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1 Introduction

Congratulations on your new **SUN LIVING Motorhome**.

We have designed and built your vehicle so that travelling with your "home away from home" will be very enjoyable.

You want to get to know new horizons? Count on us to help you!

1.1 Before the trip

- Take your time and read this instruction manual on one of the comfortable seats of your vehicle.
 - This instruction manual also contains surprising innovations for experienced users because the **SUN LIVING** design team does not tolerate technical standstill.
- Pay special attention to the "Safety" chapter (Chapter 2).
 - Your own health and that of your passengers can depend on your familiarisation with the safety regulations and your adequate reaction to critical situations.
- Please also pay attention to the separate instruction manuals for special equipment and appliances as well as accessories.
- If your **SUN LIVING** vehicle has special accessories (light-metal rims, air suspension, etc.), please observe the enclosed special approvals and the associated regulations.

1.2 Information on this instruction manual

- Please understand that we reserve the right to alter the technical system, the form and the equipment. Our vehicles are being continuously developed. Therefore, no claims can be made against **SUN LIVING** on the basis of the contents of this instruction manual. The equipment which was known and included at the time of going to press is described in this manual. This instruction manual is valid only insofar as the vehicle corresponds to the state of the equipment described therein.
- The models may have different equipment (standard equipment, special equipment and accessories). The standard equipment is described in this instruction manual. You will also find descriptions of the special equipment and accessories in this instruction manual insofar as explanations are required. Please also pay attention to the enclosed separate instruction manuals of the special equipment or accessory manufacturers.
- Reproduction, copying and translation, including extracts, are not permitted without the explicit approval of **SUN LIVING**.
- **SUN LIVING** will not be held responsible for damage to the vehicle resulting from the non-observance of the instruction manual.

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1.3 Warranty, service and repair

- Please contact your local **SUN LIVING** dealer for all service and repair work as well as special questions.
 - The employees of your authorised workshop will be pleased to provide advice and assistance.
 - Only original parts ensure the quality and operational readiness of your vehicle.
 - If service work is neglected or performed incorrectly, we will be unable to meet our warranty obligations according to our warranty conditions.
- Please fill in the following data of your vehicle:
 - These are of special significance when you have questions concerning ordering original parts.
- Check the nameplates for the data of your vehicle.

Vehicle data	
Model:	
Year of construction:	
Vehicle identification number:	
Bodywork key number:	

Table 1 Vehicle data

We wish you unlimited enjoyment in your leisure time with your new **SUN LIVING** motorhome.

Executive Board

2 Safety

2.1 Safety instructions

This section contains safety instructions that must be followed when operating the vehicle.



Note!

We point out explicitly that we will not assume any liability for damage and malfunctions resulting from the non-observance of this instruction manual.

2.1.1 Explanation of symbols



Danger!

Type of danger

▲ Avoidance

This type of safety warning warns of an **imminently pending danger** that could jeopardise the life and health of persons. Non-observance of these safety instructions can cause severe damage to health up to life-threatening or fatal injuries.



Warning!

Type of danger

▲ Avoidance

This type of safety warning warns of a **possible danger for persons**. This type of warning must be exactly followed to prevent hazards to persons or severe material damage.



Caution!

Type of danger

▲ Avoidance

This type of safety warning warns of **possible material damage**. This type of warning must be exactly followed to prevent material damage.



Note!

Note

Notes of this kind provide additional information with respect to **technical requirements**. This type of information facilitates the handling of the vehicle for the user.

2.2 General safety notes

- Safely store all objects before starting to drive. Securely close all flaps, doors, windows and hatches. Keep liquids in leak-proof containers.
- When staying in the vehicle, always keep the forced ventilation and the mushroom ventilator open and never covered, as there is a risk of suffocation by increased carbon monoxide.
- Always keep the instruction manuals for the vehicle and all installed appliances (e.g. cooker, refrigerator, toilet) and additional equipment (e.g. bike racks) in the vehicle and observe them.
- Never leave children in the vehicle unattended.
- Pay attention to the vehicle height while driving.
- When leaving the vehicle, securely close all windows, doors and skylights.
- Pay attention to the clearance height of the entrance door.

2.3 Safety instructions for driving on public roads

- The vehicle must be registered.
- The driver of the vehicle must have the required driving license.
- The installation of accessories changes the dimensions, the total weight as well as the road behaviour of the vehicle. Some of this equipment is subject to entry in the vehicle documents.
- When loading the vehicle, pay attention to the gross weight rating and the gross axle weight rating (see motor vehicle registration certificate, part I)
- Distribute the additional load evenly within the vehicle (Chapter 5.1).
- Check the tyre pressure and tighten the wheel nuts before starting to drive. Check the firm seating of the wheel nuts after 50 km and then in regular intervals.
- Check the function of the brakes and the signal and lighting system.
- Empty the waste water tank.
- Close all doors, cupboard doors, drawers and flaps as well as all windows and skylights. Snap the refrigerator door securing device into place.
- Stow away the sink board (special equipment), the loft bed ladder (special equipment), the table and/or other loose pieces of equipment safe and secure.
- Retract or fold down antennas (special accessory).
- Switch off the awning light.
- Retract the entrance step.
- Close and lock all outer doors and flaps.
- In winter, clear the roof from snow and ice before starting the journey.
- Persons as well as pets must be seated on seats
- equipped with suitable restraining devices while travelling in the vehicle.
- Vehicles from 3.5t to 7.5t are designed for a maximum speed of 100kph.
- This maximum speed must not be exceeded, not even when a higher speed is allowed in the country being visited.

- When parking the vehicle, apply the parking brake up to the maximum possible end position.
- Place wheel chocks (special accessory) under the wheels when parking the vehicle on inclines or slopes.
- Have the vehicle brake system checked and repaired by an authorised workshop only.
- When the vehicle is transported by rail or on a lorry, it must be loaded in the driving direction.

2.3.1 Driving your motorhome

- Drive according to your abilities taking the larger dimensions and the higher weight of the vehicle into consideration. You need time for familiarisation.
- Always take corners in a large radius and slowly. The cornering behaviour as compared with a passenger car changes because of the length of the vehicle and its weight.
- At driveways and crossings, the vehicle acceleration is significantly lower than that of a passenger car.
- Due to the higher weight, the vehicle braking distance is much longer than that of a passenger car.
- Pay attention to the greater height of the vehicle at gateways and trees on the side of the road.
- When driving in reverse, always have a second person assist you.
- Due to the vehicle height, the vehicle is more sensitive to crosswind.

2.4 Official technical inspections

2.4.1 Motorhome - general inspections



Note!

Please observe the regulations for the applicable country of registration.

2.4.2 Checking the gas system

The liquid gas system was inspected at the factory by a technical expert. The gas system must be inspected again every two years and after making any modifications and repairs. Always have a gas leak test performed on this occasion. The vehicle operator is responsible for initiating the inspection. Upon delivery of the vehicle, the operator must be informed in writing of his/her duty to have the gas system inspected. The correct condition of the gas system is confirmed with a gas inspection certificate and possibly, depending on national regulations, an associated gas inspection sticker.

2.4.3 Emergency equipment to be carried in the vehicle

The following emergency equipment (special accessories) must be carried in the vehicles at all times:

- First aid kit
- Warning triangle
- A warning light must also be carried in vehicles above 3.5 t.
- A wheel chock must also be carried in vehicles above 4.0 t.
- A warning vest for each passenger should be carried in all vehicles.

The regulations of the respective country must be observed. Contact the automobile association of the respective country for information.

2.5 Safety instructions for the gas system



Danger!

Poisoning by gas

- ▲ If it smells of gas or you suspect that gas is escaping, perform the following:
 - Clear the danger area!
 - Close the shut-off valve on the gas cylinder!
 - Avoid ignition sources and open flames and do not smoke!
 - Ventilate the rooms!
 - Inform the camping site manager and, if necessary, the fire brigade!



Danger!

Risk of explosion

- ▲ Gas appliances are not to be operated during refuelling and on ferries or in garages!
 - Close all quick-action stop valves and the shut-off valve on the gas cylinder.



Danger!

Risk of suffocation

- ▲ Never cover the forced ventilation in the skylights and in the floor area nor the mushroom ventilators in order to ensure continuous exchange of air in the vehicle. **Important:** Snowfall in winter!



Warning!

Injuries or material damage

- ▲ Subsequently installed, gas-operated additional appliances must be designed for an operating pressure of 30 mbar.
- ▲ The liquid gas system was inspected at the factory by a technical expert.
- ▲ The gas system must be inspected again every two years and after making any modifications and repairs (Chapter 2.4.2).
- ▲ Installations and modifications to the gas system may be performed only by an authorised workshop.



Note!

The gas system may be put into service again only after inspection by a technical expert!

2.5.1 Gas cooker



Danger!

Risk of suffocation

- ▲ In regular operation of the gas stove there exists acute danger to life due to lack of oxygen and the possibly generated odourless and toxic carbon monoxide (CO)!
- ▲ Always ensure good ventilation when the gas stove is in operation. Always keep a window, a roof hood or the doors open.
- ▲ Never use the gas stove for heating.



Danger!

Risk of poisoning

- ▲ If a flame of the gas stove extinguishes, unburned gas flows out for a short time until the flame failure device reacts and, together with the oxygen, generates an explosive mixture inside the vehicle!
- ▲ Watch the flames while using the cooker!
- ▲ When finished, shut the respective quick-action stop valve.

2.5.2 Gas cylinder compartment

Check each time before using the gas:

- Store the gas cylinders exclusively in the gas cylinder compartment. They must stand upright and be fastened so that they are unable to turn or tilt.
- The gas cylinder compartment must be sealed against the interior of the vehicle and must have a vent hole in or directly above the floor plate. This vent hole must have a minimum cross-section of 100 cm² and must never be covered.
- Use only pressure regulators with safety valves! Other regulators are not allowed!
- Carefully connect the regulator on the gas cylinder by hand. The screw connections on the gas regulator have left-hand threads. Do not use tools such as wrenches or pliers.
- Exception: The high-pressure hoses of the Truma SecuMotion/MonoControl CS (special equipment) should be tightened with the enclosed plastic wrench.
- For temperatures below 5°C, a de-icing system for regulators (e.g. accessory Eis-Ex) must be used.
- Do not operate or store any current-storage devices (e.g. batteries) or devices that could be the source of ignition in the gas cylinder compartment.
- Electric lines routed through the gas cylinder compartment have to be insulated and must not be connected with terminals; have the work performed by an authorised workshop.
- Do not use the gas cylinder compartment as storage space.
- Secure the gas cylinder compartment against unauthorized access.

2.5.3 Gas appliances in general

Pay attention to the following when operating the gas system:

- The regulators and the exhaust gas routing must be inspected every two years! The inspection must be confirmed on the inspection certificate according to the DVGW [German Technical and Scientific Association on Gas and Water] worksheet G 607. The operator has to initiate the inspection.
- The exhaust gas pipe must be fitted tightly to both the gas heating as well as the cowl and must be sealed. It may not show any evidence of damage.
- The exhaust gas routing of the gas heating must be installed ascending over its complete length and fitted tightly with clamps. If required, install exhaust gas pipe supports.
- Before placing the gas heating into service, always clear dirt and snow from the cowl and the combustion air inlets. This prevents increased, unacceptable carbon monoxide content in the exhaust gas.
- Radiant heaters and appliances drawing combustion air from the interior of the vehicle are not to be used for heating the vehicle!
- When gas appliances are switched on that require the control knob to be pressed for lighting (e.g. gas stove), it must spring back automatically immediately after release.

- If no gas is being consumed during the journey, the shut-off valve on the gas cylinders must be closed.
- Close the respective quick-action stop valve when gas-operated appliances are not used.
- Close the shut-off valve on the gas cylinder when the vehicle will not be used for a longer period.
- Operate the gas system only with propane gas, butane gas or a mixture of both. Propane gas is capable of gasification down to -32°C , whereas butane gas gasifies only to approx. 0°C .
- Gas appliances are not to be operated during refuelling, in a garage or on a ferry.
- Observe the relevant regulations in foreign countries!

2.6 Safety instructions for the electrical system

Pay attention to the following when operating the electrical system:

- Installations and modifications of the electrical system may only be performed by qualified personnel.
- Prior to carrying out work on the electrical system, switch off all appliances and lights, disconnect the battery and disconnect the 230 V power cable from the mains.
- Replace defective fuses only when the cause of the defect is known and has been remedied. Use only original fuses with the values specified in the instruction manual from the respective manufacturer.
- Do not bridge or repair fuses.

2.6.1 Safety instructions for emergency power generator (special accessory)

Observe the following when operating emergency power generators:

- Voltage variations during operation with an emergency power generator must be avoided to prevent damage to the electrical system and the electrical appliances

For more information, see the separate instructions from the manufacturer.

2.7 Fire prevention

2.7.1 General fire prevention



Danger!

Fire risk

- ▲ Only authorised and qualified personnel may perform service work and modifications to the gas system and the electrical system.
- ▲ Never leave children in the vehicle unattended.
- ▲ Do not use portable heating or cooking appliances.
- ▲ Keep flammable materials clear of cooking and heating appliances.
- ▲ Acquaint yourself with the position and operation of the emergency exits in the vehicle.
- ▲ Always keep escape routes clear.
- ▲ Empty ashtrays into the waste bin only when the ashes are cold.
- ▲ When the lighting elements are switched on, maintain a safety distance of at least 30 cm from combustible objects.



Note!

Always have a dry powder fire extinguisher (special accessory) filled with 1kg minimum in your vehicle.

- The fire extinguisher must be close at hand.
- Read the instruction manual carefully and keep it close at hand.
- Have the fire extinguisher checked at regular intervals by qualified personnel; observe the test seal.

2.7.2 What to do in the case of fire

Correct behaviour:

- Evacuate all passengers.
- Close the shut-off valve on the gas cylinder.
- Switch off the electrical power supply; disconnect the vehicle from the mains.
- Call the fire brigade, sound the alarm.
- Fight the fire, if possible.

2.8 Safety instructions for the roof



Warning!

Risk of injury and of damage to the vehicle roof

- Standing or walking on the elevation of the alcove or the front opening hood of partially integrated vehicles is not allowed! Walking on the roof of the vehicle is permissible only in the rear area.
- Do not walk on roof structures or roof fittings, e.g. roof hoods, roof railings etc.
- Clear snow and ice from the roof and from the skylights.
- Use a ladder which is placed against the roof edge for this purpose.

2.9 Safety instructions for rear carrier systems (special accessories)



Warning!

Risk of injury and damage to the vehicle

- ▲ Pay attention to the statutory regulations for the installation of a rear carrier.
- ▲ When the rear lighting of the vehicle is covered, a second set of lights must be installed.
- ▲ Do not exceed the permissible carrying weight of the rear carrier.
- ▲ The load must not project by more than 40 cm on the sides. Do not allow sharp or pointed objects to project.
- ▲ The load must be stored safely and specially secured against falling down.
- ▲ When the rear carrier is used, the load distribution of the vehicle as well as its drive and brake behaviour change.



Note!

Have the installation of a rear carrier performed by an authorised workshop only. Ask your **SUN LIVING** dealer for advice.

2.10 Environmental notes

For the protection of our environment, always pay attention to the following:

- Always turn off the engine when the vehicle stands still. The operating temperature is reached most quickly while driving.
- **Never** dispose of any kind of waste water and waste in the open countryside.
- Empty the waste water tank and the toilet only at special waste disposal stations. These waste disposal stations are available at camping sites. Request information from local authorities.
- Use environmentally-friendly chemical additives for the toilet.
- Separate household waste and dispose of this waste in special waste disposal stations.
- When staying in towns and communities for longer periods, always stay at special car parks for motorhomes. Obtain information about car parks and camping sites in time before starting the journey.
- Always collect waste oil, lubricants and cleaning agent in suitable containers and dispose of them properly.

2.11 Disposal of Vehicle



Note!

- The vehicle should only be disposed of by specialist firms authorised to carry out this work.
- When disposing of the vehicle, observe national and regional provisions as well as relevant guidelines/directives.

3 Description & equipment

3.1 About this instruction manual

In the diagrams for explanation of the equipment, "black arrows" always stand for switching off or closing an equipment part and "white arrows" for switching on or opening.

3.2 Body

The bodywork of the vehicle is made in "sandwich construction". The "sandwich" structure consists of 3 layers with a total thickness of up to 40 mm:

- Outer skin: Polyester (glass-fibre reinforced plastic) or aluminium
- Insulation: Styrofoam
- Inner wall: Wood panelling

The 3 layers are glued with special adhesive which penetrates in the Styrofoam and ensures the bonding of the layers. This layer structure provides optimum heat insulation of the vehicle.

To improve road safety, a 3rd brake light is installed in the upper rear area.

3.3 Gas cylinder compartment

The lockable gas cylinder compartment is sealed and insulated with respect to the interior (Chapter 11.2).

3.4 Interior furnishings

All pieces of furniture are made from high-quality materials and securely attached. Sufficient storage space is available in the living area and in the kitchen unit.

All flaps, cabinet doors and drawers are equipped with secure locks and fittings that prevent unintentional opening.

The furniture surfaces can be easily cleaned with commercially available cleaning agents (Chapter 19.2).

Depending on the model, the vehicle has firmly installed beds and/or seating groups that can be easily converted for sleeping (Chapter 9).

3.5 Kitchen

The kitchen unit consists of cooking stove, oven (special equipment), microwave oven (special equipment), sink and a refrigerator/freezer (Chapter 16).

Adequate storage space is provided.

3.6 Bathroom unit

Each vehicle has a bathroom unit (Chapter 8.16) with shower, sink and toilet (Chapter 16). The folding door, swinging door or curtain must be closed when taking a shower.

3.7 Heater

The vehicle is equipped with a heater with hot-air blower or a warm water heating (Chapter 13).

3.8 Water and waste water

The vehicle is equipped with a water tank and a waste water tank (Chapter 12).

4 First use

4.1 Registering the vehicle

Before the first journey, the vehicle must be registered according to national regulations and a license plate fitted. Vehicles may be operated in road traffic only when insurance cover exists. An EC approval exists for the vehicle.

4.2 Placing the vehicle into service for the first time



Warning!

Make sure to follow the safety instructions

- ▲ Carefully read and follow the safety instructions (Chapter 2.1) before placing the vehicle into service.
- ▲ Insurance coverage and warranty claims to the manufacturer become void when the safety instructions are not observed and followed.



Warning!

Risk of accident

- ▲ After the first 50 km, retighten the wheel nuts and then regularly check the seating of the wheel nuts.
- ▲ Check the tyre pressure before each journey.

Pay attention to the following when placing the vehicle into service:

- ➔ Familiarise yourself with your vehicle before the first journey.
- ➔ Get used to the driving characteristics and dimensions of your vehicle during a short weekend trip.
- ➔ Drive slowly and carefully in the beginning.

5 Before the journey

5.1 Loading the vehicle



Warning!

Risk of injury and severe damage to the vehicle

- ▲ When a tyre bursts, the vehicle can get out of control.
- ▲ Do not exceed the maximum gross vehicle weight.
- ▲ Check the tyre pressure (Chapter 22.1) at regular intervals. Tyres can burst when the tyre pressure is too low.



Warning!

Danger of overloading

- ▲ The maximum gross vehicle weight entered in the vehicle documents must not be exceeded. Tyres can also burst when the vehicle is overloaded.
- ▲ A warranty claim to the manufacturer and the insurance coverage become void.

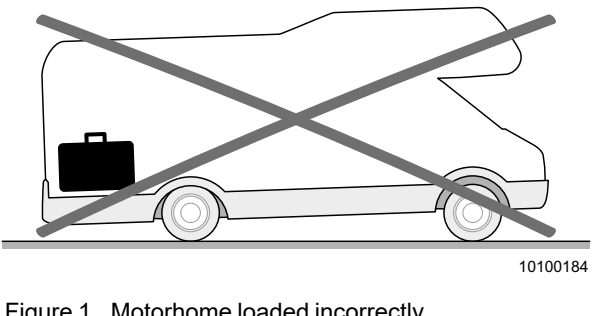
Pay attention to the following when loading the vehicle:

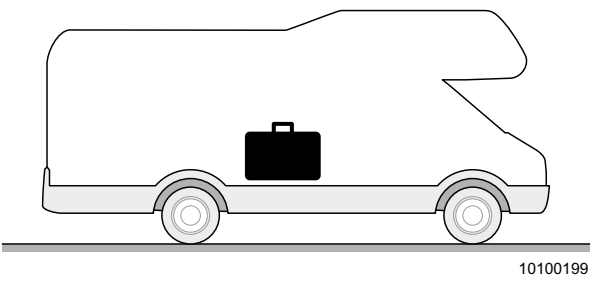
- Unladen weight = mass in ready-to-drive condition according to EN 1646-2 (Chapter 22.3).
- Additional equipment installed in the factory and options increase the unladen weight and reduce the additional load.
- Determine the maximum additional load according to part 1 of the registration certificate and the list in the "Technical data" Chapter (Chapter 22.3).
- The additional load covers all other persons and the luggage.
- On vehicles with standard equipment, the outside of the roof and the rear area are not to be loaded.
 - Never exceed a height of 4 m and a width of 2.55 m with additional attachments.
 - Attach and secure the roof and rear loads so that they do not slip, are unaffected by the wind and are streamlined. Do not use rubber expanders!
- In order not to endanger other road users, objects must not project beyond the vehicle silhouette on the side or rear.
 - Do not overload the vehicle. For weight information and Tables, see Chapter 22.3 and the registration certificate, part I.
- Pay attention to the correct axle load distribution. Roadability and tyre wear are directly affected by the axle load. Pay attention to the maximum axle loads (see registration certificate part I).
- Load the vehicle evenly on the right and left. The driving characteristics deteriorate when loading is uneven.
- Store heavy objects (e.g. tinned food, cutlery, dishes) in low-lying storage compartments and secure them against slipping.
- Stack light objects, e.g. clothes, in higher storage compartments or in the compartments below the seats.
- Always keep liquids in leak-proof containers in low-lying storage compartments.
- Load the bike rack (special accessory) with only 2 to 3 bikes at the most (50 kg maximum).



Note!

Weigh the completely loaded vehicle on public scales before starting your journey.

 <p>Figure 1 Motorhome loaded incorrectly</p>	<p>MOTORHOME LOADED INCORRECTLY!</p> <ul style="list-style-type: none"> • Do not stow heavy objects as shown (Figure 1). • If the load is spread unevenly, instabilities or loss of control may be the consequence.
--	--

 <p>Figure 2 Motorhome loaded correctly</p>	<p>MOTORHOME LOADED CORRECTLY!</p> <ul style="list-style-type: none"> • Store objects between the axles, if possible. • Store heavy objects at lower positions. • Store light objects at upper positions.
---	---



Note!

Pay attention to the following when installing rear carriers:

- Attachment and securing of the load as specified
- Allowable load-carrying capacity of the vehicle and axle(s)
- Change of axle load distribution
- Change of driving and braking behaviour of the vehicle
- Change of overall length

5.2 Spare keys

The following information is required for ordering a spare key:

Key for	Required information	To be obtained from
Basic vehicle	<ul style="list-style-type: none"> • Vehicle identification number: • Registration certificate part II • Code card, if applicable 	Service department of basic vehicle manufacturer
Bodywork (doors and flaps)	<ul style="list-style-type: none"> • Registration certificate part II • Key number 	SUN Living -Service Centre

Table 2 Spare keys

5.3 General check before starting to drive



Warning!

Hazards and damage due to unsecured load

- ▲ After having driven for a few kilometres, check the additional load is stowed in slip-free manner in the vehicle.



Caution!

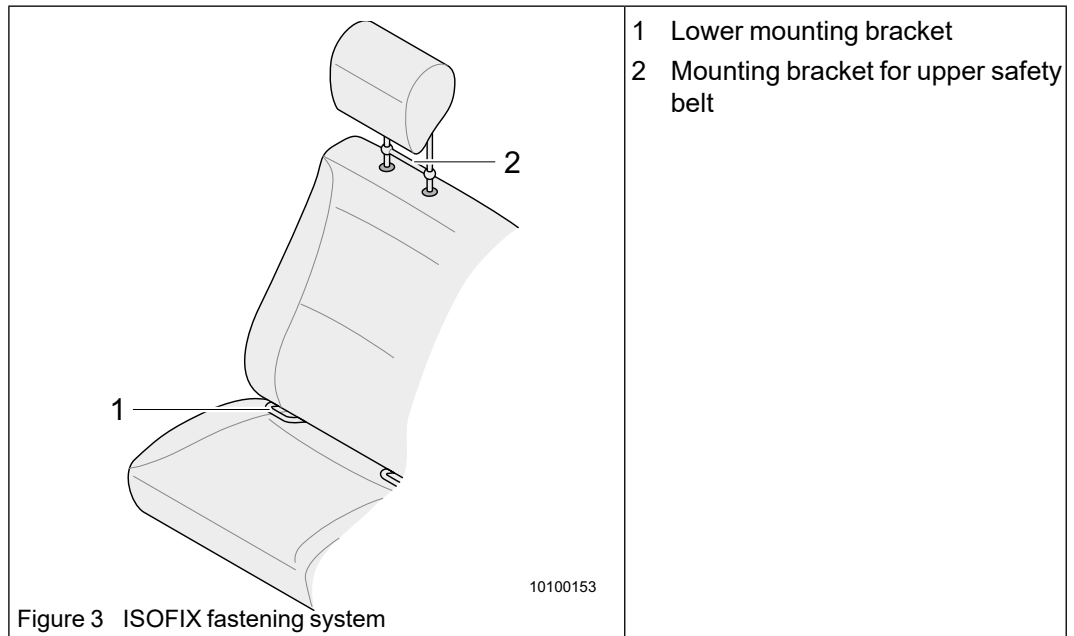
Damage from objects not safely stowed

- ▲ Safely stow loose items like chopping or draining boards during the journey.

5.4 ISOFIX fastening system for child car seats (special accessory)

Some models are equipped with the ISOFIX fastening system for child car seats.

Please select the appropriate car seat for your child from the table (Table 3).



Fasten child car seat:

- ➔ Snap the child car seat connector arms into the mounting brackets (Figure 3/1).
- ➔ Fasten the upper safety belt to the mounting bracket at the head restraint (Figure 3/2).

	For children from ...		
	Weight	Age (approx.)	Height (approx.)
Standard groups			
Group 0	> 0 to 10 kg	Newborn to 1 year	to 75 cm
Group I	> 9 to 18 kg	1 to 4.5 years	75 to 100 cm
Group II	15 to 25 kg	3.5 to 7 years	to 125 cm
Group III	25 to 36 kg	7 to 12 years	to 150 cm
Seats flexible in size			
Group 0+	> 0 to 13 kg	Newborn to 2 years	to 90 cm
Group 0/I	> 0 to 18 kg	Newborn to 5 years	to 100 cm
Group I/II	> 9 to 25 kg	1 to 7 years	72 to 125 cm
Group I/II/III	> 9 to 36 kg	1 to 12 years	75 to 150 cm
Group II/III	> 15 to 36 kg	3.5 to 12 years	95 to 150 cm
Height, age and weight:			
The standard group only determines the weight. Age and height are reference values. Children grow with different speed and their weight also varies at the same age. The important thing is that the child car seat fits your child.			

Table 3 ISOFIX reference table

5.5 Tyres



Warning!

Risk of injury and severe damage to the vehicle

- ▲ When a tyre bursts, the vehicle can get out of control.
 - Check the tyre pressure (see Table 24 in Chapter 22.2) at regular intervals.
 - Check the tyres for damage at regular intervals
 - Comply with minimum tread depth. Observe the regulations of the respective country.
- Regularly check the tyre pressure on cold tyres and correct the tyre pressure as required. Do not forget the spare wheel (special equipment).
 - The tyres overheat if the tyre pressure is too low which can cause the tyres to burst at high speed.
- Check the tyres for even wear and damage at regular intervals (e.g. penetrated foreign objects, punctures, cuts, tears and bumps in the tyre side walls). Always have the damage repaired by a specialist.
- Regularly check the tread depth.
 - If the tread depth is too small, the risk of aquaplaning rises.
 - Comply with the minimum tread depth. Observe the regulations of the respective country. We recommend to change the tyre as from a tread depth of 4 mm.

- Always use tyres of the same construction, same brand and same type (summer and winter tyres). Pay attention to the spare tyre.
- Regularly check the wheel nuts or bolts for firm seating.
- When the vehicle is put out of service for a longer period, prevent "flat spots" on the tyres.
 - Relieve the load on the tyres by jacking up the vehicle.
 - Move the vehicle every 4 weeks so that the position of the wheels is changed and the load on the tyres is always at different positions.
 - Increase the tyre pressure by 0.3 bar as compared with the stipulated tyre pressure.
- Drive over kerbs slowly and, if possible, at an obtuse angle. Avoid driving over steep and sharp-edged kerbs.
 - Hard or acute-angled impacts against kerbs or sharp-edged objects, for example stones, can damage the tyres.
- Drive over high manhole covers at a slow speed.
- Hidden tyre damage is not eliminated by correcting the tyre pressure.
- Do not use used tyres.
 - Tyres age even when they are not driven or driven only a little.
 - It is recommended to change the tyres of the vehicle, including the spare wheel, when they are 6 years old or earlier when the minimum tread depth is reached.

5.6 Electrical lighting

Before starting to drive, check the function of all interior and exterior lighting equipment on the vehicle and replace defective lighting elements.

Make yourself familiar with the replacement of lighting elements before starting to drive (Chapter 21).

6 During the journey



Caution!

Risk of injury and damage to the vehicle

- ▲ During positioning manoeuvres, when driving through passageways, bridges, tunnels and with overhanging branches, observe the dimensions of the vehicle.
- ▲ Dimensions of the vehicle, see vehicle documents.
- ▲ Equipment and attachments change the weight and the dimensions.
- ▲ Vehicles from 3.5t to 7.5t are designed for a maximum speed of 100kph. This maximum speed must not be exceeded, not even when a higher speed is allowed in the country being visited.



Note!

- Persons as well as pets must be seated on seats equipped with suitable restraining devices while travelling in the vehicle.
- While the motorhome is in motion, nobody may remain in the alcove, the beds and the bathroom unit.

Pay attention to the following during the journey:

- ➔ When starting to drive and still at slow speed, brake shortly to check the function of the brake system and the braking behaviour (exact tracking etc.).
- ➔ Adjust your driving technique to the vehicle size, drive with consideration and foresight.
- ➔ Drive slowly on poor roads.
- ➔ Drive downhill at the same speed as uphill.
- ➔ Switch to the next gear early enough.
- ➔ Avoid braking abruptly.
- ➔ Prevent jerky steering as this could cause the vehicle to swerve.
- ➔ When driving over bridges, you have to anticipate crosswind. Because of the vehicle size and height, the vehicle is more sensitive to crosswind than a passenger car.
- ➔ The vehicle can get into a turbulence when overtaking truck-trailer combinations. Light counter-steering compensates this effect.
- ➔ Do not underestimate the length of the vehicle.
- ➔ When turning into a road and when driving around bends, take the larger curve radius of the vehicle into consideration.
- ➔ The braking distance of the vehicle is considerably longer than that of a passenger car. Please increase the safety distance accordingly.
- ➔ When driving in reverse, always have a second person assist you because the rear view mirrors can distort the distances differently.
- ➔ At petrol stations or in garages, switch off all "open flames" operated with gas (also refrigerator or heating).

7 After the journey

7.1 Requirements for the parking area

The parking area should be firm and level.

7.2 Pitching the vehicle

A second person is helpful for the following tasks.

Aligning the vehicle:

- ➔ Align the vehicle horizontally in the driving direction by manoeuvring.
- ➔ Align the vehicle horizontally crosswise to the driving direction.
 - If sufficient room is available, move the vehicle until you have found a horizontal position.
 - If this is not possible, use drive-on chocks (special accessory) underneath the respective wheels,
- ➔ To prevent the vehicle swaying, lower the two corner steadies at the vehicle rear (special equipment). The crank can be found in the storage space that is accessible from the outside.
- ➔ Tighten the parking brake to the stop and engage the first gear.
- ➔ Secure the vehicle with the wheel chocks (special accessory) against rolling away.

7.2.1 Corner steadies (special equipment)



Warning!

Damage to vehicle

- ▲ Crank up the corner steadies completely before starting to drive.
 - When starting to drive, the chassis or the vehicle bottom could be damaged by extended corner steadies.
 - Torn off corner steadies could jeopardise other road users.

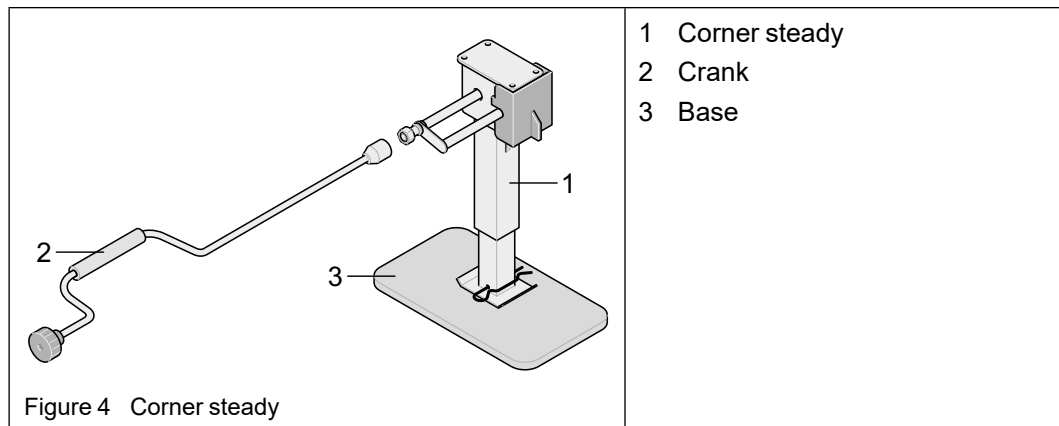


Caution!

Damage to vehicle frame

- ▲ Do not use the corner steadies for lifting the vehicle. This could result in distortion of chassis and bodywork.

To prevent the vehicle from unnecessary swaying at its parking location, we recommend extending the corner steadies on the vehicle.



Extending the corner steady:

- ➔ Place the crank (Figure 4/1) on the corner steady (Figure 4/2).
- ➔ Turn the crank anticlockwise to extend the corner steady.



Note!

Place a firm substructure (Figure 4/3) underneath the base (Figure 4/2) of the corner steadies when your vehicle is standing on soft ground such as grass or sand. This prevents sinking into the ground and facilitates the retraction of the corner steadies before starting to drive again.

7.2.2 Electrical connection

If 230 V supply is available at your parking area, the electrical appliances can be connected to this voltage supply (Chapter 10.1.1).

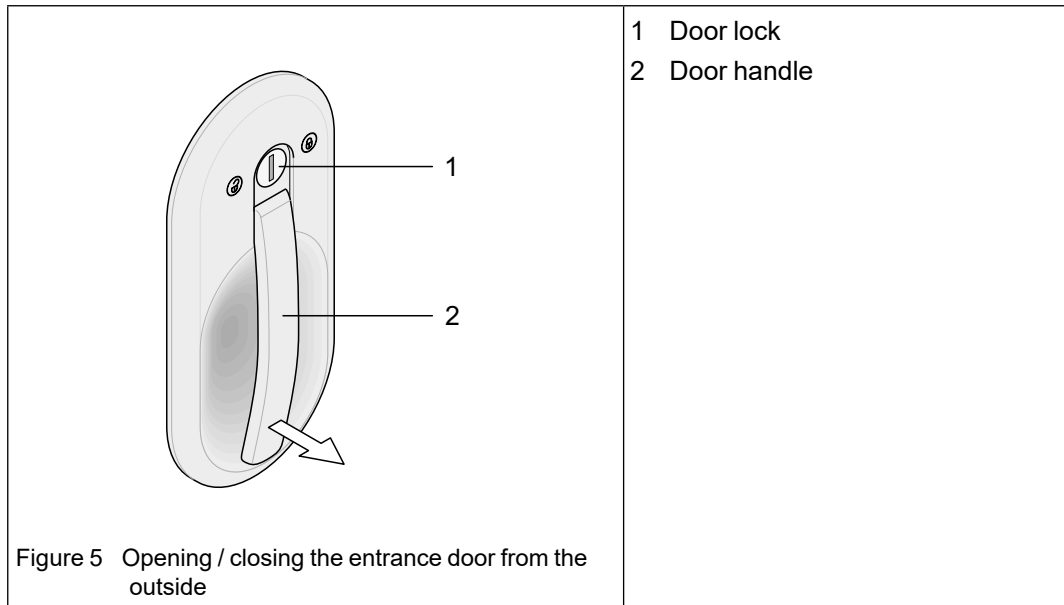
Observe the fuse protection of the voltage supply.

All vehicles are equipped with an additional living area battery for the 12 V supply of electric appliances (e.g. lighting, TV, water pump, etc.). The 12 V supply is switched by the control panel (Chapter 8.8).

8 Living

8.1 Entrance door

8.1.1 Opening/closing the door from the outside



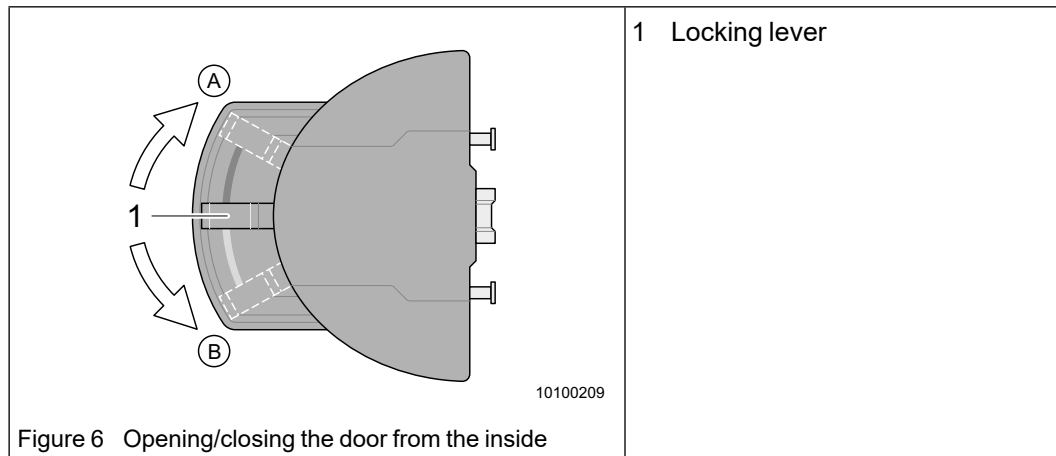
Opening the door:

- ➔ Insert the key into the door lock (Figure 5/1) and turn towards the "open lock" symbol to the stop.
- ➔ When released, the key returns to the initial position.
- ➔ Remove the key.
- ➔ Pull the door handle (Figure 5/2) to open the door.

