BÜRSTNER

Instruction Manual

☑ Elegance

EN

Dear Reader ...

We would like to congratulate you on the purchase of your new motorhome. You have selected a top-quality vehicle which will afford you many years of enjoyment.

To enable you to always use and operate your motorhome properly and easily, your Bürstner dealer will first provide you detailed instructions for all important functions when you take delivery.

This manual, the instruction manuals from the base vehicle manufacturer as well as the instruction manuals from the appliance manufacturer will always be at hand to answer any questions you may have regarding your motorhome.

Before your first journey

Please familiarise yourself with this manual rather than relying on it strictly for reference.

Fill in the warranty cards for the appliances and optional equipment in the individual instructions and send these cards to the respective manufacturers. This ensures your warranty claim for each appliance.

Please also observe the chassis manufacturer’s operating instructions at all times.

The terms used in these operating instructions with regard to weight specifications are explained again in detail at the end of the operating instructions (legal information on weight-related specifications). For further details on weight specifications, please also refer to the "Weight information" section of our homepage at www.buerstner.com/de/en/weight-information

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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.

This instruction manual contains sections which describe model-specific equipment or optional equipment. These sections are specially marked. It may be that your vehicle has not been fitted with this optional 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 optional equipment not described in this instruction manual.

Optional 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 guarantee 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.

1.1 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.

Before using the vehicle for the first time, equip it with the legally prescribed equipment (e.g. first aid kit, warning vest, hazard warning triangle etc.). Observe the relevant equipment regulations when travelling abroad.

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.

1.2 Environmental tips

- ▷ Be considerate of the environment.
- ▷ Remember that: All kinds of waste water and household waste are not to be disposed of in drains or in the open countryside.
- ▷ On board, collect waste water only in the waste water tank or – if necessary – in other containers designed for that 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 containers 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 long periods, search for parking areas that are specially reserved for motorhomes. Enquire at the town or community authority about parking spaces.
- Always leave the parking places in a clean condition.

1 Introduction

2.1 Bürstner Warranty Conditions

1. BÜRSTNER GmbH & Co. KG, Weststraße 33, 77694 Kehl (Guarantor) grants a 10-year water ingress warranty on vehicles manufactured from model year 2019 onwards, up to a maximum mileage of 120,000 km and that the following components of the caravan or motorhome are sealed in such a way that there is no ingress of moisture from the outside to the inside (interior) during normal, contractual and non-commercial use of the vehicle.

   Exterior connecting seams:

   - Roof/side wall
   - Roof/rear wall
   - Roof/driver's cabin
   - Walls/underbody
   - Chassis/underbody

   Outer seal seams between built-in parts and the cut-outs of the body:

   - Doors
   - Windows
   - Service and garage flaps
   - Skylights
   - Water filling devices
   - Power supply flaps

   The party covered by the warranty is responsible for proving that the vehicle is covered by the warranty.

2. In the event of proof of a warranty claim due to faulty sealing (cf. Point 1.), the guarantor is exclusively obliged under these warranty conditions to repair the affected body parts free of charge or to replace the affected parts, depending on what the guarantor considers necessary to remedy the water ingress. The required work shall be carried out by the guarantor or by an authorised workshop in accordance with the guarantor's guidelines. Should additional costs arise while remedying the water ingress due to installations or other changes to the vehicle compared to the original condition, these shall be borne by the guarantor. The cost of warranty work carried out by neither the guarantor nor one of the guarantor's authorised workshops is non-refundable, irrespective of the existence of a warranty claim. The party covered by the warranty shall not be entitled to other claims under this warranty, in particular regarding subsequent delivery, withdrawal from the purchase contract, price reduction or compensation for damages (including consequential damages), as well as compensation for direct or indirect, material or immaterial consequential damages. Excluded are e.g. claims for compensation for transport or travel costs, towing costs, loss of earnings or holiday cancellation, as well as compensation for futile expenditure. The legal rights of the party covered by the warranty with regards to its seller remain unaffected by this warranty. The legal rights of the party covered by the warranty with regards to its seller remain independent of claims under this warranty.

3. Depending on which occurs earlier, the warranty period begins either on the date of first registration or on the handover of the vehicle to the original purchaser, but no later than one year after the first delivery of the vehicle to the dealer.
   It applies for the duration of the vehicle's usability, but no longer than 10 years or up to a maximum mileage of 120,000 km, whichever occurs earlier. Change of ownership of the vehicle does not affect the warranty. The warranty shall expire if the yearly inspections required in accordance with Point 4. are not carried out. The performance of warranty work does not extend the warranty period, nor does it result in the period starting anew.

4. The successful assertion of a warranty claim is dependent on the vehicle undergoing a yearly water ingress test at a BÜRSTNER authorised workshop. This inspection shall be carried out each year within the 11th to 13th month after the beginning of the warranty period (cf. Point 3.). The costs of carrying out the water ingress test shall be borne by the party covered by the warranty. Claims under this warranty by the party covered by the warranty are only valid if the performance of the yearly inspections has been properly verified by a BÜRSTNER authorised workshop.
   This includes an inspection record filled out by the BÜRSTNER authorised dealer. Proof of the regular performance of water ingress tests shall be provided by the party covered by the warranty.

5. The occurrence of water ingress, or moisture indicative of water ingress, shall be reported by the party covered by the warranty to a BÜRSTNER authorised workshop, in writing, within 15 days of becoming aware of the issue. Knowledge is equivalent to grossly negligent and negligent ignorance. Compliance with the 15-day deadline is dependent on receipt of the notification at a BÜRSTNER authorised workshop. The notification shall be attached to the warranty document. If the water ingress is not reported correctly and in due time, no claims under this warranty are possible.

6. The necessity, method and scope of remedying the water ingress is at the sole discretion of the guarantor or its authorised workshops.

7. Warranty claims are excluded in the event of:

   - Forces of nature (e.g. floods, hail, etc.) and animal damage of any kind.
   - Damage resulting from an accident.
   - Water ingress due to conversions or additions to the vehicle that were not carried out by a BÜRSTNER authorised workshop.
   - Water ingress due to improper damage repairs that were not carried out by a BÜRSTNER authorised workshop.
   - Damage to the outer shell discovered during inspections that was not repaired immediately by the party covered by the warranty.
   - Aluminium corrosion that cannot be attributed to water ingress.
   - If the vehicle is modified using spare parts that have not been authorised by BÜRSTNER, and a warranty claim arises as a result.
   - Condensation due to insufficient ventilation.
   - Improper, non-contractual handling and use of the vehicle.
   - Damage due to incorrect use of care products or cleaning agents (see “Care” instructions in the instruction manual.)

- Damage due to non-compliance with the instruction manual or the manufacturer's repair and maintenance instructions.
- All other damages that are not the responsibility of the guarantor or an authorised workshop of the guarantor.

8. Water ingress tests are subject to a fee. The costs of the inspections shall be paid by the party covered by the warranty (cf. Point 4).
9. As far as legally permissible, the exclusive place of jurisdiction shall be Kehl, Germany. The place of performance for all claims under this Warranty is Kehl. This warranty is governed exclusively by the law of the Federal Republic of Germany. This applies regardless of the place of residence or business of the party covered by the warranty.

2.2 Proof of water ingress tests

Providing proof

▷ The annual water ingress tests are a prerequisite for the weatherproof guarantee of the housing body.

It is mandatory that the inspection record is filled in completely, entered in the online system, and printed out for you after each carried out test by your dealer.

2.2.1 Vehicle data

The following inspection records apply exclusively to the vehicle:

Datum	**Entry**
Model, type	
Chassis number	
Key no.	
First registration / date of handover	
Purchased from company	

2.2.2 Water ingress test (certificates)

12 months _____ Stamp of the Bürstner dealer	24 months _____ Stamp of the Bürstner dealer
Date Signature	Date Signature
36 months _____ Stamp of the Bürstner dealer	48 months _____ Stamp of the Bürstner dealer
Date Signature	Date Signature
60 months _____ Stamp of the Bürstner dealer	72 months _____ Stamp of the Bürstner dealer
Date Signature	Date Signature
84 months _____ Stamp of the Bürstner dealer	96 months _____ Stamp of the Bürstner dealer
Date Signature	Date Signature
108 months _____ Stamp of the Bürstner dealer	
Date Signature	

Date: August 2018

Chapter overview

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

3.1 Fire prevention

3.1.1 Avoidance of fire risks

- ▶ Never leave children in the vehicle unattended.
- ▶ Keep flammable materials clear of heating and cooking appliances.
- ▶ Halogen lamps can get very hot. When the light is switched on, there must always be a safety distance of 30 cm between light and flammable objects. Fire hazard!
- ▶ Never use portable heating or cooking appliances.
- ▶ Only authorised qualified personnel may make changes to the electrical system, gas system or appliances.

3.1.2 Fire-fighting

- ▶ Always carry a dry powder fire extinguisher in the vehicle. The fire extinguisher must be approved, tested and close at hand.
- ▶ Have the fire extinguisher tested at regular intervals by authorised qualified personnel. Observe the date of testing.
- ▶ Depending on the equipment, the fire extinguisher is included in the scope of delivery.
- ▶ Always keep a fire blanket near the cooker.

3.1.3 In case of fire

- ▶ Evacuate all passengers.
- ▶ Cut off the electrical power supply and disconnect from the mains.
- ▶ Close regulator tap on the gas bottle.
- ▶ Sound the alarm and call the fire brigade.
- ▶ Fight the fire if this is possible without risk.

- ▷ Acquaint yourself with the position and operation of the emergency exits.
- ▷ Keep escape routes clear.
- ▷ Observe the fire extinguisher instructions for use.

3.2 General

- ▶ The oxygen in the vehicle interior is used up by breathing and the use of gas operated appliances. That is why the used air must be replaced permanently. For this purpose, forced ventilation options (e.g. sky-lights with forced ventilation, mushroom-shaped vents or floor vents) are fitted to the vehicle. Never cover or block forced ventilations from the inside or outside with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves. There is a danger of suffocation due to increased CO_2 levels.
- ▶ Do not use storage spaces or rear garages as places for people or animals to stay or sleep in. These spaces are not forced-air ventilated. There is a danger of suffocation due to oxygen deprivation or exhaust from the heater.
- ▶ Observe the headroom of the doors.

- ▷ As far as the fitted appliances (heater, cooker, refrigerator, etc.) and the base vehicle (engine, brakes, etc.) are concerned, the instruction manuals are authoritative. It is imperative that they be observed.
- ▷ Fitting accessories or optional equipment can alter the dimensions, weight and road behaviour of the vehicle. Some of the add-on parts must be entered in the vehicle documents.
- ▷ 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.
- ▷ If the maximum permissible gross weight of the vehicle exceeds 4 tonnes, wheel chocks must be used when parking on gradients. The wheel chocks are provided as standard for vehicles which have a maximum permissible gross weight exceeding 4 t.

- ▷ When leaving the vehicle, it is imperative that all doors, external flaps and windows are closed.
- ▷ Always carry the legally prescribed equipment (e.g. first aid kit, warning vest, hazard warning triangle etc.) with you. The regulations of the host country apply when travelling abroad.
- ▷ The vehicle may only be driven by drivers who hold a driving licence which is valid for the respective vehicle class.
- ▷ When selling the vehicle, hand over all instruction manuals for the vehicle and the fitted appliances.

3.3 Road safety

- Before commencing the journey, carry out a functional check of indicating and lighting equipment, the steering and the brakes.
- If the vehicle has been stationary for a long period (approx. 10 months) have the braking and gas systems checked by an authorised specialist workshop.
- Before commencing the journey and after short interruptions of the journey, ensure that the entrance step is completely retracted.
- Before commencing the journey, secure the pull-down bed.
- Before commencing the journey, open, lock and secure the shades situated on the windscreen and on the driver's and front passenger's windows.
- Before commencing the journey, rotate all swivel seats in the direction of travel and lock in position. During the journey, the swivel seats must remain locked in place in the direction of travel.
- Carefully store all moving parts and all loose objects before starting your journey.
- Before commencing the journey, place and secure the flat screen and screen holder in the initial position. If the screen holder is installed in a TV cabinet: Close TV cabinet.
- Before commencing the journey, remove the loose sink cover (if present) and store it securely in the kitchen unit or wardrobe.
- Before commencing the journey, fix adjustable tables.
- During the journey, persons are only to sit on the permitted seats (see chapter 5). The authorised number of seats is stipulated in the vehicle documents.
- Seat belts must be worn by all passengers.
- Fasten your seat belts before the beginning of the journey and keep them fastened during the journey.
- When travelling, secure children under 13 years of age that are smaller than 150 cm, with a suitable and officially approved child restraint system.
- Only attach the child restraint system to seats that are specified for this purpose. We strongly recommend to install child restraint systems preferably in the second row of seats.
- **Never** use rearward-facing child restraints on a seat with **activated front airbag**. This may lead to **death** or to **serious injuries** in children.
- The base vehicle is a commercial vehicle (small truck). Adjust your driving technique accordingly.
- In case of underpasses, tunnels or similar obstacles, note the total height of the vehicle (including the roof load).
- In winter, the roof must be free of snow and ice before commencing the journey.

- ▶ Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle (see section 14.6).
- ▶ Do not operate the heater at petrol stations. Danger of explosion!
- ▶ Do not operate the heater in closed spaces. Danger of suffocation!

- ▷ Before commencing the journey, distribute the payload evenly within the vehicle (see chapter 4).
- ▷ When loading the vehicle and during breaks in the journey, e.g. when re-loading luggage or food, observe the technically permissible maximum laden mass and the technically permissible maximum mass on the axle (see the vehicle documents).
- ▷ Before commencing the journey, close and lock, if possible, all inner doors, adjustable partition walls, drawers and flaps. Engage the refrigerator door securing device.
- ▷ Before commencing the journey, close windows and skylights.
- ▷ Before commencing the journey, close all external flaps and lock them.
- ▷ Before commencing the journey, remove the external supports and retract the corner steadies or steady legs, which are fitted to the vehicle.
- ▷ Before commencing the journey, put the antenna in park position.
- ▷ During the initial journey and each time after changing a wheel, re-tighten the wheel bolts/wheel nuts after 50 km (30 miles). Subsequently inspect them at regular intervals in order to ensure that they are firmly seated. See chapter 14 for tightening torque.
- ▷ Tyres must not be older than 6 years as the material becomes brittle over time (see chapter 14).
- ▷ When using snow chains, the tyres, wheel suspension and steering are subjected to an additional load. When using snow chains, drive slowly (maximum speed 50 km/h) and only on streets which are completely covered with snow. Otherwise the vehicle could be damaged.

3.4 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.

3.5 Gas system

3.5.1 General instructions

- The operator of the gas system is responsible for the performance of recurring inspections and for complying with the maintenance intervals.
- Before commencing the journey, when leaving the vehicle or when gas equipment is not in use, close all gas isolator taps and the main regulator tap on the gas bottle.
- All gas-operated devices (heater, cooker, oven, grill, refrigerator - depending on the equipment) must be switched off for refuelling, on ferries or in the garage. Danger of explosion!
- Do not use gas-operated devices in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- Only have the gas system maintained, repaired or altered by an authorised specialist workshop.
- Have the gas system checked by an authorised specialist workshop according to the national regulations before commissioning. 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, the gas tubes, and the exhaust gas pipes must also be inspected. The gas pressure regulator and the gas tubes must be replaced observing the nationally defined deadlines (the latest after 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 regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.). Check the tightness of gas-conducting parts and lines with leakage search spray. Do not check with an open flame.
- Only the stipulated devices may be connected to internal connections. Do not operate any device outside the vehicle if it is connected to an internal connector.
- Before using the cooker make sure that there is sufficient ventilation. Open a window or the skylight.
- Cooking is prohibited during the journey.
- Do not use gas-operated cooking and baking facilities 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 built-in gas devices are exclusively meant for use with propane or butane gas or a mixture of both. The gas pressure regulator as well as all built-in gas devices are designed 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.
- Due to its function and construction, the gas bottle compartment is a space which is open to the exterior. Never cover or block up the standard forced ventilations. Otherwise gas that is emitted can not be diverted to the outside.
- The gas bottle compartment must not be used as storage space.
- Secure the gas bottle compartment against unauthorised access. To do this, lock the compartment.
- The regulator tap on the gas bottle must be accessible.
- Only connect gas-operated devices 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. For this reason, keep the exhaust pipe and intake openings clean and unobstructed (e.g. free from snow and ice). For this reason, no snow walls or aprons may lie against the vehicle.

3.5.2 Gas bottles

- Handle full or emptied gas bottles outside the vehicle only with closed regulator tap and attached protective cap.
- Gas bottles are only to be transported within the designated gas bottle compartment.
- Place the gas bottles in vertical position in the gas bottle compartment.
- Fasten the gas bottles so that they are unable to turn or tilt.
- Connect the gas tube to the gas bottle without tension.
- 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.
- Depending on the connection, unscrew the gas tube from the gas bottle and screw it on the gas bottle again by hand or using an suitable special spanner. The screw connection on the gas bottle generally has a left-hand thread. **Do not** tighten too firmly.
- 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 only 11 kg or 5 kg gas bottles. (Gas bottle sizes may vary depending on the country.) Camping gas bottles with built-in check valve (blue bottle with max. 2.5 or 3 kg content) are can be used in exceptional cases with a safety valve.
- Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- Never block the floor ventilation openings below the gas bottles.

3.6 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.

3.7 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 the case of lay-ups lasting more than a week disinfect the water system before using the vehicle (see section 12.3.3).

▷ 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. Make certain that the water pump is switched off on the panel. Otherwise, the water pump will overheat and may get damaged. Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) 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.

Chapter overview

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

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

4.1 Keys

The following keys are included with your vehicle:

Two keys for

- ignition lock

Two keys for

- driver's door
- conversion door of the body
- fuel tank
- drinking 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 vehicle is a motor vehicle subject to registration. Observe national regulations on registration.

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

4.3 Vehicle load capacity

- ▶ Overloading the vehicle and the axles may result, for example, in a diminished steering response (altered driving behavior), an overloading of the tires, and, as a result, an increased risk of tire blowouts or an extended braking distance. This may cause you to lose control of the vehicle, endangering yourself and other road users.
  If you are not sure whether the loaded vehicle complies with the technically permissible maximum laden mass, you can weigh/check the vehicle on public scales or have it weighed by certain dealers.
- ▶ The vehicle documents state the technically permissible maximum laden mass or the mass including optional equipment ex works (actual vehicle mass), but not the weight of the laden vehicle (see section 4.3.1). For your own safety, we recommend that you have your loaded vehicle (with all passengers, luggage and personal objects) weighed on a public weighbridge before you set out on your journey.
- ▶ Adapt the speed to the payload. The stopping distance is increased if the payload is high.

- ▷ Do not exceed the technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle as stated in the vehicle documents by the payload.
- ▷ Built-in accessories and optional equipment reduce the vehicle load capacity.
- ▷ 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.

- ▷ If you drive the vehicle even though it exceeds the technically permissible maximum laden mass specified by the manufacturer, you may face legal consequences, such as a fine or loss of insurance.

Maximum permitted payloads

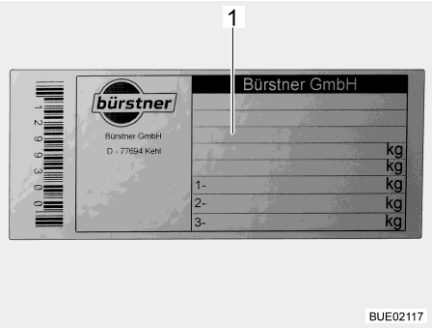
Description		Load (kg)
Pull-down bed		200
Roof load		90
Rear garage and rear storage space		350
Bike rack, lowerable	Double/triple	60

4.3.1 Terms

- ▷ Technically speaking, the term "mass" has now replaced the term "weight". However, "weight" is still the term more frequent in common use. For better understanding, "mass" is therefore only used in the following sections for fixed formulations.

Technically permissible maximum laden mass

The technically permissible maximum laden mass is a value specified by the manufacturer that, for safety reasons, the vehicle must never exceed, even when loaded (e.g. 3,500 kg). Information on the technically permissible maximum laden mass of the model you have chosen can be found in the registration papers and on the body manufacturer’s nameplate in the vehicle.



1 Chassis number

Fig. 1 Nameplate

The technically permissible maximum laden mass consists of the **actual vehicle mass** and the **payload**.

The manufacturer has specified the technically permissible maximum laden mass (maximum permissible gross weight) under CoC 16.1 in the CoC vehicle documents.

Actual vehicle mass

The actual vehicle mass consists of the mass in running order and the weight of the optional equipment fitted at the factory.

Mass in running order

The mass in running order is the weight of the ready-to-drive series vehicle (excluding optional equipment fitted at the factory).

