

Title page

Congratulations

We congratulate you on your new camper van and would like to thank you for choosing a quality product from Dethleffs.

Whether you want to enjoy your holidays on good or bad roads, whether you want to have your "holiday home" out in the country, at the seaside or in the mountains: Your Dethleffs camper van will always make sure that you can enjoy your holidays, because the Dethleffs team has been building caravans and motorhomes for 90 years and knows what is important. This experience shows itself in the well thought-out, cosy and yet highly functional equipment as well as in the outstanding driving characteristics.

Each Dethleffs vehicle is manufactured with great care and the quality is closely checked. This ensures that our products have a long service life. In view of these strict requirements, we guarantee top quality of our products and grant you a six year leakage guarantee of the body in accordance with our guarantee conditions (see chapter 1.1).

All Dethleffs vehicles meet the requirements of the Euro 6d-Temp emissions standard.

This instruction manual is mainly dedicated to the living arrangement of your camper van. It provides you with all the important information and tips so that you can take full advantage of all the technical benefits of your Dethleffs camper van. We have also included a chapter on maintenance – and thus on the conservation of value.

In addition, you will find the documents on the base vehicle and the various built-in appliances.

For maintenance work or whenever you need some help, please always get in touch with your authorised specialist workshop. They know your camper van best of all, and will meet all your requests fast and reliably.

In the event of chassis-related problems with Dethleffs vehicles, authorised workshops of the base vehicle manufacturer are able to provide assistance. If you encounter problems on the Fiat chassis, please call the phone number 00800 34281111. We wish you a lot of fun with your camper van, a relaxing holiday and safe driving at all times.

Your Dethleffs team

Vehicle data	Customer address
Model:	Surname, Christian name:
Car manufacturer/type of engine:	Street, no.:
Initial registration:	Postal code, town:
Chassis number:	
Serial number:	
Purchased from company:	
Start of the guarantee period:	
Expiry of the guarantee period	
Dealer's stamp and signature	

We reserve the right to alter the construction, equipment and the scope of delivery. Special equipment is also listed that is not included in the standard scope of delivery. The descriptions and illustrations in this brochure do not relate to a particular version. For all details, only the respective equipment list is valid.

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1 Guarantee

1.1 Conditions for leakproof guarantee

1. In addition to the legal guarantee and product warranty rights due to the customer, Dethleffs GmbH & Co. KG may also grant a guarantee of six years that the vehicles constructed by the company are sealed in such a manner that moisture cannot penetrate from the outside into the interior of the vehicle. This applies for fittings and bodies of Dethleffs. The guarantee obligations do not apply if the leakage is a result of improper handling of the windows, doors and skylights or damage that has not been properly repaired. Damage that is caused by forces of nature (e.g. flooding) is not covered by the guarantee. The guarantee extensions include only the correct repair work. Conversion or diminution as well as travelling expenses or other indirect costs are not covered by the guarantee.
2. When dealing with a case of leakage covered under the conditions of this guarantee, Dethleffs GmbH & Co. KG is obliged to rectify the defective vehicle part concerned by repairing it free of charge or replacing the part, depending on what is necessary to immediately to repair the damage.

Defects are to be rectified by Dethleffs GmbH & Co. KG or by an authorised specialist workshop in accordance with the guidelines of Dethleffs GmbH & Co. KG.

3. The prerequisite for this guarantee is that the vehicle must be presented once a year to an authorised specialist workshop for an inspection. The presentation must take place ± 6 months at the latest after the anniversary of the initial registration (or delivery). If the inspection is not carried out according to schedule, this will nullify your warranty. It cannot be renewed by carrying out an inspection at a later time.

As proof that the inspection has been completed, there are designated coupons in the Dethleffs GmbH & Co. KG guarantee booklet where inspection stamps are to be glued and endorsed by a stamp, the date and the signature of a respective Dethleffs dealer.

In addition, carrying out the inspection must be confirmed in GA Online.

4. **The warranty commences on the date of the vehicle's first registration or the end user's assumption of ownership, at the latest 18 months following delivery to the dealer, and applies to the time during which the vehicle is serviceable, up to a maximum 6 years.** If initial registration of the vehicle precedes taking delivery, the warranty commences on the vehicle's initial registration date (warranty qualifying date). **A change of ownership of the purchased object has no effect on the guarantee obligations of the manufacturer.** The guarantee expires if the terms outlined in paragraph 3 are not upheld. The performance

of guarantee work does not increase the guarantee period.

5. Parts installed to rectify faults are also guaranteed under the terms of the guarantee until the guarantee period expires.
6. If leakage occurs, the owner must notify Dethleffs GmbH & Co. KG or a Dethleffs dealer of this in writing within 14 days of its detection. The guarantee certificate and the corresponding guarantee stamps must be included with the notification. If notification of leakage does not occur within the time limit stated, no claims can be made under the terms of the guarantee. Remedying of leakage will take place after approval has been given by Dethleffs GmbH & Co. KG.
7. The costs of the inspection are to be paid by the party covered by the guarantee.
8. As far as legally permissible, the court responsible for Isny will be agreed upon as the venue for jurisdiction.

1.2 Water ingress test

1.2.1 Inspection plan



- During visual inspections in the exterior area, attention must be paid to damage and insufficient sealing, which might result in water ingress from the outside to the inside.
- During visual inspections of the interior, attention should be paid to running marks, discoloration and water stains.
- To avoid falsified measurement results, pay attention to the general air humidity in the interior (ventilate beforehand if necessary).

Pos.	Component	Activity	Information
1.1	Underbody	Visual inspection	Check all penetrations and reseal if necessary
1.2	Driver/passenger/sliding and rear doors	Visual inspection	Check sealing rubbers and adjustment on the doors
1.3	Sealing strips, edges, rubbers	Visual inspection	Check sealing rubber around pop-up roof (if installed) incl. joint
1.4	Roof shell	Visual inspection	Check for damage
1.5	Tent fabric	Visual inspection	Check for damage
1.6	Roof hatches/ windows/ pop-up roof section	Visual inspection; measurement	Check for damage. To measure section in the interior. If more than 20 %, perform a reference measurement at another location

Pos.	Component	Activity	Information
1.7	Service openings	Visual inspection; measurement	Check all service openings, measure Thetford flap filling
1.8	Floor	Visual inspection; measurement	Check for water marks/ defect formation: Measure two points at each of the rear doors and the sliding door area; reference measurement in the vehicle centre

We reserve the right to modify the inspection plan.

1.2.2 Inspection records

Delivery

Date:

Signature and stamp of the dealer:

1st year

Date:

Signature and stamp of the dealer:

Water ingress test 1st year:

- No defects found
 Found defects:

Water ingress test



Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

2nd year

Water ingress test

Signature, date and stamp of the Dethleffs dealer:

Paste inspection stamp here (garage)

Water ingress test 2nd year:

- No defects found
- Found defects:

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

3rd year

Water ingress test

Signature, date and stamp of the Dethleffs dealer:

Paste inspection stamp here (garage)

Water ingress test 3rd year:

- No defects found
- Found defects:

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

4th year**Water ingress test**

Signature, date and stamp of
the Dethleffs dealer:

**Paste inspection
stamp here (garage)**

Water ingress test 4th year:

- No defects found
 Found defects:
-

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

5th year**Water ingress test**

Signature, date and stamp of
the Dethleffs dealer:

**Paste inspection
stamp here (garage)**

Water ingress test 5th year:

- No defects found
 Found defects:
-

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

6th year

Water ingress test

Signature, date and stamp of the Dethleffs dealer:



Water ingress test 6th year:

- No defects found
- Found defects:

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

1.3 Further inspections

1.3.1 Inspection plan for annual inspection



The annual inspection is not bound to the 6-year water ingress test, but should nevertheless be carried out annually.

Pos.	Component	Activity	Interval
1	Skylights	Remove the inside frame of the skylights and tighten the screw connections of the securing clips	1st year
2	Refrigerator, heater, boiler, cooker, lighting, storage flap and door closures, toilet, seat belts	Function check	Annually
3	Windows, skylights	Function check, applying talc to the rubber seals	Annually
4	Screens and blinds	Visual check	Annually
5	Sealing strips, edges, rubber	Check for damage	Annually
6	Water supply	Leak check (visual check) of the connections at the water taps, boiler and distributor	Annually

Pos.	Component	Activity	Interval
7	Hot-air system	Function check, clean fan wheel if necessary	Annually
8	Alde hot-water heater	Check fluid level	Annually
		Replace heating fluid	every 2 years
9	Attachment of the floor skirt	Visual check	Annually
10	Pull-down bed mounting	Function check	Annually
11	Electrical system, outside and inside	Function check	Annually
12	Gas system	Official gas inspection	every 2 years
13	Windscreen wipers at I models	Function check	Annually
14	Joints, hinges, flaps, doors	Lubricate	Annually

We reserve the right to modify the inspection plan.

1.3.2 Inspection plan for chassis



The chassis inspection is not bound to the 6-year water ingress test, but should nevertheless be carried out annually. Please also observe the respective instructions of the manufacturer (AL-KO).

Pos.	Component	Activity	Interval
1	Supplementary steady legs	Cleaning	Annually
2	Connections between chassis and body	Check	every 2 years
3	Visual check of floor skirt attachment	Annually	
4	Lighting outside function check	Annually	
5	Wheel attachment	Tighten the wheel nuts, check tyre bearings	Annually
6	Slotted nut on the wheel	Check position and fit lock mechanism##	Annually
7	Tyres and wheel rims	Air pressure check (see section 15.7), visual check for damage, tread depth	Annually

We reserve the right to modify the inspection plan.

1.3.3 Gas inspection plan



- In Germany the gas inspection is prescribed by law and must be carried out every two years.
- The respective local regulations apply in other counties.

Pos.	Component	Activity	Interval
1	Gas system	Official gas inspection	Every two years
2	Gas filter	Replace gas filter cartridge, when residues are located on the filter cartridge. At the latest every 2years	Every two years

1.3.4 Inspection records

Delivery

Date:

Signature and stamp of the dealer:

1st year

Date:

Signature and stamp of the dealer:

- Chassis inspection
- Annual inspection 1st year:
 - No defects found
 - Found defects: _____

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

2nd year

Date:

Signature and stamp of the dealer:

- Chassis inspection
- Annual inspection 2nd year:
 - No defects found
 - Found defects: _____

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

3rd year

Date:

Signature and stamp of the dealer:

- Chassis inspection
- Annual inspection 3rd year:
 - No defects found
 - Found defects: _____

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

4th year

Date:

Signature and stamp of the dealer:

- Chassis inspection
- Annual inspection 4th year:
 - No defects found
 - Found defects: _____

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

5th year

Date:

Signature and stamp of the dealer:

- Chassis inspection
- Annual inspection 5th year:
 - No defects found
 - Found defects: _____

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

6th year

Date:

Signature and stamp of the dealer:

- Chassis inspection
- Annual inspection 6th year:
 - No defects found
 - Found defects: _____

Should it be determined during an inspection that additional work is necessary, then the carrying out of this work is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

1.3.5 Inspection certificates for electrical inspection



The entire 230 V system must be checked every three years by a qualified electrician in accordance with VDE 0100.

3rd year

Date:

Qualified electrician's signature and stamp:

Entire 230 V system checked:

- No defects found
- Found defects:

6th year

Date:

Qualified electrician's signature and stamp:

Entire 230 V system checked:

- No defects found
- Found defects:

2 Introduction

Please read this instruction manual completely before using the vehicle for the first time!

Always keep this instruction manual in the vehicle. Also inform all other users of the safety regulations.



The non-observance of this symbol can lead to personal injury.



The non-observance of this symbol can lead to damage being caused to, or inside the vehicle.



This symbol indicates recommendations or special aspects.



This symbol indicates actions which lead to environmental awareness.

With your Dethleffs camper van, you will receive a file with the following vehicle manuals and documents:

Dethleffs documents:

- Instruction manual and service book (housing body)
- List of Dethleffs dealers

Additional documents:

- Operating and installation instructions of various appliances
- Complete set of documents from the chassis manufacturer
- Manufacturer's declaration for the initial inspection of LNG systems in accordance with German regulations

This instruction manual contains sections which describe model-specific equipment or special equipment. These sections are not specially marked. It may be that your vehicle has not been fitted with this special equipment. In some cases, the actual equipment of your vehicle may therefore be different from that shown in some illustrations and descriptions.

However, your vehicle may be fitted with other special equipment not described in this instruction manual.

Special equipment is described when an explanation is required.

Adhere to the instruction manuals which are separately enclosed.



- The details "right", "left", "front" and "rear" always refer to the vehicle in direction of travel.
- All dimensions and weight details are "approximate".

Should the vehicle be subjected to damage due to a failure to follow the instructions in this instruction manual, then the warranty claim is deemed invalid.



Our vehicles are subjected to continuous development. Please understand that we reserve the right to alter the form, equipment and technology. Therefore, no claims can be made against the manufacturer as a result of the contents of this instruction manual. The equipment which was known and included at the time of going to press is described.

The reprinting, translation and copying, including extracts is not permitted without prior written authorisation from the manufacturer.

2.1 General

- The vehicle is constructed in accordance with the latest technology and the recognised safety regulations. Nevertheless, personal injury may result and the vehicle may be damaged if the safety instructions in this instruction manual are not followed.
- Depending on the configuration, the first-aid kit and hazard warning triangle are not included as standard.
- ▶ Equip the vehicle with a first-aid kit and hazard warning triangle before using it for the first time.
- ▶ Only use the vehicle in a technically impeccable condition. Follow the instructions in the instruction manual.
- Malfunctions which impair the safety of persons or the vehicle should be immediately remedied by qualified personnel. To avoid further damages, observe the duty to avert, minimise or mitigate loss for the user during faults.
- Have the vehicle's braking and gas systems inspected and repaired by an authorised specialist workshop only.
- Alterations to the body are only to be carried out with the authorisation of the manufacturer.

The vehicle is designed for the exclusive transport of persons. Luggage and accessories may only be transported up to the maximum permissible gross weight.



Observe the test and inspection periods stipulated by the manufacturer.

2.2 Environmental tips

- Do not impair the tranquillity and spruceness of nature.
- Remember that: All kinds of waste water and household waste are not to be disposed of in drains or in the open countryside.
- Collect waste water on board only in the waste water tank or, if need be, in other vessels suitable to this purpose.
- Only empty the waste water tank and toilet cassette or sewage tank at disposal stations at the camping or caravan sites, which are especially provided for this purpose. When stopping in towns and communities, observe the instructions at caravan sites or ask where there are disposal stations.
- Empty waste water tank as often as possible, even when it is not completely full (hygiene). If possible, flush out waste water tank and, if necessary, drainage pipe with fresh water every time it is emptied.
- Never allow the toilet cassette or sewage tank to become too full. Empty the toilet cassette or sewage tank frequently, at the latest as soon as the level indicator lights up.
- Separate household waste according to glass, tin cans, plastic and wet waste also when on a journey. Enquire at the town or community authority about disposal points. Household waste is not to be disposed of in waste paper baskets which are situated at car parks.
- Empty waste bins as often as possible into the cans or containers that are provided for this purpose. This helps to avoid unpleasant smells and an accumulation of rubbish on board.
- When parked, do not allow the engine to run more than necessary. When running idle, a cold engine releases more contaminants than usual. The running temperature of the engine is achieved more quickly whilst the vehicle is in motion.
- Use an environmentally-friendly WC chemical agent for the WC which can also be biologically degraded and only use small doses.
- When staying in towns and communities for longer periods, search for parking areas which are especially designated for camper vans. Enquire at the town or community authority about parking spaces.
- Always leave the parking places in a clean condition.

3 Safety

This chapter contains important safety instructions. The safety instructions are for the protection of persons and property.

The instructions address the following topics:

- rescue card
- fire prevention and what to do in case of fire
- general care of the vehicle
- road safety of the vehicle
- towing
- gas system of the vehicle
- electrical system of the vehicle
- water system of the vehicle

3.1 Rescue card

- The rescue card contains vehicle-specific information and can reduce the time required for rescuing in case of an accident. The rescue card shows, for example, where the gas bottles, the fuel tank, the gas-pressure shock absorbers or the batteries are located.
- ▶ Clamp the rescue card behind the driver sun visor and attach the label "Rescue card in vehicle" at the top or bottom left of the windscreen.
The label is available in any ADAC branch.
- You can download the respective rescue card for your vehicle from the Dethleffs homepage under "Service / Rescue cards" and print it out.

3.2 Fire prevention

3.2.1 Avoidance of fire risks



- Never leave children in the vehicle unattended.
- Keep flammable materials clear of heating and cooking appliances.
- Lights can get very hot. When the light is switched on, a safety distance of 30 cm to combustible material has to be maintained. Fire hazard!
- Never use portable heating or cooking appliances.
- Only authorised qualified personnel may modify the electrical system, the gas system or the appliances.

3.2.2 Fire-fighting



- Always carry a dry powder fire extinguisher in the vehicle. The fire extinguisher must be approved, tested and close at hand.
- The fire extinguisher is not included in the scope of delivery.
- Have the fire extinguisher tested at regular intervals by authorised qualified personnel. Observe the date of testing.



- Always keep a fire blanket at hand near the cooker.
- Sound the alarm and call the fire brigade.
- Fight the fire if this is possible without risk.

3.2.3 Gas odour



- Evacuate all passengers.
- Cut off the electrical power supply and disconnect from the mains.
- Make sure the area is sufficiently ventilated.
- Close regulator tap on the gas bottle.
- Close the gas valve. Inspection by specialised personnel.



- ▶ Acquaint yourself with the position and operation of the emergency exits.
- ▶ Keep escape routes clear.
- ▶ Observe the fire extinguisher instructions for use.
- ▶ Take the rescue card into account!

All the windows and doors that fulfil the following criteria rate as emergency exits:

- Opening outwards or moving in the horizontal direction
- Opening angle at least 70°
- Diameter of the clear opening at least 450 mm
- Maximum distance to vehicle floor 950 mm

3.3 General



The oxygen in the vehicle interior is used up by breathing and the use of gas operated appliances. That is why the oxygen needs to be replaced on a constant basis. For this purpose, forced ventilation options (e.g. skylights with forced ventilation, mushroom-shaped vents or floor vents) are fitted to the vehicle.

- ▶ Never cover or block forced ventilations from inside or outside with objects as e.g. a winter mat.
- ▶ Keep forced ventilations clear of snow and leaves. There is a danger of suffocation due to increased CO2 levels.
- ▶ Observe the headroom of the doors.



- The respective instruction manuals and operating manuals are authoritative for the appliances (heater, cooker, icebox etc.) as well as for the basic vehicle (engine, brakes etc.). It is imperative that they be observed.
- Fitting accessories or special equipment can alter the dimensions, weight and road behaviour of the vehicle. Some of the parts must be entered in the vehicle papers.
- Only use wheel rims and tyres which are approved for the vehicle. Information concerning the size of the approved wheel rims and tyres is included in the vehicle documents or can be obtained from authorised dealers and service centres.
- Firmly apply the handbrake when parking the vehicle or operate the electric parking brake.
- When leaving the vehicle, it is imperative that all doors, external flaps and windows are closed.
- Hazard warning triangle and first-aid kit conforming to DIN13164 are prescribed by law and must be carried on the vehicle.



- Only move the vehicle on the road if the driver has a driver's license valid for the vehicle class.
- When selling the vehicle, hand over all instruction manuals for the vehicle and the fitted appliances.

3.4 Road safety



- Before commencing the journey, carry out a functional check of indicating and lighting equipment, the steering and the brakes.
- After the vehicle has been standing for a longer period (approx. 10 months) have the braking and gas systems checked by an authorised specialist workshop.
- Before starting the journey and also after short breaks check whether the entrance step has been retracted completely.
- Before commencing the journey, open, lock into place and secure the shades on the windscreen and on the driver's and front passenger's windows.
- Before starting the journey, rotate the seat in the direction of travel and lock in position. The rotating seats must remain locked in the direction of travel during the journey.



- Before commencing the journey, place and secure the flat screen and screen support in the initial position.
- Before starting the journey, take the loose covers of the sink and drain basin off and store securely in the kitchen unit or wardrobe.
- During the journey, persons must only sit on the permitted seats (see chapter 5). The authorised number of seats is stipulated in the vehicle documents.
- Wearing of seat belts is compulsory at all seats.
- Before starting the journey fasten your seat belt and keep it fastened during the journey.
- Always secure children with the child-protection equipment that is mandatory for the respective child's size and weight.
- Factory-set three-point safety belts must be used when attaching child restraint systems.
- The base vehicle is a commercial vehicle (small truck). Adapt your manner of driving correspondingly.
- Observe the overall height of the vehicle (including roof loads) at underpasses, tunnels, etc.



- In winter, the roof must be free of snow and ice before commencing the journey.
- Check the tyre pressure before a journey and at 2-week intervals. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.
- Do not operate the independent vehicle heater at petrol stations. Danger of explosion!
- Do not operate the independent vehicle heater in closed spaces. Danger of suffocation!



- Before commencing the journey, distribute the vehicle payload evenly (see Chapter 4).
- When loading the vehicle and when taking a rest from driving, in order to load luggage or food, for example, observe the maximum permissible gross weight and axle loads (refer to vehicle documents).
- Before commencing the journey, ensure that all cupboard doors, the toilet door and all drawers and flaps are secure. Engage the refrigerator door securing device.
- Before commencing the journey, remove the table from the wall bracket and stow it safely:



- Before commencing the journey, close windows and skylights.
- Before commencing the journey, close all external flaps and lock them.
- Before commencing the journey, put the antenna in park position.
- During the initial journey and each time after changing a wheel, retighten the wheel bolts/wheel nuts after 50 km. Subsequently inspect them at regular intervals in order to ensure that they are firmly seated.
- Tyres must not be older than 6 years as the material becomes brittle over time (see Chapter 15).
- Tyres, wheel suspension and steering are subjected to additional stress when snow chains are mounted. When snow chains are mounted, drive slowly (maximum 50 km/h) and only on roads that are covered with snow. The vehicle could otherwise be damaged.

3.5 Towing



- Care is to be taken when connecting and detaching a trailer. Risk of accident and injury!
- No persons are to be between the towing vehicle and the trailer during positioning for connecting and detaching.

3.6 Gas system

3.6.1 General information



- Before starting the journey, when leaving the vehicle or when gas equipment is not in use, close all gas isolator taps and the main isolator tap on the gas bottle.
- No appliance (e.g. heating or refrigerator) that is operated with an open flame may be operational while fuel is being filled up, on ferries or in the garage. Danger of explosion!
- If an appliance is operated with an open flame, do not start the appliance up in closed areas (e.g. garages). Danger of poisoning and suffocation!



- Have the gas system serviced, repaired or altered by an authorised workshop only.
- Have the gas system checked by an authorised specialist workshop before starting up and according to the national regulations. This also applies for not registered vehicles. For modifications to the gas system have the gas system immediately checked by an authorised specialist workshop.
- The gas pressure regulator and the exhaust gas pipes also have to be checked. The gas pressure regulator has to be replaced at least every 10 years. The vehicle owner is responsible for seeing that this is carried out.
- In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close the regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.



- In case of a defect in the gas system: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.).
- Before using the cooker make sure that there is sufficient ventilation. Open windows or the skylight.
- Do not use the gas cooker or gas oven for heating purposes.
- If there are several gas devices, each gas device must have its own gas isolator tap. If individual gas devices are not in use, close the respective gas isolator tap.
- Ignition safety valves must close within 1 minute after the gas flame has extinguished. A clicking sound is audible. Check function from time to time.
- The installed gas appliances are designed for use solely with propane or butane gas or a mixture of both. The gas pressure regulator as well as all installed gas devices are set for a gas pressure of 30 mbar.



- Propane gas is capable of gasification up to $-42\text{ }^{\circ}\text{C}$, whereas butane gas gasifies at $0\text{ }^{\circ}\text{C}$. Below these temperatures no gas pressure is available. Butane gas is unsuitable for use in winter.
- Regularly inspect the gas tube fitted to the gas bottle connection for tightness. The gas tube must not have any tears and must not be porous.
- Have the gas tube replaced in an authorised workshop no later than ten years after the manufacturing date. The operator of the gas system must see to it that the parts are replaced.
- Due to its function and construction, the gas bottle compartment is a space which is open to the exterior. Never cover or block the standard forced ventilation. Otherwise leaking gas cannot be dispersed to the outside.
- Do not use the gas bottle compartment as storage space. Fire hazard!
- Secure the gas bottle compartment in order to prevent unauthorised persons opening it. To do so lock the access.
- The regulator tap on the gas bottle must be accessible.
- Only connect gas-operated devices (e.g. gas grill) which have been designed for a gas pressure of 30 mbar.



- The exhaust gas pipe must be fitted tightly to the heating system and to the vent and must be sealed. The exhaust gas pipe must not show any evidence of damage.
- Exhaust fumes must be able to escape into the atmosphere unhindered and fresh air must be able to enter unhindered. Therefore keep the waste gas vents and intake openings clean and free (e.g. of snow and ice). No snow walls or aprons may be allowed to lie against the vehicle.

3.6.2 Gas bottles



- Gas bottles are only to be transported within the designated gas bottle compartment.
- Place gas bottles vertically in the gas bottle compartment.
- Tie down gas bottles so that they are unable to turn or tilt.
- If the gas bottles are not connected to the gas tube, always place the protective cap on top.
- Close the regulator tap on the gas bottle before the gas pressure regulator or gas tube are removed from the gas bottle.
- Use your hands only to connect the gas pressure regulator or the gas tube to the gas bottles. Do not use any tools.



- Only use special gas pressure regulators with a safety valve designed for vehicle use. Other gas pressure regulators are not permitted and cannot meet the demanding requirements.
- Use the defroster (Eis-Ex) for the gas pressure regulator at temperatures below $5\text{ }^{\circ}\text{C}$.
- Use only 11 kg or 5 kg gas bottles. Camping gas bottles with a built-in reflux valve (blue bottle with max. 2.5 or 3 kg content) are permitted in exceptional cases with a safety valve.
- Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- Never block the ventilation openings in the floor under the gas bottles.

3.7 Electrical system



- Only allow qualified personnel to work on the electrical system.
- Prior to carrying out work on the electrical system, switch off all devices and lights, disconnect the battery and disconnect the vehicle from the mains.
- Only use original fuses with the stipulated values.
- Only replace defective fuses when the cause of the defect is known and has been remedied.
- Never bridge or repair fuses.

3.8 Water system



- Water left standing in the water tank or in the water pipes becomes undrinkable after a short period. Therefore, before each use of the vehicle, thoroughly clean the water pipes and the water tank. After each use of the vehicle completely empty the water tank and the water pipes.
- In case of lay-ups lasting more than a week, disinfect the water system before using the vehicle.



If the vehicle is not used for several days or if it is not heated when there is a risk of frost, empty the entire water system. Leave the water taps on in central position. Leave the safety/drainage valve (if available) and all drain cocks open. Frost damage to appliances, frost damage to the vehicle and deposits in water-carrying components can be avoided in this way.

4 Before the journey

This chapter contains important information which has to be noted before commencing your journey or carrying out any tasks before the journey.

The instructions address the following topics:

- keys
- registration
- calculating the payload
- correct loading of the vehicle
- retracting and extending the entrance step
- PVC-floor covering
- storing the television
- Driver's cabin Roman shade
- Central locking system for kitchen unit
- using snow chains

At the end of the chapter there is a checklist which once again summarises the most important points.

4.1 Keys

Your vehicle comes complete with all the keys required for the vehicle.

These are e.g.:

Two keys each for

- ignition lock
- fresh water filler neck
- external flaps

Always deposit a replacement key outside the vehicle. Make a note of the key number. Our authorised dealers and workshops can offer assistance in case of loss.

4.2 Registration

Your camper van is a vehicle which must be registered. The following documents are required for the registration:

- the registration document
- a confirmation of insurance (in Germany: German electronic insurance (EVB) number)
- your identity card
- if appropriate, a letter of authorisation to carry out the registration
- a registration application form

Please remember that certain countries require a separate national code sticker in addition to the EU plate.

4.3 Payload



- Excessive payload and the wrong tyre pressure can cause the tyre to burst. You can lose control of the vehicle.



- Only the maximum permissible gross weight and the mass in a ready-to-drive condition, not the actual weight of the vehicle, is stated in the vehicle documents. For your own safety, we recommend that you have your loaded vehicle (with all the items transported in the vehicle on the journey and all the passengers) weighed on a public weighbridge before you set out on your journey.
- Adapt your speed to the payload. The stopping distance is longer when the payload is higher.



- The maximum permissible gross weight stated in the vehicle documents is not to be exceeded by the payload.
- **Built-in accessories and special equipment reduce the payload.**
- Adhere to the axle load stated in the vehicle documents.

On loading, make sure that the payload's centre of gravity is as low as possible (directly above the floor of the vehicle). Otherwise this may affect the driving characteristics of the vehicle.

4.3.1 Terms



- In technical and scientific texts the term "mass" has replaced the term "weight". However the term "weight" is still the more common term in general usage. To contribute toward understanding the term "mass" is therefore only used in established phrases in the following passages.
- All specifications according to EU norm DIN EN 1646-2.

Maximum permissible gross weight in a laden condition

The maximum permissible gross weight in a laden condition is the weight that a vehicle may never exceed.

The maximum permissible overall weight in laden condition consists of the **mass in ready-to-drive condition** and of the **payload**.

The manufacturer has specified the maximum permissible gross weight in a laden condition in Field F.1 of the vehicle documents.

Permitted mass

The permitted mass is the weight specified by the manufacturer when applying for granting of the national type-approval. The permitted mass may not ever exceed the maximum permissible gross weight in a laden condition.

Mass in ready-to-drive condition

The mass in ready-to-drive condition is the weight of the ready-to-drive standard vehicle. The mass in ready-to-drive condition is made up as follows:

- Unladen weight (mass of the empty vehicle) with factory-installed standard equipment
- Driver's weight
- Basic equipment weight

Unladen weight includes lubricants such as oils and coolants which have been filled, the on-board tool set, the spare wheel and a fuel tank that is 90% full.

75 kg are calculated for the weight of the driver, regardless of how much the driver really weighs.

Basic equipment includes all equipment and fluids required for safe and proper vehicle use.

The weight of the basic equipment includes:

- Filling with 20 l (see chapter 11.2.1)
- Aluminium gas bottles filled up to 100%
- A full heating system
- The power cables for the 230 V power supply (cable reel)
- A full toilet flushing system
- The installation kit for an auxiliary battery if an auxiliary battery can be used

The waste water and sewage tanks are empty.