Closing the door:

- ➔ Close the door until the door lock latches.
- ➔ Insert the key into the door lock (Figure 5/1).
- ➔ Turn the key anticlockwise to the stop. If necessary, push the door lightly into the seals. When released, the key returns to the initial position.
- ➔ Remove the key.

8.2 Opening/closing the door from the inside



Opening the door:

- Push the locking lever (Figure 6/1) down (Figure 6/B) and open the door.
- Release the locking lever.
- The locking lever returns to its initial position.

Closing the door:

- Close the door.
- Push the locking lever (Figure 6/1) up (Figure 6/A).
- The door is locked.

8.3 Sliding door



Warning!

Risk of injury

- ▲ Always make sure not to injure any persons or animals, or damage any objects when opening and closing the door.
- ▲ Always use just the grip to open and close the door.
- ▲ Always open and latch the sliding door completely, especially when the vehicle is parked on a slope.
- ▲ Always keep the sliding door closed and locked during the journey or when moving the vehicle.



Caution

Damage

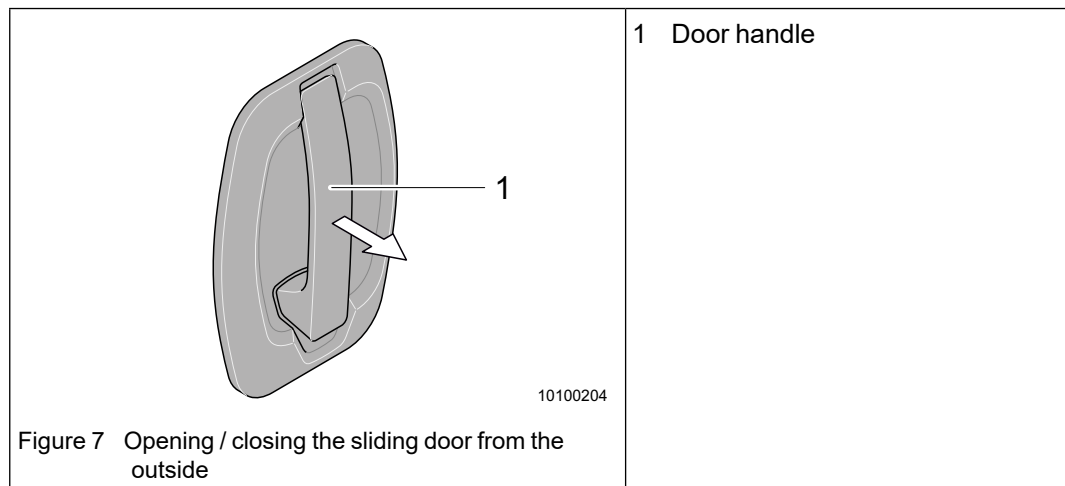
- ▲ Before using the sliding door, always make sure the window in the sliding door and the window behind the sliding door (special accessory) are closed and locked.
- ▲ Open the flyscreen door (special equipment) fully before closing the sliding door.



Note!

- The door lock of the sliding door is only connected to the central locking of the van.
- The lock of the sliding door is opened or closed using the remote control.

8.3.1 Opening / closing the sliding door from the outside



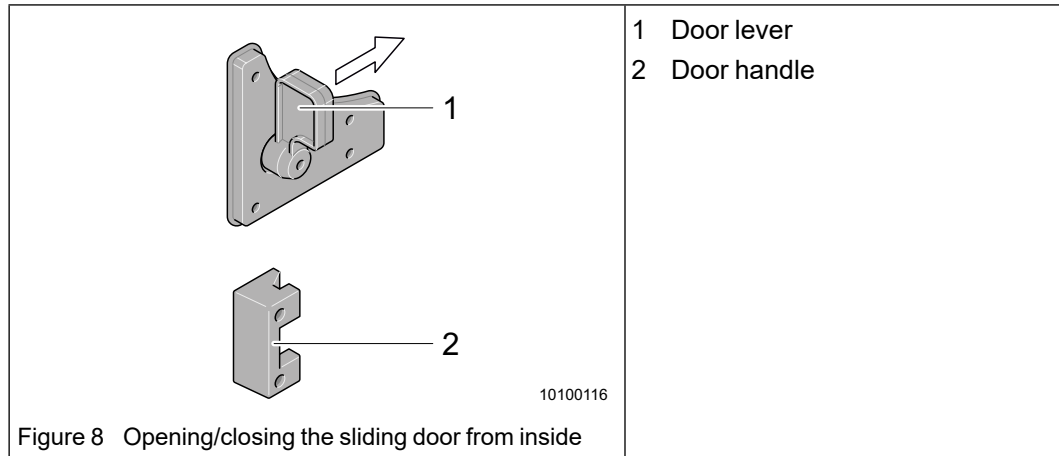
Opening the sliding door:

- ➔ Unlock the lock with the remote control.
- ➔ Pull the door handle (Figure 7/1) to open the door.
- ➔ Slide the door to the rear to the locking position.

Closing the sliding door:

- ➔ Pull the door handle (Figure 7/1) and press in the locking position.
- ➔ Slide the door to the front until it is completely closed.

8.4 Opening/closing the sliding door from inside



Opening the sliding door:

- ➔ Pull the door lever (Figure 8/1) to the rear and open the door up to the locking position.

Closing the sliding door:

- ➔ Use the door handle (Figure 8/2) to slide the door until it latches in on its own.



Note!

- In van models the rear doors can also be opened/closed from inside.

8.4.1 Sliding door stop function (special equipment)

Some models have an optional sliding door with stop function. The door locks into place in half-open position.

- ➔ Pull the door handle (Figure 8/2) or the door lever (Figure 8/1) again to unlock the stop function.



Note!

- If the sliding door is equipped with central locking (special accessory) it can also be locked using the “Lock” switch on the dashboard.

8.4.2 Flyscreen door (special equipment)

Some models have an optional flyscreen door.



Caution

Damage

- ▲ Open the flyscreen door (special equipment) fully before closing the sliding door.

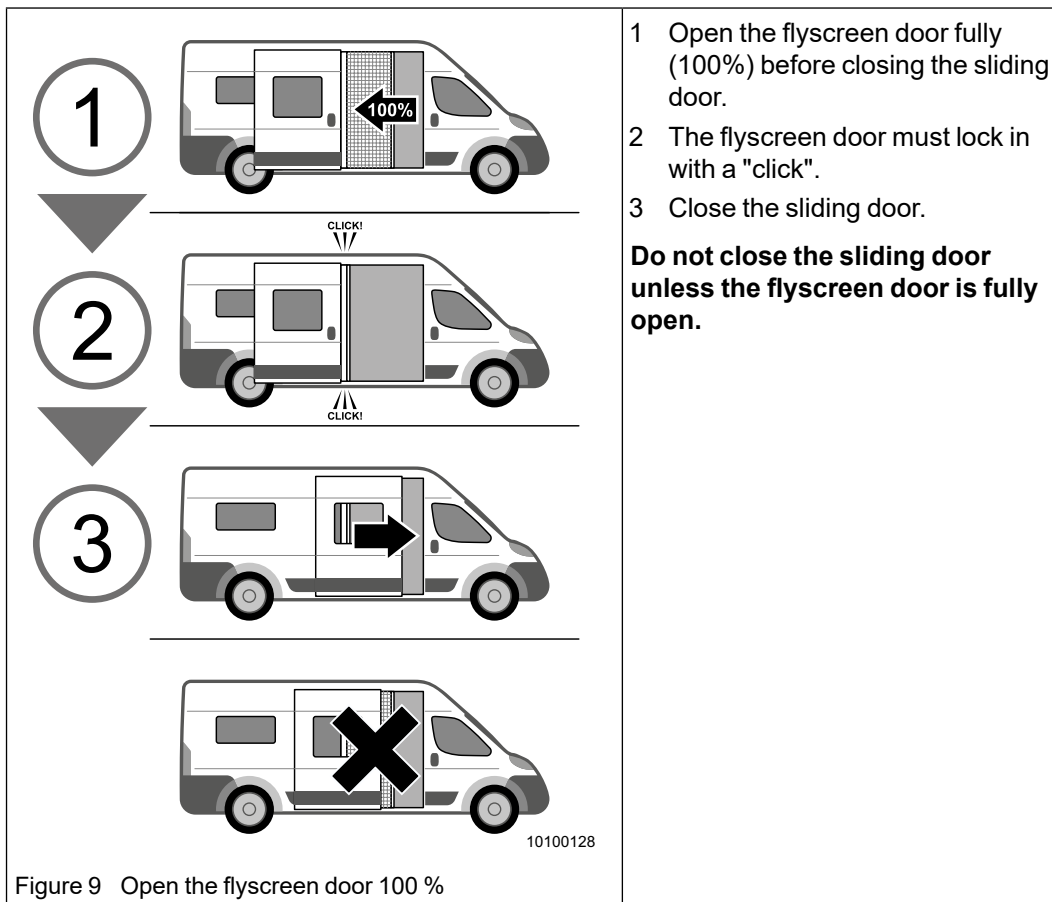


Figure 9 Open the flyscreen door 100 %

Opening the flyscreen door:

- Grip the flyscreen door in the middle of the vertical profile.
- Carefully slide the door open to prevent the door canting in the guide profiles.

Closing the flyscreen door:

- Grip the flyscreen door in the middle of the vertical profile.
- Carefully slide the door closed to prevent the door canting in the guide profiles.
- Push the door shut until the brush seal is flush with the vehicle frame.

8.5 Ventilating the vehicle



Danger!

Poisoning by gas and carbon monoxide

- ▲ Always keep the forced ventilation (in the roof hoods and in the floor panel) and the mushroom ventilators open, do not cover them.



Caution!

Possibility of mould formation

- ▲ At night, condensation water could collect under the cushions. To dry the cushions (foamed material), place the cushions in an upright position and ventilate the vehicle thoroughly.

- Correct ventilation of the vehicle is the best prerequisite for agreeable living comfort.
- Every person releases up to 35 grams of water into the atmosphere each hour just by breathing. Therefore, the living area must be ventilated using the windows and roof hoods depending on the relative humidity.
- Additional water evaporates as a result of cooking or wet clothes.
- Extreme weather conditions could cause the forming of condensed water inside the acrylic glass double window. With rising temperatures, the condensation water evaporates again and the window is cleared.

For more information see Chapter “17 Winter camping”.

8.6 Hinged windows

8.6.1 General

The hinged windows of the vehicle have either automatic locking (the hinged window automatically locks into place in the desired position after opening) or can be continuously adjusted with a knurled screw.

The number of catch bars at the bottom edge of the window varies depending on the window width.

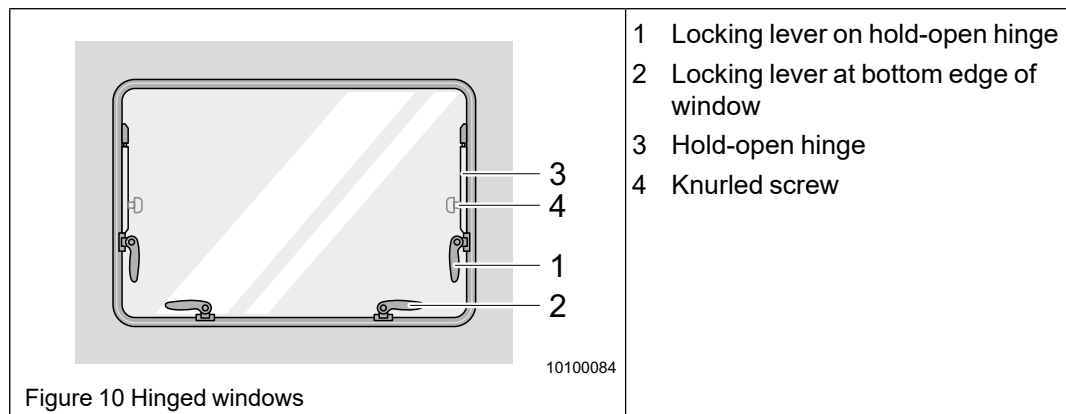


Figure 10 Hinged windows

- 1 Locking lever on hold-open hinge
- 2 Locking lever at bottom edge of window
- 3 Hold-open hinge
- 4 Knurled screw

Opening the window:

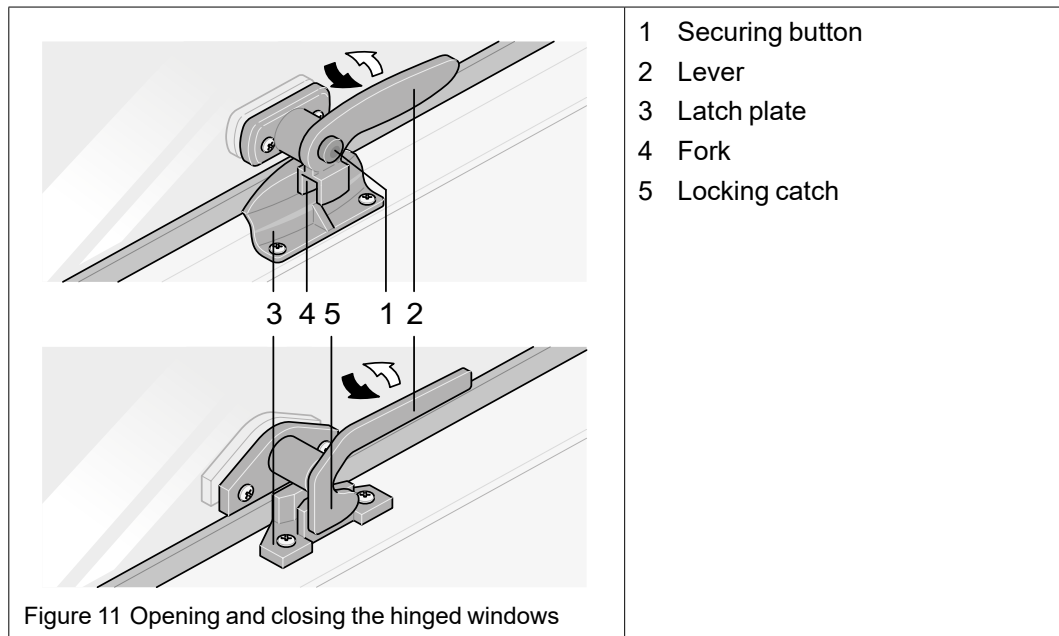
- Open the two locking levers (Figure 10/1) on the hold-open hinges (Figure 10/3) first.
- Then open the locking levers (Figure 10/2) on the bottom edge of the window.
- Push the window to the outside until it has the desired opening width.
- Window with knurled screw: Tighten the knurled screw(s) Figure 10/4) clockwise when the hold-open hinge has reached the desired opening position.

Closing the window:

- Window with knurled screw: Hold the window pane with one hand and loosen the knurled screw(s) Figure 10/4) anticlockwise until the window can be slightly moved.
- Window with automatic hold-open hinges: Open the window until the lock is released.
- First close the locking levers on the bottom edge of the window.
- Afterwards, close the locking levers on the hold-open hinges.

8.6.2 Opening/closing the windows

To open and close the hinged windows, open or close all locking levers on the respective hinged window.



Opening the window:

- If the locking lever has a securing button (Figure 11/1), press and hold down the securing button.
- Turn the lever (Figure 11/2) to the middle of the window.
- Open all window locks.
- Open the window.

Closing the window:

- Close the window.
- If the locking lever has a securing button (Figure 11/1), press and hold down the securing button.
- Turn the lever (Figure 11/2) to the window frame.
- The fork (Figure 11/4) of the lever (Figure 11/2) closes completely on the inside of the latch plate (Figure 11/3).

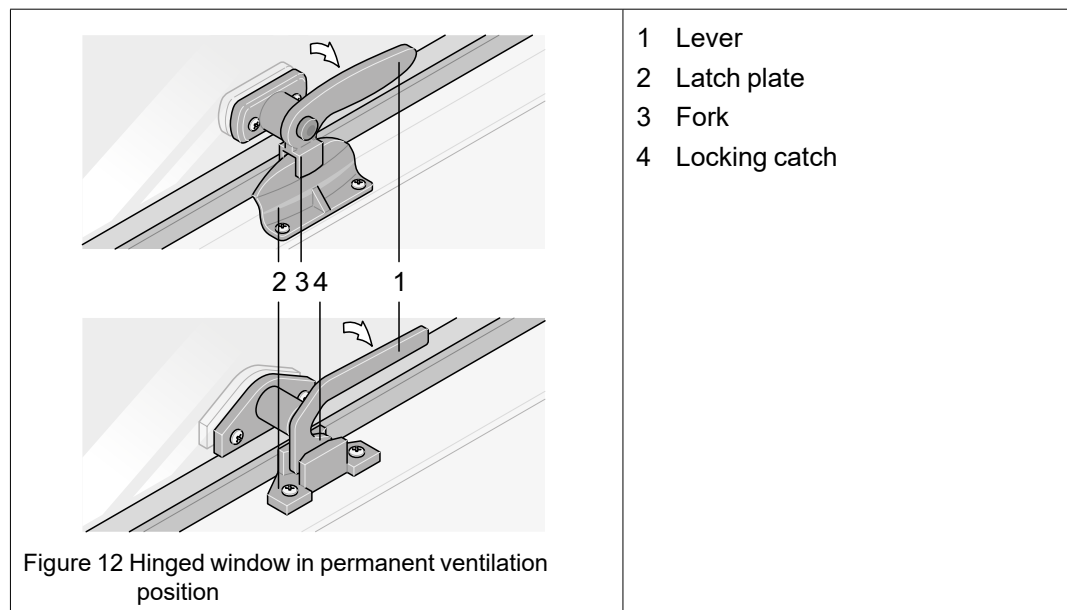
8.6.3 Permanent ventilation



Caution!

Cracks in the window

- ▲ Always close both levers (Figure 10/2) at the bottom edge of the window in the "permanent ventilation" position, otherwise the window pane is bent. This could result in the formation of cracks in the acrylic glass window.
- ▲ Ensure all bottom catch bars are closed in the same position, otherwise, the window could be distorted.



Setting the window to the "permanent ventilation" position

- ➔ Open the locking levers as described in Chapter 8.6.2.
- ➔ Pull the window back until it is almost closed
- ➔ With a locking lever (Figure 12/1) **with** securing button, make sure the latch plate (Figure 12/2) fits properly in the fork (Figure 12/3) when closing the lever (Figure 12/1).
- ➔ With a locking lever (Figure 12/1) **without** securing button, make sure the locking catch (Figure 12/4) fits properly in the recess of the locking plate (Figure 12/2) when closing the lever (Figure 12/1).

8.7 Window blinds and insect screens

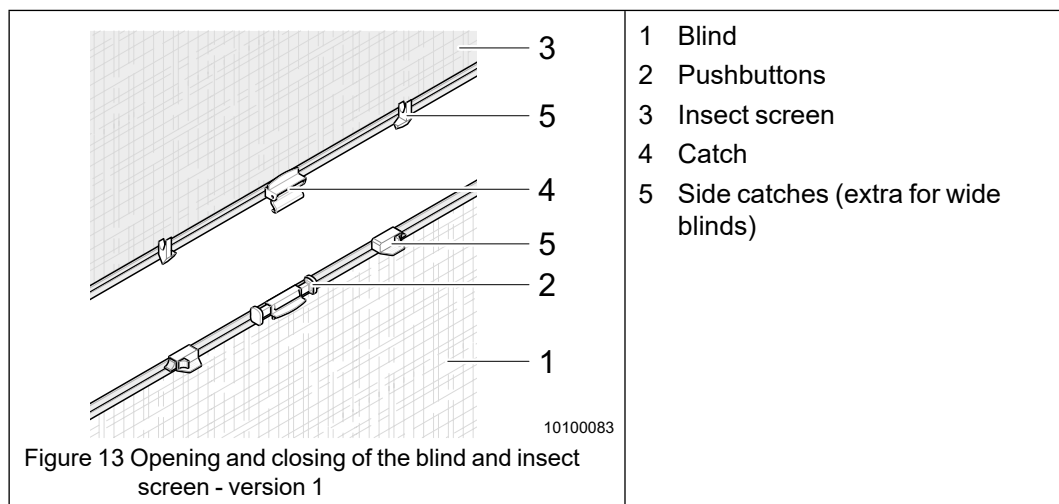
8.7.1 Blind and insect screen - version 1



Caution!

Damage to insect screen

- ▲ When you unlock the blind/insect screen, hold on to the insect screen (Figure 13/3), otherwise it will snap up with spring tension. Snapping up could damage the screen spring and the insect screen.
- ▲ Only close the blind to a maximum of 75 % during direct sunlight. Air must be able to circulate.



The blind (Figure 13/1) is located in the bottom part of the window frame.

The insect screen (Figure 13/3) is installed in the top part of the window frame.

Opening and closing the blind:

- ➔ Press the two pushbuttons (Figure 13/2) together.
- ➔ Slide the blind to the desired position.

Releasing the two pushbuttons automatically clamps the blind in place.

The blind (Figure 13/1) has a restricting device so that it can be latched into place at different latching positions.

Opening and closing the insect screen:

- ➔ Pull the insect screen (Figure 13/3) down until the catch (Figure 13/4) latches into place in the blind (Figure 13/1).

The insect screen (Figure 13/3) can be operated only in combination with the blind (Figure 13/1).

Separating the insect screen from the blind:

- ➔ Press on the upper catch (Figure 13/4) of both blinds.

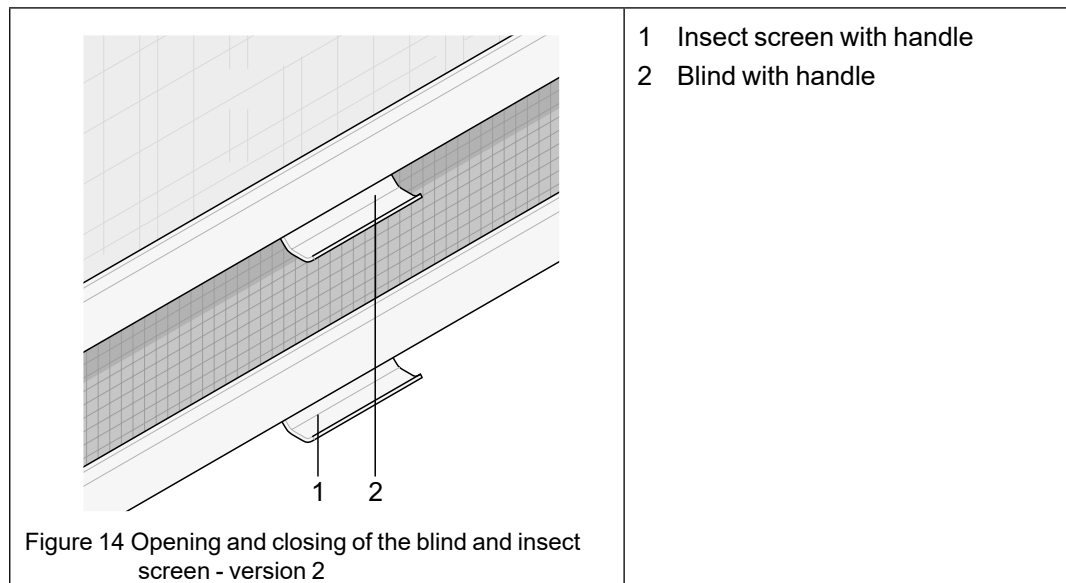
8.7.2 Blind and insect screen - version 2



Caution!

Damage to insect screen

- ▲ When you unlock the blind (Figure 14/1) and insect screen (Figure 14/2), hold on to them, otherwise they will snap up with spring tension. Snapping up could damage the screen spring and the blind/insect screen.



The blind (Figure 14/1) and the insect screen (Figure 14/2) are located in the upper part of the window frame and can be operated independently from each other.

Opening / closing the insect screen:

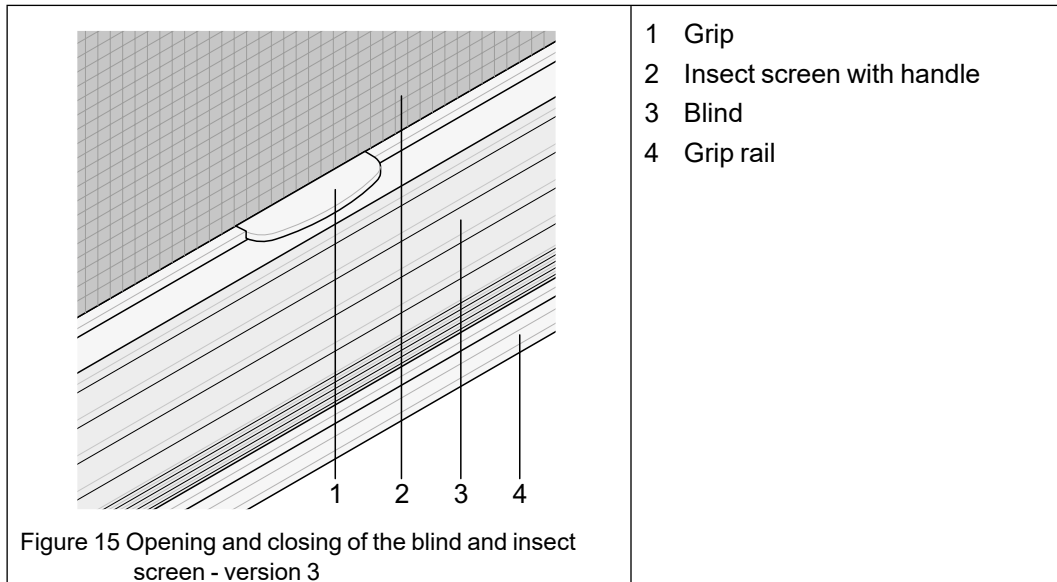
- ➔ Pull down the insect screen (Figure 14/1) by the handle and hook it on both sides of the window frame into the latches.
- ➔ To unhook the insect screen from the latches, push the handle down and slightly pull it to the inside.

Opening / closing the blind:

- ➔ To close the blind (Figure 14/2), the insect screen (Figure 14/1) must first be closed. The blind (Figure 14/2) has a restricting device so that it can be latched into place at different latching positions.
- ➔ Pull down the blind (Figure 14/2) by the handle. When the blind is closed completely, hook the blind into the latches on both sides of the window frame.
- ➔ To unhook the blind from the latches, push the handle down and slightly pull it to the inside.

8.7.3 Blind and insect screen - version 3

The blind (Figure 15/3) and the insect screen (Figure 15/2) are both located in the upper window frame. The insect screen follows the blind.



Opening / closing the blind:

➔ Pull the blind (Figure 15/3) down or up with the grip bar (Figure 15/4).

The blind (Figure 15/1) can be moved up or down to any position.

Opening / closing the insect screen:

➔ Pull the insect screen (Figure 15/2) down or up with the handle (Figure 15/1).

8.8 View protectors in the vehicle front



Caution!

Damage to view protector

- ▲ The fabric of the view protector is sensitive to pressure and can thus be easily damaged.

To prevent people from looking into the interior of the vehicle, a view protector is fitted to each the windows of the driver's cab: The view protector closes off:

- Windscreen
- Side windows

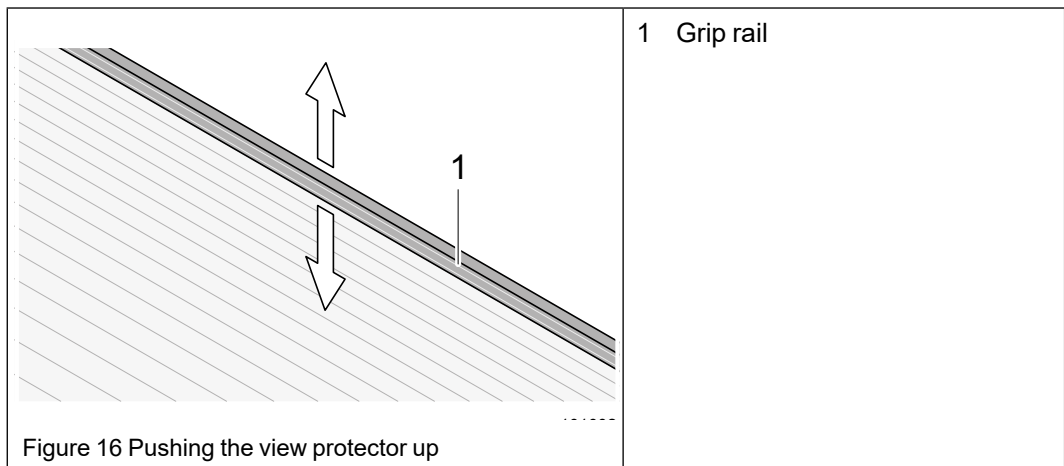
8.8.1 Pleated view protector, windscreen



Danger!

Risk of accident

- ▲ If you do not push the roller blind fully up, your view to the outside is restricted.
 - ➔ Push the view protector fully up before driving off.



The view protector (Figure 16/1) is located at the bottom of the windscreen.

Closing the view protector:

- ➔ Hold the roller blind from the centre of the grip bar.(Figure 16/1) .
- ➔ Push the roller blind fully up.



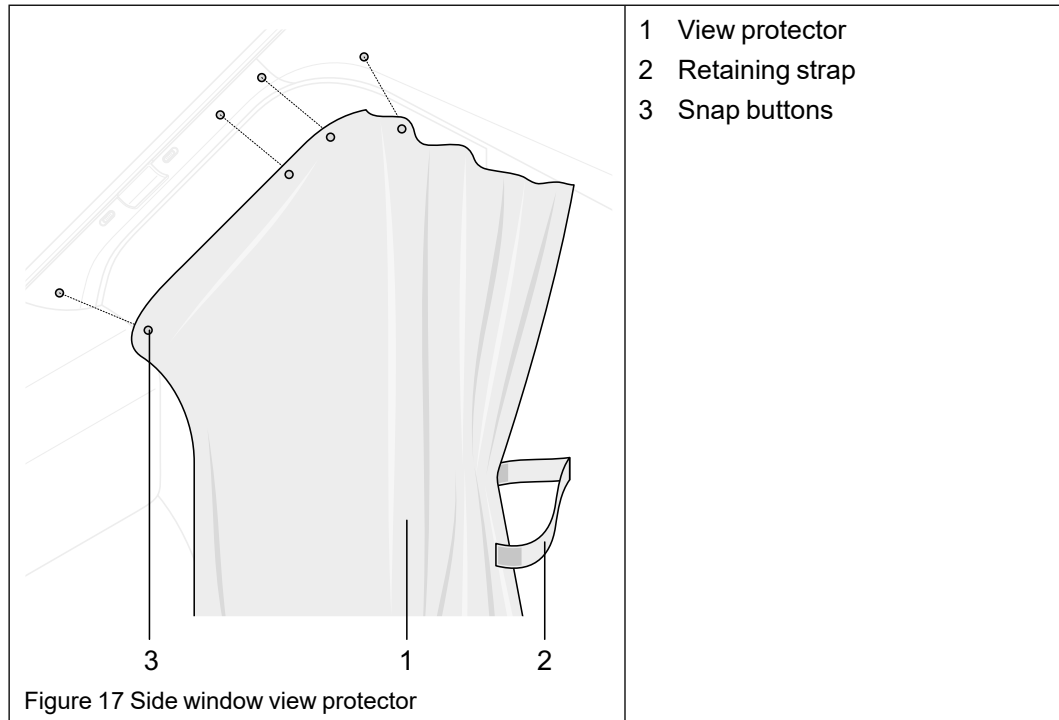
Note!

The roller blind stops in any position.

Opening the view protector:

- ➔ Hold the roller blind from the centre of the grip bar.(Figure 16/1) .
- ➔ Push the roller blind fully down.

8.8.2 Side window view protector



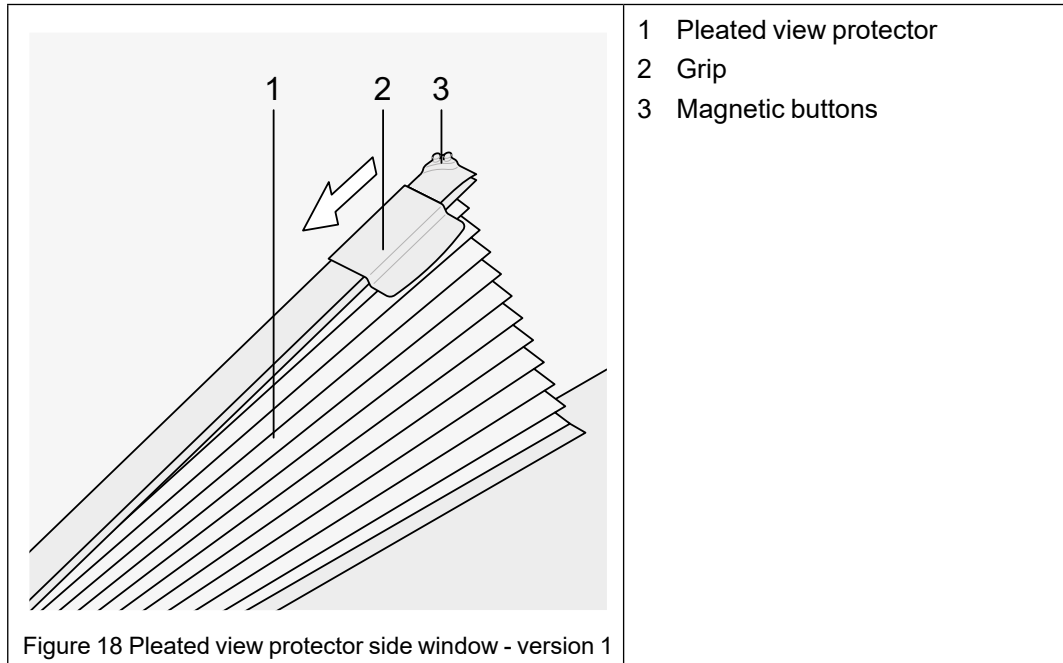
The view protectors Figure 17/1) are located at the rear edge of the respective side windows.

Closing the view protector:

- ➔ Loosen the Velcro fastener of the retaining strap Figure 17/2).
- ➔ Pull the view protector Figure 17/1) to the front and close the snap buttons Figure 17/3).

Close the view protector in reverse sequence.

8.8.3 Pleated view protector, side windows:



The pleated view protectors Figure 18/1) are integrated in the right and left door frames in the driver's cab.

Closing the pleated view protector:

- ➔ Slide the grip Figure 18/2) in the direction of the arrow. This unlocks the pleated view protector.
- ➔ Unfold the view protector Figure 18/1) and attach it to the window frame using the magnetic buttons Figure 18/3).

Close the view protector in reverse sequence.

The pleated view protector (Figure 18/1) is mounted on the right and left side of the driver's cab windscreen.

Closing the pleated view protector:

- ➔ Pull the pleating (Figure 18/1) with a firm tug by its handle (Figure 18/2) from the mounting.
- ➔ Push the pleating (Figure 18/1) back by its handle (Figure 18/2) and close on the opposite side (magnetic catch).

Close the view protector in reverse sequence.

8.9 Roof openings

8.9.1 General

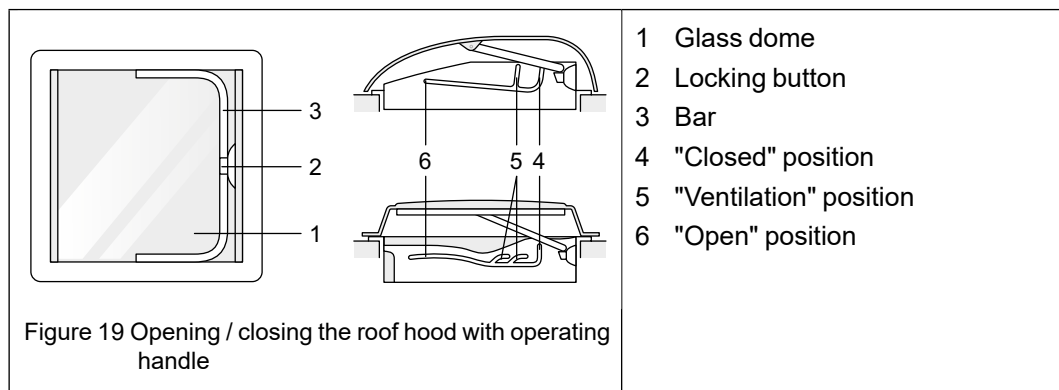


Note!

- Before starting the journey, check the roof openings for damage to the glass dome.
- Open the blind and insect screen before starting to drive.
- Close the roof openings before starting the journey.
- **SuN LIVING** recommends a maximum speed of **130 kph**.
- Do not open the roof openings by strong wind/storm, rain, hail, snowfall or outdoor temperatures under -10 °C.
- Make sure the opening area above the roof hood is free.
- Before opening the roof openings, remove snow, ice and other foreign material.
- Close the roof openings when leaving the vehicle. Danger of burglary or from rain water and wind.
- Consult an authorised workshop when faults or malfunctions occur.

8.9.2 Roof hood with operating bar (special equipment)

The roof hood with operating bar can be opened by tilting to one side.