The mass in running order is made up as follows:

- Unladen weight (mass of the empty vehicle) with factory-installed standard equipment (excluding optional equipment fitted at the factory)
- Driver's weight
- Basic equipment weight
- Greases, oils and cooling liquids filled in
- Fresh water tank filled up to 100 %
- Aluminium gas bottle filled up to 100 %
- Fuel tank filled to 90 %

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:

- A full fresh water system
- A full heating system
- The power cables for the 230 V power supply
- 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 in the ready-to-drive state with 20 l (overflow open)	20 kg
Aluminium gas bottle	+ 11.5 kg
Boiler with 20 l	+ 20 kg
230 V power cable	+ 4 kg
Total	**= 55.5 kg**

The vehicle mass in a ready-to-drive condition is specified under CoC 13 in the CoC vehicle documents (e.g. 2900 kg). The actual vehicle mass is specified under CoC 13.2 in the CoC vehicle documents (e.g. 2950 kg).

Remaining load capacity

To determine the remaining load capacity, it is important that you know the actual weighed mass of your vehicle. Upon completion of your vehicle, therefore, we determine the actual weight of your vehicle for the first time by weighing it at the end of the line. This includes the mass in running order plus the weight of all ordered and factory-fitted optional equipment.

You can use this actual weighed mass to calculate the remaining load capacity for baggage or other accessories.

Example:
Technically permissible gross weight – actual weighed mass – mass of passengers = remaining load capacity
3500 kg – 3000 kg – 225 kg (3 x 75 kg) = 275 kg

▷ Please note that the factory calculation of the remaining load capacity for the mass of the driver (included in the actual weighed mass) and the mass of the passengers is based on a generalized mass of 75 kg per seat. Due to deviating body weights, however, the actual remaining load capacity of your vehicle may vary.

▷ The actual factory-weighed mass of your vehicle may vary slightly afterwards due to weather conditions and, for example, the associated absorption or release of moisture. Any further subsequent modification of your vehicle, e.g. through the additional installation of accessories by the dealer or other attachments and/or conversions, will additionally influence the actual weighed mass of the vehicle communicated and consequently also the remaining load capacity. It is the responsibility of the dealer after picking up the vehicle at the factory until delivery, and subsequently your responsibility from the time of handover by the dealer, to ensure that the technically permissible maximum laden mass is not exceeded. If you are not sure whether the loaded vehicle complies with the technically permissible maximum laden mass, you can weigh/check the vehicle on public scales or have it weighed by certain dealers.

▷ We will inform your dealer of the actual weighed mass of your vehicle and the remaining load capacity when we issue the invoice. Your dealer is required to pass on the information to you. If you have not received this information, you can contact your dealer and request it. Our scales meet all legal and standard requirements and are regularly maintained, tested and, calibrated. Nevertheless, a slight tolerance is technically unavoidable. Moreover, the weight of the vehicle may vary slightly due to weather conditions and, for example, the associated absorption or release of moisture. The actual weight of the vehicle may therefore deviate from the actual weight communicated by a few kilograms.

The payload is made up as follows:

- Conventional load
- Optional equipment
- Personal equipment

▷ The vehicle load capacity can be increased by reducing the actual vehicle mass. To do this, it is allowed for example to empty the fluid containers or to remove the gas bottles.

You will find explanations on the individual components of the payload 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 in the mass in running order and must **not** be counted.

The manufacturer specifies the number of seats under CoC 42 in the CoC vehicle documents.

Optional equipment

Optional equipment includes all equipment not included in the standard equipment which is fitted to the vehicle under the responsibility of the manufacturer.

- Caravan coupling
- Awning
- Bike or motorcycle rack
- Satellite unit
- Microwave oven

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

Personal equipment

Personal equipment includes all items carried in the vehicle that are not included in the conventional load and optional 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 metres

4.3.2 Calculating the vehicle load capacity

- ▶ The payload calculation at the factory is partly based on all-inclusive weights. For safety reasons, the technically permissible maximum laden mass must not be exceeded.
- ▶ The vehicle documents state the technically permissible maximum laden mass or the mass including optional equipment ex works (actual vehicle mass), but not the weight of the laden vehicle (see section 4.3.1). For your own safety, we recommend that you have your loaded vehicle (with all passengers, luggage and personal objects) weighed on a public weighbridge before you set out on your journey.

The vehicle load capacity (see section 4.3.1) is the difference in weight between

- the technically permissible maximum laden mass and
- the actual vehicle mass.

Example for calculating the vehicle load capacity

	Mass in kg to be calculated	Calculation
Technically permissible maximum laden mass according to CoC 16.1	5000	
Actual vehicle mass including standard equipment according to CoC 13.2	- 4300	
This results in a permissible payload of	**700**	

The calculation of the vehicle load capacity from the difference between the technically permissible maximum laden mass and the actual vehicle mass specified by the manufacturer is however only a theoretical value.

Only if the vehicle is weighed on a public scale with filled tanks (fuel and water), filled gas bottles and complete optional equipment (and accessories) can the actual vehicle load capacity 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 section 4.3.3). The sum of these values is the current weight of the vehicle.

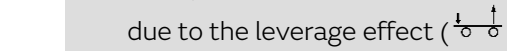
The actual vehicle load capacity is the difference between the technically permissible maximum laden mass and the weighed vehicle weight.

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 vehicle load capacity.

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

4.3.3 Load securing and load distribution

- ▶ For safety reasons, never exceed the technically permissible maximum laden mass.
- ▶ Distribute the load evenly on the left and right sides of the vehicle.
- ▶ Distribute the load evenly on both axles. Observe the technically permissible maximum laden mass on the axle specified in the vehicle documents. Observe the permissible load-carrying capacity of the tyres (see chapter 14).
- ▶ Heavy loads behind the rear axle can reduce the load on the front axle due to the leverage effect (). This applies especially to long rear extensions, if a motorbike is transported on the rear carrier or if there is a heavy load in the rear storage space. The release of the front axle negatively affects the driving quality, especially for front-driven vehicles.
- ▶ Store all objects in such a way that they cannot slip.
- ▶ Store heavy objects (awning, tin cans, etc.) close to the axles. Low-lying storage spaces whose doors do not open in the direction of travel are particularly suited for storing heavy objects.
- ▶ Stack light objects (laundry) in the roof storage cabinets.
- ▶ Load the bike rack with bicycles only (max. three units).

Large storage compartments also offer room for heavy objects. The mass on the front or rear axle may be exceeded as a result.

However, the individual axles may not be overloaded under any circumstances. That is why it is important, at which distance to the axles the load is stored.

When loading the vehicle please observe the following instructions to ensure safe driving:

- Baggage and other items carried in the vehicle must be evenly distributed between the left and right sides of the vehicle.
- Heavy or bulky items should be stowed as close to the ground as possible in stowage boxes provided for this purpose and near the axles, and they must be secured against slipping.
- Light and other items can be stowed in lockers and storage compartments.
- Always ensure that the doors and flaps on the cabinets and storage compartments are properly secured.
- Use only suitable clamping systems to secure items against slipping. Please recheck all tie-downs before commencing travel.

- ▶ Uneven loading has a negative effect on driving behavior. A rear-heavy load in particular results in a reduction of the load on the front axle due to leverage effects and thus, for example, to a loss of traction, a diminished steering response (altered driving behavior), an overloading of the tires and, as a result, an increased risk of tire blowouts. This may cause you to lose control of the vehicle, endangering yourself and other road users. An evenly distributed load over the entire vehicle leads to optimum driving behavior during travel.

- ▷ The technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle must not be exceeded. Especially when stowing or attaching heavy accessories or heavily laden accessories (such as motorcycle carriers or bicycle carriers) at the rear, the mass on the axle must be checked and complied with. If you are not sure whether the loaded vehicle complies with the technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle, you can weigh/check the vehicle on public scales or have it weighed by certain dealers.
- ▷ For individual models, a maximum load is specified by the body manufacturer for cabinets, drawers, storage compartments, or other storage spaces. This maximum load can be seen on the stickers attached on site and must be observed at all times. However, the technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle must not be exceeded under any circumstances. For this reason, please note that the stated maximum load may not be fully utilized if this would result in the exceedance of the technically permissible maximum laden mass or technically permissible maximum laden mass on the axle.
- ▷ Further information on correct loading can be found in the sections "Technically permissible maximum laden mass" (page 24), "Technically permissible maximum laden mass on the axle (mass on the axle)" (page 30) and "Rear garage/rear storage space" (page 33).

To distribute the load correctly, you will need a scale, a tape measure, a calculator and some time.

Two simple formulas are needed to calculate the effect of the weight of the load on the axles:

Formulas

A x G : R = weight on the rear axle

Weight on the rear axle – G = weight on the front axle

Explanation

A = distance between storage space and front axle in cm

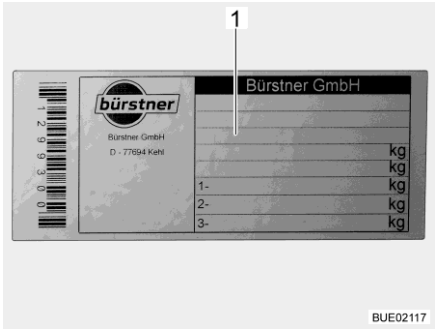
G = weight of the load in the storage space in kg

R = wheelbase of the vehicle (distance between axles) in cm

- ▷ Measure the external distances horizontally from the centre of the front wheel to the centre of the storage space or to the centre of the back wheel.

Technically permissible maximum laden mass on the axle (mass on the axle)

The technically permissible maximum laden mass on the axle or group of axles (hereafter referred to as mass on the axle) refers to the vehicle- and axle-specific load that may be transferred from the wheels of an axle or group of axles to the road surface. The mass on the axle is a value specified by the manufacturer that, for safety reasons, the vehicle must never exceed, even when loaded. You will find information on the mass on the axle of your vehicle in the registration papers and on the body manufacturer's nameplate in the vehicle.



1 Chassis number

Fig. 2 Nameplate

▶ If the technically permissible maximum laden mass on the axle is exceeded, the vehicle may be damaged (e.g. due to a broken axle or tire blowout) and driving performance may be considerably impaired. This may cause you to lose control of the vehicle, endangering yourself and other road users. We therefore recommend weighing the final loaded vehicle including all passengers before commencing travel in order to ensure compliance with the mass on the axle and the technically permissible maximum laden mass at all times. For this purpose, you can weigh/check the vehicle on public scales or have it weighed by certain dealers.

▷ Please note that the mass on the respective axles or axle groups may differ. For this reason, please read the information provided in the registration papers carefully.

▷ If you drive the vehicle even though it exceeds the technically permissible maximum laden mass on the axle specified by the manufacturer, you may face legal consequences, such as a fine or loss of insurance.

▷ It is possible that the chassis manufacturer of your vehicle specifies a minimum load for the front axle in order to achieve optimum driving behavior. Therefore, please also always observe the information regarding this from the operating instructions of the chassis manufacturer.

▷ For further information on correct loading, please refer to the sections "Load securing and load distribution" (page 29) and "Rear garage/rear storage space" (page 33).

Calculating masses on the axles:

- Multiply the distance between storage space and front axle (A) with the weight of the load in the storage space (G) and divide the result by the wheelbase (R). The result is the weight of the load in the storage space on the rear axle. Make a note of this weight and of the storage space.
- In a second step, subtract the weight in the storage space (G) from the weight calculated beforehand. If the result is a **positive** value (example 1), this means that the load on the front axle is **reduced** by this value. If the result is a **negative** value (example 2), this means that the load on the front axle is **increased**. Make a note of this value, too.
- Calculate all storage spaces of the vehicle in the same way.
- In a last step, add all weights calculated for the rear axle to the mass on the rear axle and add (or subtract) all weights calculated for the front axle to (from) the mass on the front axle.
  How to determine the mass on the rear axle and front axle is described in section 4.3.2.

If the calculated value exceeds the permissible mass on the axle, the load must be distributed in a different way.

If the load on the front axle is too low, the grip of the tyres on the road is reduced (traction). This applies in particular to vehicles with front-wheel drive. In this case, the load must be redistributed, too.

Example calculation

		Example 1	Example 2
Distance to the front axle	A	(A1) 450 (cm)	(A2) 250 (cm)
Weight in the storage space	G	x 100 (kg)	x 50 (kg)
Wheelbase of the vehicle	R	÷ 325 (cm)	÷ 325 (cm)
Load on the rear axle (add to the axle load)		**138.5 (kg)**	**38.5 (kg)**
Weight in the storage space		- 100 (kg)	- 50 (kg)
Load relief to the front axle (subtract from the axle load)		**38.5 (kg)**	
Load on the front axle (add to the axle load)			**-11.5 (kg)**

Increase and reduction of load capacity

In the case of an increase of load capacity, a change in the chassis usually increases the technically permissible maximum laden mass of the vehicle, the technically permissible maximum laden mass on the axle and, as a result, the remaining load capacity for luggage, camping equipment, etc.

In contrast to an increase of load capacity, a reduction of load capacity reduces the technically permissible maximum laden mass of the vehicle, the technically permissible maximum laden mass on the axle and, as a result, the remaining load capacity for luggage, camping equipment, etc. As a rule, a technical modification of the chassis is not performed.

- ▷ Due to the change in the technically permissible maximum laden mass, increases or reductions of load capacity may affect the permitted seats, the chassis, and the mass on the axle. If you have any questions, feel free to contact the responsible technical testing center for advice.
- ▷ A reduction or increase of load capacity may result in changes to the legal requirements resulting from the new technically permissible maximum laden mass of the vehicle. This applies in particular to the legal requirements from the German Road Traffic Act (StVO), the German Road Vehicle Registration Regulation (StVZO), and tax and insurance regulations. An increase of technically permissible maximum laden mass to over 3500 kg may, for example, affect the driving license class or result in different speed limits or prohibitions on passing and overtaking. Toll payment requirements may also change due to the new technically permissible maximum laden mass. Therefore, inform yourself about the current legal situation with regard to the new technically permissible maximum laden mass of the vehicle and seek advice on this from the appropriate bodies. Please note that national regulations in the country of your destination and countries visited in transit may differ from those in your home country.
- ▷ For more information on the actual weighed mass of your vehicle and the remaining load capacity, please refer to section "Remaining load capacity" (page 25).

4.3.4 Rear garage / rear storage space

- ▶ Observe the technically permissible maximum laden mass on the axle and the technically permissible maximum laden mass when loading the rear garage / rear storage space.
- ▶ The maximum permitted load of the rear garage / the rear storage space is 350 kg. Do not exceed the technically permissible maximum mass on the rear axle.
- ▶ Uneven loading or overloading has a negative effect on driving behavior. A rear-heavy load in particular results in a reduction of the load on the front axle due to leverage effects and thus, for example, to a loss of traction, a diminished steering response (altered driving behavior), an overloading of the tires and, as a result, an increased risk of tire blowouts. This may cause you to lose control of the vehicle, endangering yourself and other road users. An evenly distributed load over the entire vehicle leads to optimum driving behavior during travel. If you are not sure whether the loaded vehicle complies with the technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle, you can weigh/check the vehicle on public scales or have it weighed by certain dealers.
- ▶ When transporting vehicles powered by gasoline, diesel, gas, or other flammable material, make sure that the tank of the transported vehicle is completely empty. When transporting electric bikes, we also recommend that you remove and securely stow the battery before commencing travel.
- ▶ Rear garages and rear storage compartments are not designed at the factory to function as sleeping or living areas for people or animals. These spaces are not provided with ventilation at the factory. There is a risk of suffocation due to a lack of oxygen.

- ▷ Depending on the vehicle equipment, clamping rails with clamping eyelets are mounted in the rear garage or in the rear storage space. Always secure loads onto the clamping eyelets. Always use tightening straps or lashing nets for securing the load, never rubber expanders.
- ▷ When clamping loads, always check that the clamping eyelets are placed tightly in the clamping rails. If the clamping eyelet is not anchored tightly in the clamping rail, the load may slide or loosen during forcible movements of the steering wheel or when braking.
- ▷ Distribute the load evenly. Excessive spot loads can lead to damages of the floor covering.
- ▷ If there is a pull-out present in the rear storage space: Make sure that the pull-out is engaged.
- ▷ Use the supporting system offered by your dealer if two-wheelers are transported in the rear garage.

When loading rear garages and rear storage compartments, please observe the following instructions to ensure safe driving:

- Baggage and items carried in rear garages and rear storage compartments must also be evenly distributed in accordance with the section "Load securing and load distribution" (page 29).

- All items stowed in rear garages and rear stowage compartments must be fastened and secured accordingly using suitable clamping systems at the existing fastening points provided at the factory.
- Before driving off, it must be ensured that the rear garage or rear storage compartment is properly locked.

▷ Please observe the maximum permissible load of the rear garage or rear storage compartment at all times. The specified maximum permissible load of the rear garage or rear storage compartment may be influenced by the selection of further optional equipment, such as trailer couplings or frame extensions. However, the technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle must not be exceeded under any circumstances. Especially when stowing or attaching heavy accessories or heavily laden accessories (such as motorcycle carriers or bicycle carriers) at the rear, the mass on the axle must be checked and complied with. For this reason, please note that the maximum load may not be fully utilized if this would result in the exceedance of the technically permissible maximum laden mass or technically permissible maximum laden mass on the axle.

▷ Further information on correct loading can be found in the sections "Technically permissible maximum laden mass" (page 24), "Technically permissible maximum laden mass on the axle (mass on the axle)" (page 30) and "Load securing and load distribution" (page 29).

4.3.5 Double floor

▶ Observe the permissible axle loads and maximum permissible gross weight when loading the double floor.

▷ Distribute the load evenly. Excessive spot loads can lead to damages of the floor covering.

4.4 Bike rack (optional equipment)

- ▶ Observe the technically permissible maximum laden mass on the axle and the technically permissible maximum laden mass when loading bike rack.
- ▶ The total width of the vehicle must not be exceeded. Adjust the attachments for the bikes accordingly. The overhang to rear must be marked in accordance with the regulations for the country in which you are travelling.
- ▶ Load the bike rack with bicycles only (max. three units).
- ▶ Fasten bicycles using the straps provided and check to see that they are secure after you have driven a few kilometres.
- ▶ Check the secure attachment of the bicycles on the bike rack after the first 10 km and then at each break in the journey.
- ▶ Do not use the bike rack as luggage rack or ladder.

- ▷ The bike rack is only to be used for transporting bicycles.
- ▷ The gross weight specified by the manufacturer must not be exceeded.
- ▷ The identification plate and rear lights must not be covered.
- ▷ The maximum permitted payload of the bike rack is 60 kg.
- ▷ When loading the bike rack, observe the centre of gravity. If the bike rack is only loaded with **one** bicycle, position the bicycle as closely as possible to the vehicle wall.
- ▷ Driving with a folded out bike rack without bicycles is not permitted.
- ▷ Before every journey, check:

  Is the bike rack without bicycles folded in correctly?

  Are the bicycles securely fastened to the bike rack using the bike rack belts?

Loading the bike rack with bicycles

When loading the bike rack, observe the centre of gravity. The centre of gravity of the bicycles must be as close as possible to the rear wall of the vehicle. The bike rack should always be loaded from the inside to the outside.

Loading the bike rack correctly:

- ■ Depending on the model, fold the bike rack down or pull it out.
- ■ Place the heaviest bicycle directly against the rear wall.
- ■ Place the lightest bicycles in the centre or on the outside of the bike rack.
- ■ Secure the front and rear wheels of each bicycle with the retaining straps on the bike rack.
- ■ In addition, fasten the outermost bicycle depending on the model of the bike rack on the retaining bracket or retaining arm and to the spacer respectively.

If the bike rack is only loaded with **one** bicycle, position the bicycle as closely as possible to the rear wall.

Bike rack, lowerable

▷ Also read the manufacturer's instruction manual.

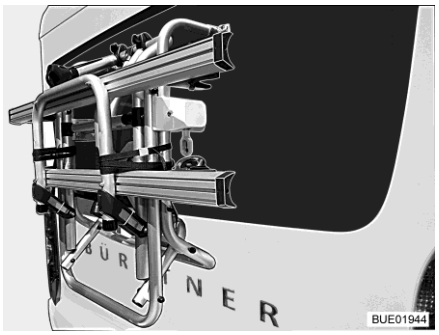


Fig. 3 Bike rack, folded upwards

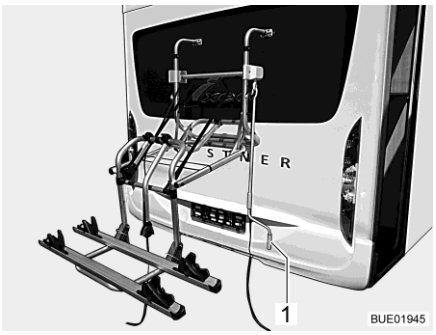


Fig. 4 Bike rack, lowered

The bike rack (Fig. 3) permits to easily transport 2 bicycles. Expansion for 3 bicycles is possible. A winding system can be used to lift and lower the bike rack. The winding system brings the bicycles to gripping height within seconds.

Loading the bicycles:

- Attach the hand crank (Fig. 4,1) to the bike rack and lower the bike rack to gripping height.
- Place the bicycles on top and secure them with quick straps.
- Fasten the bike-block spacer to the frame of the outermost bicycle.
- Use the hand crank to raise the bike rack again.

