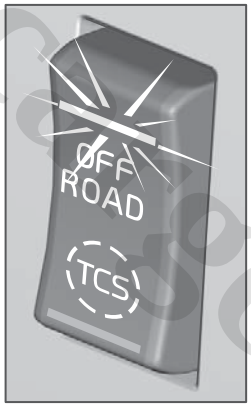
TCS is active when the truck is started. The lower indicator lamp in the switch turns green.

Normal TCS function.

Off-road TCS

Off-road TCS is used under difficult conditions to improve traction, such as on sand, gravel or snow. The function reduces the sensitivity and allows a little more slipping. This means that the tyres can "dig" their way forward better without pulling power being reduced.

Engage off-road TCS by means of a short press of the top section of the switch. The indicator lamp in the switch illuminates in orange.



Off-road TCS.

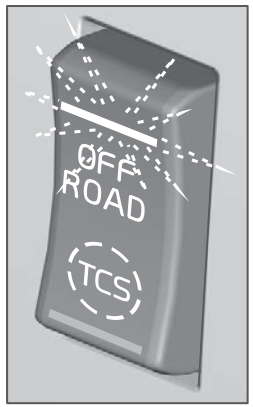
> **NOTE**
>
> Do not use the off-road TCS during normal driving.

Disengaging TCS

The TCS function can be fully disengaged.

Fully disengage TCS by holding in the top section of the switch for several seconds. The indicator lamp in the switch flashes orange.

If the truck is switched off when the TCS function is disengaged then the TCS will be disengaged when the truck is started again.



TCS function switched off.

The symbol is shown when TCS is disengaged.

Return to normal function

To return to normal function, press the lower section of the switch.

BRAKES, MANUALLY ENGAGED FUNCTIONS

Switching off the TCS

When testing on a roller bench or when towing with an axle raised up, the TCS must be switched off.

Use the display to disengage the TCS. The truck must be stationary.

TCS is re-engaged the next time the starter key is turned to the driving position or the front axle turns faster than 12 km/h.

Driver Information Display

Settings
↳ VEHICLE SETTINGS
↳ Traction control
↳ Roller bench mode

> **NOTE**
>
> Switch off the TCS before towing with any axle raised!

> **NOTE**
>
> Switching off the TCS in the display disables the TCS switch.

If TCS is activated after changing a wheel

TCS may be activated when fitting wheels on the driven axle that are smaller than the wheels fitted there before.

Drive for a distance at above 25 km/h. Then the EBS learns the difference in size between the wheels. How far you need to drive depends on the size difference between the wheels.

It may be difficult to drive due to TCS limiting engine torque. In which case, engage Off-road TCS. Off-road TCS allows a greater difference in wheel speed between the front axle and the driven axle. When Off-road TCS is activated it takes longer for the EBS system to learn the difference in size between the wheels.

Auxiliary brakes

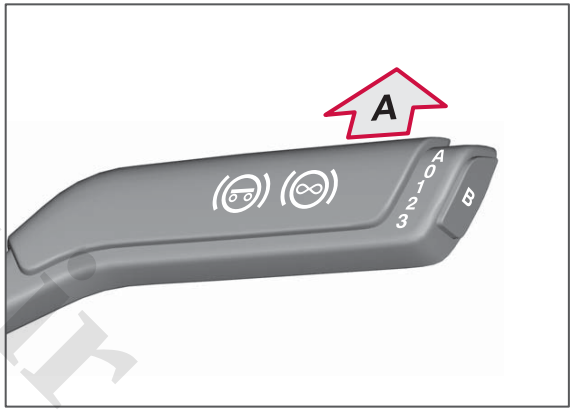
The auxiliary brake is a brake function in addition to the truck's normal service brake and works in the truck's drive system, as exhaust brake or retarder.

Use the auxiliary brake to avoid overheating in the wheel brakes and to reduce wear on the brake linings.

Brake blending in position A

When the lever for the auxiliary brake is in position A the auxiliary brake is used together with the normal wheel brakes when the brake pedal is depressed.

Position A is the recommended position for the auxiliary brake.



Set the lever in position A.

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Manual position

In manual mode, only the auxiliary brake is used but no wheel brake.

Use manual mode for long downhill gradients in order to avoid overheating the wheel brakes.

If the truck is driven on steep downhill gradients without a load, there is a risk of jack-knifing if the auxiliary brakes apply too hard.

The brake light illuminates if the auxiliary brakes are applied hard enough.

Learn more about the different positions for the auxiliary brake lever in the section on controls, see Auxiliary brakes page 74.

> **⚠ WARNING**
>
> Avoid using the auxiliary brake on slippery road surfaces due to the risk of the wheels locking up and skidding. The auxiliary brake only brakes on the rear wheels which involves a risk of jack-knifing. Use the brake pedal instead as it acts on all the wheels. Drive with adequate safety margins.

On trucks which do not have a full load the braking performance of the auxiliary brake is limited.

In the event faults inABS

The auxiliary brake is disengaged if the driving wheels attempt to lock up.

In the event of a fault in ABS on the driving wheels the auxiliary brake function will be changed or stop working, depending on the position of the hand lever.

Position A: The auxiliary brake will not work.

Position 1-3: The hand lever must be moved to position 0 and then back to the desired braking position.

Control of engine torque

When the accelerator pedal is released on a slippery road, the auxiliary brake can lock the driving wheels. When this happens the auxiliary brake is disengaged and the engine is accelerated until the driving wheels rotate at the same speed as the front wheels. This does not happen if the gearbox is in neutral position, ABS is activated or the vehicle speed is lower than 10 km/h.

BRAKES, MANUALLY ENGAGED FUNCTIONS

Hill start aid

1 Press the switch.
The function is available and the lamp in the switch is illuminated.

2 Hold the truck stationary using the footbrake. The symbol in the display is illuminated.

3 Release the footbrake.
The truck automatically remains stationary for a short time.
The symbol in the display illuminates and is shown for as long as the truck is braked.

4 Start to accelerate.

The automatic system releases the brakes after a short time, or when the engine torque is sufficiently great.

Deactivate the function by depressing the switch again. The function is always disengaged when the starter key is turned to the 0 position. When the engine is started the function is always disengaged.

Only use the function on uphill gradients.

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ABS

ABS (anti-lock brakes) is a part of the EBS system and has fully automatic function.

Brake assist function

If the brake pedal is depressed suddenly then the brake pressure becomes higher and braking more powerful. The function is designed to reach full braking force more quickly in emergency situations.

During use of the brake assist function the brake lights flash to warn vehicles behind about the sudden braking.

Wear on brake linings

If the brake linings wear more on one axle than on the other then the braking force is changed so that the wear is equalised.

A symbol is shown in the display when it is time to change the brake linings.

Symbol in the display when it is time to change the brake linings.

Calculated brake lining wear

The truck's driver information display shows the calculated remaining distance before the brake linings need replacing based on the current driving style, see Brake linings page 284. The information can also be read out by an authorised Volvo workshop.

High brake temperature warning

If the brakes become too hot then the CHECK lamp illuminates and a symbol is shown in the display. The brake pedal must be depressed harder to achieve the same braking performance as before.

Warning symbol for high brake temperature.

⚠ CAUTION

If the warning for high brake temperature is shown, slow down, use the auxiliary brake, or stop the truck.

Monitoring the wheel brakes

If any wheel is braking worse than the other wheels then the CHECK lamp illuminates and a symbol is shown in the display. No difference can be detected in braking force because the other wheels are braked harder instead. However, a fault code is stored in the system and an authorised Volvo workshop should examine the brake system.

Warning symbol for poor braking effect.

DIFFERENTIAL LOCK

Overview

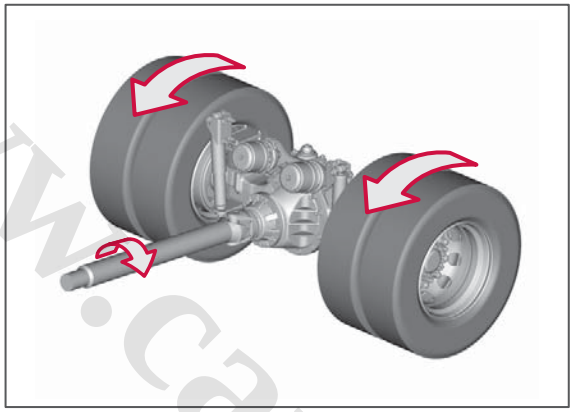
The brake system takes care of the differential lock and monitors that engagement takes place at the right time and without risk of damage. Engagement can take place automatically or manually.

Manual engagement can take place without the clutch being depressed. The system will actively synchronise the wheels so that they rotate at the same speed before the differential lock is engaged. If the synchronisation of wheel speeds cannot be achieved then the differential lock will not be engaged until the wheels are rotating at the same speed.

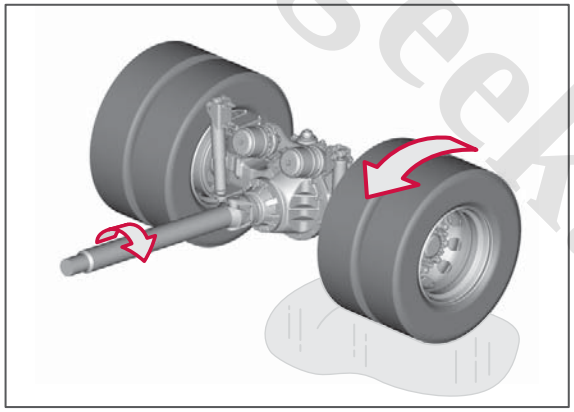
Automatic engagement, DLC "Diff lock control". The differential lock is automatically engaged when the driving wheels are rotating at different speeds and the speed is below 15 km/h. It is disengaged when the speed exceeds 15 km/h or during gear changing.

Function

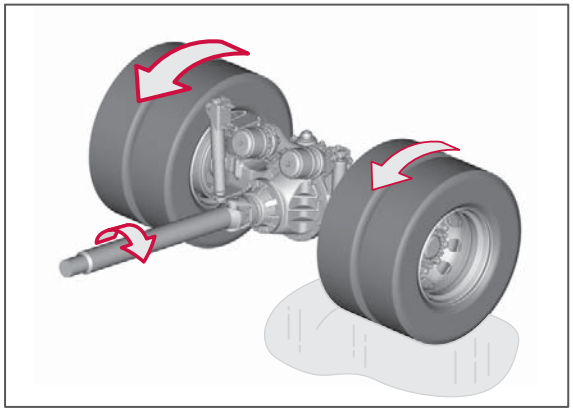
Firm ground, no differential lock engaged.



Slippery surface, no differential lock engaged. Only the wheel on the slippery surface rotates, the truck is stationary.



Slippery surface, differential lock engaged. The wheels are forced to rotate at the same speed. Only the wheel on the firm ground is driving. Accelerate carefully so that the driven axle and gears are not damaged.



Automatic differential lock DLC (Diff lock control)

Set the switch for the differential lock in the centre position in order to activate automatic engagement. The function is influenced by the traction control setting, see Traction Control System (TCS) page 141.

The differential lock between the axles is also engaged.

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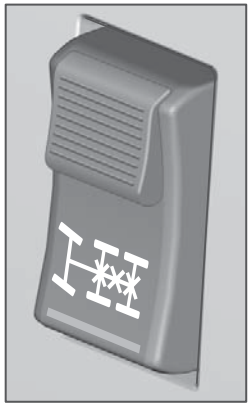


Button in centre position for automatic function.

Symbol in the driver information display when the function is active.

When the truck is delivered from the factory the automatic differential lock between the wheel pairs is not engaged. This can be changed in the driver information display.

Driver Information Display

Settings
↳ VEHICLE SETTINGS
↳ Traction control
↳ AUTO DIFF-LOCK

Overview of the switch's functions

Switch position	Function
0 (upper position)	No differential lock engaged.
1 (centre position) and TCS engaged	The differential lock between the axles is engaged. Automatic engagement and disengagement of the differential lock between the wheel pairs depending on the speed conditions in accordance with the description above.
1 (centre position) and Off-road TCS engaged	The differential lock between the axles is engaged.
1 (centre position) and TCS disengaged	The differential lock between the axles is engaged.
2 (lower position)	The differential lock between the axles is engaged. Differential locks between each wheel pair engaged.

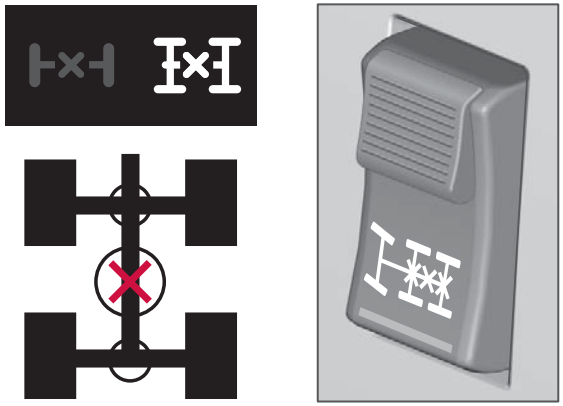
Manual differential lock

Engage the differential lock between the axles

1 Set the switch in the centre position.

2 Wait until the control lamp on the instrument panel illuminates.

The differential lock between the axles is engaged.



***Centre position**, the differential lock between the axles is engaged. The symbol in the instrument illuminates.*

DIFFERENTIAL LOCK

> **NOTE**
>
> During long periods of driving with the differential lock between the axles engaged, make sure you periodically drive a few hundred metres with the differential lock disengaged.

To engage the differential lock between axles without activating DLC, engage off-road TCS , see Traction Control System (TCS) page 141.

Engage the differential lock between all wheel-pairs

1 Set the switch in the lower position.

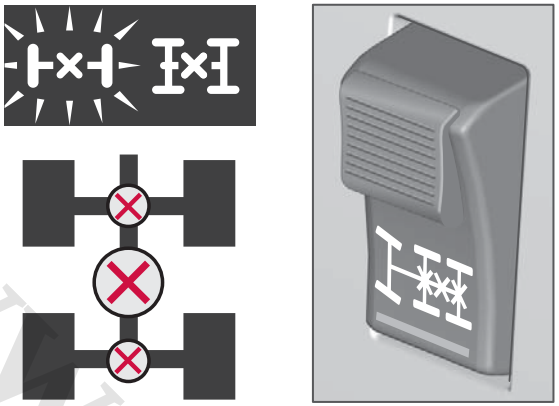
2 Wait until the control lamp on the instrument panel flashes.
The differential locks between each wheel pair are engaged.

3 Accelerate **carefully** so that the driven axles and gears are not damaged.

4 Drive out of the slippery section.

5 Release the accelerator pedal.

6 Disengage the differential lock.



***Lower position**, the differential lock between the axles and the respective rear axle is engaged. The symbol for the axle-differential illuminates and the symbol for the differential between the axles flashes.*

> **NOTE**
>
> The axle-differential lock is only engaged when the warning lamp in the instrument is flashing. The differential lock is engaged for as long as the warning lamp is flashing, even if the switch is switched off.

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Cruise control, CC (Cruise Control)

Depress the brake pedal for a couple of seconds after the engine has started otherwise the cruise control will not function.

> **⚠ CAUTION**
>
> Do not use cruise control in hilly terrain, heavy traffic or on slippery road surfaces.

Cruise control uses engine torque to control truck speed and the auxiliary brake to reduce speed if necessary (e.g. on downhill gradients).

Engaging cruise control

The control for cruise control is located on the steering wheel.

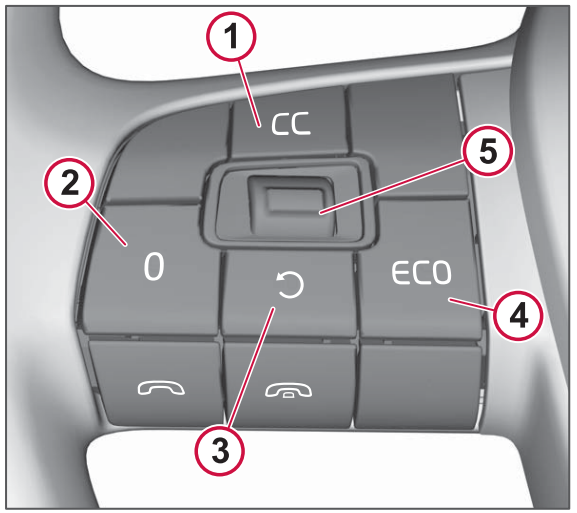
1 Press the button for CC (1).

2 When the desired speed has been reached, press the button (5) to engage the function.
Increase or decrease the speed by moving the button (5) up or down.

When cruise control is engaged both "CC" and selected speed are shown in the centre display.

Cruise control cannot be engaged at speeds below 30 km/h.

Display view.



1 Activate cruise control.

2 Disengage cruise control.

3 Resume the previously set speed.

4 Change the permissible overspeed.

5 Increase/decrease speed, or overspeed (up/down). Select speed (press).

Changing preset speed

Change the preset speed by moving the button (5) up or down. A short press will increase/decrease speed by 1 km/h, a

long press will increase/decrease speed by 5 km/h.

You can also change the preset speed by using the accelerator pedal and then pressing the button.

Disengaging cruise control

Temporary disengagement

Depress the brake pedal or clutch pedal, or briefly press the 0 button (2) to disengage cruise control temporarily. The set speed is then shown in square brackets in the display, for example **[70]**.

Return to the previous speed by pressing the resume button (3). (Applies if the speed is above 15 km/h.)

Cruise control is not disengaged when the accelerator pedal is depressed. When the accelerator pedal is released the truck resumes the set speed.

Disengaging

A long press on the 0 button disengages the cruise control. CC disappears from the display.

> **NOTE**
>
> Make a habit of using the brake pedal to disengage cruise control in order to be able to react as quickly as possible in the event of a critical situation.

Changing overspeed

1 Press the ECO button (4). The information is shown in the driver information display.

2 Increase overspeed by moving the button (5) upwards, reduce overspeed by moving it downwards. Depress button (5) in order to select or wait until the information disappears from the driver information display (after two seconds).
A short press will increase/decrease overspeed by 1 km/h, a long press will increase/decrease overspeed by 5 km/h.

> **NOTE**
>
> Overspeed can be set between 3 and 15 km/h.

> **NOTE**
>
> Each time the truck starts the overspeed is automatically preset to 5 km/h.

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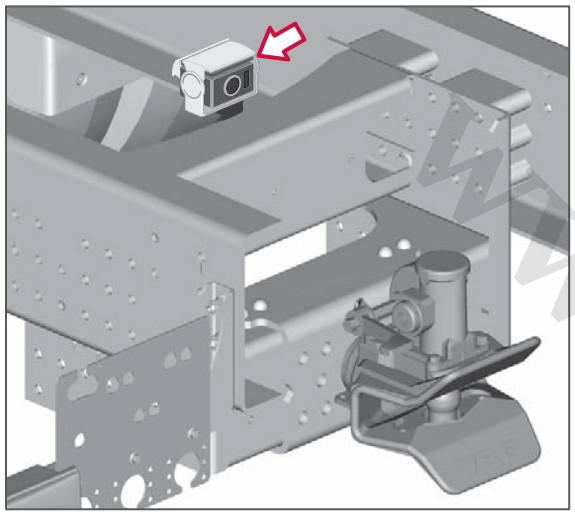
Reversing Warner

The reversing warning unit has two pitches.

- Engage reverse gear once for the high pitch.
- Disengage and then re-engage reverse gear within seven seconds for the low pitch.

CAMERA



Activating the camera

Start the camera by means of one of the following:

- Pressing the CAMERA button on the control panel.
- Selecting "CAMERA" in the secondary display's menu.
- Engaging reverse gear.

(In cold weather there may be a short delay before a good picture is obtained.)

Press the CAMERA button several times to change between the different cameras (if there is more than one).

CAUTION

The ring around the camera lens cannot be unscrewed. Do not try to remove it by force, as this could cause permanent damage. Contact an authorised Volvo workshop for more information.

Turn off camera

The camera is switched off automatically when reverse gear is disengaged or when the truck exceeds a certain speed. (There is a small delay before the image disappears from the display.)

Settings

Secondary display

Cameras
↳ Auto settings

Set whether you want the system itself to choose from which camera the image is displayed.

- Activate "Auto rear" for the image from the rear camera to be shown when reverse gear is engaged.
- Activate "Auto side" for the image from the side camera to be shown when the direction indicator is used.

If both the auto settings are activated when reverse gear and direction indicators are used simultaneously then the rear camera will be shown in the display. You can also change the display between different cameras when auto settings are activated.

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Bogie functions

The air suspension system can regulate the distribution of the load between the axles and, in some cases, raise axles. This is intended to optimise traction and tyre wear in different situations. The driver information display clearly shows the status of the load distribution in the event of changed settings.

Driver Information Display

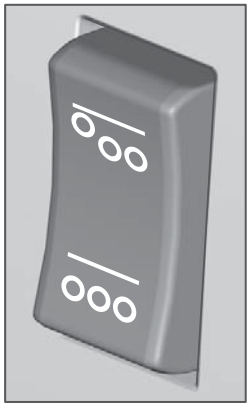
Favourites display
↳ Set favourites

The favourites menu can show the status of the bogie lift and load distribution.

Automatic trailing axle lift

The trailing axle is raised or lowered automatically depending on the weight of the load. This mode is recommended, it reduces wear on the tyres on the trailing wheel axle.

During unloading the trailing axle remains in lowered position in order to maintain stability, regardless of load weight. The axle is then raised automatically when the speed increases.



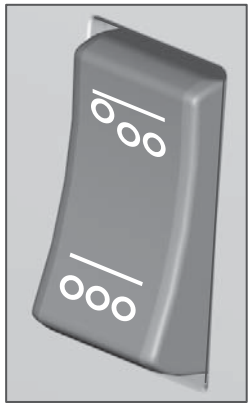
Centre position.

The instrument symbol illuminates when the axle is being raised and is raised up.

Raising the trailing axle

Press the button once to raise the trailing axle. The axle is only raised if the axle weight on the other axles is not too high.

To lower the axle, depress the button in the lower position.



Spring-loaded upper position.

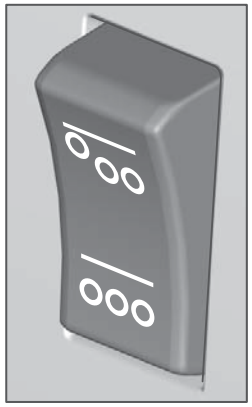
The instrument symbol illuminates when the axle is raised up.

ⓘ NOTE
Driving in this position may result in impaired roadholding.

Lowering the trailing axle

The trailing axle is lowered and remains down regardless of the weight of the load.

BOGIE



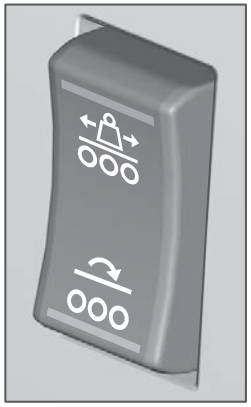
Fixed lower position.

Axle load distribution

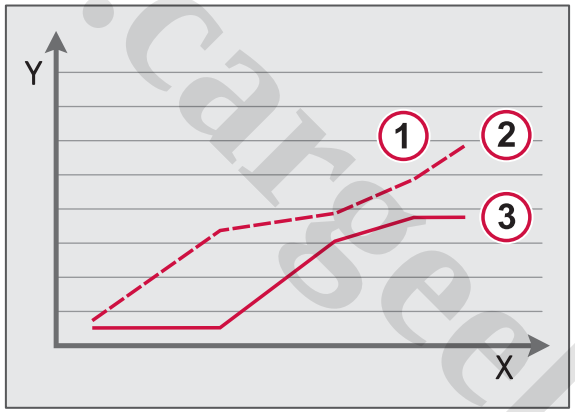
To obtain optimum traction the air suspension system can redistribute the weight between the driven axle and other axles. How much extra weight is put on the driven axle is governed mainly by the position of the bogie buttons and in some cases the speed.

Optimised traction

For a part load the axle weight is distributed on the axles in order to obtain better grip on the road. See the diagram, the exact weight values depend on the truck's specification.



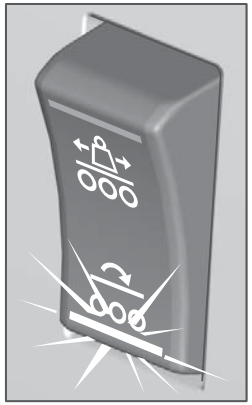
Centre position



Optimised traction
X-axis: Bogie load
Y-axis: Axle load
1: Driven axle 1
2: Driven axle 2
3: Trailing axle

Maximum traction

Some driving conditions require extra traction. This function redistributes the weight on the axles in order to obtain increased traction, but without exceeding legal axle weights.



Spring-loaded position.

Press the button once to distribute the load to the driven axles.

Press the button once again to provide maximum traction and return to optimised traction.

Loading diagram

The weight on the axles is distributed in accordance with the diagram, the exact weight values depend on the truck's specification.

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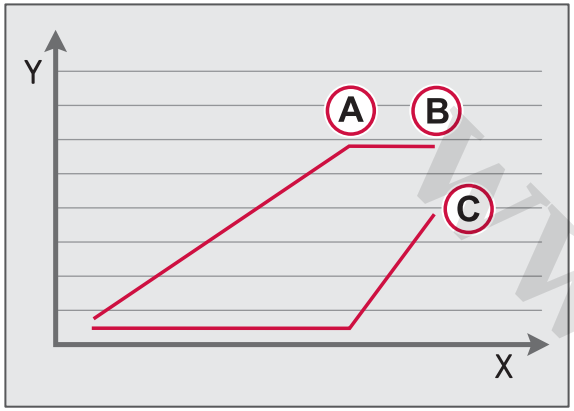
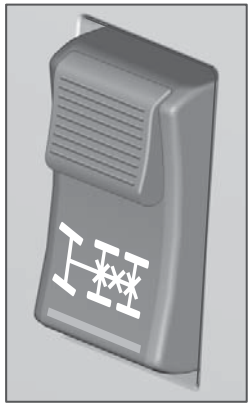


Maximum traction
X-axis: Total tridem load
Y-axis: Axle load
A: Driven axle 1
B: Driven axle 2
C: Trailing axle

> **NOTE**
>
> Extensive driving in this mode results in increased tyre wear on the driven axle.

Additional traction

The differential lock between the axles can be activated in order to obtain additional traction.

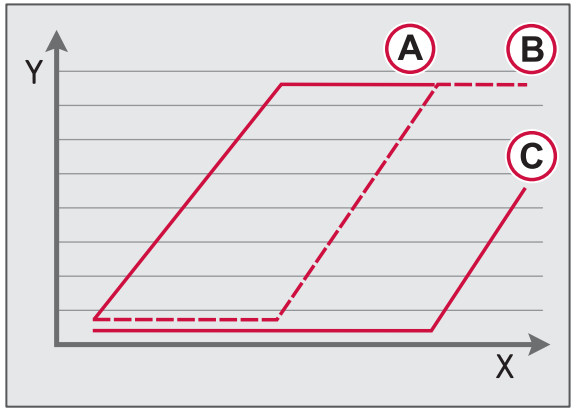


Differential lock between the axles.

Display symbol.

Loading diagram

The weights on the axles are distributed in accordance with the diagram when the differential lock between the axles is used. The diagram's exact weight values depend on the truck's specification.



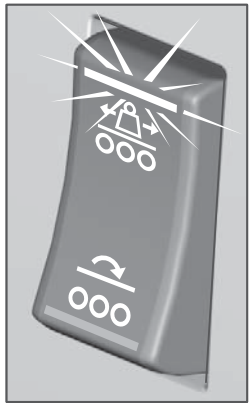
Additional traction
X-axis: Total tridem load
Y-axis: Axle load
A: Driven axle 1
B: Driven axle 2
C: Trailing axle

Alternative load distribution

Alternative load distribution distributes the weight to the two rear axles. This is in order to reduce the risk of rearing, with a hook lift for example.

The function is switched off automatically when the speed is increased.

BOGIE



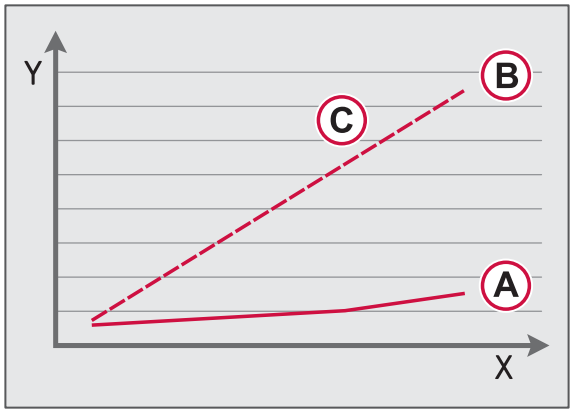
Upper spring-loaded position.

A: Trailing axle

B: Driven axle 1

C: Driven axle 2

> **NOTE**
>
> Alternative load distribution may only be used for marshalling and local work, not for driving on roads.



Alternative load distribution

X-axis: Tridem load

Y-axis: Axle load

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Steered rear axle

A steered rear axle is used to improve driving characteristics and reduce tyre wear. The rear axle is steered hydraulically.

The truck's dual hydraulic system is driven by the engine and gearbox respectively. The circuit that is driven by the gearbox operates as back-up for the circuit which is driven by the engine.

Fault handling:

In the event of a fault the **yellow** control lamp (CHECK) illuminates along with a symbol that describes the fault.

Rectifying faults:

Stop the truck, switch off the engine and wait about a minute before restarting the engine.

If the **yellow** lamp is still illuminated then you should visit an authorised Volvo workshop. You can drive to the workshop, but should be aware that the driving characteristics have changed.

The steered rear axle becomes either fully *self-steered* or *actively steered straight ahead*, depending on the nature of the fault.

In order not to damage tyres and axle, you should raise the axle if it is *self-steered* and you need to reverse. If the axle is already raised and the driven axle is not overloaded when the fault occurs then it cannot be lowered while driving. Remember that the driving characteristics are also changed for driving straight ahead.

If the axle becomes *actively steered straight ahead* then the axle strives to straighten itself and steer straight ahead. By these means the turning radius is impaired.

⚠ WARNING

Do not rectify the trailing wheel axle's steering yourself, contact an authorised Volvo workshop. Avoid reversing as this may damage hubs, bearings and wheel rims.

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INTRODUCTION TO AIR SUSPENSION

Air suspension

The truck has rear air suspension and is therefore equipped with air suspension instead of rear leaf spring suspension. The amount of air in the bellows can be regulated and it determines the frame's height above the ground.

The air suspension is controlled electronically (ECS, Electronically controlled suspension) and keeps the truck at the same height regardless of the weight and position of the load. The height can also be controlled manually using the work remote control.

When starting, the pressure in the air tanks must be higher than 8 barfor the air suspension to work. The air suspension is activated after starting when the parking brake is released or when the handset or a switch for the air suspension is used. None of the suspension functions work before the system has been started by one of these actions.

The air suspension system can be set in two different modes, drive mode or manual mode. Drive mode means that the truck is ready for driving and that the handset has not been activated. When a button is pressed on the handset the system changes over to manual mode. Manual mode means that the system is ready to change the height of the truck.

The air suspension system can be adjusted manually when the truck is stationary or at low speeds.

For instructions about the air suspension system in locked mode, see Air suspension in locked mode page 297.

Work Remote Control (Work Remote Control)

Buttons

The handset has the following buttons:

1 **STOP** - Immediately stops all air suspension control.

2 **Shortcut -** Program your own shortcuts for frequently used functions or menus.

3 **Navigation buttons -** Navigate between the menus in the display. The buttons correspond to the symbols in the display.

4 **OK** - Confirms a selection.

5 **ESC/ON/OFF** - Escape (ESC) is obtained by a quick press of the button. ESC scrolls backwards in the menu navigation.
ON and OFF are obtained by a longer press of the button. ON and OFF switch the handset on and off.

6 **Lock -** Under this menu is the button lock for the handset.

The automatic button lock for the handset is activated when it is not in use. The button lock is deactivated by pressing the lock button and then OK.

Pop-up windows are closed via ESC or by waiting.

Pressing the lock button (6) gives you the following options:

- **Lock truck** (shown if the truck is unlocked)
- **Unlock truck** (shown if the truck is locked)
- **Button lock**

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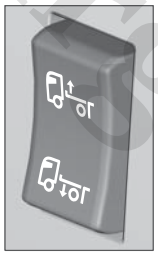
Scroll to the option you want and confirm with OK. You can go back by using ESC.

The truck's central locking can also be activated by holding the lock button depressed for 2 seconds.

Raising and lowering the axles

You can raise and lower the wheel axles for different ride and load heights with the work remote control. The engine need not be running for the height to be adjustable but the air pressure in the system must be sufficient. Height adjustment with the work remote control can only be made at low speeds.

> **NOTE**
>
> The switch in the instrument panel can also be used for height adjustment of the rear axle. The truck goes automatically to drive mode when you start to drive (a warning is given first, but when speed is increased the truck goes to drive mode).



Switch for height adjustment

Work Remote Control

MENU
↳ Level control

- RECALL LOADING LEVEL- go to preset load height
- Manual control - manual height adjustment
- Go to drive level - go to ride height
- Go to ferry level - go to ferry transport height
- Go to swap high - go to high swap body height
- Go to swap low - go to low swap body height
- Reset drive level - restore ride height
- Edit loading levels - adjust load height

> **NOTE**
>
> If the truck is in ferry transport mode, then drive level must be activated before you can regulate the height.

Example

You can make the following selections under "MANUAL CONTROL".

Work Remote Control

Level control
↳ MANUAL CONTROL
↳ Loading level
Drive level
Swap body level

Raising and lowering the axles

You can raise and lower the truck's rear axle manually, adjust the roll or pre-program ride, load or swap body heights under "Manual control".

INTRODUCTION TO AIR SUSPENSION

1 Go to "Loading level" to set a load height. You can also select "Drive level" or "Swap body level" depending on what you want to set.

2 Adjust the height of the rear axle using the up and down navigation buttons. You can use the Hold function, see Useful functions page 161.

3 Adjust the roll using "Roll" function. (The roll cannot be adjusted in ride height.)

4 Select whether you want to save your load height (you can update a previous setting or create a new one).

5 Finish with "Save" if you want to save or "ESC" if you do not want to save.

Example

You can make the following selections under "Settings".

Work Remote Control

- MENU
  - Settings
    - Button lock
    - Shortcut buttons
    - Start menu
    - Scenarios
    - AUX
    - Lights
    - Display mode
    - Brightness

Creating shortcuts

1 Go to "Shortcut buttons".

2 Select "Set" to program the shortcut buttons. (Select "View" to see the existing shortcuts.)

3 Press the button you want to program.

4 Select "Go to menu" if you want the shortcut button to take you to a particular point in the menus. If you want a special function to be activated directly with the shortcut button then select "Activate function" instead.

5 Select the function or menu position in the list.

Storing axle heights

1 Go to "Scenarios".

2 Select "Custom scenario 1" or 2.

3 Select "Name" to adjust the name of the scenario.

4 Select "Go to menu" in order to select a menu that you should enter when you activate the scenario.

5 Select "Save" when done.

Useful functions

Hold

You can activate the Hold functionby holding the up or down button depressed. The display then shows "Press OK to enable HOLD". Press "OK" to activate the Hold function. The display shows "Press OK to confirm stop" when the Hold function is active. Press "OK" in order to exit the Hold function.

Roll

The truck's roll can be adjusted in order to facilitate loading against non-horizontal loading docks or where the ground under a loading dock is not horizontal. To be able to use this function, the air system in the truck must be activated. Roll is activated together with height adjustment in the handset.

Driving a truck with air suspension

The air suspension system works fully automatically during driving, but adjustments can be made, for example, to change ride height, etc.

Ride height

The frame's height above the ground in the driving position can be adjusted within certain limits. How much it can be adjusted depends on truck type. On some trucks it cannot be changed at all.

It is always possible to return to the ride height factory settings.

The ride height can only be regulated at speeds below 50 km/h.

Dipped beam may dazzle at certain height settings. These height settings are therefore blocked. Aim to adjust the front and rear axles in parallel in order to use the full adjustment range.

> **NOTE**
>
> If the ride height is changed then the driving characteristics can be affected negatively. Function should not be used at speeds above 50 km/h.

Changing the height with the work remote control (Work Remote Control)

Ride height via "**MENU**" in the work remote control:

1 Select "Level control".

2 Go to "Manual control".

3 Go to "Drive level".

4 Adjust the height of the rear axle using the up and down navigation buttons. You can use the Hold function, see Useful functions page 161.

5 Select whether you want to save your ride height (you can update a previous setting or create a new one).

6 Finish with "Save" if you want to save or "ESC" if you do not want to save.

Hold function

You can activate the Hold function by holding the up or down button depressed. The display then shows "Press OK to enable HOLD". This activates the Hold function. The display shows "Press OK to confirm stop" when the Hold function is active.

Factory set ride height

It is always possible to return to the ride height that the truck had from the factory. This is done by means of "Reset drive level" under "Level control".

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Activities during ferry transport

When the truck is to be lashed for ferry transport, the air bellows must first be completely emptied and then the air suspension system switched off. This is carried out in order to reduce the risk of the load being damaged during the ferry journey.