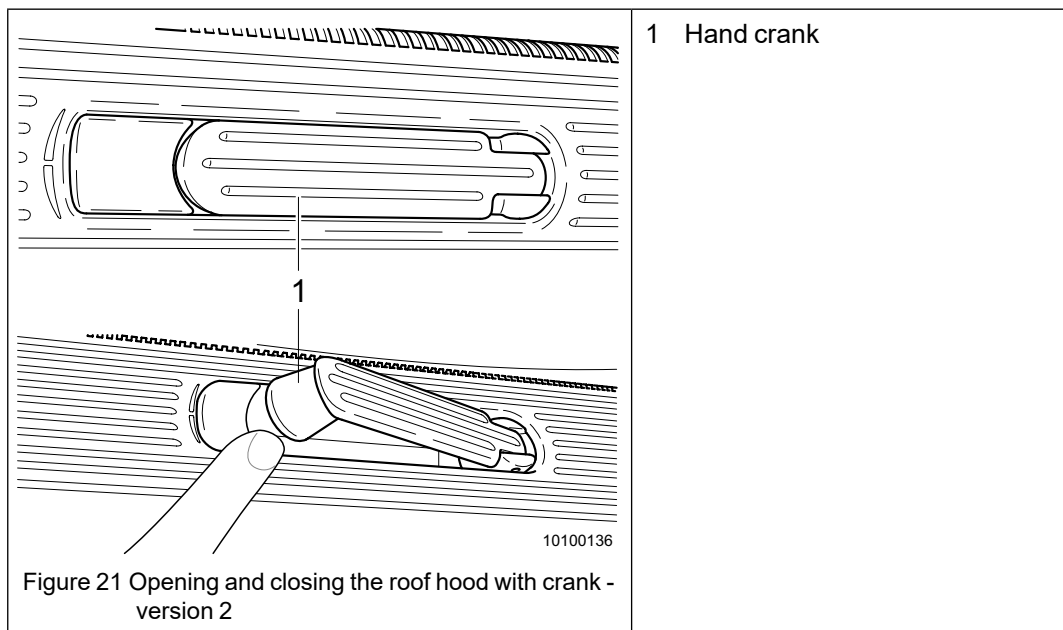
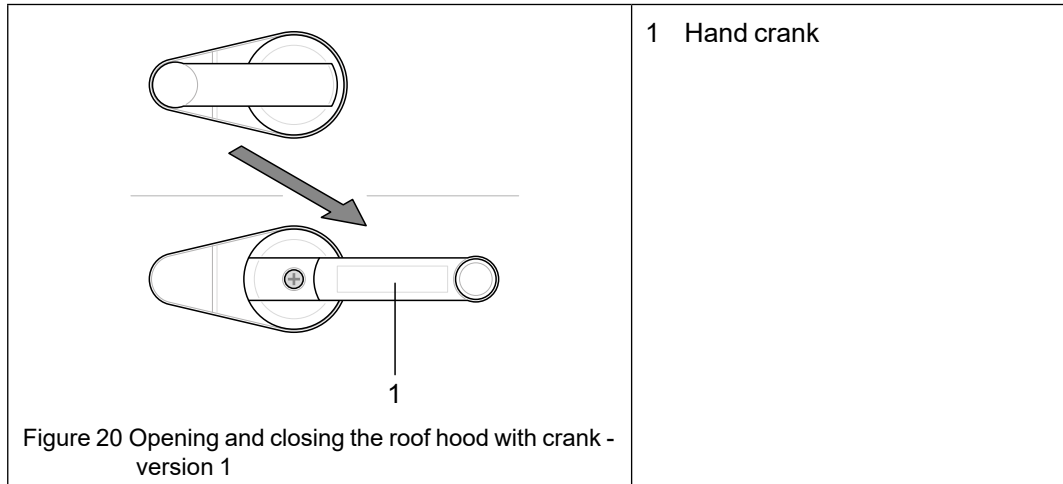
Opening the roof hood:

- ➔ To open the glass dome (Figure 19/1), press the locking button (Figure 19/2) and pull the bar (Figure 19/3) downwards.
- ➔ Push the bar (Figure 19/3) into the desired position. Possible positions are "Ventilation" (Figure 19/5) or "Open" (Figure 19/6).

Closing the roof hood:

- ➔ Push the bar (Figure 19/3) in the direction of the locking button (Figure 19/2) to close the roof hood.
- ➔ Press the locking button /Figure 19/2) and push the bar (Figure 19/3) into the "Closed" position.

8.9.3 Roof hood with crank operation (special equipment)



Opening the roof hood:

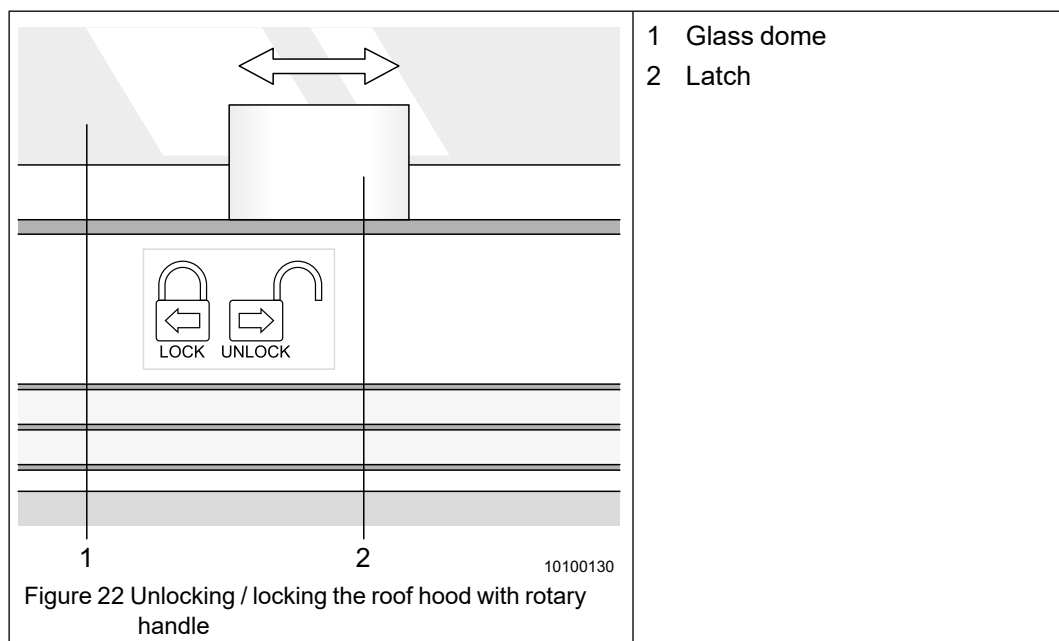
Some models are equipped with additional locking levers (Figure 11).

- ➔ Swivel hand crank Figure 20/1) or Figure 21/1) out
- ➔ Turn the hand crank only until a resistance can be felt. The roof hood is now in the maximum open position. Any desired interim position is possible.

Closing the roof hood:

- ➔ Turn hand crank (Figure 20/1) or (Figure 21/1) until a resistance can be felt.
- ➔ Check the locking by attempting to lift the glass dome.
Before you fold in the hand crank again, a light initial tension must be present on the crank.
 - If required, loosen the attachment screw, take the crank out of the gearing and reposition the crank. Then place the crank onto the gearing again and screw tight.
- ➔ Close the locking lever as required (Figure 11).

8.9.4 Roof hood with rotary handle

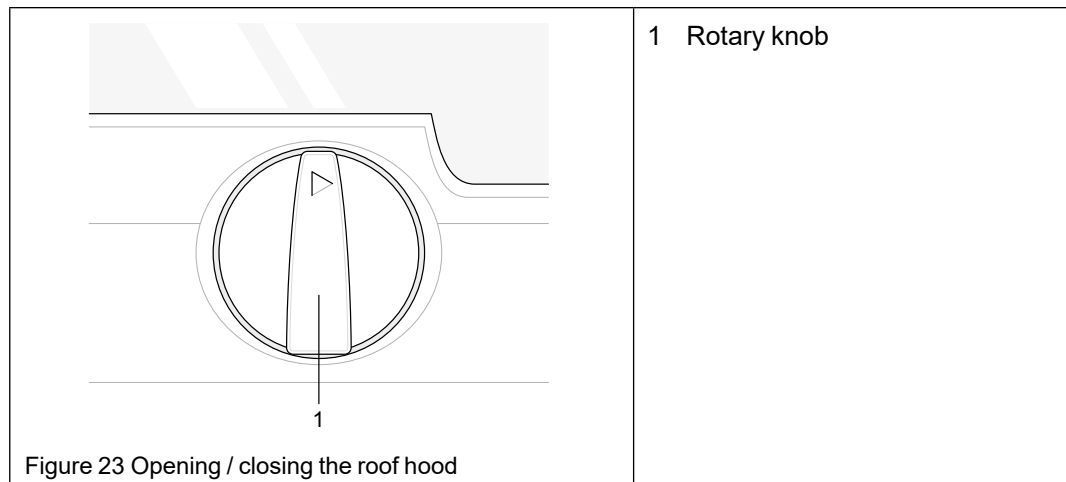


Unlocking the roof hood:

- ➔ Slide the catch bar (Figure 22/2) of the roof hood to the "Unlock" position.

Locking the roof hood:

- ➔ Slide the catch bar (Figure 22/2) to the "Lock" position when the glass dome (Figure 22/1) is closed.



Opening the roof hood:

- ➔ Turn the rotary knob (Figure 23/1) clockwise to open the glass dome.
- ➔ Turn the rotary knob only until a resistance can be felt.
The roof hood is now in the maximum open position. Any desired interim position is possible.

Closing the roof hood:

- ➔ Turn the rotary knob (Figure 23/1) anticlockwise until a resistance can be felt.
- ➔ Then lock the roof hood.
- ➔ Check the locking by attempting to lift the glass dome by hand.

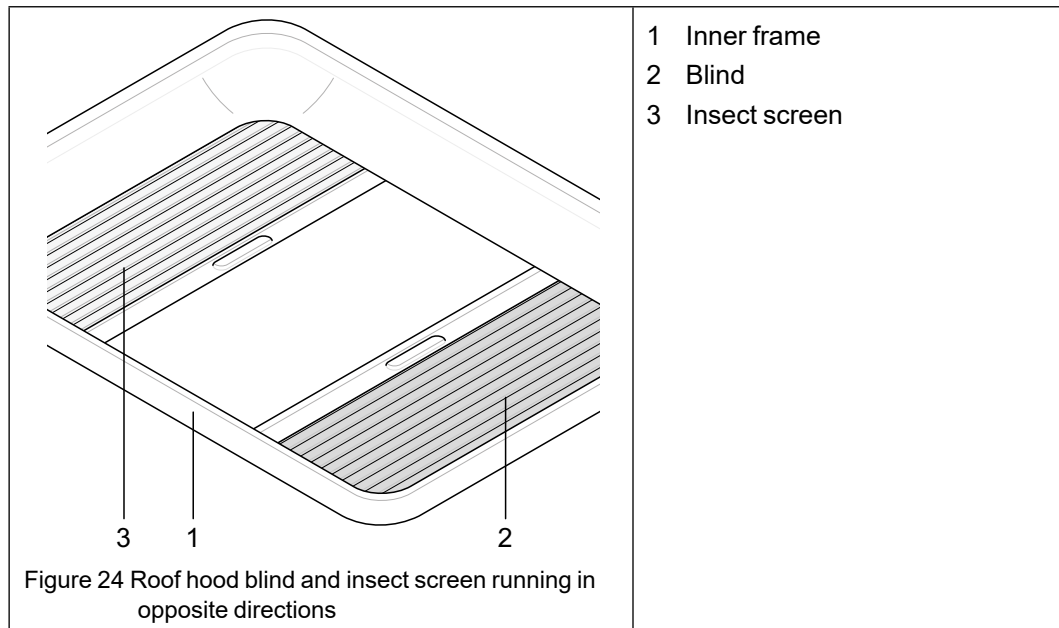
8.9.5 Roof hood blind and insect screen running in opposite directions

8.9.5.1 Version 1



Note!

- Both are continuously adjustable and can be operated together or separate from each other.
- Only close the blind to a maximum of 75% during direct sunlight. Air must be able to circulate.



The blind (Figure 24/2) and the insect screen (Figure 24/3) are fitted in the inner frame (Figure 24/1) of the roof hoods.

Opening/closing the blind or insect screen:

- ➔ Reach into the recess of the end bar of the blind (Figure 24/2) or insect screen (Figure 24/3).
- ➔ Slide it to the desired position.

8.9.5.2 Version 2



Caution!

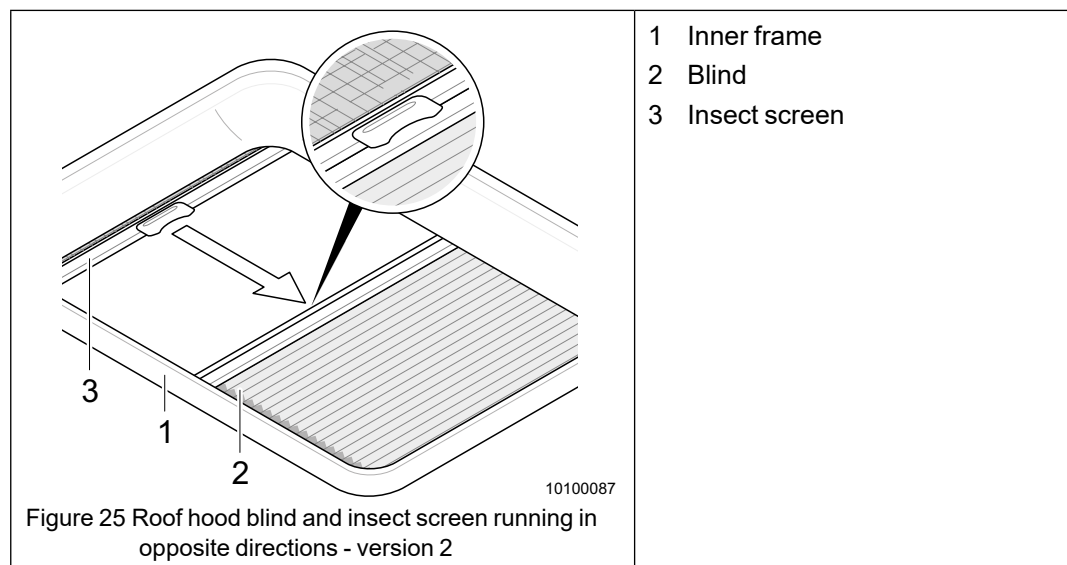
Damage to insect screen

- ▲ Hold the insect screen tight when unlocking otherwise the spring tension will make it snap back. Snapping back can damage the screen spring and the screen.



Note!

- The pleated blind is continuously adjustable.
- The insect screen (Figure 25/3) can only be closed when the pleated blind (Figure 25/2) is latched in.
- Only close the blind to a maximum of 75 % during direct sunlight. Air must be able to circulate.



The blind (Figure 25/2) and the insect screen (Figure 25/3) are fitted in the inner frame (Figure 25/1) of the roof hoods.

Opening/closing the pleated blind or closing insect screen:

- ➔ Use the grip rail to slide the pleated blind to the desired position..
- ➔ To close the insect screen, slide the grip rail of the insect screen towards the grip rail of the pleated blind and latch it in.

Closing the insect screen:

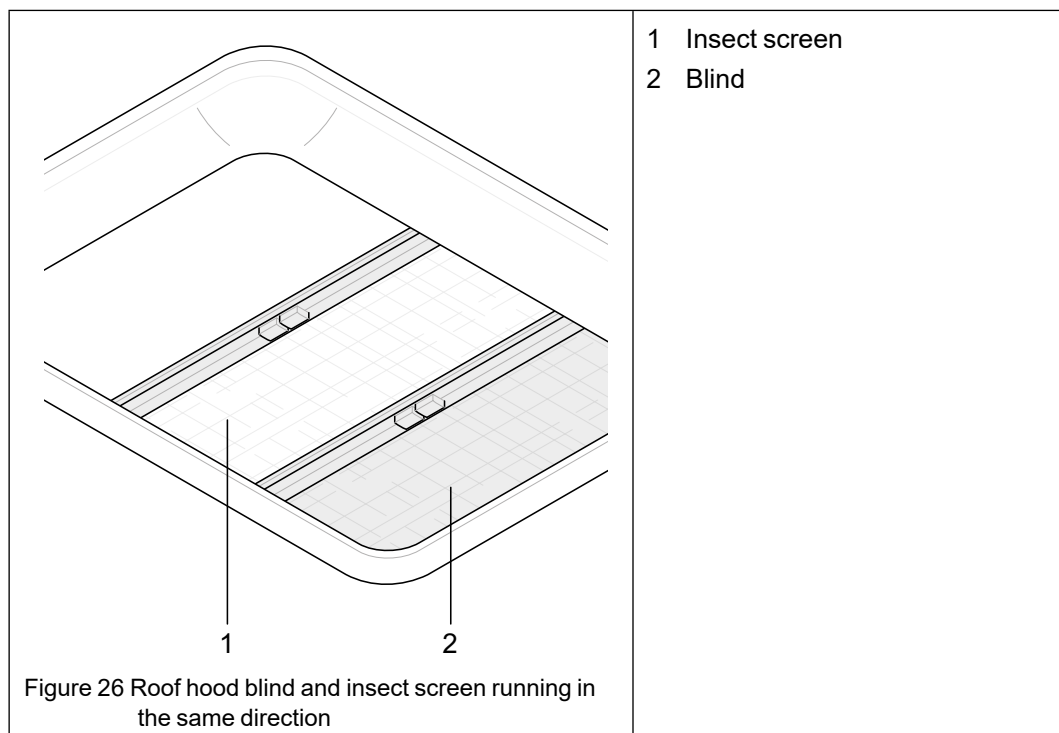
- ➔ Hold the insect screen tight.
- ➔ Press the lock of the insect screen and move the insect screen to the end position.

8.9.6 Roof hood blind and insect screen running in the same direction



Note!

- Both are continuously adjustable and can be operated together or separate from each other.
- After releasing the grip, the blind is automatically clamped into place in the inner frame of the roof hood.
- Only close the blind to a maximum of 75% during direct sunlight. Air must be able to circulate.



The blind (Figure 26/2) and the insect screen (Figure 26/1) are fitted in the inner frame of the roof hood.

Opening/closing the blind or insect screen:

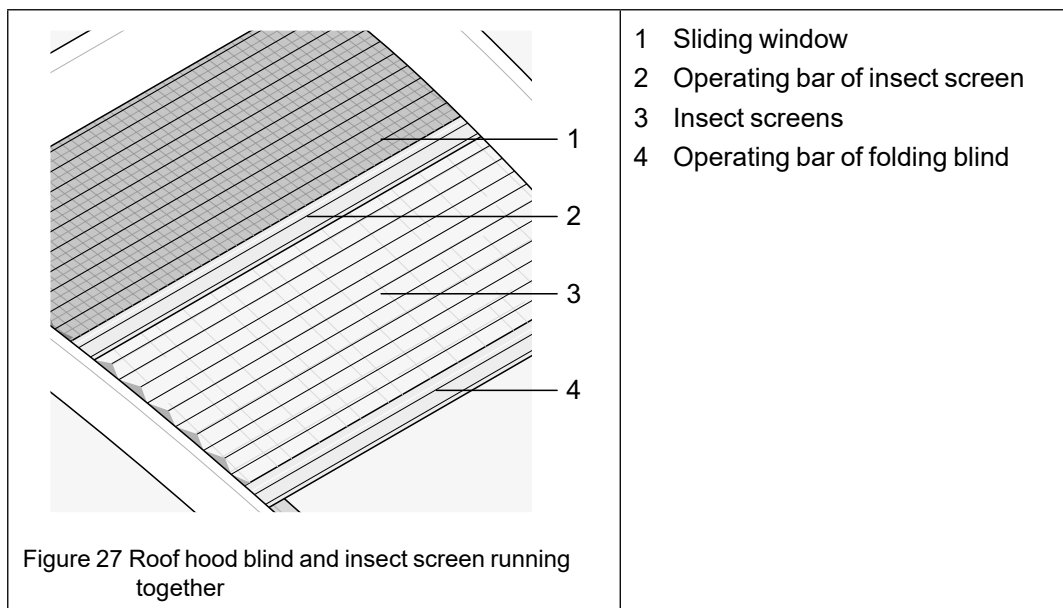
- ➔ Press the two halves of the grip of the blind (Figure 26/2) or insect screen (Figure 26/1) together.
- ➔ Slide it to the desired position.

8.9.7 Roof hood blind and insect screen running together



Note!

- Both folding screens are continuously adjustable and can be operated together or separate from each other.
- After releasing the operating bar, the folding screen remains in the position reached.
- The insect screen is integrated into the second operating bar and allows maximum amount of light or darkening with insect screen function.
- Only close the folding blind to a maximum of 75% during direct sunlight. Air must be able to circulate.



Opening/closing the blind or insect screen:

The insect screen (Figure 27/1) is firmly connected with the folding blind (Figure 27/2). When the folding blind is opened, the insect screen may have to be moved as well.

- ➔ Hold the folding blind (Figure 27/3) on the operating bar (Figure 27/4).
- ➔ Slide it to the desired position.

8.9.8 Care of roof hoods

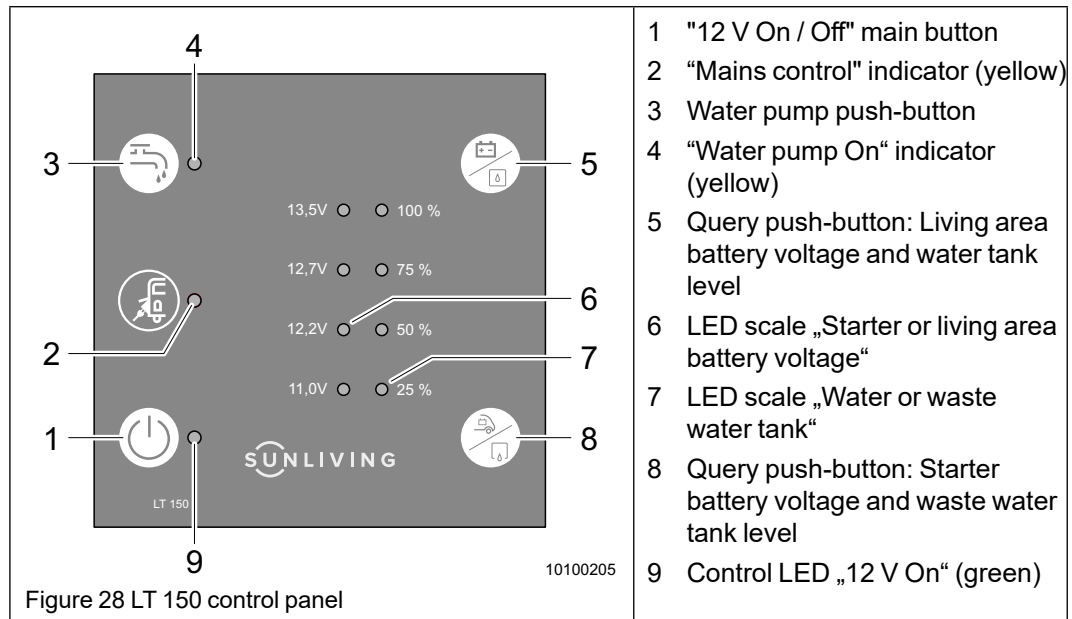
For information on the care of the roof hoods, please see the Chapter “19.1.1 Cleaning the acrylic windows (side windows, roof hoods)”.

8.10 Control panel

Battery voltage and, depending on the model, water tank and fuel tank levels can be queried via the control panels.

The control panels are installed in the interior, in most cases near the entrance door.

8.10.1 LT 150 control panel



Note!

The touch sensitive sensor buttons of the control panel (Figure 28) react to mere touching with one finger. If you're wearing gloves, the control panel (Figure 28) is unable to detect the finger touch.

"Mains control" indicator

- ➔ Connect the connector for mains operation to the 230 V mains supply.
 - The "Mains control" indicator Figure 28/2) lights and the batteries are charged.

"12 V On / Off" main button

- ➔ Press the "12 V On / Off" rotary adjusting knob (Figure 28/1) briefly to switch the supply voltage for the 12 V appliances on or off. When the 12 V consumers are switched on, the control lamp "12 V On" (Figure 28/9) lights up.
- ➔ Switch off the 12 V consumers when you leave the vehicle for a longer period of time.



Note!

As soon as a battery or the mains supply is connected the refrigerator control will continue to be supplied even if the 12 V supply is switched off.

Checking the living area battery voltage and water tank level:

The battery voltage and the tank level can be checked even if the 12 V supply is switched off.



Warning!

Damage to the living area battery

- ▲ Complete discharging damages the living area battery.
 - Avoid low battery charge.
 - Switch off some consumers if the on-board grid is overloaded.
 - Before putting the vehicle out of service make sure that no consumers are still connected.
- ▲ Perform regular voltage checks! (See Measuring the open-circuit voltage).
- Touch the query button for the living area battery voltage and the water tank level (Figure 28/5).
 - The battery voltage for the living area battery will be displayed (Figure 28/6):
 - All LEDs are on: Battery charge is sufficient
 - Yellow and red LEDs are on: Battery partially discharged (less than 12.4 V)
 - Only red LED is on: Battery discharged (less than 11.5 V)
 - The water tank level is displayed (Figure 28/7)
 - 100 %, 75 %, 50 %, 25 %
 - LED flashing at 25 %: Water tank is empty

Measuring the open-circuit voltage

The open-circuit voltage is the voltage of the living area battery in idle state. In this period current is neither added nor drawn out of the battery.



Note!

- Measure the open-circuit voltage several hours after the last charge (e.g. in the morning before any 12 V consumers are switched on).
- Neither add nor draw any current from the battery before measuring.

Table of values for open-circuit voltage measurement (specified values are reference values for gel batteries):

Open-circuit voltage values	Open-circuit voltage values
11.5 V or less	Discharged or deeply discharged
12.2 V	approx. 25 %
12.7 V	approx. 50 %
More than 12.7 V	full

Table 4 Battery capacity for open-circuit voltage



Warning!

Damage to the living area battery

- ▲ There is a risk of deep discharge if the living area battery has 12,2 V or less already in idle state.

Checking the starter battery voltage and waste water tank level:

The battery voltage and the tank level can be checked even if the 12 V supply is switched off.

- ➔ Touch the query button for the starter battery voltage and the waste water tank level (Figure 28/8).
 - The battery voltage for the starter battery will be displayed (Figure 28/6):
 - All LEDs are on: Battery charge is sufficient
 - Yellow and red LEDs are on: Battery partially discharged (less than 12.4 V)
 - Only red LED is on: Battery discharged (less than 11.5 V)
 - The waste water tank level is displayed (Figure 28/7)
 - 100 %, 75 %, 50 %, 25 %

Switching the water pump on and off:

The water pump is switched on and off on the control panel (Figure 28/3).

- ➔ Briefly touch the button for the water pump (Figure 28/3) to switch it on or off. When the water pump is switched on, the yellow indicator “Mains water pump On” (Figure 28/4) lights up.



Note!

When you start the water pump the connected pressure pump (depending on model) will also briefly be activated.

For more information, see the separate instructions from the manufacturer.

8.11 Light control



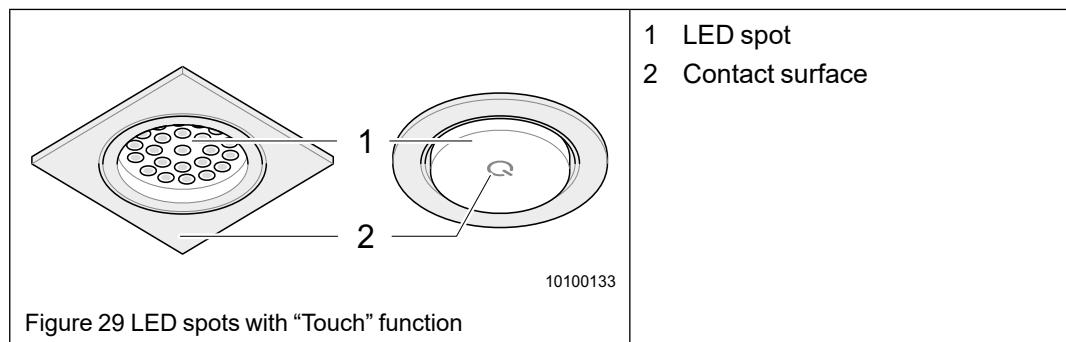
Note!

The following functions can only be performed if the AUX feature is activated on the control panel (Figure 28/1).

8.11.1 LED spots with “Touch” function

Some vehicle models are fitted with LED spots with “Touch” function.

Some models are equipped with internal and external LED lighting.



➔ Briefly touch the contact surface of the LED spot (Figure 29/2) to switch it on or off.

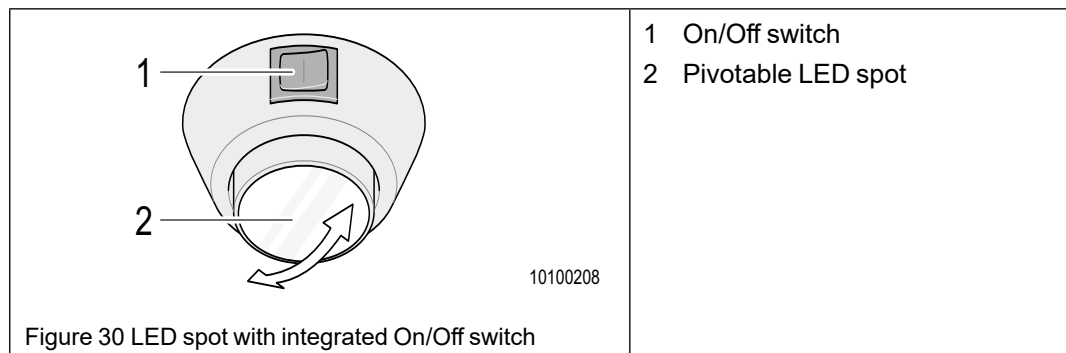


Note!

Not all LED spots are equipped with the “Touch” function.

8.11.2 Pivotal LED spots with integrated On/Off switch

Some vehicle models are fitted with pivotal LED spots.



➔ Using the switch (Figure 30/1) turn the LED spot (Figure 30/2) on or off.

➔ The LED spot (Figure 30/2) can be pivoted laterally..

8.12 Electrical entrance step (model-specific or special equipment)



Warning!

Risk of accident

- ▲ Maximum load of entrance step: 200 kg.
- ▲ Before starting the journey, ensure the entrance step is completely retracted.
- ▲ Extend and retract the entrance step only in an unloaded condition.
- ▲ Keep persons and pets away from the entrance step during extension or retraction.
- ▲ Only adults may operate the entrance step.
- ▲ Never leave the vehicle without extended entrance step.
- ▲ Never jump on the step.
- ▲ Only use the step when it is fully extended.
- ▲ Only one person may be on the step at a time.
- ▲ Before extending or retracting the entrance step, check the available space.
- ▲ Ensure the extended step does not represent an obstacle or hazard for third persons.
- ▲ In adverse weather conditions, clean the step from snow or ice.
- ▲ Clean the entrance step thoroughly at regular intervals to ensure its perfect function.

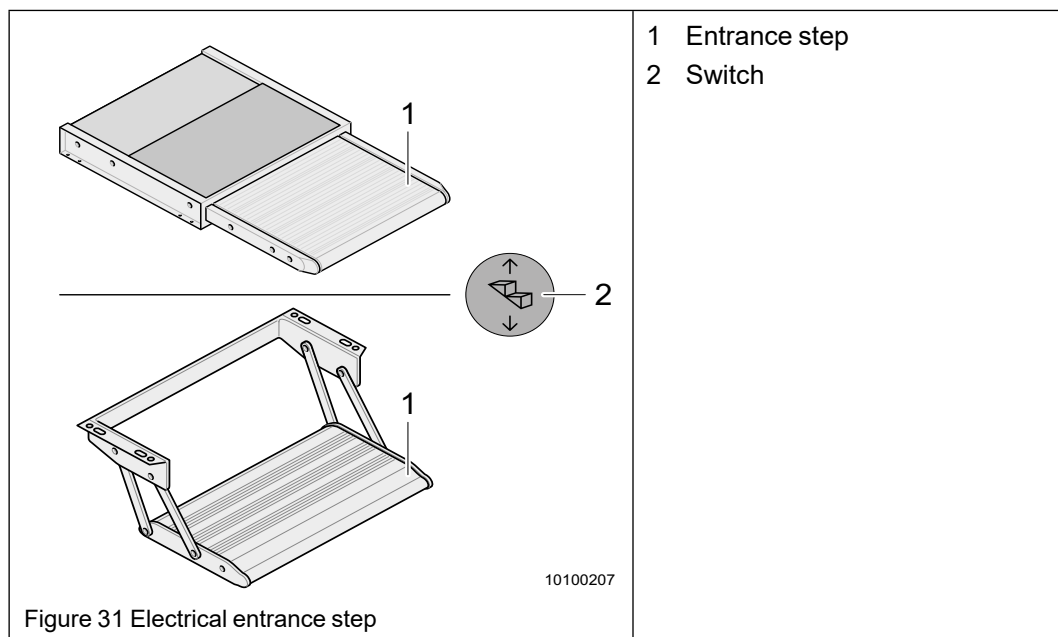


Figure 31 Electrical entrance step

Retracting or extending the electrical entrance step:

The switch Figure 31/2) for retraction or extension of the entrance step is located in the entrance area near the outer door.

- ➔ Tip the switch Figure 31/2) briefly in the lower area until the entrance step is extended Figure 31/1).
- ➔ Tip the switch Figure 31/2) briefly in the upper area until the entrance step is retracted Figure 31/1).

8.13 Seating group

The driver's and passenger's seats can be rotated, and the seating group can therefore be extended.

8.13.1 Rotatable driver's/passenger's seat



Danger!

Accident hazard when the driver's seat rotates while driving

▲ The driver's seat must be locked before you start to drive.

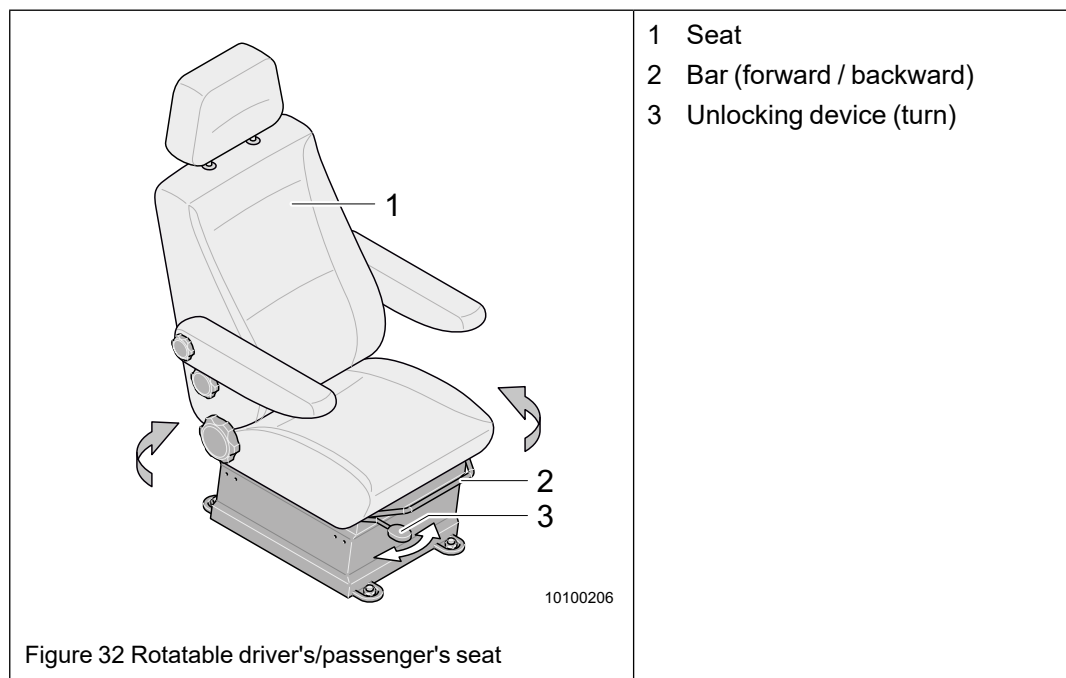


Figure 32 Rotatable driver's/passenger's seat

- ➔ Unlock the seat from the lever (Figure 32/3).
- ➔ Adjust the inclination of the backrest and the seat position in longitudinal direction so that the seat does not collide with the side wall, the cab door or the steering wheel.
 - If necessary, briefly release the parking brake and pull the parking brake again after adjustment when the vehicle is not secured from rolling away by other means.
- ➔ The seat Figure 32/1) can now be rotated to the desired position.
- ➔ Before starting the journey, rotate the seat back to its initial position.
- ➔ Check the lock Figure 32/3) is engaged.



Note!

The seats are adjustable in height.

8.13.2 Seating group



Danger!

Risk of injury

- ▲ While travelling, passengers must use the seat belts on the seat benches and face the driving direction.



Note!

The cushions must always be secured (also when parked) with all attachment devices.

The substructures of the seat benches are made from massive steel pipes and contain the attachment points of the seat belts.

The cushions of the seat benches are attached to the substructure with snap buttons, snap-on fasteners and/or Velcro fasteners.

The water tank is underneath the seat bench on some models (Chapter 12.1.1).



Note!

Some models are equipped with an additional seat with safety belt.

8.14 Tables



Caution!

Risk of burning and scalding

- ▲ Remove all food and drinks from the table before you start converting.
- ▲ If the table top moves, cups or glasses could tip over or plates could fall off the table.

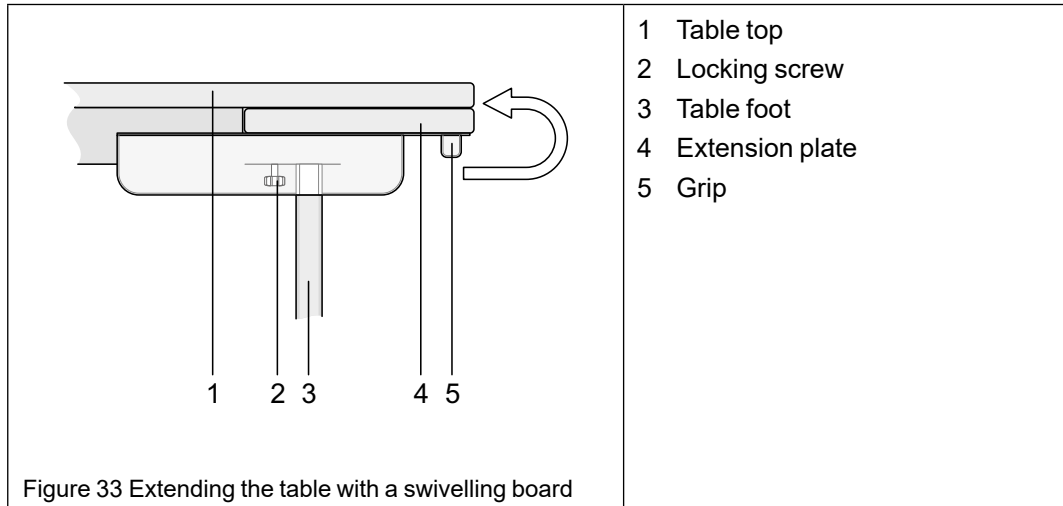


Warning!

Risk of injuries in the case of an accident

- ▲ Before starting a journey with the table hung in position, first fold the table foot up and stow the table away safely (e.g. in the rear garage).