4.5 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.

▶ Observe the permissible nose weight and rear axle load of the motorhome. Refer to the vehicle documents for the rear axle load.

▷ Trailer with an overrun brake: Do not connect or detach trailer with the overrun brake on.

▷ Caravan coupling with detachable ball neck: If the ball neck is mounted incorrectly, there is the danger of the trailer breaking away. Observe the operating manual for the caravan coupling.

▷ The tow ball only fits onto the supplied mount. If the tow ball must be replaced, the mount must also be replaced.

▷ If the vehicle is equipped with air suspension: The distance between the tow ball of the caravan coupling and the road must be 350 to 420 mm in loaded condition.

The permissible nose weight is:

Model	Permissible nose weight
AL-KO	100 kg

4.6 Caravan coupling (optional equipment)

- ▶ When mounting a caravan coupling, see the vehicle documents for information on maximum nose weight and caravan load.
- ▶ Retighten the caravan coupling fixing screws after 1000 operating hours.

▷ The load rack and caravan coupling must not be used simultaneously.

▷ If the caravan coupling is retrofitted, this must be entered in the vehicle documents. The required documents are enclosed with the caravan coupling.

▷ If the caravan coupling was fitted at the factory, this is entered in the vehicle documents. Always keep the appropriate documents in the vehicle.

▷ Also read the manufacturer's instruction manual.

Fig. 5 Caravan coupling

Entry in the vehicle documents

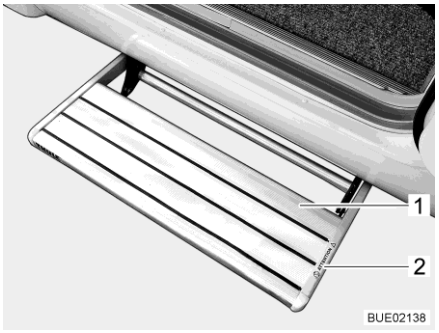
Have your dealer or service centre install the add-on parts. They will also take care of all the formalities for you.

4.7 Electrically operated entrance step (optional equipment)

- ▶ Before commencing the journey and after short interruptions of the journey, ensure that the entrance step is completely retracted.
- ▶ Do not stand in the direct range of the entrance step while it is being retracted or extended.
- ▶ Do not reach into the mechanics of the entrance step while it is being retracted or extended. Danger of bruises!
- ▶ Do not step on the entrance step until it has extended completely. There is a risk of injury!
- ▶ Do not under any circumstances raise or lower persons or loads with the entrance step.

- ▷ Take note of the different step heights and make certain that the ground is firm and even when exiting.
- ▷ Do not grease or lubricate the pivot bearing and joints of the entrance step (see section 12.1).

- ▷ The button to operate the entrance step is located on the inside of the vehicle in the area of the conversion door.
- ▷ If the entrance step has been extended and the ignition is switched on, a signal tone sounds.



1 Entrance step
2 Warning notice "Risk of crushing" (present depending on the model)

Fig. 6 Entrance step

The vehicles have a one-step, electrically extendable entrance step (Fig. 6,1).

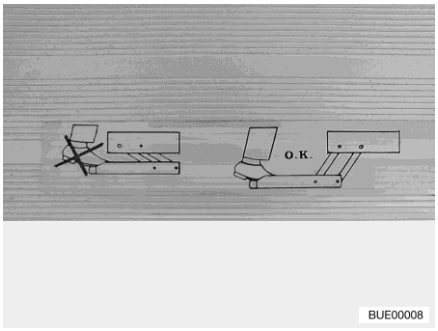


Fig. 7 Warning notice for entrance step

Fig. 8 Operating button for entrance step

Before stepping on the entrance step, fully extend it (Fig. 7).

Extending:

- Press the rocker button (Fig. 8) down and hold it pressed (at least 3 seconds) until the entrance step has extended completely.

Retracting:

- Press the rocker button (Fig. 8) up until the entrance step has retracted completely.

Emergency operation:

- Make sure that the vehicle is securely parked.
- Make sure that the voltage supply is disconnected.
- Push step carefully and slowly by hand.

4.8 Flue shield

▷ If a flue shield (Fig. 9,1) is installed on the wall flue: Remove flue shield before setting off.

Fig. 9 Flue shield

4.9 TV unit (optional equipment)

- ▶ Before commencing the journey, place and secure the flat screen and screen holder in the initial position. If the screen holder is installed in a TV cabinet: Close TV cabinet.
- ▶ Before commencing the journey, ensure that the antenna is in park position. Danger of accidents! Park position means: The antenna points towards the back, is fully lowered and is locked in this position.

▷ Further information on positioning the flat screen can be obtained from chapter 7.

4.10 Securing add-on parts

- ▶ In the event of an accident or emergency braking, loose add-on parts could injure the occupants of the vehicle. Before setting off, secure loose add-on parts in the holders provided or stow them in a secure place inside the vehicle.

▷ Unsecured flaps and doors can spring open during the journey and damage parts of the interior. Secure all flaps and doors before setting off.

Add-on parts are, for example, inner doors or partition walls. To open and close the furniture flaps, see section 7.4.

Fig. 10 Catch with spring

Securing add-on part:
- ■ Close the catch. In order to do this, push add-on part back until the spring (Fig. 10,1) engages.

Releasing add-on part:
- ■ Compress the spring.

4.11 Securing the manual windscreen shade

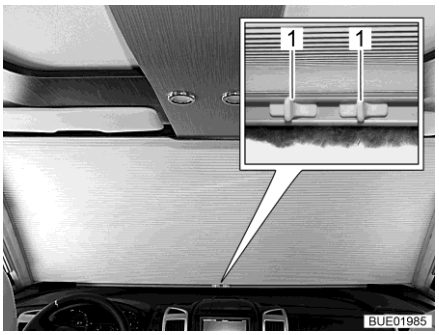


Fig. 11 Manual windscreen shade

- Clench handles (Fig. 11,1).
- Push the windscreen shade upwards until it engages.

4.12 Gas regulator

▶ Operating gas-operated appliances during the journey is permitted only if the gas system has the relevant equipment. The hose break guard and crash protection unit (CPU) prevent the gas from escaping in the event of an accident.

Depending on the equipment, different gas regulators can be installed in the vehicle.

If a gas regulator other than the one listed below is installed in the vehicle, the regulator tap on the gas bottle and the gas isolator taps must be closed during the journey.

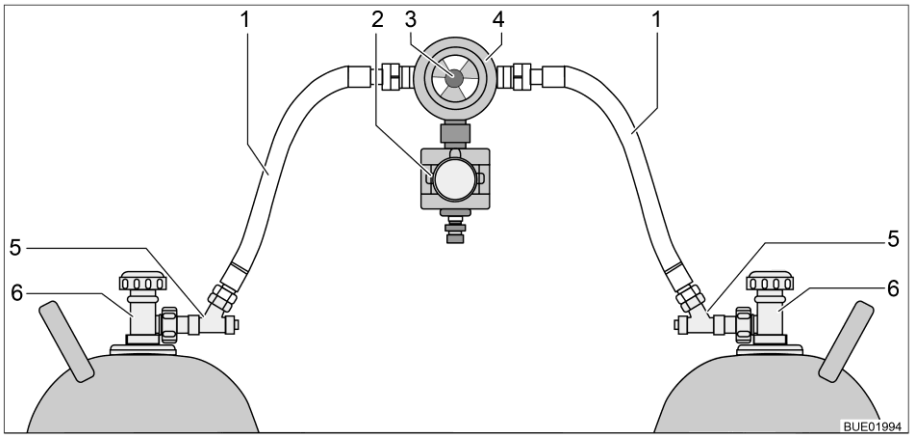


Fig. 12 Gas regulator with CPU and hose break guard

1 Gas tube
2 Crash protection unit (CPU)
3 Knob for manual switching of the gas bottles
4 Gas pressure regulator with reversing valve and indicator
5 Hose break guard
6 Regulator tap on the gas bottle

Gas regulator with CPU and hose break guard

If a gas regulator with crash protection unit (Fig. 12,2) and hose break guard (Fig. 12,5) is installed in the vehicle:

The regulator tap on the gas bottle and the gas isolator taps may remain open during the journey. Gas-operated appliances may be on during the journey.

▷ If in doubt, get the relevant information from authorised dealers or service centres.

4.13 Snow chains (optional equipment)

▷ Only mount snow chains if there is a clearance of at least 50 mm between the tyres and the vehicle body.

▷ When using snow chains, the tyres, wheel suspension and steering are subjected to an additional load. When using snow chains, drive slowly (maximum speed 50 km/h) and only on streets which are completely covered with snow. Otherwise the vehicle could be damaged.

▷ Observe the fitting instructions issued by the manufacturer of the snow chains.

▷ Do not fit snow chains on alloy wheel rims.

Only use suitable snow chains:

Tyre size	Snow chain size
215/70 R 15 C	230
225/75 R 16 C	245

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 metres, check the tension of the snow chains.

4.14 Road safety

- ▶ Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle (see section 14.6).
- ▶ Add-on parts can be exposed to adverse conditions (storms, ice, vibrations, etc.) and require close monitoring despite careful design and manufacturing. Therefore, check the tight fit of the add-on parts at certain intervals and before long journeys.

Before commencing the journey, work through the checklist:

	No.	Checks	Checked
Base vehicle	1	All vehicle documents are on board	
	2	Tyres in proper condition and tyre pressure correct	
	3	Vehicle lighting, brake lights and reversing lights function	
	4	Oil levels for engine, gearbox and power steering controlled	
	5	Coolant and fluid for windscreen washers filled up	
	6	Brakes function	
	7	Brakes react evenly	
	8	When braking, the vehicle remains in the lane	
Housing body, outside	9	Awning completely retracted	
	10	Roof free of snow and ice (in winter)	
	11	External connections and lines disconnected and stored away	
	12	External supports removed	
	13	Fitted steady legs retracted and fixed in place	
	14	Wheel chocks removed and stored away	
	15	Entrance step retracted (observe indicator lamp)	
	16	External flaps closed and locked	
	17	Rear conversion door closed	
	18	Overall height of the vehicle including roof rack when loaded measured and noted. Keep the height information close at hand in the driver's cabin	

Housing body, inside

No.	Checks	Checked
19	Windows and skylights closed and locked	
20	Flat screen secured	
21	Satellite antenna retracted (if built in)	
22	Loose parts and add-on parts stored away or fixed in position	
23	Open storage spaces empty	
24	Store sink and drain basin covers securely	
25	Refrigerator door secured	
26	Refrigerator set to 12 V operation (only required in case of manual power selection)	
27	All drawers and flaps closed	
28	All doors secured	
29	All objects removed from pull-down bed	
30	For pull-down bed with lowerable head section: head section lowered	
31	Pull-down bed secured in top end position	
32	Children's seats only mounted on the seats approved for this purpose	
33	Swivel seat locking device for driver's seat and front passenger's seat locked	
34	Shades in the driver's cabin opened and secured	

Gas system

35	Gas bottle firmly fixed in the gas bottle compartment so that it is unable to turn	
36	If the gas bottles are not connected to the gas tube, place the protective cap on top	
37	If there is no supplied crash protection unit: Regulator tap on the gas bottle and gas isolator taps are closed	

Electrical system

38	Check the battery voltage of the starter and living area battery (see chapter 9). If the panel indicates that the battery voltage is too low, the respective battery will need to be recharged. Observe the notes and instructions in chapter 9 ▷ Commence journey with fully charged starter and living area batteries.	

Chapter overview

This chapter contains instructions on how to drive the vehicle.

5.1 Driving

- The base vehicle is a commercial vehicle (small truck). Adjust your driving technique accordingly.
- Before commencing the journey and after short interruptions of the journey, ensure that the entrance step is completely retracted.
- A seat belt is fitted for each seat which is permitted for travel. Please keep your seat belt fastened during the journey.
- Never open your seat belts when travelling.
- Passengers must remain in the seats provided.
- The doors must remain locked.
- Avoid braking with a jerk.
- If a navigation system is used, only change the destination when the vehicle is stationary. Drive to a car park or stop in a safe area when changing the destination.
- Do not play DVDs using the monitor of the navigation system during the journey.
- Always switch off outdoor light/awning light during the journey.

- ▷ Drive slowly on poor roads.
- ▷ Take extreme care when driving onto ferries, crossing uneven roads and driving in reverse. Because of the relatively large overhang, larger vehicles might swing out and "touch ground" in unfavourable conditions. This can cause damage to the underbody or to parts fitted there.

- ▷ 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 stipulated in chapter 3 have to be observed.
- ▷ If a reversing camera is installed in the vehicle, the camera is automatically switched on when driving in reverse gear.

5.2 Reversing camera (partially optional equipment)

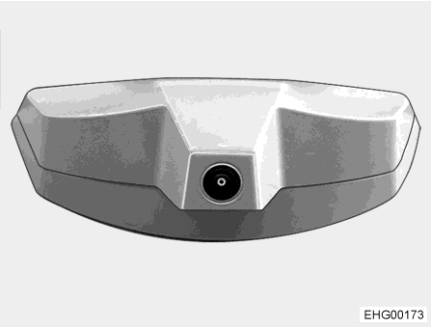


Fig. 13 Reversing camera

A reversing camera (Fig. 13) is installed in the vehicle.

If the central multimedia/navigation system has been switched on and reverse is engaged, the reversing camera's image is automatically displayed on the LCD monitor.

In order to display the reversing camera's image on the LCD monitor without engaging reverse: switch on the multimedia/navigation system and activate the camera function via the switch on the display of the MMS system.

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

5.3 Driving speed

- The vehicle is equipped with a powerful engine. This means there are sufficient reserves in difficult traffic situations. This high power enables a high maximum speed and requires above-average driving ability.
- The vehicle provides a large contact surface for wind. A sudden crosswind can be especially dangerous.
- Uneven or one-sided loading affects road performance.
- Driving on unknown streets, you may encounter hazardous road conditions and unexpected driving situations. Therefore, in the interest of safety, make sure your driving speed is appropriate to any given driving situation and environment.
- Adhere to the national legal speed limits.
- Optional equipment such as skylights, awnings, satellite units, bike racks, or similar, create additional area exposed to the wind. If the vehicle is equipped with such optional equipment, we recommend to drive at an appropriate speed. In case of doubt, please contact the optional equipment's manufacturer.

5.4 Brakes

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

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 in the lane when braking?

5.5 Air suspension AL-KO (optional equipment)

5.5.1 General instructions

▶ Overloading of the vehicle cannot be observed visually in the case of an air suspension with automatic levelling.
Never exceed the axle load nor the maximum permissible gross weight.

▶ Never use the air suspension to lift the vehicle for servicing (e.g. changing the wheel).

▶ Only raise or lower the vehicle when it is stationary or moving slowly.

▶ Only operate the remote control, if people or objects are not in the working area under the vehicle.

▶ Do not allow children to play with the system.

▶ Only drive at a steady, low speed if there is a fault with the air suspension and have the fault immediately repaired by an authorised specialist workshop.

▷ Do not operate the brake pedal during lifting or lowering of the vehicle. This prevents chassis tension.

▷ In the case of long periods of inactivity, the vehicle level may gradually become lower. This can damage the air bellows. The following measures can therefore be adopted in the event of long periods of inactivity:

- Use steady legs.
- Fill the air bellows once a week with compressed air.

An air suspension keeps the vehicle at the same driving level in every loading condition. Additionally, different functions are operated manually. The increase of ground clearance simplifies e.g. driving onto ferries (bigger gradient angle).

5.5.2 Front and rear axle air suspension

▶ Do not exceed the speed limit while the vehicle's level is being changed or when the vehicle is **not** set at the driving level. Once the vehicle is set at the driving level, you may drive at a faster speed.

▷ The distance between the tow ball of the caravan coupling and the road must be 350 to 420 mm in loaded condition.

The different functions of the air suspension can be operated manually via the remote control buttons.

▷ When the vehicle is stationary, the button functions are only available if the ignition is switched on. When travelling, the button functions are only available up until a particular speed limit.

▷ If the speed limit is exceeded, the driving level is controlled automatically.

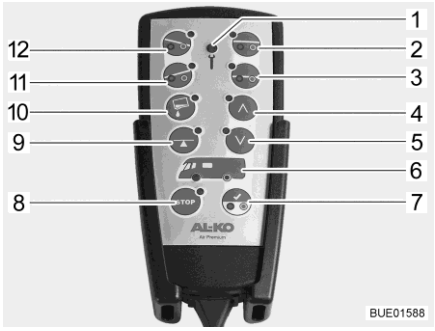


Fig. 14 Remote control

Button	Description	Speed limit
1	Indicator lamp	-
2	Off-road position	Up to 25 km/h
3	Parking position	Up to 25 km/h
4	Raising the level	Up to 5 km/h
5	Lowering the level	Up to 5 km/h
6	Axle indicator	Up to 5 km/h
7	Driving level	Up to 25 km/h
	Manual operation	Up to 5 km/h
8	Stop button	Up to 25 km/h
9	Automatic level	-
10	Lateral inclination	Up to 5 km/h
11	Lowering the front	Up to 25 km/h
12	Lowering the rear	Up to 25 km/h

The following functions can be selected via the buttons:

Function	Button	Display	Signification
Start the system (switch on the ignition)		LED lights up for a second	System ready
		2 LEDs light up	Vehicle in driving level
Set driving level	 Press shortly	Both LEDs light up	Vehicle is set to driving level
Automatic level [1]	 Press	Button blinks	Vehicle is aligned horizontally
		Button lights up for 10 seconds	Best possible position is reached
	 Press shortly	-	End the function Vehicle is reset to driving level
Axle is selected for manual use	 Press multiple times (approx. 3 seconds), until the desired axle is selected	 Axle's LED lights up	Axle is selected
Lift the vehicle (axle is selected)	 Press until the desired level has been reached	Button blinks	Vehicle is raised
	Release	Button lights up	Level reached
	 Press shortly	Button blinks	Vehicle is raised
		Button lights up	**Highest** level reached
Lower the vehicle (axle is selected)	 Press until the desired level has been reached	Button blinks	Vehicle is lowered
	Release	Button lights up	Level reached
	 Press shortly	Button blinks	Vehicle is lowered
		Button lights up	**Lowest** level reached
Off-road position (high driving position)	 Press shortly	Button blinks	Vehicle is raised
		Button lights up	Level reached
Parking position (low driving position)	 Press shortly	Button blinks Beeping noise while the function is active	Vehicle is lowered
		Button lights up	Level reached
Lower the rear (easier to load)	 Press shortly	Button blinks	The rear of the vehicle is lowered
		Button lights up	Lowest possible level reached

Function	Button	Display	Signification
Lower the front (large ground clearance in the rear area)	Press shortly	Button blinks	The front of the vehicle is lowered
		Button lights up	Lowest possible level reached
Lateral inclination (emptying the tank)	Press until the desired angle has been reached	Button blinks	Vehicle inclines
	Release	Button lights up	Maximum inclination angle has been reached
	Press shortly	-	End the function Vehicle is reset to driving level
Emergency stop	Press once (during functional process)	-	All functions are immediately interrupted
	Press twice	-	System is reactivated
Switch the system off	Press once	Button lights up	System is switched off
Switch the service mode on/off (vehicle in park but with the ignition still switched on)	Press shortly	Button lights up	Service mode switched on
	Press again	Button goes out	Service mode switched off

[1] This function is available for another 6 minutes after the ignition has been switched off

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

5.6 Seat belts

5.6.1 General

The vehicle is equipped with seat belts in the living area on the seats for which seat belts are compulsory by law. National regulations apply to fastening of seat belts.

- Fasten your seat belts before the beginning of the journey and keep them fastened during the journey.
- Do not damage or trap belts. Have damaged seat belts changed by an authorised specialist workshop.
- Do not alter the belt fixing devices, automatic seat belt winders and the seatbelt locks.
- Only use one seat belt for **one** adult person.
- Do not belt in objects together with persons.
- Seat belts are not sufficient for persons who are less than 150 cm tall. In these cases use additional restraining devices. Observe test certificate.
- Only attach the child restraint system to seats that are specified for this purpose. We strongly recommend to install child restraint systems preferably in the second row of seats.
- After an accident, replace the seat belts (have it replaced).
- During the journey, do not tilt the backrest too far backwards. Otherwise the functionality of the seat belt is no longer guaranteed.

5.6.2 Fastening the seat belts correctly

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

The seat belt is correctly fastened when the lap belt passes below your stomach and across the hip bone. The shoulder belt must pass across the chest and shoulder (not across your neck). The belt must always be taut against your body. Any bulky or padded clothing should therefore be removed before you start your journey.

5.7 Child restraint systems

- When travelling, secure children under 13 years of age that are smaller than 150 cm, with a suitable and officially approved child restraint system.
- Only attach the child restraint system to seats that are specified for this purpose.
- Fasten the childrens' seat belts before commencing the journey and make sure that their seat belts are kept fastened during the journey.
- Use a rear-facing child restraint system ("reboard system") only when the front and side air bags on the passenger side are switched off. Observe the separate operating instructions of the chassis manufacturer and the warning notices in the vehicle. If no rear-facing child restraint system is in use, switch the airbags back on again.
- Never use rearward-facing child restraint system on a seat with activated front airbag. This may lead to death or to serious injuries in children.