1 Apply the parking brake.

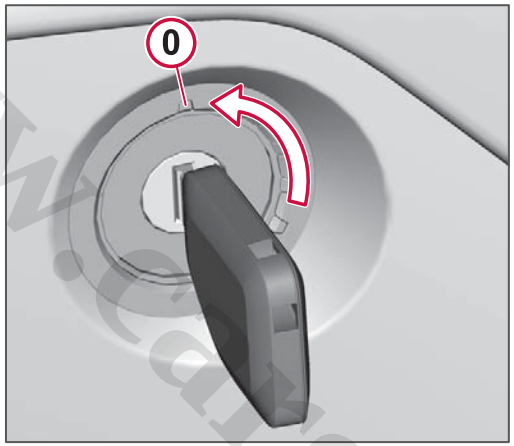
2 Activate "Go to ferry level" in the work remote control.

Work Remote Control

MENU
↳ Level control
↳ Go to ferry level

3 The truck lowers down to the lowest height. Turn the starter key to stop position when all the air is expelled and it has stopped hissing.

The truck is ready for tying down and the air suspension system is switched off.



4 Reset the ride height by activating "Go to drive level" on the work remote control when starting after ferry transport.

Work Remote Control

MENU
↳ Level control
↳ Go to drive level

The system also returns to the ride height when the parking brake is released.

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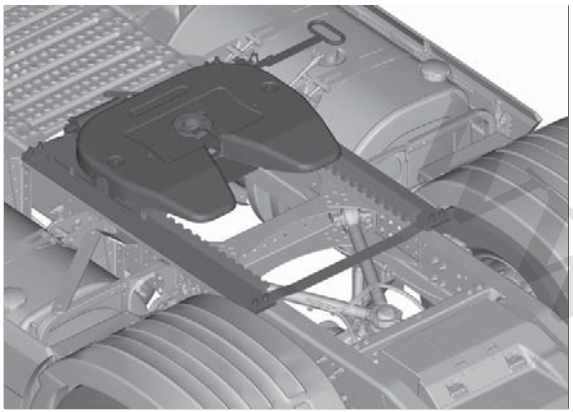
07

EXTERNAL EQUIPMENT



Fifth wheel, general advice

Volvo uses fifth wheels from several different manufacturers. Instructions for use for the fifth wheel are located on its handle when the truck is delivered from the factory. If the instructions for use are missing, contact an authorised Volvo workshop to get a new copy. Follow the general guidelines in these instructions until you receive the instructions for use from the supplier.

NOTE

Only use the general instructions until you receive the instructions from the supplier.

Operation

The fifth wheels have a slightly different design depending on the manufacturer they come from. Common to all is that they have a handle to uncouple the coupling to the trailer, and a safety lock so that the handle does not accidentally release the coupling.

DANGER

Make sure that the handle is secured by the inhibitor before driving away.

Care

Fifth wheels of steel or with a surface of another metallic material must be greased before being connected for the first time. The surface must be fully covered with grease and new grease applied if the metal surface becomes visible again.

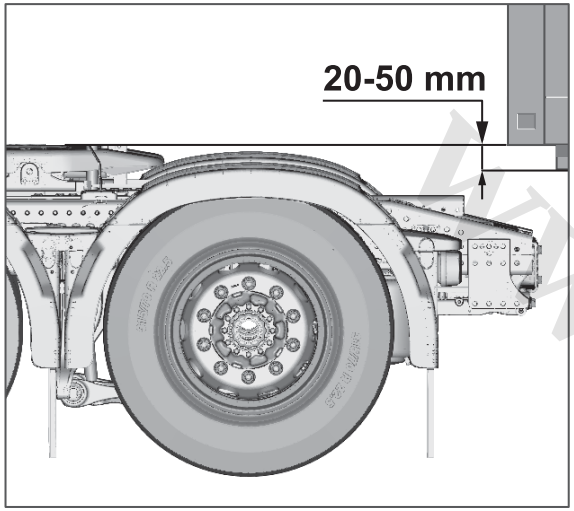
NOTE

Follow the advice in the supplier's instructions for use and use the grease that the supplier recommends.

Coupling a trailer

Coupling the trailer

1. Position the tractor and trailer on a level, even surface.
2. Make sure the trailer cannot roll.
3. Unlock the fifth wheel.
4. Make sure that the trailer's sliding plate is 20-50 mm lower than the truck's fifth wheel.
5. Reverse the tractor until the trailer and fifth wheel are coupled together.
6. Check that the fifth wheel is properly locked and secured. Perform a safety check by jerking with the truck.
7. Fold up the support legs.
8. Connect the air and electricity supplies.
9. Carry out a brake test with the trailer brake to ensure that the trailer's service brake is working.



WARNING

It is the driver's responsibility to ensure that the trailer is correctly coupled.

Uncoupling the trailer

1 Position the tractor and trailer on a level, even surface.

2 Make sure the trailer cannot roll.

3 Raise the tractor 's rear air suspension so that a space of 20–50 mm is created between the fifth wheel and the trailer's sliding plate after uncoupling.

4 Lower the support legs to the correct position.

5 Disconnect the air and electricity supplies.

6 Unlock the fifth wheel.

7 Drive the tractor forward so that the locking device releases.

8 Lower the tractor's rear air suspension so that a space of 20–50 mm is created between the fifth wheel and the trailer's sliding plate.

9 Drive away the tractor.

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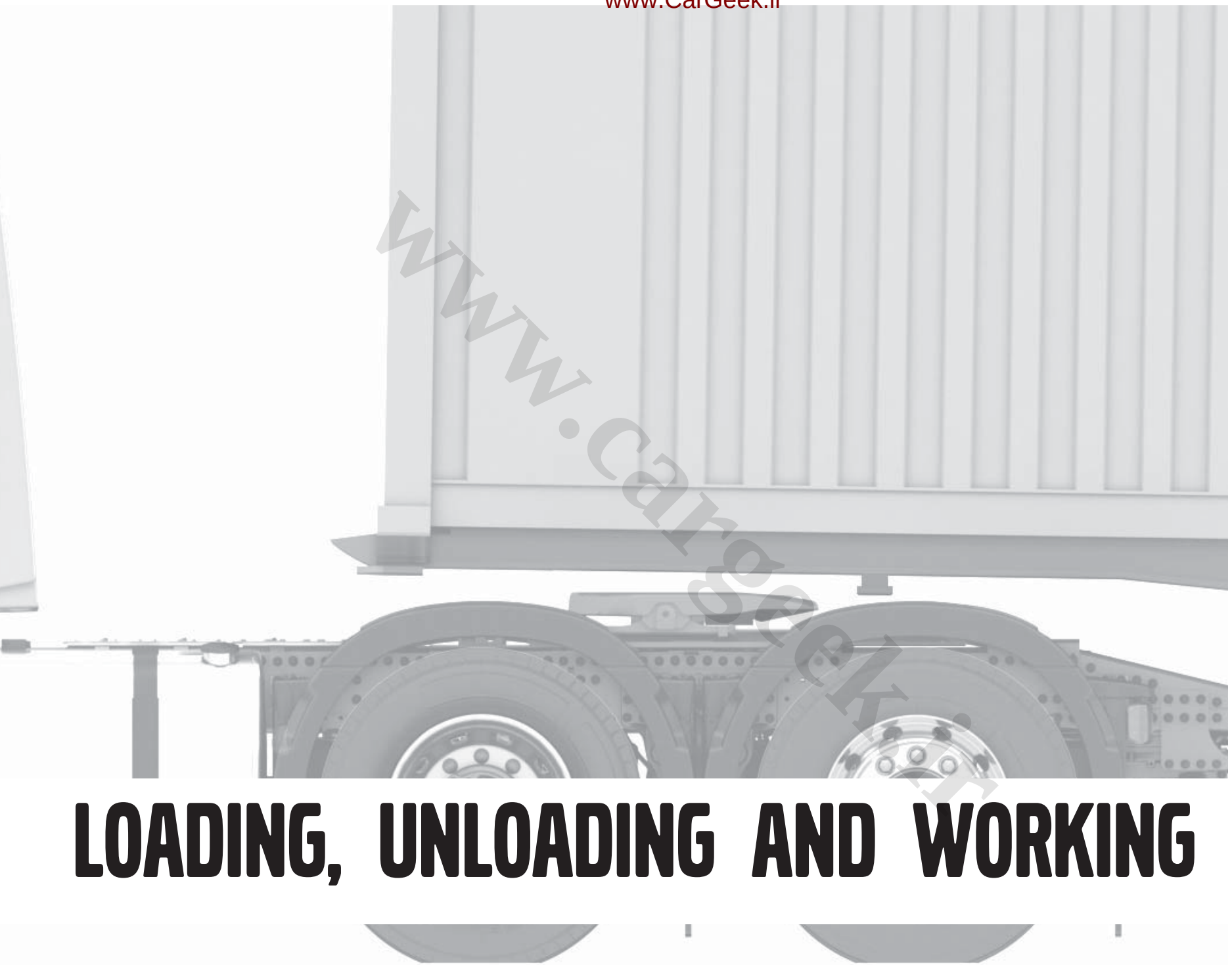

08

LOADING, UNLOADING AND WORKING

POWER TAKE-OFF

Overview

The power take-off is normally a hydraulic pump driven by the engine or gearbox. The power take-offs are mounted on the engine, the flywheel or the gearbox. A power take-off connected to the flywheel or engine is called a clutch-independent power take-off.

Control of the power take-off is normally adapted by the body builder to fit your particular equipment. There are many options for customising the truck. For detailed information see the instructions for bodywork.

All power take-offs are disengaged if the engine is switched off. When the engine is started next time the power take-off is disengaged. If the engine is switched off using remote stop then the power take-off will not be disengaged but will be engaged when restarting.

When using power take-offs the engine speed can be increased temporarily , see page 119. The power take-offs can also be programmed with an increased engine speed. In some cases, a maximum permissible engine speed can be programmed so as not to damage the equipment.

> **NOTE**
>
> Never set the engine speed higher than the body builder's recommendation. See information from the body builder.

Engine mounted power take-off

Engine-mounted power take-offs can be engaged or disengaged while travelling.

High loads on the engine mounted power take-off can cause problems with gear changing. In the event of a heavy load the truck should therefore be stationary or driven in the lowest gear. For more information about load levels, contact an authorised Volvo workshop.

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The air suspension system must be active during all loading and unloading. The system is activated when:

- the pressure in air tanks is higher than 8 bar at the start and the parking brake is released.
- other air suspension buttons are used, for example: bogie lift, maximum traction.
- the air suspension is used with the ignition switched off.
- the work remote control for the air suspension is used.

⚠ WARNING

Switch off the electronic air suspension system by using support legs, plough without so-called float mode or other equipment that affects the truck's level above the ground. On trucks with equipment that affects their height above ground there is a special switch for switching the air suspension system off. In the event of retrospective bodybuilding on the truck, the function for switching off the air suspension system can be connected by an authorised Volvo workshop.

Load levelling

Change the height with the work remote control (Work Remote Control)

Truck ride height can be controlled manually using the work remote control. The work remote control in the truck can also be used up to 25 metres away.

Adjustments using the work remote control can only be made when the truck is stationary or at low speeds.

Work Remote Control

MENU
↳ Level control
↳ Manual control
↳ Loading level
Drive level
Swap body level

1 Go to "Loading level" to set a load height. You can also select "Drive level" or "Swap body level" depending on what you want to set.

2 Adjust the height of the rear axle using the up and down navigation buttons. You can use the Hold function, see separate description.

3 Adjust the roll using "Roll" function. (The roll cannot be adjusted in ride height.)

4 Select whether you want to save your load height (you can update a previous setting or create a new one).

5 Finish with "Save" if you want to save or "ESC" if you do not want to save.

Hold function

You can activate the Hold function by holding the up or down button depressed. The display then shows "Press OK to enable HOLD". This activates the Hold function.

The display shows "Press OK to confirm stop" when the Hold function is active.

Roll function

The truck has a roll function in order to facilitate loading against non-horizontal loading docks or where the ground under a loading dock is not horizontal. To be able to use this function, the air system in the truck must be activated. Roll is activated together with height adjustment in the work remote control.

Roll is load-dependent, which means that the maximum possible roll varies between different load cases. At full and empty load tilt is not possible at all. If roll is possible then this is indicated in the work remote control.

Loading and unloading height memory

Preset heights

A number of heights can be stored and named in the work remote control. Handling of the heights is performed in the "Level control" menu mode. There, heights can be stored, edited and retrieved.

Work Remote Control

MENU
↳ Level control
↳ Recall loading lvl
Manual control
Go to drive level
Go to ferry level
Go to swap high
Go to swap low
Reset drive level
Edit loading levels

Save a new height by selecting the type of height in "Manual control" (drive level, load or swap body height). Then adjust the height and choose whether this should be saved.

The heights are retrieved via the following menu options:

- Recall loading lvl
- Go to ferry level
- Go to swap low
- Edit an existing load height via "Edit loading levels".

Quick unloading

To rapidly unload a load, such as when a container is lifted off, the truck must first be lowered down to its lowest level so that no air remains in the bellows. Otherwise the suspension risks being damaged.

If a swap body height is stored then the direct command "Go to swap high" or "Go to swap low" can be used. This is available under "Level control".

If no swap body height is stored then the axles are lowered manually via "Manual control" which is also available under "Level control".

Using the air suspension with the ignition turned off

The air suspension system can also be activated in the "Living" and "Accessory" function modes.

To activate:

- Navigate to a height level menu with the handset, or
- activate a height function in the current menu, or
- activate the load indicator.

The function is active for 1.5 hours if it is not switched off before the time has expired.

To disengage:

- Press the stop button for at least 2 seconds.

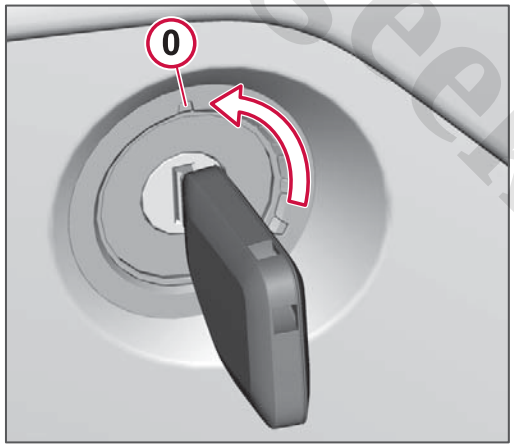
Loading and unloading with the main switch off

When loading and unloading trucks in ADR traffic the main current sometimes needs to be switched off. To avoid damage to the chassis the truck must be raised to its highest level during loading, and lowered to its lowest level during unloading, before the main current is switched off.

Before loading

1 Raise the truck to its maximum level via "Manual control", which is available under "Level control" in the work remote control's menu.

2 Turn the ignition key to the stop position.



3 Turn off the main switch.

The truck is now at its highest position and is prepared for loading, without automatic adjustment.

LOAD INDICATOR

Load indicator

The load indicator is a software function that reads the front and rear axle load, as well as the weight of any trailer. The risk of overloading and incorrect distribution of the load is reduced by means of continuous monitoring of the load distribution.

Display view

The weight distribution is shown under the "Load indicator" menu in the driver information display.

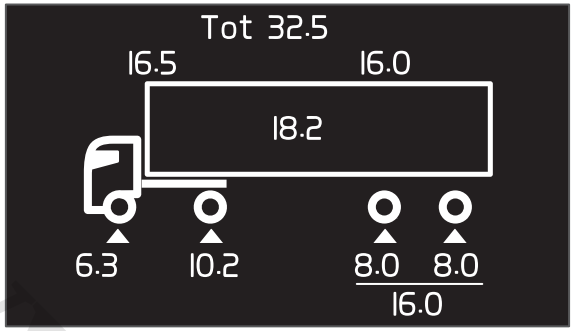
The display shows the weight on each axle on the truck and trailer, load weight and total weight. Both indicated weight on all rear axles and total bogie/tridem weight are shown on bogie and tridem.

The values are updated every two seconds.

The accuracy of the weight shown is approximately ±250 kg/wheel axle.

Use ◁ and ▷ to change the display view if the whole truck does not fit in the same view, e.g. to display the trailer.

> **NOTE**
>
> The total weight shown on the display can, in some cases, deviate from the combined individual weights, since these values are rounded.



Examples of display view.

Weight on trailer

For the system to be able to read and display the axle weight for a trailer requires that it fulfils EBS ISO standard 11992-2.

Depending on which parts of the standard are fulfilled, the display may show load per axle and trailer type, or just the total weight and an image of a standard trailer.

Trailers not fulfilling ISO Standard 11992-2 are not shown at all.

Resetting the load weight

Driver Information Display

Settings
↳ Load indicator
↳ Reset load weight

The weight of an empty truck can differ, for example, due to being covered by snow or ice. This may result in the load weight not showing zero despite the cargo area being empty.

Reset the load weight of the truck and/or trailer to zero before a new load is loaded, in order to ensure the correct load weight each time.

Calibration

When the truck is delivered from the factory the load indicator is not calibrated but shows an estimated value instead.

For trucks with front leaf spring suspension, no estimated value is shown for the front axle before calibration.

Calibrate the load indicator on a reliable scale as soon as possible. Calibration can be performed on an axle scale (short scale for individual axle) or on a vehicle scale (long scale for the whole vehicle).

The load indicator must be calibrated with both light and heavy loads in order to obtain optimum accuracy. There must be as large a difference as possible between these loads. If possible, calibrate without load and with maximum load.

For the difference between light and heavy load to be distributed correctly on all axles the normal axle load distribution should be set when the load indicator is

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calibrated, see Axle load distribution page 154.

> **NOTE**
>
> The axle scale cannot be used for trailers of an older ISO standard as information about the number of axles and individual axle weight is missing for these trailers.

After replacement or recalibration of load sensors on trucks with leaf-spring suspension the load indicator must be calibrated again.

Calibrating the load indicator

Driver Information Display

Settings
↳ Load indicator
↳ Calibrate

Calibrate the load indicator by following the instructions that are shown in the display and enter the values that the balance shows. You are guided through the whole calibration procedure and receive messages about the next step.

Example:

"Drive first axle on scale"

"Drive whole truck on scale"

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- Use the up/down steering wheel keypad button to increase or decrease the weight indication in the display.
- If something goes wrong, go back to the previous step using ESC.
- With a long press on ESC you can choose to cancel the calibration and all changes are removed.

The message "Load indicator calibrated" is shown when the whole calibration is complete.

An ongoing calibration can be stopped if the values given are not reliable. Repeat the calibration if this occurs.

Calibrate the load indicator once a year. The dates of the most recent calibration for light and heavy load respectively are available to read in the "Truck last calibrated" menu.

Coupling a trailer

When a trailer is coupled, select which trailer has been coupled in the display. Select a previous calibration of the trailer, or select "Not calibrated" if it has not been calibrated before.

When a new trailer has been calibrated it can be named using the letters and figures from the scroll bar shown in the display.

Coupling a trailer

When a trailer is coupled the message "NEW TRAILER DETECTED, Select trailer for load indicator?" is shown. Select the trailer from the list in order to select a previous calibration of the trailer, or select "Not calibrated" if it has not been calibrated before.

When a new trailer has been calibrated it can be named using the letters and figures from the scroll bar shown in the display.

Driver information display

Settings
↳ Load indicator
↳ Trailers

The trailer menu enables you to view and select which trailers are connected, view the calibration date, and edit or delete names of previously entered trailers.

Multiple trailers

If several trailers are connected then they must have a CAN router in order to detect all trailers in the vehicle combination and indicate the trailer weight for each trailer. Only the first trailer is detected in the absence of a CAN router.

LOAD INDICATOR

When the vehicle scale is too short

Normally the weight increases for each wheel axle that is driven up on the scale until the whole truck is weighed. If the scale is too short for the whole truck to have room for weighing then the first wheel axle may be left outside the scale when the last wheel axle is driven on, for example. In which case, the weight of the first wheel axle must be added manually to the weight that is shown when the last wheel axle is driven on.

1 Record the weight of each wheel axle.

2 Add the weight of the wheel axles that are no longer on the scale to the weight indication shown, until the whole truck has been weighed.

> **NOTE**
>
> The truck should be in a level position when measuring.

> **NOTE**
>
> Use a reliable balance.

Load indicator with handset (Work Remote Control)

Indicates the front and rear axle weight, the weight of a trailer and total weight. Both indicated weight on all rear axles and total bogie/tridem weight are shown on bogie and tridem.

Using the load indicator:

1 Go to "MENU" in the start menu.

2 Select "Load indicator".

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09

DYNAFLEET

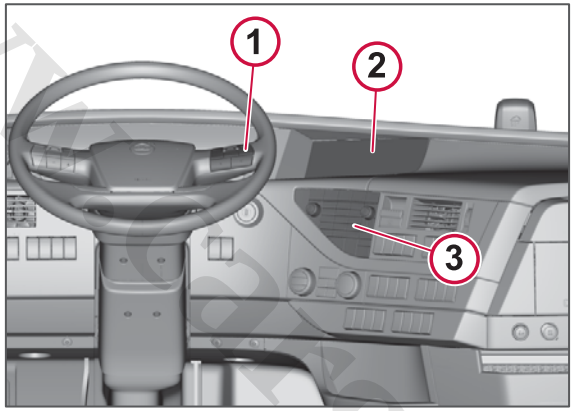
Overview

Dynafleet is a system for transport planning, vehicle planning, message handling as well as automatic reporting of vehicle status and driver times.

The office unit and the driver can communicate the whole time, and the traffic manager at the office is able to guide the truck to the right destinations for different assignments. As driver you can send messages to the office, to other drivers or to private contacts. Much of the order process can be handled simply and the transport assignments are staffed more efficiently. Communication takes place via the mobile networks for 3G or GSM.

The Dynafleet system collects information from the truck's tachograph and engine control unit, and gives both you as driver and the office information about the truck and driving activity.

Communication between the driver and Dynafleet takes place via a secondary display on the instrument panel and a wireless keyboard. Most Dynafleet functions can also be controlled via the steering wheel keypad or via the control panel.



1 Keypad in the steering wheel

2 Secondary display

3 Control panel

Dynafleet is connected to the tachograph via the truck's electronic network. Driver data is logged as four different types of activity: drive time, rest time, work time and wait time. When the truck is moving the activity is logged automatically as drive time. In stationary mode the logged activity is determined by the settings in the tachograph for driver 1. This information is retrieved directly from the tachograph. The driver can also enter detailed driver activity (such as ferry, loading, unloading, etc.) when stationary.

All data is transferred to the office for further processing and follow-up, via the mobile networks for 3G or GSM. In the event of poor coverage the information is saved temporarily in the Dynafleet system. Basic data reports are also transferred when the head office requests them.

The system is provided with the correct system time and position via a GPS receiver.

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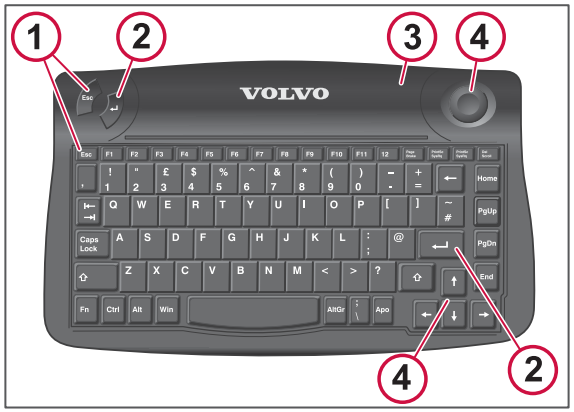
Controls

Keyboard

Use the wireless keyboard to type messages. The IR transmitter on the keyboard must be aimed towards the IR receiver in the control panel while you are typing.

When the keyboard is not in use it is advisable to store it in the centre drawer in the lower section of the instrument panel.

> **NOTE**
>
> The keyboard can only be used when the truck is stationary.



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1. ESC

There are two ESC buttons on the keyboard. Use ESC to

- go back and cancel the setting, in a form where you have to choose between different values
- move to the level above in the menu tree.

2. Confirm selection

There are two buttons to confirm a selection on the keyboard, which are used to

- answer yes to a question that the system asks you
- select and confirm a value in a form where you can choose between several different values
- move to the active option in a menu (i.e. to the submenu that is selected).

3. IR transmitter

The IR transmitter sends signals to the Dynafleet unit. The corresponding IR receiver is located below the ESC button on the control panel.

4. Arrow keys

The arrow keys move the cursor in the desired direction.

> **NOTE**
>
> To be able to switch between QWERTY and Cyrillic on the keyboard, press either Alt + Shift or Ctrl + Shift.

Care of the plastic casing and IR transmitter/receiver

Clean with ordinary cleaning agents for vehicle interiors. Try first on a small area that is not visible so that the surface is not damaged.

Check that the lenses on the IR transmitter and the IR receiver are clean, if the system does not react to keyboard messages. The lenses should be cleaned with a soft, clean and slightly damp cloth.

> **NOTE**
>
> Do not expose the keyboard to sunlight, moisture or dirt. Store the keyboard in the drawer on the instrument panel while driving. There the keyboard is protected and will not start moving during sudden braking or a collision.

Control panel and keypad in steering wheel

Use the control panel or the buttons on the steering wheel to navigate in the Dynafleet menu. These controls can also be used when the truck is in motion.

The control panel's numeric keys are used when logging into Dynafleet where a PIN code must be entered.

ActivateDynafleet

1 Press the On/Off button on the control panel to start the system.

2 Press FLEET to activate Dynafleet.

3 The system automatically identifies the driver by reading the driver card in the digital tachograph.

It is also possible to log in with your PIN code, or create a new user with information from the office.

4 Select the desired function in the Dynafleet menu.

You can also switch to Dynafleet via the main menu in the secondary display.

1 Press and hold the ESC button on the control panel, on the keyboard or on the steering wheel in order to access the main menu.

2 Select "Dynafleet" in the menu.

3 Select the desired function in the Dynafleet menu.

Shutting down/Standby mode

Log-out via the menu or turn the starter key to 0 to set Dynafleet in standby mode. The system continues to log data in standby mode. After two hours in standby mode (or another time as determined by the office) the system goes into sleep mode and stops logging data. The system can be started up again via 3G or GSM communication, such as an SMS, during temperature or position logging for example.

The system is only shut down completely when the main switch is switched off. In this state Dynafleet cannot receive 3G or GSM communication.

> **NOTE**
>
> To avoid losing data, wait for three minutes after you have stopped driving before switching off the main current.

Transferring data

Transferring data

Collected data are saved in the system and are transferred to the office where the information is compiled and documented. The information is transferred to the office via the 3G or GSM networks.

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Menu overview

The Dynafleet menu includes the following functions:

- **Assistance** - Send and view the status of an assistance call.
- **Drive/Rest time** - Shows drive times, break and rest times.
- **Messages** - Receive, send and manage messages.
- **Orders** - Receive and process orders. New orders are shown in a quantity in brackets (x).
- **Tachograph remote download** (Only applies to trucks with digital tachograph.) Starts the remote download of driver card data or tachograph mass memory and shows the status of data transfer.
- **Log** - Shows the truck's trip log data, temperature log and vehicle log.
- **Settings** - Shows units, versions, ID, etc. for the system's component parts.
- **Logout** - Sets Dynafleet in standby mode.

Assistance

Secondary display

Dynafleet
↳ Assistance

A written request for assistance can be sent in this menu.

- **Assistance request -** Send a request for assistance. Enter the required information in the text field.
- **Assistance status -** This shows the status for the sent assistance request: the time it was initiated, the time it was received by the office, the time it was attended to, and the requesting driver's name.

The status values are deleted seven days after a request has been initiated.

For all changes in status the pop-up message will inform the driver of the new status.

Drive/Rest time

"Drive/Rest time" is used to facilitate the observation of drive time regulations. The function, along with the tachograph, is adapted to European drive time regulations. The current activity is shown and the driver is guided to the next activity.

The office can change the settings and allow for different drive times.

> **NOTE**
>
> The function is only intended as assistance, it is always the driver's responsibility to comply with the rules and regulations on drive time that are in force.

Set DTJ

Secondary display

Dynafleet
↳ Drive/Rest time
↳ Set DTJ

Detailed driver activity must first be activated by the office before it can be used. Using this function the driver can state activities in addition to the tachograph activities break/rest, available (waiting) and other work time. The selected activity is reported to the office.

Select the activity in the menu, or in the pop-up message that is shown when the truck is switched off. The activity message closes when you select another activity or start driving. If no choice is made then the message closes after a minute.

Choose between the following activities:

- Ferry
- Loading
- Unloading
- Attaching
- Detaching
- Fueling
- Traffic jam
- Repair

Calculation of drive times is not affected by selecting detailed driver activity with the exception of "Ferry". The "Ferry" activity must be selected before driving onto a ferry or a train in order to meet EU regulations.

Ferry

Enter the activity "Ferry" in the tachograph.

When the driver sets DTJ to "Ferry" the time is registered as rest. In accordance with legislation, two activities can be performed during a maximum of 60 minutes without rest time being interrupted. The system registers how much time and which activities have been used and presents this in the display as support for the driver.

If the driver is in a different view and the office has allowed pop-up messages then the messages shown are about how much time has been used, when all the time has been used (60 minutes) or when both the activities have been used.

Present activity

Secondary display

Dynafleet
↳ Drive/Rest time
↳ Present activity

Shown here is information about the activity currently in progress in the tachograph at the moment. The function helps the driver to keep track of drive times, as well as when it is time for the next break or rest.

If the office allows pop-up messages then a warning is shown in the display if a regulation is about to be broken. In the office it is also possible to set how long before a regulation is broken that a warning is given.

Warning message

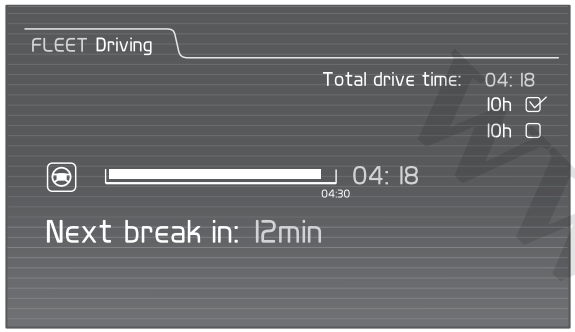
The office can choose to allow or not allow the display of warning and alarm messages as pop-ups in the display when a regulation is about to be broken. A pop-up message is accompanied by an acoustic signal.

If "Present activity" is selected then a pop-up message only appears if it contains more information than is already shown.

When the driver uses a different source (e.g. radio) and the office has allowed pop-up messages, then warnings and alarms will be shown when it is time for the next activity, such as a break or rest. The driver can then choose to keep the message (which is continually updated) or to close it with ESC. If the message is closed then the display returns to the previous source (radio).

> **NOTE**
>
> If the office has chosen not to allow pop-up messages then the driver does not receive any advance warning that a regulation is about to be broken!
> As the driver it is important to know what currently applies, whether or not you can expect assistance from warning and alarm messages.
> However, the information that is shown in "Present activity" always guides to the next activity.

Driving



During driving the display shows the total drive time since the latest qualifying rest time. The drive time must not exceed 4 hours and 30 minutes.

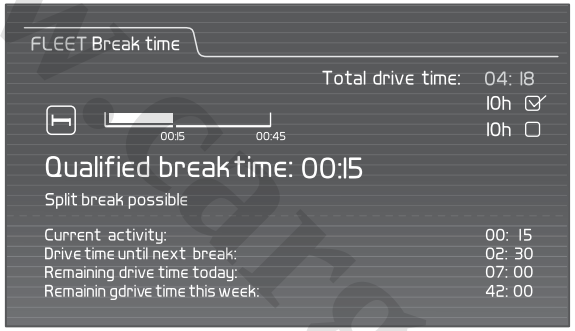
Drive time is reset to zero after a 45 or 15+30 minute break.

The total drive time is the drive time since the current drive period was started. A new daily driving period starts the first time an activity is detected after the prescribed daily rest time has been fulfilled. The system guides to a daily drive time, normally 9 hours, with the possibility of an extended drive time (to 10 hours) twice a week. Use of the extended drive time (10 hours) is indicated with a ticked box in the display.

The system guides before the next activity which may be a break, daily rest or weekly rest. If the office allows pop-up messages then a message appears if a regulation is about to be broken or if the drive time is exceeded.

Symbol for drive time.

Break time or Rest time



When the driver has set the tachograph to the "Break" activity the display will either show break or rest time, depending on whether the break lasted less or longer than 120 minutes.

The display shows the following

- qualified break time, or rest time
- ongoing activity
- remaining drive time to the next break
- remaining drive time to daily rest
- remaining drive time to weekly rest.

A break is 45 minutes, and can be split into two breaks of 15 and 30 minutes.

The display shows when a split break is possible, when break time is reached for a split break (after 15 minutes) or when a full break is over and qualified break time has been reached (45 minutes).

If the break time exceeds 120 minutes then rest time is shown in the display. Daily rest is the total rest time between two driving shifts. The daily rest shall be 11 hours, or at least 9 hours (short daily rest). It is also possible to divide a daily rest period into 3+9 hours, where the second part must be at least 9 hours, giving a total of 12 hours of daily rest.

Rest time is reset when another activity is detected in the tachograph. If the driver has set the tachograph and DTJ to "Ferry" then the rest time is not reset, see Ferry page 184.

Symbol for break/rest time.

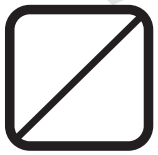
Other work time or availability

For tachograph activities other work time ("Working") or available ("Waiting") qualified time is shown, as well as whether or not it is possible to drive.

The display also shows

- ongoing activity
- remaining drive time to the next break
- remaining drive time to daily rest
- remaining drive time to weekly rest.

Symbol for other work time.



Symbol for available.

Two weeks' driving summary

Secondary display

Dynafleet
↳ Drive/Rest time
↳ Two weeks' driving summary

Shown here is the total drive time for two calendar weeks (the previous and the current week).

The drive time is shown as

- current and remaining drive time this week
- drive time previous week
- total drive time previous and current week.

The time must not exceed 90 hours.

Messages

Secondary display

Dynafleet
↳ Messages

In this menu the driver can receive, send and manage messages.

When the Dynafleet unit has received a message, a symbol and a message are shown in the display, and an acoustic signal sounds if the loudspeaker is switched on. Select whether you want to read the message immediately or later.

It is always possible to send simple text messages between vehicle and office. The office can activate SMS, e-mail, or formatted messages, i.e. pre-designed forms to fill in.

New message.

Message menu

The message menu consists of:

- **Drafts -** Manage drafts.
- **Contacts** - Manage contacts in the address book.
- **Write new** - Write a new message. Choose between e-mail, SMS or messages to the office.
- **Inbox** - Read and manage received messages. New messages are shown in a quantity in brackets (x).
- **Sent** - Manage sent messages.
- **Outbox** - Read and manage outgoing messages.

Choose whether to sort the messages in the Inbox, Outbox, Draft and Sent by name, alphabetically, reverse alphabetically or by date.

In the address book you can choose to show all contacts in alphabetical order, to show private contacts first or to show public contacts first. It is possible to add, remove or edit private contacts, but not public.

Writing and sending messages

1 Select "Write new" in the menu and the type of message you want to write (e-mail, SMS, to the office).

2 Choose a contact, phone number, or "Plain text" to the office.

3 Write your message in the text box that opens. Move the cursor into the text box with the arrow keys. "Shift" together with the arrow keys changes between text boxes and address book.

4 Press "Shift"+"Enter" on the keyboard, and then select "Send" in the menu to send the message. Or save it as a draft.

In the address book you can select a mobile number or e-mail address and press "Enter" to open the text box for SMS or e-mail.

SMS characters

There are two types of SMS messages.

- SMS with full character set - Supports all languages, but is not compatible with all mobile phones. Check that the intended recipient can receive the message.
- SMS with limited character set - Uses the default character set of GSM characters, which does not support all languages, but is compatible with all mobile phones.

Message with position information

If a message from the office includes position information then it can be sent from Dynafleet to the navigator. When the message is open, confirm in order to open the menu and select the command "Navigate to" to move the destination to the navigator.

New message with position information.

> **NOTE**
>
> This function requires that the truck is equipped with Volvo's integrated navigation system, or other compatible navigation equipment.

Pre-designed forms

In a form the text field can be mandatory, optional, or read-only.

Mandatory. *Optional.* *Read-only.*

Orders

Secondary display

Dynafleet
↳ Orders

An order (assignment) consists of tasks with activity information, destination information, scheduled time of departure and scheduled time of arrival.

The operator can accept or reject a new order and set order status, as well as report on the task's progress by means of task status.

When the Dynafleet unit has received an order, a symbol and a message are shown in the display. You can read the order immediately or later on.

The appearance of the orders is decided individually by each office.

Active order.

Task with position information

> **NOTE**
>
> For this functionality the Dynafleet unit must be connected to Volvo's navigation system, or other compatible navigation device. Contact your local dealer for more information.

If the driving task from the office includes position information then it can be sent from Dynafleet to the navigator. Select "Navigate to" in the task menu to move the destination to the navigator.

Tachograph remote download

Start driver card retrieval

Secondary display

Dynafleet
↳ Tachograph remote download
↳ Initiate driver card download

Starts download of driver card data from the tachograph to the office. A maximum of one transfer per day is permitted. When the process has started it is run in the background and the status is reported via a pop-up window and the menu for driver data status.

For this function the driver must be logged in and the driver card inserted into the tachograph.

Grey-shaded menu items mean that the office has blocked the function in question.

In accordance with EU regulations at least one transfer every 28 days is required, or more frequently, depending on country-specific regulations.