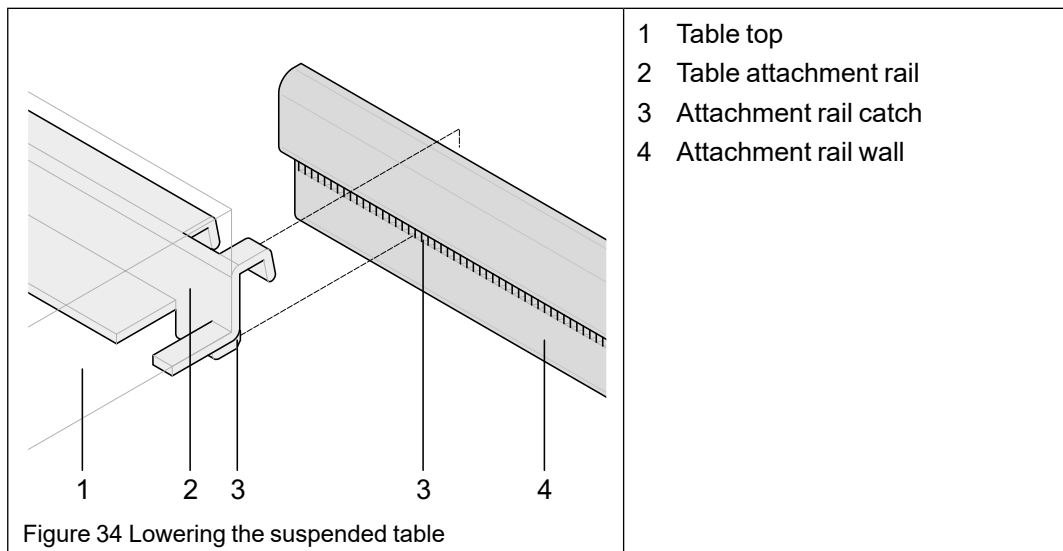
8.14.1 Extending the table with a swivelling board



- ➔ Loosen the locking screw (Figure 33/2) on the bottom of the table by turning it to the left.
- ➔ Using the grip (Figure 33/5), pull out the extension plate (Figure 33/4) from underneath the table.
- ➔ Swivel the extension plate (Figure 33/4) upwards.

To return the equipment to its original position, proceed in the reverse sequence.

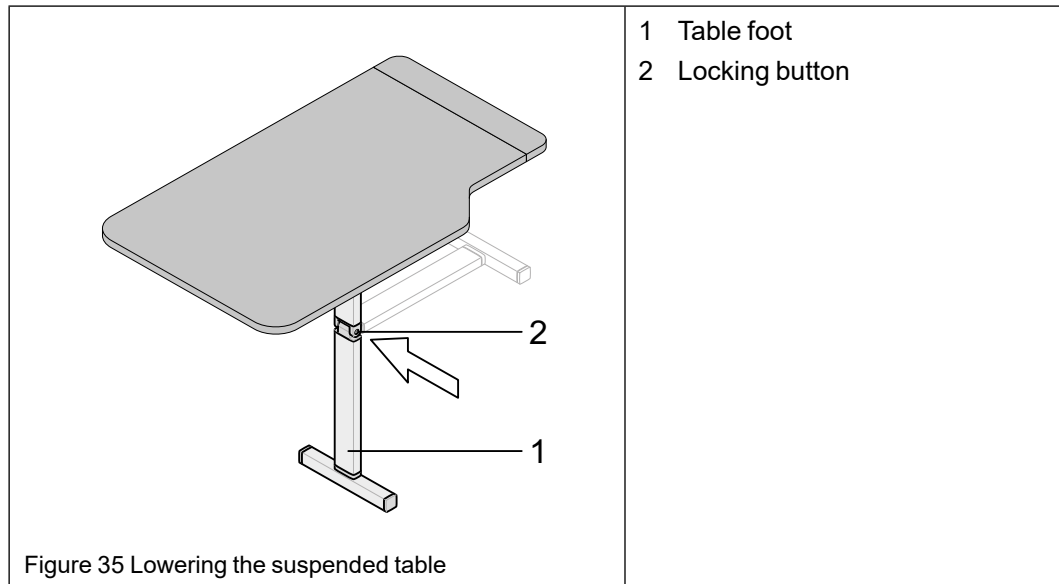
8.14.2 Suspended table



Lowering the suspended table:

- ➔ Slightly lift the table top (Figure 34/1) by the free end (approx. 30°). This unlocks the catch.

- ➔ Lift the table top (Figure 34/1) out of the upper attachment rail (Figure 34/4).



- ➔ Press the locking button (Figure 35/2) to unlock the table foot (Figure 35/1).
- ➔ Swing the table foot down 90°.
- ➔ Then place the table in the bottom position against the seat.

To return the equipment to its original position, proceed in the reverse sequence.

8.15 Furniture locks



Caution!

Damage to the handles

- ▲ Do not pull too hard on a handle when the respective door, flap or drawer cannot be opened.
- ▲ First unlock the drawers before opening them.
- ▲ To close the bathroom door, always hold the door handle pressed fully down.

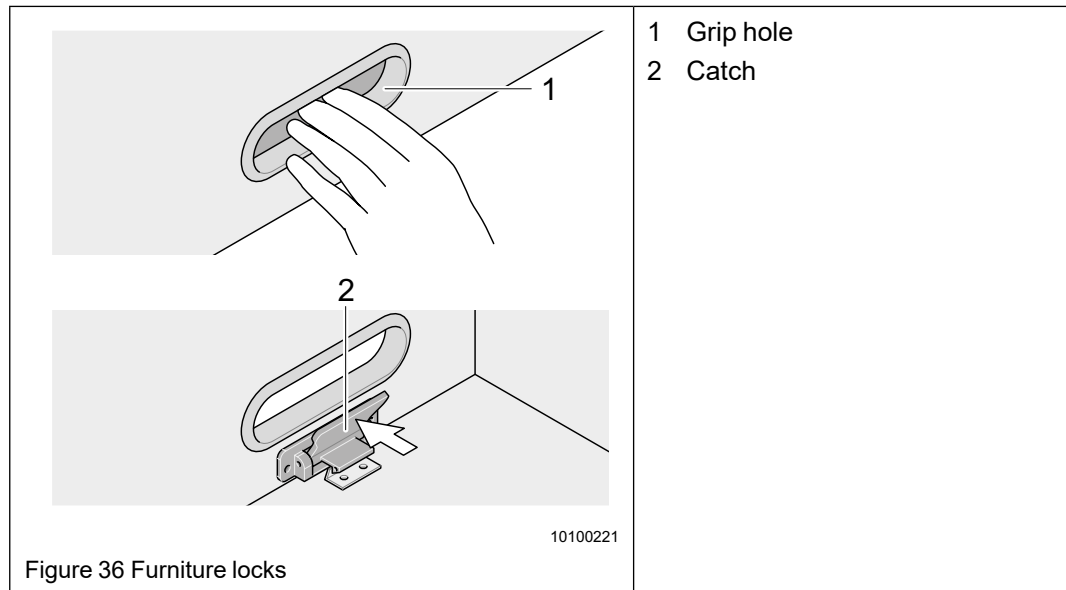


Caution!

Risk of damage through cupboard or drawer contents flying around!

- ▲ Carefully lock the cabinets and drawers before starting each journey.

The drawing serves only to show the operating principle. Differences in form are possible.



Opening:

- ➔ Reach into the grip hole (Figure 36/1) of the cupboard door, flap or drawer.
- ➔ With your fingers pull from the latch in the grip hole (Figure 36/2).
The cabinet door, flap or drawer is unlocked.
- ➔ Hold the latch during opening and open the cupboard door, flap or drawer.

Closing:

- ➔ Reach into the grip hole (Figure 36/1) of the cupboard door, flap or drawer and close it.
- ➔ The latch engages automatically in the end position.

8.16 Bathroom unit



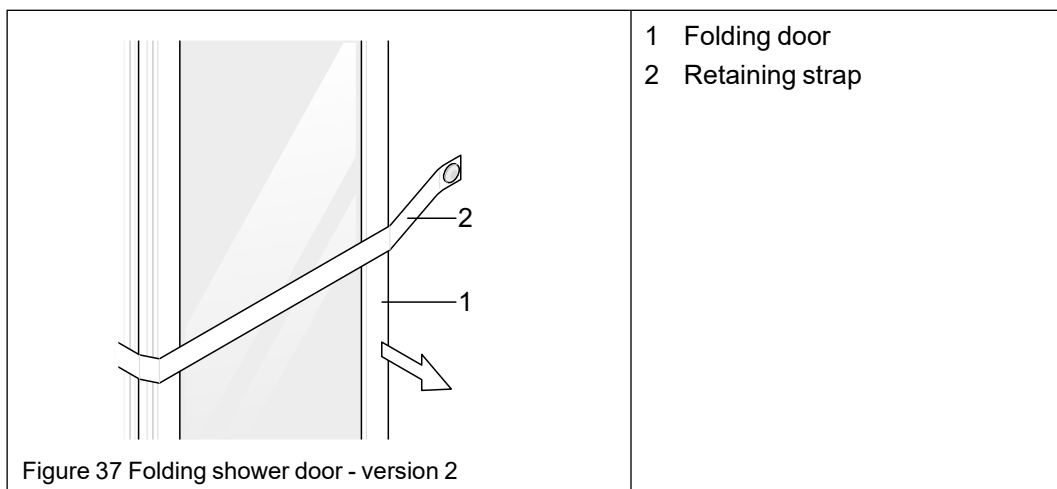
Caution!

Damage to shower enclosure or bathroom unit

▲ Unless the shower enclosure is secured it can open or close unrestricted during the journey and get damaged.

→ Always secure the shower enclosure as described before setting out.

8.16.1 Shower enclosure - version 1



Closing:

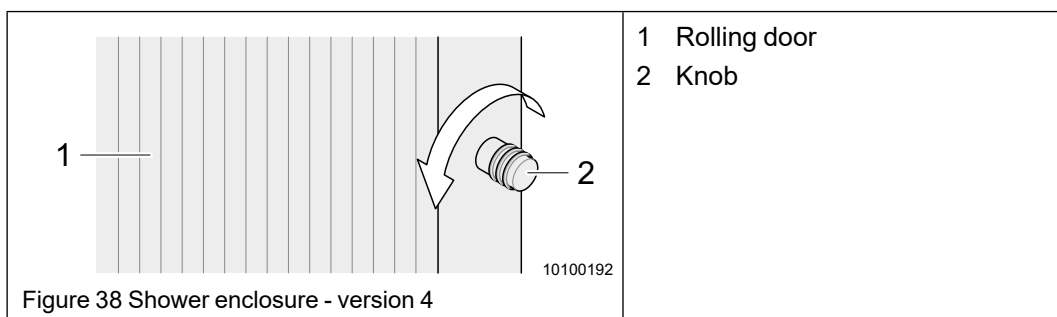
→ Release the retaining strap (Figure 37/2) before closing the folding door (Figure 37/1).

Opening:

→ Push the folding door (Figure 37/1) open.

→ Secure the door with the retaining strap (Figure 37/2).

8.16.2 Shower enclosure - version 2



Opening:

→ Turn the knob (Figure 38/2) backward.
The rolling door lock (Figure 38/1) is unlocked.

→ Push the rolling door (Figure 38/1) by the knob (Figure 38/2) to the side.

Closing:

- ➔ Push the rolling door (Figure 38/1) by the knob (Figure 38/2) closed until the lock snaps into place.

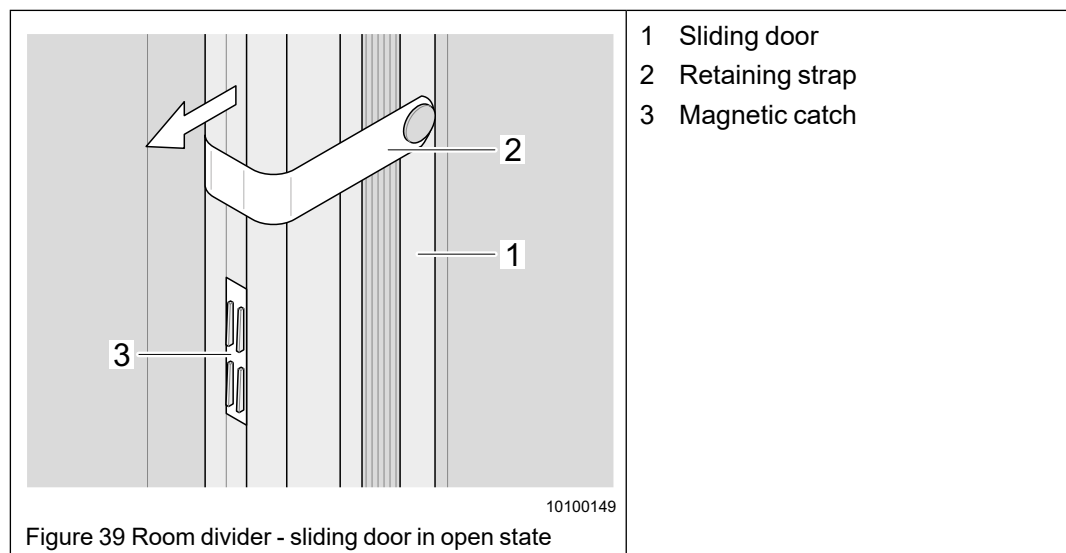
8.17 Room divider - sliding door



Caution!

Damage to the sliding door

- ▲ Unless the door is secured it can open or close unrestricted during the journey and get damaged.
- ▲ Always secure the sliding door (Figure 39/1) with the holding strap (Figure 39/2) before starting to drive.



Closing the sliding door:

- ➔ Release the holding strap (Figure 39/2).
- ➔ Carefully close the sliding door (Figure 39/1) until the magnetic catch (Figure 50/3) catches.

Opening the sliding door:

- ➔ Carefully open the sliding door (Figure 39/1) all the way.
- ➔ Secure the door with the retaining strap (Figure 39/2).

8.18 TV equipment (special equipment)



Caution!

Damage to the vehicle

- ▲ Before starting the journey, you always have to lower and lock the antenna.
- ▲ Retract, lay it flat and secure the satellite dish before starting the journey.
- ▲ Lock the antenna mast into place to prevent twisting of the satellite dish.



Caution!

Damage to the cables

- ▲ Make sure the cables always have enough room to move.



Caution!

Damage to the appliance

- ▲ Check all locking grips are engaged before each journey.
- ▲ Check that all locking screws and locking brackets are screwed tight before each journey.

The vehicle has been prepared for the installation of TV equipment:

- A location on the roof is intended for the installation of a satellite dish.
- Antenna cables and sockets have already been installed.
- ➔ Check freedom of movement before the installation of an automatic antenna.



Note!

- For more information concerning the installation of TV equipment, contact your **SUN LIVING** dealer.
- For more information, see the separate operating instructions from the manufacturer.

9 Sleeping arrangements

9.1 Beds

All beds in the vehicle rear and in the alcove are firmly installed and do not require preparation before use.



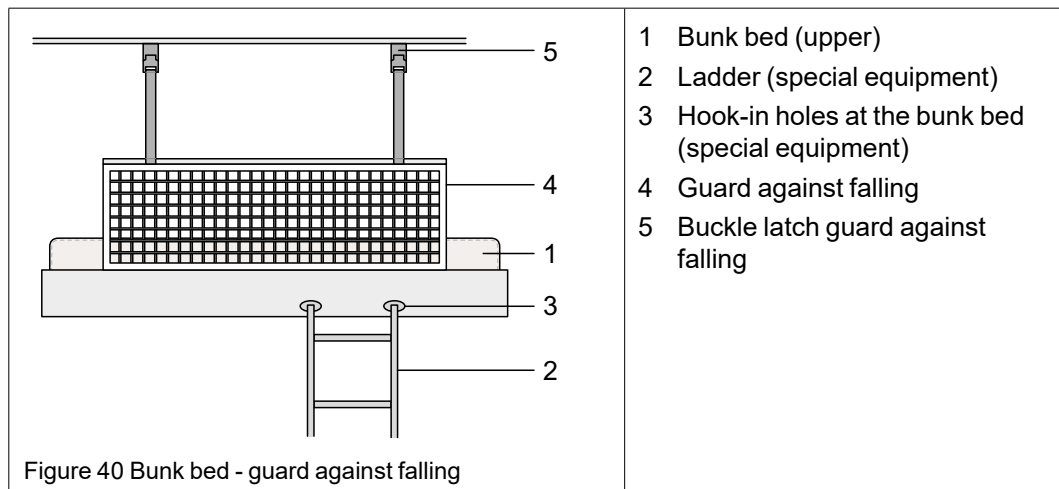
Warning!

Risk of accident

- ▲ Do not use beds to store luggage during the journey.
- ▲ Only leave the required bed linen on the bed during the journey.
- ▲ Never allow small children to remain in the bed without supervision.
- ▲ Ensure children under 6 years of age cannot fall out of the bed.
- ▲ Use separate children's beds or travel cots suitable for small children.
- ▲ Only use the alcove bed and the upper bunk bed with the safety net hung in.
- ▲ The maximum load of the bunk bed is 70 kg.

9.1.1 Alcove beds and bunk beds

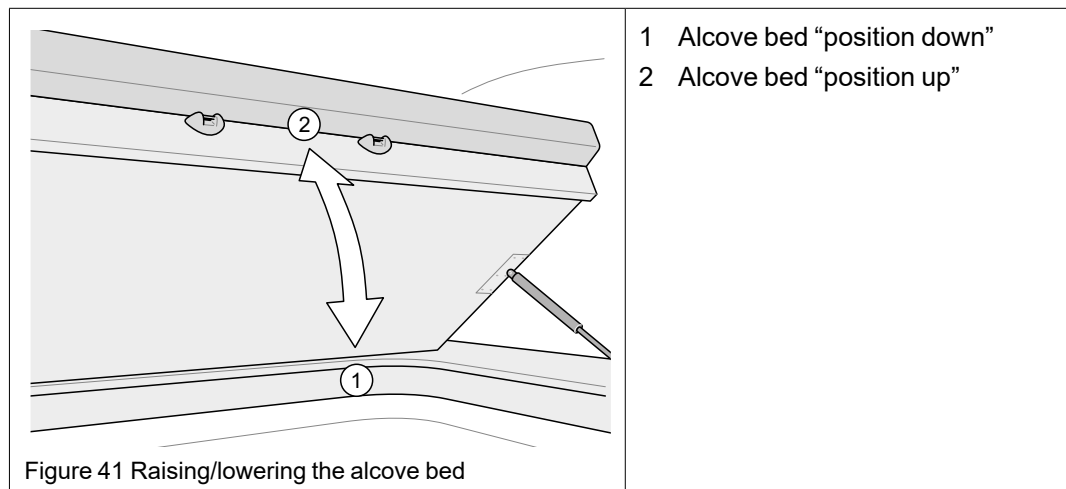
The vehicles are fitted with alcove beds and/or bunk beds depending on the model. The alcove and bunk beds can be used without conversion work.



- ➔ Use the ladder (Figure 40/2) to climb into the upper bunk bed (Figure 40/1).
- ➔ Hang the ladder (Figure 40/2) into the hook-in holes provided (Figure 40/3).
- ➔ Close the guard against falling (Figure 40/4) with the buckle latches (Figure 40/5) in the vehicle ceiling when you are in the bed (Figure 40/1).

9.1.2 Raising/lowering the alcove bed

Depending on the model and layout the vehicles have been fitted with an alcove bed.



Raising the alcove bed:

- ➔ Grip the alcove bed from the bed frame and lift up to the stop.
- ➔ The alcove bed remains locked in the top position.

Lowering the alcove bed:

- ➔ Grip the alcove bed from the bed frame and lower it fully.
- ➔ The alcove bed remains locked in the bottom position.

9.2 Lifting bed (special equipment)



Danger!

Risk of accident

- ▲ Push lifting bed upward and lock it before starting the journey.
- ▲ Do not use the lifting bed for storage of luggage during the journey.
- ▲ Place only the required bed linen on the lifting bed during the journey.
- ▲ Never allow small children to remain in the lifting bed without supervision.
- ▲ Ensure children under 6 years of age cannot fall out of the bed.
- ▲ Use separate children's beds or travel cots suitable for small children.
- ▲ Always use the lifting bed with hung-in safety net.
- ▲ See the labels on the lifting bed for the maximum load. The maximum load specification applies only to the completely lowered lifting bed (end position).
- ▲ Only use the lifting bed in completely lowered position (end position).
- ▲ Only the required bedding must be on the bed during lowering and lifting of the lifting bed.
- ▲ Do not exceed the total load of 200 kg.



Caution!

Damage to equipment

- ▲ On models with L-shaped seating area place the table in the middle to ensure that the storage compartments under the lifting bed do not collide with the table. This would damage both the table and the storage compartments.
- ▲ Distribute the weight evenly when loading the storage compartments under the lifting bed. Major differences in weight distribution (right and left) could make the lifting bed tilt to one side. This might damage the mechanism for lowering and lifting the bed.
- ▲ Before you lift the bed distribute the bedding evenly and flatly on the lifting bed. If the bedding is distributed unevenly or left in one spot the lifting bed might topple over during lifting when the heaped bedding touches the ceiling. In this case stop lifting the bed immediately.
 - If the evenly distributed bedding is still too high, remove excess bedding and restart the lifting process.

9.2.1 Lifting bed manual

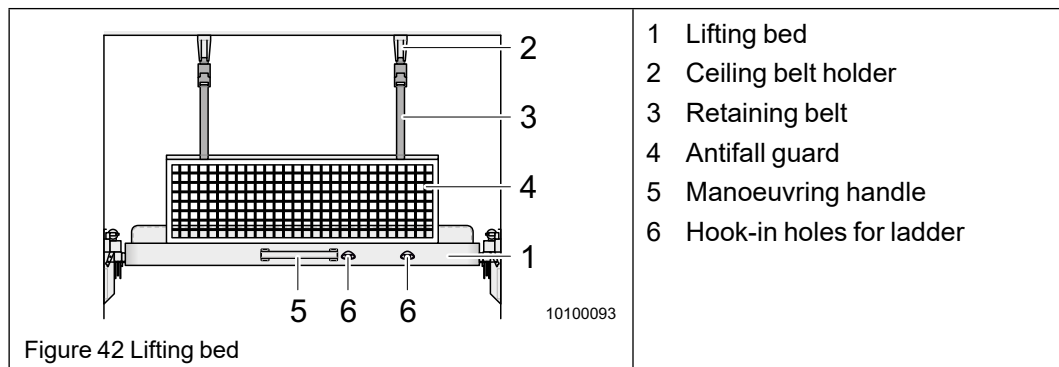


Note!

The lowering area of the lifting bed must be free from obstacles.

Depending on the model:

- Fold the cab seats
- Remove head restraints on rear bench (see section 9.3)
- Remove upholstery and cushions from seating area



Lowering the lifting bed:

- Shade the windows with view protectors.
- Using both hands, push the lifting bed (Figure 42/1) all the way down by the handle (Figure 42/5).
 - At the left and right of the bed, a curtain is automatically unfolded as view protection.
- Hang the ladder into the hook-in holes (Figure 42/6) on the lifting bed.
- Fasten the antifall guard (Figure 57/4) on the bed using the retaining belts (Figure 42/3) and the ceiling belt holder (Figure 42/2) on the ceiling.

Raising the lifting bed:

Correspondingly, the lifting bed is raised in reverse sequence.

- ➔ Unfasten the antifall guard (Figure 42/4) from the ceiling.
- ➔ Place the bed linen flat on the bed.
- ➔ Remove and stow the ladder.
- ➔ Turn the handle (Figure 42/5) up and push the lifting bed all the way up.
 - Ensure the curtain protection is not caught in the mechanical system of the lifting bed.

9.3 Adjusting or removing the head restraint

The seating area of some vehicle models is fitted with adjustable head restraints.

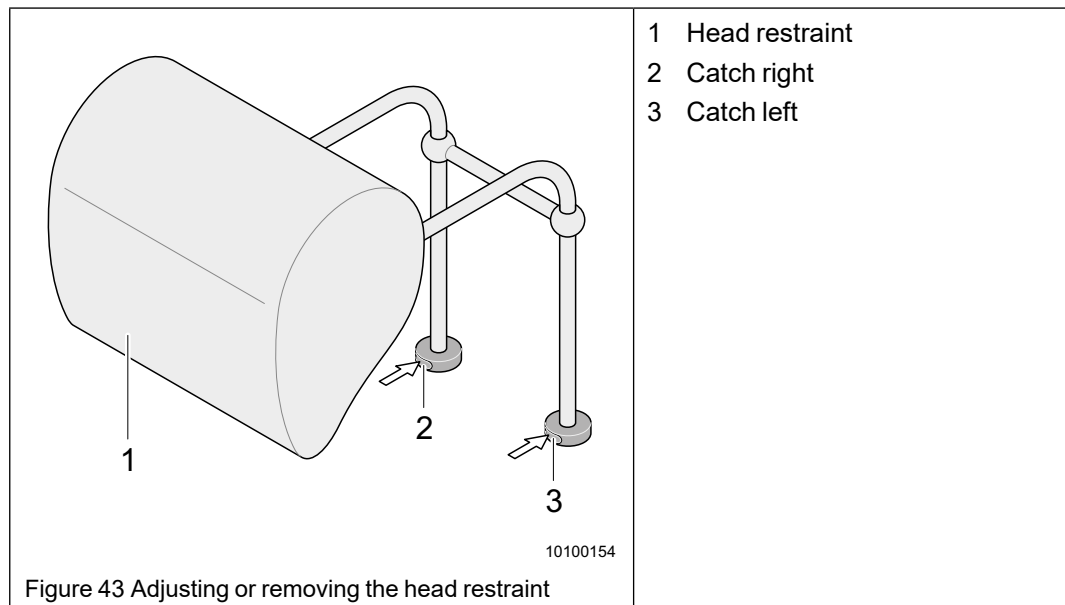


Figure 43 Adjusting or removing the head restraint

Adjusting height of head restraint

- ➔ Press and hold catch on the left side (Figure 43/3).
- ➔ With the other hand move the head restraint (Figure 43/1) into the desired position.
- ➔ To fix the head restraint (Figure 43/1) in position let go of the catch (Figure 43/3).

Removing head restraint:

- ➔ Press and hold catch on the right side (Figure 43/2).
- ➔ With the other hand pull the head restraint (Figure 43/1) up out of the mounting.

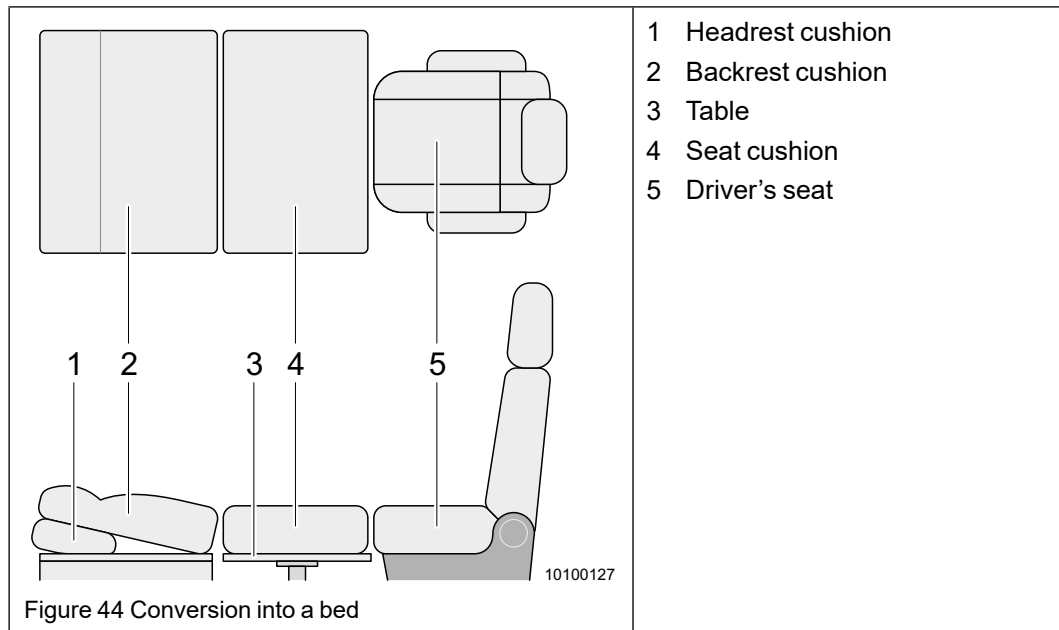
Correspondingly, the head restraint is fitted in reverse sequence.

9.4 Converting the seating group into a bed



Note!

The extra table top must not be swivelled out on models with such an extra table top.



Rotating the driver's seat:

- ➔ Rotate the driver's seat (Figure 44/5) 180° against the driving direction.
- ➔ Tip the driver's seat to the front so that a horizontal seat is created.

Lowering the table:

- ➔ Unhinge the table (Figure 44/3) (Chapter 8.14.2).
- ➔ Pull the bottom part of the table foot off downward and stow away.
- ➔ Hinge the table (Figure 44/3) into the bottom attachment rail (special equipment) and position.

Making the mattress:

- ➔ Place the seat cushions (Figure 44/4) on the table.
- ➔ Fold the upholstered headrest (Figure 44/2) on the backrest cushion (Figure 44/1) to the rear.
- ➔ Place the backrest cushion (Figure 44/2) with the thicker side on the seat bench in the direction of the driver's seat.
- ➔ Push the driver's seat (Figure 44/5) to the rear against the cushions.

Reconverting the mattress:

- ➔ Reconvert the seating group in reverse sequence.

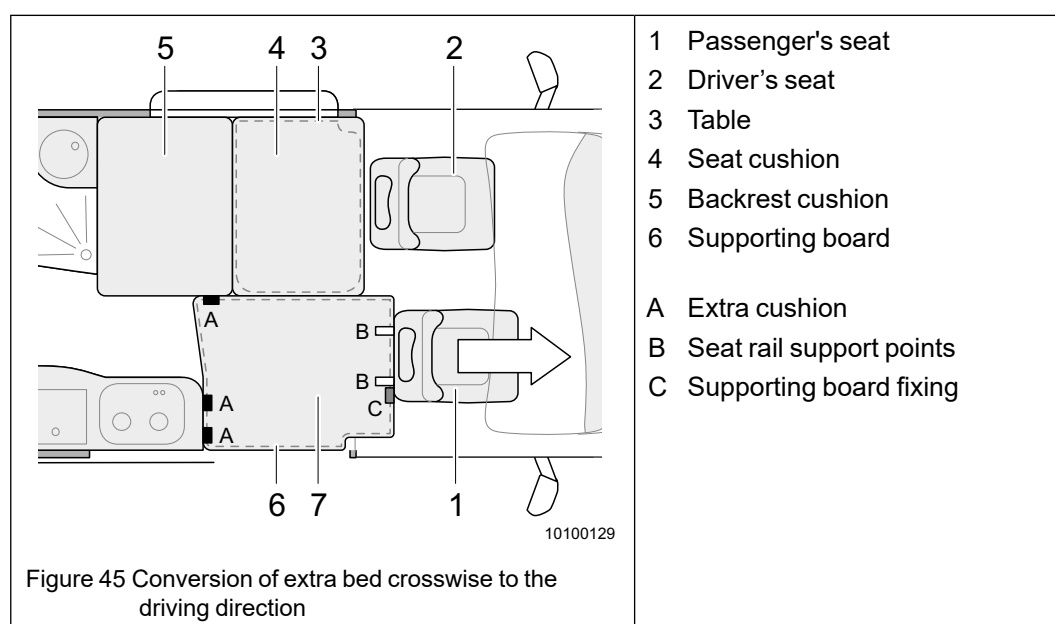
9.5 Installing the extra bed crosswise to the driving direction (special equipment)



Danger!

Risk of injury

- ▲ During the journey, the extra bed may not be installed.
 - Safely stow away the supporting board and the extra cushion before starting the journey.



Moving the passenger seat forward:

- Push the passenger seat (Figure 45/1) fully forward.

Lowering the table:

- Unhinge the table (Figure 45/3) (Chapter 8.14.2).
- Pull the bottom part of the table foot off downward and stow away.
- Hinge the table (Figure 45/3) into the bottom attachment rail (special equipment) and position.

Making the mattress:

- Place the seat cushion (Figure 45/4) behind the driver's seat on the table.
- Place the backrest cushion (Figure 45/5) on the seat bench.
- Push the driver's seat (Figure 45/2) to the rear against the cushions to prevent the cushions shifting.
- Place the supporting board (Figure 45/6) exactly behind the passenger's seat on the furniture support points (Figure 45/A) and on the seat rails (Figure 45/B).
- Make sure that the fixing on the supporting board (Figure 45/C) correctly rests against the seat rail to prevent the supporting board slipping (Figure 45/6).
- Place the extra cushion (Figure 45/7) on the supporting board (Figure 45/6).

Reconverting the mattress:

→ Reconvert the seating group in reverse sequence.

9.6 Hammock

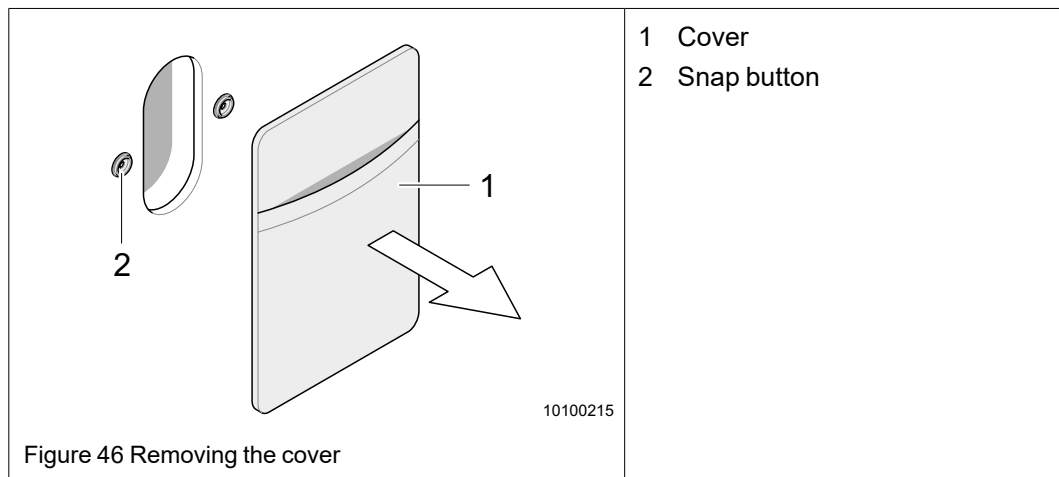


Danger!

Risk of injury

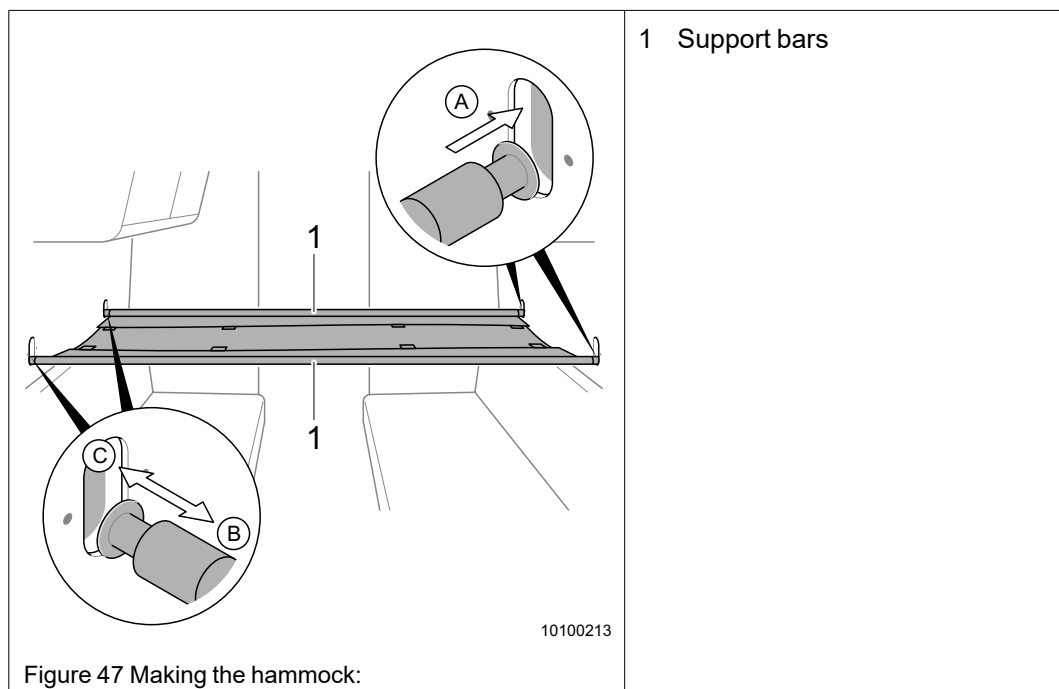
- ▲ Before starting your journey, remove and safely stow the hammock!
- ▲ Do not exceed the max. load capacity of the hammock of 70 kg.

Depending on the model and layout the vehicles have been fitted with a hammock.



Making the hammock:

→ Remove the side covers (Figure 46/1) of the assembly openings.



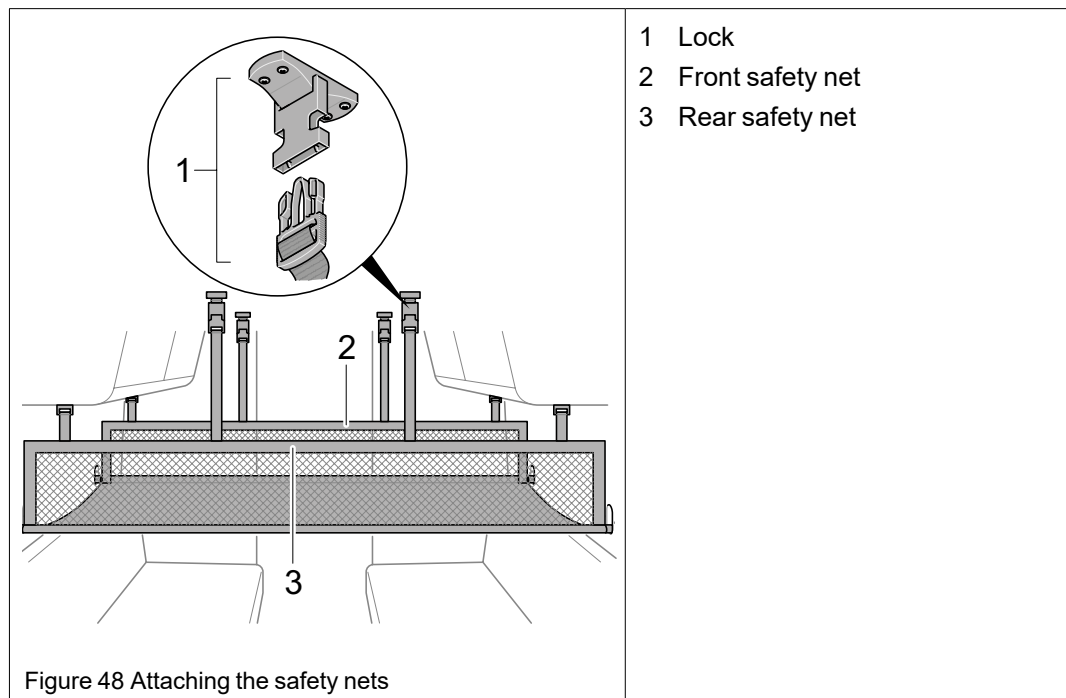
- ➔ Insert and push through both support rails (Figure 47/1) into the assembly holes (Figure 47/A) from one side.
- ➔ Insert both support rails on the opposite side (Figure 47/C)
- ➔ Push both support rails into position (Figure 47/B) until the locking bolts of the support rails are engaged in the assembly holes
- ➔ Push the support rails on both vehicle sides all the way down.