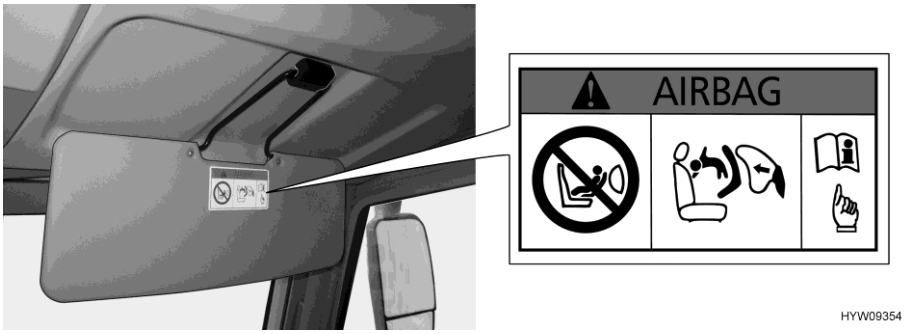


Fig. 15 Warning notice on child restraint system (front passenger's seat sun visor)

Rearward-facing child restraint systems on the front passenger's seat

The front passenger's seat is equipped with an airbag. In the event of an accident, the triggered airbag may cause serious injuries in the child or to its death. A warning notice (Fig. 15) depicting this hazard is attached to both sides of the sun visor.

Refer to the instruction manual of the base vehicle for any information regarding the deactivation of the front passenger airbag.

Child restraint systems are divided into five classes:

Class	Body weight	Approximate age
0	Up to 10 kg	Up to 9 months
0+	Up to 13 kg	Up to 18 months
I	9 kg to 18 kg	9 months to 4 years
II	15 kg to 25 kg	3 years to 7 ½ years
III	22 kg to 36 kg	6 years to 12 years

The following table shows, which child restraint systems can be used on which seats.

Class	Front passenger's seat	
	Airbags active	Airbags not active
0, 0+	X	U
I	U*	U
II	U	U
III	U	U
U:	Suitable for "universal" restraint systems which are authorised for this weight class	
X:	Seat is not suitable for children in this weight class	
*	Not authorised if used in a child restraint system directed towards the rear (Reboard system)	

5.8 Pilot seats for the driver's and front passenger's seats

- ▶ Before commencing the journey, rotate all swivel seats in the direction of travel and lock in position.
- ▶ The seats must remain fixed in position during the journey and are not to be rotated.

▷ Before rotating the seats in the pitched vehicle, always apply the hand-brake.

▷ 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 manual of the base vehicle.

5.8.1 Seats (Aguti-Liner)

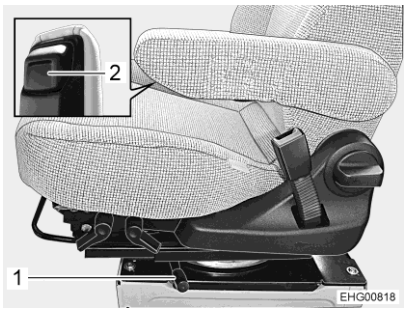


Fig. 16 Release lever for rotating

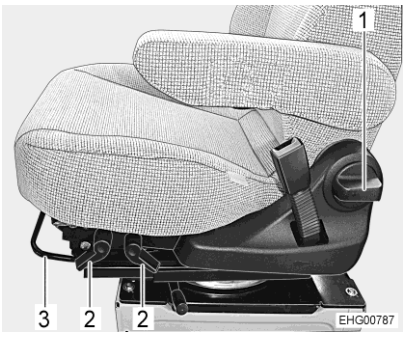


Fig. 17 Seat adjustment

Rotating the seat

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

- Push both armrests upward.
- Slide seat forward.
- Press the release lever (Fig. 16,1) backwards. The latch is released.
- Rotate the seat.

Moving the seat in lengthways direction

Adjust the driver's seat so that the driver can depress the pedals comfortably.

- Pull the bar (Fig. 17,3) upwards.
- Push the seat forwards or backwards.
- Release the bar. The seat must audibly lock into place.

Setting the seat inclination (partially optional equipment)

Adjust the seat inclination so that the thighs rest on the seat surface without any pressure.

- Pull the front or rear lever (Fig. 17,2) upwards. Adjust the front angle of inclination with the front lever. Adjust the rear angle of inclination with the rear lever.
- Bring the seat into the desired inclination position by applying or relieving pressure.
- Release the lever. The seat must audibly lock into place.

Adjusting the backrest

Adjust the angle of the backrest of the driver's seat so that the steering wheel can be held with the arms slightly bent.

- Turn the rotary handle (Fig. 17,1). The backrest inclines forwards or backwards, depending on the rotation direction.

Adjusting the armrest

The height of the armrests can be continuously adjusted.

- Press and hold the lower part of the armrest (Fig. 16,2) at the front.
- Move the armrest to the desired position and release the lower part. This position is now fixed.

5.8.2 Seat heater (optional equipment)

▷ The seat heater only works when the ignition is switched on.

Depending on the equipment level, the driver's and front passenger's seats are equipped with seat heaters which can be continuously adjusted.

The dial to control the heat output is located on the outside of the seat, respectively.

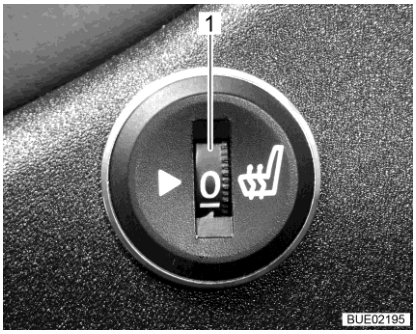


Fig. 18 Seat heater dial

Adjusting the seat heater:

- Depending on the desired heat output, turn the dial (Fig. 18,1) to a position between "0" and "5".
- Turn dial to the position "0" to switch off.

5.9 Additional seat

A foldable additional seat which can be used during the journey is installed in both the left-hand and the right-hand divan.

Each additional seat is installed in the direction of travel and is equipped with a three-point seat belt.

Setting up the additional seat:

- Remove cushion from the divan.
- Open the cover of the divan.

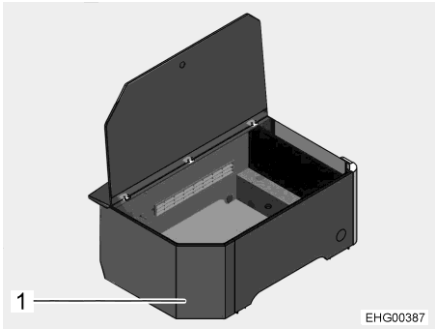


Fig. 19 Divan, open (shown without additional seat)

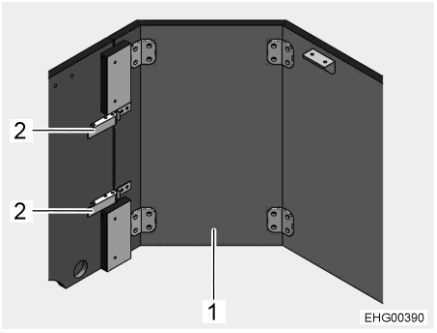


Fig. 20 Wooden element, removable

- Release both clamp fasteners (Fig. 20,2) on the removable wooden element (Fig. 19,1 and Fig. 20,1).
- Remove the wooden element, fold it and store it securely.

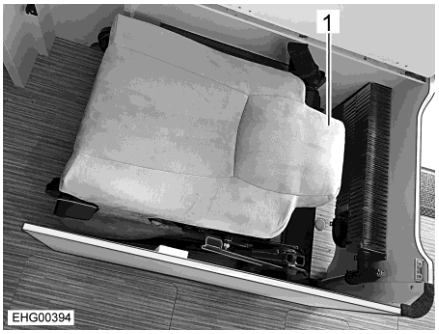


Fig. 21 Additional seat, folded

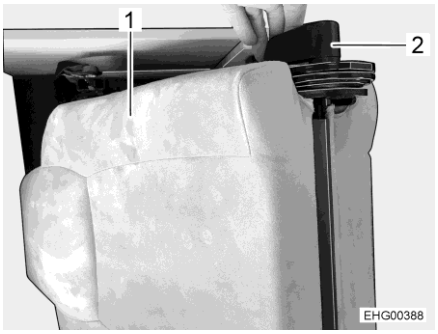


Fig. 22 Backrest, upper part

- Release the lock (Fig. 22,2) on the backrest.
- Swivel the upper part of the backrest (Fig. 21,1 and Fig. 22,1) upwards.

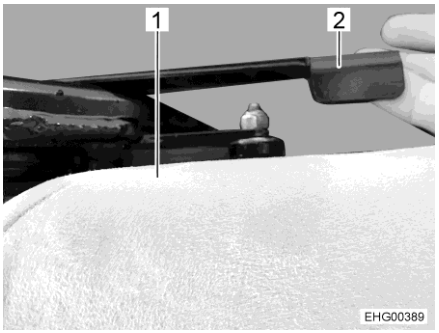


Fig. 23 Backrest, lower part

- Press the lever (Fig. 23,2) at the underside of the seat upwards.
- Place the lower part of the backrest (Fig. 23,1) upright.
- Set the upper part of the backrest straight.

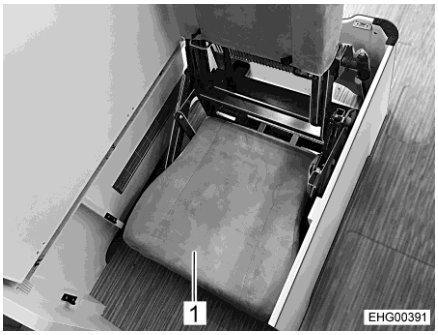


Fig. 24 Seat, lowered

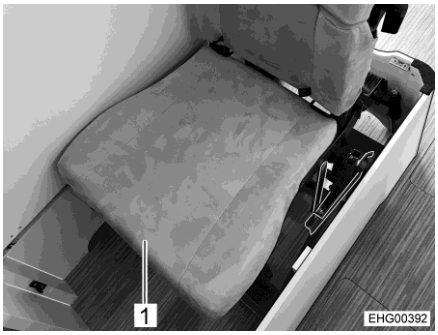


Fig. 25 Seat, lifted

- Grasp the seat (Fig. 24,1) at the front and back and swing it forward and upwards in one go.

To store the additional seat (Fig. 25,1) in the divan, proceed analogously in reverse order.

5.10 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.
- ▶ During the journey sitting on the divans is not permitted.
- ▶ Seat belts must be worn by all passengers.

Fig. 26 Symbol "Do not use seat during the journey"

Seats which may not be used during the journey are equipped with the depicted sticker (Fig. 26).

5.11 Electrical window winder

- ▶ Remove hands and other objects from the window before closing.
- ▶ Even if you leave your vehicle just briefly, remove the ignition key from the steering lock. Otherwise children may be able to operate the window winder and injure themselves.

There is an electrical window winder on the driver's side of the vehicle.

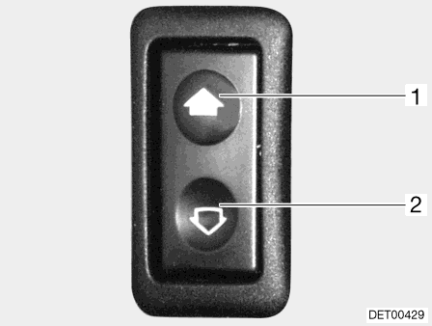


Fig. 27 Switch for electrical window winder

Opening: ■ Press the lower part (Fig. 27,2) of the switch.

Closing: ■ Press the upper part (Fig. 27,1) of the switch.

5.12 External mirrors

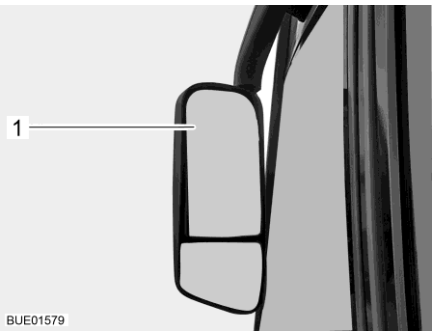


Fig. 28 External mirrors

The vehicle is equipped with two electrically adjustable and heated external mirrors including a wide-angle mirror (Fig. 28,1).

The switch used to adjust the external mirrors is located on the driver's door or on the left of the dashboard.

The switch for the external mirror heater is located on the driver's door, to the left on the dashboard or on the centre console.

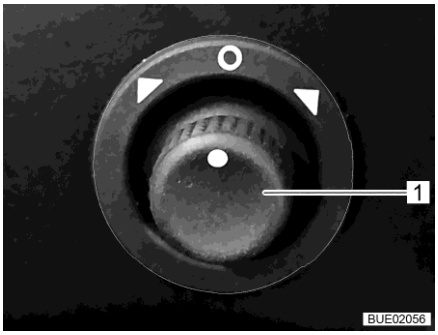


Fig. 29 External mirror adjustment switch

Fig. 30 External mirror heater switch

Adjusting the external mirrors:

- Select the external mirror to be adjusted. To do so, turn the rotary switch (Fig. 29,1) to the left or right.
- Push the switch (Fig. 29,1) into the desired direction.

Switching on the external mirror heater:

- Press the switch (Fig. 30). The switch indicator lamp shows it is in operation.

5.13 Shades for windscreen, driver's window and front passenger's window

▶ During the journey, the shades for the windscreen, driver's window and front passenger's window must be open, in a fixed position and secured. The driver's view must not be obstructed.

5.13.1 Manually adjustable Roman shades (optional equipment)

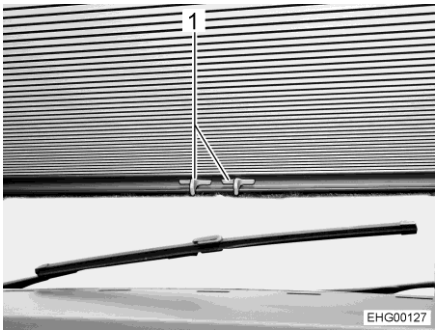


Fig. 31 Roman shade (windscreen)

Closing:

- Press handles (Fig. 31,1) together and pull shade downwards.

Opening:

- Push shade upwards.

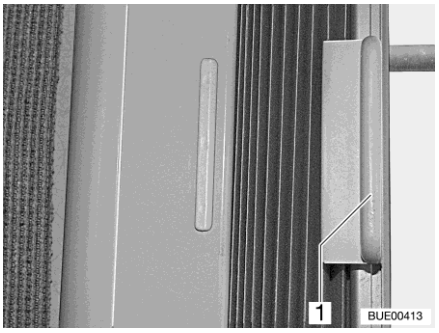


Fig. 32 Roman shade (side window)

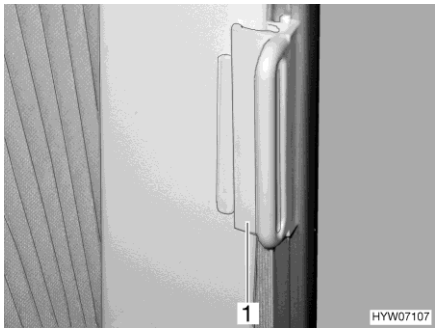


Fig. 33 Lock for Roman shade

Opening and closing:

- Grasp the handle (Fig. 32,1) of the Roman shade and slide to the left or the right.

Securing:

- Push the handle (Fig. 33,1) onto the cap. The Roman shade is secured.

5.13.2 Electrically adjustable Roman shade (optional equipment)

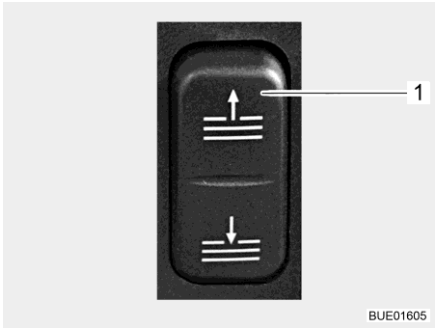


Fig. 34 Switch (electric operation of the Roman shade)

Opening and closing:

- Press switch on the dashboard (Fig. 34,1).

Emergency operation

In the event of a power failure, the Roman shade can be moved manually by a crank.

The crank is stowed in a drawer in the kitchen area.

The motors are accessible behind a removable panel above the windscreen panelling, respectively. The left-hand motor (behind the panel on the left) controls the bottom holding bar. The right-hand motor (behind the panel on the right) controls the top holding bar.

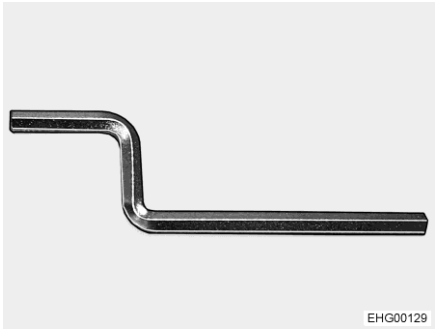


Fig. 35 Crank

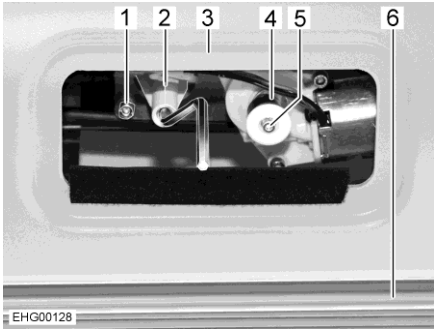


Fig. 36 Access to the motor

▷ If the vehicle is equipped with a pull-down bed, lower pull-down bed.

- Remove pull-down bed curtain.
- Remove removable panel above the windscreen panelling (Fig. 36,3). The motor (Fig. 36,1) is accessible.
- Remove plastic sleeve (Fig. 36,4).
- Press and hold white securing button (Fig. 36,5).
- Position crank (Fig. 36,2) on crank socket.
- Move Roman shade (Fig. 36,6) upwards or downwards with the crank.
- If both holding bars have moved out of the visible range: pull securing button (Fig. 36,5) out again.
- Switch power supply on. A referencing run of the holding bars takes place. The regular electrical operation is now possible again.

▷ In the event of a fault, see section 15.2.

5.14 Bonnet

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

▶ Even if the engine was switched off some time ago, it might still be hot. Danger of burns!

▶ Do not work in the engine compartment while the engine is running.

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

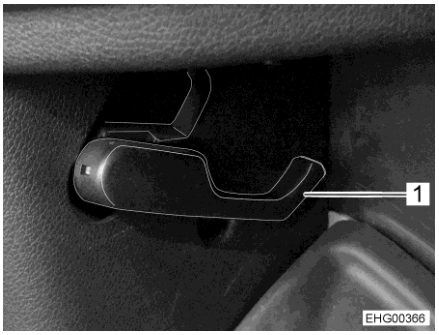


Fig. 37 Release lever for the bonnet (inside the vehicle)

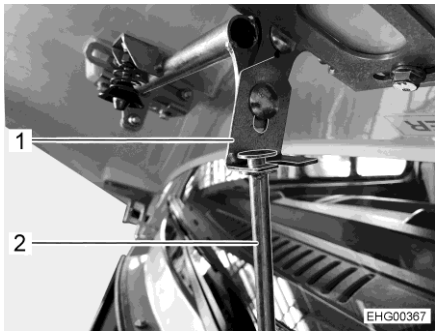


Fig. 38 Bonnet support

Opening:

- Pull the lever (Fig. 37,1) in the footwell of the driver's cabin (on the driver's side).
- Move the bonnet up.

Securing:

- Unfold the support (Fig. 38,2) and attach to the holder (Fig. 38,1).

Closing:

- Fold the support.
- Close the bonnet. The snap lock must snap in audibly.
- Check whether the bonnet is locked correctly. In order to carry this out, pull on the bonnet.

5.15 Filling with windscreen washer fluid

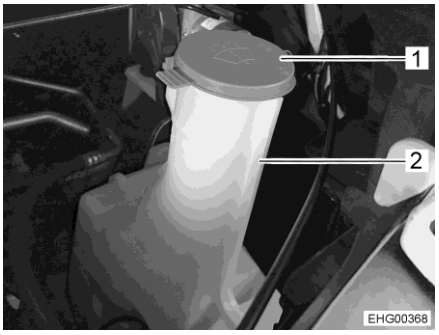


Fig. 39 Washer fluid container filler neck

- Unlock and open the bonnet.
- Remove the lid (Fig. 39,1) from the filler neck (Fig. 39,2) of the washer fluid container.
- Slowly fill in washer fluid.
- Push the lid onto the filler neck of the washer fluid container.

5.16 Filling up with diesel

- All gas-operated devices must be switched off for refuelling (heater, cooker, oven, grill, refrigerator - depending on the equipment). Danger of explosion!
- The cap for the fuel filler neck and for the drinking water filler neck are very similar. Before filling the tank, always check the label.

▷ The fuel filler neck is labelled with the word "Diesel".

The fuel filler neck is situated on the exterior of the vehicle, at the front left.