Driver data status

Secondary display

Dynafleet
↳ Tachograph remote download
↳ Driver data status

This menu informs about the transfer of driver data:

- The driver who started the transfer.
- Current status of the latest download.
- Date of last successful transfer.
- Days since latest transfer was available at the office.
- Latest warning message.
- Date that the latest warning message was received.

Starting the retrieval of tachograph memory

Secondary display

Dynafleet
↳ Tachograph remote download
↳ Initiate tacho memory download

Starts a mass memory download from the tachograph to the office. A maximum of one transfer per day is permitted. When the process has started it is run in the background and the status is reported via a pop-up window and the menu for tachograph data status.

Grey-shaded menu items mean that the office has blocked the function in question.

In accordance with EU regulations at least one transfer every 90 days is required.

Tachograph data status

Secondary display

Dynafleet
↳ Tachograph remote download
↳ Tachograph data status

This menu informs about the mass memory transfer from the tachograph:

- The driver who started the transfer.
- Current status of the latest download.
- Date of last successful transfer.
- Days since latest data available at the office.
- Latest warning message.
- Date that the latest warning message was received.

Log

Secondary display

Dynafleet
↳ Log

Shown here are all the logs that are available in the system.

- **Trip log 1** and **Trip log 2** - shows total vehicle data in absolute values (distance, fuel consumption, average fuel consumption, etc.). Here you can also see the date of the last reset and reset the trip log.
- **Vehicle log** - shows the cumulative values for distance, fuel consumption and average fuel consumption.
- **Temperature log** - Requires additional equipment connected to the Dynafleet unit. Contact an authorised Volvo workshop for more information. The function shows the temperature in the trailer. Up to four different temperatures can be shown, depending on how many sensors are available. If a sensor has an alarm connected to it then the temperatures are shown in red figures if anything is wrong.

Resetting the trip log

When Trip log 1 or 2 is selected in the menu browse sideways in order to view the latest reset date and time. Reset the date and time by confirming the value shown and answer "Yes" when asked if you want to reset the Trip log.

Settings

Secondary display

Dynafleet
↳ Settings

System information about the units included in Dynafleet is available here.

Log out

Secondary display

Dynafleet
↳ Logout

After logging off Dynafleet is in standby mode. Some data also continue to be logged in standby mode.

Driver guide

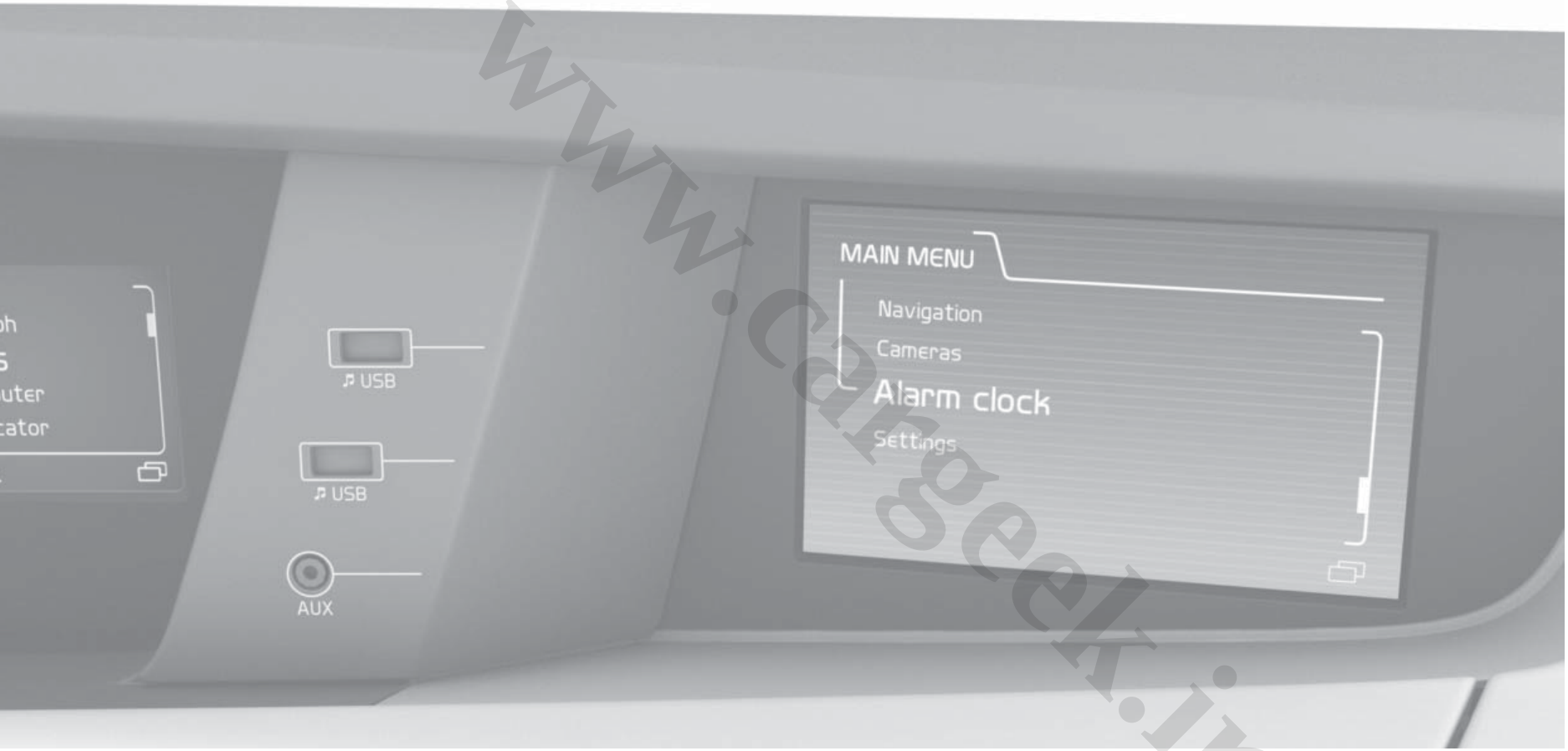
The driver guide must be activated by the office. It helps the driver to reduce fuel consumption by suggesting different action in a pop-up message, such as:

- "Idle time exceeded, turn off engine"
- "Engine RPM too high, shift up"
- "Vehicle speed too high, slow down"

Fault messages

If a fault occurs then a fault message is shown on the screen. When you have read the message, confirm with ESC. The message is cleared, but the problem remains and should be rectified as soon as possible.

10

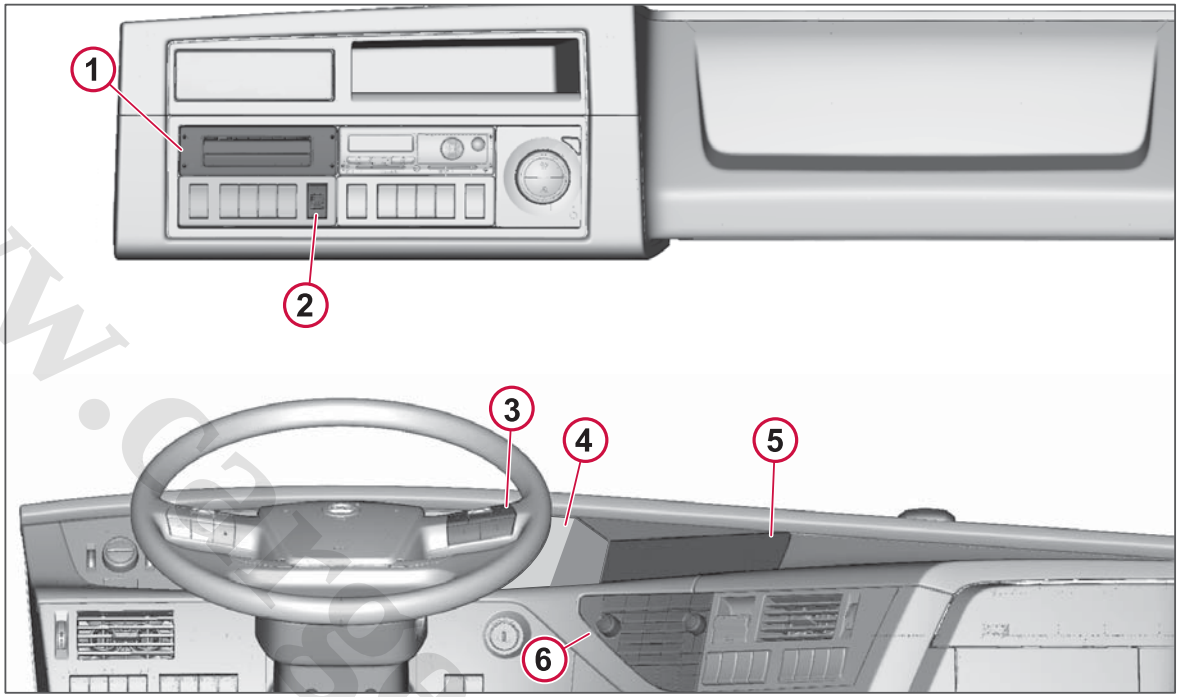


INFOTAINMENT

Infotainment, overview

The Infotainment system includes the truck's audio system and phone connectivity with Bluetooth® handsfree. The functions are controlled using the control panel, the steering wheel keypad and via the menus in the secondary display.

1 CD player
2 Microphone
3 Keypad in the steering wheel
4 iPod/USB/AUX inputs
5 Secondary display
6 Control panel



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Activating the infotainment system

1 Press the On/Off button on the control panel to activate the Infotainment system.

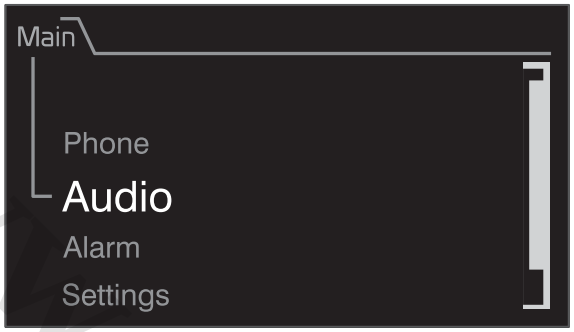
2 Select the source by pressing one of the direct buttons AUDIO (radio, CD, etc.) or PHONE (telephone).

Selecting the source via a menu

You can also select the source via the infotainment system's menus.

1 Press and hold in the ESC button on the control panel or on the steering wheel in order to access the main menu.

2 Select the desired source in the main menu.



Many of the functions are controlled or adjusted via the system's menus and submenus.

Selecting audio source from the rear control panel

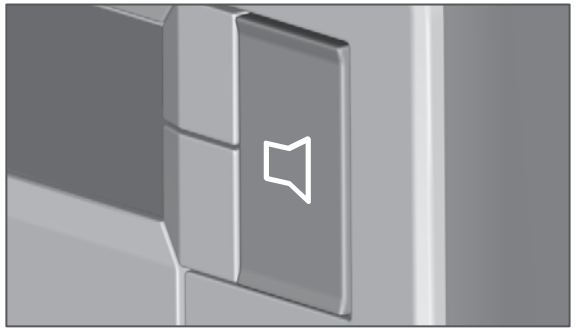
You can switch the audio system on and off from the rear control panel, as well as to select audio source and change the volume.

1 Press one of the buttons around the display to open the menu.

2 Select "UNMUTE" and then select the audio source via the menu.

3 Select "MUTE" to switch off the audio system.

Change the audio volume by pressing the upper or lower section of the volume button.



Audio volume button in rear control panel.

RADIO

AM/FM

Radio play view.

Selecting the frequency band

1 Press AUDIO. Scroll to "Radio" in the menu with an additional press on the AUDIO button. The radio is started on the frequency band used last time.

2 Go back one step in the menu by pressing on ESC. Change between frequency bands (AM/FM1/FM2/FM3) with ◁ or ▷.

Or select via the menu:

Secondary display

Audio
↳ Radio

Change between frequency bands (AM/FM1/FM2/FM3) with ◁ or ▷.

Change between preset radio stations

- Change to next or previous stored station with a press on ⏮ or ⏭.

Or:

- Press one of the numeric keys on the control panel to change to the station stored in that location.

You can use the rear control panel to change between preset radio stations with the button next to the symbol △ or ▽.

Manual tuning

Secondary display

Audio
↳ Radio
↳ Manual seek

When the radio play view is shown

- Press ⏮ or ⏭ and the radio searches for the next available station.

Or:

- Press ▷ or ◁ to scroll the cursor forward or back in the frequency band.

Automatic tuning

Secondary display

Audio
↳ Radio
↳ Intro scan

Using the scan function you can search for radio stations without having to change between stations manually. In scan mode each station is played back for 10 seconds for you to hear what type of programme or music is being broadcast. The scan then continues to the next available station if you do not stop the scan and keep the current station.

- Press OK to keep the current station and close scan mode.

Or:

- One long press on any of the numeric keys (1-9) on the control panel stores the station at that location. A short acoustic signal indicates that the station has been stored.

Automatic storing of stations during tuning

Secondary display

Audio
↳ Radio
↳ Auto preset

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The function searches for the strongest radio stations in the area and lists them in the preset positions in the frequency band.

Any stations previously stored in the presets then disappear.

RDSfunctions

Radio data system, RDS (Radio Data System), links together FM transmitters in a network and includes functions such as:

- Automatic frequency change (AF)
- Traffic Announcements (TA)
- News (NEWS)

Automatic frequency (AF)

The reception range for FM stations is fairly limited. For this reason many stations broadcast on alternate frequencies in different areas. By using the AF function the driver can listen to such a station without interruption and does not need to tune the radio manually between the different areas.

Some stations broadcast different programmes in different areas during different parts of the day. To avoid the locally broadcast programme being deselected the settings can be configured so that the AF function keeps the programme using AF Local.

When travelling long distances the reception of a locally sent programme may be lost. In such a case, using AF Regional will allow the radio to tune to other transmitters for that station.

The first time a radio station search is made after AF has been activated the radio will create an internal list of available stations. A further search is made on the basis of the list, which makes the search faster. The list is sorted according to station RDS codes and the stations may not be set in order of frequency during an AF search.

Activating AF

Secondary display

Audio
↳ Radio
↳ Radio settings
↳ AF

Activate the AF function for locally broadcast programmes by selecting "Local" or for regionally broadcast programmes by selecting "Regional"

When AF is active, the display shows the AF symbol.

Switch off the function by selecting "Off" in the AF menu.

Traffic Announcement (TA) and News

This function allows the radio to play back the traffic or news announcements even if an audio source other than the radio is selected. The volume is set automatically in order for the announcement to be heard.

The volume level for traffic or news announcements can be changed by adjusting the volume during an announcement. The radio then saves the volume setting for traffic or news announcements.

Activating Traffic Announcements

Secondary display

Audio
↳ Radio
↳ Radio settings
↳ TA

Select "On" to activate the function.

When Traffic Announcements are active, the display shows the TA symbol.

Switch off the function by selecting "Off" in the TA menu.

> **NOTE**
>
> The AF function must first be active for traffic announcements to be activated.

RADIO

Activating News

Secondary display

Audio
↳ Radio
↳ Radio settings
↳ News

Select "On" to activate the function.

When News is active, the display shows the NEWS symbol.

Switch off the function by selecting "Off" in the News menu.

> **NOTE**
>
> The AF function must first be active for "News" to be activated.

Rejecting Traffic or News Announcements

Press ESC to reject an announcement.

Activating the AF/TA/News functions via shortcut menu

In radio mode it is possible to activate/ deactivate AF, TA and News in a shortcut menu.

When the radio is active, press and hold in OK in order to open the shortcut menu.

Enhanced Information Concerning Other Networks (EON)

A station network may broadcast news or traffic announcements on only one of its stations. The EON RDS function ensures that this information is received by means of an automatic frequency change. After the message the radio returns to the previously tuned station.

> **NOTE**
>
> The Traffic and/or News functions need to be active for this feature to work.

Emergency message - alarm

An emergency message can be broadcast over the radio in the event of a major disaster. When such a broadcast is received "ALARM" is shown and the volume is adjusted to the same level as for traffic and news announcements.

Changing radio region

Secondary display

Audio
↳ Radio
↳ Radio settings
↳ Radio region

It may be necessary to change the radio region if the truck is purchased in one region and then driven in another.

Choose between radio regions for Europe, USA, Japan, Australia, Saudi Arabia or Argentina.

The following are also included in the Europe radio region:
China, Guam, South Korea, Africa, Russia, Taiwan, Central America, East Asia and Pacific Rim countries.

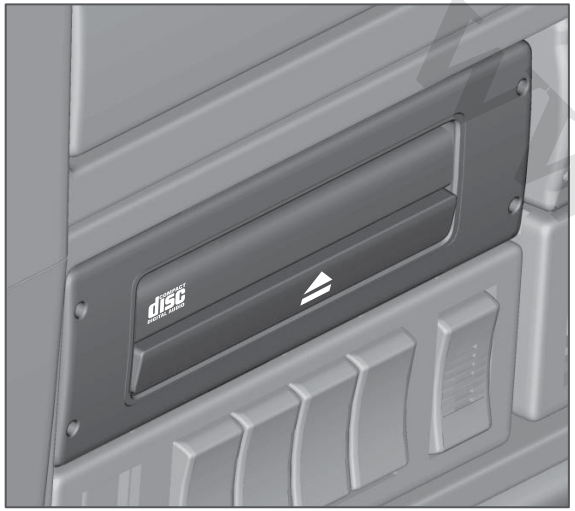
The following are also included in the USA radio region:
Canada, Mexico, Puerto Rico, Brazil

New Zealand is also included in the Australia radio region.

The following are also included in the Saudi Arabia radio region:
Israel, Gulf States, Middle East

The following are also included in the Argentina radio region:
South America, except Brazil and the Caribbean.

CD player



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The CD player is fitted in the panel above the windscreen on the driver's side and consists of an opening for the disc and a button that ejects the disc.

In addition to standard music CDs you can play back discs of the CD-R or CD-RW type and music files in the wma, wav, mp3 and aac format. If the disc contains an incompatible file format or is illegible for any other reason then it will be ejected.

Starting playback

1 Insert a disc with printed side up in the opening
Or:
Browse to "CD" in the menu to change to CD mode.

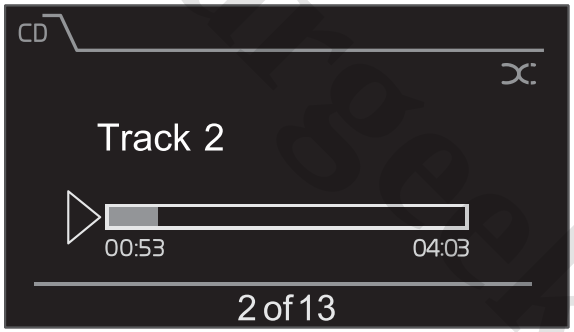
2 Disc playback starts automatically.

Use ⏮ or ⏭ to change to the previous or next track, or press any one of the numeric keys to change to the corresponding track on the disc.

Press and hold ◁ or ▷ to fast forward/ rewind in the current track.

Press MUTE to pause or start playback.

Eject the disc by pressing the eject button. Unless the disc is removed from the opening it is reinserted after a few seconds.



CD play view.

You can use the rear control panel to change to the previous or next track on a CD. Use the buttons next to the symbols in the display.

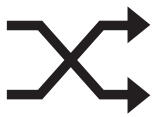
Listening to the CD tracks in random order

Secondary display

Audio
↳ CD
↳ Shuffle

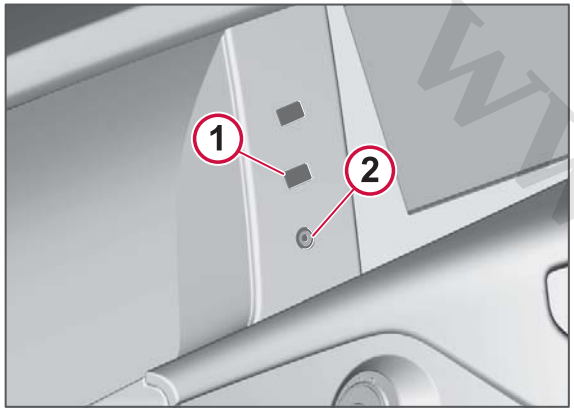
If the contents of the disc are in folders, browse to the desired folder to play back the contents of the folder in random order.

When the CD play view is shown the mixing function can also be activated via a shortcut menu, which opens with a long press on OK.



Symbol for the mixing function.

Media players



There are two connections for external audio inputs: iPod/USB (1) and AUX (2).

A USB device and an AUX device can be connected and are available at the same time.

The following applies when an iPod or USB is the audio source:

- Use ⏮ or ⏭ to change to the previous or next track.
- Press and hold ◁ or ▷ to fast forward/ rewind the current track.
- Press MUTE to pause playback, press again to restart playback.

You can use the rear control panel to change tracks on the connected device to the previous or next track. Use the buttons next to the symbols in the display.

iPod

Connection cables for iPod

Connecting the iPod can be done with two different cable sets:

- A split cable from the iPod's 30-pin connector to a USB connector and a 3.5 mm audio connector.
  - the iPod is controlled with its own controls
- A separate iPod/USB cable.
  - the iPod's controls are locked and control is via the buttons on the control panel and steering wheel. In this mode the iPod shows a Volvo logo.

Connecting an iPod and starting playback

1 Connect the iPod to the input on the instrument panel.
Or:
Browse to iPod in the menu to change to iPod mode.

2 Browse to the desired folder.

iPod Menu

The iPod menu shows the most common functions in an iPod:

- Songs
- Albums
- Artists
- Playlists
- Genres
- Audio books
- Podcasts

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Listening to the iPod tracks in random order

Secondary display

Audio
↳ iPod/USB
↳ Shuffle

When the iPod's play view is shown the mixing function can also be activated via a shortcut menu, which opens with a long press on OK.

USB

Connecting a USB device and starting playback

1 Connect the USB device to the input on the instrument panel.
Or:
Browse to "iPod/USB" in the menu to change to USB mode.

2 Browse to the desired function or folder. If there are any subfolders the playback starts in the first subfolder and then continues with the next subfolder.

When the USB device is disconnected the previous audio source is played back.

> **NOTE**
>
> The system supports playback from most USB devices, but there may be exceptions to this.

Listening to the USB tracks in random order

Secondary display

Audio
↳ iPod/USB
↳ Shuffle

Select "Play all" in order to play back all the stored tracks in random order.
Or:
Browse to the desired folder to play back the contents of the folder in random order.

When the USB's play view is shown the mixing function can also be activated via a shortcut menu, which opens with a long press on OK.

AUX

Connecting an audio source to the AUX socket

1 Select "AUX" in the menu.

2 Connect the external audio source to a connection on the instrument panel.

3 Adjust the volume on the external audio source.

Note that changing tracks, fast forward/ rewind, etc. must be carried out directly on the connected device.

Audio Settings

Adjusting audio settings

Secondary display

Audio

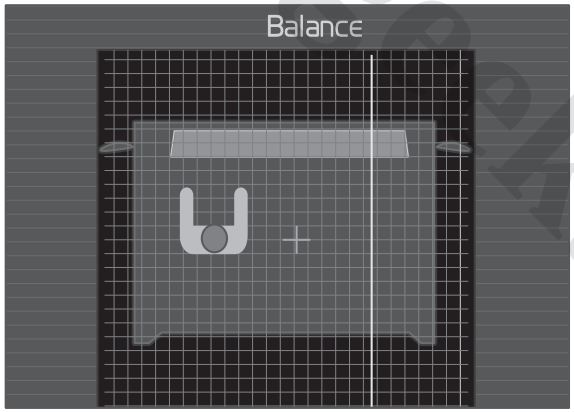
↳ Audio settings

The following settings can be adjusted:

- Bass/Mid/Treble- Raise or lower the level with the controls that are shown in the display. Use ▷ or ◁ to change between the controls and the up/down button or the OK knob to increase or decrease the level.
- Fader/Balance
  - Change the balance between right and left loudspeakers, and between front and rear loudspeakers if there are four loudspeakers connected. Use ▷ or ◁ to change the balance, and up/down button or the OK knob to change the fader.
- Speaker channels
  - The audio system can be adjusted for use with 2 or 4 loudspeakers.
- Auto loudness
  -On or Off.
- Background noise
  - Select High volume, Mid volume, Low volume, or Off.
- Speed dependent volume
  - The audio system's volume can be set so that it increases as the truck's speed increases. Sometimes this is desirable in order to compensate for road and engine noise. Select High, Mid, Low or Off.

Press OK to save the setting.

Display controls for setting the midrange.



Display controls for setting the balance.

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Bluetooth handsfree

A mobile telephone equipped with Bluetooth® can be connected wirelessly to the Infotainment system. The system then functions as handsfree where the truck's normal loudspeakers are used and the microphone is fitted in the panel above the windscreen on the driver's side.

Some mobile telephone functions can be controlled from the control panel, steering wheel keypad and via menus in the display. The mobile telephone can be operated from its buttons, regardless of whether or not it is connected.

The Infotainment system supports Bluetooth® version 2.0 with handsfree profile (HFP) version 1.5. The range is 10 metres from the truck.

Pairing and connecting mobile phones

Before a phone can be connected to the Infotainment system it must be paired (registered) with the system. Pairing is carried out once per phone and means that the phone and the system are allowed to connect to each other by entering an optional code.

1. Press PHONE, or select "Phone" from the main menu.
2. Select "Add phone".
   The system is now visible to a Bluetooth® phone in search mode for three minutes. This is indicated with a Bluetooth® symbol in the display.
3. Set the mobile phone in search mode. When the search is complete and the system has been found "Volvo Truck" is shown in the phone.
4. Select "Volvo Truck" in the phone.
5. The user will now be prompted to enter a four digit code in the phone. Enter the same code in the truck's system. The code is optional and is only used in this step.
6. A message is shown in the display when the connection is complete.

Bluetooth® symbol.

Connecting a phone

A previously paired phone is connected automatically to the system when it comes within range (10 metres).

The paired phone is also stored in a list for manual connection.

1. Press PHONE, or select "Phone" from the main menu.
2. Select phone from the list.

When a mobile telephone is connected the phone's battery status and reception are shown at the top of the display. Contacts and call lists that are stored in the phone are transferred to the system. This synchronisation may take from a few seconds up to several minutes.

Activating another phone

By selecting another phone from the list you disconnect the current Bluetooth® phone and establish a connection to the desired phone.

> **NOTE**
>
> The mobile telephone's Bluetooth® function must be active during all of the connection procedure, see the mobile telephone's instructions for use.

Disconnecting a phone

The phone is disconnected automatically when it is out of range.

Select "Disconnect phone" from the menu to disconnect the phone manually.

Deleting a phone

Secondary display

Phone
↳ Remove phone

Browse to the phone you want to delete from the list.

Select "Remove all" to delete all phones in the list.

Accepting a call

Press OK or on the Answer button to answer the call.

Cancel or reject the call by pressing the Quit button.

(The phone's Answer and End buttons are both on the steering wheel's left-hand keypad and on the control panel.)

Making a call

1 Select "Call number" in the phone menu.

2 Enter the desired number directly on the control panel.

3 Press OK or the Answer button.

Using "Contacts"

Secondary display

Phone
↳ Contacts

1 Browse to the desired contact. Use ◁ and ▷ to browse between the different phone numbers if several are stored (mobile, home, work or another number). Select "Contact info" to view all stored numbers for the contact in a list.

2 Press OK or the Answer button when the number you want to dial appears.

You can also search for names in "Contacts": Press one of the letter buttons to open the search view. Repeatedly press the button to browse to the desired letter, continue in the same way to access the next letter.

Transferring a call between handsfree and mobile telephone

A long press the Answer button transfers the ongoing call between handsfree and mobile telephone, and vice versa.

Muting the microphone

A long press on OK opens a shortcut menu to deactivate/activate the microphone.

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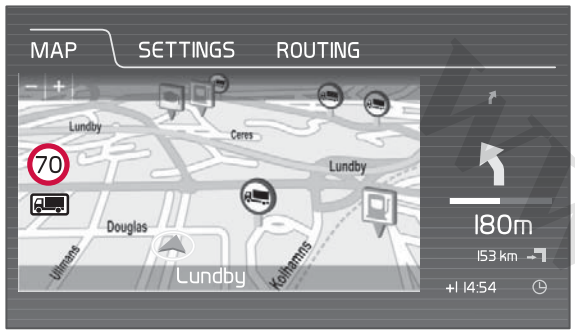
Navigation



Volvo's integrated navigation system leads you to your destination by showing your position and route on a map. The distance to the next turn as well as distance and remaining driving time to your destination are shown simultaneously in the display. With voice guidance activated, you receive driving instructions via the loudspeakers in good time for each new route option. The TMC function (Traffic Message Channel) ensures that you receive information about accidents, road works or other traffic disruptions and suggests an alternative route.

The truck's traction on some roads may be limited by the truck's size, weight and load. With this information entered the navigation system can select the most suitable and practicable road when calculating the route.

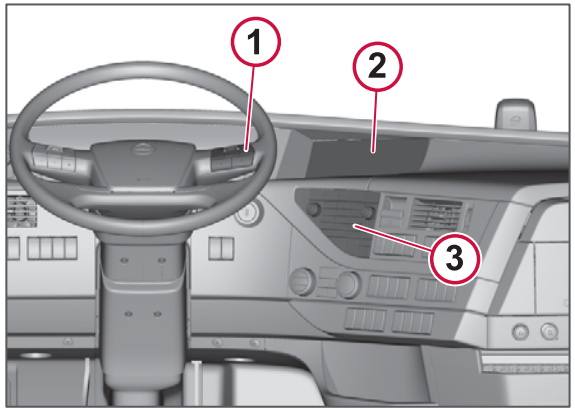
Complete routes or destinations can be sent from the office via Dynafleet and stored in the system, or you can create a new route.

NOTE

Only operate the navigation system when the traffic situation allows it, or when the truck is stationary. Remember not to lose concentration in traffic.

The map information is stored in flash memory in the navigation system's main unit. Updating the map information may sometimes be necessary using an SD (Secure Digital) memory card.

The map is shown in the secondary display and the functions are controlled via the navigation system's menu with buttons in the control panel or the steering wheel keypad.



1 Keypad in the steering wheel
2 Secondary display
3 Control panel

Activating navigation

1 Press the On/Off button on the control panel to start the system.

2 Press NAVI to activate the navigation.

Control panel.

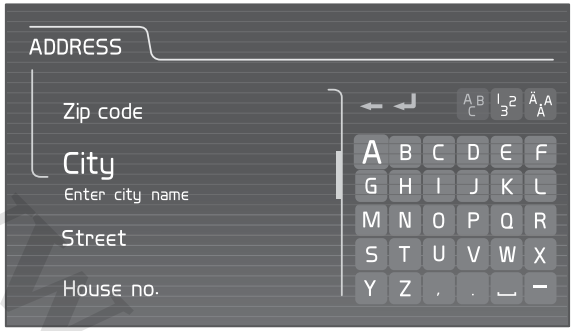
3 Select the desired function in the navigation system's menu.

Zooming the map

Zoom in on the map with the Up key, zoom out with the Down key in the steering wheel keypad, or turn the OK button on the control panel. It is also possible to use the arrow keys up/down on the keyboard for Dynafleet in order to zoom.

Keyboard in the display

Use the virtual keyboard shown on the display when e.g. an address shall be entered. Use ◁, ▷ and the up/down button to select a letter or digit, and press to select. The system fills in after you and suggests alternative addresses.



Keyboard in the display.

Symbols

Limitations for the truck

In order to select the most appropriate route the system takes into account the truck's size, weight and load, amongst other things. This also requires that information about road restrictions is stored in the map's data. Road restrictions are indicated by symbols on the map.

Symbol	Meaning
	Truck traffic prohibited
	Restricted vehicle width
	Restricted vehicle weight
	Restricted vehicle height

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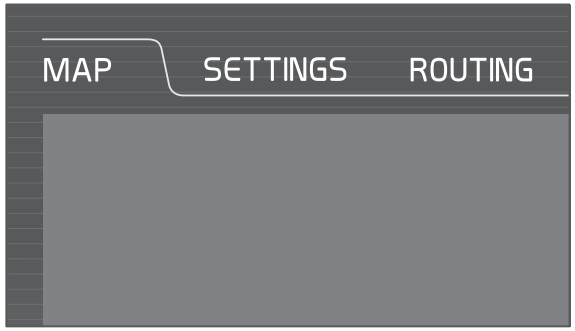
Symbol	Meaning
	Restricted vehicle length
	Vehicles carrying dangerous goods prohibited

> **NOTE**
>
> Additional road signs may appear in the Europe region.

Menu overview

The navigation system's menu contains the following functions:

- **Start route guidance** - Starts and shows an available and acceptable route.
- **Route management** - Create and manage new and existing routes.
- **Map** - Shows the truck's position on the map without a route being followed.
- **Settings** - Configure settings for a map and route, as well as enter the truck's dimensions and weight, etc.



Quick menu.

Quick menu from the map view

A quick menu is available from the map view and facilitates settings during driving. Use ◁ or ▷ to navigate horizontally in the menu to "Settings" or "Route".

- "Settings", see Map settings page 209.
- "Route" Is only available during ongoing guidance. Here you can choose to stop the guidance or add points of interest along the route.

Start route guidance

Starts and shows an available and acceptable route.

Route management

Manage or change the current route, preset route or create a new route. A route can consist of several destinations and points of interest. Up to 20 addresses can be saved in the same route.

Current route

Secondary display

Navigation
↳ Route management
↳ Current route

Manage ongoing guidance, select:

- "Accept route" to open the map where you are right now.
- "Manage route points" To add or delete addresses and points of interest in the current route.
- Save the route if you have changed something.

Manage route points

Secondary display

Navigation
↳ Route management
↳ Current route
↳ Manage route points

Add or delete address in current route:

1 Select "Add route point"> "Enter address" as the next menu option in order to add an address.

2 Use the keyboard in the display to fill in the address details and then confirm.

3 Add another address by selecting "Add route point" again.

4 Save the route when the desired addresses are entered.

To delete an address, select the address you want to delete and select "Delete". Select "Delete all" to delete all addresses in the route.

Manage addresses in the current route:
Select an address and use ◁ or ▷ to navigate horizontally in the menu.

Choose to

- move the address up or down in the list
- show the address on the map
- use the address as a waypoint
- use the address as the final destination
- delete the address.

Add point of interest in current route:
Select "Add route point"> "Point of interest" as next menu option. Points of interest can be vehicle workshops, restaurants, filling stations, etc.

Select points of interest amongst those that are

- closest
- closest along the route (only shown if a route is active).

To select a point of interest near any of the addresses entered on the route, first select which of the addresses is current.

New route

Secondary display

Navigation
↳ Route management
↳ New route
↳ Add route point

Create your own route by adding addresses and points of interest using the same procedure as in "Current route", see Current route page 208.

Select "Enter address" as next menu option. Save the route with a new name

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when all the required addresses and points of interest are entered. You can save 20 routes.

Preset routes

Secondary display

Navigation
↳ Route management
↳ Preset routes

Selecting a preset route

A preset route is stored in the system and is ready to use.

Select a route and use ◁ or ▷ to navigate horizontally in the menu. Choose to:

- start guidance
- edit the route
- change name
- delete the route.

If you choose to change the route during a guidance you will see a prompt in the display asking if you want to cancel the current route and start a new one.

Position information from Dynafleet

When an order or a message with position information is activated via Dynafleet you are asked "Start recieved route?". Confirm to start the guidance.

Map

This view shows the truck's current position on the map without a route being followed.

Zoom in on the map with the Up key, zoom out with the Down key in the steering wheel keypad, or turn the OK button on the control panel.

Settings

Make settings for different map options and set conditions for how the route should be presented.

Map settings

Map orientation

Secondary display

Navigation
↳ Map settings
↳ Map orientation

For 2D maps you can choose whether north or the direction of travel should be upwards on the map.

Map presentation

Secondary display

Navigation
↳ Map settings
↳ Map presentation

Choose to display a 2D or 3D map.

Map style

Secondary display

Navigation
↳ Map settings
↳ Map style

Set map display for use in night or daytime. Select Automatic for the system to change the display when it starts to get light or dark outside.

POI presentation

Secondary display

Navigation
↳ Map settings
↳ POI presentation

Choose to show or hide symbols for points of interest on the map (POI = Point of interest).

NAVIGATION SYSTEM

The following symbols for points of interest may be shown:

Symbol	Meaning
	Truck service
	Place of worship
	Other
	Bank
	Car rental company
	Car dealer

Symbol	Meaning
	Bus station
	Retail store
	Events facility
	Airport
	Vehicle workshop
	Ferry terminal

Symbol	Meaning
	Border station
	Hotel
	Railway station
	Municipal building
	Grocery store
	Entertainment facility

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Symbol	Meaning
	Parking
	Commuter railway station
	Rest area
	Restaurant
	Hospital
	School, university

Symbol	Meaning
	Sport and recreation area
	Marina
	Filling station
	Tourist attraction
	Cash machine

POI search radius

Secondary display

Navigation
↳ Map settings
↳ POI search radius

Set the radius around the truck's position within which points of interest (POI) should be searched for.

- 10 km
- 25 km
- 50 km
- 100 km

Voice guidance

Secondary display

Navigation
↳ Map settings
↳ Voice guidance

Choose whether you want voice guidance or switch it off.

English is the default for languages that have no voice guidance.

Route settings

Truck data

Secondary display

Navigation
↳ Route settings
↳ Truck data

By entering information on the truck's

- height
- width
- length
- total weight
- weight/axle
- load with dangerous goods

the navigation system can select the most suitable route based on this information.