Example for calculating the basic equipment:

Water tank with 120 l	120 kg
Gas bottles (2 x 11 kg gas + 2 x 14 kg bottle)	+ 50 kg
Boiler with 12 l	+ 12 kg
230 V power cable	+ 4 kg
Installation kit for auxiliary battery	+ 20 kg
Total	206 kg

The actual mass in ready-to-drive conditions including basic equipment in specified in the CoC (Certificate of Conformity).

Payload

The payload is made up as follows:

- Conventional load
- Additional equipment
- Personal equipment



The vehicle's payload can be increased by reducing the weight in a ready-to-drive condition. To do this, it is allowed for example to empty the fluid containers or to remove the gas bottles.

Explanations of the individual components of the payload are contained in the following text.

Conventional load

The conventional load is the weight specified by the manufacturer for the passengers.

Conventional load means: 75 kg are calculated for every seat specified by the manufacturer, regardless of how much the passengers actually weigh. The driver's seat is already included as part of the mass in ready-to-drive condition and must not be calculated as part of the conventional load. The manufacturer specifies the number of seats in Field S.1 of the vehicle documents.

Additional equipment

Additional equipment includes accessories and special equipment. Examples of additional equipment include:

- Tow coupling
- Awning
- Bike or motorcycle rack
- Satellite unit

Information about the weights of the various special equipment devices can be obtained from the manufacturer.

Personal equipment

Personal equipment includes all items in the vehicle that are not included in the conventional load and the additional equipment. For example, personal equipment can include the following:

- Foodstuffs
- Crockery
- Television
- Radio
- Clothes
- Bedding
- Toys
- Books
- Toiletries

No matter where kept, personal equipment also includes:

- Animals
- Bikes
- Boats
- Surfboards
- Sports equipment

For the personal equipment, according to the applicable regulations, the manufacturer must use a minimum weight that is determined according to the following formula:

Formula

Minimum weight M (kg) = 10 x N + 10 x L

Explanation

N=Maximum number of people including the driver, as stated by the manufacturer

L=Total length of the vehicle in meters

4.3.2 Calculating the payload



- Payload calculation at the manufacturer is partly based on all-inclusive weights. For safety reasons, the maximum permissible gross weight in a laden condition must not be exceeded.
- Only the maximum permissible gross weight and the mass in a ready-to-drive condition, not the actual weight of the vehicle, is stated in the vehicle documents. For your own safety, we recommend that you have your loaded vehicle (with all the items transported in the vehicle on the journey and all the passengers) weighed on a public weighbridge before you set out on your journey.

The payload (see chapter 4.3.1) is the weight difference between

- Maximum permissible gross weight in a laden condition and
- Vehicle mass complete in a ready-to-drive condition.

Example for calculating the payload

	mass in kg to be calculated	Calculation
Maximum permissible gross weight according to vehicle documents, Field F.1	3100	
Actual mass in a ready-to-drive condition, including basic equipment according to CoC	- 2520	
This results in a permissible payload of	580	
Conventional load, e.g. 3persons at 75kg each	- 225	
Additional equipment	- 40	
For the personal equipment this results in	= 315	

The calculation of the payload from the difference between the maximum permissible gross weight in laden condition and the mass specified by the manufacturer in ready-to-drive condition is however only a theoretical value.

Only if the vehicle is weighed with full tanks (fuel and water), full gas bottles and complete additional equipment on a public weighbridge, can the actual payload be determined.

To do this, proceed as follows:

- First only drive the vehicle on to the weighbridge with the front wheels and have it weighed.
- Then drive the vehicle on to the weighbridge with the back wheels and have it weighed.

The individual values give the current axle loads. These are important for the correct loading of the vehicle (see chapter 4.3.3). The sum of these values is the current weight of the vehicle.

The actual payload is the difference between the maximum permissible gross weight in laden condition and the weighed vehicle weight.

This can be used to determine the weight that remains for the personal equipment:

- ▶ Determine the weight of the passengers and subtract it from the value for the actual payload.

The result is the weight that is permitted for the actual load of the personal equipment.

4.3.3 Loading the vehicle correctly



- ▶ To ensure safety never exceed the maximum permissible gross weight in a laden condition.
- ▶ Distribute the load evenly between the left-hand and right-hand sides of the vehicle.
- ▶ Distribute the load evenly between both axles. Observe the axle loads specified in the vehicle documents. Additionally observe the permissible load-carrying capacity of the tyres (see chapter 15).



- ▶ Heavy loads behind the rear axle can relieve the load on the front axle through the leverage effect. This applies especially to a long rear projection when the rear storage area is heavily loaded. The relief on the front axle influences the driving characteristics negatively in particular at vehicles with front-wheel drive.
- ▶ Securely store all the objects so that they cannot slide or slip.
- ▶ Store heavy objects (awning, canned food, etc.) close to the axles. Low-lying storage compartments whose doors do not open in the direction of travel are particularly suited for storing heavy objects.
- ▶ Store lighter objects (laundry) in the roof storage compartments.

4.4 Electrically operated entrance step



- ▶ Before starting the journey and also after short breaks check whether the entrance step has been retracted completely.
- ▶ Do not stand in the direct range of movement of the entrance step while the entrance step is being extended or retracted.
- ▶ Do not step on the entrance step until it has extended completely. Injuries and material damage possible!
- ▶ Never raise or lower persons or loads with the entrance step.



- ▶ Clean dust and dirt regularly from the entrance step. Do not grease or oil moving parts.



If the entrance stage is not properly retracted and engaged and the ignition is switched on, a warning tone will sound.

Before stepping on the entrance step, fully extend it.

Operating switch

The switch to operate the entrance step is located on the inside of the vehicle in the area of the conversion door.

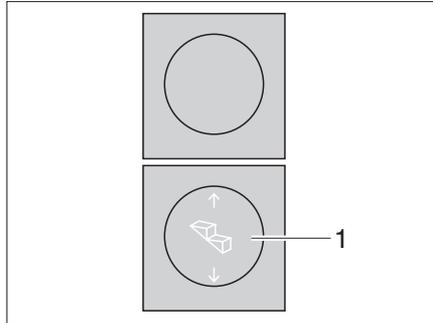


Fig. 1 Operating switch entrance step

Extending:

- ▶ Press the rocker switch (Fig. 1,1) down until the entrance step has extended completely.

Retracting:

- ▶ Press the rocker switch (Fig. 1,1) up until the entrance step has retracted completely.

Emergency operation

If the electric drive of the entrance step fails, follow the instructions in the instruction manual of the component manufacturer to manually retract the step.

- ▶ Push in the entrance step by hand and secure it or lock it using a suitable device.
- ▶ Contact the customer service immediately.

4.5 PVC floor covering



- ▶ Shoes with pointed heels can leave permanent impressions in the PVC-floor covering. Never wear shoes with pointed heels in the vehicle.
- ▶ Rubber mats or long exposure to ketchup, carrot juice, ink, blood or lipstick can discolour the PVC-floor covering. If possible, remove stains from the floor immediately.

4.6 Television



- ▶ Before starting your journey, remove the television from the support and store it securely.
- ▶ Before commencing the journey, place and secure the flat screen and screen support in the initial position.

4.7 Driver's cabin Roman shade



► During the journey the Roman shades for the windscreen, the driver's window and the front passenger's window must be opened, locked and secured.

4.7.1 Roman shades for driver's window and front passenger's window

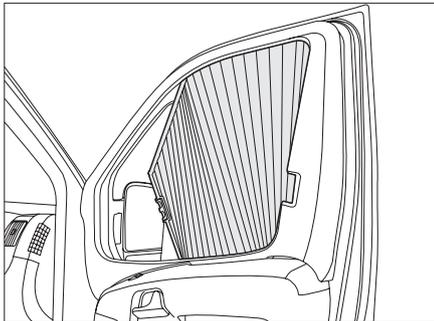


Fig. 2 Roman shades on driver's/front passenger's windows

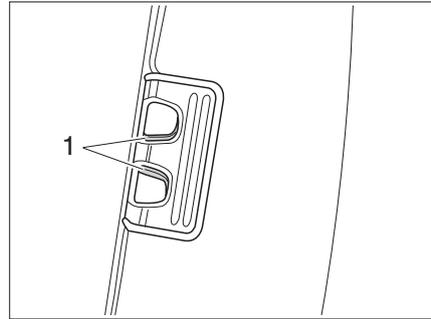


Fig. 3 Roman shade, locking mechanism

Closing

- Press the locking mechanism (Fig. 3,1) together and lift it slightly.
- Close the Roman shades for the driver's window and the front passenger's window.

Opening

- Open the Roman shade for the driver's window and the front passenger's window and slide the locking mechanism into the notch.

4.7.2 Roman shade windscreen

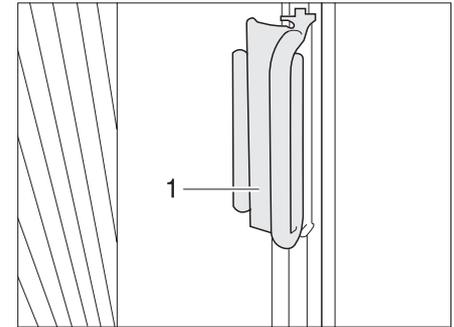


Fig. 4 Roman shade, locking mechanism

Closing

- Grip the Roman shades at both sides of the windscreen at the handle (Fig. 4,1) and pull carefully towards the middle of the windscreen until the magnetic catch keeps the Roman shade closed.

Opening

- Push the Roman shades carefully at the handle under the cover at the A-columns.
- Push the handle (Fig. 4,1) onto the attachment. The Roman shade is secured.

4.8 Central locking system for kitchen unit

The kitchen unit is equipped with a central locking system. The flaps and drawers of the kitchen unit can be manually locked and unlocked via the push-lock push button.

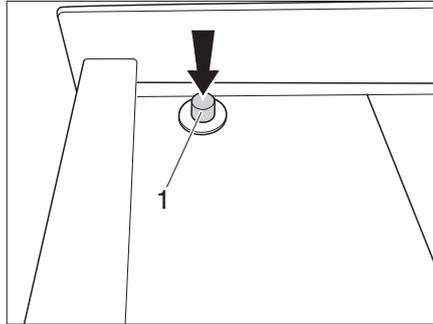


Fig. 5 Central locking - Locking

Locking

► Push the push button (Fig. 5,1). The flaps and drawers of the kitchen block are locked. The push button is recessed.

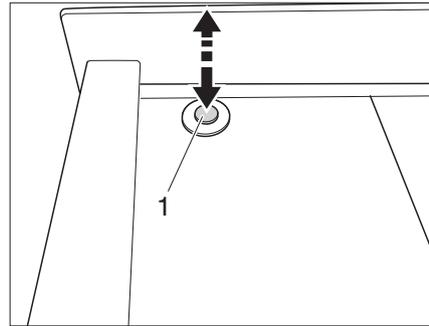


Fig. 6 Central locking - unlocking

Unlocking

► Push the push button (Fig. 6,1). The push button is released (push lock). The flaps and drawers of the kitchen block are unlocked.

4.9 Snow chains



► Mount the snow chains only when the clearance between the tyres and the vehicle body amounts to at least 50 mm.

Tyres, wheel suspension and steering are subjected to additional stress when snow chains are mounted.

► When snow chains are mounted, drive slowly (maximum 50 km/h) and only on roads that are covered with snow. The vehicle could otherwise be damaged.

► Observe the mounting instructions of the snow chain manufacturer.

► Only use snow chains approved by the manufacturer.

► Do not mount snow chains onto alloy wheel rims.

The use of snow chains is subject to the legal regulations of the individual countries.

► Always mount snow chains to the drive wheels.

► After a few meters, check the tension of the snow chains.

4.10 Road safety



Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.

► Check the tyre pressure before a journey and at 2-week intervals.

Superstructures such as air conditioning unit, satellite antenna, etc. can influence the vehicle height.

Before commencing the journey, work through the checklist:

Base vehicle

No.	Checks	checked
1	All vehicle documents are on board	
2	Tyres in proper condition. If spare wheel or tyre repair kit exists, check.	
3	Vehicle lighting, brake and reversing lights function	
4	Oil level at engine, gear unit and power steering checked	
5	Coolant and liquid for windshield washer system topped up	
6	Breaks function	
7	Brakes react evenly	
8	When braking, the vehicle remains on track	

Housing body, outside

No.	Checks	checked
9	Awning completely retracted	
10	Roof free of snow and ice (in winter)	
11	External connections and lines disconnected and stored away	
12	Wheel chocks removed and stored away	
13	Entrance step retracted (observe warning tone)	
14	External flaps closed and locked	
15	Awning light switched off	

Housing body, inside

No.	Checks	checked
16	Windows and skylights closed and locked	
17	Television secured or removed from the support and stored securely	
18	Television antenna retracted (if one is built in)	
19	Loose parts stored away or fixed in position	
20	Open storage spaces empty	
21	Refrigerator door secured	
22	Refrigerator set to 12 V operation	
23	All drawers and flaps closed	
24	Living area doors and sliding doors secured	
25	Children's seats mounted to seats with three-point safety belts	
26	Swivel seat locking mechanism for driver's seat and passenger seat locked in direction of travel	
27	Shades removed in driver's cabin	

Gas system

No.	Checks	checked
28	Gas bottles firmly fixed in the gas bottle compartment so that they are unable to turn	
29	Protective cap set on top of the gas bottle	
30	<p>Regulator tap on the gas bottle and gas isolator tap are closed (except in the case of gas systems with crash sensor)</p> <p> The regulator tap must always be closed at petrol stations, also in the case of gas systems with crash sensor.</p>	

Electrical system

No.	Checks	checked
31	<p>► Check the battery voltage of the starter battery and the living area battery (see Chapter 9).</p> <p>If the panel indicates that the battery voltage is too low, the respective battery has to be recharged. Observe the instructions in Chapter 9.</p> <p>► Commence the journey with a fully charged starter battery and living area battery.</p>	

5 During the journey

This chapter contains instructions on how to drive the camper van.

The instructions address the following topics:

- driving speed
- brakes
- seat belts
- seats and headrests
- Roman shades in the driver's cabin
- filling the tank

5.1 Driving the camper van



The base vehicle is a commercial vehicle (small truck). Adapt your manner of driving correspondingly.

- ▶ Before starting the journey and also after short breaks check whether the entrance step has been retracted completely.
- ▶ Always wear a seat belt during the journey at those seats where a seat belt is mounted.
- ▶ Never open the seat belt during the journey.



- Passengers must remain in the seats provided.
- The door lock may not be opened.
- Avoid braking suddenly.
- ▶ Only change the destination on the navigation system when the vehicle is at a standstill. Drive to a car park or stop in a safe area when changing the destination.
- ▶ Do not play a DVD on the monitor of the navigation system during the journey.



- ▶ Drive slowly on bad roads.
- ▶ Drive particularly carefully while driving onto ferries, while driving over bumps and while reversing. Due to their relatively long projection larger vehicles can veer and under unfavourable conditions "touch down", causing the underbody or parts that are mounted there to be damaged.
- ▶ Check whether the awning light is switched off.



If an accident occurs as a result of these instructions not being observed, the manufacturer will not be responsible for damages caused. The safety measures specified in Chapter 3 have to be observed.

5.2 Driving speed



- ▶ The vehicle is equipped with a powerful engine. Meaning that you have sufficient power reserves in difficult traffic situations. This high power allows a high end speed and requires above-average driving skills.
- ▶ The vehicle provides a huge surface exposed to wind. Particular danger arises when a side wind suddenly occurs.
- ▶ Uneven or one-sided loading changes the road behavior.
- ▶ On unknown roads the road surface conditions may be difficult and unexpected traffic situations may arise. Therefore adapt your driving speed to the respective traffic situation and the ambient situation for your safety.
- ▶ Observe the statutory speed limits that apply in the respective country.



The skylights and windows are not designed for high speeds. Excessive speeds can result in noise development that is too high.

5.3 Brakes



- ▶ Have defects on the braking system immediately remedied by an authorised specialist workshop.



- ▶ Avoid block brakings. A block braking gives the tyres "brake plates" of varying strength, thus reducing travelling comfort and possibly rendering the tyres unusable.

Before each journey

Before each journey, check by means of a braking test:

- Do the brakes function?
- Do the brakes react evenly?
- Does the vehicle remain on track when braking?

5.4 Seat belts

The vehicle is equipped with automatic three-point safety belts at those seats in the living area for which a seat belt is stipulated by law. The corresponding national regulations apply for using a seat belt.



- ▶ Before starting the journey fasten your seat belt and keep it fastened during the journey.
- ▶ Do not damage or clamp in the belts. Have damaged seat belts replaced by an authorised specialist workshop.
- ▶ Do not change the belt attachment points, the automatic retractor and the belt locks.
- ▶ Check the screwed connections of the seat belts at intervals in order to ensure that they are firmly seated.
- ▶ Use each seat belt for **one** adult person only.
- ▶ Do not belt up objects together with persons.



- ▶ Seat belts are not sufficient for persons who are less than 150cm tall. In this case use additional retention devices. Observe the test certificates.
- ▶ Factory-set three-point safety belts must be used when attaching child restraint systems.
- ▶ Replace (have replaced) the seat belts that were in use during an accident.
- ▶ Do not tilt the backrest of the seat too far back during the journey. Otherwise the effectiveness of the seat belt is no longer ensured.

5.4.1 Using the seat belt correctly



- ▶ Do not twist the belt. The belt must be positioned smoothly against the body.
- ▶ Before applying the seat belt, adopt the correct sitting position.

The safety belt is applied correctly when a fist still fits between your body and a safety belt at the shoulder.

5.5 Driver's seat and front passenger's seat



- ▶ Before starting the journey, rotate the seat in the direction of travel and lock in position.
- ▶ Lock the seats in the direction of travel and do not turn them during the journey.



- The driver's and front passenger's seat are a part of the base vehicle, depending on model and vehicle equipment. In this case the adjustment of the seats is described in the operating instructions of the base vehicle.

5.6 Seating arrangement



- During the journey, persons are only to sit on the permitted seats. The authorised number of seats is stipulated in the vehicle documents.
- Wearing of seat belts is compulsory at all seats.



Fig. 7 "Seat" symbol

Seats which may be used during travel are equipped with a sticker (Fig. 7).

5.7 ISOFIX system



- Ensure that the instructions of the children's seat manufacturer are observed when fitting and removing the children's seat with the ISOFIX system.
- Never fasten other children's seats, belts or objects to the holding lugs provided for fitting the children's seat with the ISOFIX system.
- When fastening with the TOP TETHER system always fasten only one fixing belt of the children's seat to a holding lug.

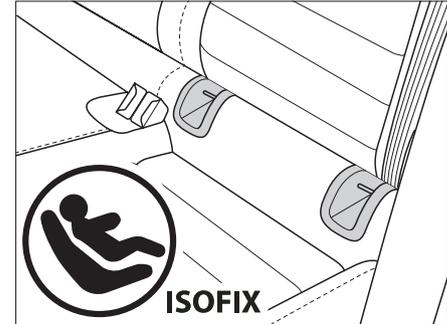


Fig. 8 ISOFIX

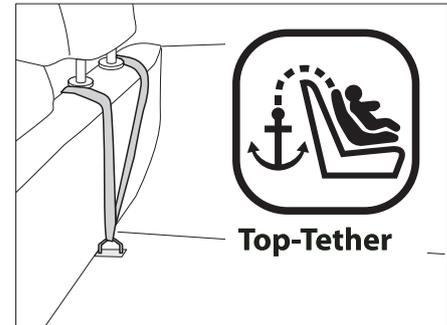


Fig. 9 ISOFIX with Top Tether system

The seats can be equipped with an ISOFIX system, on request. They are identified with labels.

There are two holding lugs for fastening a children's seat with the ISOFIX system between the seat backrest and seat surface of the back seat or of the passenger seat (Fig. 8). The holding lugs for fastening the fixing belt of a children's seat to the top tether system are located on the rear seat between the headrests (Fig. 9).

5.8 Roman shades for windscreen, driver's window and front passenger's window



During the journey the Roman shades for the windscreen, the driver's window and the front passenger's window must be opened, locked and secured.



► Further information can be obtained in the manufacturer's instruction manual.

See Chapter 4.7.

5.9 Writing and reading rest



During the journey the writing and reading rest must be closed.



► If there is a passenger airbag, the writing and reading rest is locked so it cannot be opened.

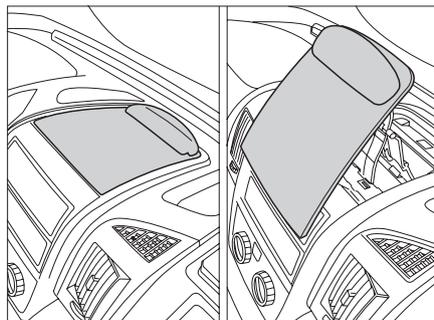


Fig. 10 Writing and reading rest

Depending on the model, the camper van is equipped with a writing and reading rest (Fig. 10).

5.10 Bonnet



When the bonnet is open, there is a risk of injury in the engine compartment.

Even when the engine has been switched off for a longer period, it can still be hot. Risk of burns!

► Do not carry out work in the engine compartment while the engine is running.

► The bonnet must be closed firmly and locked during the journey. After closing the bonnet, check whether it has locked. In order to carry this out, pull on the bonnet.

5.11 Filling up with diesel



No appliance (e.g. heating or refrigerator) that is operated with an open flame may be operational while fuel is being filled up, on ferries or in the garage. Danger of explosion!



► Refer to the instruction manual for the base vehicle for the position of the fuel filler neck.

6 Pitching the camper van

This chapter contains instructions on how to pitch the vehicle.

The instructions address the following topics:

- handbrake
- entrance step
- wheel chocks
- 230 V connection
- Refrigerator
- awning



- ▶ Pitch the vehicle so that it is as horizontal as possible. Secure the vehicle to prevent it from rolling.
- ▶ Animals (especially mice) can cause great damage to the interior of the vehicle. To prevent this from happening, regularly check the vehicle for damages or animal traces after pitching.

6.1 Handbrake

Firmly apply the handbrake when parking the vehicle.



- ▶ If there is any risk of frost, release the handbrake every now and then and apply it again. This will prevent it from freezing or rusting. Prior to releasing the handbrake, secure the vehicle so that it cannot roll away.
- ▶ An applied handbrake can prevent the driver's seat from turning. If necessary release the handbrake briefly.

6.2 Entrance step

- ▶ In order to exit the vehicle, first fully extend the entrance step.

6.3 Wheel chocks

When parking the vehicle on slopes or inclines the wheel chocks in the vehicle must be used.

6.4 230 V connection

The vehicle can be connected to a 230 V power supply (see Chapter 9).

6.5 Refrigerator

6.5.1 Absorption refrigerator

12 V operation of the refrigerator is only possible when the vehicle engine is running. If the vehicle engine is switched off, set the refrigerator to 230 V operation or gas operation.

6.5.2 Compressor refrigerator

The refrigerator only functions in 12 V operation.

6.6 Awning



- ▶ In case of arising wind, strong rain or snowfall retract the awning.
- ▶ Material damage through overturning at wind possible!
- ▶ If the vehicle is left unattended for a longer period, retract the awning completely.
- ▶ In case of light rain reduce one of the support legs so that the water can run off.
- ▶ Only retract the awning if the cloth is dry. If the awning has to be retracted while the cloth is wet: Extend the awning again as soon as possible so that the cloth can dry.
- ▶ Before retracting the awning, remove leaves and coarse soiling from it.



- Use the awning only as protection against the sun.
- Additionally observe the manufacturer's instruction manual.
- The crank rod of the awning is located in the rear area.

Advantages of the awning

The advantages of an awning are:

- The awning provides shade.
- The awning creates a covered vestibule and thus expands the space.
- The vehicle thus becomes more homelike.

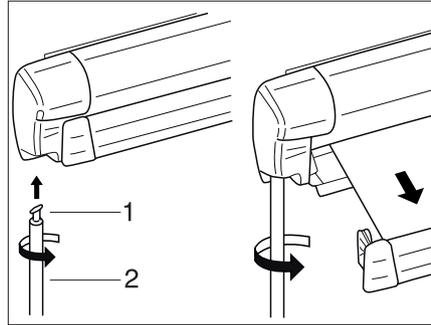


Fig. 11 Awning

Putting up the awning

- ▶ Insert the hook (Fig. 11,1) of the crank rod (Fig. 11,2) into the lug and turn by 90°.
- ▶ Hold the crank rod with one hand at the upper end and with the other hand at the lower turning handle.
- ▶ Turn the crank rod counter-clockwise and extend the awning by a maximum of 1 m.

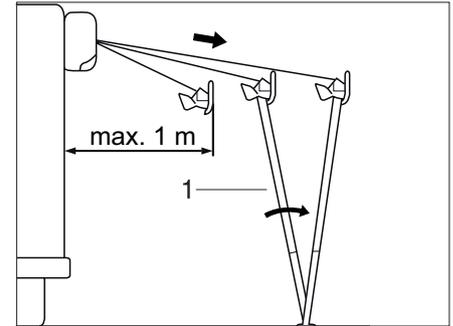


Fig. 12 Putting up the awning

- ▶ Fold out the support legs (Fig. 12,1) and set them on the ground.
- ▶ Extend the awning further.
- ▶ Tension the awning using the support legs.
- ▶ Secure the support legs to the ground using tent pegs.
- ▶ Turn the crank rod by 90° and remove it.

Retracting the awning

- ▶ Insert the hook (Fig. 11,1) of the crank rod (Fig. 11,2) into the lug and turn by 90°.
- ▶ Remove the tent pegs of the support legs (Fig. 12,1).
- ▶ Hold the crank rod with one hand at the upper end and with the other hand at the lower turning handle.
- ▶ Turn the crank rod clockwise and retract the awning up to 1 m.
- ▶ Fold in the support legs.
- ▶ Retract the awning completely.
- ▶ Turn the crank rod by 90° and remove it.

7 Living

This chapter contains instructions about living in the vehicle.

The instructions address the following topics:

- opening and closing the doors and external flaps
- ventilation of the vehicle
- opening and closing the windows and blinds
- opening and closing the skylights
- rotating the seats
- modifying the table surfaces
- converting tables
- operating the central locking on the kitchen block
- setting all the lights
- light switches
- extending the seating groups
- using the beds

7.1 Doors



Only drive with the doors locked.



- Locking the doors can prevent them from opening of their own accord, e.g. during an accident.
- Locked doors also prevent forced entry, e.g. when waiting at a set of traffic lights. However, in an emergency, locked doors make it more difficult for helpers to enter the vehicle.
- ▶ When leaving the vehicle, always lock the doors.

7.2 External flaps



- ▶ Before commencing the journey, close all external flaps and lock them.



- ▶ When leaving the vehicle, close all external flaps.

7.2.1 Flap for 230 V connection, square

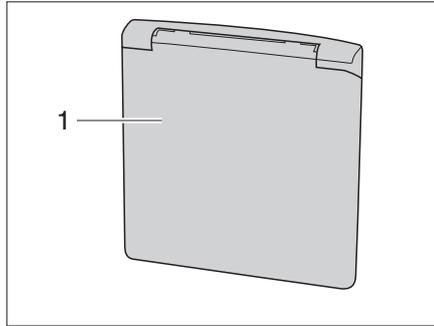


Fig. 13 Flap for 230 V connection

Opening

- ▶ Grip the external flap (Fig. 13,1) at the bottom and lift it upwards.

Closing

- ▶ Lower the external flap downward and press it shut.

7.2.2 External flap Thetford cassette



- ▶ Do not let the external flap fall closed in order to avoid damage.

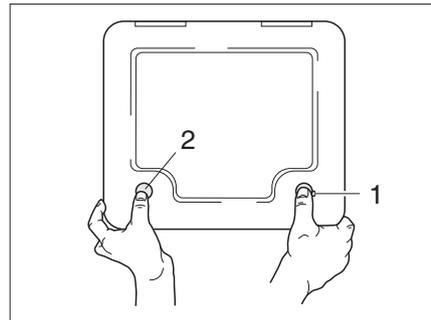


Fig. 14 External flap Thetford cassette with magnet

Opening

- ▶ Insert the key into the locking cylinder of the push-button lock (Fig. 14,1) and turn a quarter turn.
- ▶ Remove the key.
- ▶ Press the push-button lock (Fig. 14,1) and the magnetic push button (Fig. 14,2) simultaneously with your thumbs and open the external flap.

The external flap (Fig. 14) is held by the magnetic push button (Fig. 14,2) against the exterior wall of the camper van.

Closing

- ▶ Close the external flap and press it shut.
- ▶ Insert the key into the locking cylinder (Fig. 14,1) and turn a quarter turn.
- ▶ Remove the key.

7.2.3 Cap for the fresh water filler neck

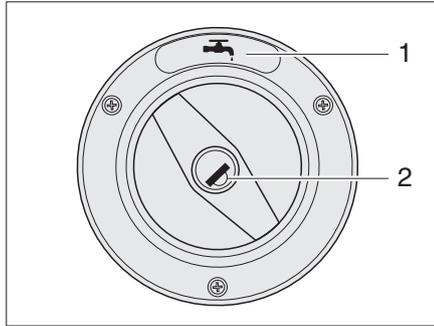


Fig. 15 Cap for the fresh water filler neck (Variant 1)

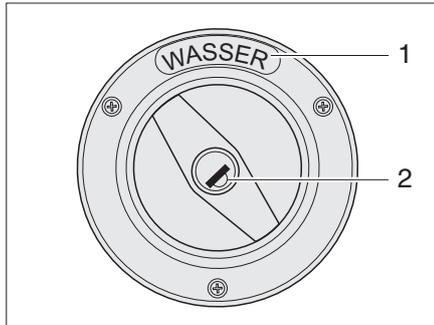


Fig. 16 Cap for the fresh water filler neck (Variant 2)



The fresh water filler neck is identified by the symbol  (Fig. 15,1) or the word "WASSER" ("WATER") (Fig. 16,1).

Opening

- ▶ Insert the key in the locking cylinder (Fig. 15,2 or Fig. 16,2) and turn it in an anticlockwise direction.
- ▶ Remove the cap.

Closing

- ▶ Insert the cap in the fresh water filler neck.
- ▶ Turn key clockwise.
- ▶ Remove the key.