5.16.1 Fuel filler neck

Fig. 40 Fuel filler neck external flap

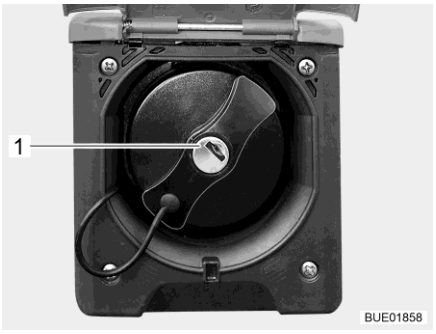


Fig. 41 Cap for the fuel filler neck

Opening:

- Swivel the external flap (Fig. 40,1) upwards.
- Insert the key in the locking cylinder (Fig. 41,1) and turn it in an anti-clockwise direction.
- Remove the cap.

Closing:

- Place the cap on the fuel filler neck.
- Turn key in a clockwise direction.
- Remove the key.
- Check that the cap is fastened securely on the fuel filler neck.
- Swivel the external flap downwards and press it shut.

5.17 Topping up AdBlue®

▶ Store AdBlue® out of the reach of children. Do not store any AdBlue® containers in the vehicle.

- ▷ If the AdBlue® tank is empty, you cannot start the vehicle.
- ▷ If you have driven until the AdBlue® tank has been emptied, the tank must be filled with at least 3.8 litres.
- ▷ Do not dilute AdBlue® with water.
- ▷ Do not top the fuel tank up with AdBlue®.

The base vehicle is equipped with an emission control system that operates with the additive AdBlue®. AdBlue® can be purchased in containers of various sizes or at petrol stations that have an AdBlue® dispenser system.

The additional tank for AdBlue® has a capacity of 15 litres. Audible and visual signals indicate when the reserve has been reached. The first alarm appears when you can still drive 2400 km.

- ▷ The AdBlue® tank's filler neck is located underneath the bonnet.
- ▷ The filler neck is closed with a blue lid.
- ▷ Observe the instructions and information in the operating manual of the base vehicle.

- ▷ Do not dispose of the AdBlue® containers in the domestic waste. Dispose of the empty containers in accordance with the national directives or return them to the point of sale.

5.18 Towing

▶ If the ignition key cannot be turned in the ignition lock, do not tow the vehicle. The steering will be locked.

- ▷ If the engine is not running or the power supply is disrupted, the servo assistance for the steering and brakes will not be operational. A considerable amount of force will be required for steering and braking.

- ▷ In addition observe the notes in the operating manual of the base vehicle.
- ▷ National regulations apply to towing.

If the vehicle has to be towed, it should be done on a transporter or trailer if at all possible. If this is not possible, we recommend always using a towing bar for towing. The towing bar must be approved for the weight of the vehicle.

Installing the towing eye

The holder for the towing eye is located behind a cover on the right side of the vehicle's front.

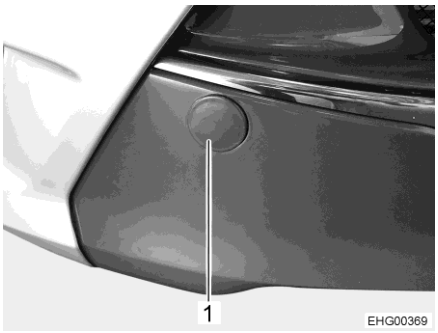


Fig. 42 Cover for the towing eye holder

- Remove the cover (Fig. 42,1).
- Fit the towing eye in accordance with the instructions in the operating manual of the base vehicle.

Chapter overview

This chapter contains instructions on how to pitch the vehicle at the campsite.

- ▷ Pitch the vehicle so that it is as horizontal as possible. Use ramps where necessary. Otherwise, the water from the shower tray will not be able to drain properly.
- ▷ 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.

6.2 Entrance step

In order to exit the vehicle, first fully extend the entrance step. Observe the indicator lamp on the dashboard.

For operating the entrance step, see section 4.7.

6.3 Ramps

- ▷ Ramps are not included in the scope of delivery. Different models are available at the accessories shop.

To enable the vehicle to be parked on the level, ramps can be used for height compensation when the vehicle is parked on a hill or on uneven ground.

6.4 Wheel chocks

When parking the vehicle on slopes or inclines use the wheel chocks.

If the maximum permissible gross weight of the vehicle exceeds 4 tonnes, wheel chocks must be used when parking on gradients. The wheel chocks are provided as standard for vehicles which have a maximum permissible gross weight exceeding 4 t.

6.5 Supports

6.5.1 General instructions

- ▶ The steady legs must not be used to jack up the vehicle in order to work beneath it, e.g. to change a wheel or carry out maintenance work.
- ▶ Whilst the vehicle is in a jacked up position, persons must not lie down under it.

- ▷ Always apply the handbrake before extending the steady legs.
- ▷ When pitching the vehicle, ensure that the supports are evenly loaded.
- ▷ Before driving away, wind up the supports as far as they can go, fully retract and secure them.

- ▷ When the ground is soft, place a pad or block under the supports in order to prevent the vehicle from sinking into the ground.
- ▷ Pitch the vehicle so that it is as horizontal as possible. Otherwise, the water from the shower tray will not be able to drain properly.

6.5.2 Steady legs (AL-KO) (partially optional equipment)

In order to ensure their correct function, clean and grease the interior tubes of the steady legs regularly.

The length of the steady legs can be adjusted according to the model.

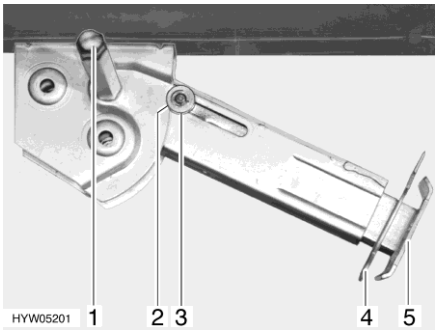


Fig. 43 Steady leg

Extending:

- ■ Place the socket spanner on the hexagon nut (Fig. 43,1) and rotate until the steady leg is in a perpendicular downward position.
- ■ Remove the splint (Fig. 43,4) out of the support foot extension (Fig. 43,5).
- ■ Extend the support foot extension until it has reached the required length.
- ■ Insert the splint in the support foot extension.
- ■ Rotate the hexagonal nut until the steady leg rests completely on the ground and the vehicle is in a horizontal position.

Retracting:

- Place the socket spanner on the hexagon nut (Fig. 43,1) and rotate until the steady leg is clear of the ground.
- Remove the splint (Fig. 43,4) out of the support foot extension (Fig. 43,5).
- Push in the support foot extension (Fig. 43,5) and insert the splint (Fig. 43,4) in the drilled hole in the support foot extension.
- Rotate the hexagonal nut (Fig. 43,1) with the socket spanner until the steady leg has swung upwards and the guide disc (Fig. 43,3) has completely retracted into the notch (Fig. 43,2).

▷ Before commencing the journey, observe the following: Are all steady legs and support foot extensions retracted completely and secured with the splint?

6.5.3 Electrical steady legs, hydraulic (Goldschmitt) (optional equipment)

- ▶ Do not raise the vehicle completely off the floor. Unstable and dangerous situations can arise if none of the wheels, particularly the braked wheels, remain in contact with the ground.
- ▶ When operating the steady legs, ensure that nobody can be put in danger and that the extension/retraction range of the steady legs remains clear.
- ▶ Whilst the vehicle is in a jacked up position, persons must not lie down under it.
- ▶ Before using the hydraulic steady legs, secure the vehicle to prevent unwanted movements.
- ▶ Never release the handbrake when the vehicle has been raised.
- ▶ Fully retract all steady legs in automatic mode before commencing the journey.
- ▶ Store control unit in such a way that warning tones can be heard during the journey.
- ▶ Ensure that the control unit is not damaged.
- ▶ Perform maintenance according to the manufacturer's instruction manual.
- ▶ For any further safety instructions see the manufacturer's instruction manual.

▷ If one of the steady legs is not on the ground following automatic alignment, the vehicle can rock if persons are inside, despite it being correctly aligned. If this happens, retract the relevant pair of steady legs and then extend them again.

▷ Do not move inside the vehicle during automatic alignment.

Operating modes

The hydraulic steady legs system has two operating modes:

- Manual mode
- Automatic mode

In Automatic mode, the vehicle is automatically aligned horizontally both lengthways and crossways.

Operation

The steady legs system is operated both in manual and automatic mode via a control unit.

If the vehicle is equipped with a communication computer, operation via a smartphone or tablet is also possible.

For any further information about the operation see the manufacturer's instruction manual.

Faults

To ensure that the steady legs remain retracted during the journey, the pressure of the steady legs system is constantly monitored. When the pressure drops, a warning tone sounds on the control unit. In this case, proceed as follows:

- Stop at the next opportunity.
- Switch the console and switch it on again. Then, the alarm sound is turned off.
- Perform the "Retract legs automatically" function.

Once the fault has been rectified and the alarm tone no longer sounds, a defect in the hydraulic system can be ruled out.

If the alarm sounds again, contact a specialist workshop.

If a fault message appears on the control unit, proceed according to the manufacturer's instruction manual.

Emergency release

▶ The vehicle may lower unexpectedly. Do not go under the vehicle. Keep hands and feet away from the crushing area.

▷ The steady legs can be retracted manually if there is an electrical failure.

- Secure the vehicle with a stand or vehicle jack so that it cannot sink down.
- Remove the red protective cap from the support valve of the steady leg.
- Open the support valve with a screwdriver. To do this, turn the screw in the support valve clockwise as far as it will go.
- Remove the stand or vehicle jack.
- Retract the steady leg with the hand pump. In order to do this, pump with the lever on the hand pump until the steady leg has been retracted.
- Close the support valve again. Unscrew the screw.
- Place the red protective cap on the support valve.
- Contact customer service.

6.6 230 V connection

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

6.7 Refrigerator

▶ If the refrigerator is set to 12 V operation, it will constantly consume current. Therefore, switch over to gas operation when the vehicle engine is **not** running, and the vehicle is **not** connected to the 230 V power supply.

In the case of appliances with automatic power selection, the 12 V operation of the refrigerator will only be selected in the automatic mode when the vehicle engine is running.

In the case of appliances with manual power selection: When the vehicle engine is switched off switch the refrigerator to 230 V operation or gas operation.

6.8 Satellite unit (optional equipment)

▶ Before commencing the journey, ensure that the antenna is in park position. Danger of accidents!

- ▷ Before switching on the satellite unit, make sure that there is no obstacle in the way, e.g. a branch or the garage roof, while erecting the antenna.
- ▷ Move the antenna into parking position in the event of strong wind (above 80 km/h).
- ▷ Do not wash a vehicle with a satellite antenna in a brush washing system, nor in a vehicle washing installation, nor with high-pressure cleaners.
- ▷ In the event of backward shipping, e.g. by truck or train, secure antenna against unintentional erection.

- ▷ The vehicle must be still during the satellite search. Do not walk through the vehicle.
- ▷ Satellite reception is only possible, when the antenna is positioned in direct line of sight of the chosen satellite and the view is not blocked in any way.
- ▷ Further information can be obtained in the device manufacturer's instruction manual.

6.8.1 Satellite unit with automatic antenna alignment (Oyster Premium)

▷ In the event of a longer stationary period, disconnect the flat screen from the power supply with the flip switch to prevent the living area battery from getting discharged.

▷ If the location is adjusted with the help of the list of countries, the satellite search will be accelerated.

▷ If the antenna has been retracted by switching on the ignition, it is required to restart the system by switching it off and on.

▷ The reception of DVB-T/T2 channels (digital terrestrial television) is only possible if there is a DVB-T/T2 antenna present.

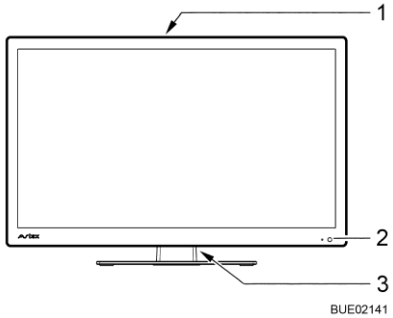
The antenna will automatically be aligned with a pre adjusted satellite if the receiver system is within the reach of this satellite.

When switching on the unit, the antenna is extended automatically. When switching off the unit or when starting the vehicle engine, the antenna is retracted automatically.

When the desired TV programme is chosen, the corresponding satellite is selected and aimed at automatically.

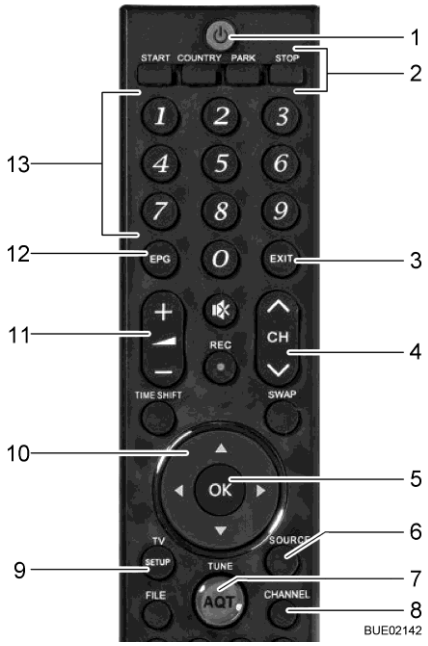
The remote control's basic operating functions are listed here; refer to the manufacturer's separate instruction manual for a full description.

The system is equipped in the factory with list of standard channels as well as lists of favourites. You can change or add to these standard lists manually as desired.



1 Operating buttons on the back of the device
2 Standby mode/operation LED
3 ON/OFF flip switch

Fig. 44 Operation on the flat screen



1 POWER push button
2 Manual control of antenna
3 EXIT button - exit menu without saving
4 Programme selection buttons
5 OK push button - confirm selection or save setting
6 SOURCE button - select signal source
7 AQT button - start DVB-T/T2 channel scan
8 CHANNEL button - call list of channels
9 SETUP button - call main menu
10 Navigation buttons in the menu
11 Volume button
12 EPG button - programme guide
13 Numeric keys - call programme channel directly or enter numbers

Fig. 45 Remote control

Switching on the unit:

- Set flip switch (Fig. 44,3) on the flat screen's back to ON. The system changes to standby mode. The LED (Fig. 44,2) is lit red.

Further operation is performed via the remote control and the indicators displayed on the flat screen.

- Press the POWER button (Fig. 45,1) on the remote control. The LED (Fig. 44,2) is lit blue.

Choosing a TV programme:

- Press the programme selection buttons (Fig. 45,4 or Fig. 45,13) until the desired TV programme has been selected.

The antenna automatically searches for the suitable satellite.

When the unit finds the satellite, the TV programme appears automatically.

Choosing the signal source:

- Press the SOURCE button (Fig. 45,6) repeatedly until the desired signal source has been selected.
- To return to the satellite channels display, press the SOURCE button repeatedly until the signal source DVB-S has been selected.

Operating the unit without using the antenna:

- Press the PARK button (Fig. 45,2). The antenna moves into parking position.
- Press the SOURCE button (Fig. 45,6) repeatedly until the desired signal source (e.g. DVD) has been selected.

Switching off the unit:

- Press the POWER button (Fig. 45,1) on the remote control. The system changes to standby mode. The LED (Fig. 44,2) is lit red.
- Set flip switch (Fig. 44,3) on the flat screen's back to OFF.

The system is disconnected from the power supply.

The antenna automatically moves into parking position.

6.9 Awning (optional equipment)

- ▷ Retract the awning in strong wind, rain or snow.
- ▷ In the case of light rain, shorten one of the support legs so that water can run off.
- ▷ Only retract the awning when the fabric is dry. When the awning must be retracted while the fabric is still wet: Extend the awning as soon as possible, in order to dry out the fabric.
- ▷ Before retracting, remove leaves and coarse dirt from the awning.

- ▷ Only use the awning for protection against the sun.
- ▷ Also read the manufacturer's instruction manual.

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.
- Depending on the equipment, the integrated LED lighting (optional equipment) will provide additional light.

Fig. 46 Awning

Putting up the awning:

- ■ Use the manual crank to open up the awning (Fig. 46,1).
- ■ Set up the brackets (Fig. 46,2) when the awning is open.

Chapter overview

This chapter contains instructions about living in the vehicle.

7.1 Central locking system (optional equipment)

- ▷ The central locking system locks the driver's door, the conversion door, and the external flap of the rear garage of the body.
- ▷ The central locking system has no function, if the battery cut-off switch on the transformer/rectifier is switched off.

Fig. 47 Remote control for central locking system

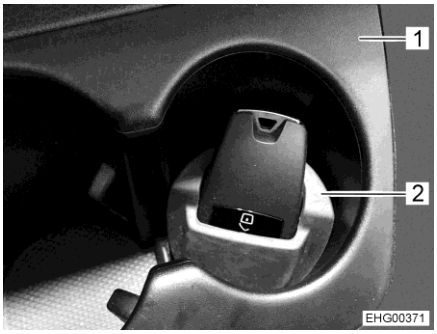


Fig. 48 Key holder

Unlocking doors:

- ■ Press the button (Fig. 47,1) once briefly. The door locks are unlatched.

Locking doors:

- ■ Press the button (Fig. 47,2) once briefly. The door locks are locked.

A key holder (Fig. 48,2) for the remote control has been integrated in the right-hand cup holder (Fig. 48,1).

7.2 Conversion door and driver's door

▶ Only drive with locked doors.

- ▷ 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 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.

7.2.1 Driver's door, conversion door, outside

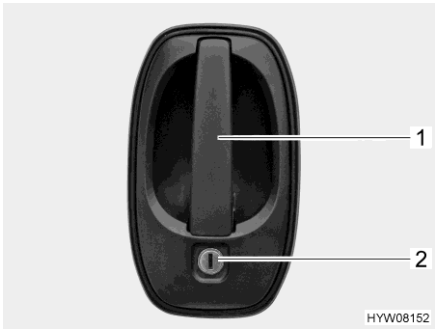


Fig. 49 Door lock (driver's door/conversion door, outside)

Depending on the installation situation, the door lock may be installed as shown or rotated by 180°.

Opening:

- Insert the key into locking cylinder (Fig. 49,2) and turn until the door lock is unlatched.
- Return the key to the central position and remove it.
- Pull on the door handle (Fig. 49,1). The door is open.

Locking:

- Insert the key into locking cylinder (Fig. 49,2) and turn until the door lock is engaged.
- Return the key to the central position and remove it.

7.2.2 Driver's door, inside

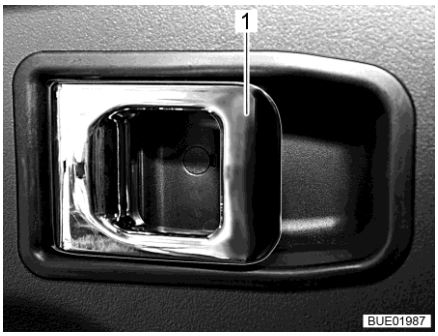


Fig. 50 Door lock (driver's door, inside)

Opening:

- Pull on the handle (Fig. 50,1). The door lock is unlatched.

Locking:

- Close the door.
- Push the handle (Fig. 50,1) inwards or lock the door via the central locking system (optional equipment) (see section 7.1).

7.2.3 Conversion door, inside

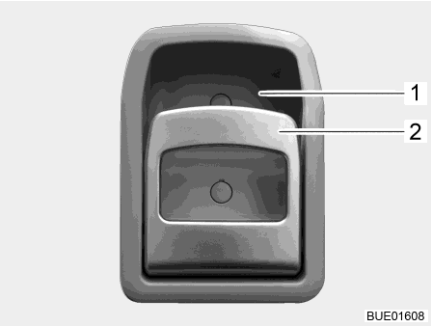


Fig. 51 Door lock (conversion door, inside)

Opening:
- Pull on the handle (Fig. 51,2). The door lock is unlatched or opened.

Locking:
- Press the upper part of the handle (Fig. 51,2) in the direction of the recessed handle (Fig. 51,1). The door lock is locked.

7.2.4 Window conversion door (optional equipment)

The conversion door window is fitted with a Roman shade.

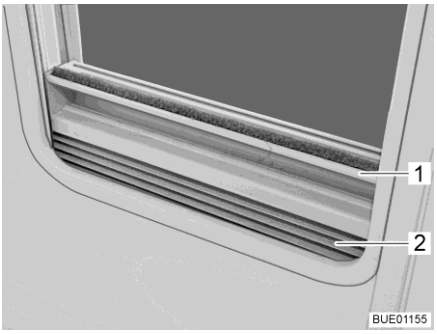


Fig. 52 Roman shade

Closing:
- Grip the Roman shade (Fig. 52,2) in the middle of the holding bar (Fig. 52,1), pull it upwards and then release it at the desired height. The Roman shade will stay at this height.

Opening:
- Grip the Roman shade in the middle of the holding bar and push it down.

7.2.5 Folding insect screen on the conversion door (optional equipment)

▷ Open the insect screen completely before closing the conversion door.