The values are stated in the unit set in the driver information display, see Units page 62. As a maximum you can use a three-digit value, plus two decimal places.

Dangerous goods can be entered as "Explosive", "Flammable" and "Harmful to water". Default value is "None".

TMC

Secondary display

Navigation
↳ Route settings
↳ TMC

With the traffic message channel TMC (Traffic Message Channel) activated the driver is informed about the traffic situation along the route. In the event of traffic accidents, roadworks and other obstructions that can cause traffic jams, the navigation system can suggest an alternative route.

Select:

- "Off" to switch off the TMC function.
- "Show on map" to show road works/ traffic accidents on the map without suggesting an alternative route.
- "Automatic detour" to show roadworks/traffic accidents on the map and suggest an alternative route.

Avoidance

Secondary display

Navigation
↳ Route settings
↳ Avoidance

Choose whether the route should avoid certain types of road, such as:

- Motorways
- Dual carriageways
- Primary roads
- Secondary roads
- Local streets
- Toll roads
- Ferries

Route type

Secondary display

Navigation
↳ Route settings
↳ Route type

Choose between the shortest or the most practical road for calculating the route.

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11

FUEL AND EMISSION CONTROL

Diesel fuel - quality and function

General quality requirements

Fuel composition plays an important role in engine function, service life and emission pattern. In order to achieve specified performance in terms of power output and fuel economy, and to meet the emission requirements that the authorities set, you must only use fuels that fulfil legal requirements and national and international standards. These standards represent the minimum requirement for market fuels, and they are usually developed in cooperation with the oil companies and the automotive industry. Examples are:

- EN590 (with nationally adapted cold requirements)
- ASTM D 975 No 1–D and 2–D
- JIS KK 2204

Some countries have more stringent demands for environmental reasons than is required by the basic standards, such as in the following countries:

- Sweden – Environmental class 1 and 2
- Finland – So called City-diesel
- Denmark – Special qualities for buses and distribution vehicles
- California – CARB specification

These fuels display better exhaust emissions than standard fuels and can therefore be recommended. They may provide a slightly lower engine power output and some increase in fuel consumption.

> **NOTE**
>
> The injection equipment **must not** be adjusted to compensate for any loss of power.

REMEMBER to always observe the utmost cleanliness when handling diesel fuel. Make sure that you have the tank as well-filled as possible in order to avoid condensation forming. During refuelling you should always make sure that it is clean around the filler hole and fuel filler cap. Be careful to filter the fuel from your own tank or own drum and ensure that all containers are clean.

Sulphur content

The sulphur is converted into sulphur dioxide in the engine and then changes over to sulphuric acid in the atmosphere and contributes to acidification. Particulate emissions increase with the sulphur content.

Modern engines with exhaust gas cleaning require sulphur-free (<10 ppm) diesel fuel. The exhaust gas cleaning system is very sensitive to sulphur and is damaged in the event of excessive levels. Sulphur in the fuel also has a negative effect on the lubricating oil in the engine.

Viscosity and density

Viscosity and density have a direct influence on the performance, emissions and service life of an engine. Low viscosity and density reduce engine power. Unusually high viscosity and density effects
exhaust emissions negatively and can shorten the life of the injection equipment.

Recommended values:

- viscosity: 1.5 cSt —4.5 cSt at 40ºC
- density: 810— 860 kg/m^3 at 15ºC

Water and particles

Make sure that water and particles do not occur in the fuel and the fuel tank because this causes corrosion and wear of the injection equipment. The water also facilitates bacterial and fungal growth in the tank, which may cause the filter to clog. In cold weather the water that is not dissolved may freeze and clog the fuel supply. A primary filter with water separator must be fitted in markets where water and particles commonly occur.

Properties at low temperatures

The fuel's cold resistance is limited by its filtration capacity in low temperatures. National standards specify the low-temperature requirements for diesel fuel in different geographic regions and during different seasons. Oil companies are responsible that the low-temperature properties are sufficiently good all year round.

Additives

It is always the oil companies who are responsible that the fuel contains the correct amount of additives with regard to ignition capacity, lubrication and low-temperature properties. Volvo does not permit the use of other fuel additives and other types of fuels. Volvo does not permit the subsequent mixing of additives or other fuels in the tank.

Paraffin/Kerosene

Paraffin/kerosene contains sulphur and must not be added to diesel fuel. Driving with a mixture of paraffin/kerosene will adversely affect exhaust emissions and damage the aftertreatment system.

Gasoline and alcohol

Petrol and alcohol are not fuels for diesel engines. Petrol (gasoline) and alcohol raise the octane rating and lower the cetane rating (ignition properties). In addition, the lubricity is considerably impaired. The components in the fuel system can be damaged by petrol (gasoline) and alcohol. In addition, petrol (gasoline) and alcohol lower the flash point, which affects the explosion limit and fire safety. Because of the lower boiling point, the risk of vapour lock in the system is increased since the fuel can boil in the cylinder head etc.

⚠ CAUTION

Petrol (gasoline) and alcohol must never be mixed with diesel fuel!

Diesel boosters

Many manufacturers of commercially available additives (so called diesel boosters) promise reduced fuel consumption and improved lubricity, although they do not have any demonstrable effect whatsoever on either fuel consumption or lubricity.

Volvo does not accept any responsibility for warranty claims if these additives have been used and it is not Volvo's policy to test or evaluate these additives.

⚠ CAUTION

It is not permissible to add diesel boosters to the fuel.

FAME

FAME (Fatty Acid Methyl Esters), also known as "biodiesel", is available in certain markets both in its pure state and as a mixture in diesel fuel. FAME is also known as e.g. rapeseed methyl ester (RME) and sunflower/soya methyl ester (SME). Fuel used in this truck must fulfil the requirements in accordance with the EN14214 standard.

Properties

FAME is more aggressive to fuel lines and creates a higher injection pressure. FAME also has a higher boiling point than normal diesel. This means that more fuel is accumulated in the lubricating oil, thus degrading its properties.

The low-temperature properties of FAME are not good. The high viscosity at low temperatures may increase the risk that the fuel injection system is damaged or the fuel filters become clogged. Use of a fuel heater may improve the properties slightly. During cold weather conditions it is therefore recommended to contact the supplier regarding the temperature recommendations that apply. Use normal diesel fuel in the event of starting problems during winter.

Approved blending levels

The following applies due to the increased wear on components and oil:

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DIESEL FUEL

- Up to 7% FAME can be mixed in the fuel without any special measures. After mixing, the fuel must fulfil the requirements in accordance with the EN 590 standard.
- 7-30% FAME can be mixed in the fuel, but this requires special measures and can affect the truck's performance and behaviour.

> ⚠ CAUTION
>
> It is not permissible to run on 100%FAME.

Measures for 7 - 30% FAME

The following applies for mixing more than 7%, but no more than 30% (B30):

- FAME-specific service and maintenance intervals apply. These are shorter than the normal intervals. Contact an authorised Volvo workshop for full information about the engine variants approved for B30, operation, maintenance and warranty when using FAME.
- Fuel consumption may increase slightly.
- The engine power output may decrease slightly.
- Fuel consumption data is not displayed correctly in the driver display or Dynafleet. The calculations assume the use of normal diesel fuel.
- The vehicle may smell differently and some smoke may be produced when starting the engine.

Bear in mind

- Check the oil level regularly as the oil will be diluted with unburned fuel.
- FAME has certain solvent properties and dissolves e.g. dirt or deposits in the tank. For this reason, if the vehicle has previously been run on diesel, or if it is suspected that the tank may contain dirt or deposits, then it is recommended that the fuel filter is changed several times. It is possible that the tank may need to be cleaned as well. Contact an authorised Volvo workshop for more detailed information.
- FAME is more sensitive to bacteria and water contaminants than diesel fuel. For this reason, special conditions apply for the storage of FAME. Contact the fuel supplier for instructions.
- Use most of the fuel in the tank before refuelling with new fuel. This is to prevent bacteria thriving in the tank.
- If the vehicle has not been used for a period of at least 4 weeks, flush the system with diesel by driving it until at least a tank has been used.
- Engines/Cab heaters are not adapted for using FAME, so for this reason a separate diesel tank must be installed. Engines/Cab heaters must only use diesel in accordance with EN590.
- FAME is aggressive against paint and certain types of rubber and plastic. If FAME should come into contact with a painted surface, wash the surface thoroughly without delay in order to avoid damage.

Vegetable oils/animal oils

Crude vegetable oil or animal oil does not fulfil EN14214 and must not be used as fuel or mixing component for diesel engines. These products are not approved by Volvo, and the warranty is not valid in the event of unapproved products being used.

Used oil

Used oil and two-stroke oil considerably shorten the service life of the injection equipment. In addition, the exhaust emissions increase if these oils are used.

> ⚠ CAUTION
>
> It is not permissible to add used oil or two-stroke oil to the fuel tank.

Aviation fuel and military activities

It has been common for trucks at airports and in military operations to use aviation fuel or different military grades of diesel. With today's advanced engines and aftertreatment systems, it is virtually impossible to use such fuels and at the same time ensure correct emission properties and functionality. A sulphur content that is too high can also damage the aftertreatment systems so that they need replacing.

The following applies for the use of aviation fuels:

- Lower energy content in the fuel normally involves at least 5% decreased power output as well as increased fuel consumption.
- The sulphur requirement of all aviation fuel specifications is well above the requirement for Euro 4/5/6 fuel. Continuous operation on these fuels will primarily damage the aftertreatment system.
- The lubricity must be ensured: max 460 microns in the so-called HRR tests (ISO 12156) is an absolute requirement.
- If military fuels are used, despite the points above, then the fuel should fulfil the NATO F-63 specification.

Fuel system repair and service

For fuel system repair and service, see Fuel system page 254.

EXHAUST CLEANING SCR

General

This truck is equipped with SCR technology (Selective Catalytic Reduction) - catalytic emission control - in order to fulfil the requirements of the Euro 5 standard.

Exhaust gas cleaning

The exhaust gases are cleaned using the AdBlue urea solution. AdBlue is injected into the exhaust system between the turbo and silencer with the built-in SCR catalytic converter. The catalytic converter is used to reduce emissions of nitrogen oxides and particulates in the exhaust gases.

Fuel

Sulphur-free fuel (<10 ppm) must be used in order to ensure that the emission requirements are fulfilled at a sustained level.

The maximum sulphur content to fulfil the EU emission level is maximum 10 ppm.

> **NOTE**
>
> Use sulphur-free fuel.

Heat

The cleaning process means that the exhaust gases can become very hot. Keep the area around hot components clean. For example, pay attention during power take-off operation that hot exhaust gases do not cause any damage.

AdBlue

The urea solution is sold under the AdBlue brand name. It is a colourless liquid consisting of urea and distilled water. It may have a slight odour of ammonia. The concentration of urea in AdBlue is 32.5%. AdBlue fulfils the ISO standard 22241 (formerly DIN 70070). It is the only urea solution approved by Volvo for filling in Volvo's trucks. AdBlue can also be sold and marketed under other names depending on the distributor and can be used as long as ISO standard 22241 is fulfilled.

> **CAUTION**
>
> AdBlue that has been modified or replaced with another liquid that does not comply with ISO 22241-1, will lose its intended cleaning effect and can damage the SCR system.

Refuelling

Always check the AdBlue level in connection with refuelling, see Filling with AdBlue page 122.

Handling and spillage

AdBlue is not dangerous but should be handled with caution.

If AdBlue is accidentally spilled on the truck, rinse with water and then wipe with paper or cloth. The solution can be aggressive when it gets hot and can then

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damage e.g. adjacent connectors, cables and hoses in the event of leaks.

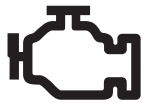
AdBlue freezes at approx. -11 °C. This is not a problem because the SCR system is heated. The truck can be started and driven normally.

> **⚠ CAUTION**
>
> AdBlue is highly corrosive and can damage connectors. If AdBlue comes into contact with connectors and wiring then they must be replaced, cleaning is not sufficient.

System monitoring

The EU legal requirement for this standard requires a standardised method for monitoring the engine and exhaust gas cleaning. For this reason, the truck contains an OBD system (On-Board Diagnostic), which monitors that the exhaust gases fulfil the legal requirement.

The MIL symbol (Malfunction Indicator Lamp) illuminates in the event of emission-related faults. The cause of the lamp switching on can be checked at the next stop. When the lamp illuminates the truck should be driven to an authorised Volvo workshop for checking. There is a delay in the system which means that the MIL symbol does not illuminate immediately when the error occurs but can be illuminated much later. In addition, and in accordance with legal requirements, the lamp is illuminated for a period after the error has been rectified.



MIL symbol (MIL=Malfunction Indicator Lamp)

AdBlue-level monitoring

When there is only a small amount of AdBlue left in the tank (at least 10%) the information lamp will illuminate and a message will be shown on the driver information display to advise that it is time to top up.
If the tank for AdBlue is empty a message is shown in the display, along with the information lamp and the MIL symbol. Fill the tank immediately.

When the message that the tank is empty is shown, a certain amount of AdBlue is still circulating in the system in order to cool hot components. However, the injection of AdBlue stops.
Driving without AdBlue means that there is no exhaust gas aftertreatment, and emissions from the engine increase. If this is not rectified by AdBlue being filled then there is a reduction in the engine's pulling power and a "non-erasable fault code" is set for 400 days.
If the SCR system cannot circulate AdBlue then a message is shown together with the yellow warning lamp (CHECK) and the MIL symbol.
The next time the truck is stationary with the engine running, e.g. at traffic lights, the engine's pulling power is reduced by 40%. The driver information display will warn before the performance is reduced. The truck's engine pulling power returns to normal as soon as it is refilled with AdBlue.

EXHAUST CLEANING SCR

> **NOTE**
>
> It may be a punishable offence not to use AdBlue or to try to interfere with the exhaust cleaning system.

Warning lamp

MIL symbol (MIL=Malfunction Indicator Lamp)

NOx control monitoring

In addition to OBD-system (On-Board Diagnostic) the EU legal requirement requires that there is a special level and diagnostic system for the engine's exhaust gas aftertreatment system, so-called NOx control monitoring (NOx = nitrogen oxides).

The function of the NOx control monitoring system is to monitor the following:

- The level of NOx in the exhaust gases.
- The level of AdBlue in the tank.
- Faults in the emission control monitoring system.

The following effects will occur if faults are detected in the exhaust gas aftertreatment system:

- The monitoring system will inform the driver via warning lamps and fault messages.
- "Non-erasable fault codes" are set.
- Possible reduction in the engine's pulling power (depending on type of fault).

Active system

The NOx control monitoring system is normally always active. The monitoring is limited in the event of a cold engine, low ambient temperatures and extremely high altitude.

Non-erasable fault codes

A "non-erasable fault code" is set (activated) when the monitoring system detects a fault. There are three different faults that generate a "non-erasable fault code":

- Low AdBlue level.
- NOx emission level incorrect.
- Fault in NOx monitoring system.

The fault codes for NOx control monitoring are stored for 400 days and cannot be erased, even if the fault is rectified and the fault code has become inactive.

When a "non-erasable fault code" is set, the time for how long the engine has been running while the current fault has been active is calculated. In this way you can obtain information about how long the engine has been driven with faults in the emissions system.

Pulling power reduction

NOx control monitoring can limit the pulling power of the engine when certain limit values are reached, or certain faults occur in the exhaust aftertreatment system. The reduction in pulling power is preceded by the "CHECK" lamp and the "MIL" symbol being shown. The driver information display also warns that pulling power will be limited. The engine's pulling power is reduced by 40%, and this occurs the first time the truck is stationary after the fault has arisen.
The reduction in pulling power occurs during one of the following events:

- NOx level incorrect.
- The AdBlue tank is empty.
- The system could not monitor the NOx level during 36 hours of engine operation.

Once the fault has been rectified, the engine's performance automatically returns to normal.

Exhaust

The catalytic converter gets very hot and cools down more slowly than a normal silencer. This means that the gases in

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the end pipe, e.g when the engine is idling after driving, hold high temperatures for longer. The exhaust will have an odour that is different from engines without emission control. The difference is most noticeable when the engine is cold. A cloud of water vapour can be emitted during cold starting and when pulling away. This is more noticeable than for engines without exhaust gas cleaning. Vapour clouds can form with temperatures up to +5°C. Steam can also form during engine restart after a short break and when the engine brake is being used, but to a lesser extent than when starting from cold.

12

MAINTENANCE AND SERVICE

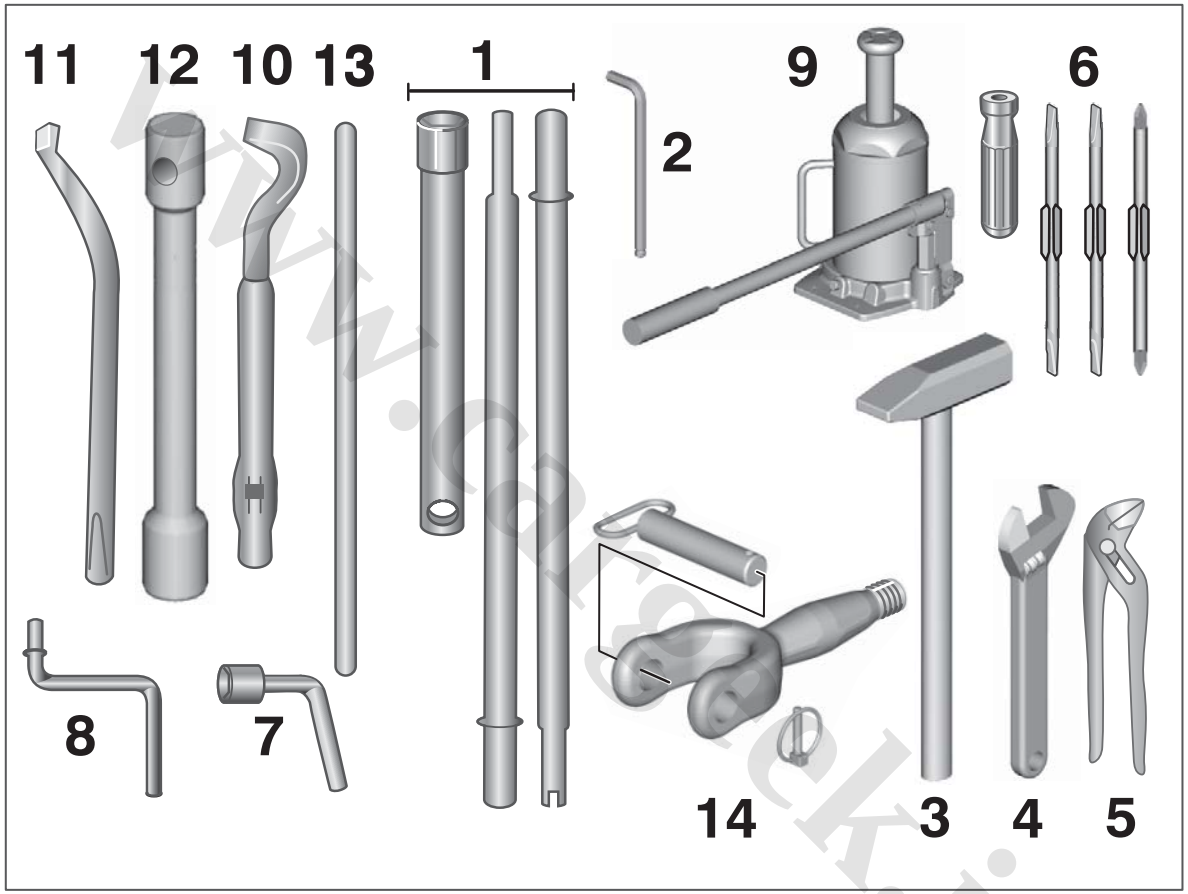
SERVICE PLANNING

The chapter on maintenance contains information about what preventive measures you need to take in order that the truck can be driven safely in traffic and to achieve maximum reliability. However, the maintenance in these instructions is not comprehensive. Many more items are included in the service provided by an authorised Volvo workshop.

A maintenance programme is provided with the purchase of the truck. The programme is based on truck type, driving conditions, oil grades, etc., and is unique to each truck. If the conditions that applied when the maintenance programme was developed have changed then the maintenance programme must also be changed. Contact your authorised Volvo workshop for more information.

For complete information about lubrication points, oils and fluids, service intervals and service contracts, contact an authorised Volvo workshop.

Tools



1 Socket for changing wheels and two combination pliers
(only for vehicles with disc wheels)

2 Socket head key for oil plugs (extra equipment)

3 Hammer

4 Adjustable wrench (extra equipment)

5 Polygrip pliers (extra equipment)

6 Combination screwdriver (extra equipment)

7 Socket wrench for tilting cab

8 Crank handle

9 Jack

10 Opening lever for changing tyres (only trucks with spoked wheels)

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EQUIPMENT

11 Closing lever for changing tyres (only trucks with spoked wheels)

12 Socket wrench for changing wheels (only trucks with spoked wheels)

13 Handle for changing wheels (only trucks with spoked wheels)

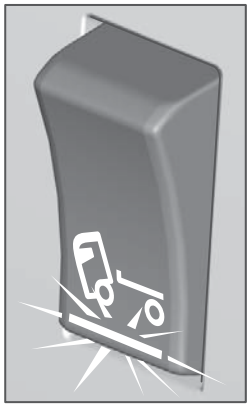
14 Drawbar for towing

Tilt the cab

Electric tilting

1 Insert the key in the starter switch. Function mode "Accessory" or higher must be active, see Power supply page 114.

2 Press in the lower part of the switch. The indicator lamp in the switch lights up.



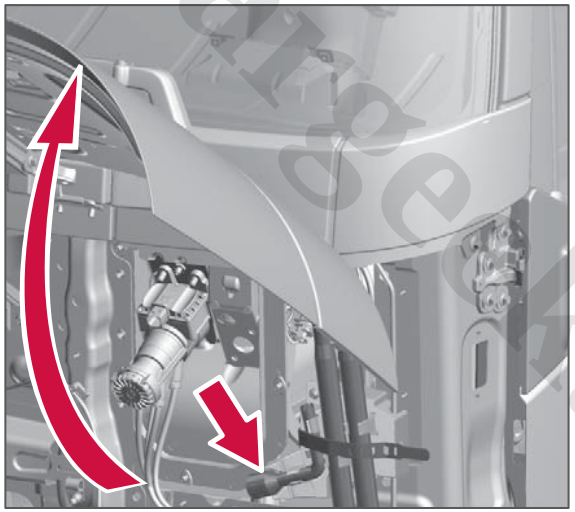
Switch, cab tilt

3 Check that

- no loose objects inside the cab damage the interior or windscreen during tilting.
- there is sufficient space in front of the cab.
- the parking brake is applied.
- the gear lever is in neutral position.
- the doors are either completely open or firmly shut.
- the refrigerator box is empty, switched off and the door is closed.
- the microwave oven is empty, switched off and the door is closed.

4 Open the front service cover.

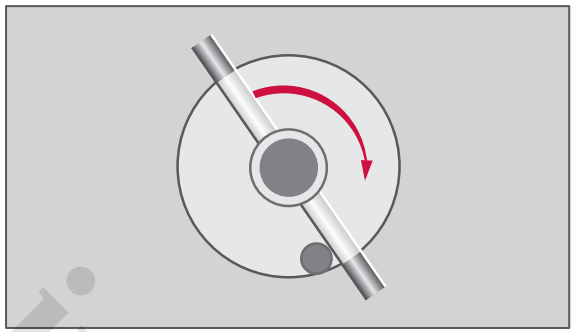
- Take the socket wrench from the retainer.



Tools for cab tilt

> **NOTE**
>
> The service cover **must** be opened before the cab is tilted in order to avoid damage.

5 Fit the socket wrench in the hydraulic pump's valve and turn clockwise to the stop position.

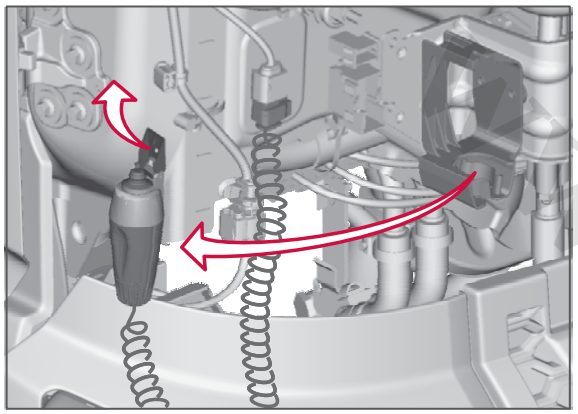


Hydraulic valve position for tilting.

6 Take the switch from its retainer under the service cover and hold the

TILT THE CAB

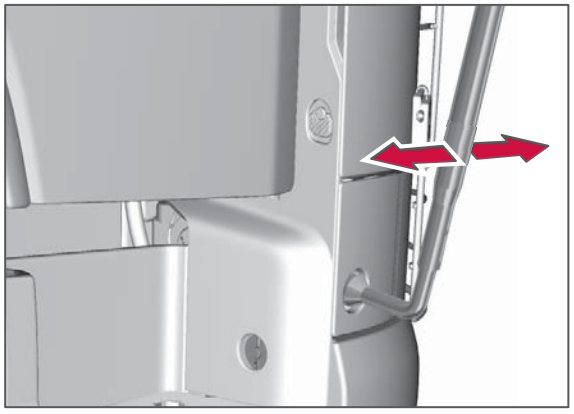
button depressed until the cab is fully tilted.



Switch for hydraulic motor for cab tilt.

Mechanical tilting

The cab can also be tilted mechanically if necessary. Use the pump lever instead of the electric pump.



Manual tilting

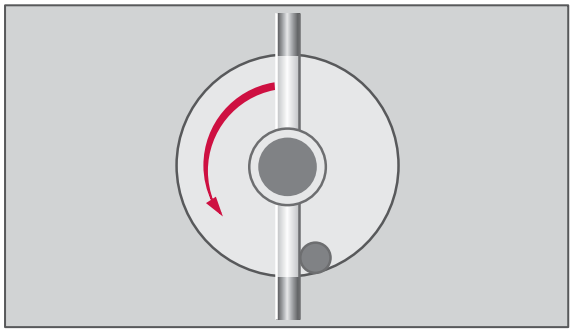
If the cab is tilted electrically more than twice in a row then overheating protection may be triggered. In which case, allow the motor in the electrical hydraulic pump to cool for 15 minutes. If the pump does not work after 15 minutes, check the fuse in the fuse & relay centre in the cab.

If the cab cannot be tilted then it may be because the cab is too heavily loaded or that there is air in the system. For bleeding, see Pump for cab tilt page 275.

Tilting back

> **NOTE**
>
> The function mode "Accessory" or higher must be activated in order be able to re-tilt the cab.

1. The starter key must be in the starter switch, and function mode "Accessory" or higher activated, see Function positions page 114.
2. Activate the switch for cab tilt.
3. Turn the hydraulic valve anticlockwise to the stop position.



Hydraulic valve position for re-tilting

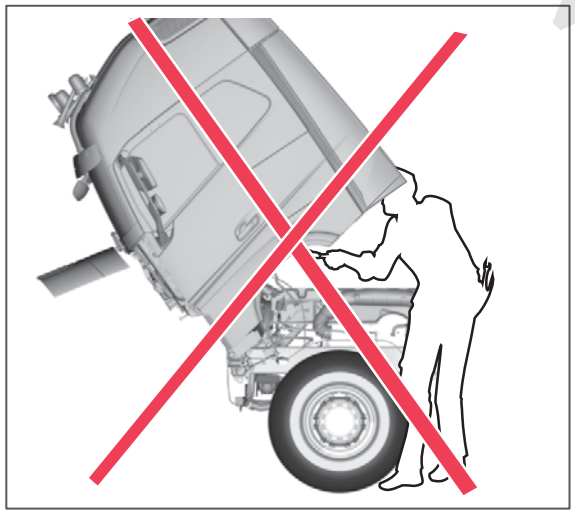
4. Operate the pump until the cab is locked in the driving position.
5. Replace the switch and tools in the retainers under the service cover.
6. Close the service cover.
7. Check that the symbol showing unlocked cab does not illuminate when the engine is running.

Display symbol for tilted cab.

8. Reset the switch for cab tilt.

⚠ DANGER

Tilt the cab fully! It is forbidden to work under a cab that is not fully tilted. If the cab cannot be tilted fully then it must be supported in order to ensure that it does not fall back. Never walk under or in front of a tilted cab.



To bleed the hydraulic system

If the cab cannot be tilted or tilted back, see Pump for cab tilt page 275.

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VEHICLE CLEANING

General

Regular cleaning maintains the value of your truck. Remember to wash more often in winter conditions or other dirty driving conditions.

> NOTE
>
> Consider the environment.

Use washing facilities that take care of waste from washing in an environmentally sound manner. Use environmentally friendly cleaning agents as far as possible.

Washing with high pressure

Washing with high pressure must be carried out with caution. Penetrating water and dirt may cause damage. The damage occurs over time and the connection with washing is not obvious.

Do not rinse:

- Universal joint cross
- Support bearings
- Slip joints
- Joints
- Sealings
- Ventilation for gearboxes, oil reservoirs, etc.
- Connectors
- Electrical components
- Air inlets

Tyres and air suspension bellows:

Pulsating high pressure may damage tyres and air suspension bellows. The damage is not visible but may eventually cause tyres or bellows to rupture.

Radiator:

Clean the radiator with extreme caution. The fins are easily damaged by high pressure.

Sound baffles:

The soft sound absorbing panels around the engine and gearbox must be cleaned with great care. The sound absorbing material is easily damaged by high pressure.

> NOTE
>
> Minimum distance between the high pressure nozzle and the washing surface:
> Approx. 70 cm with round concentrated jet.
> Approx. 30 cm with flat wide jet.

Cab washing

The vehicle should be washed as soon as it becomes dirty, especially during the winter when road salt and dampness otherwise lead to corrosion.

The following points must be observed in order to avoid paint damage and to achieve good results when washing:

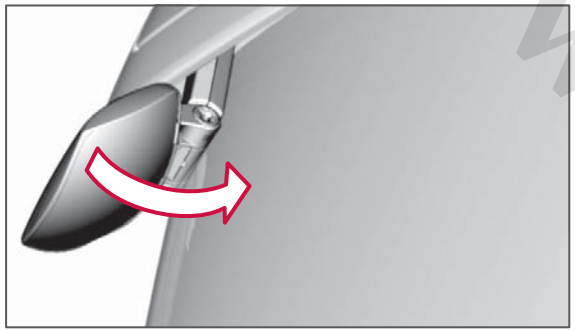
Washing method: Use a pressure washer primarily. For dirt that cannot be removed using this method, try to remove with a brush or sponge and cleaning agent best suited for the type of dirt. You risk scratching the paint using brush-washing without high-pressure washing beforehand or by washing in brush washers that are poorly maintained (worn, dirty brushes etc).

Washing chemicals, general: different agents are recommended for different types of dirt. Always follow the manufacturer's recommendations for use, dosage and maximum temperature. Avoid chemicals drying into the paint surface.

Washing detergent: avoid using strong alkaline agents (pH >12). Do not wash the vehicle in direct sunlight. Rinse with plenty of cold water before chemicals are applied if the temperature is above 30 °C. Wash small areas and then rinse clean so that long exposure times or the drying-in of chemicals is avoided.

Machine washing
When machine washing the cab, fold down the front mirror so that it is not damaged.

Do not forget to fold up the front mirror again when washing is finished.



In the event of heavy soiling the truck should be pre-washed before machine washing.

Chassis washing

Both chassis and cab should be washed as soon as they are dirty. Be particularly careful with high-pressure washing of axles, joints and other moving parts where water and dirt can be pressed in. Avoid flushing away lubrication. Should this still happen, make sure you re-lubricate the components.

Washing detergent: avoid using strong alkaline agents (pH >12). Do not wash the vehicle in direct sunlight. Rinse with plenty of cold water before chemicals are applied if the temperature is above 30 °C. Wash small areas and then rinse clean so that long exposure times or the drying-in of chemicals is avoided. Always rinse with plenty of water after using washing detergent.

> **NOTE**
>
> Never spray water directly onto sealings, gaskets, electrical cables or contacts.

Hot components
Exhaust pipes and silencers can become very hot. Make sure you keep the area around the hot components clean.

> **DANGER**
>
> Keep the area around hot components clean.

After washing
After washing the truck should be lubricated. Test the brakes immediately after washing.

Engine wash
Keep the engine clean. Wash off any oil or diesel spillage. Use hot water for cleaning the engine and use high-pressure washing with caution. Avoid spraying water on the alternator, starter motor and other electrical components. If degreaser is used then the drive belts must be protected.

Polishing and waxing

Painted surfaces
Over time the cab's paint may appear slightly dull. Delay this process by regularly waxing the cab. If the cab paint deteriorates then use a mild form of polishing agent. Consider the recommendations from the manufacturer of the products as well as the following general rules. First wash the truck in accordance with the above and allow it to dry. Then use a polishing agent or deep cleaning agent with only a small amount of abrasive components. Wax with a liquid wax. Only use clean cloths/ rags, etc. Work over the paint surface applying moderate pressure.

Chrome plated parts
First wash the chrome with the same agent used for the rest of the cab. Use concentrated washer liquid to remove any film. The chrome can then be waxed with the same wax as the rest of the cab. Never use cleaning agents containing abrasives on chrome parts.

VEHICLE CLEANING

Aluminium wheel rims, care

Aluminium wheel rims are often exposed to different types of contaminants, such as road dirt, oil, asphalt, tar and brake dust. Regular maintenance is required in order to protect the wheel rims from discolouration, oxidation and unnecessary wear. A protecting wax used for additional protection, for example, when driving on salted roads, in slush or in coastal environments.

Clean the aluminium rims regularly. Flush with water, preferably using a high pressure washer. Use a sponge or rag to clean the rim. A mild cleaning agent may be used to remove stubborn dirt.

Polish or cleaning agents with abrasive action must not be used as this will damage the rim's surface.

Steel wheel rims, care

Steel wheel rims are often exposed to different types of contaminants, such as road dirt, oil, asphalt, tar and brake dust. Regular maintenance is required in order to protect the wheel rims from discolouration, corrosion and unnecessary wear. A protecting wax used for additional protection, for example, when driving on salted roads, in slush or in coastal environments.

Damage to the rim's paint must be remedied immediately to prevent corrosion.

Clean the rims regularly. First flush with water, preferably using a high pressure washer. Use a brush or sponge to clean the rim.

For stubborn dirt, an alkaline cleaning agent (pH>7) may be used.

Cab - interior cleaning

Textiles
First vacuum clean to remove loose dirt. Then use a foam cleaning agent to lift away remaining dirt. Avoid scrubbing with hard brushes. When all of the textile surfaces are treated, let them dry overnight. Vacuum clean thoroughly to remove the dry foam and remaining dirt.

For the seats, beds and textile mats, water and a synthetic washing agent can be used. However, never use water or water-based cleaning agents on the headlining and wall panels.

Leather
Vacuum clean. Use special cleaners for leather upholstery.

Vinyl
Water and a synthetic washing agent can be used.

Headlining and wall panels
Never use water or water-based cleaning agents.

Instrument panels and door panels
Use soapy water.

Seat belt
Water and a synthetic washing agent can be used.

Floor mats and engine cover upholstery
Vacuum clean or sweep clean. Wash with water from time to time, in particular during winter.

Temperature sensor for cab climate
The temperature sensor on the centre of the instrument panel next to the power outlets for 12 and 24 volts must not be cleaned with chemicals that contain petrol.

Displays
The information displays have protective plastic screens. Cleaning must be carried out using a vacuum cleaner. Wiping off with a cloth may scratch the surface.

Stains

Treat stains as quickly as possible!

Stains on textiles

Remove loose particles from the stain. Absorb as much as possible using clean cloths. Vacuum clean around the stain so that the dirt around the stain is not dissolved. Treat the stain from the outside and inwards towards the centre of the stain using stain remover. Wipe away the part of the stain that is dissolved. Treat the stain again and wipe away the part that is dissolved. Continue until the whole of the stain has been removed.

Be very careful with the amount of stain remover, to avoid the stain dissolving and becoming larger.

Stains on leather

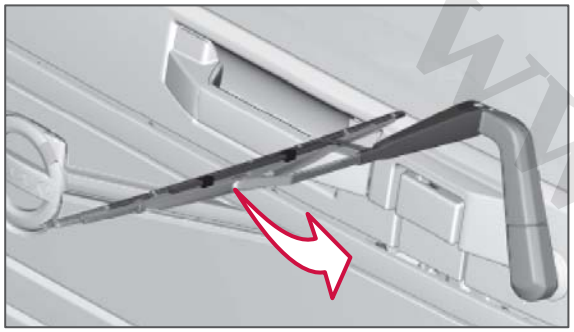
Use warm, mild soapy water. Never scrape or rub. Never use strong solvents such as petrol, white spirit or alcohol.

Stains on vinyl

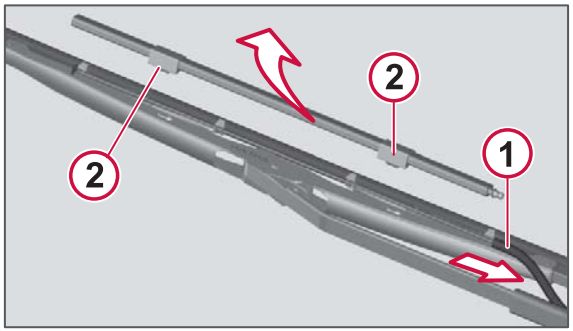
Never scrape or rub. Never use strong solvents such as petrol, white spirit or alcohol.