7.3 Ventilation



The oxygen in the vehicle interior is used up by breathing and the use of gas operated appliances. That is why the oxygen needs to be replaced on a constant basis. For this purpose, forced ventilation options (e.g. skylights with forced ventilation) are fitted to the vehicle. Never cover or block forced ventilations from inside or outside with objects as e.g. a winter mat.

- ▶ Keep forced ventilations clear of snow and leaves. There is a danger of suffocation due to increased CO₂ levels.



- Although sufficient ventilation is provided, in certain weather conditions, condensation can form on metal objects.
- Additional cold spots can occur at thermal "bridges" (e.g. skylight edges, sockets, filler necks, flaps, etc.).

Condensation

Ensure that there is a continuous exchange of air by providing frequent and efficient ventilation.

This is the only method for ensuring that condensation is not formed during cool weather. During the colder season, a pleasant living climate is created if heating output, air distribution and ventilation are synchronised.

To avoid draft close the air outlet nozzles on the dashboard and set the air distribution of the base vehicle to air circulation. If the vehicle is laid up for a longer period, occasionally ventilate it well, especially in summer as heat accumulation can occur.

Air the parking place as well if the vehicle is parked in a closed space (e.g. garage). The occurrence of condensation could lead to the formation of mould.

7.4 Windows



The windows are fitted with a blind or Roman shade and with an roller insect screen or folding insect screen. After the latch has been released, the blind and roller insect screen automatically spring back to the initial position by tensile force.

- ▶ In order not to damage the tension mechanics, hold onto the blind or roller insect screen and allow it to slowly return to the initial position. The Roman shade and folding insect screen are made of thin woven fabric.
- ▶ In order not to damage the Roman shade or the insect screen, grasp the respective handle and carefully return it to the initial position.



- ▶ **Do not keep blinds closed over a longer period of time as that can cause increased material wear.**
- ▶ **If the blind or the Roman shade is completely closed, exposure to direct sunlight can cause heat to accumulate between the blind/the Roman shade and the glass window. The window could be damaged. For that reason, close the blind/Roman shade only 2/3 of the way in direct sunlight.**
- ▶ Before commencing the journey, close the windows.
- ▶ Depending on the weather, close the windows far enough to prevent moisture from entering.
- ▶ To open and close the hinged windows, open or close all catch levers which are fitted to the hinged window.



- ▶ When leaving the vehicle, always close the windows.
- In case of strong temperature differences or in extreme weather conditions, light condensation can form on the double-glazed acrylic glass. The glass is designed in such a way that condensation can evaporate when the external temperature increases. There is no danger of the double-glazed acrylic glass being damaged by condensation.

7.4.1 Sliding window without lock

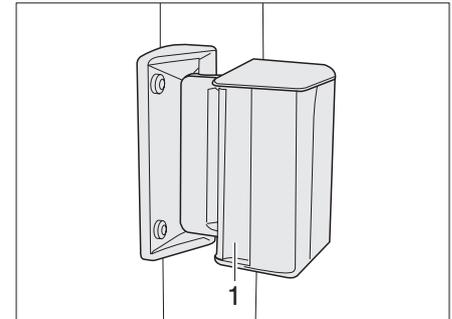


Fig. 17 Sliding window

Opening

- ▶ Press the handle (Fig. 17,1) and push or pull it forwards or backwards at the same time.
- ▶ Open window half up to the required position.

Closing

- ▶ Close the window as far as possible and let the handle lock in place.

7.4.2 Hinged window with rotary hinges



- ▶ When opening the hinged windows, ensure that there are no torsional forces. Open and close the hinged windows evenly.

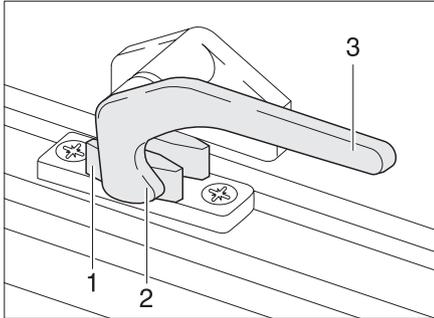


Fig. 18 Catch lever in "closed" position

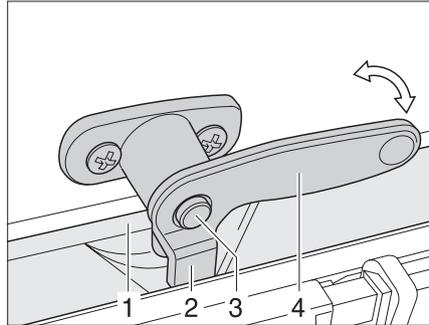


Fig. 19 Catch lever with safety knob in "closed" position

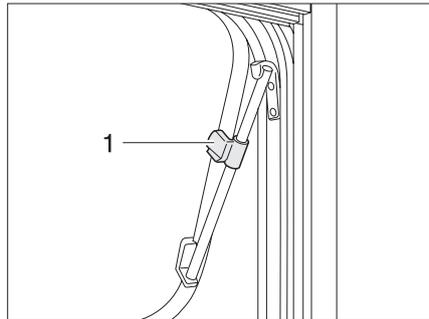


Fig. 20 Hinged window with rotary hinges, open

Opening

- ▶ If it exists, press the safety knob (Fig. 19,3) down and hold it.
- ▶ Turn the catch lever (Fig. 18,3 or Fig. 19,4) a quarter turn towards the centre of the window.
- ▶ Open the hinged window until the required position has been reached and secure in position using the knurled knob (Fig. 20,1). The hinged window remains locked in the required position.

Closing

- ▶ Turn the knurled knob (Fig. 20,1) until the latch is released.
- ▶ Close the hinged window.
- ▶ If it exists, press the safety knob (Fig. 19,3) down and hold it.
- ▶ Turn the catch lever (Fig. 18,3 or Fig. 19,4) a quarter turn towards the centre of the window frame. The locking catch (Fig. 18,2 or Fig. 19,2) is located on the inside of the window catch (Fig. 18,1 or Fig. 19,1).

Continuous ventilation

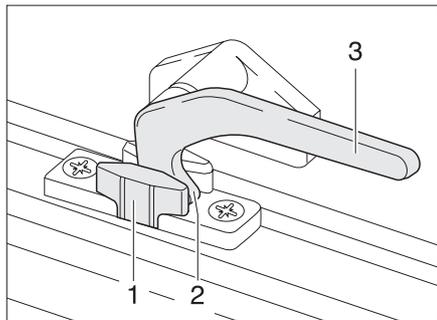


Fig. 21 Catch lever in the "continuous ventilation" position

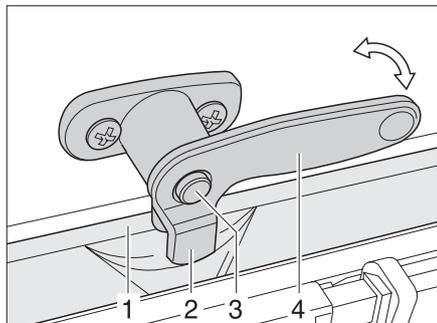


Fig. 22 Catch lever with safety knob in "Continuous ventilation" position

With the catch lever, the hinged window can be placed in two positions:

- "Continuous ventilation" (Fig. 21)
- "Firmly closed" (Fig. 18)

To place the hinged window into the "continuous ventilation" position:

- ▶ If it exists, press the safety knob (Fig. 22,3) down and hold it.
- ▶ Turn the catch lever (Fig. 21,3 or Fig. 22,4) a quarter turn towards the centre of the window.
- ▶ Lightly open the hinged window outwards.
- ▶ If it exists, press the safety knob (Fig. 22,3) down and hold it.
- ▶ Return the catch lever to its initial position. In the process the locking catch (Fig. 21,2 or Fig. 22,2) is retracted into the recess of the window catch (Fig. 21,1 or Fig. 22,1).
- ▶ If necessary, ensure that the safety knob is not pushed in but rather that it secures the catch lever.

During the journey, the hinged window may not be in the "continuous ventilation" position. If it rains, the "continuous ventilation" hinged window position could lead to splashing water penetrating the living area. Therefore, close the hinged windows completely.

7.4.3 Hinged window with automatic hinges



- ▶ Open the window completely in order to unblock the locking device. If the locking device is not unblocked and the window is closed nevertheless, there is the danger of the window being torn due to the massive counter-pressure.
- ▶ When opening the hinged windows, ensure that there are no torsional forces. Open and close the hinged windows evenly.
- ▶ If the locking lever is equipped with a safety knob, press the safety knob whenever you use the locking lever.

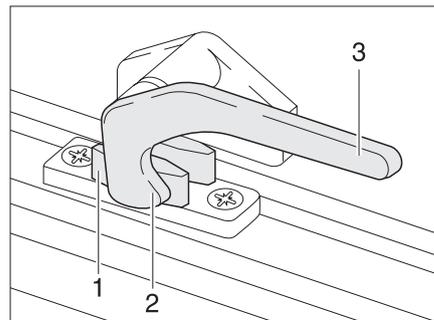


Fig. 23 Catch lever in "closed" position

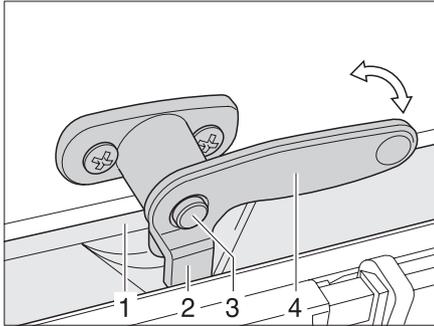


Fig. 24 Catch lever with safety knob in "closed" position

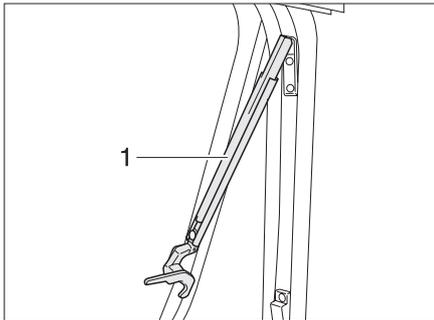


Fig. 25 Hinged window with automatic hinges, open

Opening

- ▶ If it exists, press the safety knob (Fig. 24,3) down and hold it.
- ▶ Turn the catch lever (Fig. 23,3) a quarter turn towards the centre of the window.
- ▶ Open the hinged window to the desired latched position. The automatic hinge (Fig. 25,1) locks in place automatically.

The hinged window remains locked in the required position.

Closing

- ▶ Open the hinged window as wide as necessary until the latch releases.
- ▶ Close the hinged window.
- ▶ If it exists, press the safety knob (Fig. 24,3) down and hold it.
- ▶ Turn the catch lever (Fig. 23,3) a quarter turn towards the window frame. The locking catch (Fig. 23,2) is located on the inside of the window catch (Fig. 23,1).

Continuous ventilation

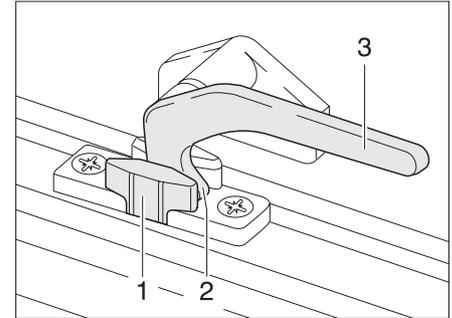


Fig. 26 Catch lever in the "continuous ventilation" position

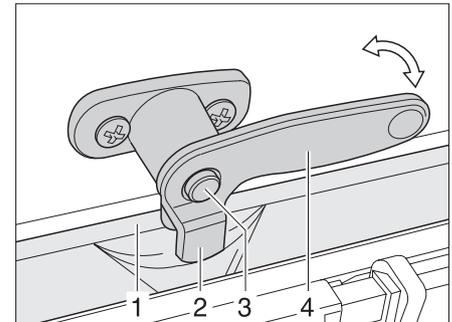


Fig. 27 Catch lever with safety knob in "Continuous ventilation" position

With the catch lever, the hinged window can be placed in two positions:

- "Continuous ventilation" (Fig. 26)
- "Firmly closed" (Fig. 23)

To place the hinged window into the "continuous ventilation" position:

- ▶ If it exists, press the safety knob (Fig. 27,3) down and hold it.
- ▶ Turn the catch lever (Fig. 26,3) a quarter turn towards the centre of the window.
- ▶ Lightly open the hinged window outwards.
- ▶ If it exists, press the safety knob (Fig. 27,3) down and hold it.
- ▶ Turn the catch lever a quarter turn towards the window frame. The locking catch (Fig. 26,2) has to be moved into the recess of window catch (Fig. 26,1).
- ▶ If necessary, ensure that the safety knob is not pushed in but rather that it secures the catch lever.

During the journey, the hinged window may not be in the "continuous ventilation" position. If it rains, the "continuous ventilation" hinged window position could lead to splashing water penetrating the living area. Therefore, close the hinged windows completely.

7.4.4 Hinged window with damping



- ▶ When opening the hinged windows, ensure that there are no torsional forces. Open and close the hinged windows evenly.

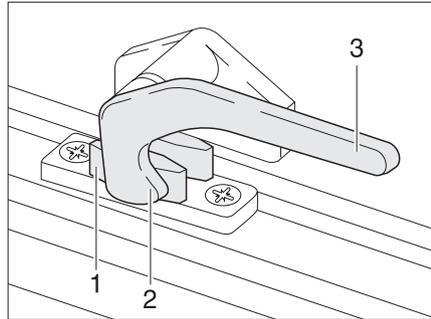


Fig. 28 Catch lever in "closed" position

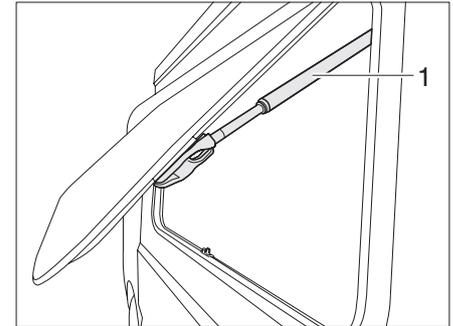


Fig. 29 Hinged window with damping, opened

Opening

Turn the catch lever (Fig. 28,3) a quarter turn towards the centre of the window. Open the hinged window to the desired position.

The damping (Fig. 29,1) holds the hinged window in the desired position.

Closing

Press the hinged window into the closed position.

Turn the catch lever (Fig. 28,3) a quarter turn towards the window frame. The locking catch (Fig. 28,2) is located on the inside of the window catch (Fig. 28,1).

Continuous ventilation

See Chapter 7.4.2.

7.4.5 Blinds and roller insect screen

The windows are fitted with a blind and a roller insect screen.

The blind and insect screen can be adjusted separately.

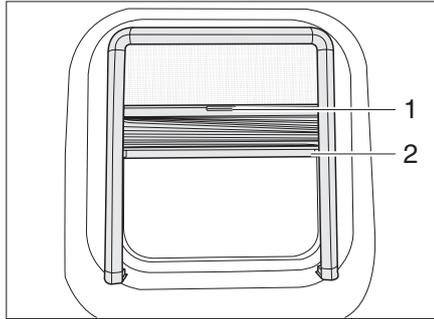


Fig. 30 Hinged window with damping, opened

Blind

Closing:

- ▶ Grip into the notch (Fig. 30,2) and pull the blind from the top downwards as far as wished.

Opening:

- ▶ Grip into the notch (Fig. 30,2) and push the blind upwards.

Roller insect screen

Closing:

- ▶ Use the handle (Fig. 30,1) to pull the roller insect screen downwards.

Opening:

- ▶ Use the handle (Fig. 30,1) to push the roller insect screen upwards.

7.4.6 Roman shades for driver's window and front passenger's window

See Chapter 4.7.1.

7.4.7 Roman shade windscreen

See Chapter 4.7.2.

7.5 Sliding door



- ▶ Ensure when closing the sliding door that no fingers or other body parts are clamped in. Ensure that there are no persons (adults and children) in the working range when the sliding door is closed or opened.
- ▶ Ensure that children do not use the sliding door without supervision.

7.5.1 Insect screen at the sliding door



- ▶ Open the insect screen completely before the conversion door is closed.

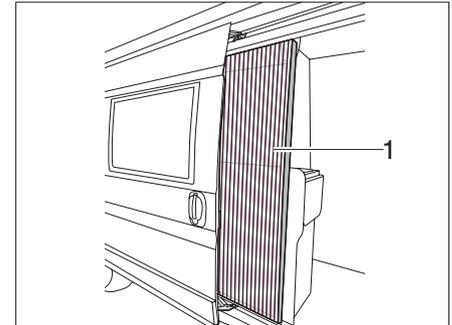


Fig. 31 Insect screen

Closing

- ▶ Pull out the insect screen completely at the strip (Fig. 31,1).

Opening

- ▶ Push the insect screen back into the starting position at the strip (Fig. 31,1).

7.6 Skylights

Depending on the model, several skylights with or without forced ventilation are fitted to the vehicle.



- ▶ The apertures for forced ventilation must always be kept open. Never cover or block forced ventilations with objects such as e.g. a winter mat.
- ▶ Keep forced ventilations clear of snow and leaves.



The skylights are fitted with a blind or Roman shade and with a roller insect screen or folding insect screen. After the latch has been released, the blind and roller insect screen automatically spring back to the initial position by tensile force.

In order not to damage the tension mechanics, hold onto the blind or roller insect screen and allow it to slowly return to the initial position.

The Roman shade and folding insect screen are made of thin woven fabric. In order not to damage the Roman shade or the insect screen, grasp the respective handle and carefully return it to the initial position.



- ▶ Do not keep blinds closed over a longer period of time as that can cause increased material wear.
- ▶ If the blind or the Roman shade is completely closed, exposure to direct sunlight can cause heat to accumulate between the blind/the Roman shade and the skylight. The skylight could be damaged. For that reason, close the blind/Roman shade only 2/3 of the way in direct sunlight. **Open the skylight slightly or move it to ventilation position.**
- ▶ Depending on the weather, close the skylights far enough to prevent moisture from entering.
- ▶ Never step on the skylights.
- ▶ Before commencing the journey, close the skylights.
- ▶ Before commencing the journey, check that the skylights are closed and locked.
- ▶ Before commencing the journey, open the blinds or Roman shades.
- ▶ **Apply talc to the rubber seals of the skylights at least twice a year.**



- ▶ When leaving the vehicle, close the skylights.

7.6.1 Skylight with snap latch

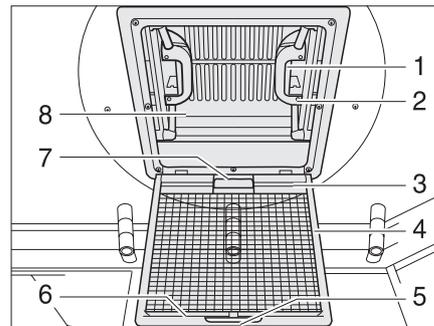


Fig. 32 Skylight with snap latch

The skylight can be pushed upwards either from one side or from both sides. Depending on the version, the skylight is fitted with a blind.

Opening

- ▶ Pull the handle (Fig. 32,5).
- ▶ Fold the insect screen (Fig. 32,4) downwards.
- ▶ Push the spring-loaded latch (Fig. 32,1) towards the inside of the skylight (Fig. 32,8).
- ▶ At the same time use the handle (Fig. 32,2) to press the skylight upwards.
- ▶ Swing the insect screen upwards (Fig. 32,4) until it latches in place.

Closing

- ▶ Pull the handle (Fig. 32,5).
- ▶ Fold the insect screen (Fig. 32,4) downwards.
- ▶ Using both handles (Fig. 32,2), pull down the skylight (Fig. 32,8) with force until the two snap latches (Fig. 32,1) lock into place.
- ▶ Swing the insect screen upwards (Fig. 32,4) until it latches in place.

Blind

To close and open the blind:

Closing:

- ▶ Pull the handle (Fig. 32,7) of the blind and hook the hook rail (Fig. 32,3) into the retainer (Fig. 32,6) on the insect screen.

Opening:

- ▶ Release the hook rail (Fig. 32,3) from the retainer (Fig. 32,6) and feed the blind back slowly.

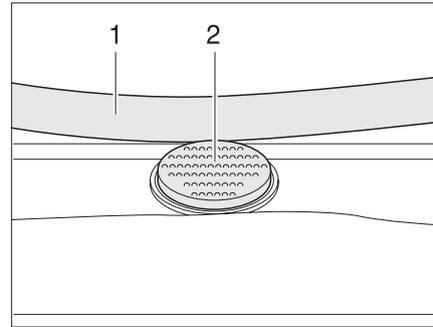
7.6.2 Heki skylight (mini and midi)

Fig. 33 Safety knob on the Heki skylight

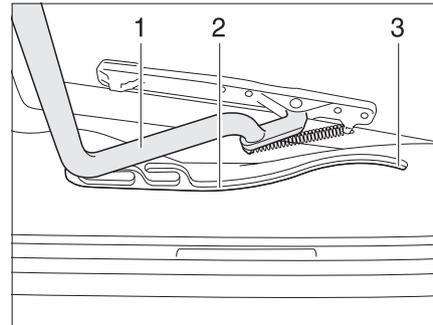


Fig. 34 Heki skylight, guide

The Heki skylight is opened on one side only.

Opening

- ▶ Press the safety knob (Fig. 33,2) and pull the bar (Fig. 33,1) down with both hands.
- ▶ Pull the bar (Fig. 34,1) in the guides (Fig. 34,2) to the rearmost position (Fig. 34,3).

Closing

- ▶ Use both hands to push the bar (Fig. 34,1) slightly upwards.
- ▶ Push the bar back in the guides.
- ▶ Push the bar upwards with both hands until it is above the safety knob (Fig. 34,2).

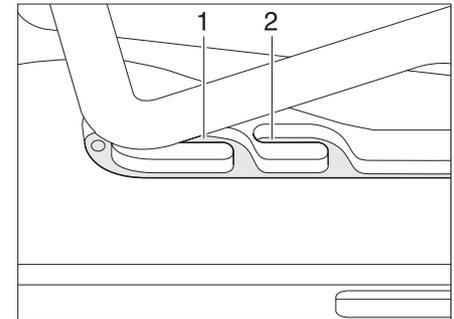


Fig. 35 Heki skylight in ventilation position

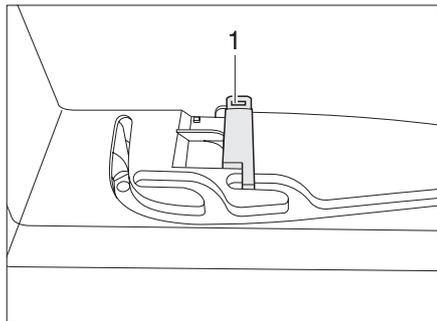


Fig. 36 Ventilation position locking mechanism

Ventilation position

The Heki skylight can be put in two ventilation positions: Bad weather position (Fig. 35,1) and central position (Fig. 35,2). Depending on the model, the skylight can be locked in the central position with the latch (Fig. 36,1).

- ▶ Press the safety knob (Fig. 33,2) and pull the bar (Fig. 33,1) down with both hands.
- ▶ Pull the bar in the guides (Fig. 34,2) to the desired position.
- ▶ Push the bar slightly upwards and into the selected guide (Fig. 35,1 or 2) and lock if necessary.

Roman shade

Closing:

- ▶ Pull out Roman shade at the handle and release in the required position. The Roman shade will stay in that position.

Opening:

- ▶ Slowly push the Roman shade at the handle to its initial position.

Insect screen

Closing:

- ▶ Pull the insect screen by the handle to the opposite handle of the Roman shade.

Opening:

- ▶ Press the rear part of the handle of the insect screen. The latch is released.
- ▶ Use handle to return the insect screen slowly to its initial position.

7.6.3 Wind-up skylight

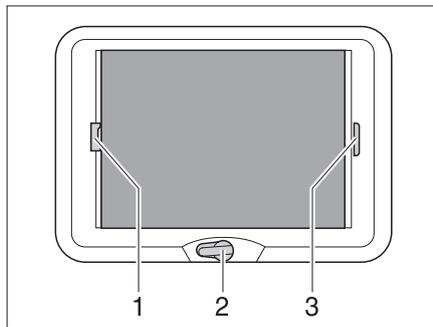


Fig. 37 Wind-up skylight

The wind-up skylight can be opened using the manual crank.

Opening:

- ▶ Rotate the hand crank (Fig. 37,2) until a resistance can be felt (max. opening angle 70°).

Closing:

- ▶ Rotate the hand crank until the wind-up skylight is closed. The wind-up skylight can be locked after rotating two or three more times.
- ▶ Check the locking mechanism. To do so, press your hand against the acrylic glass.

Roman shade

The Roman shade can be closed in any position, as desired. If the Roman shade is locked with the insect screen, the insect screen is also moved along on closing the Roman shade.

Closing:

- ▶ Pull the handle of the Roman shade (Fig. 37,3) and release in the desired position. The Roman shade will stay in that position.

Opening:

- ▶ Slowly push the Roman shade at the handle to its initial position.

Insect screen

If the insect screen is locked with the Roman shade, the Roman shade is also moved along on closing the insect screen.

Closing:

- ▶ Pull insect screen at the handle (Fig. 37,1) to the opposite handle of the Roman shade (Fig. 37,3) and allow to engage.

Opening:

- ▶ Press the handle of the insect screen (Fig. 37,1) at the back upwards and detach the insect screen from the Roman shade (Fig. 37,3).
- ▶ Slowly push insect screen at the handle to its initial position.

7.7 Seats, rotating

- ▶ Before starting the journey, rotate the seat in the direction of travel and lock in position.

The rotating seats must remain locked in the direction of travel during the journey.



- ▶ Move the seats all the way down before turning. Otherwise, the seats cannot be turned.

The lever for rotating the seat is located at the front or at the side of the seat, depending on model.

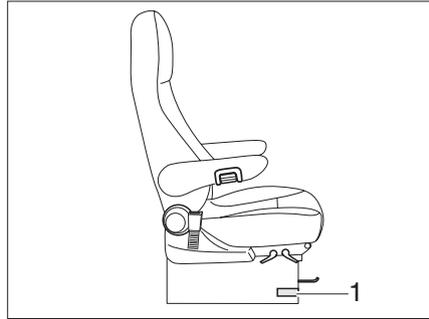


Fig. 38 Driver's seat and front passenger's seat

Turning:

- ▶ Push both armrests at the driver's/front passenger's seat upward.
- ▶ Push the driver's seat/front passenger's seat backwards or into the central position.
- ▶ Push or pull the lever to turn the seat (Fig. 38,1). The seat is released from the locking device.

The seats can be rotated in any direction. The seats can only be locked in position in the direction of travel

7.8 Adjust bench seat (CVD540)

- ▶ Only adjust the seat when the vehicle is stationary. Do not adjust the seat while driving.

The bench seat in the rear of the vehicle can be moved longitudinal direction.

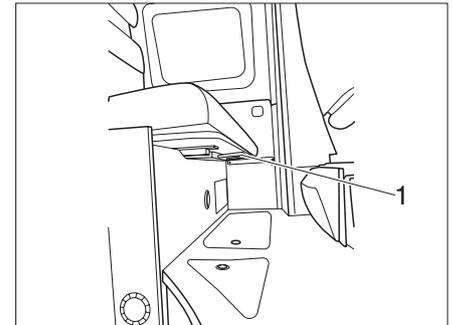


Fig. 39 Adjust bench seat

- ▶ Grip lever (Fig. 39,1) under seat and pull it forward.
- ▶ Move the seat bench.
- ▶ Release lever (Fig. 39,1) again.

7.9 Tables

7.9.1 Suspension table with fold-out leg

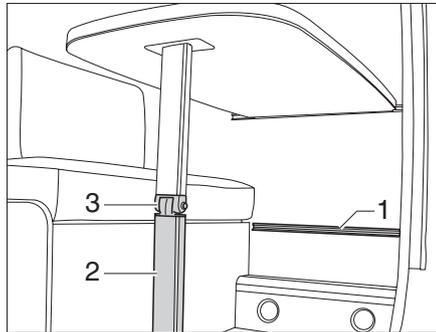


Fig. 40 Suspension table with fold-out leg

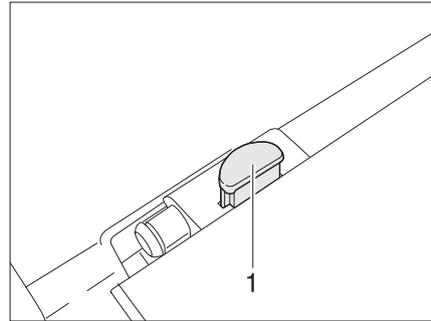


Fig. 41 Table-top lock

The suspension table may also be used as a bed foundation.

Conversion to bed foundation

Slightly lift the front of the table-top.

- ▶ Unlock the table leg (Fig. 40,2) at the hinge and fold it in.
- ▶ Press the release knob (Fig. 41,1) at the locking mechanism of the table-top.
- ▶ Detach the suspension table from the upper attachment rail.
- ▶ Attach suspension table to the lower attachment rail (Fig. 40,1) and rest it onto the table leg hinge (Fig. 40,3).
- ▶ Lock the table-top.

7.9.2 Suspension table with dismantlable support leg

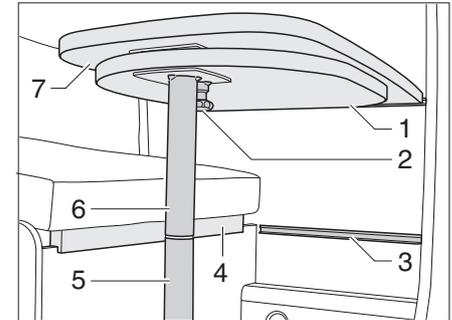


Fig. 42 Suspension table with dismantlable support leg

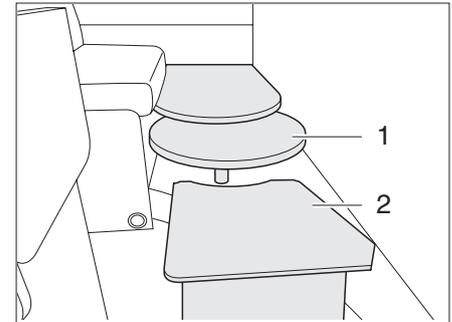


Fig. 43 Bed extension (extra bed)

The table size can be enlarged by swivelling out a table-top extension.

Extending

- ▶ Pull the knob (Fig. 42,2) of the locking mechanism downward and swivel out the table-top extension (Fig. 42,1).