Danger!

Risk of injury

- ▲ The support rails must be engaged in the assembly openings on both sides.



- ➔ Secure the front and rear safety net (Figure 48/3) and (Figure 48/2) with all 8 locks (Figure 48/1).

To return the equipment to its original position, proceed in the reverse sequence.

10 Power supply



Caution!

Damage to the electrical system

- ▲ Have the electrical system checked at least once a year for short circuit, corrosion and cable-break by an authorised workshop.
- ▲ Have maintenance and repair work only performed by an authorised workshop.
- ▲ Improper maintenance and repair work voids your warranty claims.

10.1 Power supply 230 V

10.1.1 Making the electrical connection between the vehicle and the power source



Caution!

Danger of overheating of the cable on the cable reel

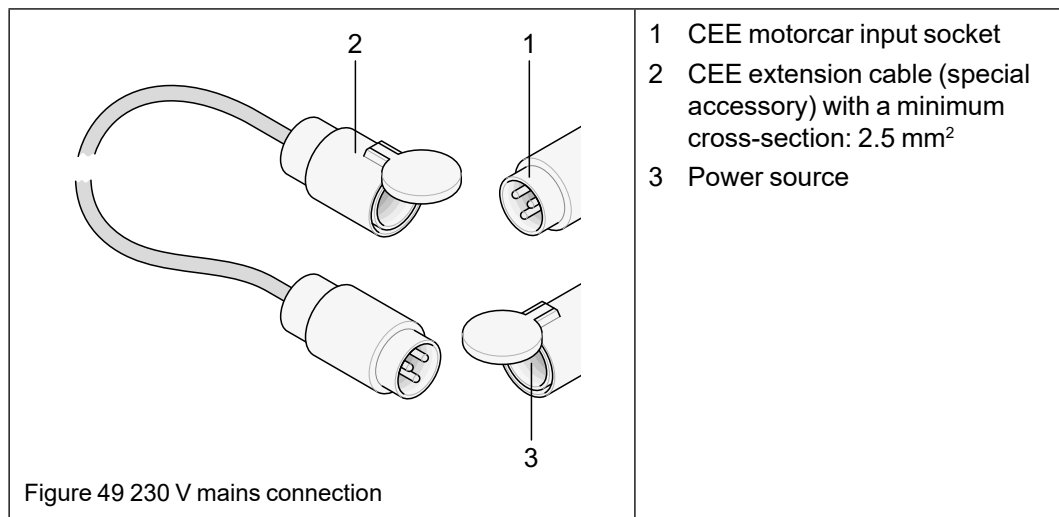
- ▲ Always unroll the cable completely from the cable reel. This prevents overheating of the cable.
- ▲ Use a cable reel with integrated overheat protection.



Note!

- Connectors and sockets do not fit in every country.
- It is possible that an adapter set is required for the country being visited.

The connection of the vehicle to the external 230 V power supply must be made with a rubber sheathed cable "H0 RN-F 3G 2.5 mm² or an equivalent cable with connectors according to "IEC 309". The overall length of the electric cable should not exceed 25 m!



Connecting:

- ➔ When making the connection, always begin on the vehicle and make the connection to the power source last.

Disconnect in reverse sequence.

10.1.2 Fuse protection of the 230 V electric circuit on the vehicle

The external 230 V power supply of the vehicle is protected with a 13 A circuit breaker. In addition to the circuit breakers, a ground-fault circuit breaker (special equipment) is installed in some vehicles.

The ground-fault circuit breaker protects persons against electric shock if the insulation of electrical appliances is defective.



Note!

Check the ground-fault circuit breaker for fault-free operation monthly or, after a longer period of standstill of the vehicle, before starting each journey.

The fuse box with circuit breakers and ground-fault circuit breaker is normally installed in the seat chest.

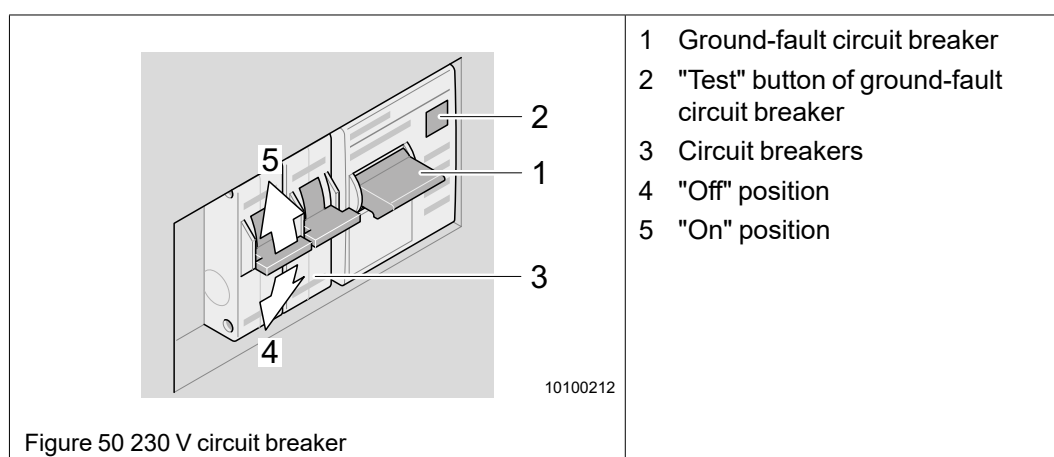


Figure 50 230 V circuit breaker

Checking the ground-fault circuit breaker:

- ➔ Press the "Test" button (Figure 50/2) of the ground-fault circuit breaker with the 230V power supply connected.
The ground-fault circuit breaker(Figure 50/1) triggers, the switch handle springs to the "Off" position.
- ➔ Switch the handle of the ground-fault circuit breaker back to the "On" position after the successful test.

Switching on the circuit breaker:

➔ To switch on the circuit breaker (Figure 50/3) push the switch handle upward.

When the circuit breaker has triggered, wait for a short time before switching on again.

- If the circuit breaker remains on, only an overload occurred.
- If the circuit breaker immediately triggers again, this is due to a short-circuit or earth fault. Consult an authorised workshop and have the fault repaired.



Note!

It makes no sense to switch the breaker on several times. The circuit breaker triggers even when you hold the switch handle.

10.2 Power supply - external generator (special accessory)



Caution!

Damage to vehicle electronics

- ▲ Voltage variations or voltage peaks must not occur.
- ▲ Make the connection from the generator to the vehicle only when the generator is in operation and the output voltage is constant.
- ▲ Switch the generator off only after the connection between the vehicle and the generator has been disconnected.

For more information, see the separate instructions from the manufacturer.

10.3 Power supply 12 V

10.3.1 Transformer/rectifier (power supply unit 230 V/12 V)

The transformer/rectifier is the central power distribution unit of your vehicle. The transformer/rectifier serves for charging the living area battery and for the power supply of the 12 V appliances. When the living area battery is fully loaded, the transformer/rectifier automatically charges the starter battery of the basic vehicle.



Warning!

Risk of burns

- ▲ Do not touch the rear of the transformer/rectifier during operation. The rear of the transformer/rectifier becomes hot during operation.
- ▲ Do not cover the area surrounding the transformer/rectifier.

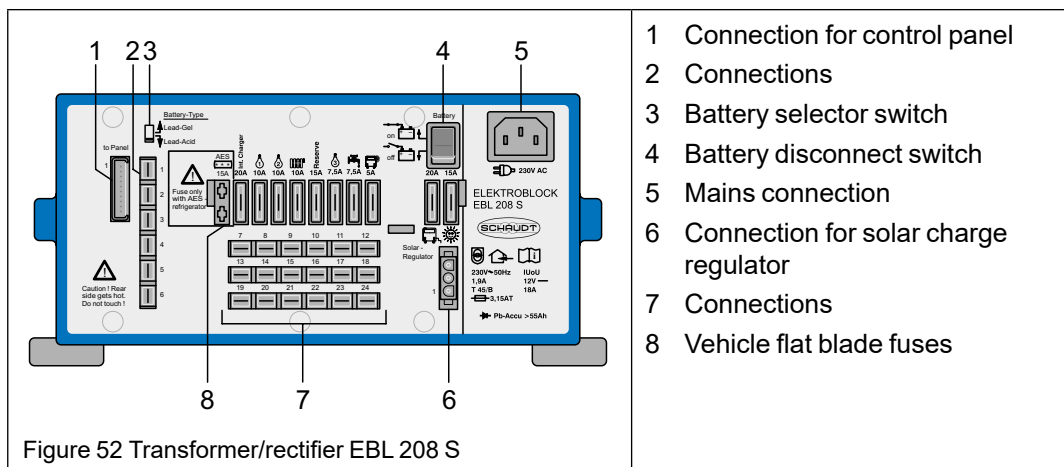
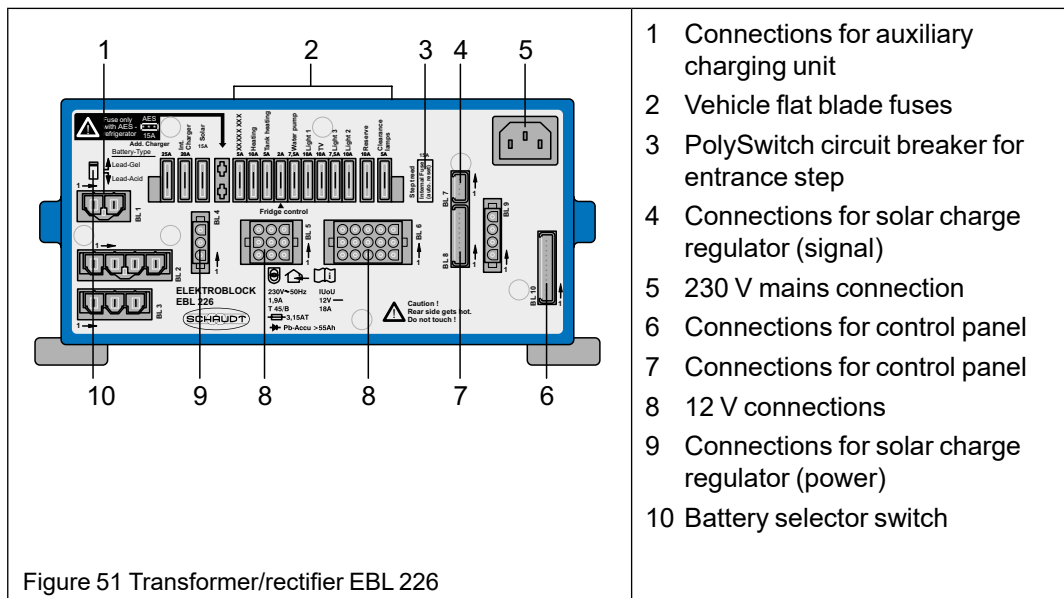


Caution!

Damage to power supply unit

- ▲ Replace defective fuses only when the cause of the defect is known and has been remedied.
- ▲ Never bridge or repair fuses.
- ▲ Use only original fuses with the values specified in the separate instructions from the manufacturer.
- ▲ Replace defective fuses only when the transformer/rectifier has been de-energised.
- ▲ Do not lay any cables underneath the power supply unit due to the heat generation.

10.3.1.1 Transformer/rectifier EBL 226 / EBL 208 S



Before placing into service:

- ➔ Check the battery selector switch (Figure 51/10) or (Figure 52/3) is in the correct position.
- ➔ Make sure the living area battery is connected.

Placing into service:

- ➔ The system is switched on with the 12 V main switch on the control panel (see Chapter 8.10).

Vehicle flat blade fuses

- Insert the fuse for the AES refrigerator only when an AES refrigerator (special accessory) is connected. Otherwise, the living area battery can be deeply discharged. Damage to the battery cannot be excluded.
- The flat blade fuses (Figure 51/2) and (Figure 52/8) protect the different electric circuits. If required, remove the blue cover with the designation "FUSE" (optional) and check or replace all fuses.

Battery disconnect switch (EBL 208 S):

The battery disconnect switch (Figure 52/4) disconnects the following connections from the living area battery:

- All 12-V appliances except the AES refrigerator and the entrance step
- The control panel

This prevents the slow discharge of the living area battery by quiescent current while the vehicle is placed out of service.

The batteries can still be charged by the transformer/rectifier, the generator or the solar charge regulator (special accessory) (Figure 52/6) when the battery disconnect switch (Figure 52/4) is switched off.

PolySwitch circuit breaker (EBL 226):

- The entrance step is protected with a self-resetting PolySwitch circuit breaker (Figure 51/2).
- If a malfunction occurs, the PolySwitch circuit breaker interrupts the electric circuit. After the malfunction has been cleared, the fuse resets itself after approx. 1 minute.

Battery selector switch

- Setting the battery selector switch (Figure 51/10) or (Figure 52/3) to the wrong position can damage the living area battery.
- ➔ Disconnect the transformer/rectifier from the mains before setting the battery selector switch (Figure 51/10) or (Figure 52/3) to a different position.

The option of switching over with the battery selector switch ensures optimum charging of the two battery types (lead-gel or lead-acid).

- Selection of lead-gel battery: Set the battery selector switch to "Lead-Gel".
- Selection of lead-acid battery: Set the battery selector switch to "Lead-Acid".
- ➔ Use a thin object for the changeover (e.g. ball-point pen refill).

For more information, see the separate instructions from the manufacturer.

10.3.2 Starter battery



Caution!

Discharging of starter battery

- ▲ The capacity of the starter battery is limited.
- ▲ The starting capability of the towing vehicle is affected when the power supply is provided for an extended period of time via the constant plus of the towing vehicle.

If the vehicle is externally connected to the 230 V power source (Chapter 10.1.1), an automatic changeover from 12 V to 230 V / 12 V (power supply unit) (Chapter 10.3.1) occurs.

10.3.3 Living area battery



Warning!

Deflagration

- ▲ The use of acid batteries as living area batteries in the vehicle is not allowed. Detonating gas can be created during the load process and lead to a gas explosion. The installation area is not equipped for accommodation of a lead-acid battery.



Note!

Only gel or AGM batteries may be used as living area battery.

The electronic energy centre is equipped with a 70 A disconnect relay. This integrated protection disconnects the living area battery from the starter battery when the engine is switched off so that the function of the starter battery is maintained.

The living area battery can be charged in two ways:

- With the vehicle generator, i.e. while the engine is running.

All major appliances such as refrigerator, heating, water pump, etc. must be switched off. The battery should then be "fully" charged at the 230 V mains.

- By connection to the 230 V mains.

This charges the battery automatically. All major appliances must be switched off.

Regularly check the battery voltage with the control panel (Chapter 8.10):

- If the voltage is 12 V or higher or in the green area, everything is okay.
- If the voltage is less than 12 V or in the red area, switch off all appliances immediately and charge the battery. The minimum charging time should be 24 hours or better 48 hours. Overcharging is automatically prevented by the battery charger.
- If the "Battery alarm" warning light blinks, the battery must be charged immediately for a minimum of 48 hours with the built-in automatic battery charger or a separate charger. For this purpose, the vehicle must be connected to the 230 V power supply. If the battery voltage has dropped below 3 V, the engine must be started for approx. 10 seconds so that the battery charger is switched on. Then charge the battery for a minimum of 48 hours.



Note!

- Before and after each use of the vehicle, the battery should be charged with the battery charger, if possible, for more than 24 hours.
- If you are on the way for a longer journey, the battery should be "fully" charged at least once a month via the 230 V mains.
- If the vehicle is not used for a longer period of time, all appliances must be switched off (pay attention to hidden appliances, for example satellite system, tank heating, boiler safety valve, etc.). The easiest way to do this is to disconnect the plus pole directly on the battery. Charge the battery once a month with the built-in battery charger or a minimum of 24 hours.
- The warranty for the auxiliary battery is valid only when it is serviced properly.

10.4 Fuses



Warning!

Risk of burns

- ▲ Replace defective fuses only when the power supply unit has been de-energised.



Caution!

Damage to the electrical system

- ▲ Replace defective fuses only when the cause of the defect is known and has been remedied.
- ▲ Never bridge or repair fuses.
- ▲ Use only original fuses with the same rating.

Fuses protect the electrical system and the electrical appliances from damage by overloading and short circuits. If the amperage is too high, a fuse automatically interrupts the electric circuit.

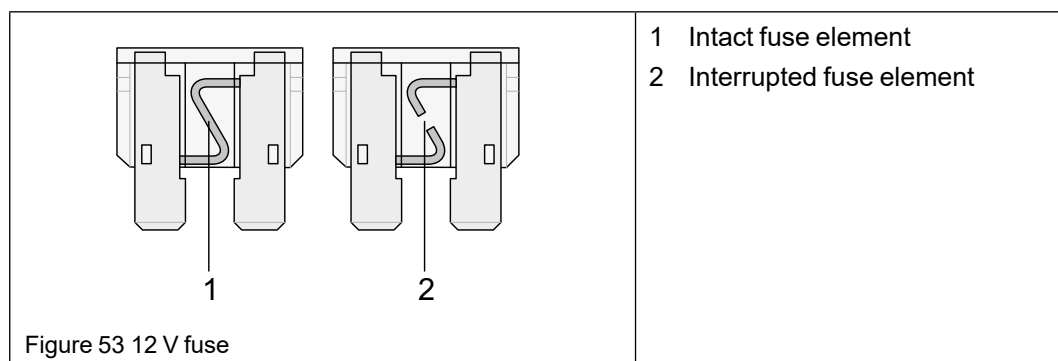
The electric fuses are accessible at different installation locations in the vehicle.

The appliances that are connected to the 12 V supply in the living area are protected by their own fuses.

Before changing fuses, see the following table for function, value and colour of the respective fuses:

Amperage	Colour	Function	Installation location
2 A	Grey	Fuse of the living area battery	Next to the living area battery
3 A	Violet	Fuses of Thetford toilet	In the housing frame of the Thetford cassette
20 A	Yellow	Fuse of refrigerator	Next to or in the transformer/rectifier
50 A	Red	Fuse of 12 V power supply unit	Next to the living area battery

Table 5 Fuses



Changing the fuses:

→ A fuse must be changed when the fuse element is interrupted.

11 Gas system

11.1 General information about the gas system

Familiarise yourself with the safety instructions for handling gas.

For general safety instructions concerning the topic of "gas", see Chapter "2.5 Safety instructions for the gas system".



Danger!

Poisoning by gas

- ▲ If it smells of gas or you suspect that gas is escaping, perform the following:
 - Clear the danger area!
 - Close the shut-off valve on the gas cylinder!
 - Avoid ignition sources and open flames and do not smoke!
 - Ventilate the rooms!
 - Inform the camping site manager, and the fire brigade when necessary!



Danger!

Risk of explosion

- ▲ Gas appliances are not to be operated during refuelling and on ferries or in garages!
 - Close the quick-action stop valves
 - Close the gas cylinder valves



Warning!

Danger to life

- ▲ Have repairs or modifications of the gas system performed by an authorised workshop only!
- ▲ Never modify the gas system or appliances yourself!
- ▲ Never use a lighter or other open source of light at the junctions of the gas pipes to look for leaks!
- ▲ The user may make only the connection between the pressure regulator and the gas cylinder! Any other work has to be performed by an authorised workshop!



Note!

- The complete gas system in the vehicle is designed for an operating pressure of 30 mbar which is kept constant by the built-in pressure regulator.
- The gas system must be inspected again every two years and after making any modifications and repairs. Always have a gas leak test performed on this occasion. The vehicle owner is responsible for initiating the inspection. Upon delivery of the vehicle, the operator must be informed in writing of his/her duty to have the gas system inspected. The correct condition of the gas system is confirmed with a gas inspection certificate. The associated gas inspection sticker must be attached to the rear of the vehicle near the license plate.
- The gas regulator and the gas hose must be replaced every ten years.
- The complete gas system has been designed according to the valid technical regulations for liquid gas equipment and burners in camping vehicles. This was examined and certified by an expert.
- All installed gas-operated appliances have safety devices. When the flame goes out, the automatic flame failure device interrupts the gas supply. In spite of this safety device, the respective quick-action stop valve must be closed if the appliance is not in operation.
- In order to ensure continuous exchange of air in the vehicle, do not cover the forced ventilation in the roof hoods and in the entrance nor the mushroom ventilators.
- When there is snowfall in winter, keep the forced ventilation free from ice and snow! (Chapter 17.2).

11.2 Gas cylinder compartment



Caution!

Gas cylinder compartment

- ▲ Always keep the forced ventilation in the floor free!
- ▲ Always keep gas cylinders upright and lashed.
- ▲ Do not use the gas cylinder compartment as storage space. Danger of fire!

The gas cylinder compartment is accessible from the outside only.

The gas cylinder compartment is intended for storing the gas cylinders. Do not cover the forced ventilation.

Secure the gas cylinder compartment against unauthorized access.

11.3 Gas types

The gas-operated appliances are operated with liquid gas (propane, butane or a mixture of both).

The dealers offer mainly 5 kg or 11 kg gas cylinders for purchase or hiring.

Handling gas cylinders

- ➔ Store gas cylinders exclusively in the gas cylinder compartment.
- ➔ Lock the gas cylinder compartment securely against unauthorized access!

11.3.1 Propane gas

Propane is a colourless and odourless gas. Propane is capable of gasification down to -42°C . Propane is suitable for winter camping.

Propane is highly flammable, heavier than air and, in high concentrations, has a narcotising to suffocating effect.

11.3.2 Butane gas

Butane occurs in two different versions (isomers): Isobutane and n-butane.

Isobutane and n-butane are liquid gases that are generated when crude oil is distilled.

Isobutane gasifies at -12°C , n-butane at -0.5°C . This means, butane is unsuitable for use in winter. Between the seasons, a mixture of butane and propane gas can also be used.

11.3.3 Information on liquid gas

Liquid gas characteristics:

- Liquid gas has no colour.
- It smells of garlic.
- It is heavier than air and collects on the ground after escaping.
- It is combustible and can burn rapidly when it escapes uncontrolled or explode when sparks occur.
- In enclosed areas, it displaces the breathing air; risk of suffocation!

11.4 Reference values for gas consumption

The gas consumption depends on how intensively the connected appliances are used.

Appliance	Reference value	Unit
Gas heating	170 - 490	g/h
Cooker	100 - 400	g/h
Refrigerator	10 - 25	g/h
Oven	50 - 200	g/h

Table 6 Reference values for gas consumption

11.5 Handling gas cylinders



Caution!

Danger when handling gas cylinders

- ▲ Read the safety instructions on the gas cylinder!
- ▲ Operate gas cylinders only with the pressure regulator connected!
- ▲ Do not smoke in the vicinity of the gas cylinders! Any kind of open flame must be avoided! This is valid in particular when replacing gas cylinders.
- ▲ Never lubricate threads and seals on the pressure regulator with grease. Risk of explosion by chemical reactions!
- ▲ The vents in the floor of the gas cylinder compartment always have to be kept uncovered.
- ▲ Use only gas cylinders provided for the camping sector!
- ▲ Never use special cylinders from other areas of application!
- ▲ Gas cylinders that are not connected must always be secured with a protective cap.
- ▲ The protective cap for the connected gas cylinder must be on board.
- ▲ Pay attention to the inspection date on the gas cylinder!
- ▲ Fill gas cylinders only by weight. This applies also for foreign countries!
- ▲ Never use city gas or natural gas!
- ▲ Never fill gas cylinders at propellant gas stations. Risk of explosion!
- ▲ If the vehicle is parked for a longer period of time, the gas cylinders may remain in the vehicle only when it is parked outdoors!
- ▲ The gas cylinder compartment is designed for a maximum of two 11 kg gas cylinders.

The screw connections on the gas cylinders have left-hand threads.

The gas cylinders are not part of the delivery items of the vehicle and have to be bought and connected by the operator.

Take utmost care when handling gas cylinders.

Grey gas cylinders with red marking (protective cap and bottom ring) are purchased cylinders and can be replaced or filled.

11.6 Gas pressure regulator SecuMotion/MonoControl CS (special equipment)



Danger!

Risk of explosion

- ▲ Rapid burning of gas.
- ▲ When changing gas cylinders, there is always some gas left in an "empty" gas cylinder.
- ▲ Smoking and open light or fire are forbidden when handling gas cylinders!



Caution!

Pressure regulators and flexible lines

- ▲ Pressure regulators and flexible lines must be replaced 10 years after manufacturing at the latest.
- ▲ The operator is responsible for the replacement.



Caution!

Risk of explosion caused by a leak after changing the gas cylinders

- ▲ Perform a leak test on the connections of the high-pressure hose after changing the gas cylinders.
- ▲ Use a leak detector spray according to DIN EN 14291.



Note!

With the SecuMotion/MonoControl CS gas pressure regulator, the operation of a type-tested liquid gas heater is allowed during the journey in Europe (EU Directive 2001/56/EC).

As an option, a Truma DuoComfort switch-over valve (special accessory) can be connected to the gas pressure regulator for the twin-cylinder system.

Use commercially available gas cylinders with 3 kg, 5 kg, 11 kg or 33 kg.

Always stand gas cylinders upright and secure them against falling over.

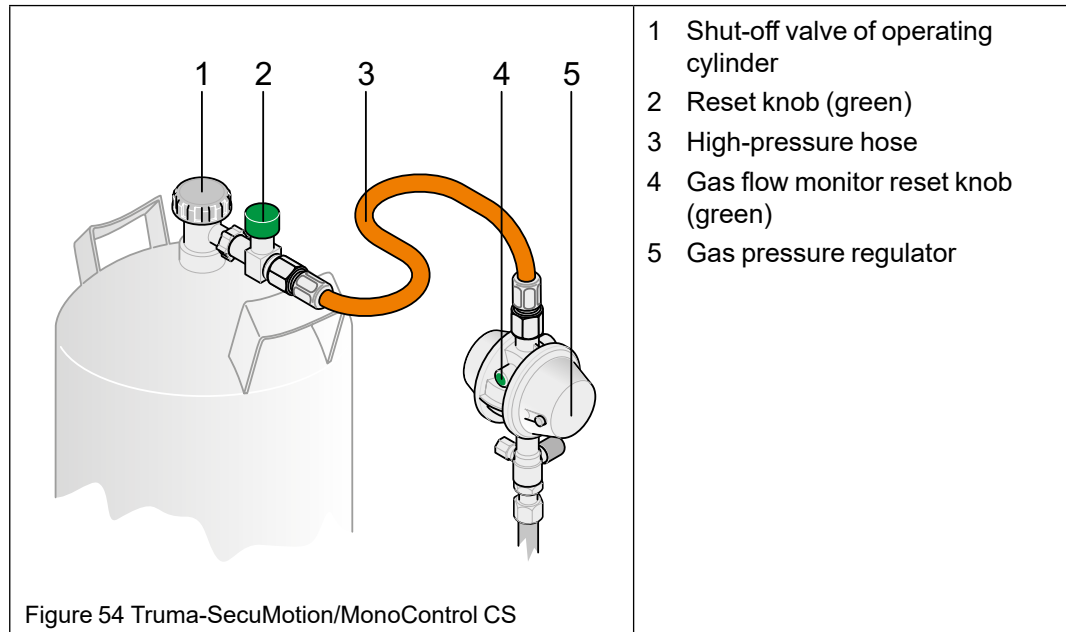
Do not kink or bend the high-pressure hose (Figure 54/3) sharply!

11.6.1 Placing the SecuMotion/MonoControl CS into service



Note!

If not used for a longer period and with the gas cylinders closed, the SecuMotion/MonoControl CS can be switched off.



Placing the SecuMotion/MonoControl CS into service:

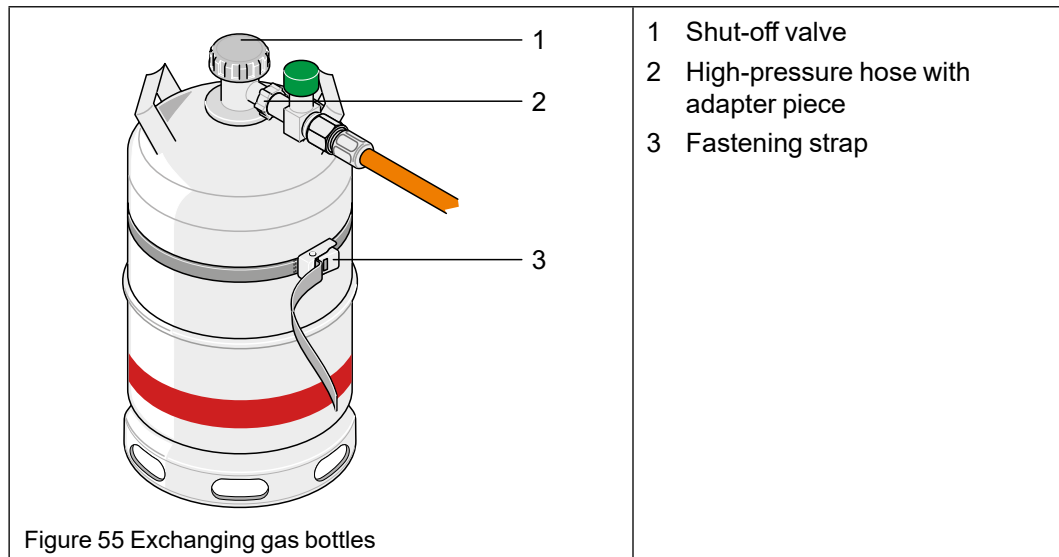
- ➔ Open the shut-off valve (Figure 54/1) of the full gas cylinder.
- ➔ Press the reset knob (green button) (Figure 54/2) on the high-pressure hose (Figure 54/3) firmly and hold it depressed briefly.
- ➔ Hold the gas flow monitor reset knob (green button) (Figure 54/4) on the gas pressure regulator (Figure 54/5) depressed for approx. 5 seconds.
- ➔ If required, repeat the process.

The gas appliances can now be placed into service.

11.6.2 SecuMotion/MonoControl CS - changing gas cylinders

Use the screwing tool provided for screwing the high-pressure hose on and off.

The screwing tool ensures the required tightening torque and prevents damage to the screw connection caused by wrong tools.



Changing gas cylinders

- ➔ Close the shut-off valve (Figure 55/1) of the empty gas cylinder.
- ➔ Unscrew the high-pressure hose with adapter piece (Figure 55/2) from the gas cylinder or remove the plug-on adapter, if required.
- ➔ Replace the empty gas cylinder in the gas cylinder compartment by a full gas cylinder.
- ➔ Secure the gas cylinders against falling over with an attachment strap (Figure 55/3).
- ➔ Screw the high-pressure hose with adapter piece (Figure 55/2) to the full gas cylinder or insert the plug-on adapter.
- ➔ Open the shut-off valve of the full gas cylinder.
- ➔ Press the hose rupture protection and green gas flow monitor (Chapter 11.6.1).

11.6.3 SecuMotion/MonoControl CS - changing the high-pressure hose



Note!

Also replace the seal after every change of the high-pressure hose.

If damage is visible on the high-pressure hose, it must be replaced.

Use the screwing tool provided for screwing the high-pressure hose on and off.

The screwing tool ensures the required tightening torque and prevents damage to the screw connection caused by wrong tools.

Changing the high-pressure hose:

- ➔ Close the shut-off valve (Figure 55/1) of the gas cylinder.
- ➔ Unscrew the high-pressure hose from the adapter piece of the gas cylinder (Figure 55/2) and from the regulator inlet or remove the plug-on adapters, if required.
- ➔ Screw a new high-pressure hose to the adapter piece of the gas cylinder (Figure 55/2) and the regulator inlet, attach the plug-on adapter.
- ➔ Open the valve of the gas cylinder.
- ➔ Press the hose rupture protection and green gas flow monitor (Chapter 11.6.1).

11.7 Quick-action stop valves

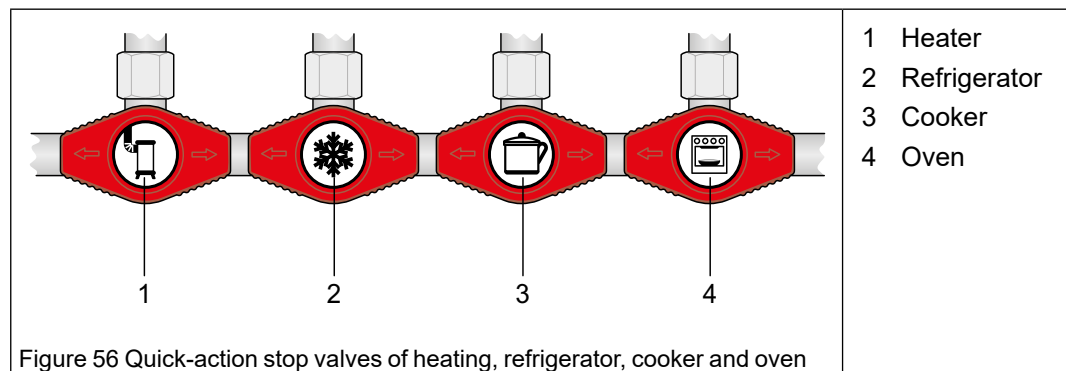


Note!

If the gas appliance is not used, the respective quick-action stop valve must be closed.

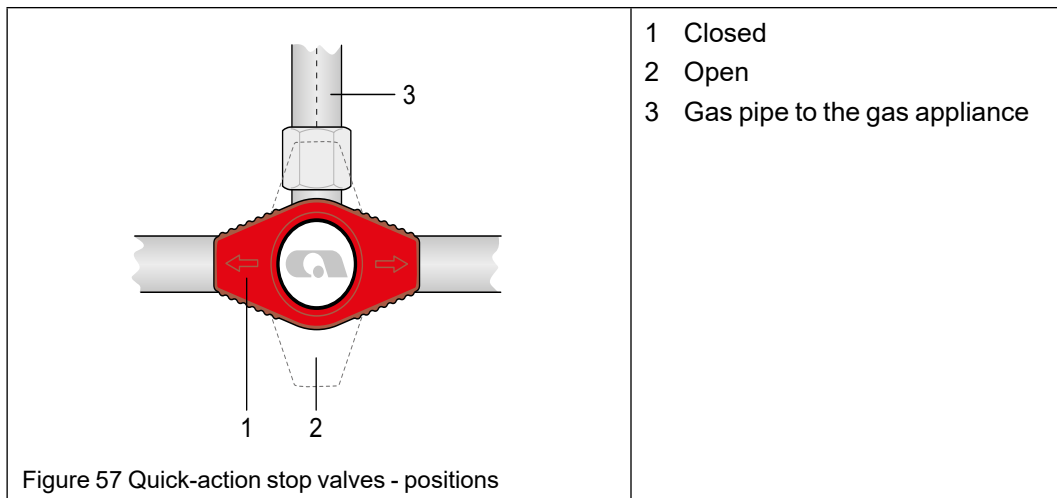
The gas distribution to the individual gas appliances is performed via the gas quick-action stop valves.

11.7.1 Quick-action stop valves of heating, refrigerator, cooker and oven



Each gas appliance has its own quick-action stop valve. These are marked with suitable symbols to prevent mistakes:

- Heater (Figure 56/1)
- Refrigerator (Figure 56/2)
- Cooker (Figure 56/3)
- Oven (Figure 56/4)



Using the gas appliances:

- ➔ Open the respective quick-action stop valve to put the desired gas appliance into service.
 - Quick-action stop valve closed (Figure 57/1): The arrows on the quick-action stop valve are positioned on the gas appliance crosswise to the direction of the gas pipe (Figure 57/3).
 - Quick-action stop valve open (Figure 57/2): The arrows on the quick-action stop valve are positioned in the direction of the gas pipe to the gas appliance (Figure 57/3).

12 Water and waste water

12.1 Water supply



Warning!

Health hazard

- ▲ Formation of bacteria and algae in the water tank.
 - Change the water at regular intervals including the boiler contents (e.g. twice a week).
 - After the end of every journey or after 4 weeks at the latest, the water tank must be drained, cleaned thoroughly and left open (venting).
 - Thoroughly clean the hoses after the end of each journey.
 - Use disinfectant for the water tank.



Caution!

Damage to the water pump

- ▲ Pumps can run hot without water and can be damaged.
- ▲ Never run pumps when the water tank is empty!



Caution!

Damage to the environment

- ▲ Never drain tanks (water and waste water) in the open countryside!
- ▲ Empty tanks only at petrol stations, resting places, disposal stations or camping sites at the provided places.



Caution!

Damage due to frost

- ▲ When there is a risk of frost, drain the water system of the vehicle.

A water tank is fitted in the vehicle as standard. When a water tap is opened, the installed water pump is switched on when the pump on the control panel is switched on.

Using the water tank:

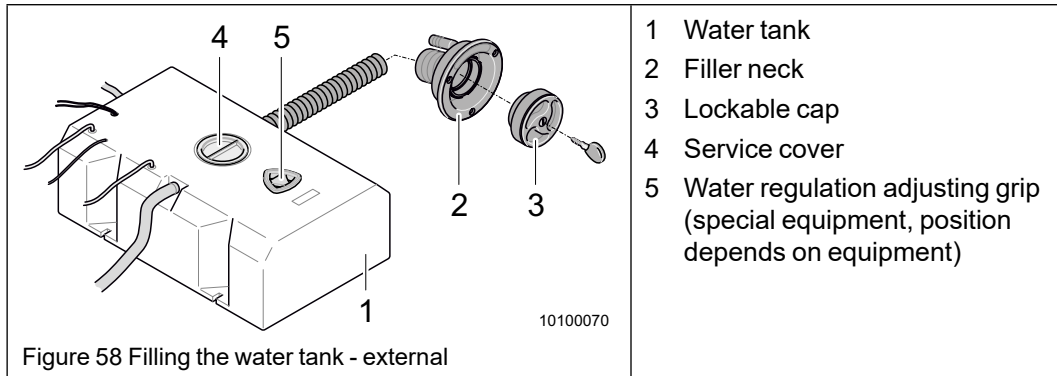
- Thoroughly clean the water tank before starting each journey.
- If possible, fill the water tank only just before staying overnight or at the destination of the journey.
- Avoid additional weight.
- Fill the water tank with drinking water only.

When the vehicle is placed out of service for an extended period of time or is not heated when there is a risk of frost, empty, clean and dry the entire water system (Chapter 12.3). Leave the water taps and drain cocks as well as all drain valves open.

We recommend to check the pipes every 6 months for leaks and to tighten the clamps as well as the connectors.