Changing wiper blades

1 Fold out the wiper arm.

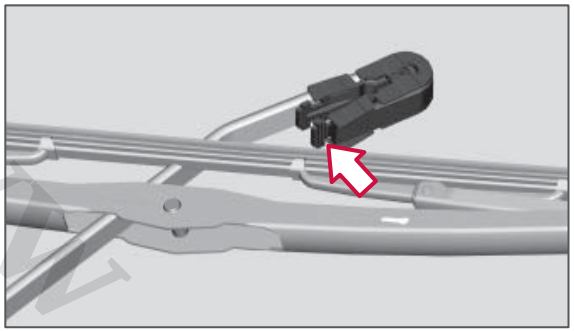


2 Untighten the hose (1) from the nozzle and remove the washer nozzle by squeezing together the clips (2).



Untighten the washer nozzle

3 Press in the plastic lug at the arrow and pull the wiper blade away from the wiper arm.



4 Fit the new wiper blade on the wiper arm.

5 Attach the hose into the washer nozzle and press in the nozzle on the wiper blade.

6 Fold back the wiper arm.

Replacing the battery in the remote control

The remote control for the central locking and any alarm is powered by a 3-volt battery, type CR 2032.

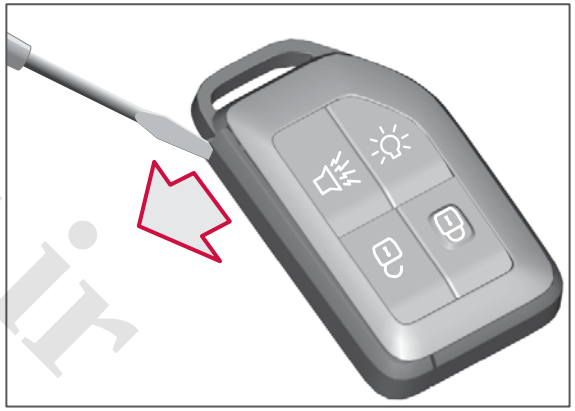
Replace the battery once a year.

Batteries can be purchased from an authorised Volvo workshop.

The old batteries must be sent in for recycling.

> ⚠ CAUTION
>
> Fitting a defective battery can cause an explosion.

1



Carefully prize open the surround with a chisel.

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2

Remove the surround.

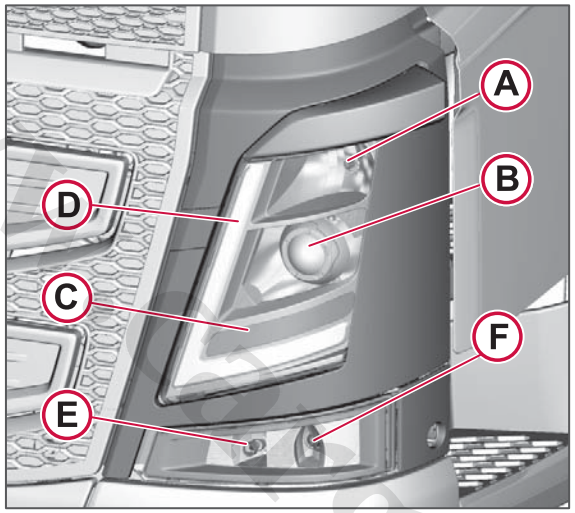
3

Open the rear and replace the battery

4 Replace the rear section and the surround.

Replacing bulbs

Headlamps



Headlamps

Lamp location

A) Extra main beam

B) Dipped and main beam

C) Direction indicators

D) Position, parking and daytime running lights.

E) Fog light

F) "Static cornering light", Static cornering light.

For specifications of the output and socket type for the bulbs , see page 285.

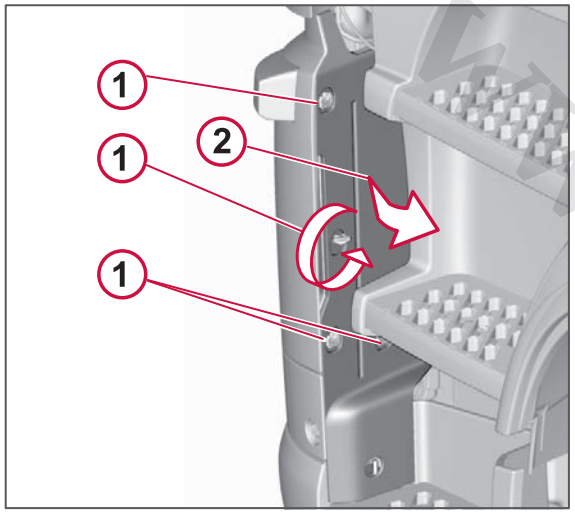
Replacing lamps in the upper lamp housing

1 Switch off the lighting.

2 Open the door

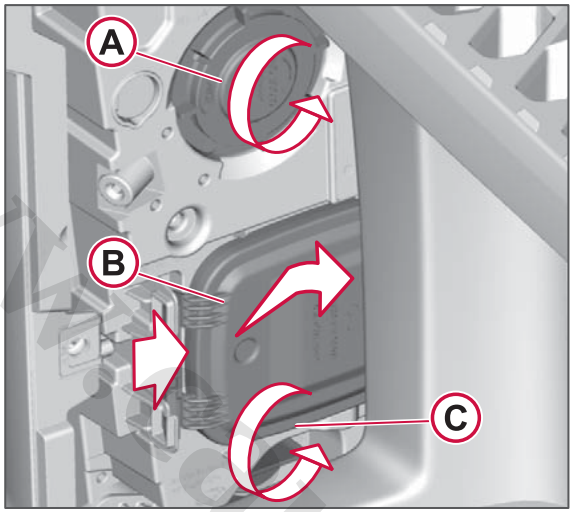
EASIER REPAIRS

3 Remove the cover by turning the four screws (1) half a turn and then remove the cover (2).



Cover for headlamp

4 Open the cover for the lamp to be replaced



Cover for main beam (A), dipped beam (B) and direction indicators (C).

5 Replace the bulb.

When replacing the extra main beam bulb the spring must be pressed in and then pulled apart during removal.

6 To replace the dipped beam bulb, see the instructions "Replacing the gas discharge lamp".

7 Refit all parts in reverse order.

> **NOTE**
>
> Close the covers carefully so that dirt and moisture do not enter the lamp housing.

Replacing the gas discharge lamp

1 Switch off the lighting.

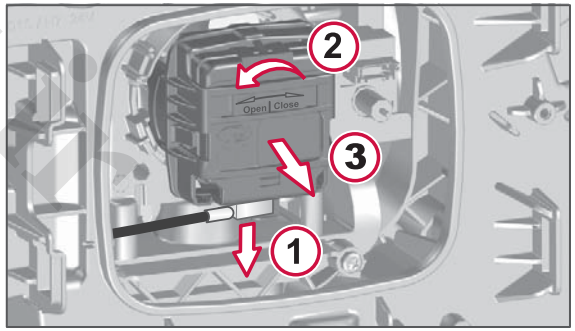
> **NOTE**
>
> The gas discharge lamp should be replaced by an authorised Volvo workshop.

2 Follow the instructions "Replacing lamps in the upper lamp housing" to access the dipped beam lamp.

> **DANGER**
>
> The gas discharge lamp is powered by high voltage.

> **NOTE**
>
> Use protective goggles.

3 Turn the bulb socket one-eighth turn (45 degrees) anticlockwise (2) and pull out the retainer with the lamp (3).



Gas discharge lamp, removal

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4 Detach the cable after removing the lamp (1).

> **CAUTION**
>
> Gas discharge lamps contain mercury and must be handed over for recycling. Gloves, breathing protection and good ventilation must be used when handling lamps with a broken outer casing.

5 Fit the new bulb in the retainer and fit the electrical cable.

Replace both bulbs on the same occasion! This is to prevent the lamps from having a different shade of colour.

> **CAUTION**
>
> Do not touch the glass on the gas discharge lamp. Grease, oil and similar are evaporated by the heat from the lamp and damage the reflector.

6 Refit the retainer in the lamp housing. Take care to turn it to the locked position.

7 Refit all parts in reverse order.

Replacing LED lights

Position, parking and daytime running light diodes (LEDs) can be replaced. However, the whole lamp housing may need to be removed in order to do so.

Dipped beam levelling needs to be checked after reassembly.

The diodes are fitted in two modules with cooling fins. Both modules must be replaced at the same time in order not to have deviations in colour and brightness.

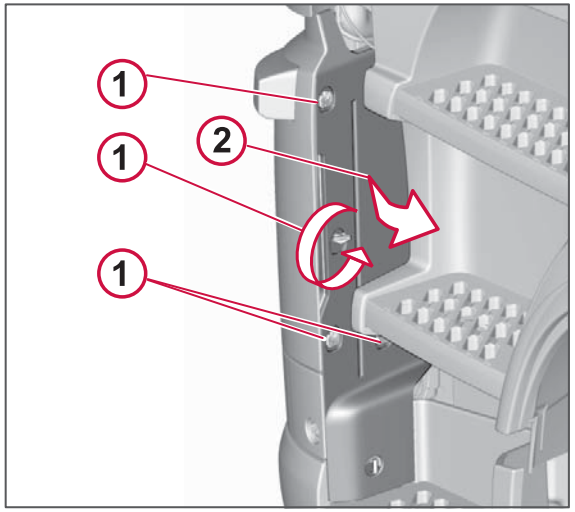
> **NOTE**
>
> The diode modules should be replaced by an authorised Volvo workshop.

Replacing bulbs in the lower lamp housing

1 Disconnect the main current.

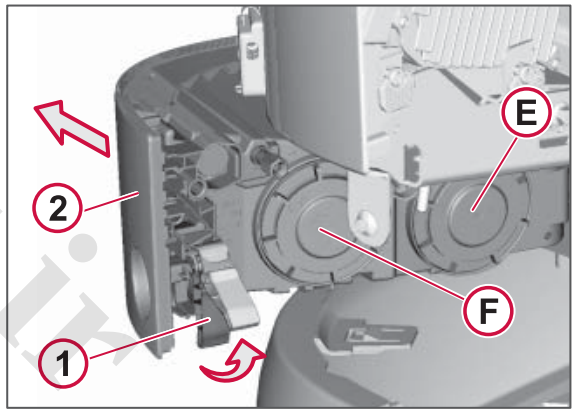
2 Open the door.

3 Remove the cover by turning the four screws (1) half a turn and then remove the cover plate.



Cover for headlamp

4 Fold out the eccentric lock (1) and fold out the lamp housing (2).



Fog light (E) and Static cornering light (F)

5 Open the cover and replace the lamp

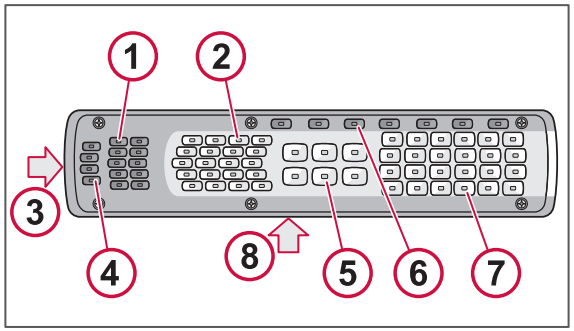
6 Refit all parts in reverse order.

> **NOTE**
>
> Close the covers carefully so that dirt and moisture do not enter the lamp housing.

Rear lights

Replacing LED lamps

The LEDs in the tail lamp have a long service life. If any diodes do not illuminate then it is not possible to replace individual diodes, the lamp must be replaced complete. The lens can be purchased separately.



Legal requirement

A certain number of diodes must illuminate per function in order to fulfil the legal requirement for brightness.

Function 1 and 2

1. Stop light
2. Direction indicator

All diodes must illuminate. If one fails then the whole function will be switched off automatically.

Function 3,4,5,6 and 7

3. Side marker lamp
4. Tail light
5. Reversing light
6. Tail light
7. Fog light

A maximum of 1 diode per function may be faulty. The function will continue to illuminate even if more diodes are broken but it is then illegal.

Function 8

8. Registration plate lighting

All diodes must illuminate. The function will continue to illuminate even if a diode is broken but it is then illegal.

Auxiliary lamp in cab roof

Replace the bulb for the integrated auxiliary lamp from inside the cab. The covers are fitted in the front upper storage trays on each side.

1 Remove the cover.

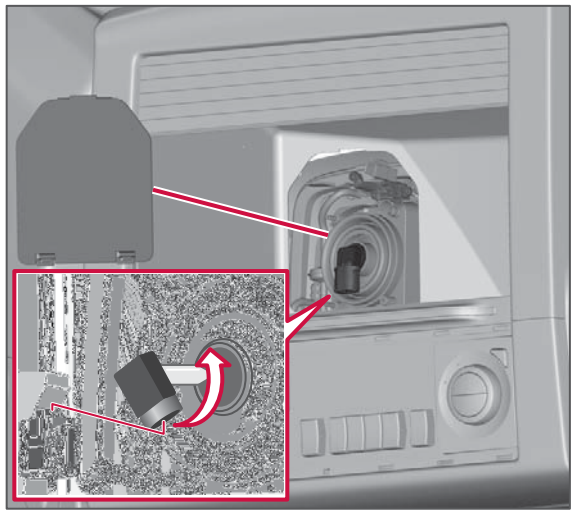
2 Remove the coupling piece. Note the two locking catches.

3 Turn the lamp one eighth of a turn anticlockwise.

4 Pull the bulb out.

Reassemble in reverse order.

For lamp type, see Other lights page 285.



Replacing the auxiliary lamp bulb

> **CAUTION**
>
> Do not touch the glass on the lamp. Grease, oil and similar are evaporated by the heat from the lamp and damage the reflector.

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Other lighting

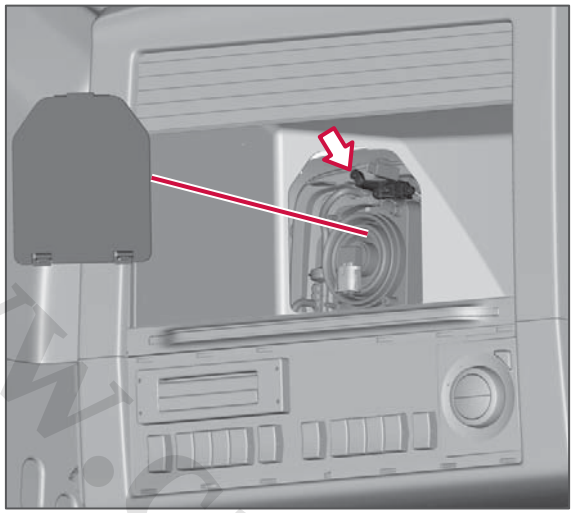
Side markers and side direction indicators

These lamps are equipped with LEDs (light emitting diodes) with long service life. If necessary, the whole unit is replaced.

Position lights cab roof

These lamps are equipped with LEDs (light emitting diodes) with long service life. If necessary, the whole light insert is replaced for position lights, but not the whole light insert.

Replacement is carried out from inside the cab. The covers are fitted in the front upper storage trays on each side.



Position lights cab roof

Globetrotter sign

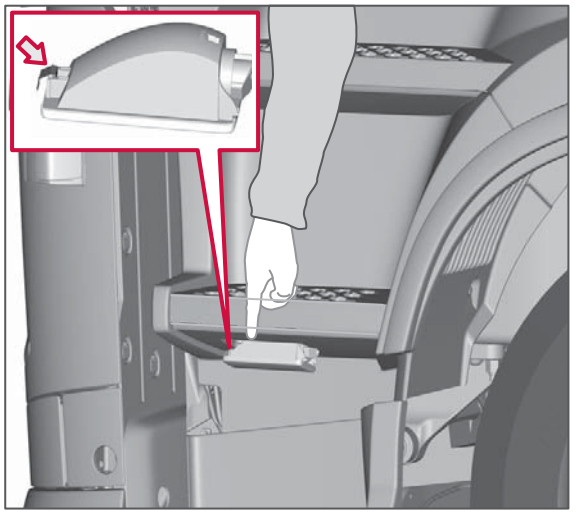
Globetrotter plate lamps are equipped with LEDs (light emitting diodes) with long service life. If necessary, the right or left-hand light unit can be replaced.

The replacement is carried out from the outside of the cab. The work is relatively extensive and includes the removal of the outer sun visor and Globetrotter sign. This should be performed by an authorised Volvo workshop.

Courtesy lights

The courtesy lighting is replaced by pressing in the locking catch from the top through the foot step.

For lamp type, see page 285.

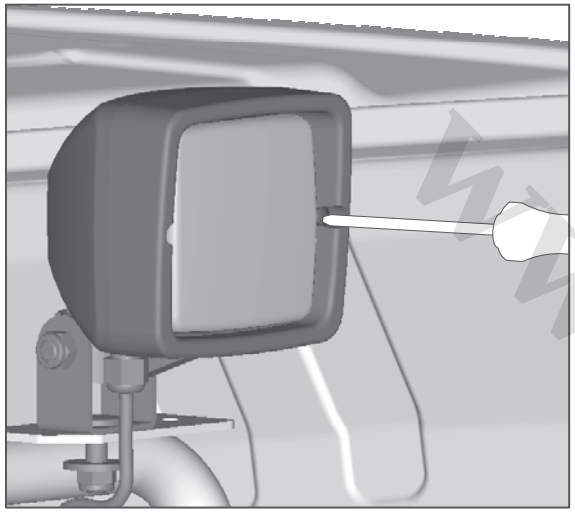


Courtesy lighting

Working lights

Replace the lamp for the work lighting by removing the lens.

For lamp type, see Other lights page 285.



Working lights

Tourist light

Asymmetric dipped beam for left-hand traffic

The asymmetric dipped beam will dazzle oncoming traffic when travelling in countries with left-hand traffic. It is therefore important to reset dipped beam so as not to dazzle.

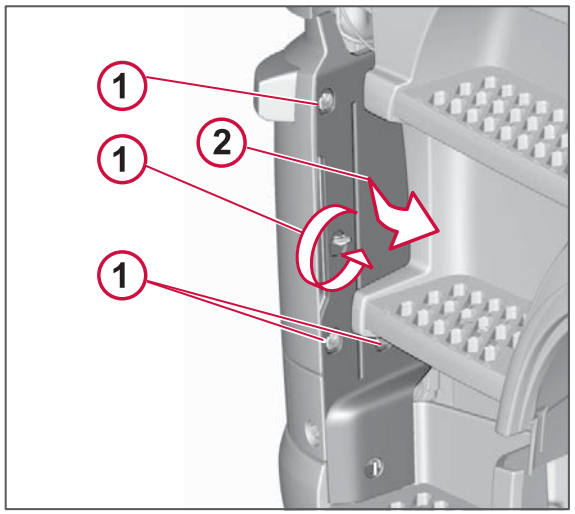
Inside the cover for dipped beam there is a small hand lever. It is used to adjust the light downward temporarily. To open the cover, see Replacing lamps in the upper lamp housing page 237.

Position 1. Normal function.

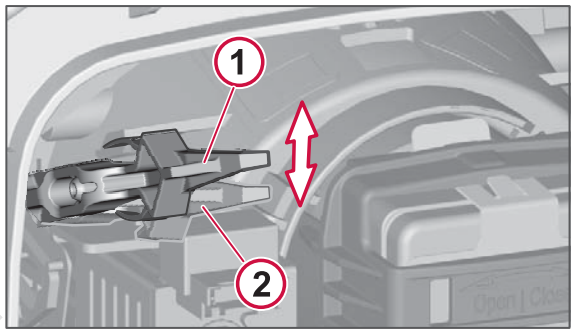
Position 2. Position for driving in left-hand traffic.

⚠ DANGER

The gas discharge lamp is powered by high voltage. Switch off the lighting during adjustment.



Cover for headlamp



Position 1. Normal setting.
Position 2. Position for driving in left-hand traffic.

ⓘ NOTE

The hand lever is very small and lever travel is only a few millimetres.

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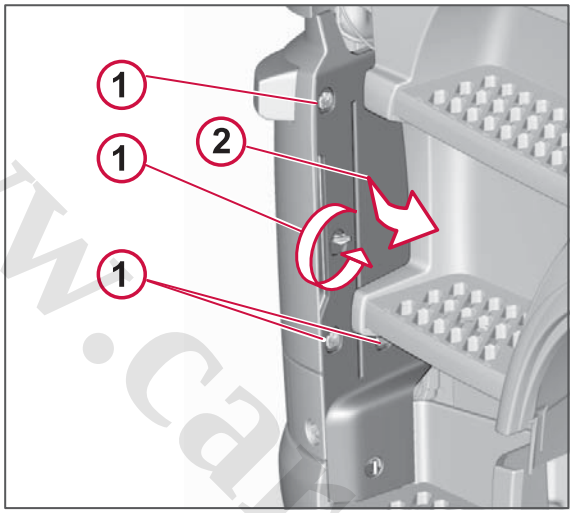
Dynamic bending light adjustment

If the dynamic bending light has stopped working then the fault must be rectified in order to avoid dazzling oncoming traffic. Contact an authorised Volvo workshop as soon as possible. The beam pattern must be checked in order to allow you to drive to the workshop.

Check that both lights are aligned straight ahead. If necessary, adjust the beam pattern of the faulty headlamp downward.

1 Open the door

2 Remove the cover by turning the four screws (1) half a turn and then remove the cover.



Cover for headlamp

3 Use a screwdriver in accordance with the figure to manually reset the beam pattern. Turn the screw 3.5 turns anticlockwise.

Readjustment of the dynamic dipped beam.

4 Refit all parts in reverse order.

5 Carry out the same action on the other headlamp.

6 Contact an authorised Volvo workshop to have the fault rectified as soon as possible.

Paintwork damage

Paint is an important part of the vehicle's rust protection, and should therefore be checked regularly for damage. Paint damage requires immediate treatment in order to prevent corrosion. The most common types of paint damage, and the damage you can repair yourself include the following:

- Small paint damage and scratches
- Wear on wing edges and door thresholds for example

When touching up, the vehicle should be well cleaned and dry and have a temperature of above +15 °C.

Touching up small paint damage

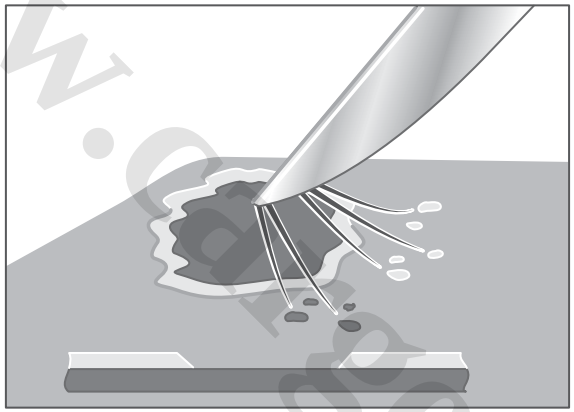
Material:

- Rust remover (cold phosphating agent) – tube or can.
- Undercoat – can.
- Spray paint or touch-up pen (the top of the pen contains abrasive paste for aftertreatment).
- Penknife or similar.
- Brush.

If the damage has not reached down to the underlying metal and a damaged paint layer is still in place, the paint can be applied directly after light scraping to remove any dirt.

If the damage has reached down the underlying metal then proceed as follows:

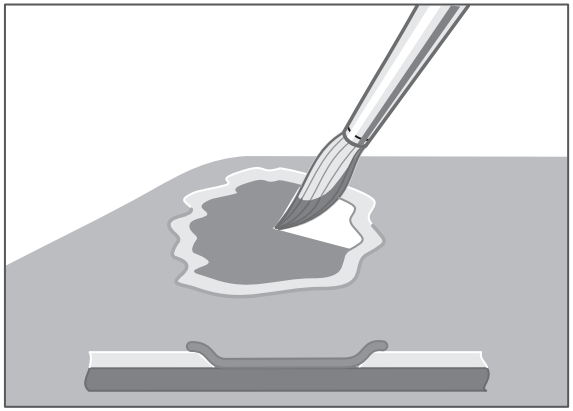
1 Scrape the damaged surface down to bare metal and chamfer the edges of the paint with a penknife or similar.



Scrape clean

2 Apply rust remover (mind your eyes and skin), wait a few minutes and then rinse thoroughly with water. Wipe dry!

3 Stir the undercoat (primer) well and apply several coats with a fine brush or matchstick.



Apply undercoat and paint

4 When the undercoat is dry, apply the top coat with a brush. Make sure the paint is stirred well and apply several thin coats and allow to dry between applications.

5 For scratches, work as above, but to protect the undamaged paint it may be necessary to mask off.

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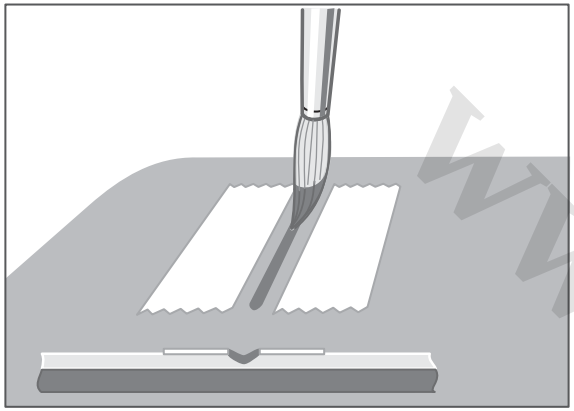


Masking undamaged paint

6 Wait for a few days, and then apply finishing treatment. The cap on the touch-up pen contains abrasive paste, which is used to polish touch-ups. Use a soft cloth and be economical with the abrasive paste.

Tyres

Some advice on avoiding unnecessary tyre wear

- Maintain the correct air pressure, not too high and not too low.
- Bear in mind that tyre wear increases with speed.
- Do not overload the tyres, e.g. with an offset load.
- Do not drive with imbalance in the wheels.
- Check front wheel toe-in on a regular basis.
- Do not change the tyres round unnecessarily.

Dual wheels

Use only tyres of the same type on dual mounted wheels. The tyres may have max. 6 mm difference in diameter.

Checking tyre pressure

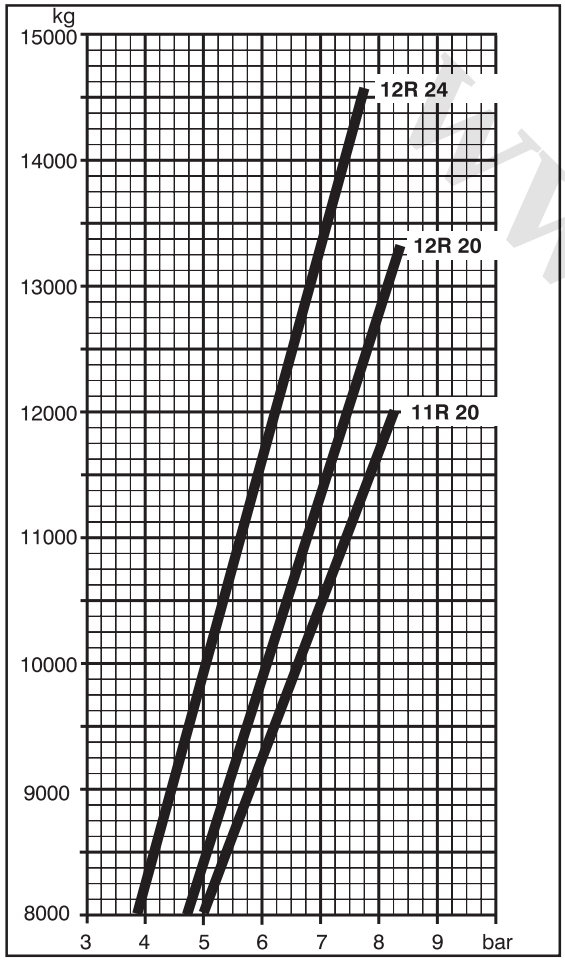
Check the tyre pressure when refuelling or at least once every 14 days. Adapt the pressure according to the truck's bodywork structure and axle load, not according to the technical maximum load. Remember to check the pressure in the spare tyre as well from time to time.

Recommended tyre pressure

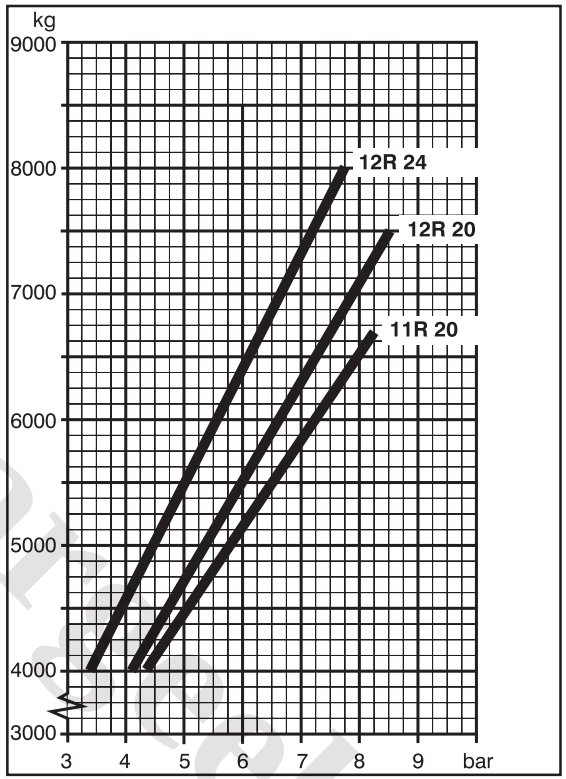
Follow the tyre manufacturer's recommendations. In cases where there are no recommendations, you can temporarily follow the tyre pressures in the chart below.

> **NOTE**
>
> The tyre pressures in the chart below are taken from ETRTO's standard manual (European Tyre and Rim Technical Organisation). The members of ETRTO are all major tyre manufacturers and they all use this standard manual as a benchmark.

Dual mounting



Single mounting



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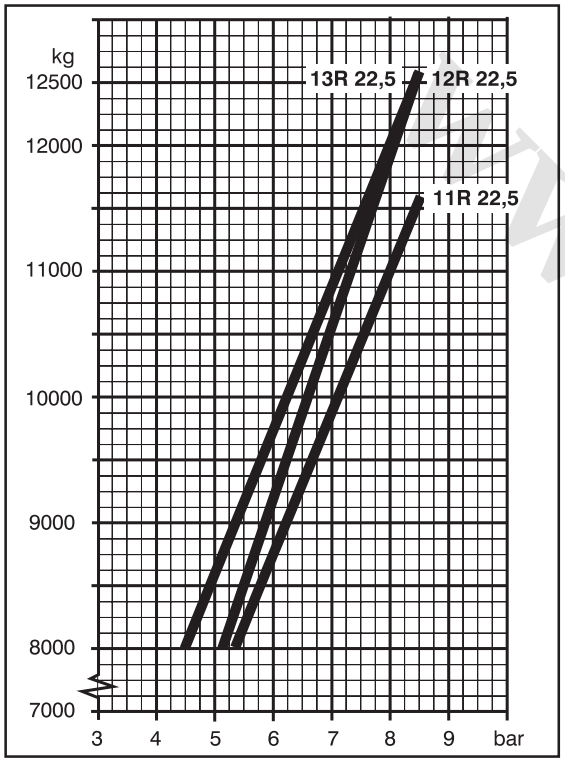
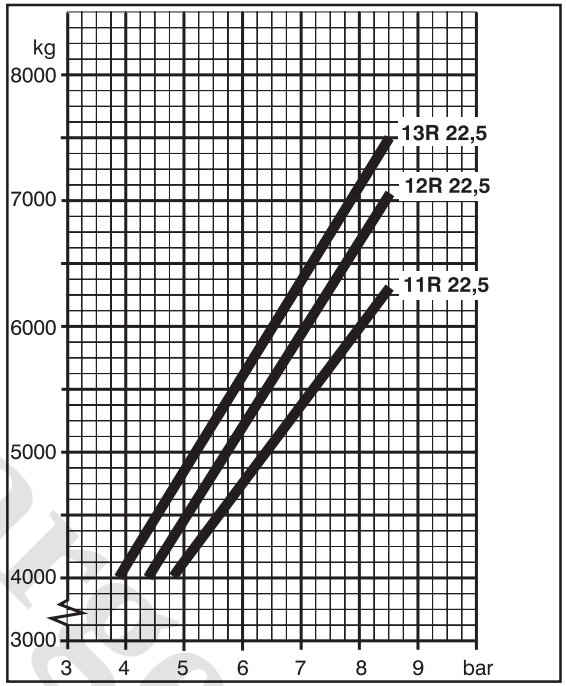
WHEELS AND TYRES

Dual mounting



Single mounting



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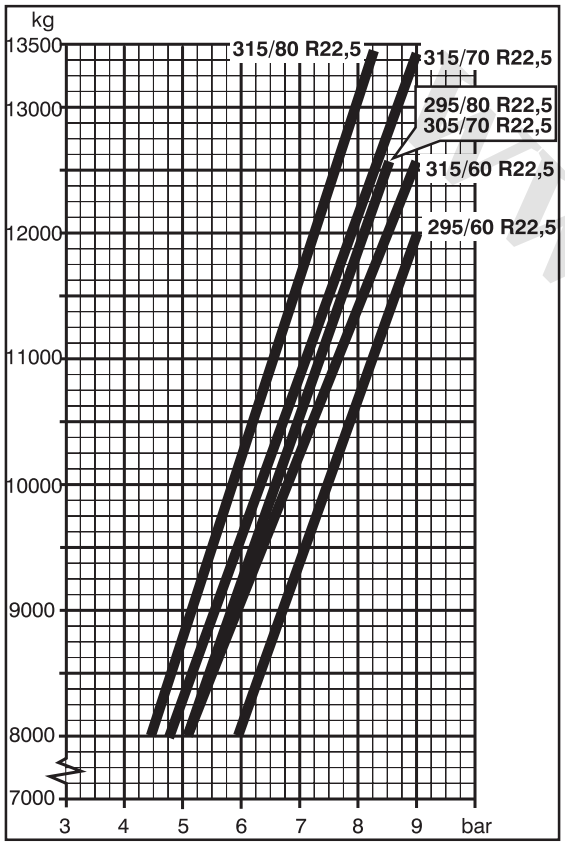
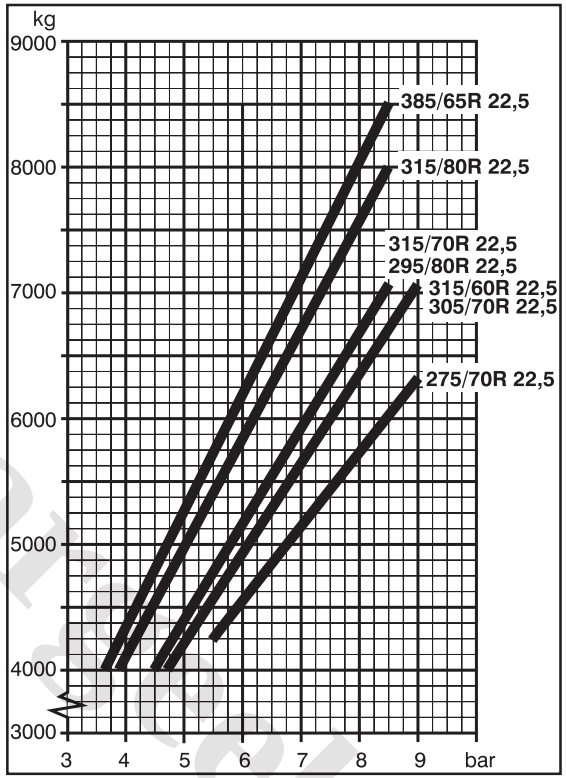
Dual mounting



Single mounting



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Changing wheels

Removing the wheel

1 Chock the wheels that will remain on the ground.

2 Make sure that the brakes are not applied on the wheel to be removed.

3 Align the jack under the axle as close to the wheel as possible.

4 Loosen the wheel nuts several turns.

5 Raise the vehicle so that the wheels lose contact with the ground (lifting one side at a time).

6 Remove the wheel nuts completely.

7 Remove the wheel.

⚠ WARNING

- Never crawl under the vehicle when it is raised on a jack!
- Place the jack on firm, horizontal, non-slippery surface!
- Chock the wheels remaining on the ground with heavy wooden blocks or large stones. Chock both in front and behind the wheels.
- Release the brakes on the wheel to be removed.

ⓘ NOTE

The jack shall not press against the shock absorber bracket or the anti-roll bar bracket.

Fit the wheel

ⓘ NOTE

Always use wheel studs and wheel nuts that are specified for the particular type of wheels you have. Different types of wheels require different wheel studs and wheel nuts.

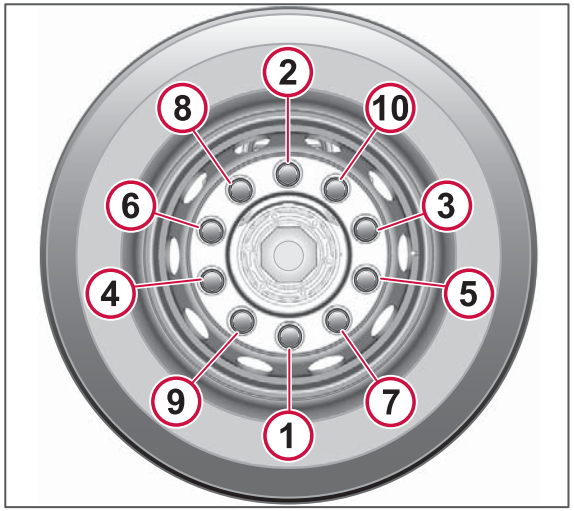
1 Clean and lubricate the wheel bolt threads, using only oil.