Reducing size

- ▶ Swivel the table-top extension (Fig. 42,1) under the table-top (Fig. 42,7) until the locking mechanism latches audibly.
- ▶ The dismantlable support leg enables the suspension table to be used as a bed foundation.

Conversion to bed foundation (extra bed)

- ▶ If necessary, place the multiplex strip (Fig. 42,4) on the bench seat.
- ▶ Swivel out the table-top extension (Fig. 42,1).
- ▶ Lift the front of the table-top (Fig. 42,7) by approx. 45°.
- ▶ Pull out the lower part of the support leg (Fig. 42,5) down and lay aside.
- ▶ Remove the table-top from its upper retainer.
- ▶ Hook the table-top with the retainers at an angle of 45° into the lower attachment rail (Fig. 42,3) and set it down onto the floor with the upper part of the support leg (Fig. 42,6).
- ▶ Lock the table-top.
- ▶ Place the bed extension (Fig. 43,2) for the extra bed onto the table-top extension (Fig. 43,1).

Conversion to bed foundation (spare bed)

- ▶ Turn the driver's seat and push it all the way forward.
- ▶ Swivel out the table-top extension (Fig. 42,1).
- ▶ Lift the front of the table-top (Fig. 42,7) by approx. 45°.
- ▶ Pull out the lower part of the support leg (Fig. 42,5) down and lay aside.
- ▶ Remove the table-top from its upper retainer.
- ▶ Hook the table-top with the retainers at an angle of 45° into the lower attachment rail (Fig. 42,3) and set it down onto the floor with the upper part of the support leg (Fig. 42,6).
- ▶ Lock the table-top.

7.10 Mechanical locking system for kitchen unit



- ▶ The doors and drawers of the kitchen unit are manually locked before the vehicle is started.

The kitchen unit is equipped with a mechanical locking system.

For more information, see chapter 4.8.

7.11 Lamps



Bulbs and light fittings can be extremely hot.

- ▶ Let the bulbs and light fittings cool down before touching them. When the light is switched on or is still hot, a safety distance of at least 30 cm to combustible material such as net curtains or curtains has to be maintained. Fire hazard!

Depending on the model the lights are equipped with halogen, fluorescents or LED lamps.

7.11.1 LED spotlight



- ▶ Do not move the LED spotlight into the rail, but instead unscrew it as described below, remove it and reinsert it at the desired position.

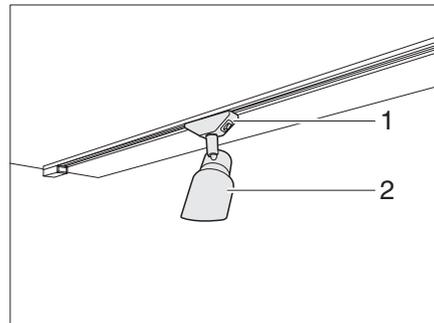


Fig. 44 LED spot light (example)

Moving the LED spotlight:

- ▶ Grasp the holder (Fig. 44,1) and turn it by 45°.
- ▶ Remove the LED spotlight (Fig. 44,2) from the rail system.
- ▶ Insert the LED spotlight (Fig. 44,2) at the desired position into the rail system and turn by 45°.

7.11.2 LED light strips

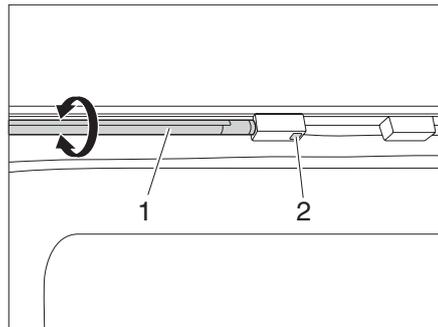


Fig. 45 LED light strip

Switching the LED light strips on/off:

- ▶ Switch the LED light strip (Fig. 45,1) on/off at the switch (Fig. 45,2).

Turning light strips:

- ▶ Grasp the LED light strip (Fig. 45,1) at the light fixture and turn it.

7.12 Light switches and sockets



The light switches have different layouts according to the model. The light switches are located either directly on the corresponding lamp (Fig. 46,2) or next to the lamp, e.g. in the vicinity of the seating group.

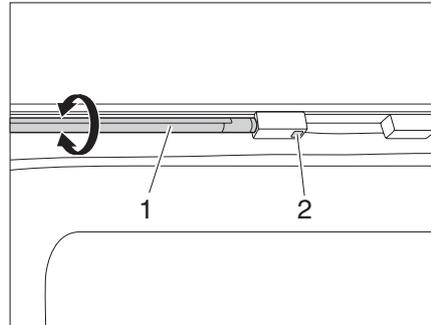


Fig. 46 Light switch on the lamp

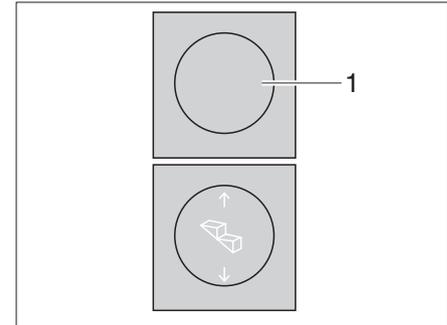


Fig. 47 Light switch in the entrance area

Depending on the model, there is a light switch for lighting the entrance at the bottom of the entrance area (Fig. 47,1).

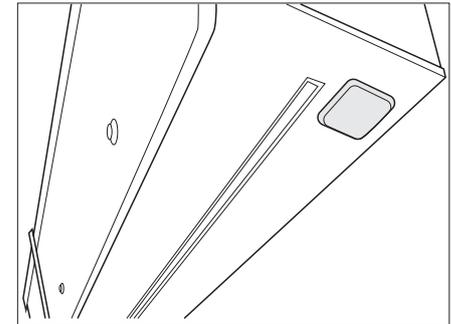


Fig. 48 Socket under the wall cabinet (CVD540)

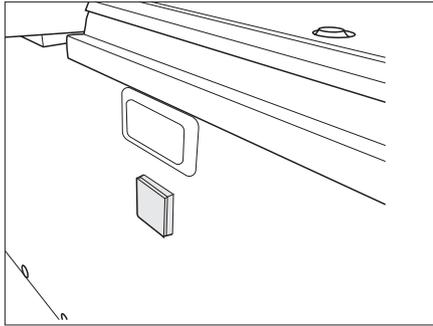


Fig. 49 12 V socket and light in the rear on the left side (CVD540)

7.13 Beds

7.13.1 Fixed bed (variant 1)

In order to increase the storage compartment space the bed can be dismantled and stored completely.

Dismantle bed

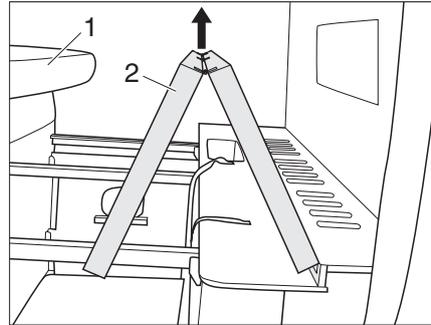


Fig. 50 Fold slatted frame

- ▶ Place mattress (Fig. 50,1) on the left side of the vehicle.
- ▶ Lift and fold the slatted frame (Fig. 50,2) .

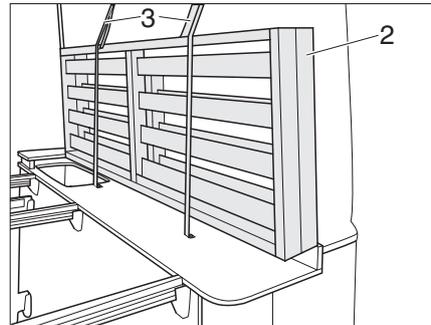


Fig. 51 Store slatted frame

- ▶ Place slatted frame (Fig. 51,2) on the right side of the vehicle and secure it with straps (Fig. 51,3).

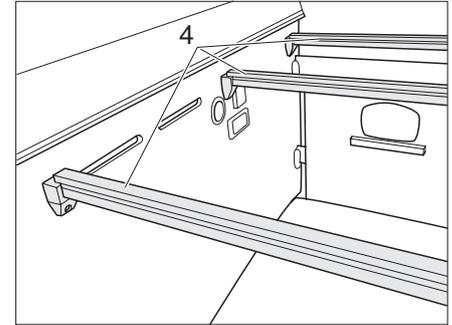


Fig. 52 Slatted frame support bars

- ▶ Remove 3 support bars (Fig. 52,4) of the slatted frame from the holders.

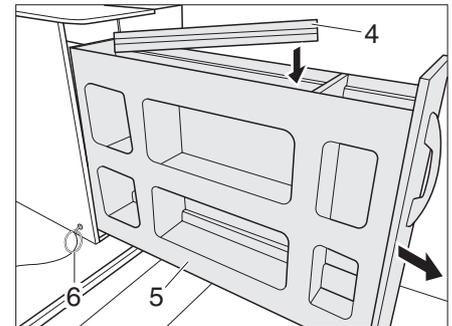


Fig. 53 Stow support bars

- ▶ Pull on the eyelet (Fig. 53,6). The locking device of the pull-out cabinet is released.
- ▶ Open the pull-out cabinet (Fig. 53,5) on the right side of the vehicle and stow the support bars (Fig. 53,4).

7.13.2 Fixed bed (variant 2)

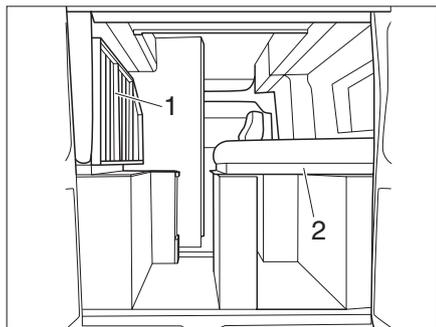


Fig. 54 Fixed bed (variant 2)

- ▶ Fold bed rails (Fig. 54,1 and 2) to the right or left and secure with straps.



- ▶ The beds can be assembled separately or both side by side.

7.13.3 Remove rear drawer, centre

To make the storage space in the rear even more flexible, the rear drawer can be removed if required.

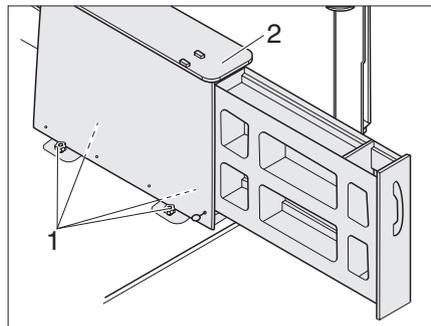


Fig. 55 Remove rear drawer

- ▶ Loosen 4 star knob screws (Fig. 55,1) and remove the body (Fig. 55,2) of the rear drawer.

7.13.4 Sleeping area in the rear (CVD540)

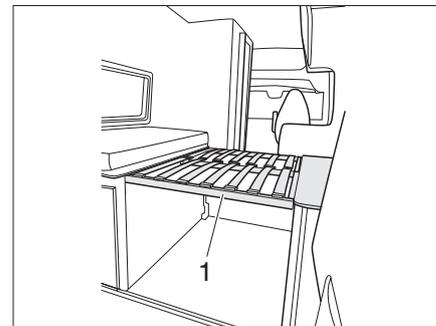


Fig. 56 Sleeping area in the rear

- ▶ Place the slatted frame (Fig. 56,1) on the supports.

7.13.5 Bed in the pop-up roof



- ▶ Fold in the pop-up roof before commencing the journey.
- ▶ Only use the bed in the pop-up roof if the safety guards are in position.
- ▶ Never leave small children without supervision.
- ▶ Ensure in particular with regard to small children less than 6 years of age, that they cannot fall out of the bed.
- ▶ Observe the other safety instructions in the manufacturer's instruction manual.

Opening the pop-up roof

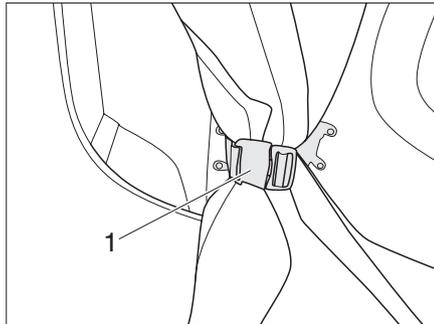


Fig. 57 Pop-up roof belt lock

- ▶ Open the belt locks (Fig. 57,1) on both sides of the pop-up roof.

The pop-up roof (Fig. 58,1) is pushed upwards by the gas springs.

- ▶ Hold the pop-up roof by the auxiliary belts (Fig. 58,2) and move it upwards in a controlled manner against the pressure of the gas springs.

Closing the pop-up roof



Before closing the pop-up roof, pay attention to the following points:

- ▶ Open at least one door on the vehicle. Material damage may otherwise occur through excess pressure.
- ▶ Close the zips and the Velcro straps on the ventilation openings.
- ▶ When closing the pop-up roof ensure that the cloth bellows are not clamped in.

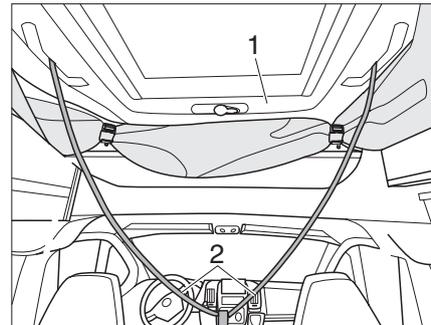


Fig. 58 Closing the pop-up roof

- ▶ Pull the pop-up roof (Fig. 58,1) down with the auxiliary straps (Fig. 58,2) attached to both handles until the pop-up roof stops by itself. The side feeders must bend inwards when closing.

If the feeders are not bent inwards:

- ▶ Open the pop-up roof again and close it more slowly.
- ▶ When the pop-up roof is 2/3 closed, pull the tent fabric inwards using the tabs provided.
- ▶ Grasp the roof on both sides by the handle and pull it down in parallel until the side locks engage.
- ▶ Roll up the tent fabric and stow it to the side.
- ▶ Close the belt locks (Fig. 57,1) on both sides of the pop-up roof.

8 Gas system

This chapter contains instructions regarding the gas system of the vehicle.

The instructions address the following topics:

- safety
- gas consumption
- changing the gas bottles
- gas isolator taps
- hose break guard
- automatic switching facility

The operation of the gas operation appliances of the vehicle is described in Chapter 10.

8.1 General



- ▶ Before starting the journey, when leaving the vehicle or when gas equipment is not in use, close all gas isolator taps and the main isolator tap on the gas bottle.
- ▶ No appliance (e.g. heating or refrigerator) that is operated with an open flame may be operational while fuel is being filled up, on ferries or in the garage. Danger of explosion!
- ▶ If an appliance is operated with an open flame, do not start the appliance up in closed areas (e.g. garages). Danger of poisoning and suffocation!
- ▶ Have the gas system serviced, repaired or altered by an authorised workshop only.



- ▶ Have the gas system checked by an authorised specialist workshop before starting up and according to the national regulations. This also applies for not registered vehicles. For modifications to the gas system have the gas system immediately checked by an authorised specialist workshop.
- The gas pressure regulator and the exhaust gas pipes also have to be checked. The gas pressure regulator has to be replaced at least every 10 years. The vehicle owner is responsible for seeing that this is carried out.
- ▶ In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close the regulator tap on the gas bottle immediately.
- ▶ Open doors and windows and ventilate well.
- ▶ In case of a defect in the gas system: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.).
- ▶ Before using the cooker make sure that there is sufficient ventilation. Open windows or the skylight.



- ▶ Do not use the gas cooker or gas oven for heating purposes.
- If there are several gas devices, each gas device must have its own gas isolator tap. If individual gas devices are not in use, close the respective gas isolator tap.
- Ignition safety valves must close within 1 minute after the gas flame has extinguished. A clicking sound is audible. Check function from time to time.
- The installed gas appliances are designed for use solely with propane or butane gas or a mixture of both. The gas pressure regulator as well as all installed gas devices are set for a gas pressure of 30 mbar.
- Propane gas is capable of gasification up to -42 °C, whereas butane gas gasifies at 0 °C.
- Below these temperatures no gas pressure is available. Butane gas is unsuitable for use in winter.
- ▶ Regularly inspect the gas tube fitted to the gas bottle connection for tightness. The gas tube must not have any tears and must not be porous.



- Have the gas tube replaced in an authorised workshop no later than ten years after the manufacturing date. The operator of the gas system must see to it that the parts are replaced.
- Due to its function and construction, the gas bottle compartment is a space which is open to the exterior. Never cover or block the standard forced ventilation. Otherwise leaking gas cannot be dispersed to the outside.
- ▶ Do not use the gas bottle compartment as storage space. Fire hazard!
- The regulator tap on the gas bottle must be accessible.
- Only connect gas-operated devices (e.g. gas grill) which have been designed for a gas pressure of 30 mbar.
- The exhaust gas pipe must be fitted tightly to the heating system and to the vent and must be sealed. The exhaust gas pipe must not show any evidence of damage.
- Exhaust fumes must be able to escape into the atmosphere unhindered and fresh air must be able to enter unhindered. Therefore keep the waste gas vents and intake openings clean and free (e.g. of snow and ice). No snow walls or aprons may be allowed to lie against the vehicle.

8.2 Gas bottles



- Gas bottles are only to be transported within the designated gas bottle compartment.
- Place gas bottles vertically in the gas bottle compartment.
- Tie down gas bottles so that they are unable to turn or tilt.
- If the gas bottles are not connected to the gas tube, always place the protective cap on top.
- ▶ Close the regulator tap on the gas bottle before the gas pressure regulator or gas tube are removed from the gas bottle.
- ▶ Use your hands only to connect the gas pressure regulator or the gas tube to the gas bottles. Do not use any tools.
- ▶ Only use special gas pressure regulators with a safety valve designed for vehicle use. Other gas pressure regulators are not permitted and cannot meet the demanding requirements.
- ▶ Use the defroster (Eis-Ex) for the gas pressure regulator at temperatures below 5 °C.
- ▶ Use only 11 kg or 5 kg gas bottles. Camping gas bottles with a built-in reflux valve (blue bottle with max. 2.5 or 3 kg content) are permitted in exceptional cases with a safety valve.



- ▶ Never block the ventilation openings in the floor under the gas bottles.



- ▶ On some models, the opening of the gas box is in the direction of the storage compartment. Do not adjust the door opening with luggage on these models.



- Connections on the gas pressure regulator have left-handed threads.
- For gas-operated units the gas pressure must be reduced to 30 mbar.
- ▶ Connect gas pressure regulator complete with safety valve directly to bottle valve.
The gas pressure regulator reduces the gas pressure in the gas bottle down to the operating pressure of the gas devices.
- For connecting the gas bottles in Europe the accessories shops have corresponding Euro bottle sets.
- Information is available at the dealers and service centres.

8.3 Gas consumption



The data about gas consumption of the individual gas devices is only standard average values.

Appliance	Gas consumption in grams/hour
Heater	Approx. 170 - 490 g/h
Cooker, per cooker	Approx. 140 - 165 g/h

Example

A full 11 kg gas bottle is sufficient to:

- Cook for 3 days using one flame, or
- Heat for 22 hours on full output.

8.4 Changing gas bottles



- ▶ When changing gas bottle, do not smoke or light any open flames.
- ▶ When you have changed the gas bottle, check whether gas escapes at the connection points and unions. Use a leakage search spray to spray the relevant connection point or union. These agents are available at the accessories shop.

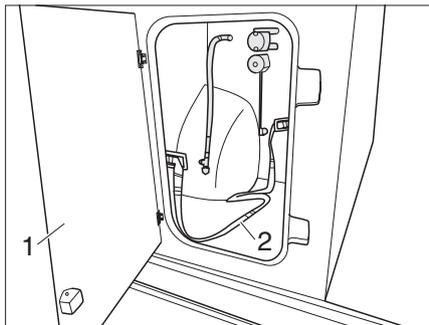


Fig. 59 Access flap for the gas bottle

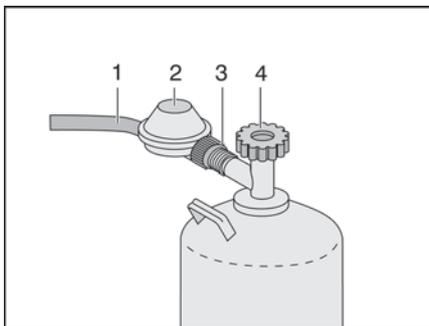


Fig. 60 Gas bottle connection

- ▶ Hold the gas pressure regulator (Fig. 60,2) and open the knurled nut (Fig. 60,3) (left-handed thread).
- ▶ Remove the gas pressure regulator and the gas tube (Fig. 60,1) from the gas bottle.
- ▶ Release the fixing belts and remove the gas bottle.
- ▶ Place a filled gas bottle in the gas bottle compartment.
- ▶ Fix gas bottle in place with the fixing belts (Fig. 59,2).
- ▶ Position the gas pressure regulator (Fig. 60,2) and the gas tube (Fig. 60,1) on the gas bottle and tighten the knurled nut (Fig. 60,3) by hand (left-handed thread).
- ▶ Close (Fig. 59,1) access flap.

- ▶ Open the access flap (Fig. 59,1) to the gas bottle compartment.
- ▶ Close the regulator tap (Fig. 60,4) on the gas bottle. Pay attention to the direction of the arrow.

8.5 Gas isolator taps

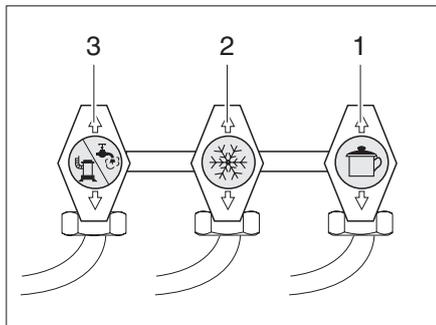


Fig. 61 Symbols for the gas isolator taps

- 1 Cooker
- 2 Refrigerator (no function at compressor refrigerator)
- 3 Heater/boiler

A gas isolator tap (Fig. 61) for every gas device is built into the vehicle.

The gas isolator taps are located in the vehicle at different positions, and can also be fitted separately.

8.6 DuoControl CS switching facility



- ▶ Do not use the switching facility in closed spaces.
- ▶ During the journey the gas system must only be operated with a crash sensor and suitable high-pressure hoses with hose break guard. Danger of explosion!

The DuoControl is an automatic switching facility with a remote display for a two-bottle gas system. The DuoControl switching facility automatically switches gas supply from the primary bottle to the reserve bottle as soon as the primary bottle is either empty or no longer ready for operation. The gas appliances may still continue operation. The DuoControl switching facility is suitable for all commercial gas bottles from 3 kg to 33 kg.

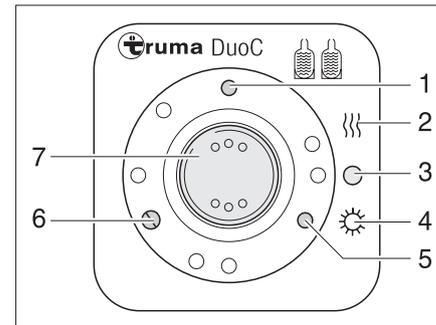


Fig. 63 Operating unit

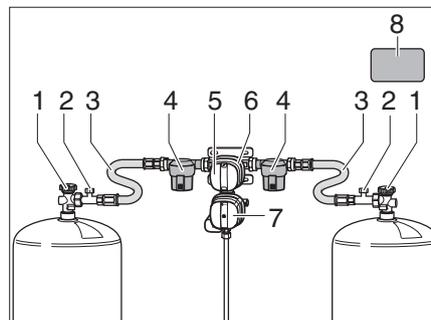


Fig. 62 DuoControl switching facility

Construction of the unit

The DuoControl switching facility consists of a switching valve (Fig. 62,6) and the operating unit (Fig. 63). The switching valve is mounted between the high-pressure tubes (Fig. 62,3). The knob (Fig. 62,5) on the switching valve is used to select which of the gas bottles is to be used as a primary bottle and which is to be used as a reserve bottle.

The switching valve (Fig. 62,6) is equipped with the regulator defroster "EisEx".

This prevents damage to the gas system during the winter months.

A gas filter (Fig. 62,4) that protects the gas system against oil and other contamination is located on each side before the switching valve. Only the electrical functions can be switched at the operating unit (Fig. 63). The regulator taps (Fig. 62,1) on the gas bottles must be opened manually.

The switching valve provides a constant gas pressure, regardless of which gas bottle is being drawn upon. The two indicator lamps on the operating unit show the filling level of the primary bottle. The primary bottle is full when the green indicator lamp (Fig. 63,6) lights up. The primary bottle is empty when the red indicator lamp (Fig. 63,5) lights up. The gas is then supplied via the reserve bottle.

Operating modes

The DuoControl switching facility has two operating modes:

- Winter operation "On and heating"
- Summer operation "On"



- ▶ When routing the high-pressure tubes ensure that the tubes rise continuously (Fig. 64).

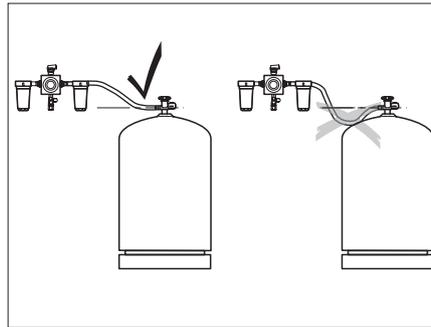


Fig. 64 Routing the high-pressure hoses

Putting into operation:

- ▶ Open the regulator taps (Fig. 62,1) on the gas bottles.
- ▶ Use the knob (Fig. 62,5) on the switching valve (Fig. 62,6) to select the gas bottle which is to be the primary source of gas (primary bottle).

Always turn the knob as far as it will go.

Switching off:

- ▶ Set the rocker switch (Fig. 63,7) to "O" (Fig. 63,3). The yellow indicator lamp (Fig. 63,1) goes out.
- ▶ Close the regulator taps (Fig. 62,1) on the gas bottles.

Remote display

The indicator lamps on the operating unit (Fig. 63,5 and 6) indicate in the vehicle interior whether the primary bottle is ready for operation.

Changing gas bottles

If the green indicator lamp (Fig. 63,6) goes out during operation and the red indicator lamp (Fig. 63,5) lights up, the gas bottle selected as the primary bottle is empty and has to be changed. The reserve bottle continues supplying the gas appliances with gas.



- ▶ When changing gas bottles, do not smoke or create any open fire.



Use country-specific connection for gas bottles.

Changing gas bottles:



- ▶ Use the enclosed screwing aid (Fig. 65,1) to screw on and unscrew the high-pressure hoses. It ensures the necessary tightening torque and prevents damage to the screw connection caused by the wrong tool.

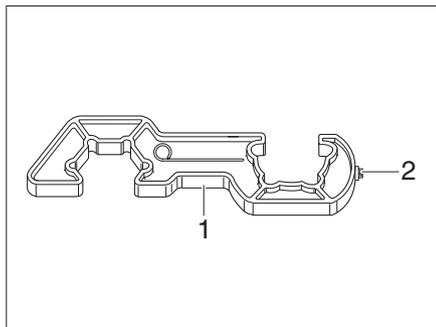


Fig. 65 Screw aid

- ▶ Close the regulator tap (Fig. 62,1) on the empty gas bottle.
- ▶ Unscrew the high-pressure hose (Fig. 62,3) from the gas cylinder using the screwing aid (Fig. 65).
- ▶ Connect the full gas bottle to the high-pressure hose (Fig. 62,3).
- ▶ Open the regulator tap (Fig. 62,1) on the gas bottle.

- ▶ Set the knob (Fig. 62,5) on the switching valve (Fig. 62,6) with half a turn, so that the newly replaced gas bottle will serve as a reserve bottle.
- ▶ Press the button (Fig. 62,2) for the hose break guard at the high-pressure hose to activate it.
- ▶ If necessary, press the reset button (Fig. 66,1) at the crash sensor.

Crash sensor

The crash sensor protects against unwanted gas discharge. In the event of an accident or a too high angle of the vehicle the gas supply will automatically be interrupted.



Only use the living area heater during the journey if the vehicle is equipped with a crash sensor and suitable high-pressure hoses with hose break guard.

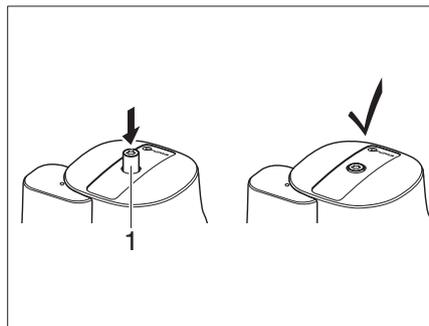


Fig. 66 Crash sensor

If the crash sensor was triggered, it must be released manually.

Releasing:

- ▶ Using the Torx T20 (Fig. 65,2) on the screw aid, press in the release button (Fig. 66,1), turn slightly clockwise and hold for 5 seconds.

The crash sensor is ready for operation when the unlock button (Fig. 66,1) remains in the recessed position.

Gas filter

The gas filter (Fig. 67) filter exhaust residues such as olefins, paraffins and other hydrocarbon compounds out of the gas system. The filter cartridges have to be checked at regular intervals and be replaced at the latest every 2 years.



Pay attention to the operating and installation instructions of the gas filter.

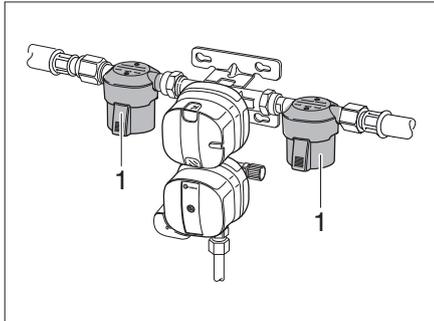


Fig. 67 Gas filter

Hose break guard

The hose break guard protects against gas escaping in case of a defect or the high-pressure hose tearing off.



- ▶ Use a suitable high-pressure hose with hose break guard and country-specific connection for gas bottles.

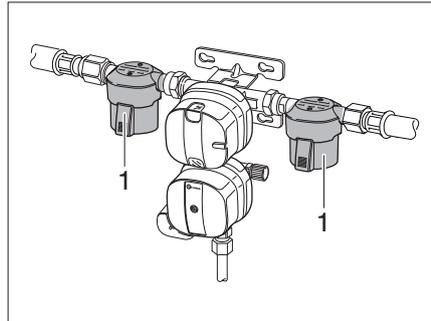


Fig. 68 High-pressure hoses with hose break guard (country-specific variants)

Activating:

- ▶ After changing the gas bottle, press the green button (Fig. 62,2) on the high-pressure hose (Fig. 62,3) firmly. The hose break guard is activated.