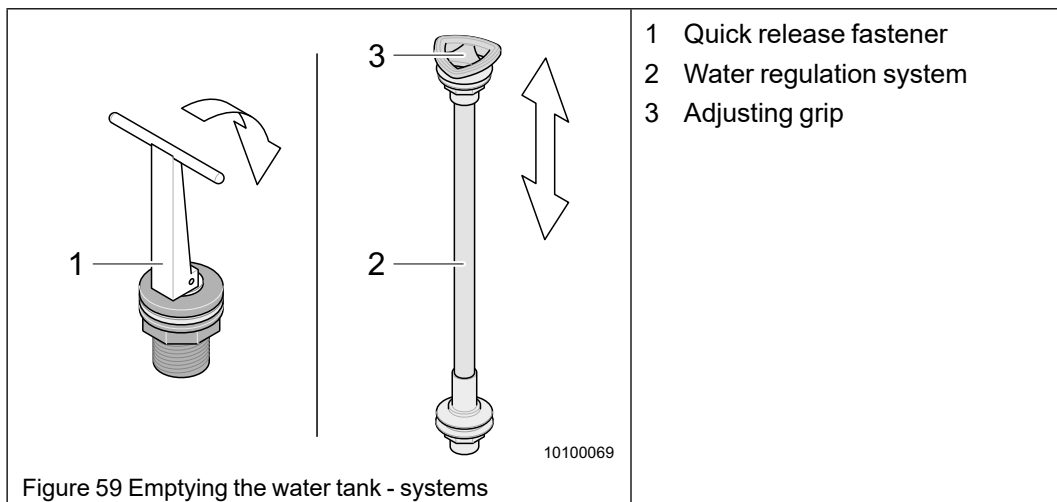
The water supply system corresponds to the state of technology (Directive 2002/72/EC).

12.1.1 Water tank



Filling the water tank (external):

- ➔ Switch the water pump off (actuate the button on the control panel, Chapter 8.10).
- ➔ Close the drain on the tank bottom.
 - Some models are fitted with a water regulation system (special equipment) (Figure 59/2). An adjusting grip (Figure 59/3 and Figure 58/5) is positioned on the top side of the tank to regulate and drain the water.
 - Turn the grip clockwise to close the system and have all the water available for use.
 - Turn the grip anticlockwise until slight resistance is felt to set the water level to approx. 20 l (surplus water is drained off).
- ➔ Unlock and open the lockable cap (Figure 58/3) on the water filling funnel (Figure 58/2).
- ➔ Fill water with a water canister, a watering can or a hose into the water tank.
- ➔ Replace, close and lock the cap.



Draining/cleaning the water tank:

- ➔ Switch the water pump off (actuate the button on the control panel, Chapter 8.10).

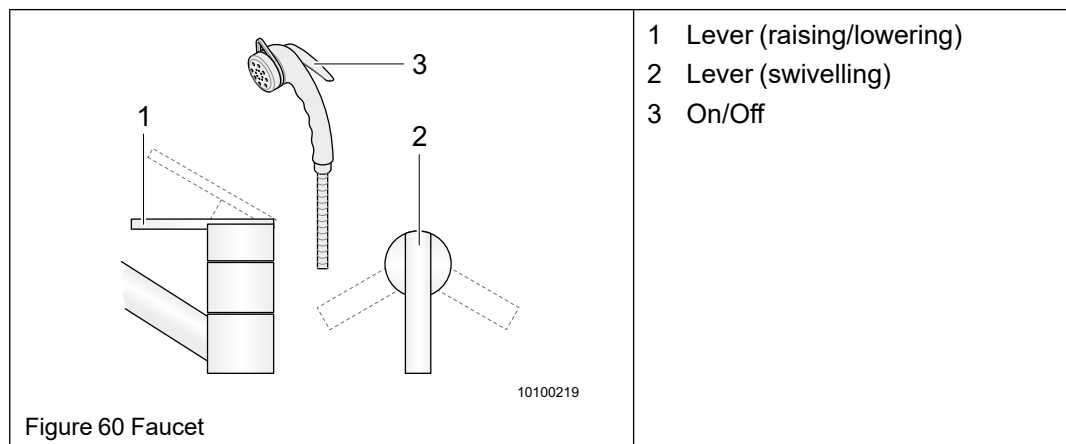
- ➔ Open the drain plug on the tank bottom (Figure 58/5). To do this, depending on the system:
 - Either open the service cover (Figure 58/4), fold the grip on the plug in the tank (Figure 59/1) down and pull the plug out,
 - or turn the adjusting grip of the regulation system (Figure 59/3) or (Figure 58/5) anticlockwise to the stop.
- ➔ Drain the water tank completely.
- ➔ Clean the inside of the tank.
- ➔ Close the plug in the tank bottom, and the service cover when necessary.

12.1.2 Faucet

Drawing of hot and cold water is performed with a single-lever faucet with pull-out shower head.

The water flow and temperature are controlled by raising or lowering the lever at the faucet.

The switch in the shower head is only functional if the water supply is switched on on the control panel.



Operating the faucet:

- ➔ Move the lever (Figure 60/3) at the shower head down to turn on the water pump.
- ➔ Control the water flow by raising/lowering the lever (Figure 60/1).
- ➔ Adjust the desired temperature by swivelling the lever (Figure 60/2).
- ➔ Move lever to “red”: the water becomes warmer.
- ➔ Move lever to “blue”: the water becomes cooler (minimum ambient temperature of the water tank).
- ➔ Release the lever (Figure 60/3) to shut the wate again.
- ➔ Tilt the lever (Figure 60/2) down.

12.2 Waste water

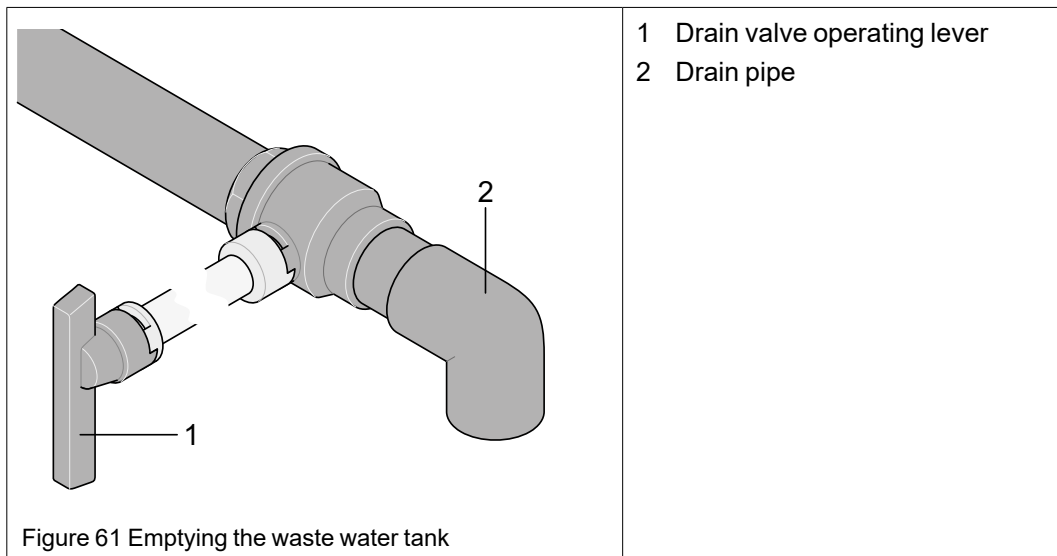


Note!

Before moving off close the drain of the shower tray to prevent waste water from running back into the shower tray through the drain.

The accruing waste water from the sink in the kitchen and the shower and the washbasin in the bathroom is collected centrally in the waste water tank.

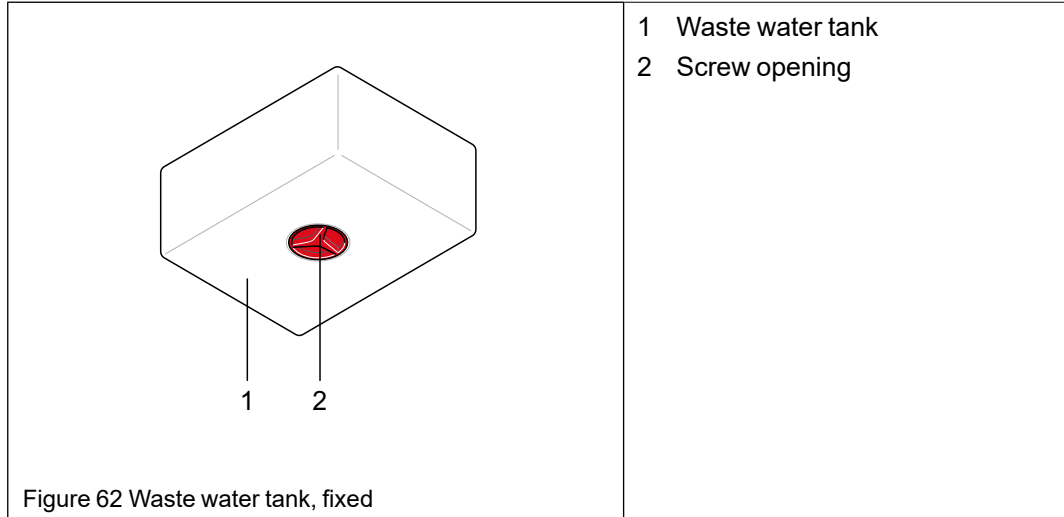
The drain pipe and the handle for the drain valve are located on the underside of the vehicle.



Draining the waste water tank:

- ➔ Position the vehicle over the drain position so that the waste water from the waste water pipe (Figure 61/2) can flow into a gully.
- ➔ Turn the lever (Figure 61/1) to open the drain valve.
- ➔ When the tank is empty, close the drain valve again.

12.2.1 Waste water tank



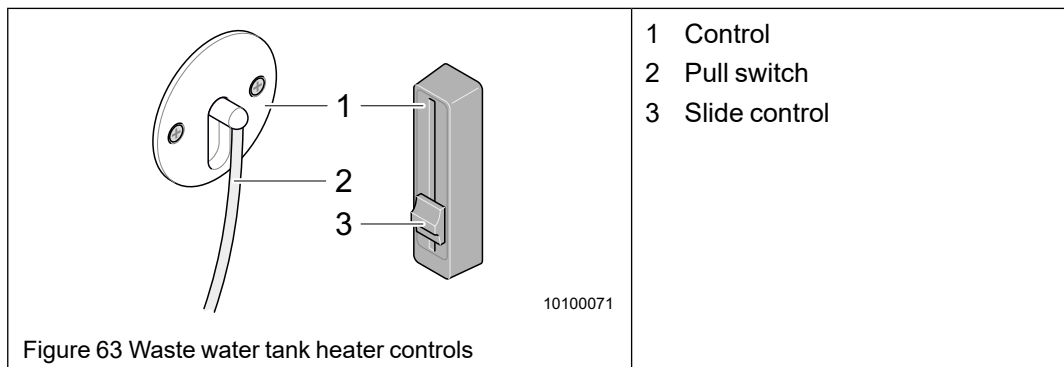
The waste water tank is also located on the underside of the vehicle. For thorough cleaning, the waste water tank of most models has a screw opening that is accessible from below. Stubborn soiling can thus be eliminated.

12.2.2 Waste water tank heater (special equipment)

Some models are fitted with an optional waste water tank heater. Depending on the model, an electrical heater module can be used or hot air circulated from the living area heater.

12.2.2.1 Circulating air waste water tank heater

On some models, the waste water tank is insulated and heated with hot air.



Operating the waste water tank heater:

Waste water tank heater with pull switch

- ➔ Switching on: Pull the pull switch cord downwards.
- ➔ Switching off: Pull the pull switch cord downwards again.

Waste water tank heater with slide control

- Switching on: Slide the control upwards (red arrow).
- Switching off: Slide the control downwards (blue arrow).

The installation position of the circulating air waste water tank heater depends on the model.

12.3 Emptying the water system



Caution!

Damage due to frost

- ▲ Prevent frost damage to the water system.
- ▲ If the vehicle is not heated when there is a risk of frost (winter), damage to the components of the water or waste water system can occur due to the formation of ice. Drain all water-conducting components.

When the vehicle is placed out of service for an extended period of time or is not heated when there is a risk of frost, empty, clean and dry the entire water system. Leave the water taps and drain cocks as well as all drain valves open.

Draining the water supply:

- Switch the water pump and boiler off.
- Open all water taps to the centre position.
- Drain the water tank (Chapter 12.1.1)
- Open the boiler safety valve (Chapter 13.1.8).
- The tank must be rinsed, cleaned and allowed to dry.
- On vehicles with pressure pump, switch the pump on for a short time to remove residual water.
- Leave all water taps open in the centre position until the vehicle is placed into service again. The water pump may be switched on only when water has been filled.

Emptying the waste water system:

- Allow the waste water to flow into the waste water tank.
- Drain the waste water tank at the intended waste water disposal station.
- Drain the WC cassette.

13 Heater & hot water



Danger!

Risk of fire

- ▲ The person using the heating must have the heat exchanger of the Truma heating replaced at the latest after 30 years. Only the heating manufacturer or an authorized workshop can exchange the heat exchanger.
- ▲ Heating spare parts must always be approved as spare parts by the manufacturer.



Danger!

Risk of explosion

- ▲ Never let unignited gas flow out.
- ▲ Switch the heating off before filling the fuel tank, when on ferries and in garages.



Danger!

Risk of poisoning

- ▲ Before placing the gas heater into service in winter operation, check the cowl on the vehicle roof is free from snow and ice.
- ▲ Check the exhaust gas pipe for damage before switching the heating on. Do not use the heating with a damaged exhaust gas pipe.
- ▲ Do not close off or cover the exhaust cowl.
- ▲ Use cowl extensions during winter camping, snow must not cover the exhaust cowl.
- ▲ Do not use the space behind the heating for storage.



Danger!

Risk of poisoning and suffocation from the exhaust cowl on the right vehicle side

- ▲ When the awning is in place and the heating operates in gas mode, the heating exhaust gases can collect under the awning. There exists the risk of poisoning and suffocation due to lack of oxygen and the possibly generated odourless and toxic carbon monoxide (CO).
- ▲ Ensure adequate ventilation!



Note!

- The heater can be run with gas during the journey when the gas supply is fitted with a SecuMotion gas pressure regulator (special equipment) (Chapter 11.6).
 - ➔ Before starting the journey, obtain information concerning special provisions of the country to be visited (EN 732).
- Observe the safety instructions for the gas system (Chapter 2.5 and Chapter 11.5).

Depending on the model, the gas heater fitted in your vehicle is supplied by different manufacturers and with differing functional scope. The heater system is used to heat the living area and for providing hot water.

13.1 Gas heater Truma Combi and Truma Combi E and Truma Combi D



Note!

- The function of Truma Combi and Truma Combi E and Truma Combi D is almost identical.
 - ➔ For the operation of Truma Combi E, the power must first be set with the power selector switch (pic. 85).
- When new heaters are placed into service for the first time, there is a light generation of smoke. This is normal.
 - ➔ In this case, allow the heater to run at maximum capacity, switch on the circulation fan and open the air vents to ventilate the motorhome thoroughly during this period.

For more information, see the separate instructions from the manufacturer.

The Truma Combi and Truma Combi E liquid gas heaters are warm-air heaters with integrated hot-water boiler. The burner operates fan-supported which ensures trouble-free function even during the journey.

The Truma Combi E has additional heating rods for electrical operation. Three power selection options are therefore available for the operation of this appliance:

- Gas only for independent operation
- Electricity only (230 V) for stationary operation at a camping site
- Gas and electricity simultaneously (possible only in winter mode).

13.1.1 First use



Note!

Heating is always possible in all operating modes (gas, electric and mixed operation) with and without water.

Check the following each time before placing the heater into service:

For gas operation:

- ➔ Is the exhaust cowl free?
Otherwise remove the cover from the exhaust cowl.
- ➔ Is the shut-off valve of the gas cylinder open?
- ➔ Is the "Heater" quick-action stop valve on the distributor block open?

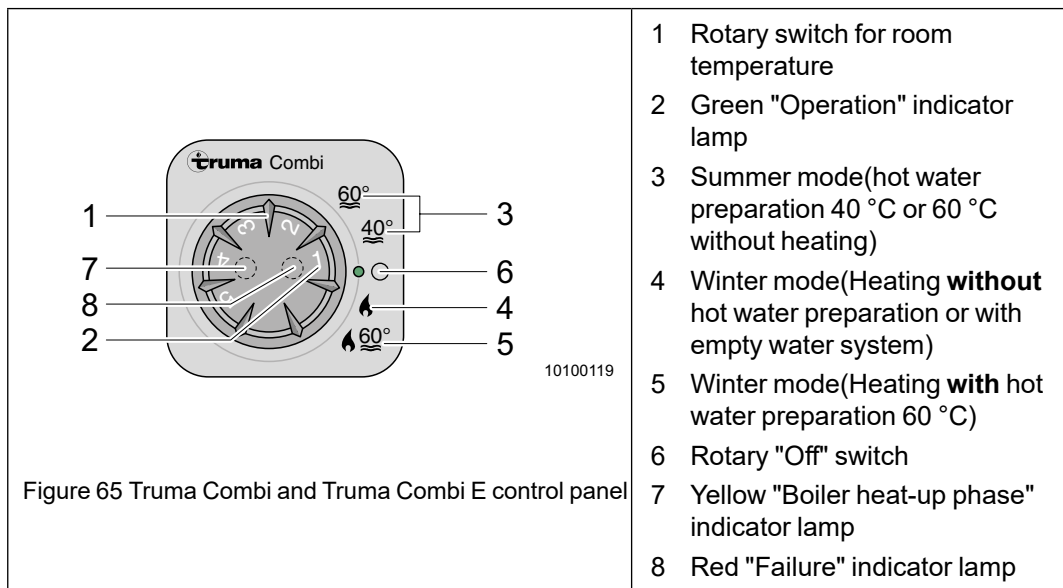
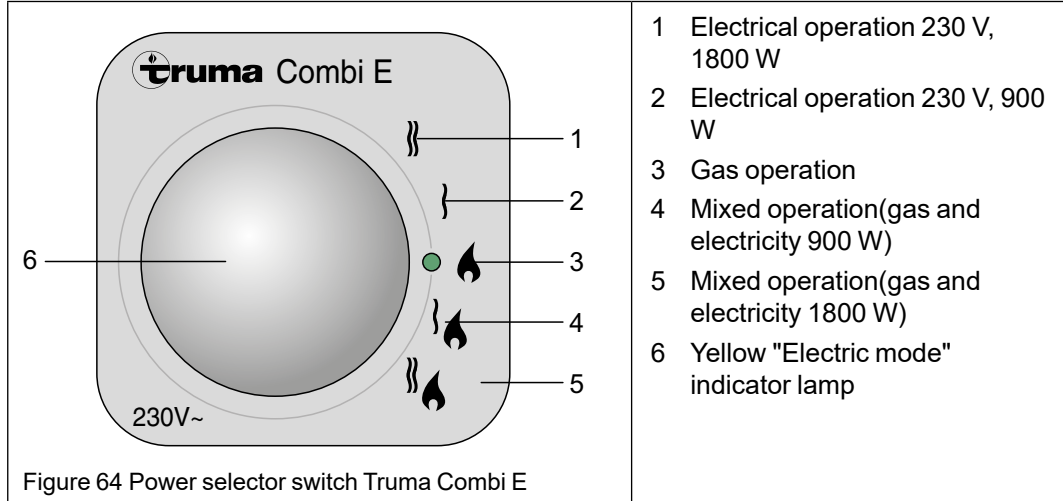
For electrical operation (Truma Combi E):

- ➔ Is the circuit protection for the 230V power supply at the camping site adequate?
(900 W - 3.9 A / 1800 W - 7.8 A)
- ➔ Has the connecting cable been fully unwound from the cable reel?
- ➔ Is the 230 V circuit breaker in the vehicle switched on?

For Truma Combi D:

- ➔ Are there at least 10 liters of diesel fuel in the tank?

13.1.2 Are there at least 10 diesel fuel in the tank?Control panels



The vehicle is equipped in series with the control panel Truma Combi or Truma Combi E.

Adjust the room temperature with the rotary switch "Room temperature" Figure 651). Coloured LEDs for operating mode indicators (Figure 65/2.7 and 7) and failure (Figure 65/8) are located in the rotary switch "Room temperature".

By turning the outer ring, you can select the different operating modes in summer operation and in winter operation.

- ➔ Turn the swivel ring until the green dot on the swivel ring points to the desired operating mode.

13.1.2.1 Truma CP plus control panel

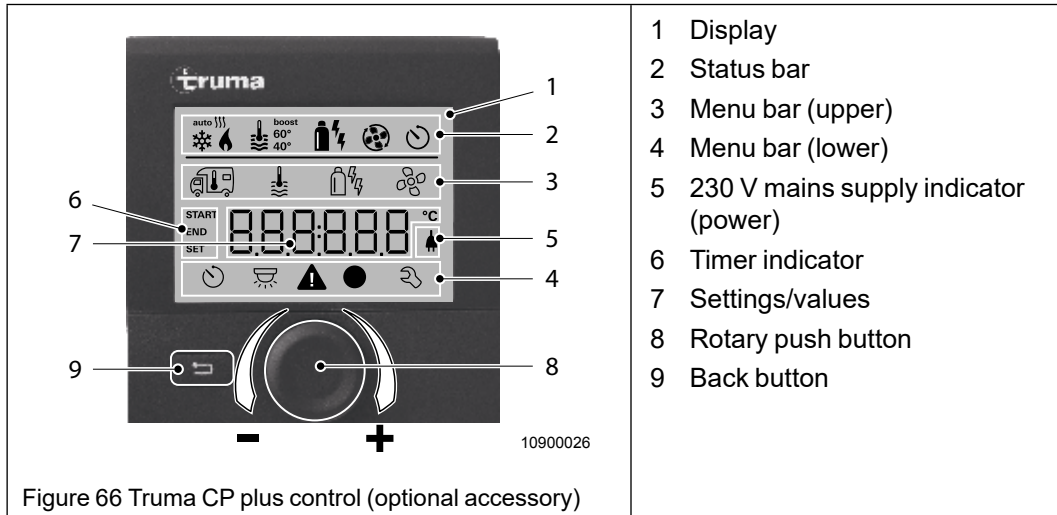


Figure 66 Truma CP plus control (optional accessory)

Some vehicles are optionally equipped with control panel Truma CP plus. Rotary push button (Figure 66/8) serves to select menus or to change the values to be set.

- ➔ Rotate the rotary push button to the right or left to select a menu item or to change the values.
- ➔ Press the rotary push button to activate the menu item or to save the value set.
- ➔ Press the rotary push button for longer than 3 seconds to switch the control element on or off.

Use the Back button (Figure 66/9) to return to the previous menu or the previous display. The settings in the menus are performed analogue to the settings described for Truma Combi and Truma Combi E. For more information, see the separate instructions from the manufacturer.

13.1.3 Summer mode



Note!

In summer mode gas or electrical operation is possible. In mixed operation, the unit automatically selects electrical operation with the preselected electrical power of 900 W or 1800 W.

Preparing hot water:

- ➔ Boiler must be filled with water (Chapter 13.1.9).
- ➔ For vehicles with Truma Combi E: Set gas or electrical operation on energy selector switch (Figure 64/1,2,3).
- ➔ Set the rotary switch to summer mode (Figure 65/3) 40 °C or 60 °C. When the equipment is switched on, the green (Figure 65/2) and the yellow indicator lamps (Figure 65/7) go on. When the set water temperature (40 °C / 60 °C) is reached, the heating is switched off and the yellow indicator lamp (Figure 65/7) goes off.

13.1.4 Winter operation

13.1.4.1 Heating with hot water preparation:



Note!

The water can be heated to up to 60 °C depending on the heating power that is required to reach room temperature.

Boiler must be filled with water (Chapter 13.1.9).

- ➔ On vehicles with Truma Combi E set the desired energy type with the energy selector switch (Figure 64):
 - Gas operation (Figure 64/3)
 - Electrical operation 1800 W (Figure 64/1) or 900 W (Figure 64/2)
 - Mixed operation 1800 W (Figure 64/5) or 900 W (Figure 64/4)
- ➔ Set the rotary switch to "60 °C heating" (Figure 65/5).
- ➔ Turn the rotary knob (Figure 65/1) on the control panel to the desired thermostat setting (1-5) for room temperature.

When the equipment is switched on, the green "On" indicator lamp (Figure 65/2) and the yellow water heating indicator lamp (Figure 65/7) on the control panel go on.

The unit gradually reduces the power until the selected room temperature is reached. If the room temperature has been reached but the water still has to be heated, the circulation fan switches off and the water continues to be heated to a temperature of 60 °C at the lowest power setting.

The yellow indicator lamp (Figure 65/7) is on during heating and goes off when the water temperature is reached (60 °C).

13.1.4.2 Heating without hot water preparation:



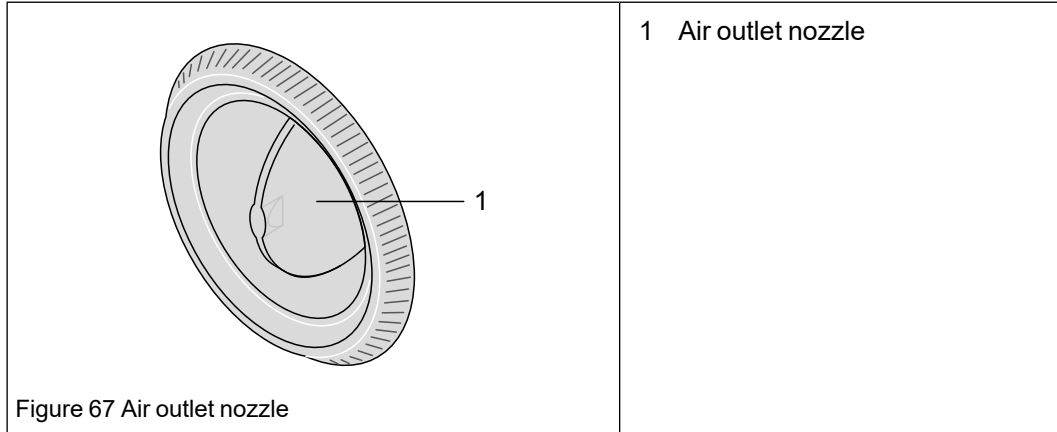
Note!

- When the boiler is filled, the water is automatically heated.
- The water temperature is dependent on the specified heater performance and the duration of the heating for reaching the room temperature.
- ➔ On vehicles with Truma Combi E set the desired energy type with the energy selector switch (Figure 64):
 - Gas operation (Figure 64/3)
 - Electrical operation 1800 W (Figure 64/1) or 900 W (Figure 64/2)
 - Mixed operation 1800 W (Figure 64/5) or 900 W (Figure 64/4)
- ➔ Set the rotary switch to "winter mode" (heating without hot water preparation) (Figure 65/4).
- ➔ Turn the rotary knob (Figure 65/1) to the desired thermostat setting (1 to -5).

After the heater is switched on, the green "On" indicator lamp (Figure 65/2) on the control switch goes on.

When the selected room temperature has been reached, the heater switches off, independent of the water temperature. If there is water in the boiler, it will also be heated in this mode of heating.

13.1.5 Heating properly



Several air outlet nozzles (Figure 67/1) are built into the vehicle. Pipes and flexible hoses conduct the warm air to the nozzles.

Distributing the warm air:

- ➔ Close the air outlet nozzles on the instrument panel of the basic vehicle to prevent draughts.
- ➔ Set the air distribution of the basic vehicle to air circulation.
- ➔ Adjust the air outlet nozzles (Figure 67/1) so that the warm air escapes at the desired positions only.

Adjusting the air outlet nozzles:

- ➔ Fully open the air outlet nozzle (Figure 67/1) to conduct the full warm air flow to the desired position.
The more the air outlet nozzle is closed (Figure 67/1), the less warm air flows out.
The more air outlet nozzles are open, the less warm air flows out at the individual nozzles.

13.1.6 Switching the heater off

- ➔ Set the rotary switch to "Off" (Figure 65/6).
- ➔ The fan can continue to run after switching off in order to utilise the residual heat. The green indicator lamp is flashing.
- ➔ Close the "heater" quick-action stop valve (Chapter 11.7) when the heater is not used for an extended period of time.
- ➔ Close the gas cylinder shut-off valve (Chapter 11.5) when no other gas appliance is in operation.

13.1.7 Malfunctions



Note!

If a fault shut-off occurs during mixed operation when using Truma Combi E (e.g. because of an empty gas cylinder), the heater continues to run in electrical operation.

When the heater malfunctions, the red indicator lamp (Figure 65/8) is on.

See the Chapter "21.6 Gas system faults" for possible causes.

→ The fault is reset by switching the heater off and on with the control switch.

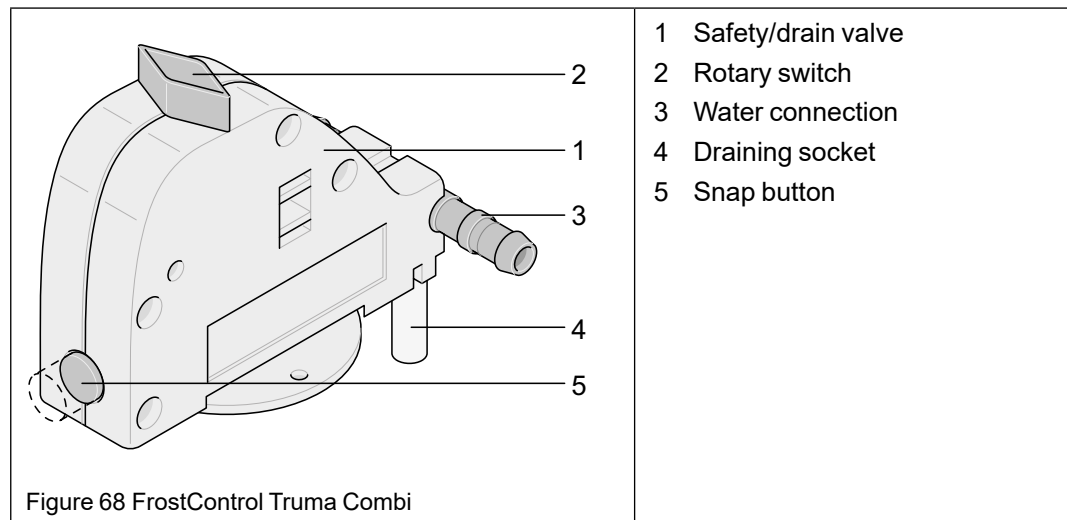


Note!

If the 230 V power supply is interrupted for short periods during operation (approx. 1 second), the heating will resume as normal.

13.1.8 FrostControl (safety / drain valve)

The safety / drain valve is near the heating.



"FrostControl" (Figure 68/1) is a currentless safety/drain valve. When there is a danger of frost, it automatically drains the contents of the boiler through a draining socket (Figure 68/4). If excessive pressure is present in the system, pressure will be automatically intermittently equalised through the pressure relief valve.

Closing the drain valve:

- Check if the rotary switch (Figure 68/2) is set to "Operation" (parallel to the water connection (Figure 68/3) and is engaged.
It can be manually closed with the snap button (Figure 68/5) (pressed) and the boiler filled only when the temperature at the drain valve is above approx. 7 °C.
- Set the heater to summer or winter mode (Chapter 13.1.3 or 13.1.4) and set the rotary switch (Figure 68/2) of the valve (Figure 68/1) to "Operation". The rotary switch must engage.

- ➔ Press the snap button (Figure 68/5) into the valve until it engages ("closed" position).
- ➔ Always keep the drainage pipe (Figure 68/4) of the safety / drain valve free from contamination (slush, ice, leaves, etc.).

Automatic opening of the drain valve:

When the temperature at the drain valve is below approx. 3 °C, the drain valve will open automatically, the snap button (Figure 68/5) springs out and the supply of water of the motorhome drains out through the drainage pipe (Figure 68/4).

Manual opening of the drain valve:

- ➔ Turn the rotary switch (Figure 68/2) 180° until it engages.
The snap button (Figure 68/5) springs out and the water drains out through the draining socket (Figure 68/4).

13.1.9 Filling the water heater



Caution!

Damage to heating

- ▲ A pressure reduction valve must be used when connecting to a central public water supply. This prevents pressures above 2.8 bar in the water heater.



Note!

- If the temperature at the drain valve is below approx. 7 °C, you first have to switch on the heater to heat the installation area and the FrostControl. After a few minutes and when the temperature is above 7 °C, the drain valve can be closed.
 - If just the cold water system is being operated without using the water heater, it is still filled with water. To avoid damage by frost, the water must be drained by operating the safety / drain valve - even when the water heater has not been used.
- ➔ Check the rotary switch of the "FrostControl" is set to "Operation" (parallel to the water connection).
 - ➔ Close the drain valve by pushing in the snap button.
 - ➔ Switch on the power for the water pump (main and/or pump switch).
 - ➔ Open the hot water taps in the kitchen and the bathroom.
 - Set the temperature selector or single-lever faucets to "hot".
 - Leave faucets open until the air has been forced out of the water heater and water flows out of the faucets.

13.1.10 Draining the water heater

- ➔ Interrupt the power supply for the water pump.
- ➔ Open the hot water taps in the kitchen and the bathroom.
- ➔ Place a bucket underneath the outlet.
- ➔ Turn the rotary switch of the drain valve 90° until it engages (Figure 68/2).
The water heater is now drained to the outside.

14 Cooking



Danger!

Risk of poisoning due to carbon monoxide (CO) and lack of oxygen

- ▲ Always open a window or roof hood when the gas stove is switched on.
- ▲ Never cover the forced ventilation in the skylights and in the entrance as well as the mushroom ventilators.



Danger!

Risk of explosion

- ▲ Risk of explosion! Never allow unburned gas to flow out!
- ▲ If a flame of the gas stove extinguishes, unburned gas flows out until the flame failure device is activated and together with the oxygen generates an explosive mixture inside the vehicle!
- ▲ Watch the flames while using the cooker!
- ▲ When finished, shut the respective quick-action stop valve (Chapter 11.7).

14.1 Gas cooker

The gas stove is operated with liquid gas.

Observe the following when operating the gas stove:

- Always open a window or a roof hood (Chapter 8.9).
This supplies the vehicle with sufficient oxygen and leads away cooking vapours.
- Do not keep combustible objects, e.g. tablecloths, napkins, etc. near the gas stove.
Risk of fire!
- Carefully observe the ignition process. The view must not be obstructed.
- Place the pots on the middle of the cooking positions.
- Use only pots with flat bottoms that are not larger than the respective gas burner grate.
- Do not allow the flames to extend beyond the pot edge.
- Always use cooking gloves or pot holders when handling hot pots, pans and similar items. Risk of injury!
- Never use the gas stove for heating.

Observe the following for the glass cover (special equipment):

- Do not apply pressure on the glass gas stove cover when closed.
- Do not close the glass cover while burners are still in operation or emit heat.
- Do not place hot cooking pans on the glass cover.
- In the case of frost, keep the kitchen window closed and provide ventilation in a different way. Otherwise, the temperature difference on the glass cover could cause damage.

14.1.1 Operation



Caution!

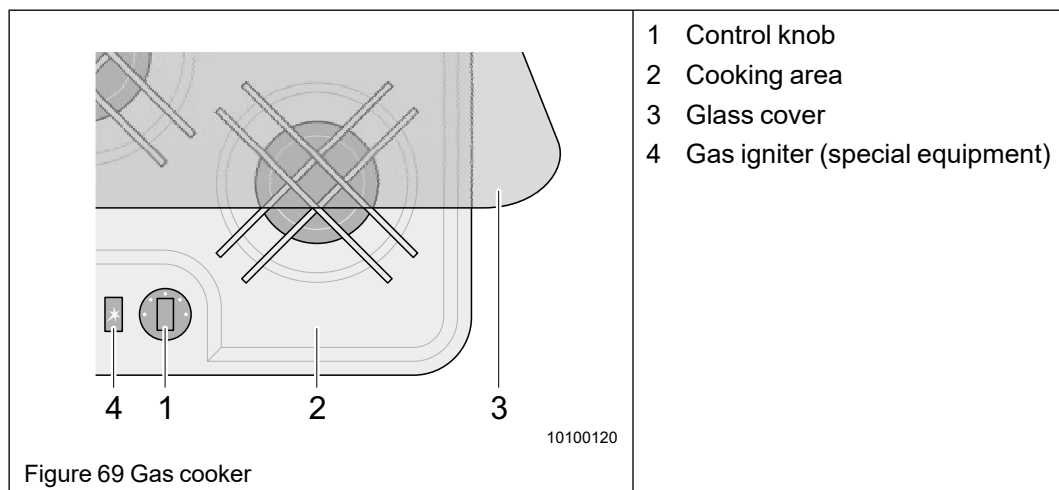
Defective cooking area

- ▲ The burner does not operate properly. The flame goes out again and again despite the control knob being depressed for an extended period of time.
- ▲ The thermal element is bent or defective. Have defective thermal elements replaced by an authorised workshop. We recommend yearly inspection by a specialist.



Note!

- Always make sure the respective control knob is set to "Off" when you are finished using the cooking stove, the grill or the oven.
- On models with electric ignition, proceed in the same manner as described, however, the flame is ignited by pressing the button for electric ignition on the control panel.



Using the gas stove correctly:

- ➔ Clean the gas stove before placing it into service (Chapter 19.2.5).
- ➔ Put up the glass cover (Figure 69/3) of the cooking area (Figure 69/2).
- ➔ Open the gas bottle shut-off valve and appliance shut-off valve (Chapter 11.7, Figure 56/3) on the valve block.
- ➔ Turn the control knob (Figure 69/1) of the desired cooking position (Figure 69/2) to "large flame", press it and keep it depressed.
Gas flows out.

- ➔ Ignite the gas flowing out with a suitable device and keep the control knob (Figure 69/1) depressed for approx. 10 seconds until the flame safety device keeps the gas supply open.
 - Piezo gas igniter: Each time the button (Figure 69/4) is pressed, a spark is created to ignite the gas.
 - Electric gas igniter: When the button (Figure 69/4) is pressed, several ignition sparks are created until you release the gas igniter.
- ➔ If the flame goes out, repeat the process.
- ➔ Regulate the gas supply by turning the control knob to the "large flame" or "small flame" symbol.

Switching the gas stove off:

- ➔ To switch off, turn the control knob clockwise to the "0 position".
The flame goes out and the flame safety device automatically shuts off the gas supply.
- ➔ Close the quick-action stop valve (Chapter 11.7, Figure 56/3).

For more information, see the separate instructions from the manufacturer.

15 Refrigerator & freezer compartment

The refrigerator and the freezer compartment form a mechanical unit.

To ensure optimum function, the appliance should stand level, if possible. However, it is also suitable for inclined positions to a certain degree.

The refrigerator and freezer compartment combination can be operated optionally with 230 V, 12 V or liquid gas.

Operation with 230 V or gas is recommended because these are most efficient.