2 Clean the contact surfaces on wheel, brake drum and hub.

3 Release the brakes (otherwise the brake drum will become oval).

4 Torque-tighten the wheel nuts to 200 ±8 Nm. Tightening sequence in accordance with the figure.

5 After torque-tightening, angle tighten the wheel nuts 90°±10° degrees. Tightening sequence in accordance with the figure. Retighten the wheel nuts when the truck has been driven a short distance (approx. 200 km).



Tightening order, disc wheels

ⓘ NOTE

If the torque is less than 670 Nm on a wheel nut after retightening, then all wheel nuts must be loosened and then torque-tightened and angle tightened in accordance with the tightening sequence. **Every six months:** check and retighten all wheel nuts, regardless of whether or not the wheels been removed.

ⓘ NOTE

Note that the size of the wheel bolts is M22x1.5, and not 7/8"-14 with UNF thread, as with the older Volvo models.

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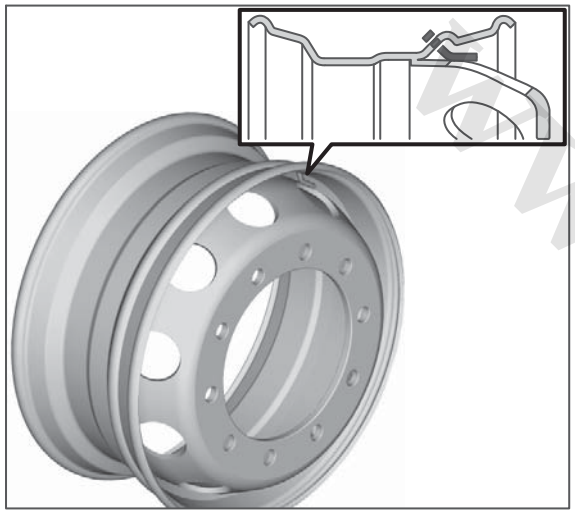
Disc wheel for disc brakes



Use only disc wheels with exterior valve location on vehicles with disc brakes.

The wheel can also be used on vehicles with drum brakes.

Painting rims

During painting the contact surfaces of the hub and brake drum must be protected to ensure that they remain free of paint.
Only the undercoat and original finish may remain on the wheel rim's contact surfaces, both outside and inside. There is a risk that the wheel nuts will loosen if the paint layer is too thick.

Snow chains

The snow chain on the front axle should preferably be mounted on the passenger side. On the driver's side there is a risk that the snow chain can damage the link rod.

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CLIMATE CONTROL SYSTEM

Changing air filter for air conditioning system

Replace the air filter every twelve months. Shake or brush clean the filter if it became dirty earlier. Never wash the filter.

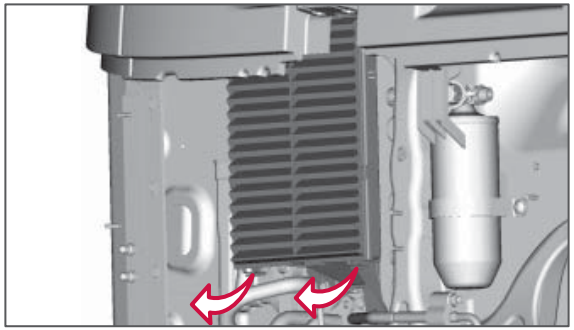
1 Untighten the filter grille.

2 Remove the filter and discard it.

3 Clean the filter retainer.

4 Fit the new filter.

5 Replace the filter grille. Check that the clips snap into their positions.



Filter retainer for climate control system.

Refrigerant

⚠ CAUTION

Refrigerant is a health hazard. The air conditioning system may only be serviced by authorised personnel.

Parking heater

Heater maintenance

For the heater to function as effectively and reliably as possible it needs to be operated at regular intervals, even in hot weather.

A message is shown on the display every 30 days when it is time for cleaning. The heater must then run for at least 20 minutes. Set the temperature to as warm as possible, open windows and doors if the temperature in the cab is too high.

If you choose not to start cleaning when the message is shown then a new reminder appears after one week.

It is also possible to start the cleaning function directly from the menu.

Driver Information Display

Maintenance
↳ P-heater cleaning

Preventive service

Some of the components in the parking heater are replaceable and have an estimated service life. When any of these components approaches the estimated service life, the message "Upcoming service" is shown in the display.

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If the heater does not start

If the heater does not start, or if it stops during operation, check the following:

- Fuse.
- Fuel level in the tank.
- Underpressure in the tank.
- That the air circulation is not blocked.

Try starting the heater again.

Contact an authorised Volvo workshop if it stops again, or does not start at all. (It may take up to six attempts to start before the heater starts if the stop is due to low fuel level or underpressure in the fuel tank.)

Fuel system

Cleanliness

REMEMBER to always observe the strictest cleanliness when working on a diesel engine's fuel system. Make sure that you have the tank as well-filled as possible in order to avoid condensation forming. During refuelling you should always make sure that it is clean around the filler hole and fuel filler cap. Be careful to filter the fuel from your own tank or own drum and ensure that all containers are clean.

Fuel filter

Change the fuel filter when doing an oil change, or as required, for example if:

- The fuel pressure drops.
- The power output decreases.
- The fuel quality is uneven.
- The symbol for blocked fuel filter starts to illuminate.

Symbol for clogged fuel filter

Changing the filter

1 Clean the filter bracket thoroughly.

2 Remove the filter using a filter wrench.

3 Moisten the new filter gaskets with diesel.

4 Screw on the filter by hand until the rubber gasket makes contact with the sealing surface.

5 Then turn an additional 3/4 to 1 turn (or in accordance with the marking on the filter).

6 Bleed the fuel system.

7 Start the engine.

8 Check that the filter is not leaking.

> **NOTE**
>
> The new filter must be empty when it is mounted. Under no conditions may it filled with fuel before mounting.

Priming

Bleed the fuel system:

- If the fuel tank has been run dry.
- After filter replacement.
- After work in the fuel system.

During bleeding, fuel and any air are pumped back into the tank. No receptacle is required for spills.

Driver Information Display

Maintenance
↳ Fuel priming

Bleeding

1 Switch off the engine.

2 Apply the parking brake.

3 Turn the starter key to "Accessory" position.

4 Activate bleeding via the driver information display. Use the "Maintenance" and "Fuel priming" menus.

5 The display confirms when bleeding is finished.

6 Start the engine and run it at idle. If the engine is difficult to start, repeat the bleeding.

7 Check for any leakage.

8 Check that the engine runs evenly.

Symbol for fuel priming

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Recommendations

Bleeding requires that the parking brake is applied. If bleeding is started without the parking brake applied then "Fuel priming not possible" is shown in the driver information display. If the parking brake is applied but the message is still shown then there is a fault in the system. Contact an authorised Volvo workshop.

NOTE
Never prime the system using the starter motor.

Water separator

Driver Information Display

Maintenance
↳ Water draining

When the water separator needs to be emptied this is indicated in the driver information display with the "Water in fuel filter" symbol. Draining is activated in the display. The water may contain small amounts of diesel and must be drained where it does not harm the environment.

Recommendations

- The engine must be switched off and the starter key at least in the "Accessory" position.
- Parking brake applied.

If "Water draining not possible" is shown in the driver information display when the conditions are fulfilled then there is a fault in the system. Contact an authorised Volvo workshop.

Symbol for water in fuel

Fuel tank

Filter for fuel tank ventilation

The filter arises in certain markets and must be replaced every 24 months. Under certain conditions the filter needs to be replaced more often, e.g. when driving in dusty environments.

Drain the fuel tank of any sludge and condensation water annually. This reduces the risk of water entering the engine and causing malfunctions.

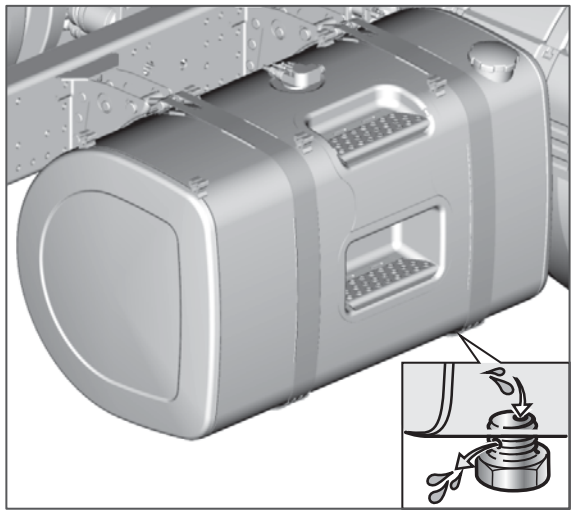
1 Position a receptacle under the fuel tank's drain plug.

2 Untighten the plug and screw it out several turns until the sediment with sludge and condensation water starts to flow out of the plug's weep hole. Do not unscrew the plug completely, because the fuel tank would then be drained completely.

3 Let it drain until clean fuel comes out.

4 Screw in the bottom plug.

5 Empty the receptacle where it will not harm the environment.



AdBlue tank cleaning

Cleaning the AdBlue tank may be necessary if it has been mistakenly filled with diesel or a fluid other than AdBlue. Rinse with water, and use household cleaning agent if that does not help. Rinse thoroughly with water so that no traces of
cleaning agent remain as this may damage the catalytic converter.

FUEL SYSTEM

1 Position a receptacle under the AdBlue tank's drain plug.

2 Untighten the plug and screw it out several turns until a flow emerges from the tank's weep hole.

3 Let it run until the tank is empty.

4 Flush the tank clean with water. Make sure that all the water is drained out completely before continuing.

5 Screw back the plug.

6 Empty the receptacle where it will not harm the environment.

ⓘ NOTE
After emptying the tank, it must be filled with a minimum of 5 litres of new AdBlue.

ⓘ NOTE
AdBlue spillage must not be allowed to enter the normal drainage system.

Check the drive belts (Multi-V)

Check the engine's drive belts. Replace a belt if any pieces of the belt's grooved lathes have broken off.

The fan belt has an automatic belt tensioner, which reduces the risk of slipping and increases the service life. The drive belt for the alternator/ compressor (air conditioning) has no automatic belt tensioner and the drive belt's tension must therefore be checked. Contact an authorised Volvo workshop.

Working on the electrical system

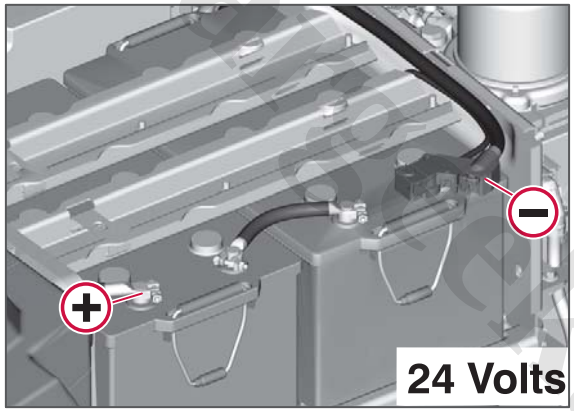
There are a number of jobs on the truck's electrical system which you may need to do yourself, such as changing fuses.

The following points must be observed when working on the electrical system:

- When fitting batteries, make sure they are correctly connected.
- Never operate the alternator with the battery disconnected. The batteries and alternator must not be disconnected while the engine is running.
- The negative terminal on the battery should always be disconnected first, and connected last, e.g. when replacing a battery. This will reduce the risk of short circuits and sparks, which could be dangerous due to oxyhydrogen gas.
- Booster batteries must be correctly connected in order to prevent damage to the rectifiers in the alternator , see Emergency starting page 298.
- When charging the batteries at least one of the battery cables (negative or positive) must be disconnected. However, always charge through the battery sensor, if one is fitted on the negative terminal.
- When working on the truck's electrical system, the batteries must be isolated by disconnecting the negative terminal.
- The parking brake cannot be operated when the batteries are disconnected.

NOTE

The electrical system must be in function mode "Parked" if the batteries shall be disconnected, see Main switch page 115.



CAUTION

Start aid units must not be connected, as these can produce very high voltage levels, which in turn can damage control units.

Instructions for electrical welding

These instructions generally apply to all types of electric welding work on the truck.

Welding must be performed very precisely in order to obtain a proper joint. Caution must be exercised in order to avoid injuries and accidents.

When carrying out the welding, it is important that the following measures are taken in order to avoid personal injuries or damage to the truck:

- To thoroughly prepare the welding point. Heat-sensitive components, e.g. lines (electricity and air), must be protected or removed.
- The surfaces to be welded, as well as the location for the welding appliance's frame ground connection, must be clean. Paint, corrosion, oil, grease, dirt, etc. must be removed.
- The welding appliance's frame ground connection must, without exception, be connected to the part to be welded, and as close to the welding point as possible. The connection clamp must also have good contact with the material to be welded in order to prevent damage to electrical components. If two parts shall be welded together with each

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other then both of the parts must be connected to the welding appliance's frame ground connection.

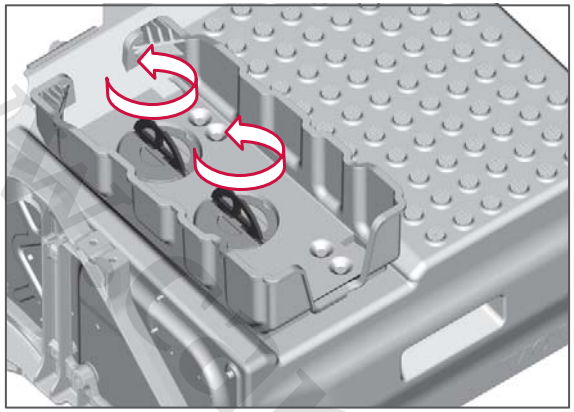
- Ensure that the outer casings for electrical components (e.g. control units) do not come into contact with the welding electrode or the welding appliance's frame ground connection.
- Direct current shall be primarily used for welding.
- When carrying out welding in a cab, the airbag must be disconnected in order to avoid the risk of personal injury.

After completed welding: paint the welding point.

Batteries

Battery box

The battery box cover is opened using the two knobs.



Battery cover knob.

Battery attachment

When replacing batteries it is important to refit the retainers for the batteries with the correct tightening torque.

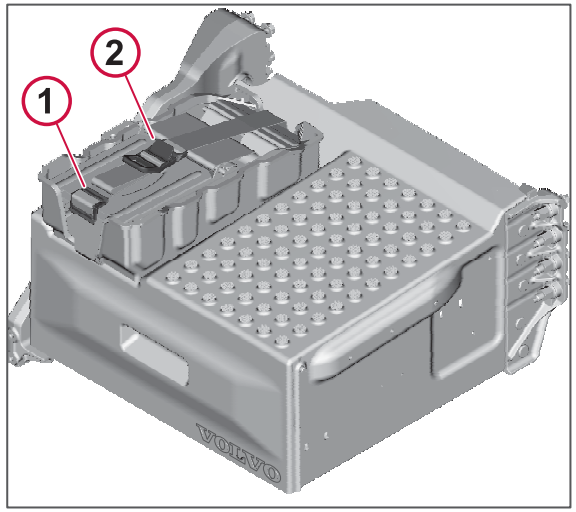
Tighten the nuts to 16 Nm.

Chocks

The chocks are fitted on top of the battery box and need to be lifted away in order to access the battery.

The chocks must be aligned with the pointed side in against the chassis when not in use.

The angled belt protector (1) must be aligned above the edge of the chocks and the handle (2) should be pointing outwards in accordance with the figure.



Fitting the chocks.

⚠ CAUTION

The belt may be damaged by incorrect installation.

Battery monitoring

The battery is monitored by a system that continuously measures battery condition. Two properties are monitored.

- Charge level
- The battery's state of health, i.e. its capacity to receive charge and supply power.

The charge level is increased by means of operating the alternator or trickle charging.

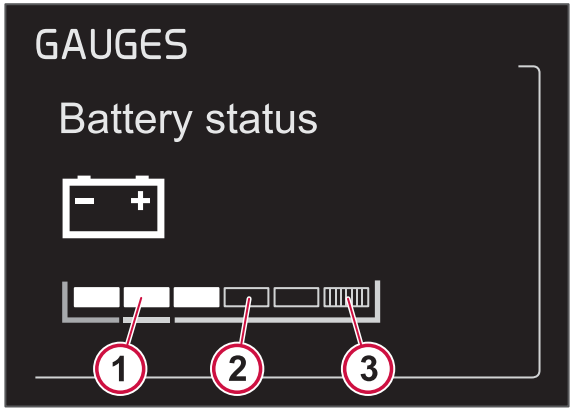
The battery's state of health deteriorates with age and due to incorrect loading. When the capacity for being charged and supplying output has deteriorated the damage is largely permanent. To maintain a good state of health and long service life the battery must be trickle-charged regularly. Avoid deep discharges.

There is a gauge in the driver information display that shows battery status.

1 Existing charge level.

2 Chargeable capacity.

3 Capacity that is damaged and cannot be used for charging.



Battery state of health and charge level.

Charging monitoring

The system constantly adjusts the charging voltage, in order to obtain the most effective charging while protecting the battery. The charging voltage therefore varies.

Messages in the display

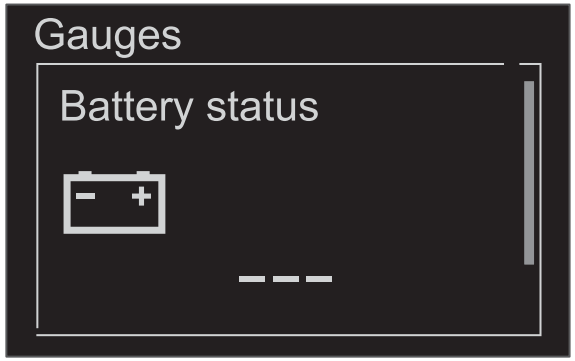
The driver information display shows messages when battery status is low. For example, the following text may be shown: "LIMIT CONSUMPTION DURING LONG STOPS". Follow the instructions to avoid problems with discharged batteries and any starting problems.

Replacing the batteries

Measuring the battery's condition requires extensive testing during the development of the system in order to provide reliable values. The battery sensor must be calibrated when replacing batteries. Volvo's batteries should be used in order to maintain high measurement accuracy. Contact an authorised Volvo workshop. When replacing batteries, the electrical system must be in the "Parked" mode , see Power supply page 114.

Battery status

Status measuring may fail in the event of high load because the batteries never reach full charge. This does not necessarily mean there is a fault. It can be rectified by fully recharging the batteries with trickle charging.



Unsuccessful measuring

Trickle charging

Many truck systems load the batteries. Many systems also have to work when the engine is switched off, such as refrigerator, lighting, transport management system and bodywork.

The alternator can never charge the battery to 100%, in favourable conditions a max level of 90% can be achieved.

In order to maintain long service life the batteries must be trickle charged at least every three weeks, even if they seem fully charged.

For systems with a high load on the battery with the engine switched off, such as a platform lift, daily trickle charging is recommended.

Example: a refrigerator can consume 1A per hour, which results in approx. 60 Ah

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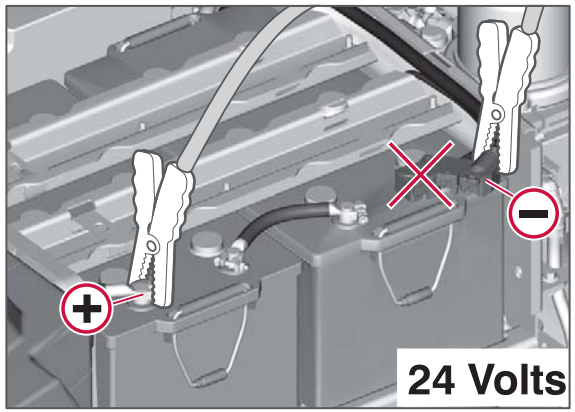
consumption over a weekend. In other words, the working week starts with partly discharged batteries.

> **NOTE**
>
> Trickle charge the batteries at least every three weeks in order to maintain long service life.

Connecting the charging cables



Always connect the negative cable so that all voltage flows through the battery sensor.

> **WARNING**
>
> Batteries contain oxyhydrogen gas which is very explosive. A spark, which can ignite if you connect the starting cables incorrectly, or if they are moved around during the starting procedure, is sufficient for the battery to explode and cause serious damage and injury. Batteries contain sulphuric acid which can give serious burns. If the acid gets in your eyes, skin or clothes, rinse with large amounts of water. If the acid gets in your eyes, get medical attention at once. Do not lean over the batteries.

State of charge

In order to charge the battery in an optimal way it is useful to know how discharged the battery is before charging it. The ambient temperature has an effect in both the charge susceptibility and capacity: it is only at +25ºC that the battery provides 100% of its capacity. The battery cannot be charged particularly well below 0ºC, see table.

Temperature	-18°C	0°C	+25°C
Capacity 20 h (Ah)	50%	85 %	100%
Chargeability (A)	6%	25 %	100%

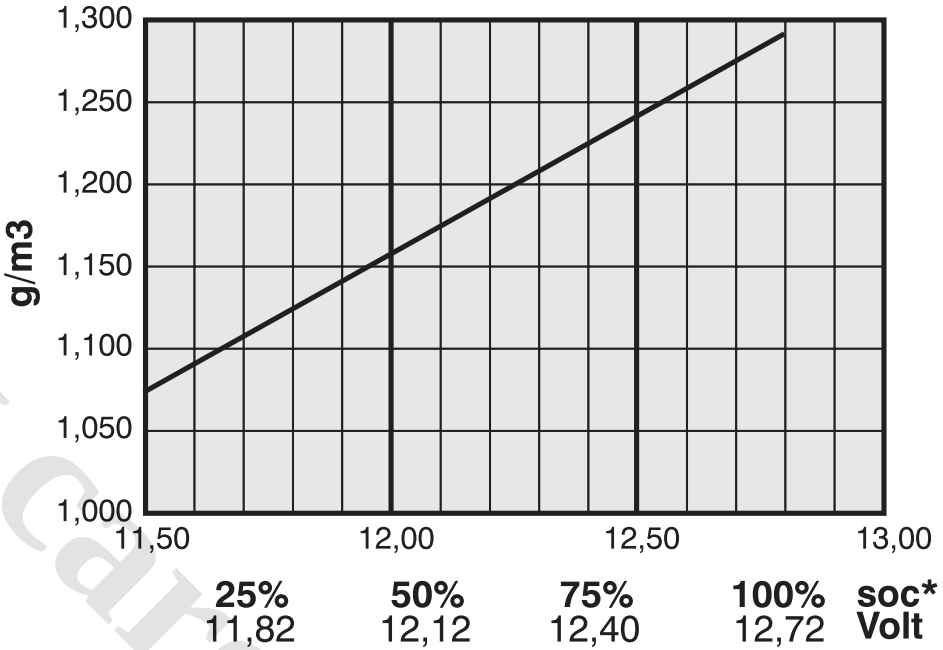
> **NOTE**
>
> At low temperatures the gauge for battery status may show that the battery is not fully charged even though it is. This is an effect of the temperature and does not mean that there is anything wrong with the battery.

ELECTRICAL SYSTEM

The easiest way to check the charging is to use a voltmeter, but a hydrometer (acid gravity meter), together with a voltmeter, gives a more accurate result. The graph shows standby voltage and state of charge compared to the acid's density.

* State of Charge (Charge status)

> ⓘ NOTE
>
> Always check the battery using a Volvo battery analyzer before and after charging.



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The vehicle's batteries are maintenance-free. They are sealed and the electrolyte cannot be refilled without the batteries being damaged.

Connection of electrical accessories

- Always use the prescribed fuse size and correct cable area. Dimension continuous load on the fuses to a maximum of 70% of their rated current.
- The voltage must always be switched off when working on the electrical system on the truck.
- Always use Volvo original connectors (terminals, insulators, fuses, etc.)

⚠ CAUTION
Fire risk if fuses are too large.

Cigarette lighter as power outlet

The cigarette lighter socket is designed to heat the cigarette lighter and is dimensioned for loads up to approx. **4 A.** It is strongly recommended not to use the socket as a power outlet. Your authorised Volvo workshop can provide information about the connection of different types of power outlet.

12 V power outlet

The power outlet beside the cigarette lighter may be loaded to max. **7 A.**

Connection of prepared equipment

Use the pre-assembled cable harnesses for connecting phone chargers and coffee maker, for example. Contact an authorised Volvo workshop if you are unsure.

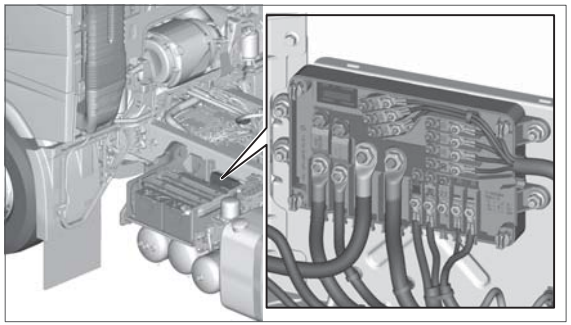
Connecting equipment that is not prepared

Equipment that is not prepared means equipment for which cable harnesses are not pre-assembled and delivered with the truck. For connection, contact an authorised Volvo workshop.

Fuses and relays

Main fuses

The main fuses are located in a main fuse box inside the battery box on the frame. Normally the fuses last for the whole of the truck's service life without blowing. If a fuse does blow then the truck should be taken to an authorised Volvo workshop for inspection of the electrical system.



Fusible links are screwed into the fuse box with spring washer and nut. It is important that the nuts are tightened to the correct tightening torque, see table. Too little tightening torque can cause heat development. Too much tightening torque causes deformation and cracking.

Dimensions	Tightening torques
M5	4.5 Nm ±5%
M8	20.0 Nm ±5%
M10	40.0 Nm ±5%

⚠ WARNING

Use the correct tightening torque. Do not forget the spring washers.

⚠ WARNING

Always use the fuse size specified. Never overfuse.

No.	Function	Current strength
1	Bodybuilder fuse	200 A
2	FRC Driver's cab, fuse and relay centre	100 A
3	FCIOM front chassis control unit	30 A
4	CCIOM centre chassis control unit	30 A
5	RCIOM rear chassis control unit	30 A
6	FCIOM front chassis control unit	30 A
7	CCIOM centre chassis control unit	30 A
8	RCIOM rear chassis control unit	30 A
9	FAS front axle steering	30 A
10	PCCUparking cooler	40 A
11	ACM aftertreatment control unit	23 A

Blade fuses and relays

The truck's fuses and relays are located under the cover in the centre of the instrument panel and in front of the passenger bench.

(1) Fuse and relay centre.

(2) Relay and fuses for the bodywork.

There are decals under the cover which show the location of fuses and relays and what they are used for.

The vehicle's normal exterior lighting is controlled by control units. These include control functions for each respective lighting circuit. Several fusible links are no longer available for these functions. Should a circuit be broken, due to overload or short circuit for example, then you will be notified via a message in the instrument. The function is reset when the fault has been remedied.

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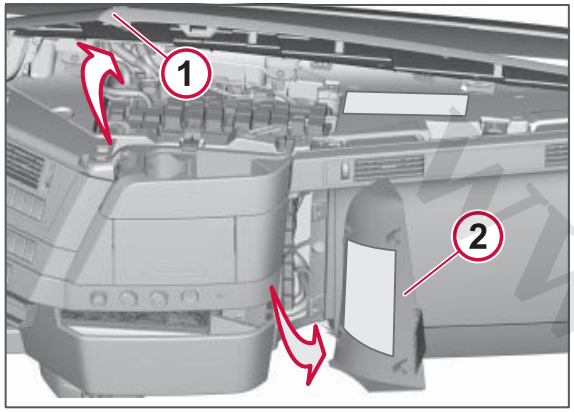

1. The cover is attached with clips and is opened by grasping the rear edge and pulling upwards.
2. The cover is attached with clips and is pulled loose.

Central fuse unit

Fusible links in the fuse & relay centre consist of two different types of blade fuses. If fuses must be changed frequently in the same fuse position then you should engage an authorised Volvo workshop to check the electrical system in the truck.

⚠ WARNING

Always use the fuse size specified. Never overfuse.

ⓘ NOTE

Set the electrical system in the "Parked" function mode and, if possible, close the circuit in question before changing the fuse. The fuse holder can be burned apart if the voltage remains switched on.

Blade fuses

No.	Function	Current strength
F 1	12V power outlet	10 A
F 2	-	
F 3	TV/DVD	10 A
F 4	-	15 A
F 5	-	15 A
F 6	Bodybuilder fuse, switch	5 A
F 7	Bodybuilder fuse	30 A
F 8	Bodybuilder fuse	20 A
F 9	-	
F10	-	15 A
F11	Auxiliary lamp on the roof	15 A
F12	Rotating beacon on the roof	15 A
F13	Heated seats / Alcolock	15 A
F14	-	
F15	Light plate on roof / Parking lights	10 A
F16	Full illumination in light plate on roof	10 A
F17	-	
F18	HMI control unit, driver interface	3 A
F19	BBM control unit, bodybuilder fuse	15 A
F20	PDM control unit, window lift passenger side	20 A
F21	SID control unit, secondary display	3 A
F22	Sun visor, left and right-hand sides	5 A
F23	TACHO control unit, tachograph	3 A
F24	Instrument cluster	3 A
F25	Toll system	3 A
F26	-	
F27	VMCU vehicle control unit	10 A
F28	VMCU vehicle control unit	20 A
F29	Heated rear view mirror, right	10 A
F30	Heated rear view mirror, left	10 A
F31	DACU control unit, driver assistance	5 A

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ELECTRICAL SYSTEM

No.	Function	Current strength
F32	APM control unit, air drier	10 A
F33	Work Remote Control, charger	3 A
F34	Security lock, service cover	5 A
F35	-	
F36	-	
F37	ABS/EBS brake control unit	20 A
F38	CCM climate control unit	20 A
F39	Fuel line heater	20 A
F40	Tachograph ignition	3 A
F41	EMS engine control unit	15 A
F42	Engine control unit checked load	15 A
F43	Fuel filter heater	10 A
F44	Engine control unit checked load	10 A
F45	Cab tilt pump	30 A
F46	ABS/EBS trailer	20 A
F47	-	
F48	-	
F49	Power outlet, bodybuilder fuse	50 A
F50	Coffee maker	30 A
F51	Windscreen wiper motor	20 A
F52	Sun hatch motor	10 A
F53	Video switch	5 A
F54	-	
F55	Alarm	3 A
F56	-	10 A
F57	Lighting in driver's cab	10 A
F58	Amplifier	20 A
F59	Voltage converter	15 A
F60	Voltage converter	15 A
F61	DDM control unit, window lift driver's side	20 A
F62	OBD data link connector	5 A
F63	CIOM control unit, driver's cab	10 A
F64	24V power outlet	15 A
F65	24V power outlet	15 A
F66	Dynafleet/Telematic	3 A
F67	Cigarette lighter	15 A
F68	VMCU vehicle control unit	15 A
F69	Parking heater	15 A
F70	TECU	20 A
F71	Headlamp washer	15 A
F72	-	
F73	Bodybuilder fuse active in drive mode	30 A
F74	Bodybuilder fuse active in drive mode	20 A
F75	Refrigerator	10 A
F76	-	15 A
F77	-	
F78	-	
F79	-	
F80	LECM rear control panel	3 A
F81	SRS airbag	5 A
F82	-	
F83	-	
F84	-	
F85	FMS power supply, driving	3 A
F86	-	
F87	-	
F88	Alcolock	5 A
F89	-	
F90	Electrically adjustable seat	15 A
F91	FMS contact power supply	10 A

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Relays

No.	Function	Relay type
K01	-	ISO micro 10 A
K02	Refrigerator	ISO micro 10 A
K03	Sun hatch motor 2	ISO mini 20 A
K04	Sun hatch motor 1	ISO mini 20 A
K05	Windscreen wiper motor On/Off	ISO mini 20 A
K06	Windscreen wiper motor low/high speed	ISO mini 20 A
K07	Bodywork, fuses	ISO power 40 A
K08	Accessories	ISO power 40 A
K09	Heated seats, Alcolock	ISO micro 10 A
K10	Auxiliary lamp on the roof	ISO mini 20 A
K11	Power supply amplifier, voltage converter, cab lighting	ISO power 40 A
K12	Light plate on roof	ISO micro 10 A
K13	Rotating beacon on the roof	ISO mini 20 A
K14	Power supply 24 V socket, cigarette lighter, alcolock	ISO power 40 A
K15	Full illumination in light plate on roof	ISO micro 10 A
K16	Headlamp washer	ISO mini 20 A
K17	TECU	ISO mini 20 A
K18	-	ISO micro 10 A
K19	-	ISO mini 20 A
K20	Ignition	ISO power 40 A
K21	Electrically heated mirrors	ISO micro 10 A
K22	Bodybuilder fuse, active in drive mode	ISO mini 20 A
K23	-	ISO power 40 A
K24	Electrically adjustable seat	ISO micro 10 A
K25	-	ISO micro 10 A
K26	-	ISO micro 10 A
K27	EMS engine control unit	ISO power 40 A
K28	Cab tilt pump	ISO power 40 A

LUBRICANT

Lubricant

The lubrication service is very important when it comes to service and maintenance on trucks. Components such as engine, gearbox, rear axles, etc. must be lubricated, and they are normally lubricated with oil or grease. Below is important information about oils and lubricating greases. Contact an authorised Volvo workshop for more information about Volvo's full range of lubricants.

Oils

For parts that are lubricated with oil, the **grade, viscosity and service intervals** are very important. The oil to use for a particular component is determined by the oil's **grade and viscosity**. This information is available on the reservoir and/or the oil's product data sheets. When specific part numbers are recommended, these parts always contain the correct grade and viscosity for the purpose.

Synthetic oil

It is becoming increasingly common for lubricating systems to be based on synthetic oil. The raw material for these oils is the same as for mineral-based oil, crude oil, but the manufacturing processes are different. Normally, synthetic oil has better temperature stability and better low-temperature properties, but the friction characteristics can cause synchronisation faults, and synthetic oil can also adversely affect the sealing material. For this reason, it is important to use an approved synthetic oil.

The fact that an oil is synthetic does not necessarily mean that it is better than mineral oil. However, this is a common misconception, as is that the oil change interval can be extended. The service intervals that Volvo recommends apply regardless of whether mineral oil or synthetic oil is used.

Grade

There are many different grade denominations for the different oil types.

Viscosity

Viscosity is a very important property of the oil. It is a measure of oil's fluidity which, amongst other things, affects the oil film's thickness and fuel consumption. Ambient temperature, where the truck operates, affects the viscosity that is recommended. There are two systems known as SAE viscosity grade classifications, which divide the oils into viscosity grades (such as SAE 10W, SAE 80W-90 etc.) Engine oils belong to one system and transmission oils the other. For this reason you must always know in which system the viscosity grade is specified. For example, engine oil with viscosity grade SAE 40 has approximately the same viscosity as a transmission oil with viscosity grade SAE 90. However, in both systems a higher figure means higher viscosity.

Grease

For components that are lubricated with grease the **grease type** and **service interval** are very important. The type of grease to use for a particular component is specified under each respective component. Information about the grease is available on the container and/or on the product information sheet. In some cases, the use of grease with a special Volvo part number is recommended. If this grease is used then the correct grease type is obtained automatically.

Grease type

The type of grease is determined by a number of different properties, for example:

- Type of thickener, such as lithium, lithium complex, polymeric or clay.
- Grease consistency, indicated by the NLGI grade.
- Presence of EP additives.

- Presence of solid lubricants such as graphite, copper or molybdenum sulphide.

Service interval

When it has been decided which oil and which grease should be used (when the quality, viscosity and grease type are known), the recommended service interval is established. Contact an authorised Volvo workshop in order to obtain a service schedule for your particular truck. The service schedule optimises the measures to reduce the number of service stoppages.

Engine

Oil recommendations

Low-emission engines place great demands on the engine oil. In order to achieve a long service life with maintained low emissions and low fuel and oil consumption, it is necessary to use engine oil of a higher grade than that normally used for older engine generations.

Volvo has developed the earlier VDS-3 requirements specification, and has adapted it for Euro 5 engines. This new specification is called Volvo Drain Specification-4 (VDS-4). VDS-4 oils have better temperature and oxidation stability and provide better wear protection than VDS-3 oils. VDS-4 oils are also better suited to engines with advanced aftertreatment systems such as SCR and/or particulate filter (DPF).

VDS-4 also covers the same viscosity classes as VDS-3, i.e. 5W-30, 5W-40, 10W-30, 10W-40, 15W-30and 15W-40. VDS-3 oils can also be used in Euro 5 engines but with shorter oil change intervals.

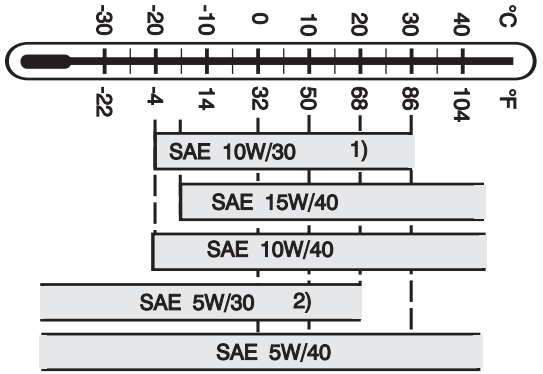
Oil grade

VDS-3or VDS-4 must be used.