9 Electrical system

This chapter contains instructions regarding the electrical system of the vehicle.

The instructions address the following topics:

- safety
- explanations of terms relating to the battery
- 12 V power supply
- living area battery
- loading the batteries
- Transformer/rectifier
- panel
- 230 V power supply
- connection to the 230 V power supply
- fuse rating

The operation of the electrical appliances of the housing body is described in Chapter 10.

9.1 General safety instructions



- ▶ Only allow qualified personnel to work on the electrical system.
- ▶ All electronic devices (e.g. mobile telephones, radios, televisions or DVD players) which have been retrofitted to the vehicle and are operated during the journey must have specific features: These are the CE certification, the EMC test (electromagnetic compatibility) and the "E1" inspection. Only in this way can the functional reliability of the vehicle be ensured. Otherwise the airbag may be triggered or interference to the on-board electronics may result.

The vehicle is a safe place during a storm (Faraday cage).

- ▶ However, to protect the electrical devices, disconnect the 230 V connection and retract the antennae as a precaution.

9.2 Terms

Off-load voltage

The off-load voltage is the voltage of the battery in idle condition, i. e. no current is consumed and the battery is not being charged.

Closed circuit current

Some electrical appliances, such as the clock and the indicator lamps, require continuous electric current, for this reason they are referred to as inactive appliances. This closed circuit current flows even if the 12 V power supply has been switched off.

Total discharge

Total discharge of the battery is imminent, if a battery is completely discharged by an active appliance and by closed circuit current.



Total discharge damages the battery, recharge the battery immediately.

Capacity

Capacity refers to the amount of electricity which can be stored in a battery. The capacity of a battery is given in ampere hours (Ah). If a battery possesses a capacity of 80 Ah, then the battery can dispense a current of 1 A for 80 hours or a current of 2 A for 40 hours.

External influences such as temperature and current drain may alter the storage capacity of the battery.

The specified rated capacity is not the same as the battery capacity actually available. The capacity that can actually be used is lower than the rated capacity.

9.3 12 V power supply



- ▶ To disconnect all electrical 12 V appliances from the power supply, disconnect the living area battery from the 12 V power supply. Depending on the model, either press the switch on the transformer/rectifier or activate the battery separation on the panel to do so.
- The radio in the driver's cabin and the independent vehicle heater are by default connected to the living area battery via a separate fuse. These appliances will stay operational if the living area battery is disconnected from the power supply via the battery cut-off switch of the transformer/rectifier or the battery separation on the panel.

When the vehicle is not connected to the 230 V power supply or the 230 V power supply is switched off, the living area battery supplies the living area with 12 VDC. The living area battery has a limited power supply only. For this reason, electrical appliances such as the radio and the lights should not be operated for a long time without using the 230 V power supply.

During heater operation, the circulation fan is switched on and off by a thermostat control. As a result the living area battery is loaded if no 230 V power supply is connected.

When the vehicle engine is running, the vehicle alternator recharges the living area battery and the starter battery.

The 12 V power supply can be cut off with the 12 V main switch on the panel. Depending on the model, the heater, basic light and entrance step or only the electrical entrance step remain on standby.

The refrigerator is operated via the living area battery with 12 V and must be switched off separately.

9.3.1 Living area battery



- ▶ When changing the living area battery, use only batteries which meet the minimum capacity of the charger. Observe the separate instruction manual for the charger. Lower-capacity batteries will generate a great deal of heat when they are charged. Danger of explosion!
- ▶ Devices with a maximum of 10 A can be connected to the sockets of the 12 V power supply. Fire hazard!



- ▶ Use the charger module provided on the transformer/rectifier to charge the living area battery. When charging externally, use a regulated charger that is suitable for the battery type and the capacity of the living area battery.
- ▶ Prior to commencing a journey ensure the living area battery is fully charged. For this reason charge the battery for at least 24 hours before commencing the journey.
- ▶ During the trip, use every opportunity to charge the living area battery.
- ▶ Charge the living area battery for at least 24 hours after the journey.
- ▶ Before a temporary lay-up charge the battery for at least 24 hours, for longer standstills 48 hours.
- ▶ Interrupt the power circuit at times if the vehicle is not used for longer than 24 hours.
- ▶ For long periods of inactivity (2 weeks or more), disconnect the living area battery from the 12 V power supply and recharge it regularly (charge for 24 hours at least every 12 weeks).
- ▶ In winter store the charged battery in a place which is cool and protected from frost and recharge every 12 weeks.
- ▶ When the living area battery is changed, only use batteries of the same type.



- ▶ Before disconnecting or connecting the terminals of the battery, switch off the vehicle engine, the 230 V and 12 V power supplies as well as all the appliances. Danger of short circuit!
- ▶ Do not use the ignition when the starter battery or the living area battery is disconnected. Danger of short circuit!
- ▶ Take note of the battery manufacturer's users and maintenance instructions.



The battery is maintenance-free.

Maintenance-free means:

- It is not necessary to check the acid level.
- It is not necessary to lubricate the battery poles.
- It is not necessary to refill the distilled water.

Even a maintenance-free battery has to be charged occasionally using a special charger.

Location

Depending on the model, the living area battery is installed under the driver's seat or under the passenger seat.

Discharging

The living area battery is discharged by the closed circuit current which some electrical appliances continuously require.



- ▶ Total discharge damages the battery.
- ▶ Recharge the battery in good time.

The self-discharge rate of the battery is dependant on temperature. At 20 to 25 °C the self-discharge rate amounts to approx. 3% of the capacity per month. The self-discharge rate will increase with rising temperatures: At 35 °C the self-discharge rate amounts to approx. 20% of the capacity per month.

At lower outdoor temperatures the battery loses its capacity.

An older battery no longer has the complete capacity available.

The higher the number of active electrical appliances, the faster the energy of the living area battery is consumed.



- Alterations to the battery system may only be carried out by an authorised dealer.
- When a second living area battery is installed, both the batteries used must be of the same manufacturer, type and age.
- The installation of a second battery or battery models with a higher capacity extends the charging time correspondingly (e.g. double the charging time at the installation of a second battery).

9.4 Charging the living area battery and starter battery



- ▶ The acid in the battery is poisonous and corrosive. Any contact with the skin or the eyes is to be avoided.
- ▶ In the case of charging with an external charger there is danger of explosion. Only charge the battery in a well ventilated area and away from naked flames or possible sources of sparks.
- ▶ Always remove the living area battery or the starter battery from the vehicle when charging them using an external charger.



- ▶ Do not connect the battery cables to the wrong poles.
- ▶ Do not use the ignition when the starter battery or the living area battery is disconnected. Danger of short circuit!
- ▶ Before disconnecting or connecting the terminals of the battery, switch off the vehicle engine, the 230 V and 12 V power supplies as well as all the appliances. Danger of short circuit!



- ▶ Before charging the battery, check whether the external charger is approved for the battery type.
- ▶ Observe the instruction manuals for the base vehicle and the charger.
- ▶ Irreparable damage to the living area battery will result if it is overcharged.

The starter battery can only be fully charged with an external charger.

If a 230 V power supply is used, the transformer/rectifier charges the starter battery with a float charge only. Even in mobile operation, the vehicle engine alternator is not capable of completely charging the starter battery.

9.4.1 Charging using a 230 V power supply

If the vehicle is connected to the 230 V power supply, the living area battery and the starter battery are automatically charged by the charger module on the transformer/rectifier. The starter battery is only charged with a float charge. The charging current is adapted to suit the charging condition of the battery. This ensures that it is not possible to overload the battery. To make use of the maximum output from the charger module on the transformer/rectifier, switch off all electrical appliances during charging.

9.4.2 Charging using the vehicle engine

When the vehicle engine is running, the vehicle alternator recharges the living area battery and the starter battery. The charging of the living area battery is supported by a charge booster. When the vehicle engine is switched off, the batteries are automatically disconnected from one another by a relay in the transformer/rectifier.

This prevents the starter battery from being run down by electrical appliances in the living area. The starting capability of the vehicle is thus preserved.

The charging condition of the living area battery can be read off on the panel.

9.4.3 Charging with an external charger

When charging the living area battery and the starter battery with an external charger, proceed as follows:

- ▶ Switch off the vehicle engine.
- ▶ Switch off the 12 V main switch on the panel. The indicator lamp goes out.
- ▶ Disconnect the living area battery from the 12 V power supply.
- ▶ Disconnect the mains plug from the transformer/rectifier.
- ▶ Switch off all gas appliances, all gas isolator taps and close the regulator tap on the gas bottle.

- ▶ There is a danger of short circuit when disconnecting the battery poles. For this reason, first disconnect the negative terminal on the living area battery or the starter battery and then the positive.
- ▶ Remove the living area battery or starter battery from the vehicle.
- ▶ Check that the external charger is turned off.
- ▶ Connect the external charger to the living area battery or the starter battery. Pay attention to the polarity: First connect the positive terminal "+" to the positive pole of the battery, then connect the negative terminal "-" to the negative pole of the battery.
- ▶ Switch on the external charger.
- ▶ See the instructions for use of the connected charger for information concerning charge period required for the battery.
- ▶ See the specifications on the battery for information concerning its strength.
- ▶ Disconnect the external charger in reverse order.

9.5 Transformer/rectifier EBL 31



Do not cover the ventilation slots.
Danger of overheating!



- ▶ Depending on the model, not all fuse slots are fitted with fuses.
- ▶ Further information can be obtained in the manufacturer's instruction manual.

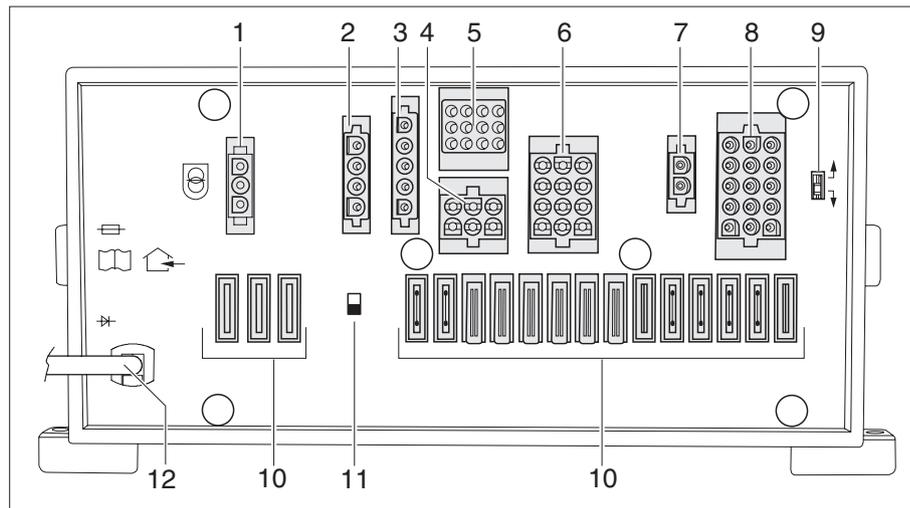


Fig. 69 Transformer/rectifier (EBL 31)

- | | | | |
|---|---|----|--|
| 1 | Solar regulator connection unit | 7 | Auxiliary charger connection unit |
| 2 | Refrigerator connection unit | 8 | Connection block for sockets 1, pump, circuits 1, 2 and 3, multimedia, reserve 1 |
| 3 | Refrigerator supply connection unit D+, battery sensor/control lines | 9 | Lead gel/AGM battery changeover switch |
| 4 | Frost protection valve connection unit, heating and basic light/step | 10 | Flat fuses |
| 5 | Operating and IT control panel connection | 11 | Battery cut-off switch |
| 6 | Basic light 4B/radio connection unit, D-heater, tank heater, USB socket | 12 | Mains connection cable with WAGO connector |

Functions

The transformer/rectifier has the following functions:

- The transformer/rectifier charges the living area battery. The transformer/rectifier charges the starter battery with a float charge only.
- The transformer/rectifier monitors the voltage in the living area battery.
- The transformer/rectifier distributes the current to the 12 V circuits and secures them.
- The transformer/rectifier contains connections for a solar charge regulator, an auxiliary charging unit as well as other control and monitoring functions.
- When the engine is turned off, the transformer/rectifier separates the starter battery electrically from the living area battery. This prevents the 12 V living area appliances from discharging the starter battery.

The transformer/rectifier only works in conjunction with a panel.

When the transformer/rectifier is subject to a heavy load, the fitted charger module reduces the charging current. This protects the charging device against overheating. The transformer/rectifier is subject to a heavy load when e.g. an empty living area battery is charged, additional electrical appliances are turned on and the ambient temperatures are high.

Location

Depending on the model, the transformer/rectifier is located in the seat console under the driver's seat or the front passenger's seat.

9.5.1 Battery cut-off switch



- The battery cut-off switch (Fig. 69,11) disconnects all the appliances that are connected to the transformer/rectifier from the 12 V network.
- After the battery cut-off switch has been switched back on:
- Take basic light (lighting in the entrance area), entrance step, heater back into operation (depending on model). To do so, switch the 12 V main switch briefly back on. This also applies if the living area battery was disconnected and then reconnected.

The battery cut-off switch (Fig. 69,11) switches off all the living area 12 V appliances, including even the safety/drainage valve. This prevents the living area battery from slowly discharging if the vehicle is not used for a longer period of time (e.g. temporary lay-up).

The batteries can still be charged by the transformer/rectifier even when the battery cut-off switch is switched off.

Switching the battery on/off

- ▶ Push the battery cut-off switch (Fig. 69,11) upwards: Battery on.
- ▶ Push the battery cut-off switch (Fig. 69,11) downwards: Battery off.

9.5.2 Battery selector switch



If the battery selector switch (Fig. 69,9) is set incorrectly, oxyhydrogen gas (exploding gas) can form. Danger of explosion!



Incorrect setting of the battery selector switch damages the living area battery.

- ▶ Do not change the factory setting of the battery selector switch.

At the battery selector switch (Fig. 69,9), the charger module in the transformer/rectifier can be set to the type of living area battery installed in the vehicle ("lead-gel", "lead-acid" or AGM).

9.5.3 Battery monitoring



Completely recharge a discharged living area battery as soon as possible.

The battery monitoring in the transformer/rectifier monitors the voltage in the living area battery.

If the battery voltage falls below 10.5 V, the battery monitoring in the transformer/rectifier switches off all 12 V consumers.

Measures

- ▶ Switch off all the electrical appliances that are not essential at the corresponding switch.
- ▶ If necessary, use the 12 V main switch to switch the 12 V power supply back on briefly. This is only possible, however, when the battery voltage is above 11 V. If the voltage is below this level, the 12 V power supply cannot be switched on again until the living area battery has been recharged.

9.5.4 Charging the battery

When the vehicle engine is running, the vehicle alternator recharges the living area battery and the starter battery. The charging of the living area battery is supported by a charge booster. When the vehicle engine is switched off, the batteries are automatically disconnected from one another by a relay in the transformer/rectifier. This prevents the starter battery from being run down by electrical appliances in the living area. The starting capability of the vehicle is thus preserved. The charging condition of the living area battery can be read off on the panel. If the vehicle is connected to the 230 V power supply, the living area battery and the starter battery are automatically charged by the charger module on the transformer/rectifier. The starter battery is only charged with a float charge. The charging current is adapted to suit the charging condition of the battery. This ensures that it is not possible to overload the battery.

- ▶ To make use of the maximum output from the charger module on the transformer/rectifier, switch off all electrical appliances during charging.

9.6 Panel LT 100

9.6.1 Body

The LT 100 operating and control panel is the central control unit for the EBL 31 power supply, which supplies all 12 V appliances in the electrical system on board the vehicle. It is normally located near the door in the upper part of the vehicle in an easily accessible place.



The operating and control panel is equipped with touch-sensitive sensor button fields. These fields react to bare finger contact. If gloves are worn (e.g. when camping in winter), the operating and control panel cannot detect the touch contact. Gloves must therefore be removed before operation.

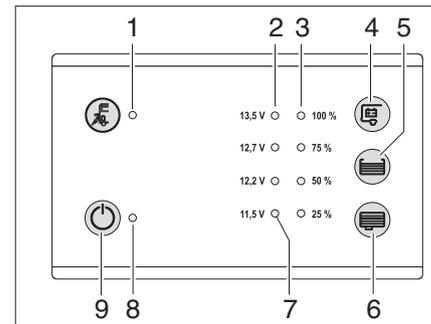


Fig. 70 Panel LT 100

- 1 LED Mains control (yellow):
The LED lights up when mains voltage is present at the input to the mains supply of the vehicle
- 2 4 LEDs (red - yellow - green - green):
Display of the battery voltage in four steps with voltage specification and warning against total discharge
- 3 4 LEDs (blue):
Display of the tank levels of the water and waste water tank in four levels
- 4 Check battery voltage of living area battery
- 5 Reading of water tank level
- 6 Reading of waste water tank level
- 7 Warning LED total discharge
- 8 12 V indicator lamp (green) at switched-on system
- 9 Main switch 12 V ON/OFF

9.6.2 Start-up

- ▶ Switch on panel LT 100 (see chapter 9.6.3).
- ▶ Connect the vehicle to the 230 V mains power supply. LED Mains control lights up. The living area battery is being charged.

9.6.3 Switching on

The vehicle's 12 V power supply is switched on via the corresponding button. The refrigerator control is an exception. It is ready for operation even when the 12 V power supply is switched off.

- ▶ Touch the main switch 12 V ON / OFF sensor touch field (Fig. 70,9) .
 - The green indicator LED lights up.
 - The 12 V living area power supply is switched on.

If the LED "11.0 V" flashes, the power supply cannot be switched on because the battery voltage is too low (battery alarm, see chapter 9.6.5).

9.6.4 Check battery voltage



Total discharge will cause damage to the living area battery:

- Low battery charge, indicated by low voltage, must be avoided.
 - If the power supply is overloaded, a part of the appliances should be switched off.
 - Before laying up the vehicle ensure that no inactive appliances are connected.
- ▶ Touch the sensor touch field for checking battery voltage living area battery (Fig. 70,4) :
 - Red LED lights up Battery voltage over 11.0 V
 - Red and yellow LEDs light up: Battery voltage over 12.2 V
 - Red, yellow and the lower green LEDs light up: Battery voltage over 12.7 V
 - All LEDs light up: Battery voltage over 13.5 V

The table below indicates how to correctly interpret the battery voltage of the living area battery displayed on the scale.

The values under operation, not for off-load voltage.

Battery voltage	Battery operation	Mobile operation	Power operation
under 11.0 V	Totally discharged	totally discharged and no charging by the alternator	totally discharged and no charging by the power supply EBL 31
danger of total discharge less than 12.2 V	If appliances are switched off: Battery empty	No charging by alternator	no charging by the power supply EBL 31
	if many appliances are switched on: Battery may possibly be overloaded	12 V power supply overload	12 V power supply overload
12.2 V to 12.7 V	Normal range	No charging by alternator ¹⁾	no charging by the power supply EBL 31 ¹⁾
		12 V power supply overload ¹⁾	12 V power supply overload ¹⁾
13.5 V	Occurs only during charging (only if solar regulator exists) or briefly after charging	Battery being charged	Battery being charged

¹⁾ If the voltage does not exceed this range for several hours:

Measurement of off-load voltage

Measuring the off-load voltage is a simple way to check the condition of the battery. Off-load voltage is the voltage of the battery in idle condition without current being supplied or charged.

The measurement should be taken several hours after the last charge. In the meantime, the battery must not have been significantly loaded, i.e. no current must have been discharged. If the battery already has 12.2 V or less when it is idle, there is a risk of total discharge.

The table below indicates how to correctly interpret the displayed off-load voltage. The values given are standard values for gel batteries.

Values for off-load voltage	Charging condition of the battery
11.0 V or less	Totally discharged
12.2 V	approx. 25 %; discharged to heavily discharged
12.7 V	Approx. 50%
More than 12.7 V	Full

9.6.5 Alarms



Total discharge will cause damage to the living area battery:

- ▶ Avoid low battery level, indicated by low voltage.
- ▶ Check the voltage control regularly (see chapter 9.6.4).



- ▶ It is best to perform checks in the morning, before the 12 V appliances are switched on.

Alarm	Possible cause	Remedy
Warning LED total discharge (Fig. 70, 7) lights up	Severe total discharge of the living area battery.	Switch off all 12 V appliances.
The 12 V power supply can no longer be switched on	The voltage of the living area battery has fallen below 11 V.	Charge battery immediately: ▶ Start engine or ▶ Connect 230 V mains power supply.

9.6.6 Check tank levels

- ▶ Touch the sensor pad for checking tank level water (Fig. 70,5) or waste water (Fig. 70,6) .

The fill level of the corresponding tank is displayed:

- Water: 100%, 75%, 50%, 25%;
the LED flashes 25 % after checking, the tank is empty.
- Waste water: 100%, 75%, 50%, 25%

9.7 230 V power supply



- Only allow qualified personnel to work on the electrical system.
- Have the electrical system of the vehicle checked by a qualified electrician at least once a year.

The 230 V power supply supplies the following components:

- Sockets with earth contact for appliances with maximum 10 A
- Transformer/rectifier
- electrical heater

The electrical appliances connected to the 12 V power supply of the living area are supplied with voltage by the living area battery.

Connect the vehicle to an external 230 V power supply system as often as possible. The charger module in the transformer/rectifier automatically charges the living area battery. In addition to this, the starter battery is charged with a float charge of 2 A.

9.7.1 230 V connection



The external 230 V supply is protected by a residual current circuit breaker (30 mA).

- ▶ Check the residual current circuit breaker every time it is connected to the 230 V supply, but at least every 6 months.



For the connection points on camp sites (camping distributors) highly sensitive fault current protection switches (FI-switches, 30 mA) are obligatory.

The vehicle can be connected to an external 230 V power supply. The cable may have a length of maximum 25 m.

Check residual current circuit breaker:

- ▶ If the vehicle is connected to the 230 V supply, press the test button of the residual current circuit breaker in the fuse box.

The residual current circuit breaker should trip.

- ▶ Switch the residual current circuit breaker back on.

9.7.2 Power cable for external 230 V connection



Completely unwind the cable on cable drums to prevent overheating. Fire hazard!

Power cable

- Three-core (3 × 2.5 mm²) flexible rubber sheathed cable
- Maximum 25 m in length
- 1 plug with earth contact
- 1 socket with earth contact (connectors to EN60309)

Connection possibilities

We recommend a CEE connection cable with CEE plug and CEE socket as the supply line. If these connection possibilities are not available, we recommend the following combination with an isolated earth plug:

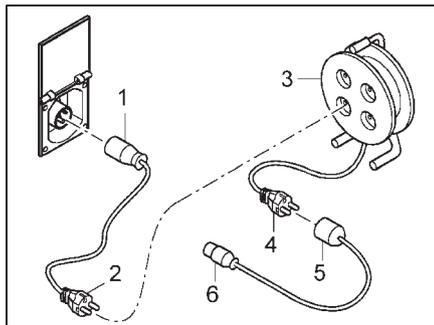


Fig. 71 Connection options for 230 V power connection

- Adapter cable: CEE17 socket with earth contact (Fig. 71,1) – Plug with earth contact (Fig. 71,2)
- Cable reel: Socket with earth contact (Fig. 71,3) – Plug with earth contact (Fig. 71,4)
- Adapter cable: Socket with earth contact (Fig. 71,5) – CEE17 plug with earth contact (Fig. 71,6)

Depending on the model, the flap for the 230 V connection is identified with the symbol

Connecting the power cable:

- ▶ Open the external flap.
- ▶ Depending on the model, fold up the cover.
- ▶ Insert plug.



- ▶ Depending on the model, unlock the plug before pulling it out.

9.8 Fuses



- Only replace defective fuses when the cause of the defect is known and has been remedied.
- Only replace defective fuses when the power supply is switched off.
- Never bridge or repair fuses.

9.8.1 12 V fuses

The appliances connected to the 12 V power supply in the living area are fused individually. The fuses are located near the starter battery or near the transformer/rectifier.

For vehicles on a Fiat chassis, the fuses are installed near the starter battery and in the B-pillar at the bottom on the passenger side.

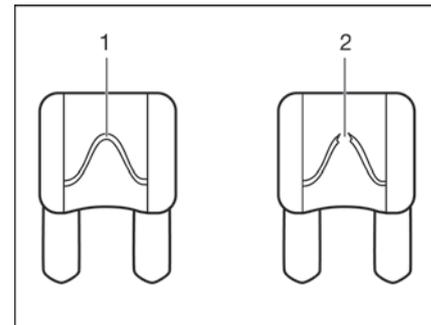


Fig. 72 12 V fuse

- 1 Unbroken fuse element
- 2 Broken fuse element

An intact 12 V fuse can be detected by the unbroken fuse element (Fig. 72,1). If the fuse element is broken (Fig. 72,2), change the fuse.



Replace fuses only when the power supply is!

Before changing fuses, take the function, value and colour of the relevant fuses from the following specifications.

When changing fuses, only use flat fuses with the values shown below.

Fuse under the driver's seat

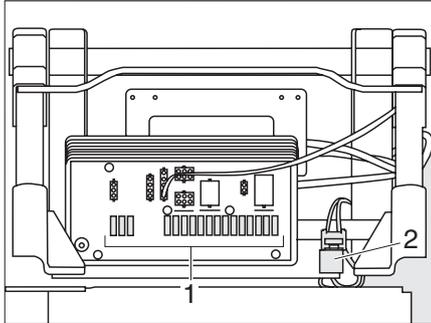


Fig. 73 Fuse under the driver's seat

- 1 Fuses EBL 31
- 2 5 A: Awning light

Fuses on the starter battery

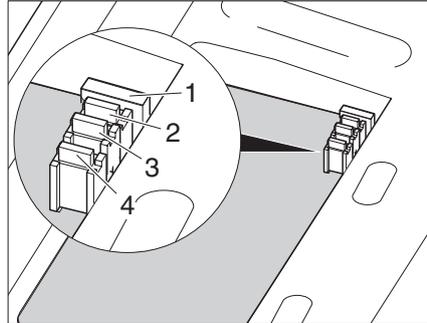


Fig. 74 Fuses on the starter battery

- 1 30/50 A: Charge to booster; fuse dependent on booster
- 2 15 A: K1.30 Starter battery
- 3 10 A: Trickle charge
- 4 2 A: Voltage probe from the booster

Fuses for the living area battery

The 12 V fuses are located in the battery box on the left side of the vehicle.

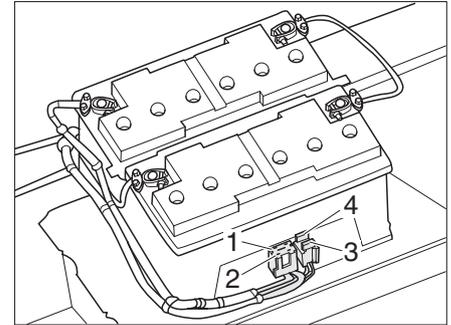


Fig. 75 Fuses in the battery box

- 1 40 A Maxi flat fuse (load fuse EBL 31)
- 2 20 A Fuse for refrigerator
- 3 2 A fuse for voltage sensor EBL from EBL 31
- 4 2 A fuse for K15 (SIG IN) D+ generator

Fuses in the kitchenette

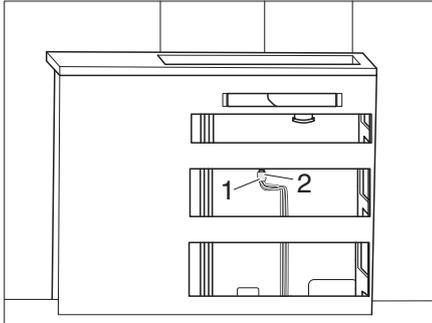


Fig. 76 Fuses in the kitchenette

- 1 2A: Indirect lighting
- 2 2A: Roof spots

Fuse under the seating group

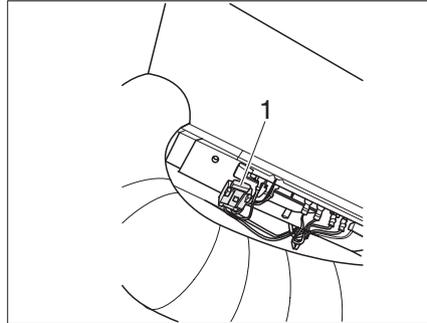


Fig. 77 Fuse under the seating group

- 1 2 A: Tank heater/Duo Control/CP-Plus (CVD540/600 only)

9.8.2 230 V fuse



The 230 V automatic circuit breaker (Fig. 78,2) is located under an access flap near the seats on the left side of the vehicle.

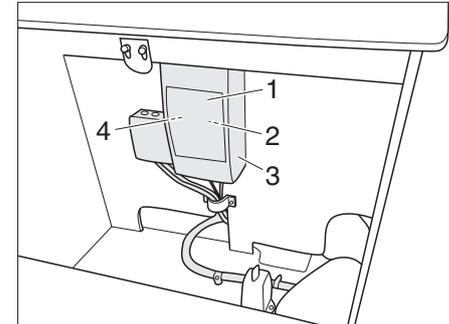


Fig. 78 230 V automatic circuit breaker

► Open the cover flap (Fig. 78,1).

The 230 V connection is protected by a two-pole automatic circuit breaker (Fig. 78,2).



- The residual current circuit breaker (Fig. 78,4) for 230 V should be tripped once annually so that the mechanism does not "stick" and the tripping time is not extended.

CVD540/600



The 230 V automatic circuit breaker (Fig. 79,1) is located behind the service flap in the seat box.

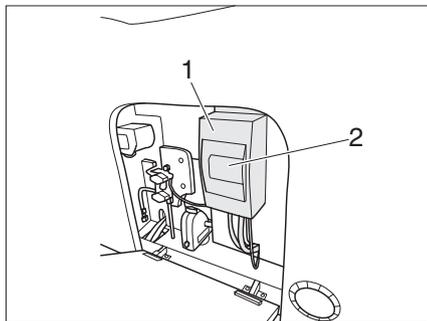


Fig. 79 230 V automatic circuit breaker (CVD540/600)

9.9 Fuse box

9.9.1 Connection

- ▶ Before connecting the camper van system to the electrical power supply, check the following points:
 - is the power supply that is available at the caravan site's power supply facility suitable for the electrical system and the equipment of the camper van in terms of voltage, frequency and current
 - are the cables/lines and the connections suitable
 - is the main circuit breaker of the camper van in the off position.