Fig. 53 Insect screen

Closing: ■ Pull out the insect screen completely by the bar (Fig. 53,1).

Opening: ■ Push the insect screen into its initial position by the bar (Fig. 53,1).

7.3 External flaps

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

▷ To open and close the external flap, open or close all locks that are fitted to the external flap.

▷ When leaving the vehicle, close all external flaps.

The external flaps fitted to the vehicle are all fitted with identical locking cylinders. Therefore, all locks can be opened with a single key.

7.3.1 Flap lock with rotary handle

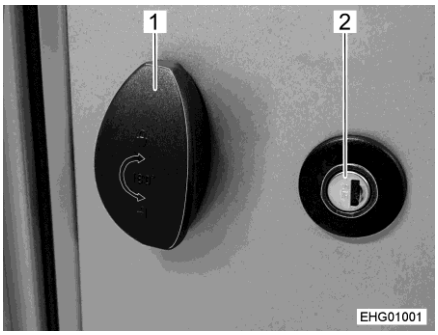


Fig. 54 Flap lock with rotary handle

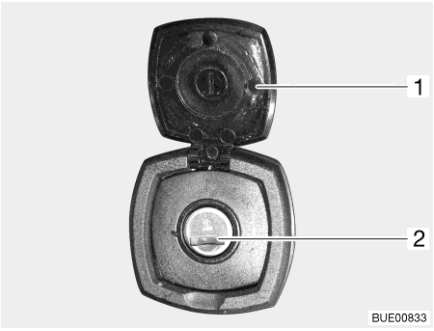
Opening:

- Insert key into locking cylinder (Fig. 54,2) and turn a quarter turn. The flap lock is unlatched.
- Remove the key.
- Pull the rotary handle (Fig. 54,1) out and turn it 180° in an anticlockwise direction. The external flap is open.

Closing:

- Firmly close the external flap.
- Turn the rotary handle (Fig. 54,1) 180° in a clockwise direction.
- Insert key into locking cylinder (Fig. 54,2) and turn a quarter turn. The flap lock is locked.
- Remove the key.

7.3.2 Flap lock, square



1 Cap
2 Locking cylinder

Fig. 55 Flap lock, square

Opening:

- Open the cap (Fig. 56,1).
- Insert key into locking cylinder (Fig. 56,2) and turn a quarter turn.
- Remove the key.

Closing:

- Firmly close the external flap.
- Insert key into locking cylinder and turn a quarter turn.
- Remove the key.

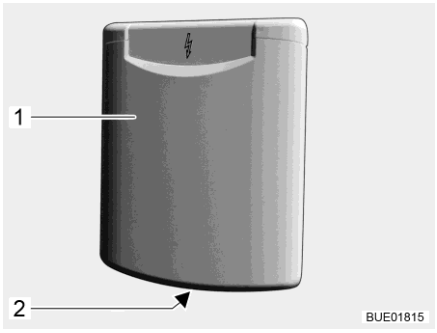
7.3.3 Flap lock, rectangular

Fig. 56 Flap lock

Opening:
- Insert key into locking cylinder (Fig. 56,1) and turn a quarter turn.
- Remove the key.

Closing:
- Firmly close the external flap.
- Insert key into locking cylinder and turn a quarter turn.
- Remove the key.

7.3.4 Flap for the 230 V connection



1 External flap
2 Recessed grip

Fig. 57 Flap for the 230 V connection

Opening:
- Reach into the recessed grip (Fig. 57,2) on the external flap (Fig. 57,1) and swing the external flap upward.

Closing:
- Swivel the external flap downwards and press it shut.

7.3.5 Cap for the drinking water filler neck

Fig. 58 Cap for the drinking water filler neck

The filler neck is located behind an external flap on the left-hand side of the vehicle.

7.4 Furniture flaps

- ▷ Before commencing the journey, close all furniture flaps and inner doors and lock them.
- ▷ The furniture flaps shown in this section are examples. Depending on the model, the locks and handles on the furniture flaps may differ to those displayed here.

7.4.1 Furniture flaps with push button

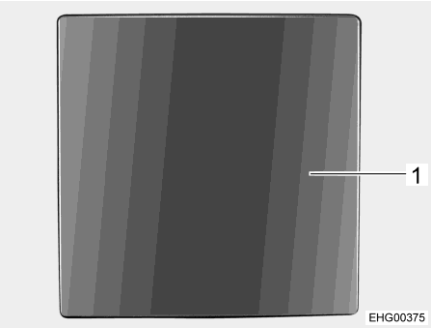


Fig. 59 Push button

Opening:
- ■ Push the push button (Fig. 59,1). The push button jumps out.
- ■ Hold push button and open furniture flap.

Closing:
- ■ Press furniture flap shut.
- ■ Press push button in until it locks. The furniture flap is closed correctly when the fastener locks into place.

7.4.2 Furniture flaps with pressure lock

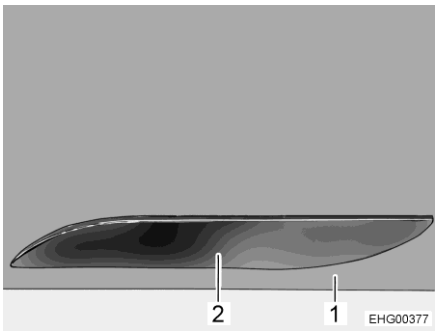


Fig. 60 Pressure lock, closed

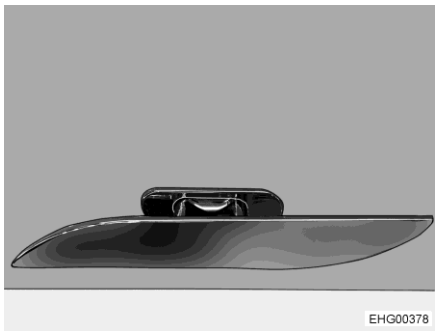


Fig. 61 Pressure lock, open

Opening:
- Press the furniture flap (Fig. 60,1) with the handle (Fig. 60,2) against the cabinet body. The furniture flap is unlocked.
- Open the furniture flap by the handle.

Closing:
- Press the furniture flap on the handle until the lock engages audibly (Fig. 60).

7.4.3 Furniture flaps with release handle

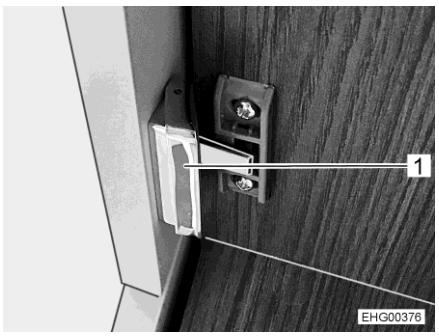


Fig. 62 Release handle

Opening:
- Press the release handle (Fig. 62,1) and simultaneously reach behind the furniture flap.
- Open furniture flap.

Closing:
- Close furniture flap until the lock engages audibly.

7.5 Floor compartment cover

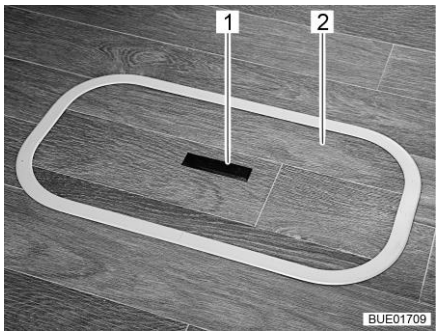


Fig. 63 Floor compartment cover (handle recessed)

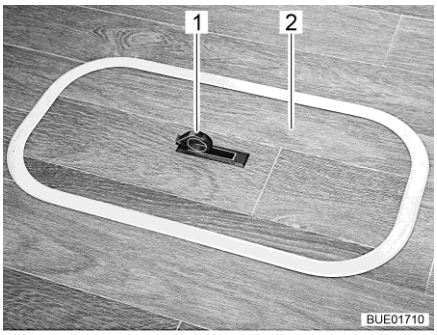


Fig. 64 Floor compartment cover (handle swung out)

Opening:

- Push one side of the grip plate (Fig. 63,1) downwards. The handle (Fig. 64,1) swivels upwards.
- Remove the cover (Fig. 63,2 or Fig. 64,2) upwards.

Closing:

- Insert the cover in the frame on the floor.
- Swivel handle downwards.

7.6 Light switches

7.6.1 Entrance area

▷ The light switches shown in this section are examples. Depending on the model, the type and allocation of the light switches may differ to those displayed here.

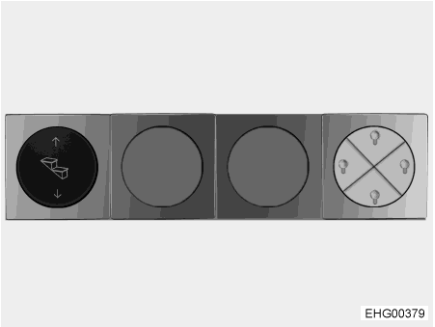


Fig. 65 Switch panel

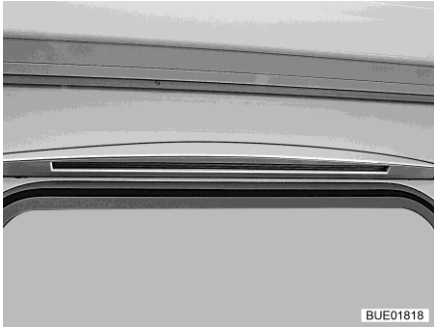


Fig. 66 Awning tent light (not when equipped with awning)

The entrance area has light switches for the following lamps:

- Entrance lighting
- Awning tent lighting (Fig. 66) (partially optional equipment) (not when equipped with awning)
- Living area lighting
- Awning lighting (optional equipment)

7.6.2 Recessed LED light

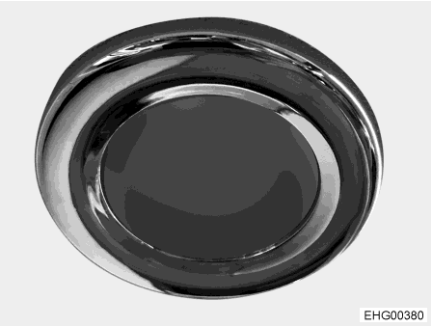


Fig. 67 Recessed LED light

Several recessed LED lights (Fig. 67) are installed in the ceiling of the vehicle.

The switches for the recessed LED lights are integrated in the switch panel in the entrance area.

7.6.3 Mobile lamp (optional equipment)

▶ Fasten all mobile lamps in the charging station in the wardrobe during the journey.

The mobile lamp can be used as an additional lamp, as a table lamp, or as a torch. The mobile lamp is equipped with a rechargeable battery that is charged in the charging station in the wardrobe (Fig. 71). The charging station is equipped with active docking stations (Fig. 70).

Fig. 68 Mobile lamp (pushed together)

Fig. 69 Mobile lamp (pulled out)

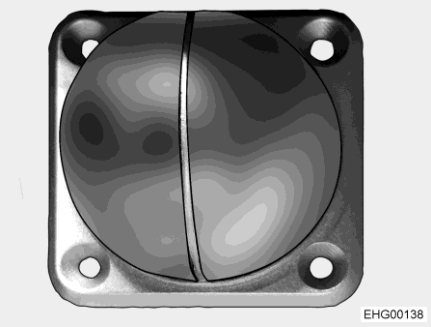


Fig. 70 Docking station, underneath pull-down bed (active and passive)

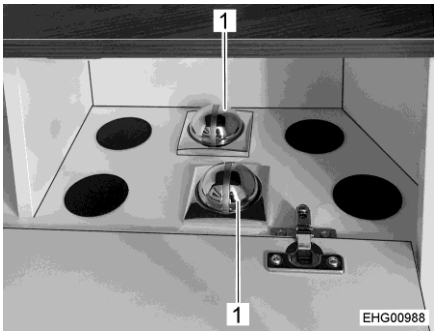


Fig. 71 Charging station in the corner cabinet in front of the rear bed

Use as an additional lamp The mobile lamp is pushed together (Fig. 68) and is plugged onto a passive docking station (Fig. 70).

Use as table lamp The mobile lamp is pulled out (Fig. 69) and placed on the table or any other place.

Use as torch The mobile lamp is pulled out (Fig. 69) and used as a torch.

Switching on/off:
- Press the On/Off switch (Fig. 68,1).

Dimming:
- Press and hold On/Off switch (Fig. 68,1).

▷ The lighting intensity adjusted most recently is saved.

Charging:
- Open the flap of the corner cabinet.
- Push lamp together (Fig. 68) and plug onto active docking station (Fig. 70 and Fig. 71,1).

The LED (Fig. 68,2) next to the On/Off switch shows the charging condition.

A red LED means that the rechargeable battery is being charged.

A green LED means that the rechargeable battery has been charged.

▷ When plugging onto the active docking station, the LED lights up red for 30 seconds.

7.6.4 Wardrobe light

- ▷ The wardrobe light can be removed from its holder (Fig. 72,1) and used as a torch.
- ▷ When the wardrobe door is closed, the wardrobe light switches off automatically.
- ▷ A brightness sensor ensures that the wardrobe light comes on only when it is dark. This prevents the wardrobe light from being accidentally switched on during daylight hours, which would waste the batteries.

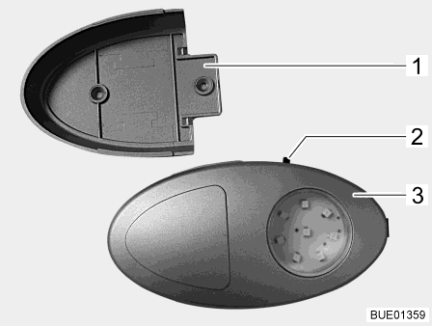


Fig. 72 Wardrobe light/torch

The On/Off switch (Fig. 72,2) is located directly on the wardrobe light (Fig. 72,3).

7.6.5 Tube lamp in the rear garage

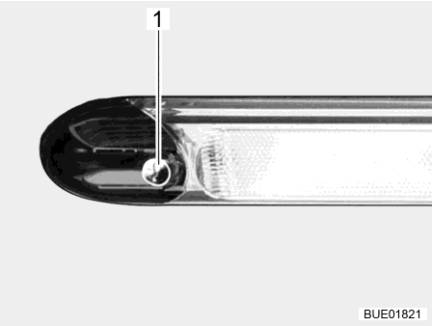


Fig. 73 Tube lamp in the rear garage

Move your hand over the sensor (Fig. 73,1) on the lamp to switch it on and off.

7.7 Light control

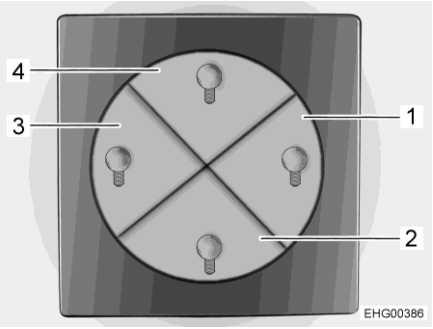


Fig. 74 Switch for light control

The vehicle is equipped with a light control system. This system can be used to switch various lighting scenarios for the living and sleeping area.

The switch for light control is integrated into the switch panel in the entrance area and has 4 touchpads for the following lighting scenarios:

- Main light, living area (ceiling lighting) (touchpad 4 in Fig. 74)
- Ambience lighting, living area (indirect lighting by LED strips on the sides) (touchpad 2 in Fig. 74)
- Main light, sleeping area (ceiling lighting) (touchpad 3 in Fig. 74)
- Ambience lighting, sleeping area (indirect lighting by LED strips on the sides) (touchpad 1 in Fig. 74)

7.8 Holder for flat screen

▶ Before commencing the journey, place and secure the flat screen and screen support in the initial position. If the screen holder is installed in a TV cabinet: Close TV cabinet.

7.8.1 Holder with one-piece jointed arm

The flat screen is fastened to a one-piece jointed arm and can be shifted sideways.

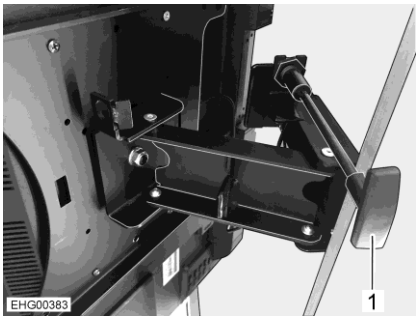


Fig. 75 Holder (one-piece jointed arm)

Positioning:

- Pull and hold handle (Fig. 75,1). The flat screen is unlocked.
- Push the flat screen to the desired position.
- Release handle. The flat screen is locked.

Storing away:

- Pull and hold handle.
- Push the flat screen back to the original position until the lock engages audibly.

7.8.2 Holder with two-piece jointed arm

The flat screen is fastened to a two-piece jointed arm and can be swivelled into any position.

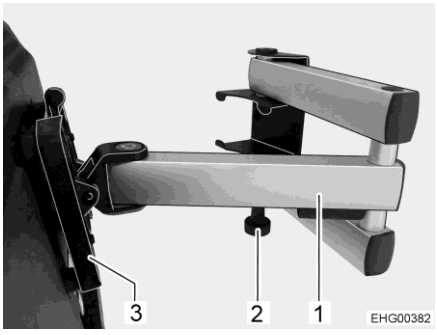


Fig. 76 Holder (two-piece jointed arm)

Positioning:

- Pull the release knob (Fig. 76,2). The jointed arm (Fig. 76,1) is unlocked.
- Swivel the flat screen into the desired position.
- Take hold of the flat screen at the top and bottom edge with both hands and set the desired angle of inclination.

Storing away:

- Turn the flat screen back into the original position until you hear the holder (Fig. 76,3) engage in the lock.

7.9 Ventilation

▶ The oxygen in the vehicle interior is used up by breathing and the use of gas operated appliances. That is why the used air must be replaced permanently. 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 the inside or outside with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves. There is a danger of suffocation due to increased CO_2 levels.

▷ In the case of the vehicles with rear pull-down bed and skylight, condensation may form in the area of the roof curvature when the rear pull-down bed is located in the top position.

When the vehicle is parked, lower the rear pull-down bed slightly to improve the air circulation.

▷ Although sufficient ventilation is provided, in certain weather conditions, condensation can form on metal objects (e.g. screwed connections in the floor).

▷ Additional cold spots can occur at thermal "bridges" (e.g. mushroom-shaped vents, 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 and resulting mould 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. Do not only air the interior, but also the storage spaces which are accessible from the outside. 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.

7.10 Windows

- ▷ The windows are fitted with a blind or Roman shade and with an insect screen or folding insect screen. After the latch has been released, the blind and 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 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 window. The window could be damaged.

  Therefore, if the shade is installed in the bottom blind box, close the shade only 2/3 when sunlight is intense. This allows the heat to escape between the window and the shade.

  If the shade is installed in the top blind box, close the shade fully and open it regularly.

  Also move the window into the "continuous ventilation" position.
- ▷ 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 window, open or close all catch levers which are fitted to the window.

- ▷ When leaving the vehicle, always close the windows.
- ▷ In extreme weather conditions or if the temperature fluctuates strongly, a light condensation film 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.

7.10.1 Hinged window

- ▷ If windows with automatic hinges are fitted, open the window fully in order to release the lock. If the locking device is not released and the window is closed nevertheless, there is the danger of the window breaking 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 catch lever is equipped with a safety knob, press the safety knob when operating the catch lever.

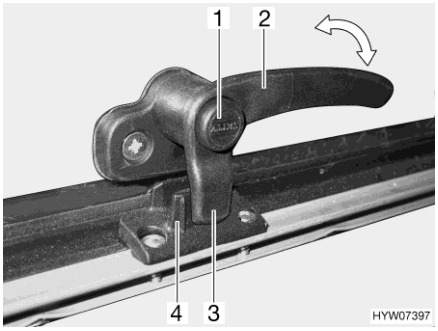


Fig. 77 Catch lever with safety knob in "closed" position

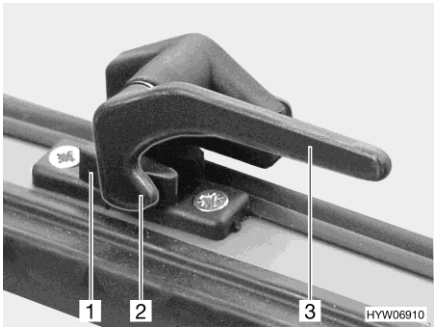


Fig. 78 Catch lever in "closed" position

Opening:

- ■ Press and hold the security button (Fig. 77,1), if present.
- ■ Turn the catch lever (Fig. 77,2 or Fig. 78,3) a quarter turn towards the centre of the window.

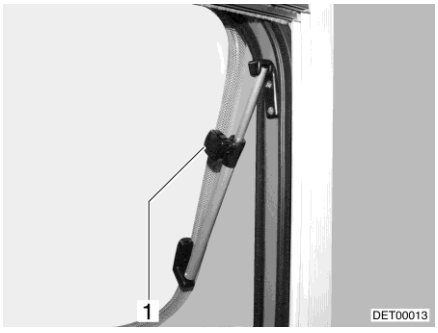


Fig. 79 Hinged window with rotary hinge

Fig. 80 Hinged window with automatic hinge

- ■ Hinged window with rotary hinge: Open the hinged window until the required position has been reached and use knurled knob (Fig. 79,1) to secure in position.
  Hinged window with automatic hinge: Open the hinged window to the desired latched position. The automatic hinge (Fig. 80,1) locks in place automatically.