NOTE

Extra oil additives must not be used, including engine and metal treatments that are added via the engine oil.

Viscosity



Viscosity is selected in accordance with the table. The temperature values refer to constant air temperature.

1 Only VDS-4 approved oils may be used in temperatures above +30°C

2 VDS-3-and VDS-4 approved oils of viscosity grade 5W/30 can be used up to +30°C.

NOTE

When using 10W/30, fuel consumption can be lower than when 15W/40 is used. Be aware, however, of the temperature interval recommended for 10W/30.

LUBRICANT

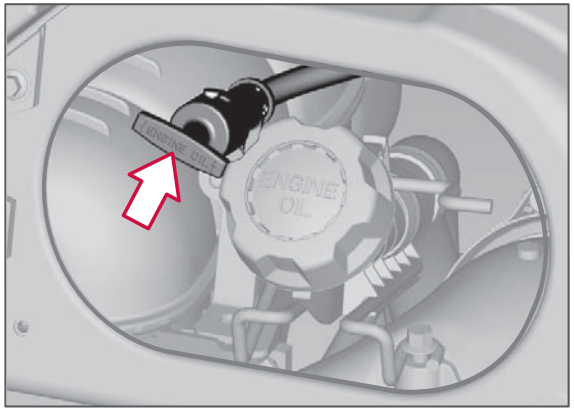
Engine oil level (under service cover)

The engine oil level is checked automatically at start-up. In the event of an alarm for low oil level the dipstick is used to assess the quantity that needs to be refilled. Check the oil level when the truck is level and the engine has been switched off for at least 30 minutes.

Twist the dipstick out from its bayonet mounting and pull it out. Make sure that the dipstick is locked properly after checking.

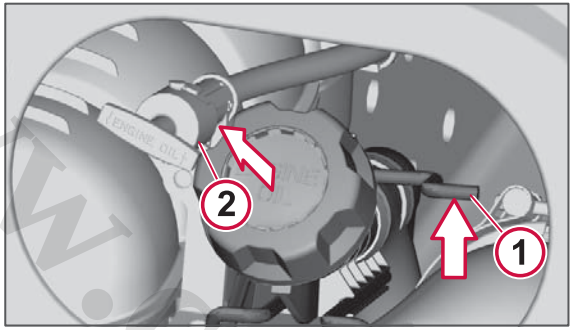
The distance between markings on the dipstick corresponds to 6-8 litres of oil depending on version.

Add oil if the level approaches the lower marking. Do not overfill!



The oil level can also be checked on the driver information display.

> **NOTE**
>
> The level must **never** fall below the lower marking!



The filler tube can be pulled out for filling. Pull the inhibitor "1" up and pull out the filler tube "2".

Remember to push back the tube after filling.

> **NOTE**
>
> Oil flowing out can damage the engine and non-oil-resistant parts.

Gearbox

Oil grade

The following oils must be used in the gearbox.

1 Transmission oils: Volvo transmission oils 97305, 97307 or 97315.

2 Engine oils: API CE or CF; ACEA E2 or E3.

> **NOTE**
>
> Oils of the type API GL-5 must **not** be used. Oils of the type GL-4 may only be used if they also fulfil the requirements for Volvo's transmission oils 97307 or 97315.

> **NOTE**
>
> Only mono-grade oils.

> **NOTE**
>
> Oil grade choice affects the service interval.

Viscosity

Viscosity is selected in accordance with the diagram.

Temperatures refer to constant ambient temperatures.

High temperatures are often generated in the gearbox oil in trucks with very

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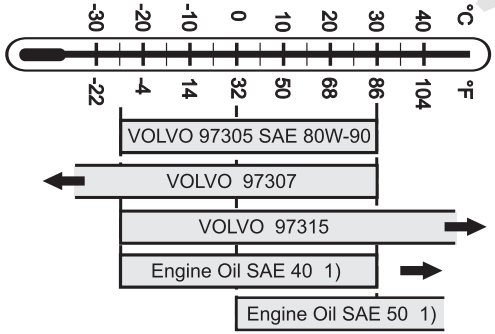
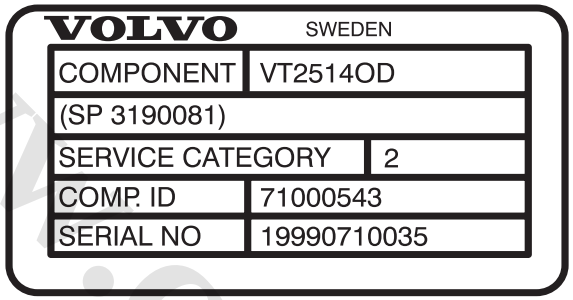
heavy transport assignments. For this reason, these are equipped with a larger gearbox oil cooler. To further ensure function an oil of high viscosity must be used. For this reason, always use SAE 50 engine oil or Volvo Transmission Oil 97315 if the truck is equipped with gearbox oil cooler TC-MAOH2.



1) Applies to engine oils: note that multigrade oils MUST NOT be used in manual gearboxes. Only use mono-grade engine oil SAE 40 or SAE 50.

> **NOTE**
>
> If the temperature is below –25ºC, use Volvo Transmission oil 97307.
> If the truck is equipped with gearbox oil cooler TC-MWO or TC-RWO, then SAE 40 engine oil, Volvo Transmission Oil 97305 SAE 80W-90 or Volvo Transmission Oil 97307 can used, even if the outside temperature exceeds +30 °C.

For several reasons, these gearboxes cannot have the same service recommendations. They have therefore been divided into different service categories, the digit or letter for which is located on the marking plate on the gearbox. The categories are 1, 2, 3 and 4.



Type plate on gearbox

Filling with oil

When the oil level in the gearbox is too low it must be refilled.
The following oil grades must be used per service category:

Service category	Oil type
1	Fill with one of the approved oil types.
2	Fill with transmission oil 97307 or 97315 (not mineral oil).
3	Only fill with transmission oil 97315 or engine oil SAE 50.
4	Only fill with transmission oil 97315 (not mineral oil).

Checking/filling with oil

1. Remove the sound baffle, if fitted, from underneath the gearbox.
2. Check that the oil level is between the centre and the maximum level on the transparent level plug in the gearbox (A) (max and min oil level, see figure).
3. Top up with oil as necessary, but first clean round the filler plug (B).
4. Unscrew the filler plug (B).
5. Fill with new oil until the oil level is between the centre and the maximum level on the transparent level plug (A) (max and min oil level, see figure).
6. Apply thread sealant to the filler plug's (B) threads and screw in the plug.
7. Refit any sound baffles under the gearbox.

> **NOTE**
>
> Do not undo the transparent level plug.

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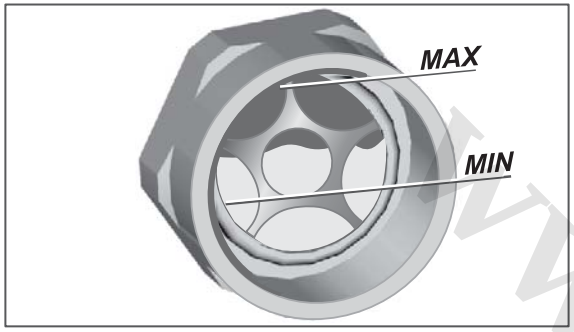
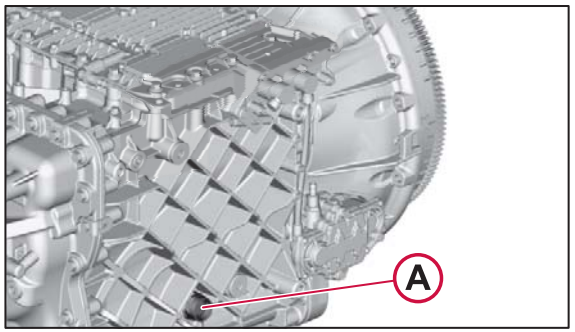


Level sight glass for transmission oil.



A level sight glass, B filler plug.

Compact retarder

Checking the oil level

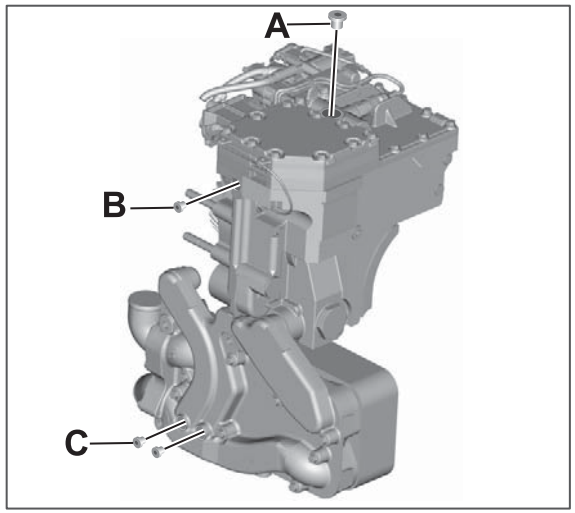
The oil level in the retarder normally only needs to be checked when there is a problem with the retarder, such as low braking torque, oil leakage or in certain cases when an oil change has been done on the retarder. To ensure the correct oil level in the retarder, it is most suitable to perform the oil level check after driving, when the oil is hot. The vehicle must be standing horizontally.

⚠ WARNING

The retarder must be disengaged when you check the oil level. Hot oil can otherwise be forced out from the retarder and cause burns. Use protective gloves.

ⓘ NOTE

It is important for retarder function that the oil level is correct.



Compact retarder

1 Clean around the drain plugs (C), the oil filler plug (A) and the ventilation plug (B).

2 Position a suitable vessel under the retarder to collect the oil.

3 Remove the drain plugs, the oil filler plug and the ventilation plug, and let the oil drain out of the retarder.

4 Check the sealing rings on the drain plugs. If they are damaged the plug must be replaced. Refit the drain plugs and tighten them to 16 Nm.

5 Measure the volume of the collected oil. If necessary, correct the volume of oil,
or refill the retarder with new oil measured at the correct volume. For

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the correct oil change volume, see Oil change volumes. For the correct oil grade, see Oil grade.

6 Add oil through the filler hole. Filling time should be at least 3 minutes so the retarder system has time to be bled through the ventilation duct.

7 Check the sealing ring on the oil filler plug. If it is damaged the plug must be replaced. Refit the oil filler plug and tighten it to 50 Nm.

8 Check the sealing ring on the ventilation plug. If it is damaged it must be replaced. Refit the ventilation plug and tighten it to 13 Nm.

9 After filling the oil, drive for approx. 50 km/h. Apply the retarder five times in position 2 for approx. five seconds each time. This is most suitably done in connection with test driving.

Oil change volumes

Volvo name	Voith name	Service filling	Heat exchanger, completely drained from oil
RET-TH VR3250	VR 3250	5.4l	5.9ll

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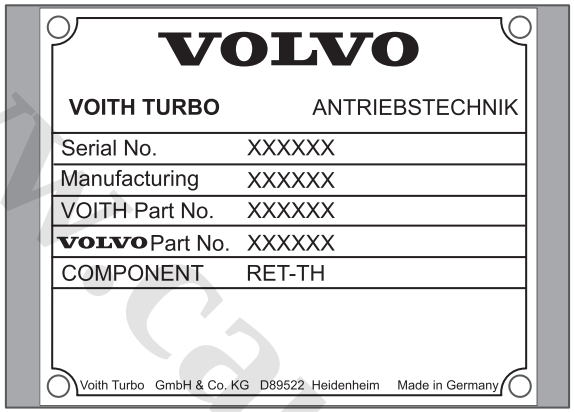
Retarder type must be known in order to perform service correctly. The information can be obtained by reading the retarder's marking plate, see the figure.



NOTE

The name of the retarder is not marked on the type plate in some cases. In such cases the retarder is of type RET-TH.

Grade

For approved oils, see Voith's website: http://voith.com/en/products-services/power-transmission/retarders-trucks-10263.html

Viscosity

For approved oils, see Voith's website: http://voith.com/en/products-services/power-transmission/retarders-trucks-10263.html

Rear axle

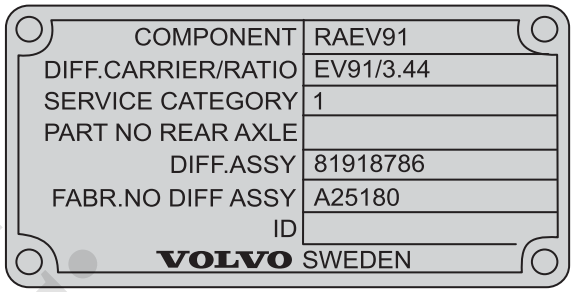
Oil recommendations

On trucks with single gear, the oil is filled up to the edge of the level hole.

On trucks with hub reduction, the hub is first filled with oil in accordance with the table above. The differential is then filled with oil up to the edge of the level hole.

For several reasons, not all rear axles have the same service recommendations. They have therefore been divided into different service categories.

The service category number is presented on the marking plate on the rear axle. The categories are 1 and 2.



Type plate rear axle.

Oil grade

1 SAE J 2360 or APL GL-5

2 Volvo Transmission oil 97312

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Service intervals

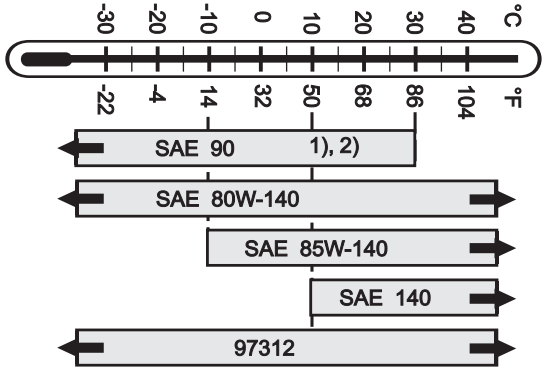
The intervals for the rear axle oil vary greatly depending on how the truck is equipped, what it is used for, the nature of the terrain where it is driven, oil grade, vehicle combination gross weight, etc. Contact a Volvo workshop in order to obtain a service schedule for your particular truck.

NOTE
Selection of oil grade affects the service interval, see the table.

Viscosity

Viscosity is selected in accordance with the diagram.

Temperatures refer to constant ambient temperatures.



1) When driving in severe conditions or frequently driving in hilly road conditions, SAE 80W-140, SAE 85W-140 or SAE 140 are recommended
2) SAE 90 must not be used in rear axle RAN281

NOTE
SAE 80W/90 must not be used.

Filling with oil

When the oil level in the rear axle is too low it must be refilled.
The following oil grades must be used per service category:

Service category	Oil type
1	Fill with one of the approved oil types.
2	Only fill with transmission oil 97312 (not mineral oil).

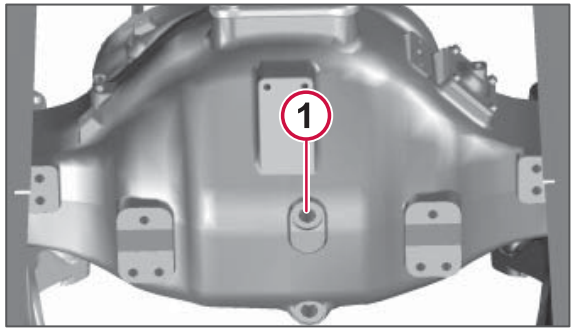
Check the oil level

If there is oil leakage from the rear axle and/or hub reduction, or if you are unsure regarding the rear axle's oil level, check in accordance with the following:

A bogie must be lowered, if appropriate.

1 Clean around the level/filler plug (1).
2 Remove the level/filler plug (1) and check that the oil level reaches up to the edge of the filler hole.
3 Top up with oil as required.
4 Fit the level/filler plug (1).

If the filler plug has a sealing washer then the sealing washer must be replaced.

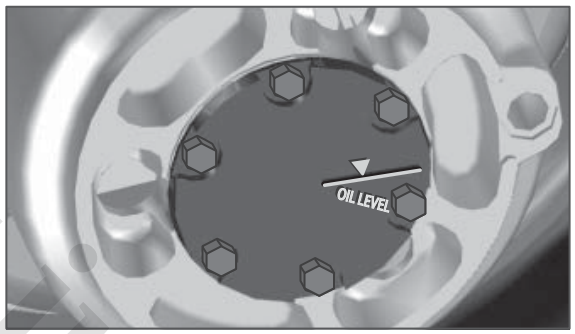


1 Level/filler plug
2 Drain plug

Hub reduction

Level checking

The level is checked with the level line horizontally. Fill with the same oil grade as in the rear axle.



Level plug, hub reduction.

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Power steering

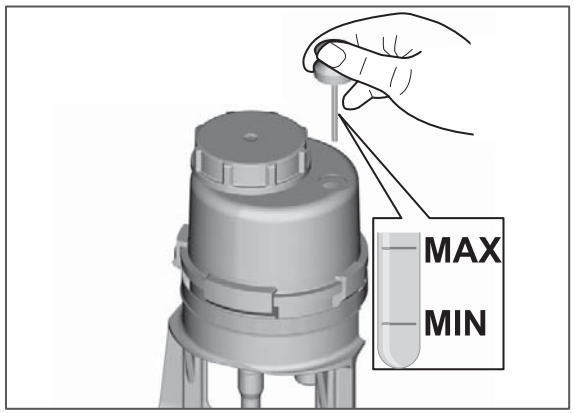
Check the oil level, front axle

1 Clean around the cap and oil dipstick.

2 Check the oil level. With the engine switched off, the level must be at the max marking on the oil dipstick.

3 Top up with oil as required.

Some vehicles with dual-circuit steering systems have double oil reservoirs for the power steering.

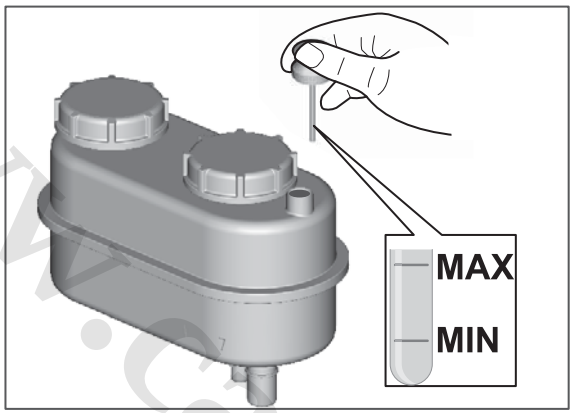


Check the oil level, trailing axles

1 Clean around the cap and oil dipstick.

2 Disassemble the coupling piece for the electric cable to the oil dipstick. Check the oil level. With the engine switched off, the level must be at the max marking on the oil dipstick.

3 Top up with oil as required.



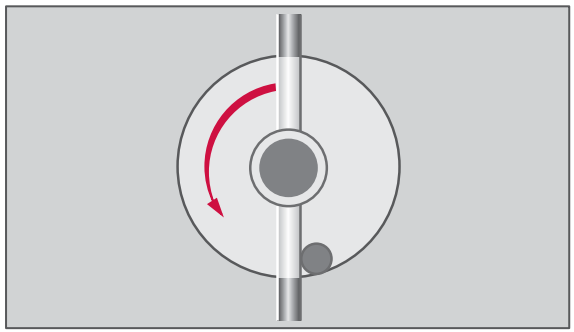
Oil recommendations

Oil grade
ATF oil, type Dexron III

Pump for cab tilt

Bleeding the hydraulic system

1 Set the control valve to position "down".



2 Pump the hydraulic pump 30 times.

3 Reset the valve and pump up the cab.

4 Reset the valve and pump down the cab.

5 Check the oil level.

Checking the oil level

Check the oil level with the cab in the driving position.

The oil and filter only need to be changed in connection with repairs.

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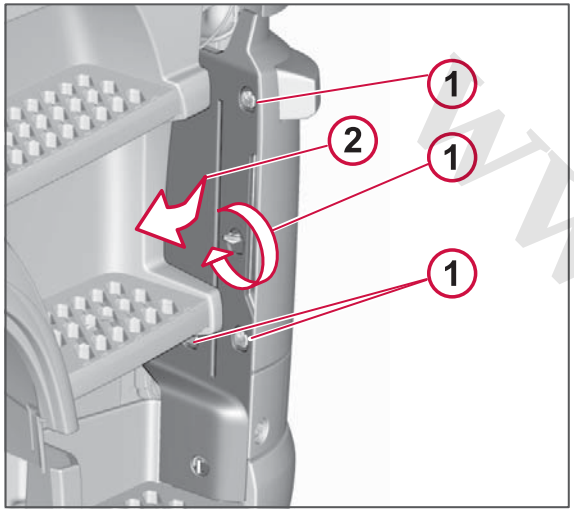
LUBRICANT

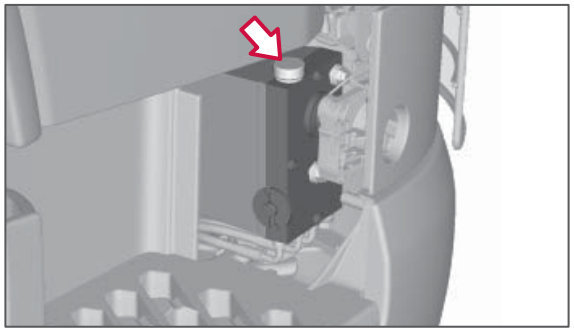
1 Remove the cover by the pump.



2 Set the pump lever into its rearmost position.

3 Look down into the oil filler, the oil must cover the piston.

Top up as required.



4 Close the filler plug.

Fit the cover.

> **NOTE**
>
> Never fill oil into the hydraulic system when the cab is tilted.

Oil recommendations

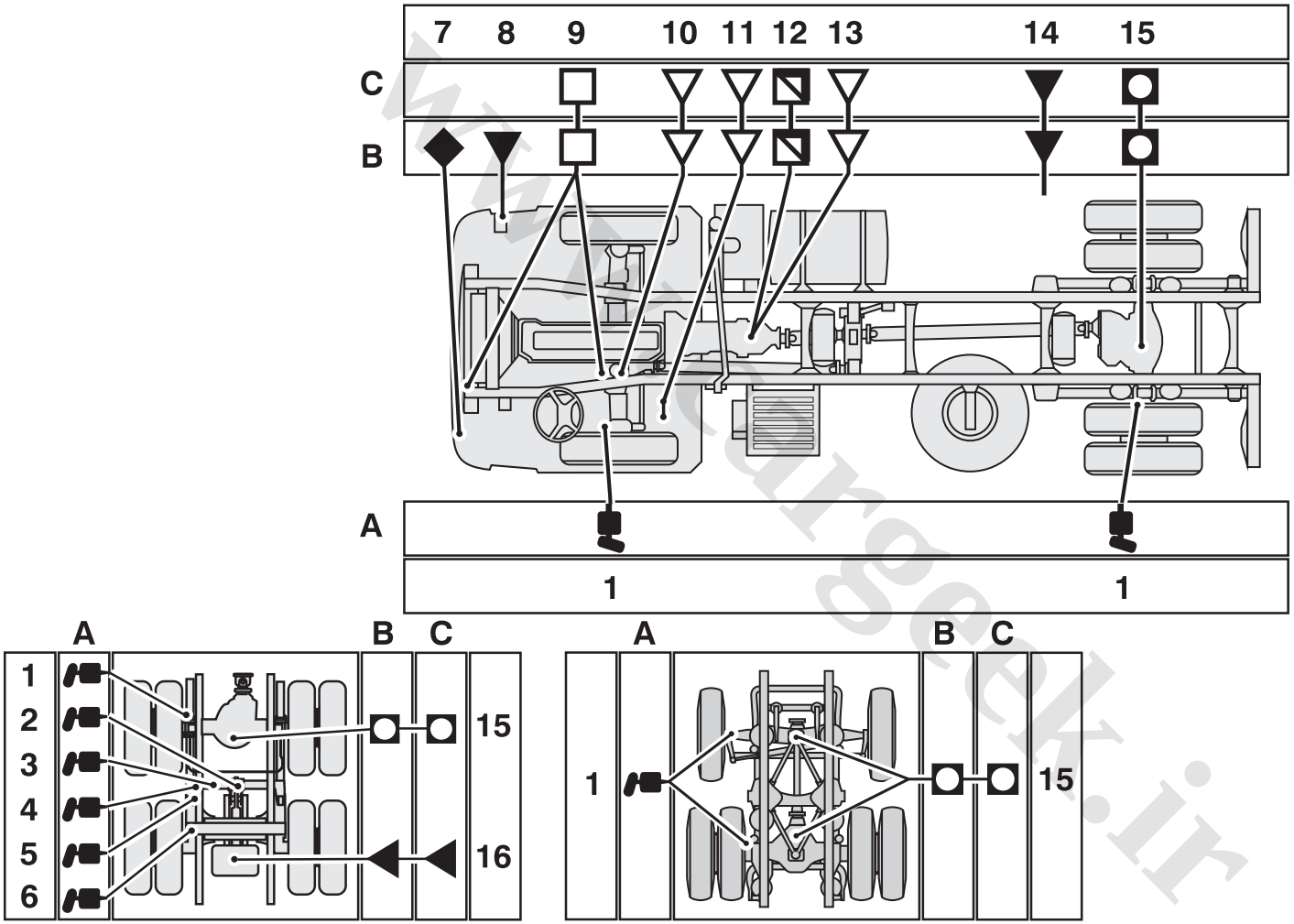
	Oil grade	Oil change
Pump for cab tilt	Hydraulic oil BLV	Only in connection with repairs.

Bodywork

Oil recommendations

Refer to the body builder's information for oil recommendations and oil changes and for other information about how the bodywork functions. Be careful not to mix different types of hydraulic oil without first having cleaned the hydraulic system or after having asked the supplier of hydraulic oil for advice.

Chassis lubrication



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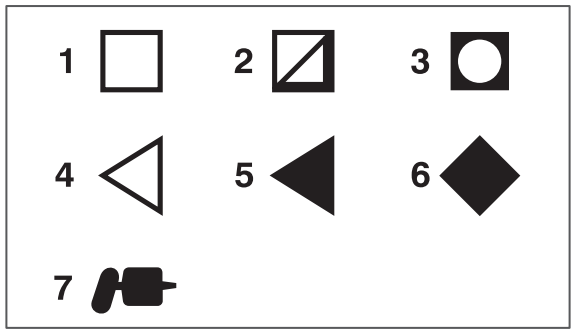
Chassis lubrication includes the lubrication of all grease nipples using a grease gun and
check or change of oils.

Symbols

1 Engine oil
2 Gearbox oil or engine oil
3 Rear axle oil
4 ATF oil
5 Hydraulic oil
6 Brake fluid or clutch fluid
7 Lubricating grease



Symbols in the lubrication schedule

A=Lubrication points

B=Fluid level check

C=Oil change and filter change

1 Brake cam (one on each wheel, not included on disc brakes)
2 Cylinder, bogie lift (x2)
3 Axle, bogie lift (x4)
4 Roller, balance arms (x2)
5 Roller, bogie lift.
6 Balance arms (x6).
First, grease the grease nipple in the centre until grease is forced out at the sealing ring
or the overflow hole. Then grease both the other grease nipples until grease
is forced out. The bogie must be raised when lubricating the balance arms.
7 Clutch fluid reservoir
8 Pump for cab tilt.
9 Engine.
10 Steering servo reservoir.
11 Steering servo reservoir for dual servo systems (certain versions of 8x2 and 8x4).
12 Manual gearbox.
13 Automatic gearbox.
14 Hydraulic fluid tank (certain variants).
15 Rear axle (x2 for 6x4 and 8x4).
16 Bogie lift (must be lowered when changing oil or checking oil level).

Note: If the vehicle is equipped with double front axles (FAA20) then the spring shackle bolt must be lubricated.

The parking brake must be released when lubricating so that grease can be forced in properly
to the brake cams (applies to vehicles with drum brakes). Chock a wheel with wooden blocks
or similar, so that the vehicle cannot start moving during service work.

Besides the lubrication points in the lubrication schedule, the joints for controls and levers should be regularly lubricated with thin engine oil.

> **NOTE**
>
> Always make sure that each lubrication point is properly lubricated. Lubricate until new grease is forced
> out and becomes visible. If no grease is forced out, there is something wrong that must be rectified immediately.

Grease quality

Lubricating grease on lithium base with EP additives and consistency NLGI no. 2.

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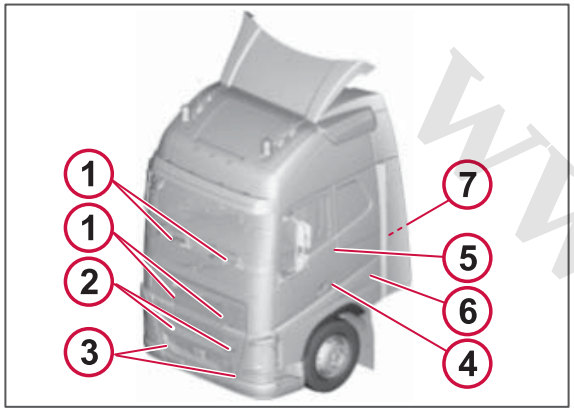
Cab lubrication

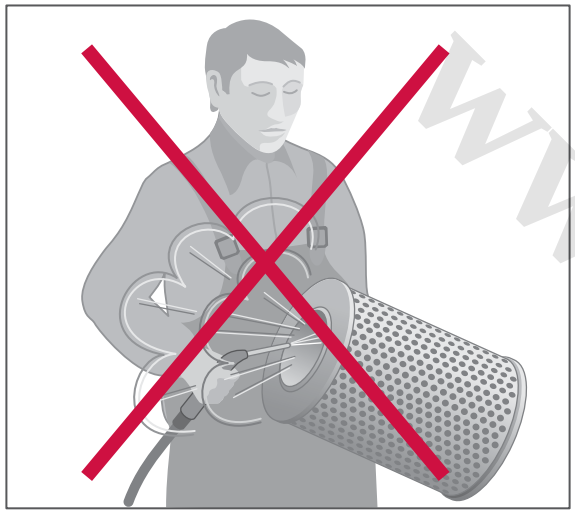


Lubrication points on the cab.

Lubrication point	Lubricant
1. Lock and hinge	Grease, oil
2. Top foot step	Oil
3. Lower foot step	Oil
4. Key hole	Lock oil
5. Striker plate, lock lug	Paraffin
6. Locks, boot lids	Paraffin
7. Cab lock	Grease

AIR CLEANER

Air filter



The following applies in general:

- The air cleaner's filter insert must only be untightened for replacement.
- Cleaning filter inserts is not permitted

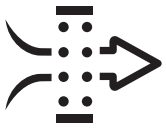
The filter cartridge must not be removed for inspection, cleaning, etc., because dust and dirt particles always enter the intake system's clean side when the filter cartridge is dislodged.

Attempts to clean in the form of shaking, blowing clean, etc., will always result in changing the structure of the filter surface, resulting in reduced efficiency.

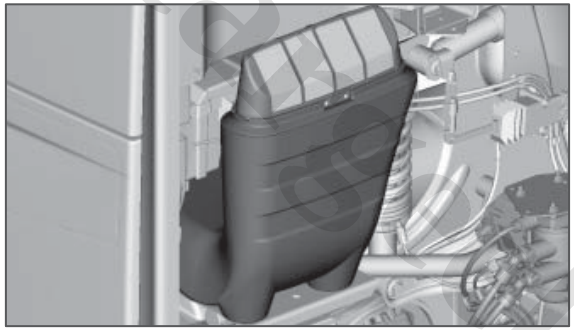
Primary filter

A symbol is shown in the display if the primary filter needs to be replaced. The primary filter must be replaced at least every 24 months.

When the symbol illuminates, check that the net in the air inlet is not clogged.



Display symbol for clogged air filter.



Mesh in air inlet

Secondary filter

Secondary filter changed every third primary filter change. Cleaning of this filter is not permitted.

Service interval

Contact an authorised Volvo workshop for the correct service intervals for the air filters.

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Cooling system

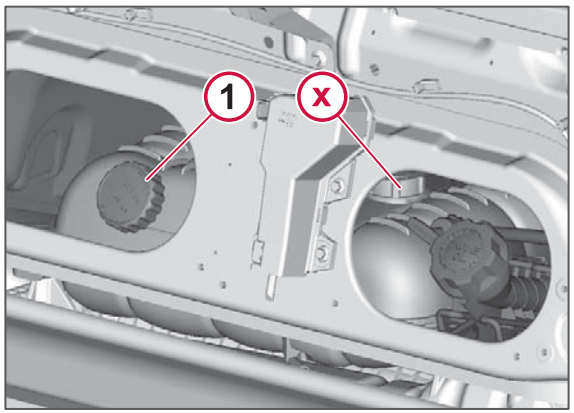
Coolant level (under service cover)

The level for a cold engine should be between the min and max markings on the expansion tank.

Always use the Volvo Coolant VCS coolant, which is specially adapted for Volvo's engines. It provides optimum antifreeze protection, while also preventing scale deposits and corrosion in the cooling system.

NOTE

It is important to use 40 - 60 % coolant in the cooling system even if there is no risk of freezing. The coolant prevents corrosion and deposits.



Only use cap (1) for filling. The component (x) is a relief valve and must not be used for filling.

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NOTE

Mixing with other types of concentrated coolant can result in inferior anti-corrosive properties resulting in damage to the engine.

Antifreeze protection

Mixing with Volvo Coolant VCS must be 40 - 60%.

Protection against freezing down to:	Mixture of concentrated antifreeze
-25ºC	40 %
-30ºC	46 %
-38ºC	54 %
-46ºC	60 %

NOTE

Maximum freezing-point depression is -46ºC. Increasing the amount of concentrated coolant beyond that impairs antifreeze protection.

COOLING SYSTEM

Electrically controlled fan

The truck may have both electric fans and electrically-controlled fans that are driven by the engine. It is not just the coolant's temperature that determines the output the fans work with. The fans can therefore start or work harder at unexpected times.

> **NOTE**
>
> **Never cover the radiator.** The engine is fitted with a charge air cooler and is therefore very sensitive to air flow blockage (overheating and reduced power). Do not therefore cover the radiator (charge air cooler) with boards, radiator blinds etc.

Service intervals

Contact an authorised Volvo workshop for the correct service intervals for the coolant.

Air drier, general

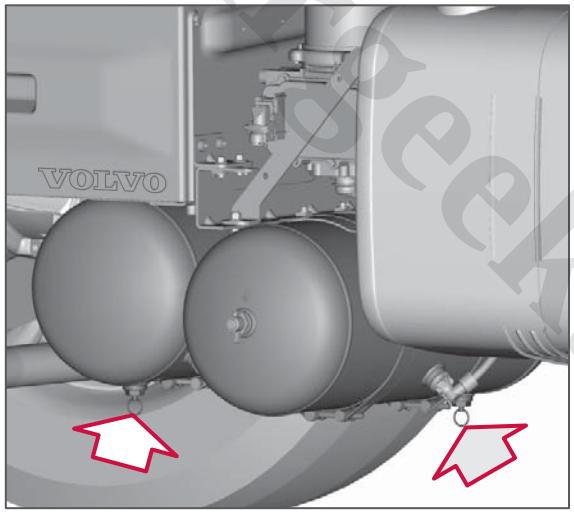
The air drier's function is to dry and clean moisture and oil from the compressed air which could otherwise cause malfunctions. The air drier is regenerated (dried) by means of a certain percentage of the pumped air flowing back through the drier. System pressure drops when this occurs. If the compressor has pumped a large amount of air then the compressor manages to start again before the required amount of air has flowed back. In which case, several compressor chargings and regenerations are obtained consecutively until the required amount of air has flowed back. **This is quite normal**.

Checking the air drier

Check whether the primary tank and circuit tanks contain water at least weekly, or if the driver information display warns of moisture in the air drier. If any of the tanks contain water then the desiccant must be changed and the air drier checked by an authorised Volvo workshop.

The desiccant in the air drier must be replaced at least every other year or in the event of a message in the driver information display.

Use only Volvo original desiccant containers, which have a built-in oil filter.



NOTE

Do not use antifreeze (alcohol) for trucks with air drier.

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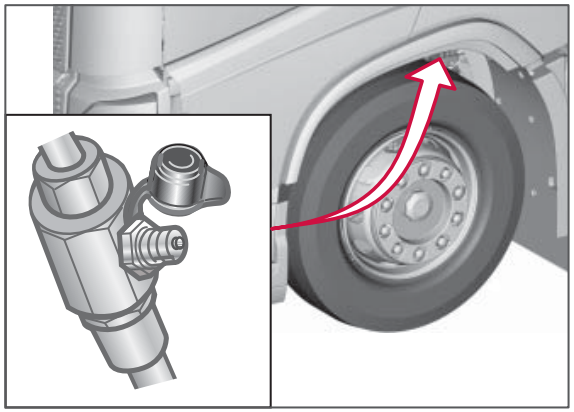
Charging with air from an external compressed air source

When filling air from e.g. another truck, the test nipple on the air tube before the air drier must always be used. Then the incoming air is dried and moisture does not enter the system.



Connection for filling compressed air.

Brake linings

On each brake caliper is an electrical wear sensor that monitors the average value of the thickness of both brake linings. When it is time to replace the brake linings a yellow warning lamp illuminates and a fault code is set. The brake pads must then be replaced.