Clean the refrigerator before placing it into service (Chapter 19.2.5).

When the appliance is first put into service, there may be a mild odour which will disappear after a few hours.

Ensure the living area is well ventilated (Chapter 8.5).

The refrigerator is silent in operation.

The refrigerator takes a few hours to reach its operating temperature whereas the freezer compartment should be cold about one hour after switching the refrigerator on.

For more information, see the separate instructions from the manufacturer.



Note!

- Some Figures show special equipment which may not be installed in your vehicle.
- The refrigerator fitted in the vehicle runs according to the absorber principle. The higher the ambient temperature, the more warmth the refrigerator must dissipate. This is done via the refrigerator grille on the rear side of the refrigerator in the outer skin of the vehicle.
 - Open doors or windows can have a detrimental effect on air circulation depending on the model.
 - For higher temperatures, a circulation fan (special accessory) can be fitted to improve refrigerator efficiency.
 - It can be useful to remove the refrigerator grille in dry weather (without rain). Important: Always keep the refrigerator grille fitted during rain!

15.1 Controls

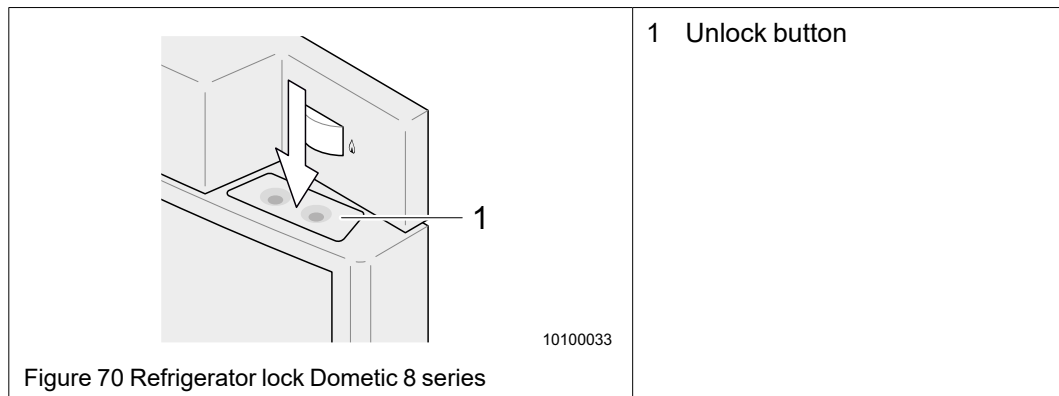
15.1.1 Opening and locking the door



Caution!

Damage to refrigerator door

▲ Always make sure the refrigerator door is correctly locked before moving the vehicle.

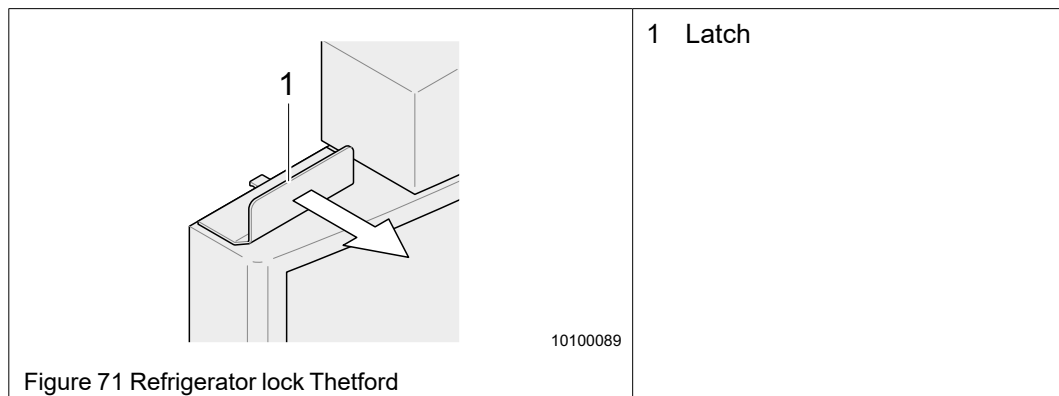


Opening the refrigerator Dometic 8 series:

➔ Press the unlock button (Figure 70/1) down and open the refrigerator door.

Closing the refrigerator Dometic 8 series:

➔ An automatic lock is fitted on the refrigerator door. When you close the refrigerator door and press it on firmly, the door locks automatically.



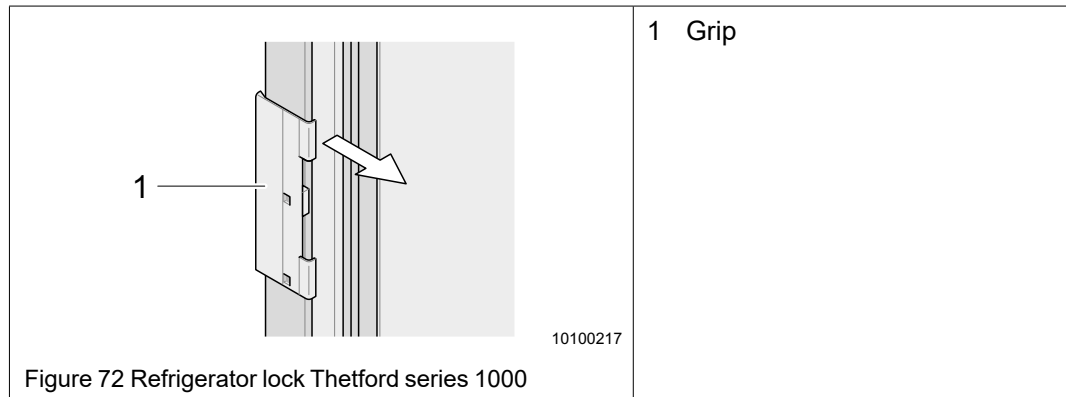
Opening the Thetford refrigerator:

➔ Pull the latch (Figure 71/1) and open the door.

Closing the Thetford refrigerator:

An automatic lock is fitted on the refrigerator door.

➔ Shut the refrigerator door and press firmly.
The refrigerator door locks automatically.



Opening the Thetford series refrigerator:

→ Pull the handle (Figure 72/1) and open the door.

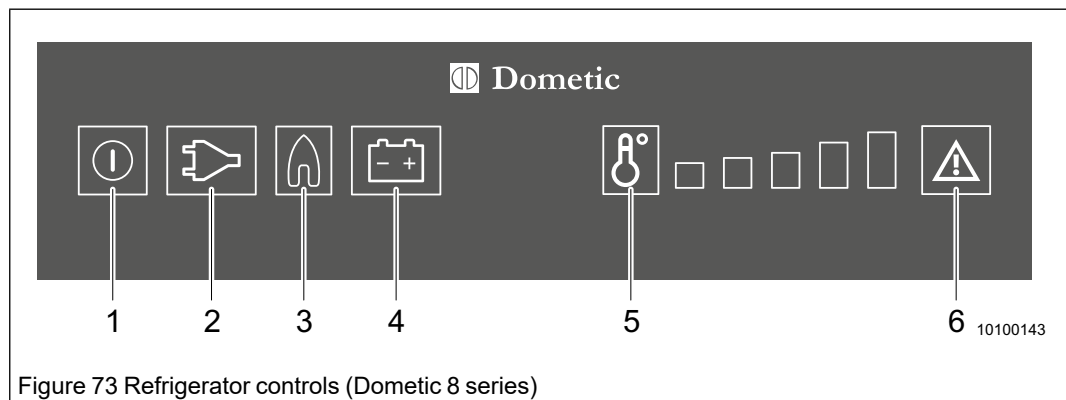
Closing the Thetford refrigerator:

An automatic lock is fitted on the refrigerator door.

→ Shut the refrigerator door and press firmly.
The refrigerator door locks automatically.

15.1.2 Temperature and energy selection

15.1.2.1 Dometic 8 series with manual mode selection and battery ignition.



- 1 "On/off" button
- 2 Selector switch "230 Volt" mode
- 3 Selector switch „Gas" mode
- 4 Selector switch "12 Volt" mode
- 5 Selector switch "Temperature range"
- 6 Indicator "Malfunction"

For more information, see the separate instructions from the manufacturer.

15.1.2.2 Thetford series N 3000 E

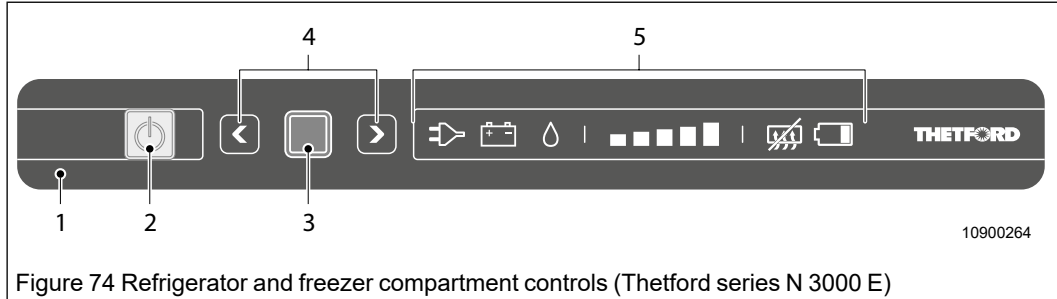


Figure 74 Refrigerator and freezer compartment controls (Thetford series N 3000 E)

- 1 LED control panel
- 2 Main switch
- 3 Actuation button
- 4 Arrow keys
- 5 Display

To switch between functions press the confirmation button (Figure 74/3) for approx. 2 seconds. Then select the desired mode with the arrow buttons (Figure 74/4). For more information, see the separate instructions from the manufacturer.

15.1.2.3 Thetford series T 1000

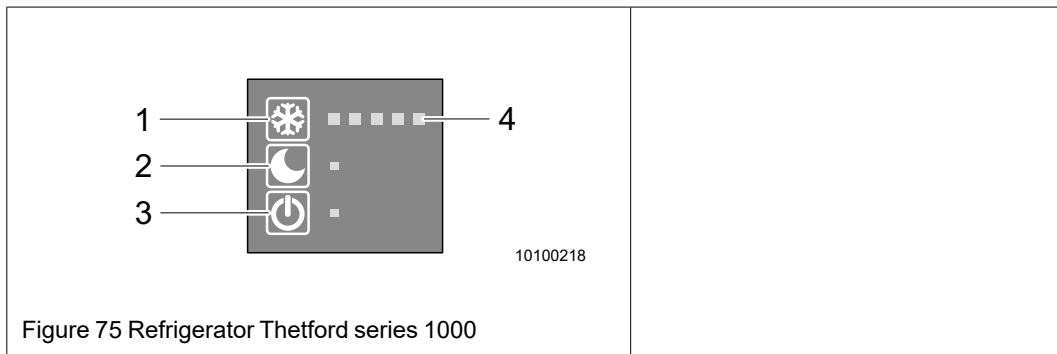


Figure 75 Refrigerator Thetford series 1000

- 1 “Cooling temperature” button
- 2 “Night mode” button
- 3 “On/off” button
- 4 Cooling stage (1-5)

To activate press the button (Figure 75/3) for approx. 2 seconds. To select the temperature press the temperature button (Figure 75/1) for approx. 1 second. Select the cooling stage by pressing again (Figure 75/4).

For more information, see the separate instructions from the manufacturer.

15.2 First use

15.2.1 12 V mode

The 12 V mode should be selected only while the engine is running.

15.2.2 230 V mode

Select the 230 V mode only when an external 230 V supply is connected.

Before starting the journey, obtain information on the voltage in the country to be visited.

15.2.3 Gas mode



Danger!

Risk of explosion at petrol stations!

- ▲ Open flames are prohibited at petrol stations!
- Switch the refrigerator off using the power selector switch!



Caution!

Using gas

- ▲ Only use liquid gas to run the refrigerator (Chapter 11.3).
- ▲ At altitudes of more than 1000 m above sea level, physical factors may cause problems with the ignition of the gas. This is not a malfunction!

Using the refrigerator with gas:

- Open the gas bottle shut-off valve and appliance shut-off valve (Chapter 11.7, Figure 56/3) on the valve block.
- Select mode "Gas" using the power selector switch.
- On refrigerators with manual power selection (MES), press the button (Figure 74/3) repeatedly until "Gas mode" is selected. Ignition is then automatic.



Note!

On appliances with automatic power selection (AES or AUTO shown in the display), the priority sequence of the control electronics first selects GAS when neither of the electric power types are available.

For more information, see the separate instructions from the manufacturer.

15.2.4 Winter operation



Note!

Attach the winter covers also when the vehicle is taken out of service for an extended period of time or cleaned on the outside.

Check in winter operation:

- ➔ Check regularly that the ventilation grilles have not been blocked by snow, ice, leaves or similar.
When the outside temperature drops below +8°C, the winter covers (special accessory) should be fitted to the ventilation grilles
This protects the refrigerator unit from excessively cold air.

For more information, see the separate instructions from the manufacturer.

15.3 Storing food

15.3.1 General information

- Switch the refrigerator on approx. 12 hours before storing food.
- Always store pre-cooled food only. When buying and transporting food, make sure the food is well pre-cooled. Use insulated bags for transport.
- Always open the refrigerator door just briefly.
- Always store the food separately and well packed (closed containers, aluminium foil, etc.).
- Never put hot food into the refrigerator. Always let it cool first.
- Store sensitive food directly near the fins.
- Bear in mind that the temperature inside a closed vehicle can rise significantly as a result of sun irradiation. This can affect the performance of the refrigerator.
- Pay attention to the unhindered air circulation of the refrigerator unit.

15.3.2 Freezer compartment

- Do not store carbonated drinks in the freezer compartment.
- The freezer compartment is suitable for making ice cubes and for short-term storage of frozen food.
- The freezer compartment is not suitable for freezing food!

15.4 Putting out of service



Note!

If the refrigerator is switched off for a longer period of time, the door should remain open somewhat. For this purpose, the lock has a special latching position.

For more information, see the separate instructions from the manufacturer.

16 Toilet



Caution!

Damage to the environment

- ▲ Use an environment-friendly and biodegradable chemical toilet additive for the toilet.
 - The ventilation will remove merely the odour but not germs and gases. Germs and gases can have a detrimental effect on the rubber seals.



Caution!

Material breakage

- ▲ Do not sit on the toilet lid.
 - The lid is not designed to bear the weight of a person and could break.



Note!

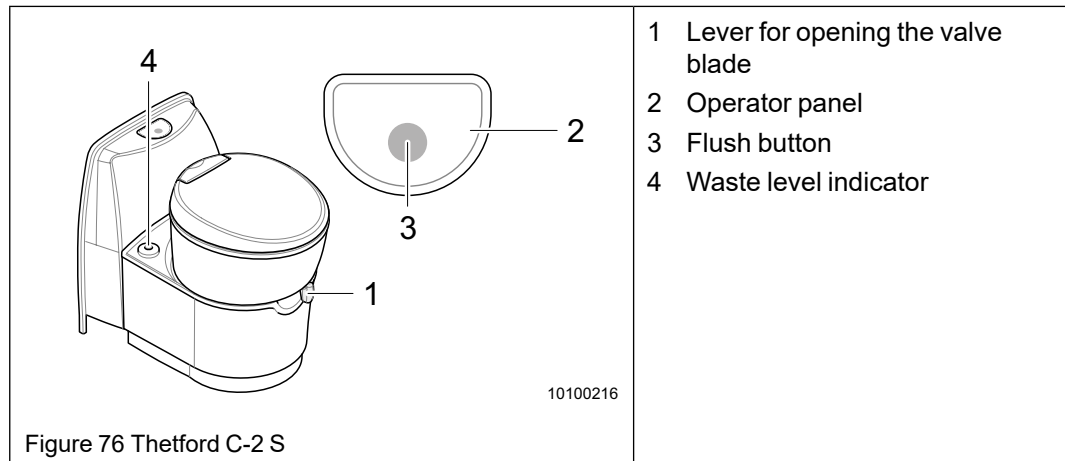
- Do not leave water in the bowl when the toilet is not used. This does not prevent unpleasant odours but could cause flooding.
- Use quick dissolving toilet tissue in order not to affect the mechanical components of the cassette.

Whenever using the toilet:

- Every time you place the Thetford Cassette into service, perform all preparations according to the separate manufacturer's operating instructions.
- Before using the Thetford toilet for the first time, fill the water tank with fresh water (Chapter 12.1.1).
- Cover the bottom of the cassette with water and fill in environment-friendly and biodegradable toilet chemicals. Observe the manufacturer's instructions for the dosage. For environmental reasons, the toilet can also be used without chemical additives, however, this requires more frequent emptying of the cassette (Chapter 16.2).

16.1 Toilet system

16.1.1 Thetford Cassette C-223 S



- 1 Lever for opening the valve blade
- 2 Operator panel
- 3 Flush button
- 4 Waste level indicator

Before use:

- ➔ Turn the toilet bowl to the desired position using both hands.
- ➔ Use the lever (Figure 76/1) to open the valve blade or allow some water to run into the bowl. Press the flush button (Figure 76/2) once to run water into the bowl.

After use:

- ➔ Push the lever (Figure 76/1) to the side if the valve blade is still closed.
- ➔ Press the flush button (Figure 76/2) for several seconds to flush.
- ➔ Close the valve blade with the lever after flushing (Figure 76/1).

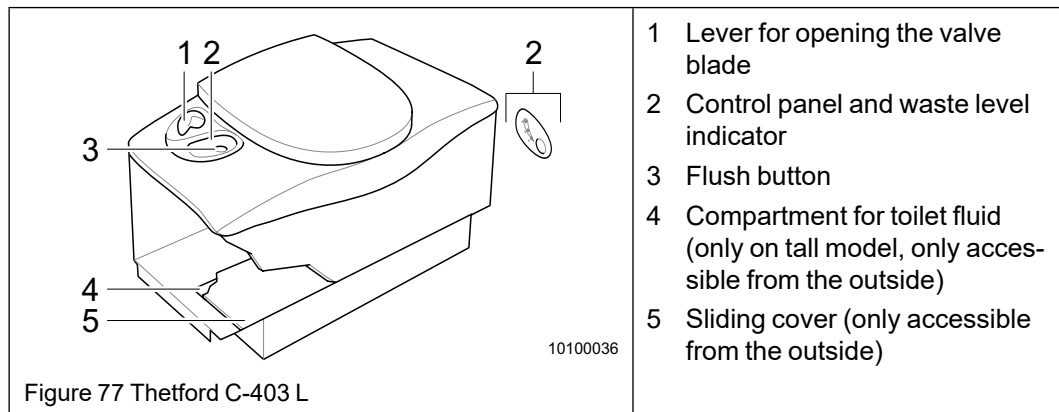
For more information, see the separate instructions from the manufacturer.

16.1.2 Thetford Cassette C-403 L



Caution!

▲ Do not leave water in the bowl when the toilet is not used. This can cause blockages.



Before use:

- ➔ Check that the water tank is filled with water.
- ➔ Use the lever (Figure 77/1) to open the valve blade or allow some water to run into the bowl. Press the flush button (Figure 77/3) once to run water into the bowl.

After use:

- ➔ If the valve blade is still closed, use the lever (Figure 77/1) to open the valve blade counter-clockwise.
- ➔ Press the flush button (Figure 77/3) for several seconds to flush.
- ➔ Close the valve blade with the lever after flushing (Figure 77/1).

For more information, see the separate instructions from the manufacturer.

16.2 Cassette



Caution!

Danger for the environment

- ▲ Use an environment-friendly and biodegradable chemical toilet additive for the toilet.
- ▲ The cassette may be emptied only at camping sites with suitable waste water treatment plants or special waste disposal stations (e.g. at parking sites for camping vehicles).



Caution!

Damage to the water pump during winter operation

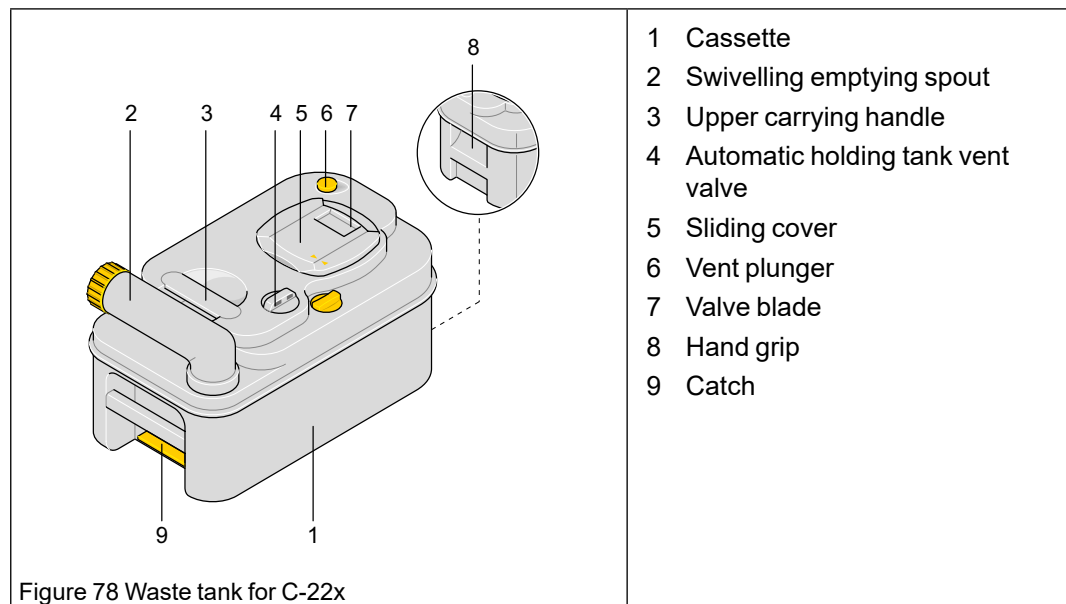
- ▲ In winter operation, the toilet may be flushed only after the toilet compartment has been well heated, otherwise the water pump of the flush system could be damaged.
- ▲ Do not use antifreeze.



Note!

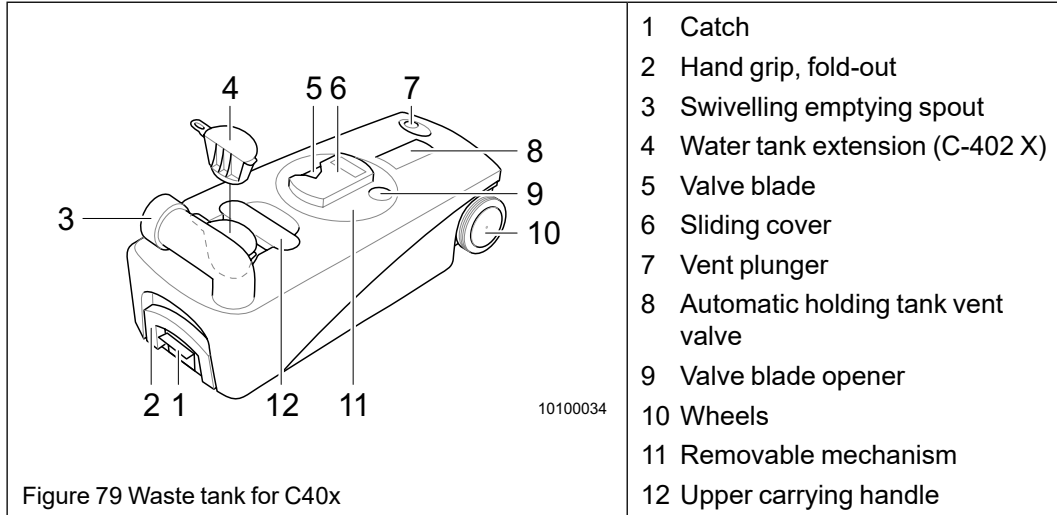
- Never add toilet fluid through the valve blade or the toilet bowl.
- Empty the cassette and water tank when the vehicle is not heated and there is a risk of frost.

16.2.1 Thetford Cassette C-22x



The cassette (Figure 78/1) has a capacity of approx. 17 l and should be emptied when the level indicator (Figure 76/4) lights. Do not allow the cassette to become overfilled.

16.2.2 Thetford Cassette C-40x



The cassette (Figure 79) has a capacity of 19 l and should be emptied when the level indicator (Figure 77/2) lights. Do not allow the cassette to become overfilled.

16.2.3 Emptying the cassette

Removing the cassette:

- Close the valve blade (Figure 76/1) and (Figure 77/1) in the toilet.
- Open the outer access door.
- Unlock the cassette using the catch (Figure 78/9) or (Figure 79/1) and remove, if necessary push the cassette safety up.
- When the cassette is pulled out, the valve blade (Figure 78/7) or Figure 79/5) is closed hygienically by the sliding cover (Figure 78/5) or Figure 79/6).

Emptying the cassette at disposal stations:

- Place the cassette upright. The emptying spout (Figure 78/2) or (Figure 79/3) must point upwards.
- Turn the emptying spout (Figure 78/2) or (Figure 79/3) upwards.
- Unscrew the cap from the emptying spout.
- Turn the cassette so that it is emptied.
- Press the vent plunger (Figure 78/6) or (Figure 79/7) with the thumb of the other hand.
Press the vent plunger only when the emptying spout is pointed downwards. Pressing the vent plunger empties the tank without splashing.
- Thoroughly rinse the cassette with water.
- Also clean the valve blade with water.

- Then pour toilet fluid into the cassette.
The cap of the emptying spout has a measuring cup on the inside. This decomposes the faeces quickly, prevents unpleasant smells in the cassette and keeps the inside of the tank clean.
- Fit the tank back in again.
- Close the access door.

For more information, see the separate instructions from the manufacturer.

16.3 Placing the toilet out of service:



Note!

Empty the cassette and water tank when the vehicle is not heated and there is a risk of frost.

Placing the toilet out of service:

- Place a sufficiently large container underneath the drain plug of the water tank.
- Open the drain plug, drain the water tank completely and allow to dry.
- Empty the cassette (Chapter 16.2).
- Leave the emptying spout open to allow the tank to dry.
- Clean the toilet (Chapter 19.2.6).
- Clean all seals and treat with care products for seals.

For more information, see the separate instructions from the manufacturer.

17 Winter camping

17.1 Travelling in winter

Winter camping is becoming more and more popular. Your **SUN LIVING** vehicle is suitable, to the greatest possible extent, for use in winter and if you pay attention to the following information, your winter holiday in your own vehicle will become proper winter fun.



Note!

Before starting the journey, mount suitable winter tyres and have snow chains on board. Snow chains are prohibited on aluminium rims.

When camping in winter:

- Obtain exact information about road conditions and weather.
- Avoid roads with strong uphill/downhill gradients.
- Select the camping site carefully and in time, plan your arrival during the day.
- Carefully check the tyres, tread depth and tyre pressure (Chapter 22.2, Table 24).
- Fill the windscreen washer unit with frostproof cleaner, take reserve frostproof cleaner for the journey with you.
- Before starting the journey, clear snow and ice from the roof, all windows, mirrors and lights as well as the wheel wells.
- Do not warm up the engine while parked, smoothly drive off immediately after you start the engine.
- Use only propane gas (Chapter 11.3.1) with a two-cylinder system for winter camping.
- Allow for sufficient gas supplies.

Pitching the vehicle

- Clear the snow from the parking area before pitching the vehicle.
- Do not park the vehicle underneath trees. Falling branches or pieces of ice can damage the roof and roof hoods.
- Check the underground regularly to prevent sinking in when thawing sets in.
- After pitching, secure the vehicle with wheel chocks against rolling away. Release the parking brake to prevent freezing.
- After travelling on salt-covered roads, the complete vehicle including the chassis has to be thoroughly washed with water.
- To prevent white rust formation of the galvanised parts, ensure adequate air circulation underneath the vehicle. Water must be capable of flowing off.
- Lay the 230 V power cable so as to prevent it freezing to the ground or being damaged when snow is cleared.

17.2 Winter operation



Danger!

Risk of suffocation

- ▲ Do not use any catalytic stoves or infrared radiators in the vehicle. The oxygen in the living area is then used.



Caution!

Risk of damage through freezing

- ▲ Do not store any fluids in the unheated vehicle when there is a risk of frost.
- ▲ If the vehicle is left with the heating switched off for a longer period of time at low temperatures, the water pipes and tanks could freeze and thus be damaged.
- ▲ Empty the waste water system when there is a risk of frost.
- ▲ When there is a risk of frost and the vehicle is not heated, the water system must be carefully cleaned, thoroughly rinsed, completely emptied and thoroughly dried.
- ▲ When there is a risk of frost, water taps have to be left open in the unheated vehicle even when the water supply is drained. Drain the faucets that have a "warm" and a "cold" position in both positions and leave them open in one of the positions. (Chapter 12.3).

The vehicle is insulated and suitable for use in winter when operated properly. The water supply is located inside the vehicle.

The snow and ice load can amount to several hundred kilograms and so reduce the additional load of your vehicle.

In winter, temperature differences and wet objects (e.g. ski clothes) in the vehicle increase condensation.

Warm air absorbs much more humidity than cold air. When the warm air in the vehicle cools down, water condenses in cold places (windows, window frames and storage compartments). This can be remedied by adequate heating with the air circulation switched on.

We recommend thermo-mats for the outside of the driver's cab. These keep the windows free from snow, ice and steam.

When camping in winter:

- Vent openings may not be covered by snow or snow drifts. Clear the snow also from underneath the vehicle so that the heater receives enough fresh air.
- Clear snow and ice off the roof and awning at regular intervals (Chapter 2.8).
- Always keep the heater exhaust clear. Attach cowl extension (special accessory).
- Provide for good ventilation (air circulation) and heating. Always keep the forced ventilation open.
- Use the awning as a wind guard and storage area for wet objects, e.g. skiing equipment.
- Always open all cabinet doors, flaps and storage compartments when heating the vehicle to prevent condensation.
- Wipe off any condensation.
- Air and dry the cushions daily.
- Open windows and roof hoods when cooking.
- If possible, do not use electrical appliances with high current consumption. The current capacity on camping sites is limited.
- Make sure the waste water drain pipe does not freeze up.

18 Putting out of service



Note!

When the instructions for maintenance and care, and the check-list for putting out of service are observed, the vehicle can be parked outdoors all year round.

18.1 Check-list for temporary putting out of service:

	Activity	✓
Body	Keep the forced ventilation and all mushroom ventilators open.	
	Carefully wash the vehicle and apply a paint protection product (wax).	
	Repair paintwork damage. Your SUN LIVING dealer will be pleased to advise you with respect to suitable products.	
	Move the vehicle every four weeks in order to avoid "flat spots" and damage to the wheel bearings. Secure the vehicle with wheel chocks from rolling away.	
	Regularly check the tyre pressure.	
	Disengage the parking brake.	
	Protect the tyres from direct exposure to the sun.	
	Thoroughly air the vehicle every 4 weeks.	
	If the vehicle is to be parked in an enclosed area, at least two windows must remain open.	
	Provide for good ventilation in the underbody area.	
Electrical system	Cover the exhaust cowl, if possible	
	If the vehicle is covered with a tarpaulin, make sure air can still circulate above the roof. The tarpaulin must not rest directly on the roof to prevent it from sticking to the roof. Light wooden slats allow for air circulation on the roof.	
	Open all blinds and curtains to avoid damage from condensate.	
Gas system	Fully charge the starter and living area batteries for at least 24 h.	
	Disconnect terminals from living area battery poles	
Gas system	Close the gas shut-off valve of the gas cylinder.	
	Close all quick-action stop valves for all appliances.	
	Always remove all gas cylinders from the gas cylinder compartment and store them safely.	

	Activity	✓
	Close the open end of the gas hose so that no dirt or insects can enter.	
Water system	Empty the entire water system completely, clean carefully and allow to dry.	
	Leave all water taps, all drain cocks as well as all drain valves open. Drain the faucets that have a "warm" and a "cold" position in both positions and leave them open in one of the positions.	
	Bacteria and algae can form in the water tank, therefore, after the end of the journey, the water tank must always be drained, thoroughly cleaned (Chapter 12.3) and allowed to dry. We recommend using a disinfectant for the water tank. Ask your SUN LIVING dealer for advice.	
Built-in appliances	Empty and clean the refrigerator; leave the refrigerator door and the freezer compartment, if applicable, open.	
	For information concerning the temporary placing out of service of the appliances, see the separate appliance operating instructions.	
Living area	Leave all cabinet doors, access doors, storage compartments, seat chests and bed boxes open.	
	Clean the living area and storage compartments.	
	Stand all the cushions up for ventilation or store them in the house.	
	Make sure the forced ventilation is open and not covered.	

Table 7 Check-list for temporary placing the vehicle out of service

18.2 Putting out of service over the winter

The following measures are required in addition to those already mentioned for the temporary putting out of service over the winter.

	Activity	✓
Body	Clear snow from the roof when it snows.	
	Thoroughly heat and ventilate the vehicle every four weeks.	
	Lubricate all hinges and locks.	
	Apply talcum powder or Vaseline to all rubber seals.	
	Use graphite dust to treat locking cylinders.	
	Install the winter cover for the refrigerator grille (special accessory).	
Electrical system	Fully charge the starter and living area batteries for at least 24 h. Remove the living area battery and store it protected against frost. Charge the starter battery and removed living area battery every month.	
Built-in appliances	For information concerning the putting out of service of the appliances over winter, see the separate appliance operating instructions.	
Living area	Make sure the forced ventilation is open and not covered.	
	Keep all cushions dry in the house.	
	Position dehumidifiers and check them regularly.	

Table 8 Check-list for placing out of service over the winter

18.3 Returning to service after putting out of service

Perform the following activities for returning the vehicle to service.

	Activity	✓
Body	Remove tarpaulin and possibly wooden slats.	
	If the vehicle has been stationary for a long period (approx. 10 months), have the brake system checked by an authorised workshop.	
	Check the tyre pressure, also of the spare wheel (special equipment).	
	Remove cover from the exhaust cowl, if present.	
	Remove the winter cover for the refrigerator grille (special accessory).	
	Check the function of all doors, windows, flaps and hatches.	
Electrical system	Check the function of all external locks (e.g. entrance door, filler neck, flaps, etc.).	
	Connect starter and living area battery Fully charge the starter and living area batteries for at least 24 h.	
Gas system	Lash the gas cylinders in the gas cylinder compartment and connect gas cylinders.	
	If the vehicle has been stationary for a long period (approx. 10 months), have the gas system checked by an authorised workshop.	
Electrical system	Check the function of the electrical system (e.g. lighting, sockets) and of all appliances (e.g. refrigerator).	
	Checking the function of the ground-fault circuit breaker:	
Water system	Thoroughly rinse the complete water system with plenty of fresh water; leave the taps open.	
	Close all water taps and drain valves.	
	Check for leakage and function of all water taps and drain valves.	
Built-in appliances	For information concerning the returning to service of the appliances, see the separate appliance operating instructions.	
	Check the function of all appliances (e.g. refrigerator, cooker, heater, etc.).	
Living area	Replace all cushions.	
	Remove dehumidifiers.	

Table 9 Checklist for returning to service

19 Cleaning & care

19.1 Cleaning and care - exterior

The polyester outer skin (glass-fibre reinforced plastic) of the vehicle was dyed at the factory, i.e. not painted. We recommend the following steps for the care of the vehicle:



Warning!

Risk of injury and of damage to the vehicle roof

- ▲ The front area of the roof of the vehicle is not designed for the weight of standing persons.
- ▲ Standing or walking on the elevation of the alcove or the front opening hood of partially integrated vehicles is not allowed!
- ▲ Do not walk on roof structures or roof fittings, e.g. roof hoods, roof railings etc.
- ▲ Walking on the roof of the vehicle is permissible only in the rear area.



Note!

- Never drive the vehicle through a wash facility. The acrylic glass windows will be scratched by the rotating cleaning brushes.
 - When cleaning the vehicle with a high-pressure cleaner, maintain a distance of approx. 70 cm from the nozzle to the vehicle surface.
 - Never point the water jet directly towards doors, windows, flaps and vent openings. Splashing water can penetrate the vehicle through the circumferential air gap between the glass dome and the frame (forced ventilation).
 - Do not spray directly on deco foils as they could become detached.
 - Never point the water jet directly towards electric accessories and plug connections.
 - Do not use glass cleaners, abrasives, solvents, cleaning agent containing methylated spirit or alcohol. This would result in cracks or embrittlement of the acrylic material.
 - Avoid everything that could cause scratching or scoring.
 - Avoid torsional forces when opening and closing the windows.
- ➔ Wash the vehicle with plenty of cold to lukewarm water and cleaning agent. Then dry thoroughly.
 - ➔ You can purchase suitable cleaning agents and additives from your **SUN LIVING** dealer.
 - ➔ Bird droppings, tree gum, berries, road salt, sea salt, etc. must always be removed immediately.
 - ➔ Clean windows only with plenty of lukewarm water and mild soap solution.
 - ➔ Treat rubber seals on doors, windows and flaps with talc or Vaseline.
 - ➔ Check the condition of the undersealant once a year. If the undersealant is defective, contact your **SUN LIVING** dealer.
 - ➔ The chassis is galvanised. Seal areas where rust is setting in (e.g. caused by stone-chipping or other effects) by the application of cold zinc.

- After driving in winter on salt-covered roads, thoroughly clean the galvanised surfaces and aluminium components and rinse with clear water.
- To prevent the formation of white rust (only a visual defect) on the galvanised parts, ensure adequate air circulation underneath the vehicle. Water must be capable of flowing off.
- When staying near the sea, regularly wash the vehicle with clear fresh water.
- The painted outer surface of the vehicle can be preserved with a commercially available wax. Pay attention to the manufacturer's instructions.
- Treat polyester parts every year with a two-component wax. Pay attention to the manufacturer's instructions.
- Observe the environmental protection measures in cleaning and care of the vehicle.

19.1.1 Cleaning the acrylic windows (side windows, roof hoods)



Note!

- Never drive the vehicle through a wash facility. The acrylic glass windows will be scratched by the rotating cleaning brushes.
- When cleaning the vehicle with a high-pressure cleaner, maintain a distance of approx. 70 cm from the nozzle to the vehicle surface.
- Never point the water jet directly towards doors, windows, flaps and vent openings. Splashing water can penetrate the vehicle through the circumferential air gap between the glass dome and the frame (forced ventilation).
- **Do not use glass cleaners, abrasives, solvents, cleaning agent containing methylated spirit or alcohol. This would result in cracks or embrittlement of the acrylic material.**
- Avoid everything that could cause scratching or scoring.
- Avoid torsional forces when opening and closing the windows.



Note!

Condensation water can form between the double windows of the acrylic glass window. The condensation water disappears by itself, however, this takes some time.

Acrylic glass windows are very delicate and require very careful handling. Non-compliance with the cleaning instructions voids the manufacturer's warranty.