- ▶ Unwind the flexible power cable of the camper van completely to avoid damage caused by overheating.

- ▶ Check cables/lines, plugs and couplings for damage.
- ▶ If it exists, open the cover of the connection on the camper van and insert it into the coupling of the flexible cable.
- ▶ Insert the plug of the flexible cable into the electrical socket provided on the power supply unit at the caravan site.
- ▶ Switch on the main circuit breaker on the camper van.

- ▶ Check the function of the residual current devices (RCDs):
 - Press the test buttons.

Switch the system on again.



In cases of faults or if the supply is not available or is faulty after you have carried out the procedure above, inform the caravan site operator.

9.9.2 End connection

- ▶ Switch off the main equipment of the camper van and remove the cable/line in the following order.
 - At the caravan site's power supply facility
 - If it exists, at the caravan connection.

9.9.3 Recurring inspection

The electrical system of the camper van should be viewed and tested preferably at least every three years, and if the camper van is used often, annually, by a competent electrician who should issue a report on its condition.

10 Appliances

This chapter contains instructions regarding the appliances of the vehicle.

The instructions refer exclusively to the operation of the appliances.

Further information about the appliances can be found in the instruction manuals for the appliances, included separately with the vehicle.

The instructions address the following topics:

- heater
- gas cooker
- Refrigerator

10.1 General



- The heat exchanger of the Truma hot-air heater has to be replaced after 30. Only the manufacturer of the heater or an authorised specialist workshop is allowed to replace the heat exchanger. The operator of the heater must see to it that the parts are replaced.
- For safety reasons, spare parts for pieces of heating appliances must correspond with manufacturer's instructions and be permitted by the manufacturer as a spare part. These spare parts may only be fitted by the manufacturer or an authorised specialist workshop.



- ▶ Further information can be obtained in the instruction manual for the respective appliance.

The appliances heater, cooker and refrigerator are fitted depending on the model of the vehicle.

In this instruction manual a description is given only for the operation of the appliances and their particular features.

To operate gas appliances, first open the regulator tap on the gas bottle and the gas isolator tap corresponding to the appliance.

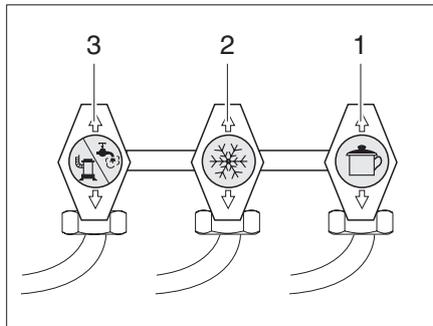


Fig. 80 Symbols for the gas isolator taps

- 1 Cooker
- 2 Refrigerator
- 3 Heater/boiler

10.2 Heater



- Never let gas escape unburned due to danger of explosion.
- Never run the heater in gas operation when filling the fuel tank, on ferries or in the garage. Danger of explosion!
- Never operate the heater in closed rooms (e.g. garages). Danger of poisoning and suffocation!

Initial start-up

When lighting the heater for the first time a small amount of smoke and odour will occur. Immediately set the operating switch of the heater to its highest position. Open doors and windows and ventilate well. Smoke and odour will disappear by themselves after a while.

10.2.1 To heat properly

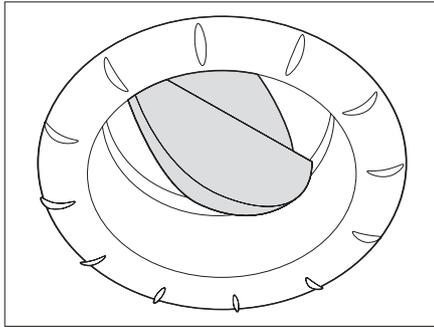


Fig. 81 Air outlet nozzle

Hot air distribution

Several air outlet nozzles (Fig. 81) are built into the vehicle. Pipes conduct the warm air to the air outlet nozzles.

- ▶ Turn the air outlet nozzles in a suitable position so the air can escape as required.
- ▶ To avoid draft close the air outlet nozzles on the dashboard and set the air distribution of the base vehicle to air circulation.

Adjusting the air outlet nozzles

- Fully open: full hot air flow
 - Half or partially open: reduced hot air stream
- When five air outlet nozzles are completely opened, less warm air escapes through each nozzle. However, if only three air outlet nozzles are opened, more warm air flows out of each nozzle.

10.2.2 Truma Combi hot-air heater



Do not use the space above and behind the heater as a storage compartment. Fire hazard!



- ▶ Empty the complete heating system when the heater is out of operation due to risk of frost.

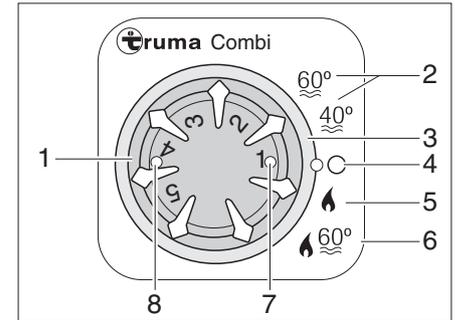


Fig. 82 Operating unit for heater/boiler

- 1 Temperature control knob
- 2 Summer operation water temperature 40 °C or 60 °C
- 3 Rotary switch
- 4 Off
- 5 Winter operation "Heater without boiler"
- 6 Winter operation "Heater and boiler"
- 7 Indicator lamp green:
Lights up = "Heater operation"
Flashes = "Delayed shut-off for appliance temperature reduction is active"
- 8 Indicator lamp yellow/red:
Lights up yellow = "Boiler heating-up phase"
Flashes/lights up red = "Fault"

Operating modes

The heater has two operating modes:

- Winter operation
- Summer operation

It is only possible to heat the vehicle in the "Winter" operating mode. With the "Summer" operating mode only water in the boiler is heated. It is not possible to heat the vehicle in this operating mode.

Selecting operating mode:

- ▶ Set the operating mode using the rotary switch (Fig. 82,3).

The power supply of the heater cannot be interrupted by means of the 12 V main switch.

Winter operation

The heater selects the required burner setting according to the set heating level. In the "Heater and boiler" operating mode (Fig. 82,6) the water in the boiler is also heated. The heater can be operated with an empty boiler in the "Heater without boiler" operating mode (Fig. 82,5).

Switching on:

- ▶ Open the regulator tap on the gas bottle and the gas isolator tap "Heater/Boiler".
- ▶ Set the temperature control knob (Fig. 82,1) at the operating unit to the desired heating level.
- ▶ Set the rotary switch (Fig. 82,3) to winter operation "Heater without boiler" (Fig. 82,5) or to winter operation "Heater and boiler" (Fig. 82,6).

Green indicator lamp (Fig. 82,7) lights up.

The circulation fan automatically switches on when the heater is activated.

Switching off:

- ▶ Set the rotary switch (Fig. 82,3) to "0" (Fig. 82,4).
- ▶ Close the gas isolator tap "Heater/Boiler" and the main regulator tap on the gas bottle.

After switching off the heater, the circulation fan may still run for a moment to use up the residual heat.

Summer operation

It is not possible to heat the vehicle in the "Summer" operating mode. In this operating mode only the water in the boiler is heated.



- ▶ Further information can be obtained from the separate instruction manual "Gas heater".
- ▶ For further information about the use of the boiler see Chapter "Boiler".

10.2.3 Heater for waste water tank and waste water pipes (winter comfort package)



- Take the battery consumption into account! The heater for the waste water tank and waste water pipes can only be operated for a limited period without an external power supply.
- Observe the instruction manual which is separately enclosed.

In order to prevent waste water fittings freezing up, the waste water tank and the waste water pipes can be electrically heated.

When the heater is turned on, temperature sensors monitor the temperature of the waste water tank and the waste water pipes. If the temperature falls below 5 °C, the heating elements are switched on and the waste water tank and waste water pipes are heated. If the temperature rises above a certain level, the heating elements are switched off again.

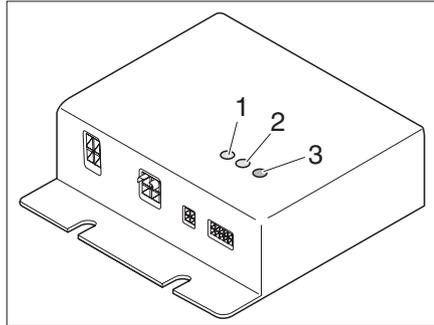


Fig. 83 Control unit

The control unit (Fig. 83) is installed in the wardrobe. The control lamps on the control unit have the following meanings:

- The indicator LED (Fig. 83,1) HC1 lights up in green: Heating circuit 1 is operating
- The indicator LED (Fig. 83,2) HC2 lights up in green: Heating circuit 2 is operating
- Fault LED (Fig. 83,3)

To turn it on and off, use the reserve switch for the waste water tank heater on the panel.

10.2.4 Safety/drainage valve

The boiler is equipped with a safety/drainage valve (Fig. 84). The safety/drainage valve prevents water in the boiler from freezing, when there is frost and the heater is not switched on. If there is a danger of frost (at approx. 3 °C ambient temperature), the water is drained intermittently at overpressure via a drain neck. The safety/drainage valve cannot be closed manually until the ambient temperature lies within the frost-proof range (approx. 7 °C ambient temperature).



- When the vehicle is not used for a long period of time, open the safety/drainage valve and drain the boiler.
- The water pump and the water fittings are not protected against freezing by the safety/drainage valve.



The drainage neck (Fig. 84,3) of the safety/drainage valve has to be free of dirt (e.g. leaves, ice) at all times.

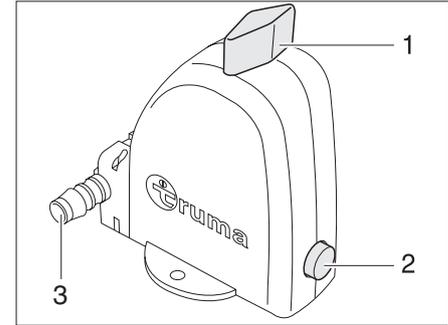


Fig. 84 Safety/drainage valve of the boiler - Operation position



If there is a risk of frost (below 3 °C), the safety/drainage valve opens automatically.

Opening the safety/drainage valve

- ▶ Turn the knob (Fig. 84,1) 90° lengthwise to the safety/drainage valve.

The push button (Fig. 84,2) trips. The boiler is drained to the outside by the drainage neck (Fig. 84,3) of the safety/drainage valve.

Closing the safety/drainage valve:

- ▶ Turn the knob (Fig. 84,1) 90° crosswise to the safety/drainage valve.
- ▶ Push in the pushbutton (Fig. 84,2).

10.3 Cooker



- Never let gas escape unburned due to danger of explosion.
- Before using the cooker make sure that there is sufficient ventilation. Open windows or the skylight.
- Do not use the gas cooker for heating purposes.
- Always protect your hands with cooking gloves or potholders when handling hot pots, pans and similar items. There is a risk of injury!



- Do not use the glass gas cooker lid as a hob.
- Do not close the gas cooker lid while the gas cooker is in operation.
- Do not apply pressure on the gas cooker lid when it is closed.
- Do not place hot cooking pans on the gas cooker lid.
- Keep the gas cooker lid open after cooking as long as the burner emits heat. The glass plate could otherwise burst.

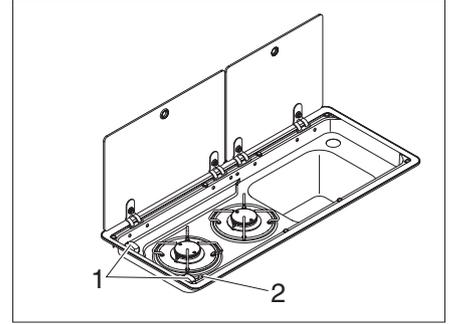


Fig. 85 Operating controls for gas cooker

10.3.1 Gas cooker



- During activation and operation of the gas cooker, no flammable or easily combustible objects such as dishcloths, napkins etc. may be near the gas cooker. Fire hazard!
- The process of ignition must be visible from above and must not be covered by cooking pans placed on the cooker.
- Depending on the model, the gas cooker lid is held closed by a spring. When closing there is danger of getting injured!



- Use only pots and pans whose diameter is suitable for the burner grates of the gas cooker.
- When the flame fades, the thermocouple automatically cuts the gas supply.
- Further information can be obtained from the separate instruction manual "Gas cooker".

The vehicle kitchen unit is fitted with a two-burner gas cooker. The cooker is equipped with an electronic ignition depending on a model.

Switching on

- ▶ Open the regulator tap (Fig. 60,4) on the gas bottle and the "cooker" gas isolator tap (Fig. 80,1).
- ▶ Open the gas cooker lid.
- ▶ Turn the control knob (Fig. 85,1) on the burner you wish to use to the ignition position (large flame).
- ▶ Press down the control knob and hold it down.
- ▶ Create a spark by pushing the ignition button (Fig. 85,2) (only CVD540/600).

or

- ▶ Ignite the burner with a gas lighter, a match or with other suitable means of lighting.
- ▶ When the flame burns, hold the control knob down for 10 to 15 seconds, until the thermocouple keeps the gas supply automatically open.
- ▶ Release the control knob and turn to the desired setting.

- ▶ If ignition was not successful, repeat the entire procedure.

Switching off

- ▶ Turn the control knob (Fig. 85,1) to the 0-position. The flame fades.
- ▶ Close the "cooker" gas isolator tap (Fig. 80,1) and the regulator tap (Fig. 60,4) on the gas bottle.

10.4 Refrigerator

During the journey, only operate the refrigerator via the 12 V power supply. At high ambient temperatures full cooling power is not possible. When external temperatures are high, full cooling power of the cooling unit is only ensured if the refrigerator is ventilated sufficiently. The refrigerator ventilation grill can be removed from the absorber units in order to achieve a better ventilation.



When leaving the vehicle, always fit the refrigerator ventilation grills. Otherwise water could penetrate during rain.

10.4.1 Dometic refrigerator ventilation grill

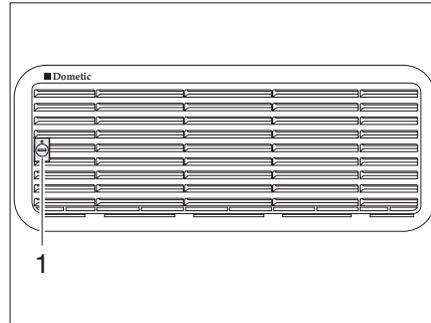


Fig. 86 Refrigerator ventilation grill (Dometic small)

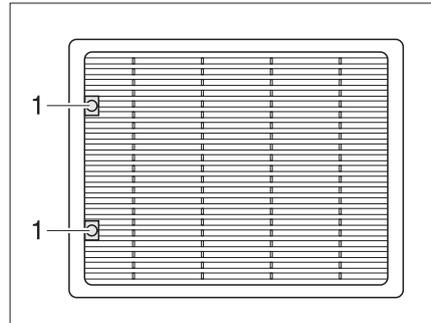


Fig. 87 Refrigerator ventilation grill (Dometic large)

Removal

- ▶ Turn screw (Fig. 86,1 or Fig. 87,1) one quarter of a turn using a coin.
- ▶ Remove the refrigerator ventilation grill.

10.4.2 Operation (Dometic 10 series)

Operating modes

The refrigerator has 2 operating modes:

- Gas operation
- Electrical operation (230 V AC or 12 V DC)

The refrigerator has an automatic operating mode that automatically selects the optimum power source. Manual intervention to select the type of power is possible but not required.

Operating and display elements

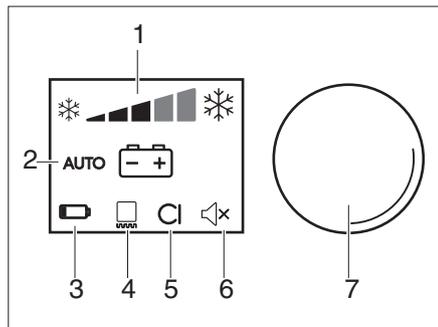


Fig. 88 Operating controls for the refrigerator (Dometic 10 series)

- 1 Cooling power indicator
- 2 Operating mode (AC, DC, direct current, gas or AUTO)
- 3 Battery pack inserted indicator (optional)
- 4 Operating indicator, frame heater for freezer compartment
- 5 CI bus indicator (optional)
- 6 Audible signal tone on/off indicator
- 7 Control knob

Automatic mode

In automatic mode, the refrigerator automatically selects the most favourable operating mode according to the following priority:

- 230 V AC
- 12 V DC
- Gas

Switching on:

- ▶ Set operating mode to "AUTO" (Fig. 88,2).
- ▶ Use the control knob (Fig. 88,7) to adjust the refrigerating temperature.

Switching off:

- ▶ Press the control knob (Fig. 88,7) for 4 seconds. Refrigerator is switched off.

Gas operation



- Never let gas escape unburned due to danger of explosion.
- Gas operation of the refrigerator with liquefied petroleum gas is not permissible.

Switching on:

- ▶ Open the regulator tap on the gas bottle and the gas isolator tap "Refrigerator".
- ▶ Set operating mode to "A".
- ▶ Use the control knob (Fig. 88,7) to adjust the refrigerating temperature.

Switching off:

- ▶ Press the control knob (Fig. 88,7) for 4 seconds. Refrigerator is switched off.
- ▶ Close the gas isolator tap "Refrigerator" and the regulator tap on the gas bottle.

Electrical operation



- ▶ Close the gas isolator tap "Refrigerator" when the refrigerator is operated electrically.

The refrigerator can be operated with the following voltages:

- 230 V AC
- 12 V DC



If the power supply is connected to an AC network, select 230 V operation.

Switching the 230 V operation on:

- ▶ Set operating mode to "A".
- ▶ Use the control knob (Fig. 88,7) to adjust the refrigerating temperature.

Switching the 230 V operation off:

- ▶ Press the control knob (Fig. 88,7) for 4 seconds. Refrigerator is switched off.

Switching the 12 V operation on:

- ▶ Set operating mode to "B".
- ▶ Use the control knob (Fig. 88,7) to adjust the refrigerating temperature.

Switching the 12 V operation off:

- ▶ Press the control knob (Fig. 88,7) for 4 seconds. Refrigerator is switched off.

When operated with 12 V, the refrigerator draws power only from the starter battery of the vehicle. The starter battery only supplies the refrigerator with 12V when the vehicle engine is running. When the vehicle engine is not running, the refrigerator is cut off from the power supply in the living area. For this reason, change over to gas operation during prolonged driving breaks.



The cooling power of the refrigerator in DC operation is slightly reduced.

- ▶ Operate the refrigerator on AC or gas until the desired cooling temperature is reached, then switch to 12 V operation.

Further information can be obtained in the device manufacturer's instruction manual.

Battery pack for autonomous gas operation (optional)

The refrigerator can have an optional battery compartment in the electronics housing. The battery compartment (with battery packs) provides an independent power supply to ensure gas operation when no external DC voltage supply is available.



The battery packs are not included in the scope of delivery.

Further information can be obtained in the device manufacturer's instruction manual.

10.4.3 Operation (Thetford T2090)

Operating modes

The refrigerator is only operated with 12 V DC.

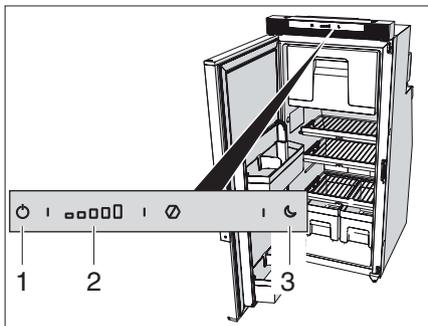


Fig. 89 Operating controls in the refrigerator

- 1 On/Off button
- 2 Refrigerator temperature setting
- 3 Night mode button

Switching on

- ▶ Press the On/Off button (Fig. 89,1) again and keep pressed for a few seconds.

Switching off

- ▶ Press the On/Off button (Fig. 89,1) again and keep pressed for a few seconds.

Setting the cooling level in the refrigerator

- ▶ Press or slide symbols on the refrigerator temperature setting button (Fig. 89,2) to select the desired cooling level.

After a few seconds, the control panel will save the settings and change to the locked standby mode.



The temperature in the refrigerator depends on the ambient temperature (location), how often the door is opened and how full it is.

If necessary, adjust the cooling level.

- ▶ Further information can be obtained in the manufacturer's instruction manual.

10.4.4 Refrigerator door locking mechanism

With some models, the refrigerator has a separate freezer compartment. The specifications in this chapter correspondingly also apply to the door of the freezer compartment.



During the journey the refrigerator door must always be closed and be locked in the closed position.



- ▶ When the refrigerator is switched off, bring the refrigerator door into the ventilation position and lock it in place if possible. This prevents mould from forming.

There are two positions for locking the refrigerator door in place:

- Closed refrigerator door during travel and when the refrigerator is in operation
- Slightly opened refrigerator door as a ventilation position when the refrigerator is switched off

Thetford, locking mechanism on side

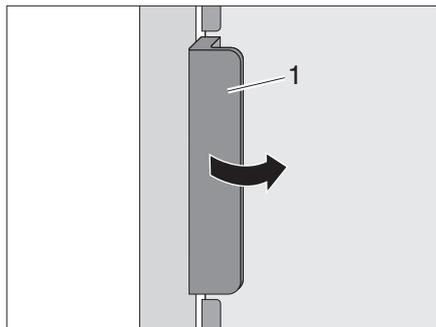


Fig. 90 Opening the refrigerator door

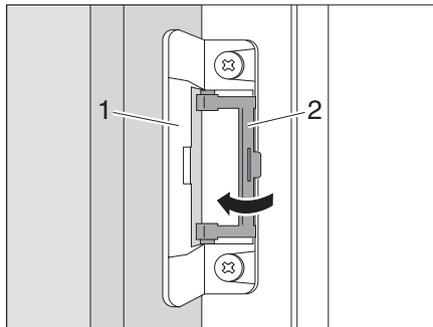


Fig. 91 Locking in the ventilation position

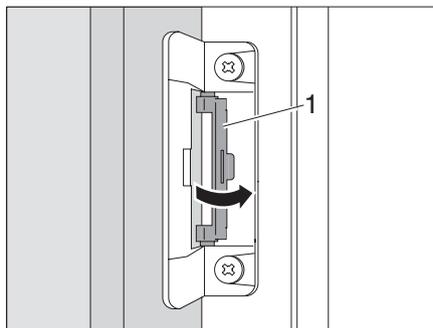


Fig. 92 Turning the locking mechanism back to the initial position

Opening:

- ▶ Open the refrigerator door using the handle (Fig. 90,1). The locking mechanism (Fig. 91,1) is released automatically.

Closing:

- ▶ Fully close the refrigerator door. Ensure that the locking mechanism latches in.

Locking in the ventilation position:

- ▶ Open the refrigerator door.
- ▶ Fold open the latching mechanism (Fig. 91,2).
- ▶ Close the refrigerator door until a click noise is audible.
- ▶ Check whether the refrigerator door is open slightly.

Deactivating the ventilation position:

- ▶ Turning the locking mechanism (Fig. 92,1) back to the initial position.
- ▶ Check whether the refrigerator door closes.

Dometic locking mechanism

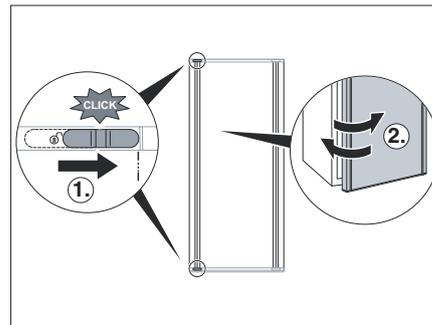


Fig. 93 Dometic locking mechanism of the refrigerator door

11 Sanitary fittings

This chapter contains instructions regarding the sanitary fittings of the vehicle.

The instructions address the following topics:

- water tank
- waste water tank
- complete water system
- toilet compartment
- toilet

11.1 Water supply, general



- Fill the water tank with fresh water only.
- Water left standing in the water tank or in the water pipes becomes undrinkable after a short period. For this reason, rinse the water pipes and the water tank thoroughly with several litres of fresh water before each use of the vehicle. To do this, open all water taps. After each use of the vehicle completely empty the water tank and the water pipes.



- ▶ If the vehicle is not used for several days or if it is not heated when there is a risk of frost, empty the entire water system. Leave the water taps on in central position. Leave the safety/drainage valve (if available) and all drain cocks open. Frost damage to appliances, frost damage to the vehicle and deposits in water-carrying components can be avoided in this way.
- ▶ The water pump will overheat without water and can get damaged. Never operate water pump when the water tank is empty.

The vehicle is equipped with a fitted water tank. An electric water pump pumps the water to the individual water taps.

Opening a water tap automatically switches on the water pump and pumps water to the tap. The waste water tank collects the waste water. The water level in the water and waste water tanks can be checked on the panel.



- Before using the water fittings, the 12 V power supply on the panel must be switched on. Otherwise the water pump will not work.
- The water supply system conforms to the latest state of technology 03/2009 (Directive 2002/72/EC).

11.2 Water tank



There are 2 caps (Fig. 94,1) at the water tank.

- ▶ Check before the journey whether both caps are closed. Observe the warning sign (Fig. 96).

Volume

The water tank holds approx. 100 l.

Fresh water filler neck

The fresh water filler neck is located on the right or left side of the vehicle.

The fresh water filler neck is identified by the

symbol  or the word "WASSER" ("WATER").

The cap is opened or closed using the key for the external flap locks (see Chapter 7).

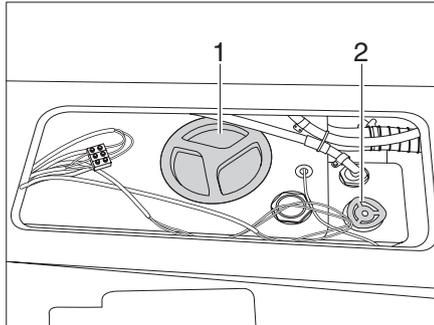


Fig. 94 Water tank

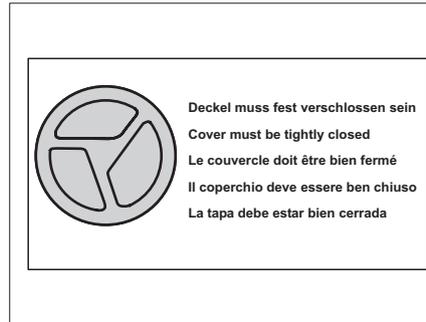


Fig. 96 Warning sign cap

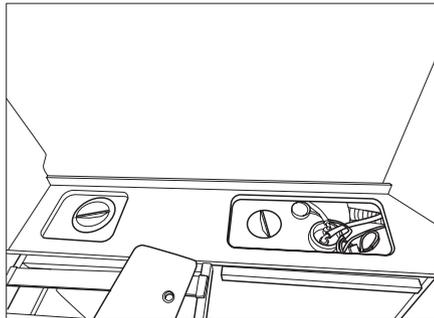


Fig. 95 Water tank (CVD540/600)

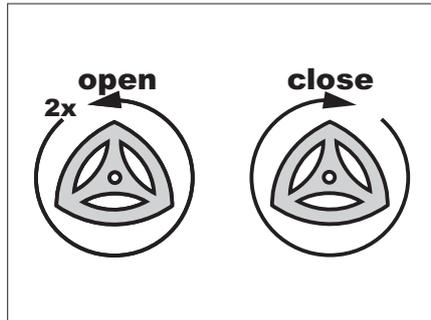


Fig. 97 Water tank fill - drain

Filling with water:

- ▶ Turn the adjusting wheel (Fig. 94,2) as far as possible in a clockwise direction. The drainage opening in the water tank is closed.
- ▶ Open the fresh water filler neck at the vehicle.
- ▶ Fill the water tank with fresh water. Use a water hose, a water canister with a funnel or similar for filling.
- ▶ Close the fresh water filler neck.

Draining water:

- ▶ Unscrew the cap (Fig. 94,1).
- ▶ Turn the adjusting wheel (Fig. 94,2) 2 rotations anticlockwise (see also Fig. 97). The drainage opening in the water tank is opened and the water is drained.
- ▶ Screw the cap back (Fig. 94,1) onto the water tank.

11.2.1 20 l maximum filling

In order to reach the permissible payload the water tank can be drained down to 20 litres.

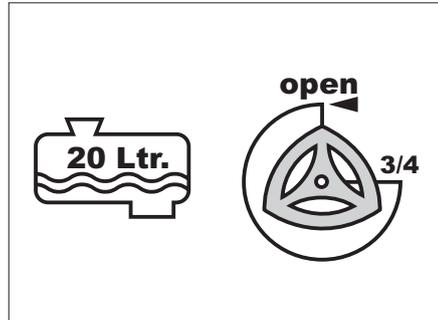


Fig. 98 20 l maximum filling

Drain the water to 20 l:

- ▶ Turn the adjusting wheel (Fig. 94,2) $\frac{3}{4}$ of a rotation anticlockwise.

The fresh water is drained down to 20 litres (see also Fig. 98).

11.3 Waste water tank



- ▶ In case of frost add so much anti-freeze (such as kitchen salt) to the waste water tank so that the waste water cannot freeze.
- ▶ Never pour boiling water directly into the sink outlet. Boiling water could cause deformation and leaks in the waste water pipe system.



- ▶ Only empty the waste water tank at disposal stations, at camping sites or caravan sites, that are especially provided for this purpose.

The waste water tank is located under the vehicle floor.

The drain cock and the cleaning opening are located at the bottom of the waste water tank.

Volume

The waste water tank holds approx. 90 l.

Cleaning

Clean the waste water tank several times per year (see Chapter 12).

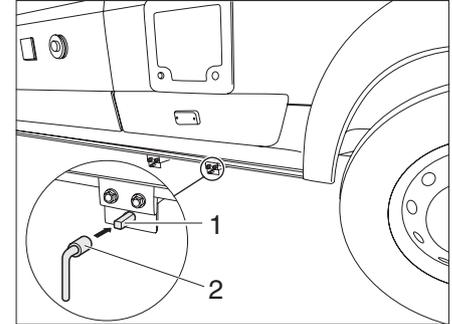


Fig. 99 Operation of the waste water tap



Fig. 100 Waste water tank symbol

The square bolt for opening the waste water tap is directly accessible under the vehicle floor.