Wear information in the display

Driver Information Display

Maintenance
↳ Brake wear

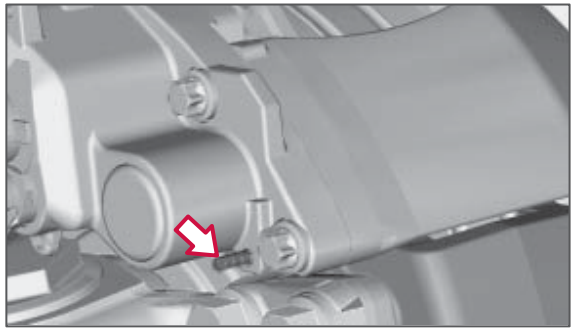
The wear on the brake pads is calculated as remaining distance, and can be read in the driver information display.

Manual checking

Brake lining wear can also be read by using the wear pin fitted on the brake calipers. The lines on the measuring gauge show how much of the outer lining is left. The lines correspond to 25, 50, 75 and 100 percent of lining thickness. When the lining is new 20 mm of the wear pin is visible. When 4 mm of wear pin is visible, all brake pads on the axle must be replaced.

Calibration

The electrical wear sensors are calibrated automatically when the brake pads are replaced.



NOTE

Brake lining wear can also be read using the wear pin on the brake caliper at every basic service, as a complement to the electronic sensor.

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Remote control

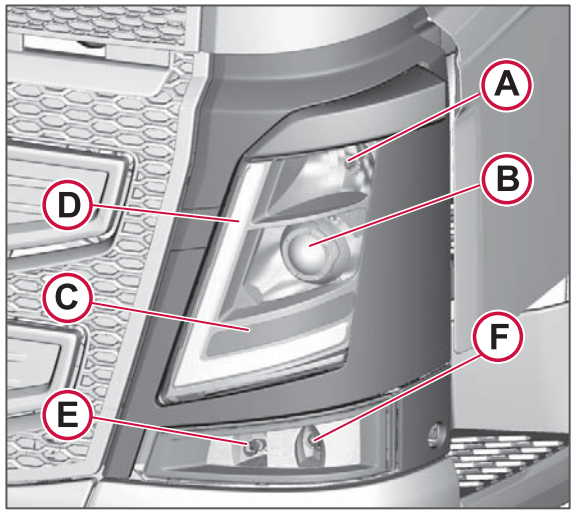
Battery: 3 V CR2032

The old battery must be handed over for recycling, see Replacing the battery in the remote control page 236.

Lighting

Headlamps

Location	Function	Watts (W)	Base
A	Extra main beam	70	H1
B	Dipped beam (gas discharge lamp)	35	D1S
C	Direction indicators	21	PY21w
D	Daytime running lights		LED
E	Fog light	70	H7 LL HD
F	Static cornering light	70	H7 LL HD



Headlamps

Other lights

Bulbs		Watts (W)	Socket
Side indicators		-	LED
Position lights		-	LED
Position lights, cab roof		-	LED
Courtesy lights		10	BA 15 s
Work lights	Yellow	35	H3 PK22s
Work lights	White	70	H3 PK22s
	Roof, "spot" lamps	10	BA 15 s
Interior lighting	Doors	5	BA 15 s

SPECIFICATIONS

Bulbs		Watts (W)	Socket
Cigarette lighter illumination		1.2	E 15
Ashtray illumination		2	E 20
Auxiliary lamp, roof		70	H11, PGJ19-2
Globetrotter sign		-	LED

Batteries

System voltage		24V
Battery	number	2
	voltage	12 V
	capacity	170 or 225 Ah

Electrolyte specific weight:	
fully charged battery	1.265-1.290 g/cm^3
half charged	1.25 g/cm^3
charge necessary	1.20 g/cm^3

Replacement tyres

Tyre sizes

The tables in this chapter show the appropriate sizes for replacement tyres for different axle loads.

More detailed description and data for referenced sizes can be obtained via ETRTO, see http://www.etrto.org/.

Size	Load index Single/ Double	Maximum axle load (kg) Single/Double
495/45R22.5	169 / -	11600 / -
355/50R22.5	154 / -	7500 / -
295/55R22.5	147 / 145	6150 / 11600
385/55R22.5	158 / -	8500 / -
385/55R22.5	160 / -	9000 / -
295/60R22.5	149 / 146	6500 / 12000
295/60R22.5	150 / 147	6700 / 12300
315/60R22.5	152 / 148	7100 / 12600
385/65R22.5	158 / -	8500 / -
385/65R22.5	160 / -	9000 / -
425/65R22.5	165 / -	10300 / -
275/70R22.5	148 / 145	6300 / 11600
305/70R22.5	150 / 148	6700 / 12600
305/70R22.5	152 / 150	7100 / 13400
315/70R22.5	152 / 148	7100 / 12600

Size	Load index Single/ Double	Maximum axle load (kg) Single/Double
315/70R22.5	154 / 150	7500 / 13400
365/70R22.5	162 / -	9500 / -
275/80R22.5	145 / 143	5800 / 10900
275/80R22.5	149 / 146	6500 / 12000
295/80R22.5	150 / 146	6700 / 12000
295/80R22.5	150 / 148	6700 / 12600
295/80R22.5	152 / 148	7100 / 12600
315/80R22.5	154 / 150	7500 / 13400
315/80R22.5	156 / 150	8000 / 13400
11R22.5	148 / 145	6300 / 11600
12R22.5	152 / 148	7100 / 12600
13R22.5	154 / 150	7500 / 13400
13R22.5	156 / 150	8000 / 13400
11.00R20	150 / 146	6700 / 12000
11.00R22	150 / 146	6700 / 12000
12.00R20	154 / 149	7500 / 13000
12.00R20	154 / 150	7500 / 13400
12.00R24	156 / 153	8000 / 14600
12.00R24	160 / 156	9000 / 16000
365/85R20	156 / -	8000 / -
365/85R20	164 / -	10000 / -
395/85R20	161 / -	9250 / -
395/85R20	168 / -	11200 / -
325/95R24	162 / 160	9500 / 18000

Size	Load index Single/ Double	Maximum axle load (kg) Single/Double
325/95R24	164 / 160	10000 / 18000

Speed rating

The following table can be used to find a suitable speed rating (symbol) for replacement tyres.

Truck speed	Symbol
Under 80 km/h	Lowest F
80 km/h - 90 km/h	Lowest G
90 km/h - 100 km/h	Lowest J
100 km/h - 110 km/h	Lowest K
110 km/h - 120 km/h	Lowest L
120 km/h - 125 km/h	Lowest M

For information about tyre pressure, see the tyre manufacturer's recommendations.

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SPECIFICATIONS

Type plates, location

1 The chassis number is punched on the outside of the right-hand frame member and is also found on the identification plate.

2 The cab number plate is located on the right-hand B-pillar.

3 The identification plate is located behind the service cover.

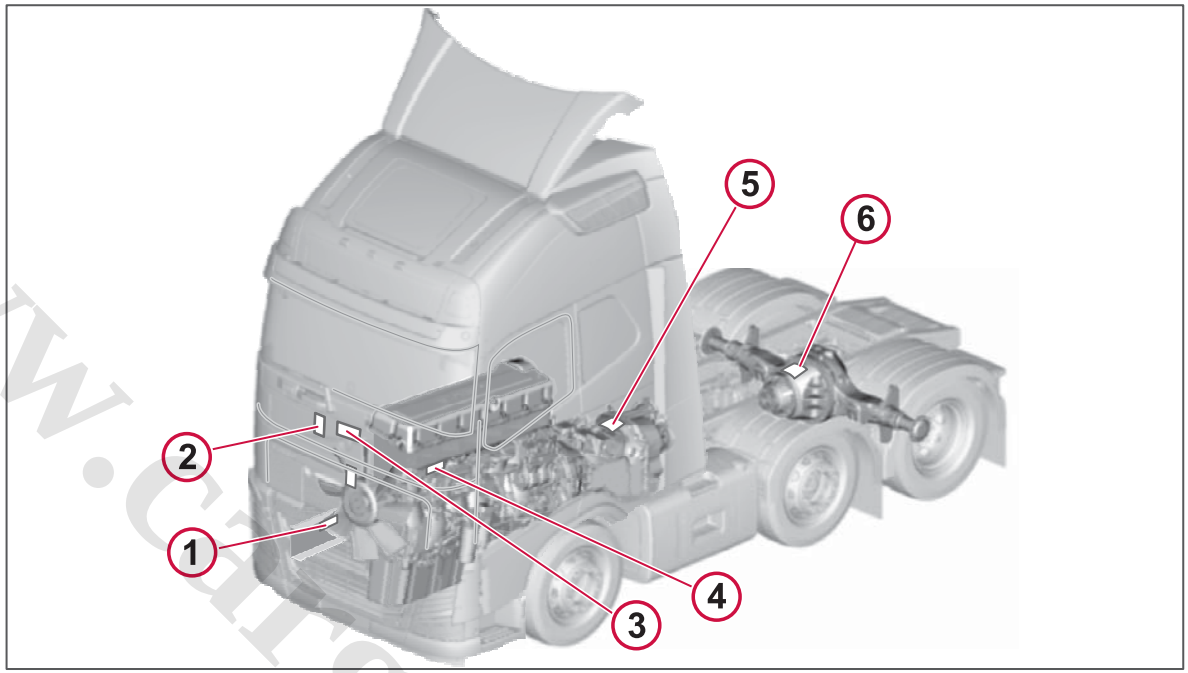
4 The engine designation is stamped on the left-hand side of the engine block above the starter motor (plus certain additional information concerning the ECU or on the valve cover).

5 Gearbox plate (right-hand side, clutch housing).

6 Rear axle identification plate.

The compressed air tanks have type plates which state:

- Manufacturer
- Part number
- Serial number
- Max operating pressure
- Max operating temperature
- Min operating temperature
- Tank capacity



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Declaration of Conformity

We

Volvo Lastvagnar AB

405 08 Göteborg

Declare under our sole responsibility that the product
Volvo type Fmx, FM and FH equipped with spare wheel retainer
type Mörchen part no. 1078342, 3962005, 20466002, 20466000
is in conformity with the EU Machinery Directive 2006/42 and with
the supplement to the EU Directive 95/16

Göteborg 2010 01 11

Joao Mendonca

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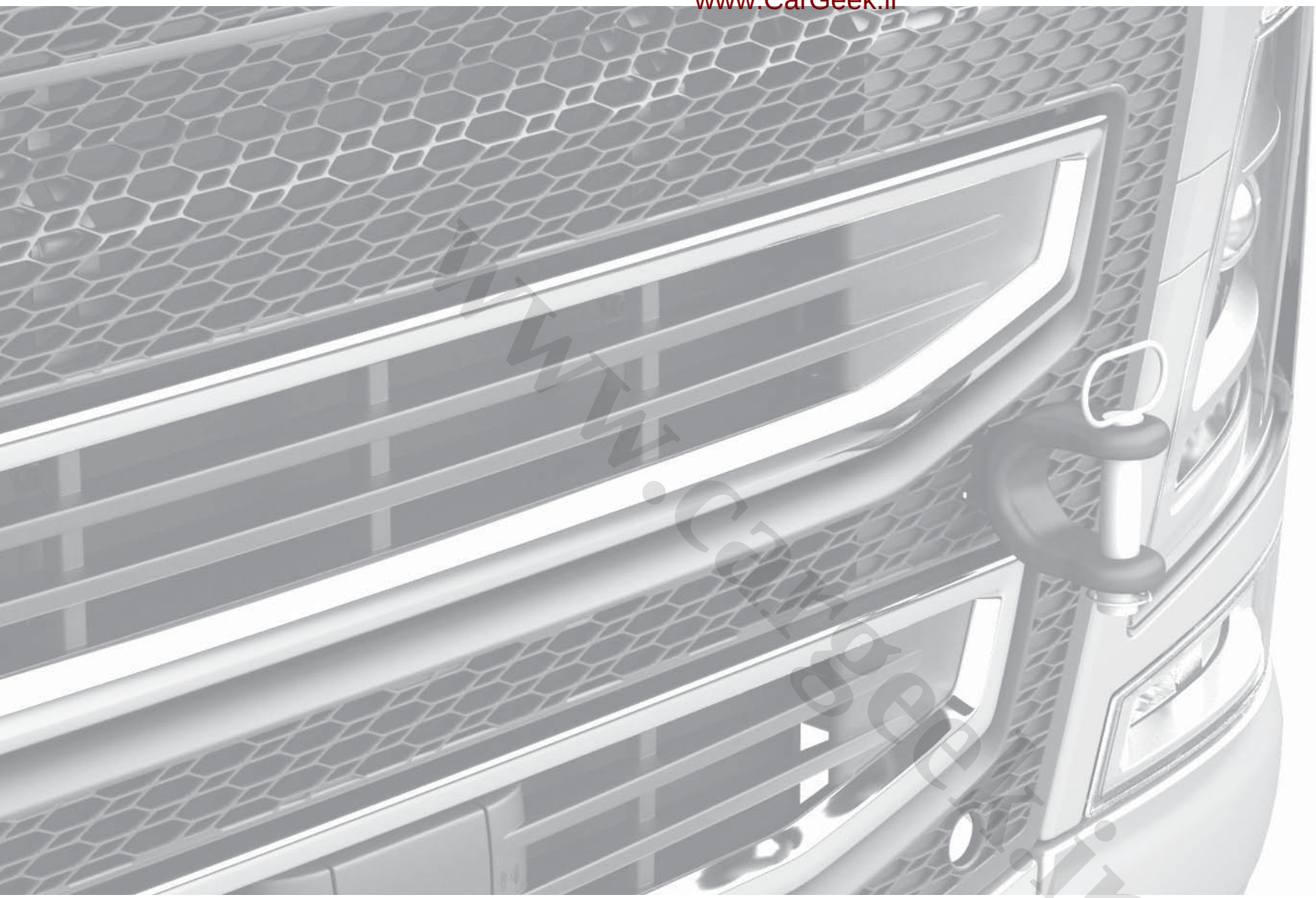


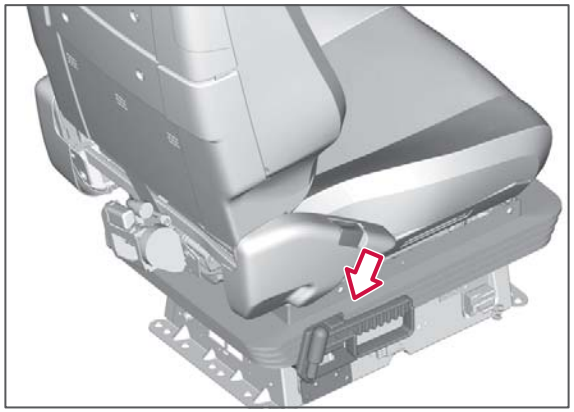
EMERGENCY ACTION

Emergency evacuation

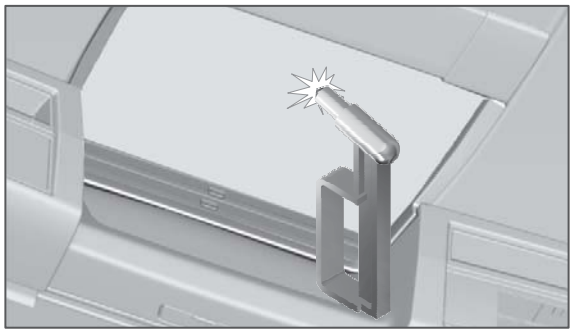
The roof hatch is intended as an emergency exit if the doors cannot be used.

Emergency opening

Use the emergency hammer to break the glass in the roof hatch. The emergency hammer is fitted on the side of the seat.



Emergency hammer location.



Break the glass in the roof hatch.

⚠ CAUTION

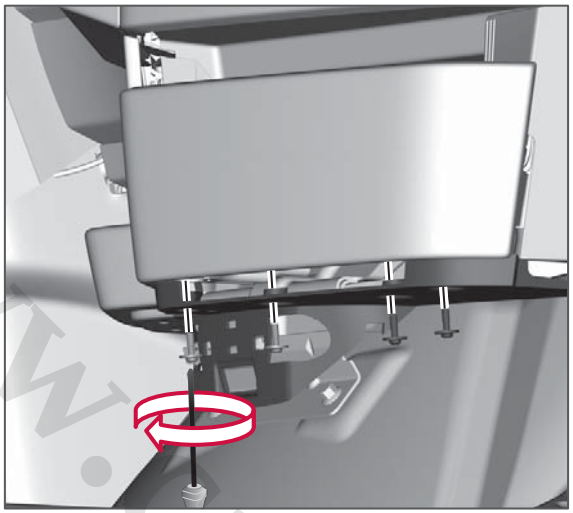
If you fit equipment on the roof of the truck then this must not be fitted in such a way that the roof hatch escape route is blocked.

Emergency opening service cover

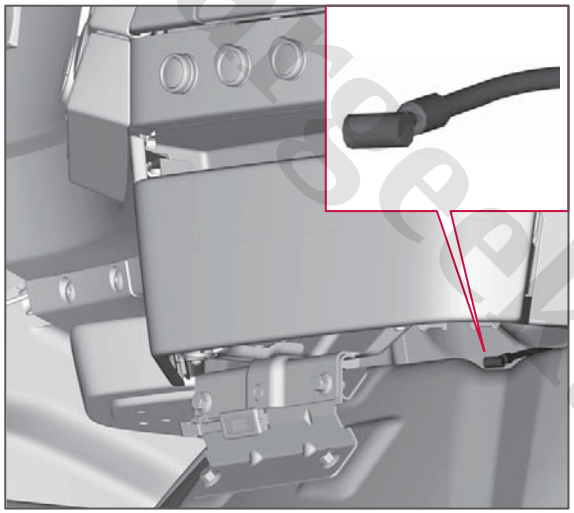
A locked service cover, where neither the transmitter, keys nor door handle can be used, can be opened manually.

The handle for the emergency opening wire is located inside the panel which is fitted under the extensible storage box in the centre of the instrument panel. Untighten the four screws that hold the panel in place and pull the handle to open the security lock.

> ⓘ NOTE
>
> The emergency opening wire's handle is small and it may therefore be necessary to use a pair of pliers.



Untighten the screws

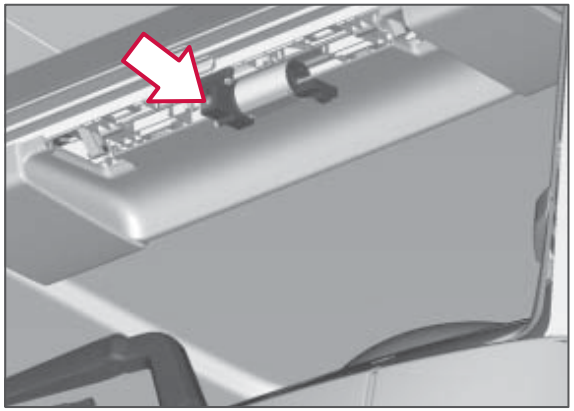


Pull the handle
Untighten the screws
Pull the handle

Emergency operation of the roof hatch

If the truck is de-energised or an electrical fault has occurred then the roof hatch can be opened and closed manually.

Open the hatch manually by untightening the panel and turning the screw inside the hole with a screwdriver.



Emergency operation of the roof hatch

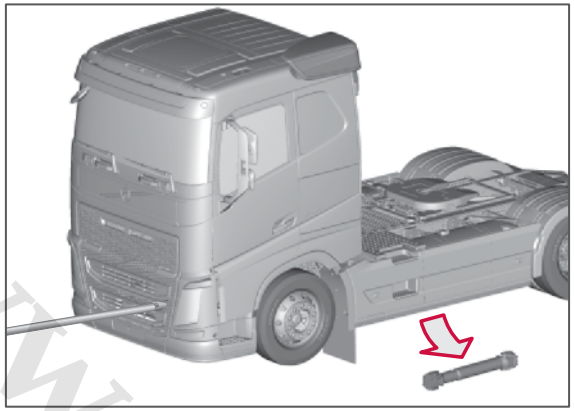
Towing

Procedures before towing

- Remove the propeller shaft.
- Fit the towing brace and the towing pin.
- Chock the wheels before the parking brake is released mechanically.
- Switch off TCS. Otherwise the system may activate and the truck becomes disconnected from the towing vehicle, see Switching off the TCS page 142.
- If possible, start the engine and leave it running during the whole of the towing operation. Raise the bogie axle so that the wheels are not turning when reversing the truck.

Use a tow rod.

The power steering does not operate during towing and the vehicle will be heavy to steer.



CAUTION

The gearbox can be damaged if the propshaft is not removed. When shunting (a few hundred meters) a vehicle with a manual gearbox, the propshaft can remain in place if high gear is engaged.

WARNING

Always use a towing brace and towing pin when towing. Never tow from the forward underrun guard. The underrun guard is not designed to withstand this sort of force.

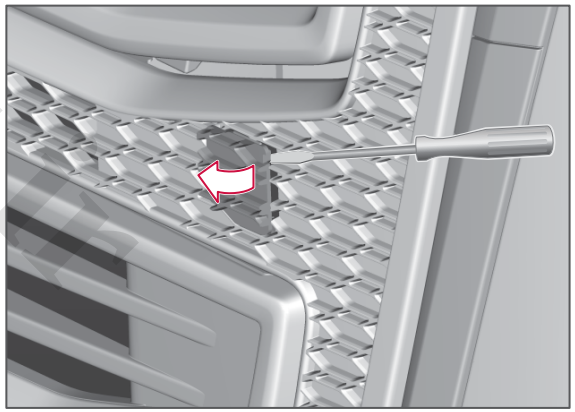
NOTE

It is not permissible to lift in the underrun guard.

Insertion of towing brace and towing pin

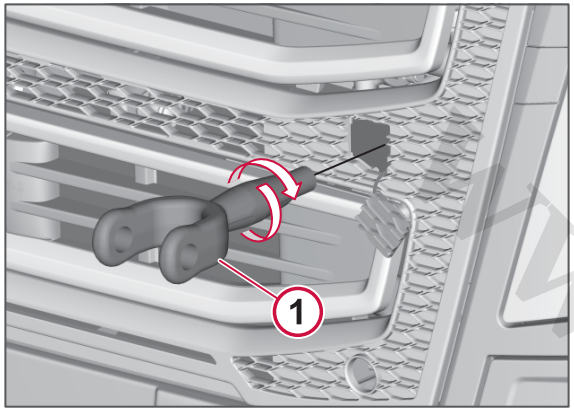
Use towing brace (1) and towing pin (2) for towing.

1. Take out the towing brace and the towing pin.
   They are in the storage space or behind the seats.
2. Separate the towing brace and the towing pin.
3. Remove the covers in the grille with a chisel.
4. Thread in the towing brace.
5. Connect the draw bar.
6. Attach the draw bar in the towing brace.
7. Secure the towing pin with the pin.

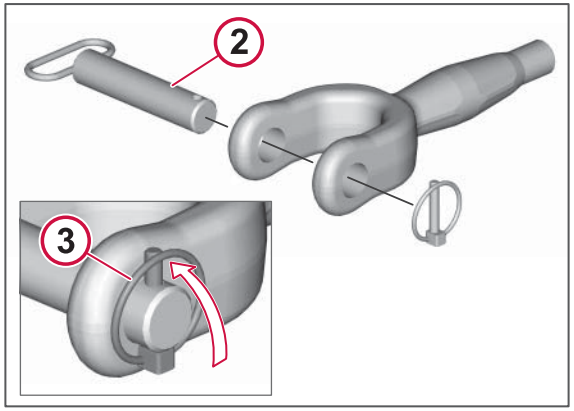


Cover for towing brace.

TOWING



Towing brace.



Towing pin and security pin.

WARNING

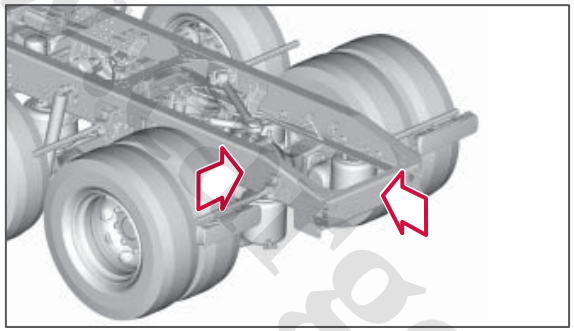
The towing brace may only be used when towing on good roads. It is not intended for recovery.

NOTE

Each towing eye can be loaded straight from the front with half of the truck's gross vehicle weight.

Towing backwards

Tow from the rear axle, rear spring anchorage or trailer hitch hook.

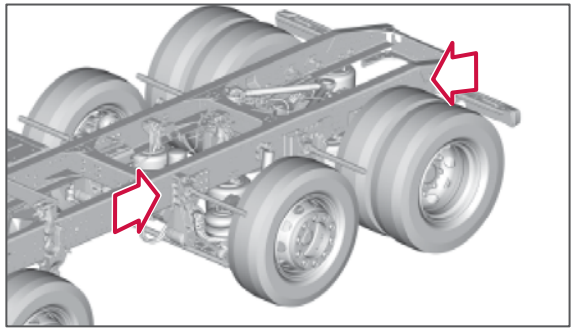


Towing sideways

Choose a point close to the axle attachment, e.g. the spring bracket or reaction rod bracket. Otherwise the chassis could be subjected to such heavy loading that it could be deformed.

CAUTION

Do not use the anti-roll bar or torque stay for towing.



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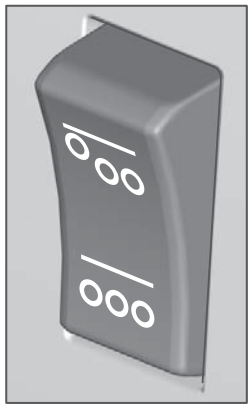
Air suspension in locked mode

If there is a fault, the air suspension may go into the locked mode. This disconnects the automatic ride height.

> NOTE
>
> The truck needs to be checked by an authorised Volvo workshop as soon as possible. You can drive to the workshop.

Adjust the amount of air in the bogie axle's lifting bellows

Drain the lifting bellows by depressing the bogie button.



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Starting with starting cables

Always use another vehicle or other batteries to help start the engine.

1 Turn the starter key to the 0 position.

2 Make sure that the booster battery has 24 V total voltage or 24 V system voltage.

3 Switch off the engine of the "assisting vehicle" and make sure that the vehicles do not touch one another.

4 Connect one clamp from the red cable to the positive terminal of the booster battery. The positive terminal is marked in red, P or +.

5 Connect the red cable's second clamp to the positive terminal of the battery on the vehicle that needs help. The positive terminal is marked in red, P or +.

6 Connect one clamp from the black cable to the negative terminal of the booster battery marked in blue, N or -.

7 Connect the black cable's second clamp to a location – grounding point – which is located some way from the battery on the vehicle that needs help.

8 Start the engine on the "assisting vehicle". Let the engine run for some minutes at a higher speed than normal (approx. 1000 rpm).

9 Start the engine on the other vehicle.

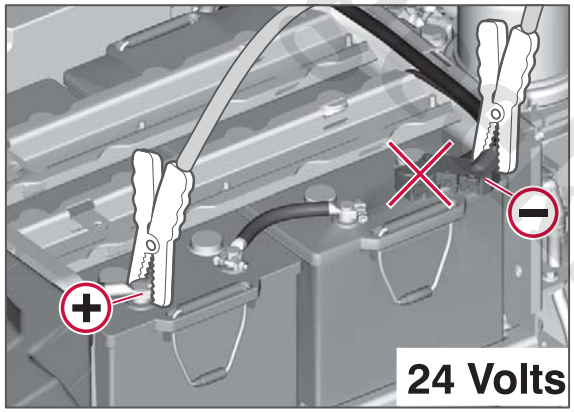
10 Remove the clamp on the black cable from the grounding point.

11 Remove the clamp on the black cable from the negative terminal on the booster battery.

12 Remove the red cable.

⚠ CAUTION

Start aid units must not be connected, as these can produce very high voltage levels, which in turn can damage control units.



Always connect the negative cable so that all voltage flows through the battery sensor.

ⓘ NOTE

After the truck has been started with the jump leads, the battery should be charged with a battery charger. To fully charge the battery takes approximately 20 hours. The alternator can never charge up the battery to 100%, in favourable conditions a maximum level of 90% can be achieved.

ⓘ NOTE

The battery contains acid which is corrosive and toxic. It is therefore important that the battery is handled in an environmentally sound manner. A Volvo workshop can help you with this.

⚠ WARNING

The batteries contain oxyhydrogen gas which is highly explosive. A spark, which can be formed if the jump leads are fitted incorrectly or if you move them during the start attempt, is enough for the battery to explode and cause serious injury and damage. The battery contains sulphuric acid which can cause serious burn injuries and corrosion damage. Rinse with large amounts of water if acid comes into contact with eyes, skin or clothing. In the event of splashing into the eyes, contact a doctor immediately. Do not lean over the batteries.

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Warning signs and first-aid

The truck has two warning triangles. The warning triangles are stored in the space behind the left hand seat. Certain trucks also have first aid kits, warning flares and high visibility vests.

Stopping on the road

Use the warning vest and warning triangle if the truck stops on a busy road due to a technical fault.

The warning triangle must be positioned at least 200 metres behind the truck. Use the vest. Think about safety. Moving around a stationary truck on a busy road is highly dangerous. Do not take any unnecessary risks.

Contact Volvo Action Service, they have the equipment and knowledge to help you .

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RELEASE PARKING BRAKE

Release the parking brake

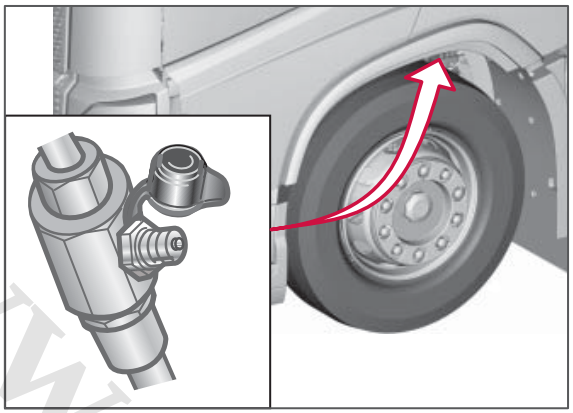
There are three ways to release the parking brake.

- In the event of an engine fault, fill the pneumatic system with air from e.g. another truck.
- In the event of an electrical fault, release manually.
- Mechanical unloading of the parking brake springs.

> **WARNING**
>
> Always start by chocking the wheels so the truck cannot start to roll.

Fill air into the pneumatic system

When filling air from e.g. another truck, the test nipple on the air tube before the air drier must always be used. Then the incoming air is dried and moisture does not enter the system.



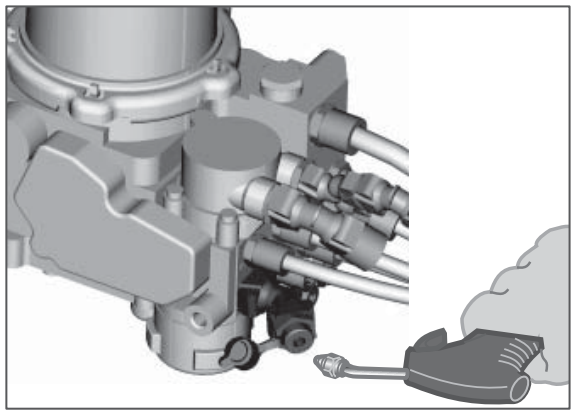
Connection for filling compressed air.

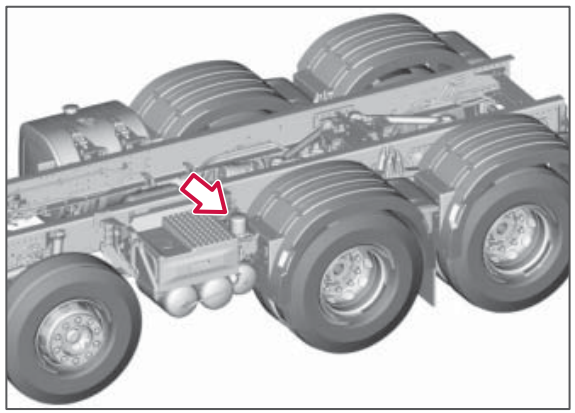
Release in the event of an electrical fault

For some electrical faults the electrically operated parking brake is not released. If there is compressed air in the system then it can be released manually.

Blow into the nipple in accordance with the figure using a blow gun for example. A valve peg is moved and the parking brake is released.

After the repair the parking brake is applied in the normal way.





Air drier location.

Releasing the parking brake mechanically

Unscrew the screw or nut with the tool provided in the tool equipment until the brake releases. Either the entire screw will come out or just a red marker will be visible.

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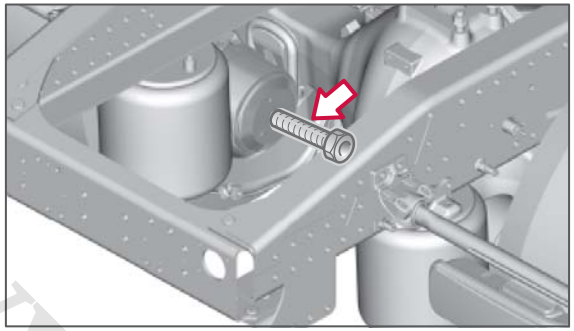
> **NOTE**
>
> Some trucks have parking brake cylinders on both the front and rear axle.

> **NOTE**
>
> Always fill air in the parking brake tanks, when available, and untighten the parking brake to make it easier to unscrew the nut. This protects the brake cylinder from unnecessary wear.

> **CAUTION**
>
> A nut tightener must **not** be used because the cylinder can be damaged.

The screw comes out approx. 80 mm

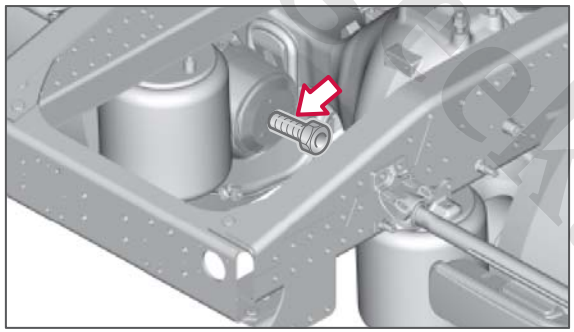
Unscrew the screw manually with the intended spanner from the tool equipment, until it stops (resistance increases). The screw comes out approx. 80 mm from the brake cylinder. Screw back the screw manually after towing.



Screw approx. 80 mm.

The screw comes out approx. 35 mm

Unscrew the screw manually with the intended spanner from the tool equipment, until it stops (resistance increases). The screw comes out approx. 35 mm from the brake cylinder. Screw back the screw manually after towing.

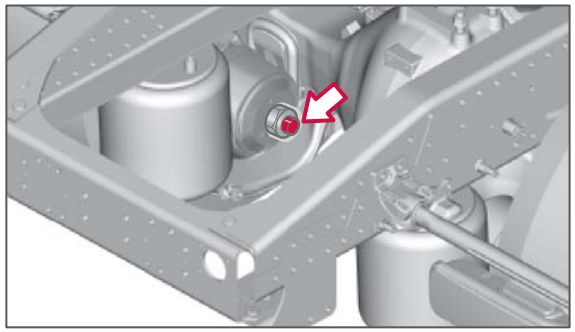


Screw approx. 35 mm.

Only the nut shows

When the nut starts to unscrew a red plastic knob comes out from the centre of the nut. After approx. 4 turns it is fully out, but it takes approx. 45 turns in total for the brake to be fully released.

After towing: screw back the nut until the red plastic knob is fully inserted.



Red plastic indicator.

Lever fault for the parking brake

If a fault occurs on the lever for the parking brake then the brake cannot be operated.

The driver information display shows a message about this.

Parking brake emergency operation:

- At speeds below 7 km/h the parking brake is applied automatically.
- The parking brake symbol in the instrument will flash while driving.

In order to move the truck the parking brake is released automatically while driving. However, a high torque is required, which causes unnecessary wear on the clutch and power transmission. The parking brake is applied automatically when the speed is less than 7 km/h.

⚠ DANGER

Always check that the symbol for applied parking brake illuminates with a constant glow before you leave the cab.

Action in the event of gearbox malfunction

If the gearbox has a fault which means you cannot drive the truck, activate the Limp home function to be able to drive the shortest way home or to a workshop.

Activate Limp home as follows:

1 Move the gear shift lever to N.

2 Keep L pressed in on the gear shifter cover and at the same time move the gear shift lever to A.
The Limp home function is activated.

3 Move the gear shift lever to M.

4 Select gears using the +/- button on the gear shift lever.

Once the Limp home function has been selected it is not possible to drive if the hand lever is in position A. Only gears 1, 3 and 5 forward and 1 reverse can be used. It is only possible change gear when the truck is stationary.

The L button does not need to be depressed again when you change between the M and R modes.

The Limp home function is disengaged when the ignition is switched off.

NOTE
Limp homeThe function should only be used for short distances.

BRAKE SYSTEM BACK-UP FUNCTION

Back-up function

If a fault should occur in the electrical control of the brake pressure then it is still possible to brake the truck. A built-in back-up function guarantees braking performance, fully or partially, in a pneumatically controlled manner. The brake pedal will then engage more deeply than normal and a higher pedal force may be needed to achieve the same braking performance as before. The back-up mode disengages the ABS system, amongst other things, fully or partially, depending on where the fault occurred.

In the event of a loss of EBS the STOP lamp in the display is activated and illuminates with a constant red glow. The driver information display also shows a message about this.

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