- Clean the windows with only warm water and a soft, clean sponge or cloth.
- If the windows are very dirty, use a solution with water and mild soap solution to keep the windows clear and free from electrostatic charging.
- For stubborn soiling, we recommend a special cleaning agent for acrylic glass which is available from your **SUN LIVING** dealer.
- Do not use scouring agents. They would scratch the plastic surfaces.
- After cleaning the vehicle, rinse all acrylic glass windows with clean water.

- Treat rubber seals with talc.
- Regularly lubricate all moving parts, hinges and flaps with acid-free grease (e.g. Ballistol).
- Do not allow water to penetrate the mechanical parts.
- The insect screens and blinds can be cleaned with a soft brush. If the insect screens and blinds are very dirty, use water and mild soap solution to wash them. Then allow the screens and the blinds to dry well.

19.1.2 Cleaning plastic parts

- Clean plastic parts only with warm water, mild household cleanser and a soft, clean sponge or cloth. The aqueous solution should contain 2 % cleaning agent at the most.
- Do not use scouring agents. They would scratch the plastic surfaces.
- Very greasy or oily spots can be washed with ethyl, isopropyl or isobutyl alcohol. Organic solvents (e.g. acetone, methanol or ethanol) could damage the material.
- An example of possible damage to moulded plastic parts are stress cracks caused by different media. Other chemicals can have a swelling and softening effect on the plastic material. Therefore, plastic parts should be subjected to contact with the solvents referred to above only for a short period (2 minutes max.) at room temperature.
- Avoid mechanical loads (e.g. clamping, twisting) of the plastic parts during cleaning in order to prevent distortion.

19.2 Cleaning and care - interior



Note!

Exposure to sunlight can cause the plastic parts to yellow. This is not a quality defect.



Note!

- Use only commercially available, mild cleaning agent to clean the vehicle. Ask your **SUN LIVING** dealer for advice.
- Do not use caustic or abrasive cleaning agent.
- Avoid everything that could cause scratching or scoring.

19.2.1 Care of furniture

- Clean the furniture with a soft cloth and a commercially available furniture polish, do not use intensive cleansers.
- Wash the work surfaces with water by adding a mild detergent or household cleanser.
- Clean textile storage spaces and textile cabinets with cleansing foam.

19.2.2 Care of cushions, curtains, net curtains

- Small spots in the cushions can be removed with commercially available cleaning foam for use on cushions or the foam of mild detergent.
- Do not wash cushions.
- Protect upholstery from direct sunlight so that it does not fade.
- Have large spots or soiling removed by the dry cleaners.
- Have curtains and net curtains cleaned by the dry cleaners only.
- Brush insect screens and Roman shades with a soft brush or vacuum with the brush attachment of the vacuum cleaner.
- Grease spots on Roman shades can be removed with mild, warm laundry soap.

19.2.3 Cleaning plastic parts



Warning!

Risk of injuries through caustic substances

- ▲ Do not get acids into the eyes or on mucous membranes! Avoid skin contact!
- ▲ To remove calcification, use only highly diluted, commercially available acids (e.g. acetic acid).
- Clean plastic parts only with warm water, mild household cleanser and a soft, clean sponge or cloth. The aqueous solution should contain 2 % cleaning agent at the most.
- Do not use scouring agents. They would scratch the plastic surfaces.
- Very greasy or oily spots can be washed with ethyl, isopropyl or isobutyl alcohol. Organic solvents (e.g. acetone, methanol or ethanol) could damage the material.
- An example of possible damage to moulded plastic parts are stress cracks caused by different media. Other chemicals can have a swelling and softening effect on the plastic material. Therefore, plastic parts should be subjected to contact with the solvents referred to above only for a short period (2 minutes max.) at room temperature.
- Avoid mechanical loads (e.g. clamping, twisting) of the plastic parts during cleaning in order to prevent distortion.
- To prevent calcification, the water used must be softened. When calcification of the surface occurred, it can be removed with a diluted acid solution (e.g. acetic acid).

19.2.4 Care of PVC floor coverings and carpets (special equipment)



Caution!

Risk of damage

- ▲ Do not place the carpet on the wet PVC floor covering, the carpet and PVC floor covering may stick together and could tear the PVC floor covering off when the carpet is removed again.
- ▲ It is also possible that mould will form between the PVC floor covering and the carpet.

- Wash the PVC floor covering with a commercially available cleanser and allow to dry well. Do not use wax.
- Do not use scouring agents or aggressive cleansers.
- Vacuum clean the carpet.
- Clean spots with carpet foam.

19.2.5 Cleaning the kitchen

19.2.5.1 Cleaning work surfaces and sink

- Wash the work surfaces with water to which a mild detergent or household cleanser has been added and dry the surfaces.
- Clean the stainless steel sink with a commercially available cleanser.

19.2.5.2 Cleaning the gas stove



Caution!

Damage to gas stove

- ▲ Prevent water or cleaning agent from penetrating the gas outlet openings. Water may damage the gas stove.
- ▲ Do not use scouring agents. These scratch the surfaces.
- Allow the gas stove to cool before cleaning.
- Clean the gas stove only with a moist cloth.
- Clean the glass cover (special equipment) of the cooker with a glass cleaning agent.

19.2.5.3 Cleaning the refrigerator



Caution!

Damage to seals and surfaces

- ▲ Do not use soap, abrasive or soda-based cleaning agent.
- ▲ Do not allow the door seal to come into contact with oil or grease.
- ▲ Do not use scouring agents. These scratch the surfaces.
- Clean the inside and outside of the appliance before you place it into service and then at regular intervals.
- Use only soft cloths. Clean the appliance only with mild household cleaners.
- Then rinse the appliance with fresh water and dry thoroughly.
- Remove dust from the refrigerator unit at yearly intervals using a brush or soft cloth. The refrigerator unit is accessible through the upper refrigerator grille.

19.2.6 Cleaning the bathroom



Caution!

Damage to surfaces

- ▲ Do not clean the bathroom and the toilet with solvents or cleaning agent containing alcohol. Do not use scouring agents.
 - These could cause cracks or embrittlement of the plastic material.
 - ▲ Do not pour caustic substances or boiling water into the drains.
 - These damage both the drain pipes and the siphon traps.
 - ▲ Do not allow the door seal to come into contact with oil or grease.
 - ▲ Do not use scouring agents. These scratch the surfaces.
 - ▲ Do not use vinegar essence for decalcifying the toilet and the water system. Use only commercially available mild decalcifying products that do not affect the plastic material.
 - Ask your **SUN LIVING** dealer for advice.
-
- Clean the bathroom and the toilet only with warm water, a soft cloth or sponge and mild, standard cleaning agent.
 - Clean the toilet compartment only with a moist cloth and mild cleaning agent.
 - The seals of the cassette, the vents and the lid as well as the valve blades of the toilet must be cleaned regularly with a mild cleaning agent for plastic materials.

19.2.7 Cleaning the water tank, waste water tank and toilet water tank

- Always clean the water tanks and water pipes every time before filling them with commercially available cleaning agent and rinse them with plenty of water.
- Before you put the vehicle out of service, the water tanks must be carefully cleaned, thoroughly rinsed, completely emptied and thoroughly dried (Chapter 12).

20 Inspections & maintenance

20.1 Inspection work



Note!

As with any vehicle, the caravan must be officially inspected at regular intervals (Chapter 2.4).



Note!

Use only original spare parts from the respective manufacturer.

- Inspection and maintenance work (Chapters 20.3 and 20.4) must be performed at regular intervals.
- Since special technical knowledge is required for the performance of the maintenance and inspection work, it has to be performed by authorised workshops.
- Regular maintenance guarantees value retention of the vehicle.

20.2 Brakes



Warning!

Risk of injury and severe damage to the vehicle

- ▲ Check brake system at regular intervals.
- ▲ All repairs and adjustments of the brake system have to be performed in an authorised workshop only!

The wear of the brake lining depends on the driving technique.

- Consult an authorised workshop immediately if the braking behaviour is not normal (pulling to one side or reduction in braking pressure).
- Drive with consideration and foresight.
- Avoid braking abruptly.
- Have the brake system inspected regularly.

20.3 Chassis

In addition to the maintenance work specified by the basic vehicle manufacturer, the following maintenance work has to be performed:

Maintenance activity	Interval
Motorhome general inspection	According to regulations in the country of registration
Have the brake system checked in an authorised workshop	Every year
Have the undersealant checked	Every year
Check the tightening torque of wheel nuts	Monthly
Check tread depth and tyre pressure	Before starting to drive
Check the exterior lighting	Before starting to drive

Table 10 Chassis maintenance and inspection plan

For the frequency of the maintenance work, see the separate manufacturer's instruction manual.

On vehicles that are not driven much, the maintenance work must be performed every year and in time before the start of the journey.

20.4 Body

Maintenance activity	Interval
Delivery check	Before delivery
Replace the gas regulator and gas hose	Every 10 years
Official gas inspection	Every 2 years
Leakage test	According to warranty conditions
Bodywork inspection	Every year
Have the electrical system checked	Every year
Have the gas system checked	Every year

Maintenance activity	Interval
Check screw connections of fixing clamps of roof hoods	Every year
Rub talc on seals on doors, windows and roof hoods	Every year
Clean the moving parts of the entrance step (special equipment) and the corner steadies (special equipment) and lubricate with grease	Half-yearly
Check water pipes and fittings for leaks and correct attachment	Half-yearly
Check charged condition of living area battery	Monthly

Table 11 Bodywork maintenance and inspection plan

20.5 Checking and replenishing operating fluids

Operating fluids include:

- Engine oil
- Brake fluid
- Coolant
- Wiper water
- Power steering oil
- Air-conditioning system cooling medium (special equipment)
- Heater liquid for warm water heating (special equipment)

Please see the manufacturer's original operating instructions for checking operating fluids.

20.5.1 Servicing the water tank

In some models the water tank (Chapter 12.1.1) is located in the seat box.

- ➔ Remove the cushions.
- ➔ Fold up the seat cushions to reach the service opening of the water tank.

21 Troubleshooting

Please pay attention to the following information for finding and correcting faults.

If you cannot remedy the faults yourself, contact the Customer Service of your competent **SUNLIVING** dealer or the respective appliance manufacturer (heating= Truma, toilet = Thetford, etc.).



Warning!

Risk of injury and severe damage to the vehicle

- ▲ All repairs on the vehicle and on the brake system have to be performed in an authorised workshop only!

21.1 Changing wheels

21.1.1 Securing the vehicle

- Wear a warning vest (different regulations from country to country).
- If possible, remove the vehicle from the flowing traffic.
- Secure the vehicle with a warning triangle and possibly a warning light.
- Apply the parking brake and engage the first gear or reverse gear.
- Secure the vehicle with wheel chocks from rolling away.

21.1.2 Vehicles with tyre mobility system (special equipment)



Warning!

Health hazard

- ▲ The spray can contains ethylene glycol and **must not be used by asthmatics**.
 - Do not breathe in the vapours during repair.
- ▲ Avoid contact with your eyes, skin and clothes.
 - Immediately rinse off with plenty of water.
 - Immediately consult a doctor if an allergic reaction occurs.



Note!

- With the tyre mobility system, tyres can be repaired whose treads were pierced by foreign objects with a diameter of **4 mm max**.
- The tyre mobility system is approved only for filling the tyres of a vehicle that was equipped by the factory with this tyre mobility system.
- Repaired tyres may be used only for a short period!
- Repair with the tyre mobility system is only a temporary measure!

The tyre mobility system can be found in the front part of the vehicle.

The scope of delivery includes:

- Spray can with sealing fluid
- Folded sheet with instructions
- Compressor with manometer and connecting pieces
- Adapter for pumping up various elements

Before repair:

Do not pull out any foreign objects (screws or nails) that have penetrated the tyre.

- ➔ Before repair, carefully check the tyre side wall.
Do not use the tyre mobility system when the tyre has already been damaged by driving with the flat tyre.
- ➔ Also check the rim.
When the rim is damaged (deformation of the bead of the rim that causes loss of air), repair is not possible.

After repair:

- ➔ Stop after driving for approx. 10 minutes and check the tyre pressure.
- ➔ Consult a tyre repairman as soon as possible.
- ➔ Inform the tyre repairman that the tyre has been repaired with the tyre mobility system.
- ➔ Give the instruction sheet to the persons who have to repair the tyre that was treated with the tyre mobility system.

For more information concerning the tyre mobility system, see the separate manufacturer's operating instructions.

21.1.3 Vehicles with spare wheel (special equipment)

21.1.3.1 Vehicle jack (special accessory)

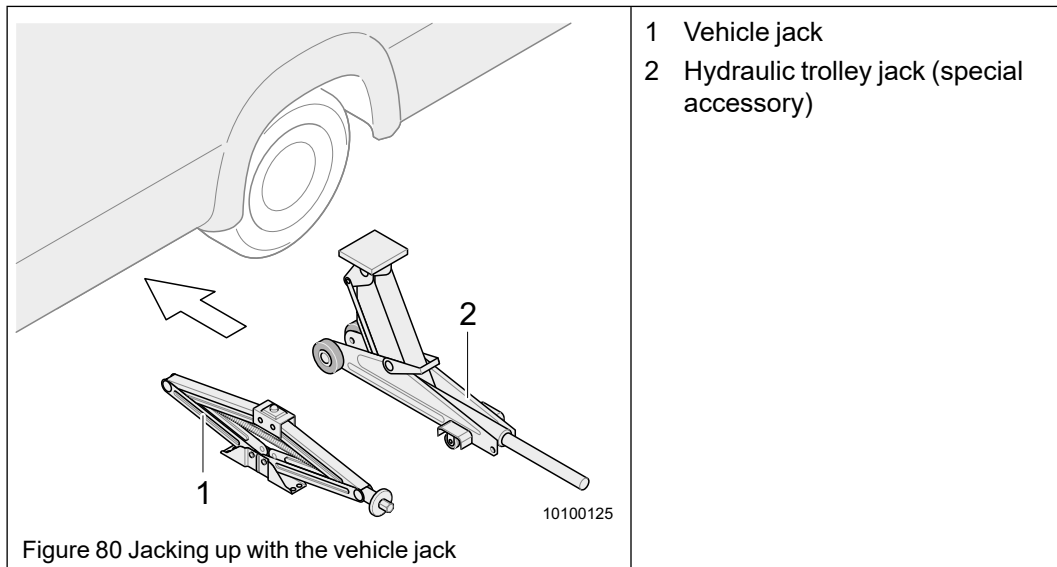


Danger!

Severe injuries by crushing

- ▲ Use only a vehicle jack with adequate lifting capacity. Determine the lifting capacity necessary in the technical data of your vehicle based on the gross weight rating.
- ▲ Never position the vehicle jack on the bodywork.
➔ Position the vehicle jack only at the intended positions.
- ▲ The vehicle jack serves only for wheel change. Never use it for working underneath the vehicle.
- ▲ Jack up the vehicle only on level and firm ground.
- ▲ Do not lie underneath the jacked up vehicle.
- ▲ Do not use the corner steadies for lifting the vehicle.

For changing the wheels, we recommend using the included vehicle jack or a hydraulic trolley jack which is available as an accessory.



The vehicle jack and the onboard tool set are under a seat in the driver's cab or in the garage.

- ➔ Position the vehicle jack (Figure 80/1) or the hydraulic trolley jack (special accessory) (Figure 80/2) only at the lifting points provided underneath the car body.

For more information concerning the vehicle jack, see the separate manufacturer's operating instructions.

21.1.3.2 Spare wheel storage location

Vehicles with rear garage

- ➔ Open only the door of the rear garage facing away from the traffic.
- ➔ Take the spare wheel out of the support.
- ➔ Change the defective wheel.
- ➔ Stow the damaged wheel properly after a wheel change.

Vehicles without rear garage

- ➔ The spare wheel is located in a holder underneath the chassis.
- ➔ Loosen the locking pins and remove the screws.
- ➔ Open the bar and take out the spare wheel.
- ➔ Change the defective wheel.
- ➔ Stow the damaged wheel properly after a wheel change.

21.1.3.3 Changing the wheel



Warning!

Risk of injury when the vehicle rolls away

- ▲ Perform the wheel change only when the vehicle has been secured.

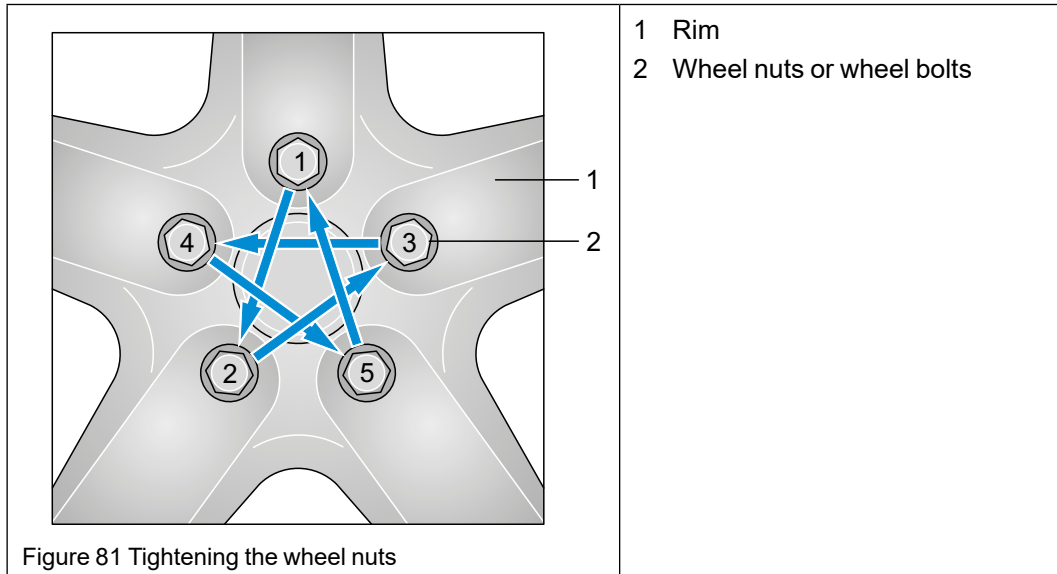


Caution!

Unsafe wheel attachment

- ▲ Always use the correct wheel bolts.
- ▲ For light-metal rims, different wheel bolts (diameter, length) can be used than for steel rims.
 - Ensure the bolts are not interchanged.
- Secure the vehicle (Chapter 21.1.1).
- Shut off the engine and apply the parking brake.
- Engage the first gear or reverse gear.
- Place the wheel chocks before and behind the opposite wheel. This secures the vehicle from rolling away.
- Get the spare wheel and the tools.
- Remove the protective caps from the wheel nuts or the wheel cover.
- Unscrew the wheel nuts or wheel bolts by half a revolution with the wheel spanner.
- Position the vehicle jack and jack up the vehicle until the defective wheel is off the ground (Chapter 21.1.3.1).
- Screw out the wheel nuts or wheel bolts and place them onto a clean surface. Make sure the threads are clean.
- Change the wheel.
- Clean the threads, turn in the wheel nuts or bolts and tighten by hand.
- Stow the defective wheel in the spare wheel support.
- Lower the vehicle and remove the vehicle jack.
- Tighten the wheel nuts crosswise (Chapter 21.1.4).
- Stow the tools and the safety equipment.
- Check the tyre pressure at the next opportunity.
- After driving approx. 50 km, check the seating of the wheel nuts or bolts and tighten.

21.1.4 Tightening the wheel nuts



- ➔ Tighten the wheel nuts or wheel bolts (Figure 81/2) in the sequence 1 - 2 - 3 - 4 - 5.
- ➔ Check the firm seating of all wheel nuts or wheel bolts again.
- ➔ Use a torque wrench for light-metal rims without steel bushings.
See the separate operating instructions from the chassis manufacturer for tightening torques for rims.
- ➔ After driving approx. 50 km, check the seating of the wheel nuts or wheel bolts.

21.2 Replacing lighting elements (Fiat)



Caution!

Damage to bulbs

- ▲ Never touch the new bulbs with your bare fingers. Always use a clean and lint-free cloth.
- ➔ Before starting to drive, check the function of all interior and exterior lighting equipment on the vehicle and replace defective lighting elements.
- ➔ Have a clean mat available for changing the lighting elements. This ensures that you will not lose any small parts.

21.2.1 Exterior lighting

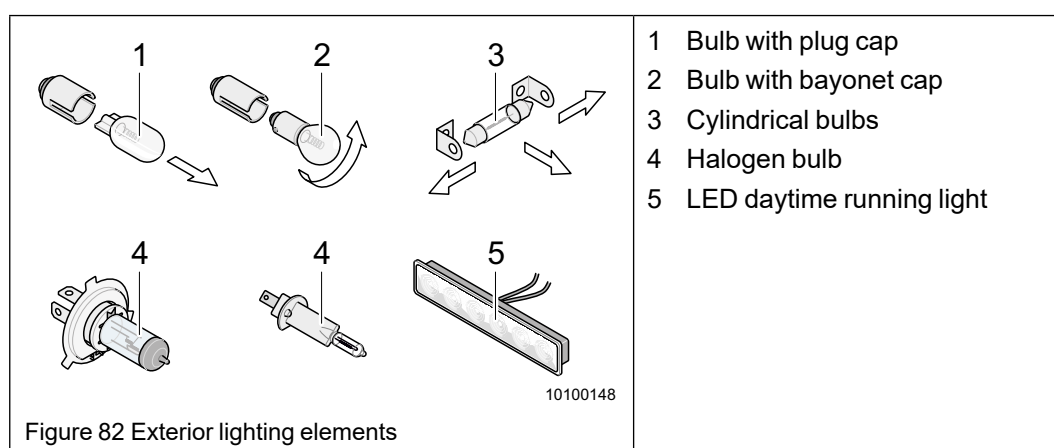


Figure 82 Exterior lighting elements

Replace the various lighting elements as follows:

	Bulb type	Replacing
1	Bulb with plug cap	<ul style="list-style-type: none"> • Removing: pull the bulb out. • Fitting: push the bulb in the socket with light pressure.
2	Bulb with bayonet cap	<ul style="list-style-type: none"> • Removing: push the bulb down and turn it anticlockwise. • Fitting: insert the bulb in the socket and turn it clockwise.
3	Cylindrical bulbs	<ul style="list-style-type: none"> • Removing/Fitting: bend the contacts of the lamp holder carefully outwards.
4	Halogen bulb	<ul style="list-style-type: none"> • Removing: release the retaining spring. • Fitting: remount the retaining spring.
5	LED daytime running light	<ul style="list-style-type: none"> • Removing: release the lighting element carefully from its holder using a screwdriver. • Fitting: carefully clip the lighting element in place.

Table 12 Replacing bulb types - exterior

21.2.1.1 Replacing lighting elements - front

→ The required information can be found in the original instructions of the basic vehicle.

21.2.1.2 Replacing lighting elements - sides

→ The side marker lights are LED lights. Lamps should only be replaced in a workshop. Contact your **SUN LIVING** dealer in the case of defects.

21.2.1.3 Replacing lighting elements - rear

VAN models:

→ The required information can be found in the original instructions of the basic vehicle.

Partially integrated and alcove models:

→ Lamps should only be replaced in a workshop. Contact your **SUN LIVING** dealer in the case of defects.

21.2.2 Interior Lighting

<p style="text-align: center;">10100220</p>	<p>1 LED insert G4</p>
---	------------------------

Figure 83 LED insert for interior lighting

Table 13 Interior lighting elements

	Bulb type	Replacing
1	LED insert with G4 plug connection	<ul style="list-style-type: none"> Removing: Pull the LED insert out of the plug connection. Fitting: Push the LED insert into the plug connection with light pressure.

Table 14 Replacing the LED insert for interior lighting

21.3 Water supply faults

Fault	Possible cause	Remedy
No water	Water tank is empty.	<ul style="list-style-type: none"> • Top up the water tank (Chapter 12.1.1).
	Fuse of water pump defective.	<ul style="list-style-type: none"> • Replace the defective fuse.
	“Water supply” switch on the control and switch board switched off.	<ul style="list-style-type: none"> • Switch on.
	Water pump defective.	<ul style="list-style-type: none"> • Have the water pump replaced in an authorised workshop.
Water leak in vehicle	Leak in the water system.	<ul style="list-style-type: none"> • Identify and repair leak.

Table 15 Water supply faults

21.4 Toilet faults

Fault	Possible cause	Remedy
Toilet does not have flushing water	Water tank is empty.	<ul style="list-style-type: none"> • Top up the water.
Cassette leaking	Gasket damaged or foreign objects (toilet paper) in slider.	<ul style="list-style-type: none"> • Replace slider gasket. • Remove foreign objects (toilet paper).
No level indication	Float in the cassette jammed or blocked by toilet paper.	<ul style="list-style-type: none"> • Clean cassette float. <p>Do not use high-pressure cleaner!</p>
The pump runs, the toilet bowl is not emptied	Clogging in toilet bowl.	<ul style="list-style-type: none"> • Fill the toilet bowl with water. Allow clogging to soak for approx. 2 minutes and then flush several times in quick succession.
Toilet does not function	Fuse defective.	<ul style="list-style-type: none"> • Replace the fuse.

Table 16 Toilet faults

21.5 Truma Combi and Truma Combi E and Truma Diesel heater faults



Note!

Consult an authorised workshop if the listed measures are not successful.

Fault	Possible cause	Remedy
LEDs not functioning.	No supply voltage.	<ul style="list-style-type: none"> • Check battery voltage (12V). • Check all electric connectors and fuses.
Green LED on but heater does not operate.	The temperature setting on the control panel is lower than the room temperature.	<ul style="list-style-type: none"> • Set the temperature higher on the control panel.
Green LED on and red LED flashing.	Battery voltage is too low.	<ul style="list-style-type: none"> • Charge the battery.
The red LED goes on approx. 30 seconds after the heater is switched on.	See chapter "21.6 Gas system faults".	
After operating for a longer period of time, the heater switches to failure.	Warm air outlet openings blocked.	<ul style="list-style-type: none"> • Check and free individual single warm air outlet openings.
	Gas pressure regulator frozen.	<ul style="list-style-type: none"> • Use regulator de-icing system (e.g. Eis-Ex as accessory).
Green and red LEDs flash after heater is switched off.	Appliance was switched off during failure. After-running is active in order to reduce the temperature.	<ul style="list-style-type: none"> • After-running will switch off after a few minutes. The system can only be reset after this time elapses by switching the system off and on again.
The drain valve (FrostControl) does not close.	Temperature on drain valve is below +3 °C.	<ul style="list-style-type: none"> • Switch the heater on. If the heater is not in operation, the drain valve can only be closed when the ambient temperature is above +3 °C.
	Drain valve rotary switch not set to "Operation".	<ul style="list-style-type: none"> • Turn the drain valve rotary switch (Figure 68/2) to "Operation". Now press the snap button (Figure 68/5) on the drain valve until it engages.

Table 17

Truma Combi and Truma Combi E and Truma Diesel heater faults

21.6 Gas system faults

Fault	Possible cause	Measure
Gas smell, high gas consumption	Gas system leaks.	<ul style="list-style-type: none"> • Immediately put the gas system out of service. • Close the gas cylinder shut-off valves. • Avoid any type of ignition spark and open light. • Ventilate the vehicle well (Chapter 2.5). • Repair by authorised workshop.
No gas	Gas cylinder is empty.	<ul style="list-style-type: none"> • Exchange gas cylinder (Chapter 11.5).
	Gas cylinder shut-off valve closed.	<ul style="list-style-type: none"> • Open gas bottle shut-off valve.
	The SecuMotion/MonoControl CS (special equipment) has switched off after the gas system has not been used for a longer period of time and with the gas cylinders shut off.	<ul style="list-style-type: none"> • Place the SecuMotion/MonoControl CS (special equipment) into service (Chapter 11.6).
	Gas pressure regulator frozen.	<ul style="list-style-type: none"> • Use regulator de-icing equipment (EisEx).
	Quick-action stop valve closed.	<ul style="list-style-type: none"> • Open quick-action stop valve (Chapter 11.7).
	Appliance is defective.	<ul style="list-style-type: none"> • Repair by authorised workshop.
	Outside temperature too low.	<ul style="list-style-type: none"> • Use propane gas for winter camping (Chapter 11.3.1).
Flame appearance on appliance not normal	Gas pressure regulator defective.	<ul style="list-style-type: none"> • Consult an authorised workshop.

Table 18 Gas system faults

21.7 Gas stove faults

Fault	Possible cause	Remedy
No gas	See Chapter "21.6 Gas system faults".	
Flame extinguishes in the "small flame" position	Flame failure device is not adjusted correctly.	<ul style="list-style-type: none"> Adjustment exclusively by authorised workshop.
Flame failure device does not react	Flame failure device is defective.	<ul style="list-style-type: none"> Consult an authorised workshop.
Flame appearance on appliance not normal	Gas pressure regulator defective.	<ul style="list-style-type: none"> Consult an authorised workshop.

Table 19 Gas stove faults

21.8 Control panel faults

Fault	Possible cause	Remedy
12 V supply does not function	12 V main switch switched off	<ul style="list-style-type: none"> Switch on 12 V main switch
	Fuse defective.	<ul style="list-style-type: none"> Contact Customer Service.
12 V control indicator (green) is not on	12 V supply switched off	<ul style="list-style-type: none"> Switch on the 12V supply.
System cannot be switched on	Living area battery is not charged or insufficiently charged.	<ul style="list-style-type: none"> Charge the living area battery
	Fuse defective.	<ul style="list-style-type: none"> Contact Customer Service.
No voltage is supplied by the living area battery	The living area battery is discharged	<ul style="list-style-type: none"> Charge living area battery immediately! <p>Complete discharging damages the living area battery!</p>
	Discharge is performed by inactive appliances, e.g. the frost protection valve of the combined heater.	<ul style="list-style-type: none"> Charge living area battery for longer stationary periods.
The "mains control" symbol is not shown although the 230 V mains supply is connected	The mains connection has no voltage.	<ul style="list-style-type: none"> Check the mains connection (e.g. camping site).
	Circuit breaker for 12 V power supply unit has triggered or is switched off.	<ul style="list-style-type: none"> Reset or switch on the circuit breaker.

Table 20 Control panel faults

21.9 Measured values for living area battery voltage



Note!

The values apply for running operation and not for measuring the open-circuit voltage.

Battery voltage	Battery operation	Vehicle operation	Mains operation
Complete discharging to less than 11.5 V is imminent	Appliances switched off: Battery empty	No charge from generator	No charge from power supply (EBL .../ C(S)V)
	Many appliances switched on. Battery overload	12 V on-board grid overload	12 V on-board grid overload
12.2 V to 12.7 V	Normal range	No charge from generator (if voltage does not exceed this range for several hours)	No charge from power supply (EBL .../ C(S)V) (if voltage does not exceed this range for several hours)
		12 V on-board grid overload (if voltage does not exceed this range for several hours)	12 V on-board grid overload (if voltage does not exceed this range for several hours)
13.5 V	Only occurs during charging (if solar controller available) or briefly after charging	Battery is being charged	Battery is being charged

Table 21 Measured values for living area battery voltage

21.10 Power supply faults

Fault	Possible cause	Remedy
Ground-fault circuit breaker triggered	Fault in 230 V cables of vehicle.	<ul style="list-style-type: none"> Contact Customer Service.
	Fault in an electrical appliance.	<ul style="list-style-type: none"> Disconnect all electrical consumers until the ground-fault circuit breaker no longer triggers. Have defective appliances repaired by a qualified electrician.
Living area battery is not charged in 230 V mode	No mains voltage.	<ul style="list-style-type: none"> Switch on the circuit breaker in the vehicle. Have the mains voltage checked.
	Transformer/rectifier defective.	<ul style="list-style-type: none"> Contact Customer Service.
Living area battery is overcharged in 230 V operation	Transformer/rectifier defective.	<ul style="list-style-type: none"> Contact Customer Service.
Living area battery is not charged in drive operation	Too many connected appliances.	<ul style="list-style-type: none"> Switch off the appliances, if possible.
Living area battery is overcharged in drive operation	Generator is defective.	<ul style="list-style-type: none"> Have the generator checked.
	Regulator defective.	<ul style="list-style-type: none"> Have the regulator checked.
Refrigerator does not operate in drive operation	No voltage applied to refrigerator.	<ul style="list-style-type: none"> Have the fuse and cables checked.
	Transformer/rectifier defective.	<ul style="list-style-type: none"> Contact Customer Service.
	Refrigerator defective.	<ul style="list-style-type: none"> Have the refrigerator checked.
12 V supply in the living area does not function	The 12 V main switch for the living area battery is switched off.	<ul style="list-style-type: none"> Switch 12 V main switch for living area battery on (Chapter 8.10).
	Fuse or cables defective.	<ul style="list-style-type: none"> Have the fuse and cables checked.
	Transformer/rectifier defective.	<ul style="list-style-type: none"> Contact Customer Service.
	System put out of service.	<ul style="list-style-type: none"> Put the system into service.

Table 22 Power supply faults

21.11 Refrigerator/freezer compartment faults

Fault	Possible cause	Remedy
No gas operation	See Chapter "21.6 Gas system faults".	
	Energy selector switch on refrigerator in false position.	<ul style="list-style-type: none"> Switch power selector switch on refrigerator to "Gas mode" or "Automatic mode".
	Air in gas pipe	<ul style="list-style-type: none"> Switch the appliance off and start again. Repeat three to four times.
No 230 V operation	Energy selector switch on refrigerator in false position.	<ul style="list-style-type: none"> Switch power selector switch on refrigerator to "230 V mode".
	Vehicle not connected to mains supply.	<ul style="list-style-type: none"> Connect vehicle to the mains.
	On-board fuse defective.	<ul style="list-style-type: none"> Insert a new fuse.
No 12 V operation	Energy selector switch on refrigerator in false position.	<ul style="list-style-type: none"> Switch power selector switch on refrigerator to "12 V mode".
	On-board fuse defective.	<ul style="list-style-type: none"> Insert a new fuse.
	Battery is discharged.	<ul style="list-style-type: none"> Check and charge the battery.
	Ignition is not switched on.	<ul style="list-style-type: none"> Start the engine.
Cooling function is not sufficient	Door not closed properly.	<ul style="list-style-type: none"> Close the door. Have the door adjusted.
	Ventilation of the cooling unit is not sufficient	<ul style="list-style-type: none"> Check the refrigerator grilles are not covered.
	Thermostat setting too low.	<ul style="list-style-type: none"> Increase thermostat setting.
	Too much ice on vaporiser.	<ul style="list-style-type: none"> Check the refrigerator door closes properly.
	Too much warm food placed in the refrigerator at the same time.	<ul style="list-style-type: none"> Allow food to cool first
	Appliance not yet long enough in operation.	<ul style="list-style-type: none"> Check the cooling effect after some hours.
Symbol „Batteries empty” flashing despite new batteries	Use rechargeable batteries.	<ul style="list-style-type: none"> Use new batteries (type 1.5 V AA/LR6).

Table 23 Refrigerator/freezer compartment faults

22 Technical data



Note!

- For the technical data, the statements in the registration certificate part I are binding.
- Modifications of the original equipment of the vehicle ex factory can affect road safety and driving behaviour.
- Accessories not approved by **SUN LIVING** for installation, attachment or conversion can cause damage to the vehicle and affect driving behaviour.
- **SUN LIVING** assumes no liability for damage caused by unapproved accessories or by unallowed modifications on the vehicle.
- The dimension and weight information is within possible tolerances $\pm 5\%$.

22.1 Models

SUN LIVING vehicles are grouped into the following models:

- Alcove models (driver's cab of basic vehicle can be seen, bodywork has a bed in an alcove above the driver's cab)
- Partially integrated models (driver's cab of basic vehicle can be seen, bodywork does not have a bed above the driver's cab)

Model identification:

- A - Alcove models
- S - Partial integrated models
- V - VAN models:

22.2 Tyres / tyre pressure



Warning!

Risk of injury and severe damage to the vehicle

- ▲ Different tyre pressures may be necessary when using winter tyres. See the instruction manual for the basic vehicle for detailed information.

For the tyre size, please see the vehicle documents or look at the tyres of your vehicle.

The specifications are applicable for cold tyres under load. The pressure should be approx. 0.3 bar higher for warm tyres.

The tyre pressures specified are approximate values. Refer to the separate operating instructions of the basic vehicle for exact specifications.

Basic vehicle	Tyre size	Tyre pressure, front [bar]	Tyre pressure, rear [bar]
Fiat Ducato, Citroen Jumper	215/70 R 15 C	4.1	4.5
	215/70 R 15 CP	5.0	5.5
	215/75 R 16 C	4.5	5.0
	225/70 R 15 C	4.1	4.5
	225/70 R 15 C M+S	4.3	4.7
	225/75 R 16 C	4.5	5.0
	225/75 R 16 C M+S	5.2	5.2
	225/75 R 16 CP	5.5	5.5
	225/75 R 16 CP 118	5.5	6.0

Table 24 Tyres / tyre pressure

22.3 Payload / weight



Caution!

Danger of overloading

- ▲ The driving behaviour of an overloaded vehicle changes drastically. It can get out of control during the journey.
- ▲ When the vehicle is overloaded, the insurance coverage and the warranty claim to the manufacturer become void.
 - Do not exceed the maximum gross vehicle weight (see vehicle documents).



Note!

- Load the vehicle properly (Chapter 5.1).
- Weigh the vehicle before starting the journey (e.g. on public vehicle scales).

22.3.1 Determining the payload

The payload is calculated according to the following formula:

- Maximum gross vehicle weight - (minus) unladen weight / basic equipment = weight of payload

In the EU, the EU Directive 97/27/EC is valid for the payloading of vehicles; these rules are essentially equivalent to standard DIN EN1645-2.

22.3.1.1 Permitted total weight

See the registration certificate, part I or part II, for the gross weight rating.

22.3.1.2 Mass of the vehicle in running order

The mass of the vehicle in running order is composed of:

- The mass of the empty vehicle including tyre mobility system and tools
- Driver's weight (75kg)
- Fuel tank filled up to 90%
- 100 % full gas cylinder (11 kg gas + 5 kg cylinder weight = 16 kg)
- 100 % full fresh water tank (e.g. 20 L = 20 kg)*
- 100 % full boiler (e.g. 11 L = 11 kg)
- CEE connecting cable (4 kg)

* Capacity of the fresh water tank acc.to App. V. Part A, No. 2.6 cont. Fn (h) Directive (EU) 1230/2012 limited by overflow valve (recommended driving fill level, e.g. 20 L).

22.3.1.3 Payload



Note!

- The permitted total weight must not be exceeded by the payload.

The payload consists of:

Additional equipment

All objects offered in addition to the standard equipment:

- Adria special equipment
- Special equipment from the manufacturer of the basic vehicle
- Special accessories from the dealer

Personal equipment

- Pets on board
- Shoes and clothes
- Toiletry and sanitary articles
- Kitchen accessories and foodstuff
- Leisure time and sports articles, toys
- Audio, TV and video equipment and accessories
- etc.

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