Emptying:

- ▶ Place key (Fig. 99,2) onto the square bolt (Fig. 99,1).
- ▶ In order to open the waste water tap, turn the square bolt (Fig. 99,1) a quarter turn anticlockwise.
- ▶ Completely empty waste water tank.
- ▶ To close the waste water tap, turn the square bolt back clockwise as far as it will go.

11.4 Water system



When filling the water tank, observe the maximum permissible gross weight of the vehicle.



The water pump will overheat without water and can get damaged.

- ▶ Never operate water pump when the water tank is empty.
- ▶ If the vehicle is not used for several days or if it is not heated when there is a risk of frost, empty the entire water system. Leave the water taps on in central position. Leave the safety/drainage valve (if available) and all drain cocks open.

Frost damage to appliances, frost damage to the vehicle and deposits in water-carrying components can be avoided in this way.



The water level can be checked on the panel while the water tank is being filled.

Filling:

- ▶ Position the vehicle horizontally.
- ▶ Close all water taps.
- ▶ Switch on 12 V power supply on the panel.
- ▶ Close the safety/drainage valve (Truma). To do so turn the knob cross-wise to the safety/drainage valve and press in the push button.
- ▶ If the temperature is below approx. 7 °C, the safety/drainage valve cannot be closed. Therefore switch on the living area heater and wait until the living area temperature exceeds approx. 7 °C.
- ▶ Fill the water tank with fresh water. Use a water hose, a water canister with a funnel or similar for filling.
- ▶ Set all the water taps to "Hot" and open them. The water pump is turned on. The hot water pipes are filled with water.
- ▶ Keep the taps open until the water flowing out of the taps has no bubbles in it. This is the only way to ensure that the boiler is full of water.
- ▶ Set all water taps to "Cold" and leave them open. This will fill the cold water pipes with water.
- ▶ Keep the taps open until the water flowing out of the taps has no bubbles in it.
- ▶ Close all water taps.

Emptying:

- ▶ Position the vehicle horizontally.
- ▶ Switch off the 12 V power supply on the panel.
- ▶ Switch off the 230 V power supply on the 230 V fuse box.
- ▶ Open all water taps and set to the central position.
- ▶ Pull out the shower handset (Fig. 102,1) and let it drain.
- ▶ Switch off boiler.
- ▶ Open the safety/drainage valve. To do so turn the knob parallel to the safety/drainage valve. The push button trips.
- ▶ Turn the adjusting wheel (Fig. 94,2) 2 rotations anticlockwise.
- ▶ Check the water drainage.
- ▶ Empty the waste water tank. Take note of the environmental tips in this chapter.
- ▶ Empty Thetford cassette. Take note of the environmental tips in this chapter.
- ▶ Rinse the water tank thoroughly.
- ▶ Let the water system dry for as long as possible.
- ▶ After emptying, leave all water taps on in the central position.
- ▶ Leave all drain cocks open.

11.5 External shower (CVD540)

The outdoor shower is located in the rear on the right side of the vehicle.

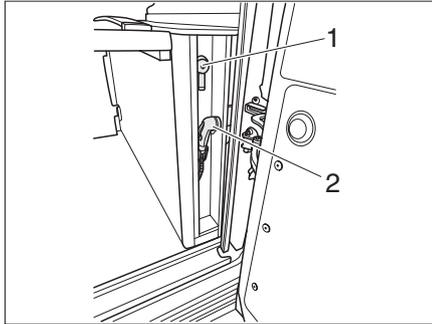


Fig. 101 External shower

The outdoor shower consists of a mixer tap (Fig. 101,1) and a shower head with hose (Fig. 101,2).

11.6 Toilet compartment



Do not transport loads in the shower tray. The shower tray or other items of equipment in the toilet compartment can otherwise be damaged.

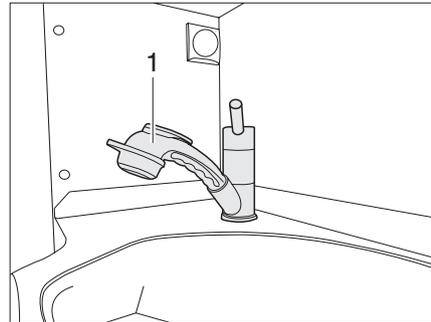


Fig. 102 Shower handset



- ▶ For ventilation purposes during or after a shower, and for drying wet clothing, close the toilet compartment door and open the toilet compartment window or skylight. This improves the air circulation.
- ▶ Use the shower handset (Fig. 102,1) to shower. Pull out the shower handset to do so.



- ▶ Close the shower curtain completely while showering, so that water cannot penetrate between the washroom wall and the shower tray.
- ▶ After using the shower, wipe it dry to prevent moisture from collecting.
- ▶ Further information about cleaning the toilet compartment can be found in chapter 12.2.

11.7 Swivel toilet (Thetford)



The swivel toilet is designed for a maximum load of 100 kg.

The flushing of the Thetford toilet is fed directly from the water system of the vehicle. The toilet bowl can be moved into the optimal position.

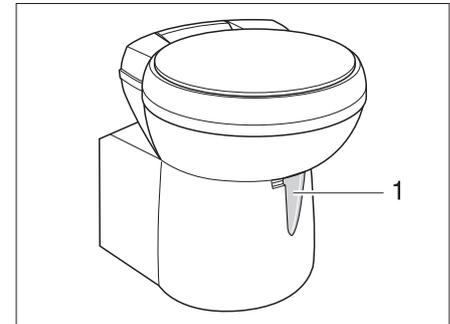


Fig. 103 Thetford toilet bowl, swivelling

The operating unit is located close to the toilet bowl.

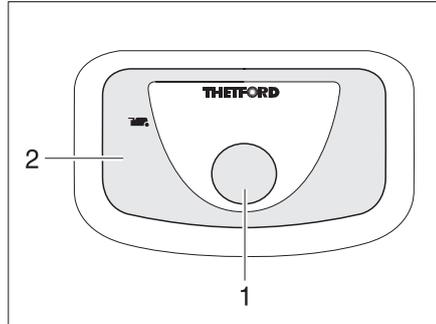


Fig. 104 Flush button/indicator lamp Thetford toilet

Flushing:

- ▶ Before flushing open the sliding trap of the Thetford toilet. To do this, push the slide lever (Fig. 103,1) anticlockwise.
- ▶ For flushing, press the blue flush button (Fig. 104,1).
- ▶ After flushing close the sliding trap. To do this push the slide lever in a clockwise direction. The indicator lamp (Fig. 104,2) goes on whenever the Thetford cassette has to be emptied.

Emptying the water tank:

- ▶ Open the sliding trap. To do this, push the slide lever (Fig. 103,1) anticlockwise.
- ▶ Press the flush button until water ceases to flow into the bowl.
- ▶ Close the sliding trap. To do this push the slide lever in a clockwise direction.
- ▶ Empty Thetford cassette.

Emptying the Thetford cassette:

- ▶ Push the slide lever (Fig. 103,1) in a clockwise direction. The sliding trap is closed. To empty, the sliding trap in the Thetford toilet **must** be closed.
- ▶ Remove the Thetford cassette and empty it as described in chapters 11.7.1 and 11.7.2.

11.7.1 Removing the cassette



The sewage tank (cassette) can only be removed when the sliding trap is closed.

The sewage tank (cassette) is accessible via a special service flap on the outside of the vehicle.

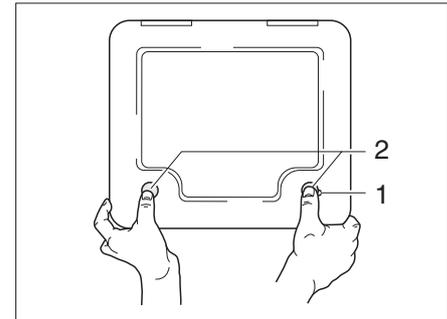


Fig. 105 Flap for the toilet cassette

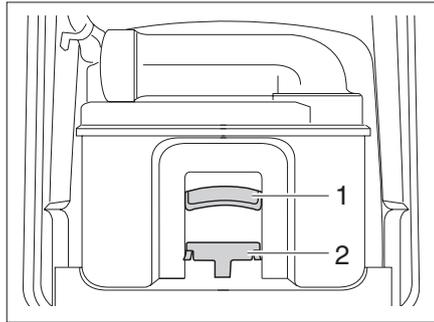


Fig. 106 Thetford cassette

- ▶ Open the flap for the cassette on the outside of the vehicle. Insert the key into the locking cylinder of the push-button lock (Fig. 105,1) and turn a quarter turn.
- ▶ Remove the key.
- ▶ Press both push-button locks (Fig. 105,2) simultaneously with your thumb and open the flap for the cassette.
- ▶ Pull the retaining clip (Fig. 106,2) forward to unlock the toilet cassette and pull out the cassette at the handle (Fig. 106,1).

11.7.2 Emptying the cassette

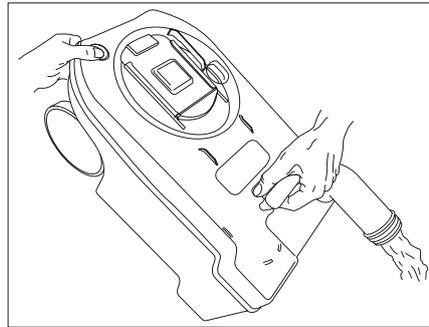


Fig. 107 Emptying the Thetford cassette

- ▶ Take the cassette to a disposal point provided to this purpose. Keep the drainage neck pointing upwards in the process.
- ▶ If required, turn the drainage neck upwards.
- ▶ Remove the cap of the drainage neck.
- ▶ Point the cassette with the drainage neck downwards.

For Thetford cassettes:

- ▶ Press the aeration knob with your thumb. The cassette empties.
- ▶ Close the drainage neck by putting the cap on.
- ▶ If necessary turn the drainage neck back into position.
- ▶ Slide the cassette back into its place.

12 Care

This chapter contains instructions regarding the care of the vehicle.

The instructions address the following topics:

- exterior of the vehicle
- interior
- water system
- toilets
- winter operation

At the end of the chapter there is a checklist of measures you must carry out if you are not going to use the vehicle for an extended period of time.

The checklist address the following topics:

- temporary lay-up
- winter lay-up
- start-up after a lay-up

12.1 External care

12.1.1 Washing with a high-pressure cleaner



- Do not clean the tyres with a high-pressure cleaner. The tyres might be damaged.
- Do not spray external applications (deco-films) directly with the high-pressure cleaner. The external applications could come off.

Before cleaning the vehicle with a high-pressure cleaner, observe the operating instructions of the high-pressure cleaner.

When cleaning with the nozzle for circular jet between the vehicle and the cleaning nozzle, maintain a minimum distance of approx. 700 mm.

Take into consideration that the jet of water comes out of the cleaning nozzle with pressure. The vehicle may be damaged by incorrect handling of the high-pressure cleaner. The temperature of the water should not be above 60 °C. Keep the jet of water in constant movement during the washing process. Do not direct the water jet at clearances, built-in electrical parts, plugs, seals, ventilation grills or skylights. The vehicle may be damaged or water may enter the interior.

12.1.2 Washing the vehicle



Never have the vehicle cleaned in a car wash. Water can penetrate in the refrigerator gills, the waste gas vents or in the forced ventilation. The vehicle could be damaged.

- Wash the vehicle only on a washing site intended for this purpose.
- Avoid full sunshine. Observe environmental measures.
- Only clean external applications and synthetic parts with plenty of warm water, dish washing liquid and soft cloth.
- Wash down the vehicle with plenty of water, a clean sponge or a soft brush. In the case of stubborn dirt add dish washing liquid to the water.

- Clean surfaces made of glass-fibre reinforced plastic (GRP) only with mild cleansers. Cleaning agents and polishes for GRP surfaces are available in specialised stores.
- Add-on parts made of glass-fibre reinforced plastic (GRP) require a regular follow-up treatment with a polisher. This way these parts will not turn yellow and the sealing of the surface remains intact.
- Treat rubber seals of doors and storage flaps with talc.
- Treat locking cylinder of doors and storage flaps with graphite dust.

12.1.3 Windows of acrylic glass

Acrylic glass windows are delicate and require very careful handling.



- Never rub acrylic glass windows when dry as dust particles might damage the surface.
- Only clean acrylic glass windows with plenty of warm water, dish washing liquid and a soft cloth.



- Never use glass cleaning agents with chemical, abrasive or alcohol-containing additives. Premature brittleness of the panes and associated cracks may result from their use.
- Avoid contact of cleansing agents used for the body (e.g. tar- or silicone-removing agents) with acrylic glass.
- Do not drive into car wash units.
- Do not apply stickers to the acrylic glass windows.
- After cleaning the vehicle rinse the acrylic glass windows again with sufficient clear water.
- Treat rubber seals with glycerine.



Acrylic glass cleanser with antistatic effect is suitable for a follow-up treatment. Small scratches can be treated with acrylic glass polish. These agents are available at the accessories shop.

12.1.4 Waste water tank

Clean the waste water tank after every use of the vehicle.

Cleaning:

- ▶ Empty the waste water tank.
- ▶ Thoroughly rinse out the waste water tank with fresh water.
- ▶ If possible, clean waste water sensors through the cleaning opening by hand.

12.1.5 Entrance step

If the entrance step is lubricated, coarse particles of dirt can settle on the lubricant during the journey and cause damage to the operating mechanism of the entrance step.



Do not lubricate or oil the moving parts of the entrance step with grease.

12.1.6 Pop-up roof

The care and maintenance instructions described in the following must be carried out several times, but at least once per year, depending on how often roof is used:

- In order to ensure the cloth bellows are properly maintained, treat them with a standard impregnation substance before the start of the season.
- The cloth bellows should be ventilated several times throughout the year to ensure no musty smells develop.

- The cloth bellows must never be shut in a moist or wet condition. If you do so nevertheless, it must be dried completely as soon as possible.
- The operating instructions must be followed to close the roof.
- Apply talc or a comparable product to the rubber seals at the roof shell before winter sets in so that the seals do not freeze to the vehicle body during cold weather.
- For the version with roof locking, the locking bolt and all moving parts of the lock must be lubricated to ensure it moves seamlessly.
- For the version with a belt lock check the belts and the hook clips for function and damage.
- The roof must be cared for in accordance with the paint care instructions issued by the respective vehicle manufacturer. Standard paint care products can be used.

12.2 Interior care



- If possible, treat stains immediately.
- Acrylic glass windows are delicate and require very careful handling (see Chapter 12.1.3).
- Synthetic parts in the toilet and living area are very delicate and should be treated with care. Do not use solvents, alcohol-containing cleaning agents or scourers containing sand. This procedure will help you to avoid brittleness and formation of cracks.
- Do not pour any corrosive agents into the drain holes. Never pour boiling water directly into the drain holes. Corrosive agents and boiling water cause damage to drainage pipes and siphon traps.
- Do not use vinegar based products to clean the toilet and water system, or for decalcification of the water system. Vinegar-based products may cause damage to seals or parts of the installation. Use standard decalcifying products for decalcification.
- Save water. Mop up all remaining water.
- Vacuum off carpets and cushions with a suitable brush attachment.



- For information about the use of maintenance products, our representatives and service centres will be glad to advise.
- Staining from textiles is excluded from any and every manufacturer guarantee claims. This is by no means a fault in the cover fabric, but rather a fault in the clothing for which the clothing store has to be contacted.
- Surface and knobs of furniture, lamps and synthetic parts in the toilet and living area should be cleaned with water and a wool cloth. A mild cleanser may be added to the water. If necessary, treat finished surfaces with furniture polish.
- Clean upholstery with dry foam specially manufactured for the use on upholstery or with the foam of a mild detergent. Do not wash upholstery, only have them cleaned. Protect upholstery from direct sunlight so that it does not lose its colour.



- Clean covers made of synthetic leather at least once a week with an absorbent cloth or sponge and with a mixture of water and mild lather. Wipe off with clear water, but do not use too much water. Clean stubborn stains with a mixture of alcohol and water (30% alcohol and 70% water) or with 10% diluted ethanol (10% ethanol and 90% water) and then with clear water. However marks may remain.
- Do not use solvent-based or scouring products, nor undiluted alcohol and/or acetone.
- Curtains and net curtains should be dry cleaned.
- Vacuum clean the carpet, if necessary clean with carpet shampoo.
- Clean PVC-floor covering with a mild, soapy cleanser for PVC floors. Do not place carpet on wet PVC-floor covering. The carpet and the PVC-floor covering may stick together.



- Never clean the sink or the gas cooker with a scourer. Avoid anything which may cause scratching or grooves.
- Clean gas cooker only with a moist cloth. Prevent any water from penetrating the gas cooker. Water may damage the gas cooker.
- Brush insect screens on doors, windows and skylights with a soft brush or vacuum with the brush attachment of the vacuum cleaner.
- Brush blinds with a soft brush or vacuum with the brush attachment of the vacuum cleaner. Grease or stubborn dirt may be removed with a mild soap at 30 °C (curd soap).
- Brush Roman shades with a soft brush or vacuum with the brush attachment of the vacuum cleaner. Grease or stubborn dirt may be removed with a mild soap at 30 °C (curd soap).
- Unrolled seat belts can be cleaned with warm soapsuds. The seat belts must be completely dry before being rolled up.

12.3 Water system

12.3.1 Cleaning the water tank

- ▶ Clean the water tank with a plastic-compatible cleanser from specialised stores. Observe the manufacturer's instructions.

12.3.2 Cleaning the water pipes



Use only suitable cleansers from specialised stores.



- ▶ Collect the exiting mixture of water and cleansers and dispose of it correctly.

- ▶ Empty the water system.
- ▶ Close all the drainage openings and drain cocks.
- ▶ Fill a mixture of water and cleanser into the water tank. Observe the manufacturer specifications for the mixing ration.
- ▶ Open the drain cocks individually.
- ▶ Leave the drain cocks open until the mixture of water and cleanser has reached the respective drain.
- ▶ Close the drain cocks again.
- ▶ Set all the water taps to "Hot" and open them.
- ▶ Leave the water taps open until the mixture of water and cleanser has reached the drain.
- ▶ Set all the water taps to "Cold" and open them.
- ▶ Leave the water taps open until the mixture of water and cleanser has reached the drain.

- ▶ Close all water taps.
- ▶ Flush the toilet several times.
- ▶ Let the cleanser act in accordance with the manufacturer specifications.
- ▶ Empty the water system. Collect the exiting mixture of water and cleansers and dispose of it correctly.
- ▶ To rinse fill the entire water system with drinking water and empty it again several times.

12.3.3 Disinfecting the water system



Use only suitable disinfectants from specialised stores.



- ▶ Collect the exiting mixture of water and disinfectant and dispose of it correctly.

- ▶ Empty the water system.
- ▶ Close all the drainage openings and drain cocks.
- ▶ Fill a mixture of water and disinfectant into the water tank. Observe the manufacturer specifications for the mixing ration.
- ▶ Open the drain cocks individually.

- ▶ Leave the drain cocks open until the mixture of water and disinfectant has reached the respective drain.
- ▶ Close the drain cocks again.
- ▶ Set all the water taps to "Hot" and open them.
- ▶ Leave the water taps open until the mixture of water and disinfectant has reached the drain.
- ▶ Set all the water taps to "Cold" and open them.
- ▶ Leave the water taps open until the mixture of water and disinfectant has reached the drain.
- ▶ Close all water taps.
- ▶ Flush the toilet several times.
- ▶ Let the disinfectant act in accordance with the manufacturer specifications.
- ▶ Empty the water system. Collect the exiting mixture of water and disinfectants and dispose of it correctly.
- ▶ To rinse fill the entire water system with drinking water and empty it again several times.

12.4 Wash basin/sink

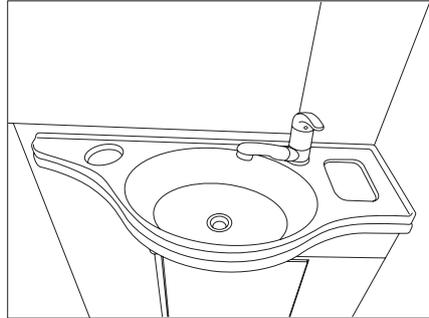


Fig. 108 Wash basin (variant 1)

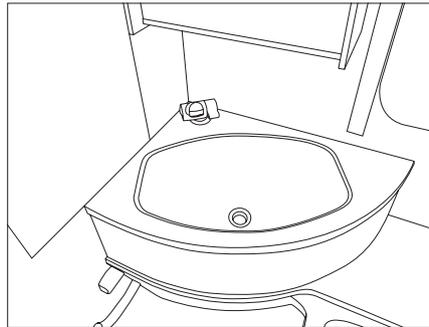


Fig. 109 Wash basin (variant 2)

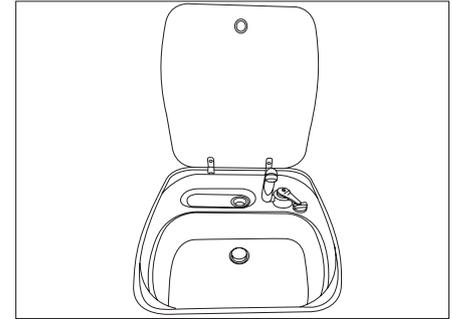


Fig. 110 Sink

12.4.1 Stainless-steel wash basin/sink



- Do not use bleaches, products containing chloride or hydrochloric acid, baking soda or silver polish for cleaning.
- Do not use scouring milk or rough sponges.



- ▶ Before cleaning test at an inconspicuous point whether the cleanser used is suitable for the surface.
- ▶ After cleaning the surfaces, wipe thoroughly dry to avoid traces of lime.
- ▶ With brushed stainless-steel surfaces, wipe in the same direction as the polish.

- ▶ Clean and treat the wash basin/sink at least twice a year with a household stainless-steel cleaner.
- ▶ Rinse out the wash basin/sink after use and dry it with household cloths.

Removing stubborn soiling:

- ▶ Clean the wash basin/sink with a common household sponge and cleansing milk. Rinse out the wash basin/sink and dry it with household cloths.

Removing greasy and oily residue:

- ▶ Saturate a kitchen cloth in some white spirits and rub the wash basin/sink with it.
- ▶ Rinse out the wash basin/sink and dry it with household cloths.

Removing fingerprints:

- ▶ Clean the wash basin/sink with a cleaning solution and a leather cleaning cloth. Rinse out the wash basin/sink and dry it with household cloths.

12.4.2 Plastic sink



- Do not use scouring milk/scouring powder or rough sponges.



- ▶ Before cleaning test at an inconspicuous point whether the cleanser used is suitable for the surface.
- ▶ After cleaning the surfaces, wipe thoroughly dry to avoid traces of lime.

Removing normal soiling:

- ▶ Clean the sink with a conventional washing-up liquid or non-scouring household cleaner.

Removing stubborn soiling:

- ▶ Apply spot salt or dishwasher salt with a moist sponge and allow it to work in for several hours.
- ▶ Remove salt and clean sink with a food-safe plastic cleaner.
- ▶ Rinse out sink.

Removing lime deposits:

- ▶ Clean the sink with vinegar or lime remover.
- ▶ Rinse out sink.

12.5 Toilets

If the toilet will not be used for a longer period of time, e.g. for Winter lay up, the toilet must be cleaned and completely emptied.

12.5.1 Toilet with separate water tank

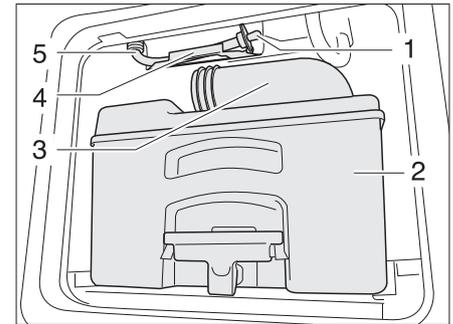


Fig. 111 Toilet water tank drain hose

Emptying the tank:

- ▶ Press the flush button, to active the operating panel.
- ▶ Open the sliding trap and flush until no more water flows.
- ▶ Close the sliding trap.
- ▶ Empty the cassette (Fig. 111,2) at a disposal station authorized for this purpose and clean it.
- ▶ Leave the drainage neck (Fig. 111,3) open.

- ▶ Remove the drain hose (Fig. 111,5) from the holder (Fig. 111,4).
- ▶ Place a sufficiently large container under the drain hose.
- ▶ Remove the drain plug (Fig. 111,1) and let the residual water run out.
- ▶ When no more water flows out, place the drain plug in the drain hose.
- ▶ Replace the drain hose in the holder.

12.6 Winter care

De-icing salt damages the underbody and the parts open to water spray. We recommend that you wash the vehicle more frequently during wintertime. Mechanical and surface treated parts and the underside are under particular strain, and should therefore be cleaned thoroughly.



- ▶ If there is any risk of frost, always run heater at a minimum of 15 °C. Set the circulation fan (if existing) to automatic mode. In the case of extreme external temperatures, the furniture flaps and doors should be left slightly open. The inflowing warm air can help prevent the freezing of water pipes, for example, and counteract the formation of condensation in the storage spaces.
- ▶ If there is any risk of frost, cover the outside surface of the windows with winter insulation mats.

12.6.1 Preparations

- ▶ Check the vehicle for paint and rust damage. Repair damage as necessary.
- ▶ Make certain that water cannot penetrate the automatic floor ventilation system and the heater.
- ▶ Use a wax-based rust inhibitor to protect the metal parts of the underbody.
- ▶ Use appropriate protection for external painted surfaces.

12.6.2 Winter operation

During winter operation, condensation develops when the vehicle is occupied under low-temperature conditions. To ensure good interior air quality and avoid vehicle damage from condensation, sufficient ventilation is essential.

- When heating the vehicle, the heater should be at the highest setting and roof storage cabinets, curtains and blinds should be opened. This ensures optimal ventilation.
- In the morning, lift up all cushions, air out storage boxes and dry any damp areas.



- ▶ If condensation has still developed, just wipe it off.

12.6.3 At the end of the winter season

- ▶ Thoroughly clean the underbody and engine. When this is done, corrosion-inducing anti-freeze agents (salts, alkaline residues) are removed.
- ▶ Clean the exterior and use regular car wax to protect metal surfaces.

12.7 Laying up

12.7.1 Temporary lay-up



- After the vehicle has been standing for a longer period (approx. 10 months) have the braking and gas systems checked by an authorised specialist workshop.
- Take into consideration that water is undrinkable after only a short time.
- Animal damage to cables can lead to short circuits. Fire hazard!

Animals (especially mice) can cause great damage to the interior of the vehicle. This is especially true if the animal remains undisturbed in a parked vehicle.

The animals can get into the vehicle at an opportune moment and hide from view.

To keep damages from animals to a minimum or to avoid them altogether, regularly check the vehicle for damage or animal traces.

This is especially important approx. 24 hours after parking the car.

If animal traces are found, contact your authorised dealer or service centre. If damage to cables has occurred, they can result in short circuits. The vehicle could catch fire.

Go through the following checklist before lay-up:

Base vehicle

Activities	done
Completely fill fuel tank. This can prevent corrosion to the tank system	
Jack up the vehicle so that the wheels do not bear any load, or move the vehicle every 4weeks. This prevents any pressure points from occurring on tyres and wheel bearings	
Protect the tyres from direct exposure to the sun. Danger of formation of cracks!	
Inflate tyres up to the recommended maximum pressure	
Check the spare wheel or tyre repair kit respectively	
Always provide for sufficient ventilation in the underbody area. Humidity or lack of oxygen e.g. by covering with plastic film may cause optical irregularities to the underbody.	
Also observe the specifications in the operating instructions of the base vehicle	

Body

Activities	done
All vents should be sealed with the appropriate caps and all other openings (apart from forced ventilations) should also be sealed. This prevents animals (e.g. mice) from gaining entry	

Activities	done
In order to avoid the formation of condensation and thus mould, ventilate the interior, all the storage areas accessible from the outside and the parking space (e.g. garage) every 3 weeks	

Interior

Activities	done
Place upholstery in an upright position for ventilation, and cover	
Clean refrigerator	
Allow refrigerator and freezer compartment doors to remain slightly open	
Search for traces of animals that have gained entry	
Disconnect the flat screen from the mains and, if necessary, remove it from the vehicle	

Gas system

Activities	done
Close regulator tap on the gas bottle	
Close all gas isolator taps	
Always remove gas bottles from the gas bottle compartment, even if they are empty	

Electrical system

Activities	done
Fully charge living area and starter battery ▶ Charge the battery for at least 20 hours before laying up.	
Disconnect the living area battery from the 12 V power supply	

Water system

Activities	done
Empty the entire water system. Leave the water taps on in central position. Leave the safety/drainage valve (if available) and all drain cocks open. Observe the specifications in Chapter 11.	
Switch off the safety/drainage valve on the transformer/rectifier. Otherwise the battery will become discharged too quickly.	
 If the safety/drainage valve is switched off, the water system is no longer protected sufficiently against frost.	

12.7.2 Winter lay-up

Additional measures are required if laying up the vehicle over winter:

Base vehicle

Activities	done
Clean body and underbody thoroughly and spray with hot wax or protect with varnish	
Fill fuel tank with winter diesel	
Check the frost protection in the cooling water	
Repaint paint damage	
Inflate tyres up to the recommended maximum pressure	

Body

Activities	done
Keep the forced ventilation open	
Clean and grease all door and flap hinges	
Brush oil or glycerine on all locking mechanisms	
Rub all rubber seals with talc	
Use graphite dust to treat locking cylinders	

Interior

Activities	done
Position de-humidifiers	
Remove upholstery from the vehicle and store in a dry place	
Air the interior at regular intervals	
Empty all cabinets and storage compartments. Opening flaps, doors and drawers	
Thoroughly clean the interior	
If there is a risk of frost, do not leave the flat screen in the vehicle	

Electrical system

Activities	done
▶ Remove the starter battery and living area battery and store in a place protected from frost (see Chapter 9)	

Water system

Activities	done
▶ Clean the water system using a cleaning agent from a specialised store	

Complete vehicle

Activities	done
Arrange the tarpaulins in such a way that the ventilation openings are not covered, or use porous tarpaulins	

12.7.3 Starting up the vehicle after a temporary lay-up or after lay-up over winter

Go through the following checklist before start-up:

Base vehicle

Activities	done
Check the tyre pressure on all tyres	
Check the tyre pressure and condition of the spare wheel or tyre repair kit respectively	

Body

Activities	done
Check that the doors, windows and pop-up roof are working properly	
Check the function of all external locks	
Remove the cover from the waste gas vent of the heater (if there is one)	
Remove the winter cover from the refrigerator grills (if there is one)	

Gas system

Activities	done
Place the gas bottle in the gas bottle compartment, tie down and connect to the gas pressure regulator	

Electrical system

Activities	done
Connect to 230 V external power supply	
Fully charge living area and starter battery	
 Charge the battery for at least 24 hours after laying up.	
Connect the living area battery with the 12 V power supply (see Chapter 9)	
Check that the electrical system are working, e.g. interior light, socket and all installed electrical appliances	

Water system

Activities	done
Disinfect water pipes and water tank	
Check the functionality of the operating lever for the waste water tank	
Close safety/drainage valve, drain cocks and water taps	
Check the safety/drainage valve, water taps, drain cocks and water distributors for leaks	

Appliances

Activities	done
Check the function of the cooler	
Check the function of the heater/boiler	
Check the function of the gas cooker	

13 Maintenance

This chapter contains instructions about official inspections as well as inspection and maintenance work concerning the vehicle.