The hinged window remains locked in the required position.

Closing:

- Hinged window with rotary hinge: Turn knurled knob (Fig. 79,1) until the latch is released.
  Hinged window with automatic hinge: Open the hinged window as wide as is necessary to release the lock.
- Close the hinged window.
- Press and hold the security button (Fig. 77,1), if present.
- Turn the catch lever (Fig. 77,2 or Fig. 78,3) a quarter turn towards the window frame.
  The locking catch (Fig. 77,3 or Fig. 78,2) on the catch lever is entirely on the inner side of the window catch (Fig. 77,4 or Fig. 78,1).

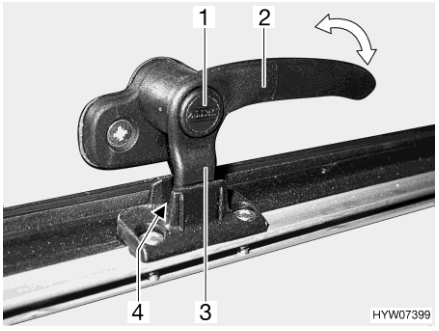


Fig. 81 Catch lever with safety knob in "continuous ventilation" position

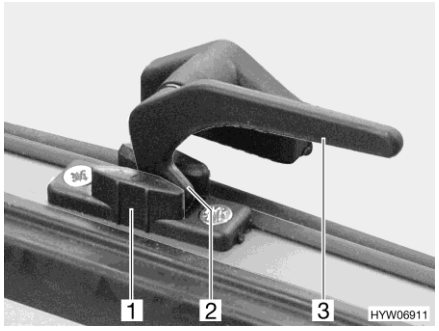


Fig. 82 Catch lever in "continuous ventilation" position

Continuous ventilation

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

- "Continuous ventilation" (Fig. 81 and Fig. 82)
- "Firmly closed" (Fig. 77 and Fig. 78)

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

- Press and hold the security button (Fig. 81,1), if present.
- Turn the catch lever (Fig. 81,2 or Fig. 82,3) a quarter turn towards the centre of the window.
- Slightly open the hinged window outwards.
- Return the catch lever to its initial position. Move the locking catch (Fig. 81,3 or Fig. 82,2) on the catch lever into the recess of the window catch (Fig. 81,4 or Fig. 82,1).
- Press and hold the security button (Fig. 81,1), if present.
- Make certain 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 "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.

7.10.2 Sliding window with pressure lock

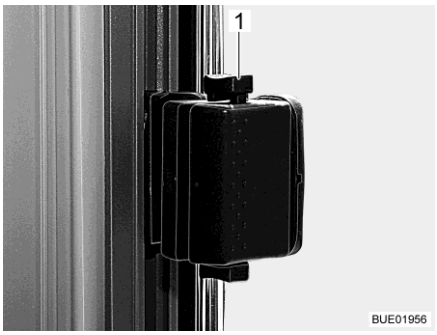


Fig. 83 Sliding window, locked

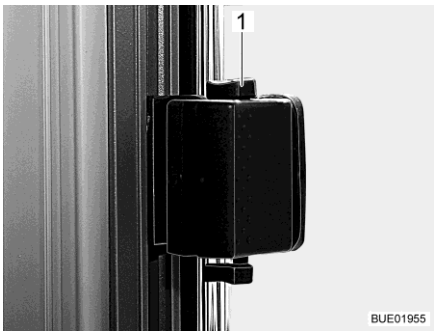


Fig. 84 Sliding window, unlocked

Opening:

- Push the latch (Fig. 83,1) downwards.
- Open the window to the desired position.

Closing:

- Close the window as far as it can go.
- Push the latch (Fig. 84,1) upwards.

7.10.3 Roman shade and insect screen

The windows are fitted with a Roman shade and an insect screen. The insect screen can only be moved together with the Roman shade.

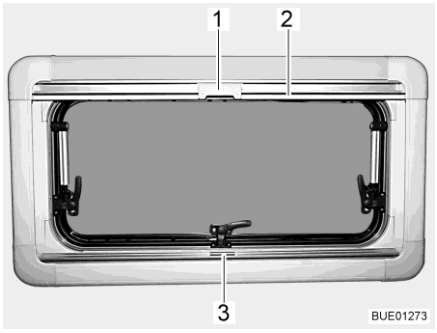


Fig. 85 Hinged window

Roman shade The Roman shade is located in the bottom blind box.

Closing:

- Grip the Roman shade in the centre of the holding bar (Fig. 85,3), pull it from the bottom to the top and then release it at the desired height. The Roman shade will stay at this height.

Opening:

- Grip the Roman shade in the centre of the holding bar and push it down.

Insect screen The insect screen is located in the upper blind box.

Closing:

- Pull the insect screen down using the holding bar (Fig. 85,2), until it touches the holding bar of the Roman shade (Fig. 85,3).
- Clip the catch (Fig. 85,1) on the insect screen into the handle of the Roman shade.

Opening:
- Push the catch (Fig. 85,1) on the insect screen inwards.
- Move the insect screen back slowly on the holding bar (Fig. 85,2).

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

Operation of the manually adjustable Roman shade, see section 5.13.1.

Operation of the electrically adjustable Roman shade, see section 5.13.2.

7.11 Skylights

Depending on the model, skylights with or without forced ventilation are fitted to the vehicle. If a skylight is fitted without forced ventilation, the forced ventilation is performed using mushroom-shaped vents.

▶ 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 an insect screen or folding insect screen. After the latch has been released, the blind and 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 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.

▷ Do not climb on the skylights.

▷ Before commencing the journey, close the skylights.

▷ Before commencing the journey, check that the skylights are closed and locked.

▷ When leaving the vehicle, always close the skylights.

7.11.1 Heki skylight

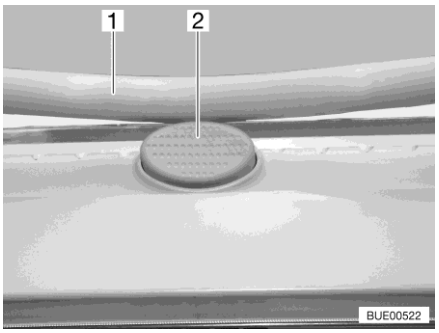


Fig. 86 Safety knob (Heki skylight)

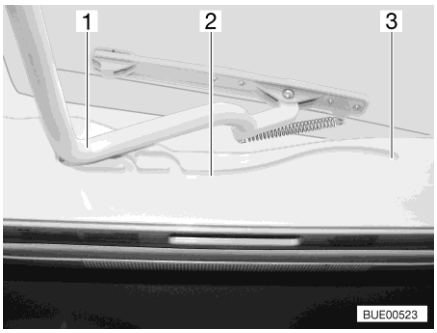


Fig. 87 Guide (Heki skylight)

The Heki skylight is opened on one side only.

Opening:

- Press the safety knob (Fig. 86,2) and pull the bar (Fig. 86,1) down with both hands.
- Pull the bar (Fig. 87,1) in the guides (Fig. 87,2) to the rearmost position (Fig. 87,3).

Closing:

- Use both hands to push the bar (Fig. 87,1) slightly upwards.
- Push the bar back in the guides.
- Push the bar upwards with both hands until it is above the safety knob (Fig. 86,2).

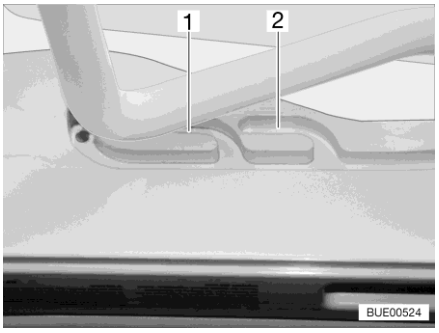


Fig. 88 Guide (ventilation position)

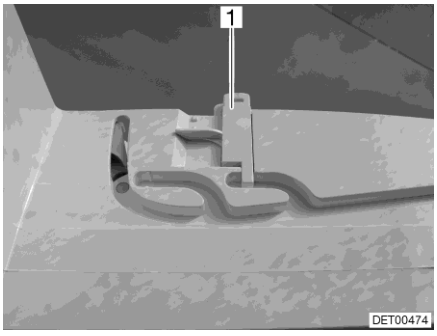


Fig. 89 Lock (ventilation position)

Ventilation position

The Heki skylight can be put in two ventilation positions: Bad weather position (Fig. 88,1) and central position (Fig. 88,2). Depending on the model, the skylight can be locked in the central position with both left and right latches (Fig. 89,1) on the skylight frame.

- Press the safety knob (Fig. 86,2) and pull the bar (Fig. 86,1) down with both hands.
- Pull the bar in the guides (Fig. 87,2) to the desired position.
- Push the bar slightly upwards and into the selected guide (Fig. 88,1 or 2) and lock if necessary.

Roman shade To close and open the 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 To close and open the 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.

7.11.2 Skylight with snap latch

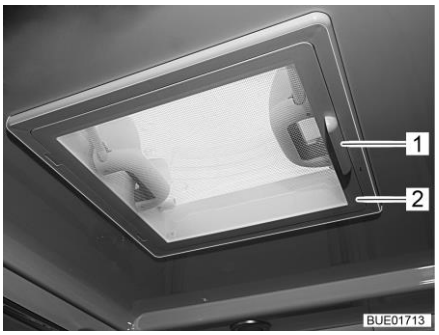


Fig. 90 Skylight with snap latch

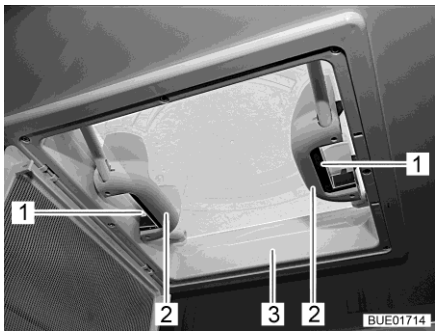


Fig. 91 Handles with snap latches

The skylight can be pushed upwards either from one side or from both sides.

Opening:
- Use handle (Fig. 90,1) to swing down the insect screen (Fig. 90,2).
- Push the snap latch (Fig. 91,1) towards the inside of the skylight (Fig. 91,3). At the same time use the handle (Fig. 91,2) to press the skylight upwards.
- Swing insect screen upwards until it latches in place.

Closing:
- Use handle (Fig. 90,1) to swing down the insect screen (Fig. 90,2).
- Using both handles (Fig. 91,2), pull down the skylight (Fig. 91,3) with force until the two snap latches (Fig. 91,1) lock into place.
- Swing insect screen upwards until it latches in place.

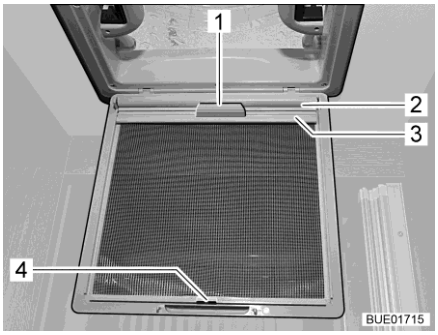


Fig. 92 Blind (skylight)

Blind Depending on the equipment, there will be a blind installed.

Closing:

- Use handle (Fig. 90,1) to swing down the insect screen (Fig. 90,2).
- Using the handle (Fig. 92,1), pull out the blind (Fig. 92,2) and hook the retainer (Fig. 92,3) into the hook (Fig. 92,4) on the insect screen.
- Swing insect screen upwards until it latches in place.

Opening:

- Use handle (Fig. 90,1) to swing down the insect screen (Fig. 90,2).
- Release the retainer (Fig. 92,3) from the hook (Fig. 92,4) and, using the handle (Fig. 92,1), slowly return the blind (Fig. 92,2).
- Swing insect screen upwards until it latches in place.

7.12 Tables

Depending on the model and equipment, various types of tables may be installed. The tables' features differ in the following ways:

	Table leg	Table top	Conversion to bed foundation
Fixed table	Screwed to the floor	Shiftable, fold-out, enlargeable	Possible

▷ Depending on the model, the tables can be adjusted in one or more of the aforementioned ways.

The tables' main operation is described below. The type and position of the operating controls may vary slightly.

7.12.1 Fixed table, foldable

Table leg The table leg is screwed into the floor. The table can be converted into the bed foundation.

Table top The table top can be shifted both lengthwise and crosswise. The table top can be folded to provide more freedom of movement in the living area.

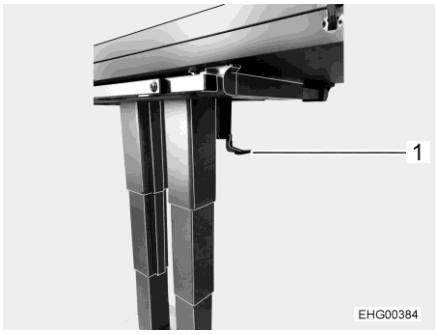


Fig. 93 Table, underside

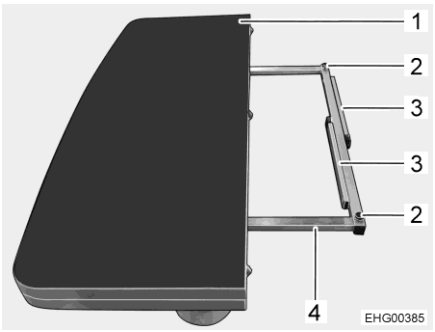


Fig. 94 Table top, folded

Shifting the table top:

- Fold down the catch lever (Fig. 93,2).
- Push the table top to the desired position.
- Fold the catch lever back up.

Folding out the table top:

- Pull out the table top frame (Fig. 94,4).
- Fold over table top half (Fig. 94,1) and set it down on table top frame.
- If necessary, align the height of the table top using the two knobs (Fig. 94,2).

Folding the table top closed:

- Fold over the table top half.
- Push in the table top frame.

▷ Before lowering the table top, remove the cushions from the benches or shift the table top (depending on the installation situation).

Conversion into bed foundation:

- Lower the table top. In order to do this, first press the table top briefly upwards and then press it down.
- Fold out both support legs (Fig. 94,3).

7.13 Beds

- Always use the safety guards supplied.
- Never remove or dismantle the safety guards supplied.
- If access aids (e.g. foldable steps) are provided, always use these access aids when climbing into and out of the bed.

7.13.1 Pull-down bed, electrically operated

- The maximum permitted pull-down bed load is 200 kg.
- Do not reach into the area between the bed and the side wall when lowering or raising. Danger of bruises!
- Do not lower or lift the bed when there are people using the pull-down bed.
- Only lower the bed if the lowering area is clear.
- Only lower the pull-down bed so far that it does not lie on any obstacles such as headrests, cushions or anything similar. If possible, remove such obstacles before lowering.
- Do not allow children to play with the pull-down bed.
- Store the key for the control unit such that children have no access to it.
- Only use the pull-down bed, if the safety net is set up.
- Use separate children's beds or travel cots suitable for children.
- Never allow small children to remain in the pull-down bed without supervision.
- But in particular with regard to small children less than 6 years of age, users should ensure that they cannot fall out of the pull-down bed.

▷ Before starting a journey, the pull-down bed must be in the top end position. Do not stow any bulky items or bedding on the pull-down bed so that the pull-down bed can move to the top end position.

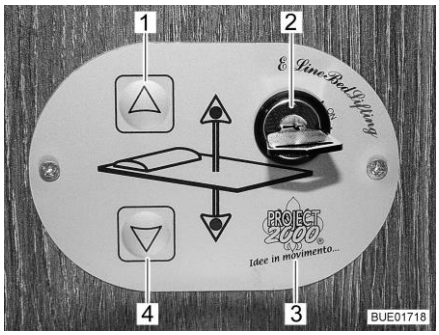


Fig. 95 Control unit

Control unit The pull-down bed is raised or lowered using the buttons (Fig. 95,1 and 4) on the control unit (Fig. 95,3). The control unit is protected against unauthorized use with the key switch (Fig. 95,2).

The pull-down bed's height may be adjusted steplessly.

Lowering the pull-down bed:

- Removing any obstacles in the area into which the pull-down bed extends: Push the seats forwards and rotate; remove or fold cushions if necessary.
- Switch off the lamps underneath the pull-down bed.
- Turn the key in the key switch (Fig. 95,2) by 90° in a clockwise direction to position "On". The control unit (Fig. 95,3) is activated.
- Press the arrow key (Fig. 95,4) and keep it pressed until the pull-down bed has moved down into the desired position.
- Ensure that the pull-down bed is not resting on obstacles such as headrests, cushions or similar.

Lifting the pull-down bed:

- Switch off the reading lamps in the pull-down bed.
- Press the arrow key (Fig. 95,1) and keep it pressed until the pull-down bed has moved down into the final upper position.
- Ensure that there are no objects stuck between the roof and the pull-down bed.

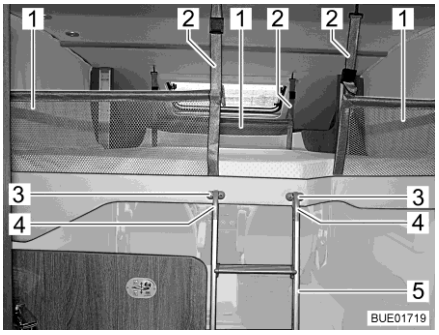


Fig. 96 Pull-down bed complete with applied safety net

Safety net

The three safety nets (Fig. 96,2) with their retaining belts are located underneath the mattress in the pull-down bed. Only use the safety nets if persons are already in the pull-down bed.

▷ If the pull-down bed is lowered below 1 m, it will not be possible to set up the safety nets.

Setting up:

- Attach retaining belts (Fig. 96,1) to the hooks on the ceiling.

Access ladder

If the pull-down bed is raised over 1 m, only access the pull-down bed using the access ladder provided.

Attaching:

- Hook both bows (Fig. 96,4) of the access ladder (Fig. 96,5) into the holders (Fig. 96,3).

Storing away:

- Release the access ladder (Fig. 96,5) from the holders (Fig. 96,3).
- Store the access ladder securely underneath the mattress during the journey.

Emergency operation

If it is no longer possible to move the pull-down bed with the arrow keys (Fig. 95,1 and 4), first of all check the fuses (see section 9.13.1). If the fuses are okay and it is still not possible to move the pull-down bed, the pull-down bed can be operated manually in emergency operation.

▷ The drive is located behind a cover in the rear central area of the pull-down bed.

- Remove mattress from pull-down bed and reduce the load of the storage cupboards to a minimum.
- Insert the crank provided or an Allen wrench into the holder on the drive.
- Turn crank or Allen wrench manually until the pull-down bed has reached the upper parking position.

7.14 Shower connection point for external shower (optional equipment)

▶ Only use the external shower if there is a gap of at least 1.20 m between the shower and the nearest electrical device or connection. Risk of electric shock!

▷ If decommissioned for a longer time or if there is a risk of frost, drain the water system.

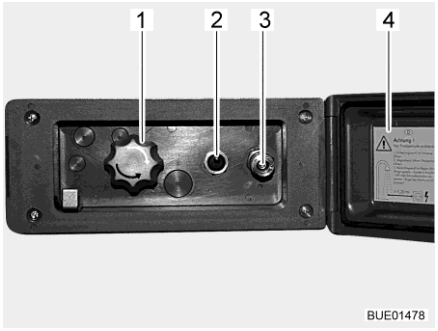


Fig. 97 External shower connection point

Connecting an external shower:

- Unlock and open the cover (Fig. 97,4).
- Attach hose of the external shower to the quick closure (Fig. 97,3).

Using the shower:

- Switch on the water pump using the switch (Fig. 97,2).
- Adjust the water temperature with the rotary knob (Fig. 97,1) as desired.
- Switch off the water pump using the switch (Fig. 97,2).

Shutting off the shower connection point:

- Switch off the water pump using the switch (Fig. 97,2).
- Disconnect the hose from the quick closure. The quick closure is equipped with a check value to prevent any further water from escaping.
- Close the cover (Fig. 97,4) and lock with key.

Emptying:

- Attach hose of external shower to quick closure. The check valve is opened and the connections can run dry.
- Turn knob (Fig. 97,1) to the central position.
- Empty the water system (see section 11.2.5).