The maintenance instructions concern the replacement of bulbs and fluorescent tubes

At the end of the chapter you will find important instructions on how to obtain spare parts.

13.1 Official inspections

An official general inspection (HU) of roadworthiness has to be carried out by a recognised body (such as "TÜV", "DEKRA") at regular intervals in accordance with Section 29 of the German Traffic Licencing Regulations ("Straßenverkehrszulassungsordnung" (StVZO)) on all vehicles that are registered in Germany (refer to the table below).

This inspection includes an exhaust emission test.

The respective local regulations apply in other counties.

An authorised specialist workshop has to inspect the gas system every 2 years. This also applies for not registered vehicles. Modifications to the gas system must be checked immediately by an authorised specialist workshop. The authorised specialists workshop certifies the inspection and the proper state in a gas inspection certificate. The gas inspection sticker is applied on the rear of the vehicle near the licence plate.



Replace the gas pressure regulator at least every 10 years.

Inspection intervals

	Engine	Maximum permissible gross weight	Checks
General inspection (HU) TÜV/DEKRA with exhaust emission test	Diesel	Up to 3.5 t	First HU after 3 years; thereafter every 2 years
	Diesel	over 3.5 t to 7.5 t	every 2 years; from the 7th year of registration annually
Inspection of gas system	Diesel	Up to 3.5 t	every 2 years
	Diesel	over 3.5 t to 7.5 t	every 2 years

13.2 Inspection work

Like any technical appliance, the vehicle must be inspected at regular intervals.

This inspection work must be carried out by qualified personnel.

Special technical knowledge, which cannot be taught within the framework of this instruction manual, is required for these tasks. Personnel possessing this technical knowledge are available for assistance at all authorised dealers and service centres.

Their experience and regular technical instruction by the factory as well as equipment and tools guarantee expert and up-to-date inspection of the vehicle.

The service centre in charge will confirm the work performed.

Have chassis inspections confirmed in the chassis manufacturer's customer service booklet.



- Observe the inspections specified by the manufacturer and have them carried out at the specified intervals. The value of the vehicle is thus preserved.
- The confirmation of the inspection work carried out also serves as valid proof in the case of damage and claims under the guarantee.

13.3 Maintenance work

As with every machine, this vehicle requires maintenance. The extent and frequency of the maintenance work required depend on conditions of operation and use.

- ▶ More difficult operating conditions make it necessary to service the vehicle more often.
- ▶ Have the basic vehicle and the appliances serviced at the intervals specified in the corresponding instruction manuals.

13.4 Replacing bulbs and fluorescent tubes



- Bulbs and light fittings can be extremely hot. Therefore, allow lights to cool down before changing bulbs.
- Before changing bulbs, switch off the power supply at the safety cut-out in the 230 V fuse box.
- Store bulbs in a safe place inaccessible to children.
- Do not use any bulb that has been dropped or which shows scratches in its glass. The bulb might burst.



- Lights can get very hot. When the light is switched on, a safety distance of 30 cm to combustible material has to be maintained. Fire hazard!



- New bulbs should not be touched with the fingers. Use a cloth when inserting the new bulb.
- Only use bulbs of the same type and with the correct wattage.
- If LEDs in the lights are defective, contact an authorised dealer or a service centre.

13.4.1 Refrigerator light

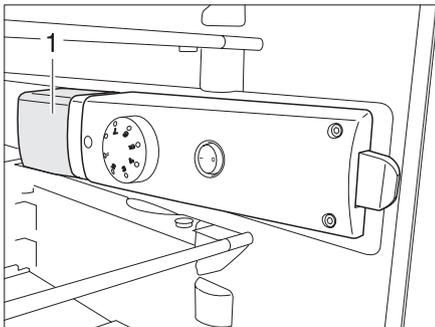


Fig. 112 Refrigerator light

Changing bulbs:

- ▶ Switch off the refrigerator at the external switch.
- ▶ Grip under the light covering (Fig. 112,1) from behind and raise the light covering approximately 3 mm.
- ▶ Remove the light covering to the side.
- ▶ Remove bulb.
- ▶ Put in a new bulb.
- ▶ Reassemble the lamp in the reverse order.

13.4.2 Replacing vehicle lamps at the rear

The cover (Fig. 113,3) has to be removed beforehand to access the rear right-hand vehicle lamps.

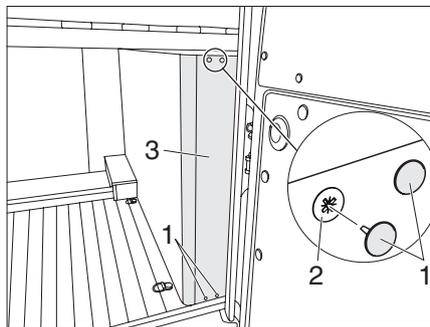


Fig. 113 Cover in the vehicle rear

- ▶ Remove the four screw covers (Fig. 113,1).
- ▶ Unscrew the four crosshead screws (Fig. 113,2).
- ▶ Remove the cover (Fig. 113,3). The vehicle lamps can be accessed now.

13.5 Vehicle identification plate

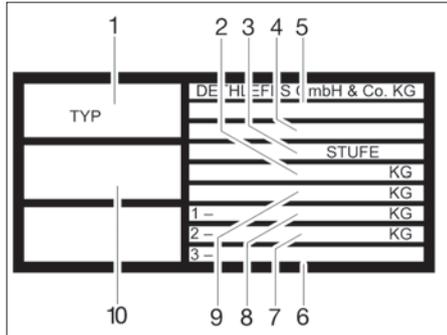


Fig. 114 Vehicle identification plate

- 1 Type
- 2 Maximum permissible gross weight of the vehicle with trailer
- 3 Manufacturer of the unit (add-on unit)
- 4 Chassis number
- 5 EC type approval number
- 6 Permissible rear axle load (for tandem axle)
- 7 Permissible axle load rear
- 8 Permissible axle load front
- 9 Maximum permissible gross weight of the vehicle
- 10 Serial number

The vehicle identification plate (Fig. 114) with the serial number is mounted in the area of the passenger's door.

Do not remove the vehicle identification plate. The vehicle identification plate:

- Identifies the vehicle
- Helps with the procurement of spare parts
- Together with the vehicle documents identifies the vehicle owner

13.6 Warning and information stickers

There are warning and information stickers on and inside the vehicle. Warning and information stickers are for the sake of safety and must not be removed.



Replacement stickers can be obtained from an authorised dealer or the service centre.

14 Spare parts

This chapter contains important instructions on how to obtain spare parts.



- Every alteration of the original condition of the vehicle can alter road behaviour and jeopardize road safety.
- The special equipment and original spare parts recommended by Dethleffs have been specially developed and supplied for your vehicle. These products are available at the authorised dealers or service centres. The authorised dealers or service centres are informed about admissible technical details and carries out the required work correctly.
- The use of accessories, parts and fittings not supplied by Dethleffs may cause damage to the vehicle and jeopardize road safety. Even if an expert's report, a general type approval or a design certification exists, there is no guarantee for the proper quality of the product.



- No liability can be assumed for damage caused by products which have not been approved by Dethleffs. This also applies to impermissible alterations to the vehicle.

For safety reasons, spare parts for pieces of equipment must correspond with manufacturer's instructions and be permitted by the manufacturer as a spare part. These spare parts may only be fitted by the manufacturer or an authorised specialist workshop. The authorised dealers and service centres are available for any spare parts requirement.

Here are some suggestions of important spare parts:

- Fuses
- V-belt
- Windscreen blades
- Bulbs
- Water pump (submerged pump)

When ordering spare parts, please indicate the serial number and the vehicle type to the authorised dealer or service centre.

The vehicle described in this instruction manual is built and equipped to factory standards.

Special equipment is offered depending on its purpose or use. When fitting special equipment check if such equipment has to be entered in the vehicle documents. Observe the max. permissible gross weight.

The authorised dealer or service centre will be happy to advise you.

15 Wheels and tyres

This chapter contains instructions regarding the tyres of the vehicle.

The instructions address the following topics:

- tyre selection
- handling of tyres
- changing wheels
- spare wheel support
- tyre pressure

At the end of the chapter there is a table you can use to find the correct tyre pressure for your vehicle.

15.1 General



- ▶ Check the tyre pressure before a journey and at 2-week intervals. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.



- ▶ Only check the tyre pressure on cold tyres.
- ▶ Tubeless tyres are mounted on the vehicles. Never mount tubes in these tyres.
- ▶ Observe the instruction manual of the base vehicle.



Depending on the base vehicle and model, the vehicles are only equipped with a tyre repair kit as standard.

- ▶ In the case of a puncture, pull over to the side of the road. Make the vehicle safe with a hazard warning triangle. Switch on the warning lights.

Tyres must not be older than 6 years as the material will become brittle over time. The four-digit DOT number on the tyre flank indicates the date of manufacture. The first two digits designate the week, the last two digits the year of manufacture.

Example: (1509)
Week 15, year of manufacture 2009.

Note

- Check the tyres regularly (every 2 weeks) for equal tread wear, tread depth and external damage.
- Replace tyres at the latest, when the minimum depth of tread stipulated by law is reached.
- Always use tyres of the same model, same brand and same type (summer and winter tyres).
- Only use tyres approved for the wheel rim type fitted. The permitted rim and tyre sizes are specified in the vehicle documents and the authorised dealer or service centre will always be glad to give you advice.

- Run-in new tyres for approx. 100 km (60 miles) at low speed since only then do they reach full strength.

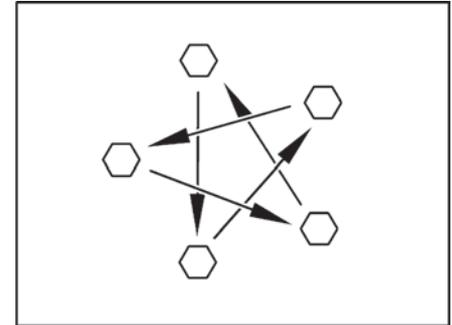


Fig. 115 Tighten the wheel nuts or wheel bolts cross-wise

- Check regularly that the wheel nuts or wheel bolts are firmly seated. Re-tighten the wheel bolts of a changed wheel cross-wise after 50 km (30 miles) (Fig. 115).
- When using new or newly painted rims, re-tighten the wheel nuts or wheel bolts once again after approx. 1000 to 5000 km (600 miles to 3000 miles).

- For lay-ups or long periods of inactivity, keep the tyres and tyre bearings free from pressure points in the following manner:
 - ▶ Jack up the vehicle so that the wheels do not bear any load, or move the vehicle every 4 weeks in such a way that the position of the wheels is changed.
- Replace the spare wheel or tyre repair kit respectively regularly.

15.2 Tyre selection



The wrong tyre choice can lead to damage to the tyres or even to tyres bursting.



If tyres that are not approved for the vehicle are used, then the type approval for the vehicle and subsequently the insurance coverage can lapse. The authorised dealer or service centre will be happy to advise you.

The tyre sizes approved for the vehicle are given in the vehicle documents or can be obtained from the authorised dealers or service centres. Each tyre must fit the vehicle on which it will be driven. This applies to the external dimensions (diameter, width), which are indicated with the standardised size designations. In addition, the tyres must meet the requirements of the vehicle with regard to weight and speed.

Weight refers to the maximum permissible axle load which can be distributed on two tyres. The maximum load-carrying capacity of a tyre is indicated by its load index (= LI, load index code). The axle geometry of a vehicle, such as wheel camber and track, is also important for tyre selection. The maximum permissible speed for a tyre (with full load-carrying capacity) is indicated by the speed index (= SI). Together, load index and speed index form the operating code of a tyre. This is an official component of the complete, standardised dimensions description which appears on every tyre. The information on the tyres must correspond to the specifications which appear in the vehicle papers.

15.3 Tyre designations

215/70 R 15C 109/107 Q

Description	Explanation
215	Tyre width in mm
70	Height-to-width proportion in percent
R	Tyre design (R = radial)
15	Rim diameter in inches
C	Commercial (transporter)
CP	reinforced tyres especially for camping vehicles
109	Load index code for single tyres
107	Load index code for twin tyres
Q	Speed index (Q = 160 km/h)

15.4 Handling of tyres

- Drive over kerbs at an obtuse angle. Otherwise the flanks of the tyres may get pinched. Driving over a kerb at a sharp angle can damage the tyre and result in it getting ruptured.
- Drive over high manhole covers at a slow speed. Otherwise the tyres may get pinched. Driving over a high manhole cover at high speed can damage the tyre and result in it getting ruptured.
- Check the shock absorbers regularly. Driving with poor shock absorbers significantly increases wear.
- In case of unequal tread wear have the toe-in and wheel camber checked. Driving with an incorrect toe-in or a one-sided wheel camber results in markedly increased wear.
- Avoid block brakings. A block braking gives the tyres "brake plates" of varying strength, thus reducing travelling comfort and possibly rendering the tyres unusable.
-
- Do not clean the tyres with a high-pressure cleaner. The tyres can suffer serious damage within just a few seconds and rupture as a result.
- Drive so as to avoid unnecessary wear and damage to the tyres. Avoid sharp braking, racing starts and long trips on bad roads.

15.5 Changing wheels

15.5.1 General information



- The vehicle must be on level, firm ground, secure from slipping.
- ▶ Go into first gear. In the case of automatic transmission, change gear to "P" position.
- ▶ Before jacking up the vehicle firmly apply the handbrake.
- ▶ Prevent the vehicle from rolling away by blocking the opposite wheel with the wheel chocks.
- ▶ If a trailer is connected: Detach the trailer before the vehicle is raised.
- Never overload the vehicle jack. The maximum permissible load is specified on the vehicle jack's identification plate.
- Use the jack only to lift the vehicle briefly while changing the tyre.
- Do not start the engine while the vehicle is jacked up.
- Persons may not lie under a vehicle that is jacked up.



- ▶ Do not damage the thread of the thread bolts when changing the wheel.
- ▶ Tighten the wheel nuts or wheel bolts cross-wise (Fig. 115).
- ▶ When changing wheels (e.g. light metal wheel rims or wheels with winter tyres), use the correct wheel bolts of the correct length and shape. The firm seating of the wheels and the function of the braking system depend on this.
- ▶ Wheel rims and tyres not permitted for use with the vehicle can jeopardise road safety.
- ▶ Do not replace wheels cross-wise.



- ▶ Protect the vehicle according to national regulations, e.g. with a hazard warning triangle.
- ▶ Before changing the wheel, check the wheel rim and tyre size, the max. tyre load and the speed index on the tyres. Only use the wheel rim and tyre sizes stated in the vehicle documents.

Further information can be obtained in the instruction manual of the base vehicle.

15.5.2 Tightening torque

Wheel rim	Tightening torque
Steel wheel rim 15"	160 Nm
Steel wheel rim 16"	180 Nm
Alloy wheel rim 15" (Fiat / Citroen)	130 Nm
Alloy wheel rim 16" (Fiat / Citroen)	160 Nm
Alloy wheel rim 17" (light chassis)	140 Nm
Alloy wheel rim 17" (maxi chassis)	160 Nm
Alloy wheel rim Dethleffs 16" (light chassis)	140 Nm
Alloy wheel rim Dethleffs 16" (maxi chassis)	160 Nm

15.6 Tyre repair kit

For some models, a tyre repair kit is included for inflating the flat tyre with foam.

15.7 Tyre pressure



Tyre pressure that is too low results in overheating of the tyre. Serious damage to the tyre can be the result.

- ▶ Check the tyre pressure before a journey and at 2-week intervals. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.
- ▶ Use only valves that are approved for the specified tyre pressure.



- ▶ Only check the tyre pressure on cold tyres.

The payload and the durability of tyres is directly dependent on the tyre pressure. Air is a volatile medium. It is unavoidable that it will escape from tyres.

As a rule of thumb it can be assumed that a filled tyre loses pressure at a rate of 0.1 bar every two months. To prevent the tyres becoming damaged or burst, check the tyre pressure regularly.



- The information on pressure levels is valid for cold tyres and loaded vehicles.
- Pressure in hot tyres is higher than in cold tyres. Therefore, check the pressure when the tyres are cold.
- Tyre pressures in bar.
- The valve used has to be approved for the air pressure. We recommend the use of a metal valve for pressures exceeding 4.75 bars.
- For the maximum permissible axle loads for your vehicle please refer to specific documentation.
- When a replacement is needed, Dethleffs recommends "Camping" tyres.

The vehicles are constantly brought up to the newest technical standards. It is possible that new tyre sizes are not yet included in this table. If this is the case, the Dethleffs dealer will be happy to provide the newest values.

Tyre pressure table (depending on the axle loads)

Tyre size	Air pressure [bar]	Axle loads [kg]						
		1500	1650	1700	1750	1850	1900	1950
215/70 R15 C (109/107R)	front	3.1	3.5	3.7	3.75	4.0	4.1	4.25
	rear	3.1	3.5	3.7	3.75	4.0	4.1	4.25
215/70 R15 CP (109R)	front	3.25	3.6	3.75	3.9	4.25	4.4	4.5
	rear	3.75	4.25	4.4	4.5	4.9	5.0	5.25
225/70 R15 C (112/110R)	front	3.0	3.1	3.25	3.5	3.7	3.8	3.9
	rear	3.0	3.1	3.25	3.5	3.7	3.8	3.9
225/70 R15 CP (116R)	front	3.0	3.0	3.0	3.25	3.3	3.4	3.5
	rear	3.0	3.0	3.5	3.6	3.9	4.0	4.1
215/75 R16 C (116/114R)	front	3.0	3.1	3.25	3.5	3.7	3.8	3.9
	rear	3.0	3.1	3.25	3.5	3.7	3.8	3.9
225/75 R16 C (116/114N)	front	3.0	3.0	3.0	3.25	3.3	3.4	3.5
	rear	3.0	3.0	3.0	3.25	3.3	3.4	3.5
225/75 R16 CP (116R)	front	3.0	3.0	3.0	3.25	3.3	3.4	3.5
	rear	3.0	3.0	3.5	3.6	3.9	4.0	4.1
225/75 R16 C (121/120R)	front	3.0	3.0	3.1	3.2	3.4	3.5	3.6
	rear	3.0	3.0	3.1	3.2	3.4	3.5	3.6

16 Troubleshooting

This chapter contains instructions about possible faults in your vehicle. The faults are listed with their possible causes and corresponding remedies.

The instructions address the following topics:

- braking system
- electrical system
- gas system
- gas cooker
- heater
- boiler
- Refrigerator
- water supply
- toilet
- body

The specified faults can be remedied with relative ease and without a great deal of specialised knowledge. In the event that the remedies detailed in this instruction manual should not be successful, an authorised specialist workshop must find and eliminate the cause of the fault.

16.1 Braking system



Have defects on the braking system immediately remedied by an authorised specialist workshop.

16.2 Electrical system



▶ When the living area battery is changed, only use batteries of the same type.



See Chapter 9 for changing the fuses.

Fault	Cause	Remedy
Exterior road light system no longer functions correctly	Bulb is defective	Replace bulb. Note volts and watts specifications
	Fuse on the transformer/rectifier is defective	Replace fuse on the transformer/rectifier
	Fuses in the vehicle fuse box are defective	Check the fuses in the vehicle fuse box and, if necessary, replace.
Interior lighting does not work	Bulb is defective	Replace bulb. Note volts and watts specifications
	Fuse on the transformer/rectifier is defective	Replace fuse on the transformer/rectifier

Fault	Cause	Remedy
The electrically operated entrance step cannot be moved in or out	Fuse on the transformer/rectifier is defective	Replace fuse on the transformer/rectifier
No 230 V power supply despite connection	230 V automatic circuit breaker has triggered	Switch on 230 V automatic circuit breaker
Starter or living area battery is not charged when operated in 230 V mode	Maxi flat fuse (40 A) on the starter or living area battery is defective	Replace maxi flat fuse (40 A) on the starter or living area battery
	Charger module in the transformer/rectifier is defective	Contact customer service
Living area battery is not charged during vehicle operation	Fuse on terminalD+ of the alternator is defective	Replace fuse
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service

Fault	Cause	Remedy
12 V indicator lamp does not light up	12 V power supply switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
	Starter or living area battery is not charged	Charge the starter or living area battery
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
No display on the panel	Flat fuse (2 A) in the living area battery is defective	Replace flat fuse (2 A) in the living area battery
	12 V power supply switched off	Switch 12 V power supply on
	Living area battery disconnected from the 12 V power supply	Connect the living area battery with the 12 V power supply
	Starter or living area battery is not charged	Charge the starter or living area battery
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service

Fault	Cause	Remedy
12 V power supply does not work	12 V power supply switched off	Switch 12 V power supply on
	Living area battery disconnected from the 12 V power supply	Connect the living area battery with the 12 V power supply
	Living area battery is discharged	Charging the living area battery
	Maxi fuse (40 A) in the living area battery is defective	Replace maxi fuse (40 A) in the living area battery
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service

Fault	Cause	Remedy
12 V power supply does not work in 230 V operation	12 V power supply switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
	Charger module in the transformer/rectifier is defective	Contact customer service
	230 V automatic circuit breaker has triggered	Contact customer service
	Maxi fuse (40 A) in the living area battery is defective	Replace maxi fuse (40 A) in the living area battery
Starter battery is discharged in 12 V operation	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
	Living area battery disconnected from the 12 V power supply	Connect the living area battery with the 12 V power supply

Fault	Cause	Remedy
No voltage is supplied by the living area battery	Living area battery is discharged	Charge living area battery immediately  Total discharge damages the battery.
	<p>If the vehicle is to be laid up for a long period, fully charge the living area battery beforehand.</p> <p>If the living area battery has been totally discharged for too long, it is defective.</p> <p> If the temperature of the battery increases significantly, stop charging immediately. The battery must be replaced.</p>	
No output voltage at the converter ("Power Status" LED shows a fault)	Input voltage too high (rapid flashing)	Check input voltage
	Input voltage too low (slow flashing)	Recharge battery
		Check cables and connections
	Thermal overload (periodical flashing)	Switch off converter and appliances, and switch back on again after approx. 5 to 10 minutes
Improve ventilation		

Fault	Cause	Remedy
No output voltage at the converter ("Power Status" LED shows a fault)	Short circuit, incorrect polarity or excessive continuous load (continuous lighting)	Switch off the converter and remove the appliance. If no fault occurs after switching back on without an appliance, it is the appliance that is defective. If the fault still occurs, contact customer service.

16.3 Gas system



- In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close the regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- In case of a defect in the gas system: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.).
- Have the defect in the gas system repaired by an authorised specialist workshop.

Fault	Cause	Remedy
No gas	Gas bottle empty	Changing gas bottles
	Gas isolator tap closed	Open the gas isolator tap
	Regulator tap on the gas bottle is closed	Open regulator tap on the gas bottle
	Outdoor temperature too low (0 °C for butane gas)	Wait for higher external temperatures
	Built-in appliance is defective	Contact customer service

16.4 Gas cooker

Fault	Cause	Remedy
Ignition fuse does not operate (flame does not burn after the control knobs are released)	Heat-up time is too short	Keep control knob pressed for approx. 15 to 20 seconds after ignition
	Ignition fuse is defective	Contact customer service
Flame extinguishes when being reduced to its minimum setting	Thermocouple sensor is incorrectly set	Set thermocouple sensor correctly (do not bend). The sensor tip should protrude by 5 mm beyond the burner. The sensor neck should not be more than 3 mm away from the burner ring; if necessary, contact customer service

16.5 Heater/boiler

In the event of a defect contact the nearest customer service workshop of the relevant appliance manufacturer. The list of addresses is enclosed with the accompanying appliance documentation. Only authorised qualified personnel may repair the appliance.

Fault	Cause	Remedy
Heater does not ignite	Temperature sensor at the control unit or remote sensor defective	Remove the connector at the control unit. The heater then functions without the thermostat. Contact the customer service as soon as possible
Red indicator lamp "Fault" illuminates	Air in the gas pipe system	Switch off and on again. After two futile ignition attempts, wait for 10 minutes before trying again.
	Lack of gas	Open regulator tap and gas isolator tap
		Connect a full gas bottle
	Defect of a safety element	Contact customer service
Red indicator lamp "Fault" flashes	Operating voltage too low	Charge, have charged or renew the living area battery

Fault	Cause	Remedy
Green indicator lamp behind knob is not lit	Fuse on the transformer/rectifier is defective	Replace fuse on the transformer/rectifier
	Fuse in the electronic control unit has been triggered	Contact customer service
	Living area battery defective	Charge, have charged or renew the living area battery
Yellow indicator lamp on the energy selector switch does not illuminate	No supply voltage	Check 230 V connection and fuses
	Overheating switch was triggered	Press overheating switch
Boiler empties, safety/drainage valve has opened	Internal temperature below 7 °C	Heat up the interior
	Safety/drainage valve disconnected from battery supply	Remove battery separation. To do this, switch on the battery cut-off switch on the electrical block or remove the battery disconnection via the panel
	Operating voltage under 10.8 V	Charge, have charged or renew the living area battery
	Fuse is defective	Replace fuse on the transformer/rectifier

Fault	Cause	Remedy
Safety/drainage valve does not close during switching on	Safety/drainage valve disconnected from battery supply	Remove battery separation. To do this, switch on the battery cut-off switch on the electrical block or remove the battery disconnection via the panel
	Operating voltage under 10.8 V Fuse is defective	Charge/have living area battery charged Replace fuse on the transformer/rectifier
Red and green indicator lamps are not lit	Fuse is defective	Replace fuse on the transformer/rectifier
Fan wheel runs loudly or unevenly	Fan wheel soiled	Contact Truma Service

16.6 Refrigerator

In the event of a defect contact the nearest customer service workshop of the relevant appliance manufacturer. The list of addresses is enclosed with the accompanying appliance documentation. Only authorised qualified personnel may repair the appliance.

16.6.1 Dometic 10 series



- Faults are indicated by a fault code with a warning symbol "⚠" in the middle of the display.
- A table with the fault codes can be found in the manufacturer's operating instructions.

Resetting faults of the ERROR type

▶ Press the control knob (Fig. 88,7) for 2 seconds. A beeping tone is sounded. The error is reset.

16.7 Water supply

Fault	Cause	Remedy
Leakage water inside the vehicle	A leak has occurred	Identify leak, re-connect water pipes
No water	Water tank is empty	Replenish drinking water
	Drain cock not closed	Close drain cock
	12 V power supply switched off	Switch 12 V power supply on
	Fuse of the water pump is defective	Replace fuse on the transformer/rectifier
	Water pump defective	Exchange water pump (have it exchanged)
	Water pipe snapped off	Straighten water pipe or replace
	Transformer/rectifier defective	Contact customer service
Toilet has no flush water	Water tank is empty	Replenish drinking water
	Fuse for toilet is defective	Replace fuse
Display for water and waste water indicates a wrong value	Measuring probe in the waste water or water tank is soiled	Clean water/waste water tank
	Measuring probe is defective	Replace measuring probe

Fault	Cause	Remedy
Waste water tank cannot be emptied	Drain cock is clogged	Open the cleaning cap on the waste water tank and drain the waste water. Rinse the waste water tank well
Drain on the single lever mixer tap is clogged	Perlator calcified	Unclip the perlator, de-calcify in vinegar water (only for products made from metal)
Water jets on the shower nozzle clogged	Water jets calcified	De-calcify shower nozzle in vinegar water (only for products made from metal) or rub off soft nozzle burling
Water drains from the shower tray slowly or does not drain at all	The vehicle is not in a horizontal position	Position the vehicle horizontally

Fault	Cause	Remedy
Milkieness of the water	Tank filled with dirty water	Clean water tank mechanically and chemically; then disinfect and rinse copiously with drinking water
	Residues in the water tank or water system	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water
Any change in the taste or odour of the water	Tank filled with dirty water	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water
	Fuel filled into the water tank by mistake	Contact a specialist workshop immediately
Any change in the taste or odour of the water	Microbiological deposits in the water system	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water

Fault	Cause	Remedy
Deposits in the water tank and/or water-carrying components	Water excessively long in the water tank and in water-carrying components	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water

16.8 Body

Fault	Cause	Remedy
Flap hinges/door hinges are difficult to operate	Flap/door hinges are not sufficiently lubricated	Lubricate flap hinges/door hinges with acid-free and resin-free grease
Hinges/joints in the bathroom unit/toilet compartment are difficult to operate/ make a grating noise	Hinges/joints are not sufficiently lubricated	Lubricate hinges/joints with solvent-free and acid-free grease  Spray cans often contain solvents
Storage compartment hinges are difficult to operate/ make a grating noise	Storage compartment hinges are not sufficiently lubricated	Lubricate storage compartment hinges with acid-free and resin-free grease
Heki skylight difficult to operate	Threaded spindle not lubricated	Lubricate threaded spindle
	Threaded spindle defective	Have threaded spindle replaced



- The authorised dealers and service centres are available for any spare parts requirement.

17 Special equipment

17.1 Weight details for special equipment



- The use of accessories, parts and fittings not supplied by Dethleffs may cause damage to the vehicle and jeopardize road safety. Even if an expert's report, a general type approval or a design certification exists, there is no guarantee for the proper quality of the product.
- Every alteration of the original condition of the vehicle can alter road behaviour and jeopardize road safety.
- No liability can be assumed for damage caused by products which have not been approved by Dethleffs. This also applies to impermissible alterations to the vehicle.