Chapter overview

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

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

8.1 General

- The operator of the gas system is responsible for the performance of recurring inspections and for complying with the maintenance intervals.
- Before commencing the journey, when leaving the vehicle or when gas equipment is not in use, close all gas isolator taps and the main regulator tap on the gas bottle.
- All gas-operated devices (heater, cooker, oven, grill, refrigerator - depending on the equipment) must be switched off for refuelling, on ferries or in the garage. Danger of explosion!
- Do not use gas-operated devices in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- Only have the gas system maintained, repaired or altered by an authorised specialist workshop.
- Have the gas system checked by an authorised specialist workshop according to the national regulations before commissioning. 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, the gas tubes, and the exhaust gas pipes must also be inspected. The gas pressure regulator and the gas tubes must be replaced observing the nationally defined deadlines (the latest after 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 regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.). Check the tightness of gas-conducting parts and lines with leakage search spray. Do not check with an open flame.
- Only the stipulated devices may be connected to internal connections. Do not operate any device outside the vehicle if it is connected to an internal connector.
- Before using the cooker make sure that there is sufficient ventilation. Open a window or the skylight.
- Cooking is prohibited during the journey.
- Do not use gas-operated cooking and baking facilities 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 built-in gas devices are exclusively meant for use with propane or butane gas or a mixture of both. The gas pressure regulator as well as all built-in gas devices are designed 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.
- Due to its function and construction, the gas bottle compartment is a space which is open to the exterior. Never cover or block up the standard forced ventilations. Otherwise gas that is emitted can not be diverted to the outside.
- The gas bottle compartment must not be used as storage space.
- Secure the gas bottle compartment against unauthorised access. To do this, lock the compartment.
- The regulator tap on the gas bottle must be accessible.
- Only connect gas-operated devices 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. For this reason, keep the exhaust pipe and intake openings clean and unobstructed (e.g. free from snow and ice). For this reason, no snow walls or aprons may lie against the vehicle.

8.2 Gas bottles

- Handle full or emptied gas bottles outside the vehicle only with closed regulator tap and attached protective cap.
- Gas bottles are only to be transported within the designated gas bottle compartment.
- Place the gas bottles in vertical position in the gas bottle compartment.
- Fasten the gas bottles so that they are unable to turn or tilt.
- Connect the gas tube to the gas bottle without tension.
- 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.
- Depending on the connection, unscrew the gas tube from the gas bottle and screw it on the gas bottle again by hand or using an suitable special spanner. The screw connection on the gas bottle generally has a left-hand thread. **Do not** tighten too firmly.

- ▶ 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 only 11 kg or 5 kg gas bottles. (Gas bottle sizes may vary depending on the country.) Camping gas bottles with built-in check valve (blue bottle with max. 2.5 or 3 kg content) are can be used in exceptional cases with a safety valve.
- ▶ Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- ▶ Never block the floor ventilation openings below the gas bottles.

▷ With some models, the gas bottle compartment is located right next to the conversion door. With these models, only open the gas bottle compartment when the conversion door is closed. Danger from damages.

▷ The screw connections on the gas bottles generally have a left-hand thread.

▷ 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 filling and connecting the gas bottles in Europe the accessories shops have corresponding Euro filling sets and Euro bottle sets.

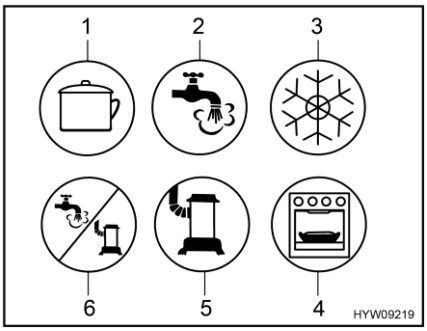
▷ Information available at the dealers or service centre.

▷ For information on the gas supply in Europe see chapter 18.

The gas pressure regulator is permanently installed in the gas bottle compartment. The gas bottle is connected to the gas pressure regulator via a high-pressure gas hose.

The high-pressure gas hoses and their connections are different in the various countries. The accessories shop offers the respective country-specific models and adapters.

8.3 Gas isolator taps

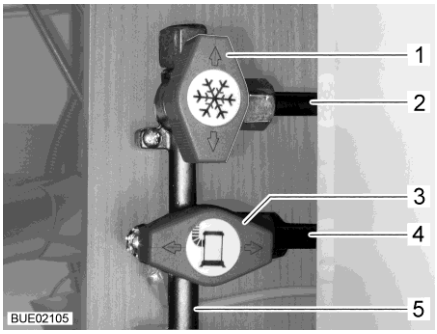


1 Cooker
2 Hot water
3 Refrigerator
4 Oven/grill
5 Heater
6 Hot water/heater

Fig. 98 Possible symbols for the gas isolator taps

A gas isolator tap (Fig. 98) 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. Generally, you will have access to the gas isolator taps in the kitchen unit opening a door or a drawer.



1 Gas isolator tap for refrigerator closed
2 Pipe to refrigerator
3 Heater gas isolator tap open
4 Pipe to heater
5 Gas pipe from gas bottle

Fig. 99 Gas isolator taps position (example)

Opening:
- Position the gas isolator tap of the corresponding gas device parallel (Fig. 99,3) to the pipe (Fig. 99,4) leading to the gas device.

Closing:
- Position the gas isolator tap of the corresponding gas device transverse (Fig. 99,1) to the pipe (Fig. 99,2) leading to the gas device.

8.4 External gas connection (optional equipment)

- If the external gas connection is not in use, always close the gas isolator tap.
- Only gas appliances with a suitable adapter should be connected to the external gas connection.
- Connect only external gas appliances which are designed for an operation pressure of 30 mbar.
- Once you have made the connection and opened the gas isolator tap, make sure that no gas is escaping at the connection point. If there is a leak in the external gas connection, gas will escape into the open air. Immediately close the gas isolator tap and the regulator tap on the gas bottle. Have the external gas connection checked by an authorised specialist workshop.
- When connecting an external gas appliance, make sure that there is nothing near the external gas connection that could cause a spark.
- Only connect a gas appliance to the external gas connection. Do not use the external gas connection as supply (connection of an additional gas bottle).
- Do not use the external gas connection to fill gas bottles. Observe the information stickers on the external gas connection.

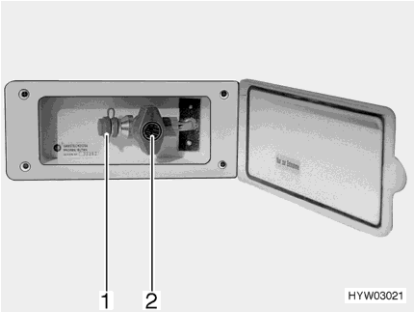


Fig. 100 External gas connection (gas isolator tap closed)

The external gas connection is located at the rear or to the left or right of the vehicle depending on the model.

- Connect the external gas device to the connection point (Fig. 100,1).
- Open the gas isolator tap (Fig. 100,2).

8.5 Gas bottle switching facility (optional equipment)

▶ If the vehicle is equipped with a gas bottle switching facility without Crash Protection Unit (CPU), it is not permitted to operate gas devices during the journey. Close the regulator taps on the gas bottles and the gas isolator taps before setting off.

▷ When the vehicle is equipped with the crash protection unit the living area heater may be operated during the journey.

▷ The gas bottle switching facility and the hose lines shall be changed at the latest 10 years after manufacturing date. The operator is responsible for this.

The automatic 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 switching facility is suitable for all commercial gas bottles from 3 kg to 33 kg.

Facility without Crash Protection Unit (CPU)

The gas bottle switching facility consists of a combined gas pressure regulator with reversing valve and indicator (Fig. 101,3). The gas bottle switching facility is installed between the two gas tubes (Fig. 101,1).

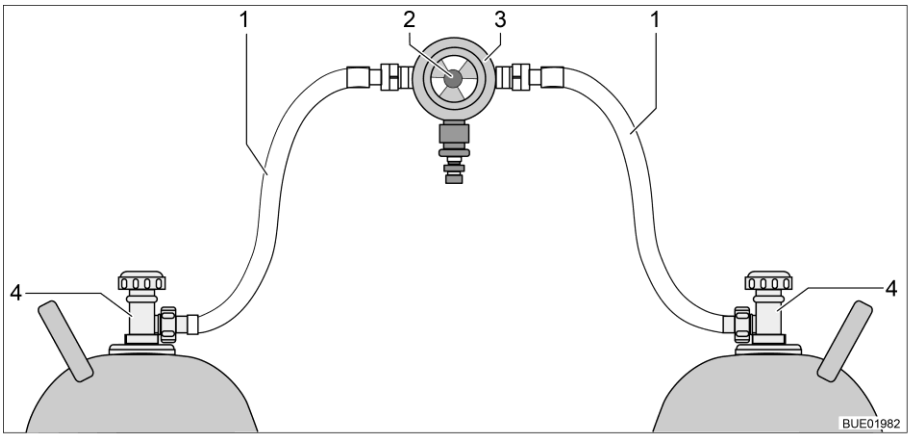


Fig. 101 Gas bottle switching facility

1 Gas tube
2 Knob for manual switching of the gas bottles
3 Gas pressure regulator with reversing valve and indicator
4 Regulator tap on the gas bottle

Facility with Crash Protection Unit (CPU)

The gas bottle switching facility consists of a combined gas pressure regulator with reversing valve and indicator (Fig. 102,4), and an electrovalve (Fig. 102,2). The electrovalve blocks the gas supply to the vehicle in the event of a full braking, an accident, or an unusually great inclined position. The gas bottle switching facility is installed between the two gas tubes (Fig. 102,1) with hose break guards (Fig. 102,5).

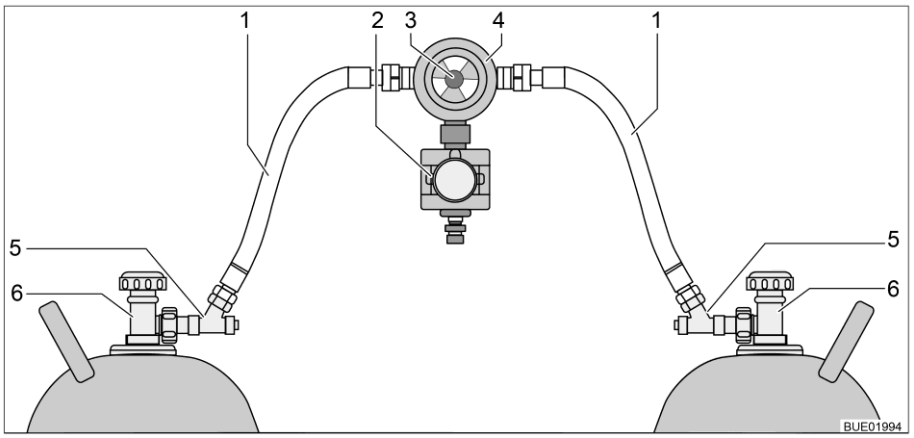


Fig. 102 Gas bottle switching facility with CPU

1 Gas tube
2 Electrovalve (CPU)
3 Knob for manual switching of the gas bottles
4 Gas pressure regulator with reversing valve and indicator
5 Hose break guard
6 Regulator tap on the gas bottle

Function

The gas bottle switching facility ensures a constant gas pressure, regardless of which gas bottle is being drawn upon. The display in the reversing valve shows the filling level of the primary bottle. The gas supply comes from the primary bottle when the display is green. When the display is red the primary bottle is empty. In this case, the reserve bottle is used for the gas supply.

Use the knob (Fig. 101,2 or Fig. 102,3) on the gas bottle switching facility 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.

Operating unit

Depending on the equipment, the gas bottle switching facility is additionally equipped with an electrical operating unit (with or without remote display).

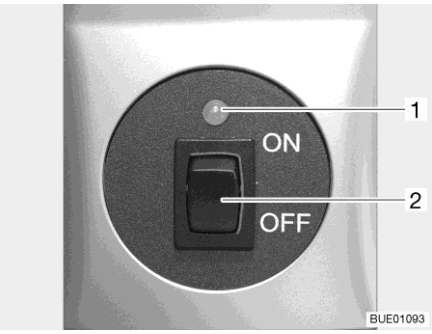


Fig. 103 Operating unit

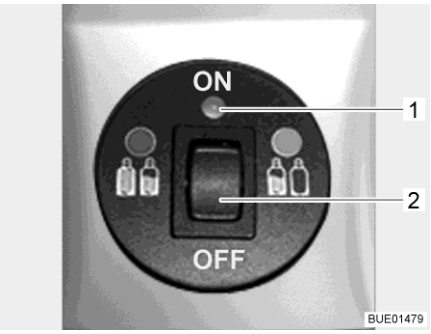


Fig. 104 Operating unit with remote display

Only the electrical functions can be switched at the operating unit (Fig. 103). The regulator taps on the gas bottles (Fig. 101,4 or Fig. 102,6) must be opened and closed manually.

Without remote display

The indicator lamp on the operating unit shows the condition of the gas system. The system is okay when the indicator lamp (Fig. 103,1) lights up green. When the indicator lamp lights up or flashes red a fault has occurred. The gas supply is interrupted.

With remote display

The indicator lamp on the operating unit (Fig. 104,1) shows the condition of the gas system:

Indicator lamp	Signification
Off	System switched off, gas supply switched off
Green	System switched on, gas supply switched on
Red	Gas supply switched off, triggered by sloping position or excessive acceleration, e.g. in the event of an accident
Yellow	System switched on, gas supply switched on, primary bottle empty
Flashes yellow	Self-check, for approx. 2 seconds, after switching on
Flashes red once	Valve not connected to control unit or internal error
Flashes red twice	Overvoltage determined, gas supply interrupted
Flashes red three times	Undervoltage determined, gas supply interrupted

Putting into operation:

- Open the regulator taps of the gas bottles (Fig. 101,4 or Fig. 102,6).
- Press the hose break guards (Fig. 102,5) successively for 10 seconds.
- Use the knob (Fig. 101,2 or Fig. 102,3) on the switching facility 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.
- Switch on the switching facility on the operating unit.
  For this, set the rocker switch (Fig. 103,2 or Fig. 104,2) to "ON". The reversing valve is now deaerated. The indicator lamp (Fig. 103,1 or Fig. 104,1) flashes yellow (system test) and lights up green.

Switching off:

- Set the rocker switch (Fig. 103,2 or Fig. 104,2) to "OFF". The indicator lamp (Fig. 103,1 or Fig. 104,1) goes out.
- Close the regulator taps of the gas bottles (Fig. 101,4 or Fig. 102,6).

- ▶ When changing gas bottles, do not smoke or create any open fire.
- ▶ Depending on the connection, unscrew the gas tube from the gas bottle and screw it on the gas bottle again by hand or using an suitable special spanner. The screw connection on the gas bottle generally has a left-hand thread. **Do not** tighten too firmly.

Changing gas bottles:

- Change the position of the knob of the switching facility. The display is green again.
  Should the display stay red the reserve bottle is also empty and has to be changed as well.
- Close regulator tap on the empty gas bottle.
- Unscrew the gas tube of the gas bottle.
- Attach the protective cap to the gas bottle.
- Release the fixing belts and remove the gas bottle.
- Place a new gas bottle in the gas bottle compartment.
- Fix gas bottle in place with the fixing belts.
- Remove the protective cap from the gas bottle.
- Connect the full gas bottle to the gas tube.
- Open the regulator tap on the gas bottle.
- Press the hose break guard for 10 seconds.
- Turn the knob on the reversing valve to the changed bottle. Open the release button when the display is green.
- Set the knob on the reversing valve with a half-turn, so that the newly replaced gas bottle will serve as a reserve bottle.

Chapter overview

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

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 certain features: These are the CE certification, the EMC inspection (electromagnetic compatibility) and the "e"-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.

▷ After the vehicle is started, delays to the output or forwarding of electrical impulses are possible.

The control unit of the basic vehicle does not release the D+ signal until the engine has reached full performance. In the event of a cold start in winter, this can take up to 15 seconds.

For this reason, output of warning signals (such as "entrance step extended") may sometimes be delayed.

The automatic retraction of a SAT antenna can also be delayed.

▷ During a storm, to protect the electrical devices disconnect the 230 V connection and retract the antennae.

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.

▷ The battery must remain idle for a while before measuring. After charging the last time, or after the last current has been drained by appliances, wait approximately 2 hours before measuring the off-load voltage.

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 device 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 and the off-load voltage falls below 12 V.

▷ Total discharge damages the battery.

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). The so-called K20 value is normally used.

The K20 value indicates how much current a battery is able to dispense over a time period of 20 hours without causing damage, or how much current is required to charge a flat battery within 20 hours.

For example, if a battery can dispense 4 amps for 20 hours, then it has a capacity of 4 A x 20 h = 80 Ah.

If more current flows, the discharging time of the battery will decrease proportionately.

External influences, such as temperature and age may alter the storage capacity of the battery. Capacity details refer to new batteries operating at room temperature.

▷ Depending on battery technology, capacity details have a conversion factor of 1.3 to 1.7, which lowers the real capacity by this value.

9.3 USB socket (partially optional equipment)

▷ The charging current is maximum 1 amp.

The vehicle is equipped with one or more USB sockets.

All USB devices can be connected and charged via this USB socket.

Fig. 105 USB socket

9.4 12 V power supply

▷ Only connect devices with a maximum of 10 A to the sockets (Fig. 106,1) of the 12 V power supply.

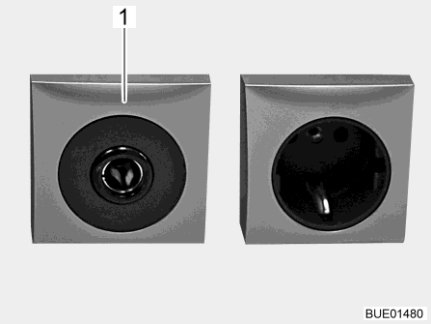


Fig. 106 12 V/10 A socket

9.4.1 Starter battery

The starter battery serves for starting the engine and supplies the electrical appliances of the base vehicle as well as optional devices such as the radio, navigation system or central locking system with voltage.

▷ Total discharge damages the battery. The consequence may be deformation, heat development, and damage due to scorching.

▷ Once a battery with acid is discharged, it can freeze in temperatures of below zero. This damages the battery.

▷ Recharge battery in good time.

The starter battery will be totally discharged via a closed circuit current (inactive appliances). Inactive appliances are optional devices such as a radio, alarm system, navigation system or a central locking system. Inactive appliances discharge the starter battery when the vehicle engine is switched off.

Low temperatures outside reduce the capacity available.

Charging Safety instructions and information on charging the starter battery, see instruction manual of the base vehicle.

Position See instruction manual of the base vehicle.

9.4.2 Living area battery

The living area battery consists of one or more lead-fleece batteries (hereinafter called lead batteries) and - provided a Smart Battery System is installed - one or two HY-Tec lithium batteries 135 (hereinafter called lithium batteries).

- ▷ Lead-fleece batteries are also referred to as AGM batteries. AGM is the abbreviation for Absorbent Glass Mat.

- ▷ The living area battery may not be opened.
- ▷ Use only the built-in transformer/rectifier to load the living area battery. In order to do this, connect the 230 V connection (CEE connector) of the vehicle to an external 230 V power supply.
- ▷ Prior to commencing a journey ensure the living area battery is completely charged. For this reason charge the living area battery for at least 20 hours before commencing the journey.
- ▷ During the trip, use every opportunity to charge the living area battery.
- ▷ After the trip, charge the living area battery completely.
- ▷ Before a temporary lay-up, charge the battery completely.
- ▷ When the living area battery is changed, only use batteries of the same type and the same capacity.
- ▷ When changing the battery, always disconnect the negative pole first and, then, the positive pole. When connecting, proceed in inverted order: connect the positive pole first and, then, the negative pole.
- ▷ When changing batteries, use only batteries for which there are charging characteristics available. After changing the battery the charging characteristics must be adjusted at the transformer/rectifier or at the auxiliary charging unit.
- ▷ If several lead batteries are present, change all lead batteries. The batteries must **always** be the same age and have the same capacity.
- ▷ After a battery change, have the battery voltage indicators checked by an authorised specialist workshop / service centre.
- ▷ When changing batteries, 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!
- ▷ If a Smart Battery System is installed, the lead batteries installed must have a minimum capacity of 95 Ah.
- ▷ If the living area battery is replaced and the charging unit does not provide at least 10 % of the rating of a new battery, install an auxiliary charging unit. Example: With a battery capacity of 80 Ah, the charging unit must supply at least 8 A charging current.
- ▷ Before disconnecting or connecting the terminals of the battery, switch off the vehicle engine as well as the 230 V and 12 V power supplies and all appliances. Danger of short circuit!

- ▷ If the starter battery or living area battery are disconnected, do not apply the ignition. There is a danger of short circuit from exposed cable ends.
- ▷ If there are two living area batteries: When changing, ensure that the batteries are properly installed. Install the batteries so that the positive terminal on one battery is lying next to the negative terminal of the other battery.
- ▷ If there are two living area batteries: When changing, ensure that the batteries are properly connected (see Installing the auxiliary battery).

- ▷ Depending on the model and the equipment, up to two auxiliary batteries may be connected to the lead battery.
- ▷ Lead batteries are 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 must be recharged.

  Recommendation: Perform a full charging cycle every 6 to 8 weeks. Depending on the battery capacity and the charger, the charging cycle will last 24 to 48 hours.

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 V DC. 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.

Position See chapter 17.

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

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

- ▷ Appliances such as the refrigerator, charger, solar charge regulator, panel, or similar, take power from the battery, even when the 12 V main switch is turned off. Therefore disconnect the living area battery from the 12 V power supply, if the vehicle will not be used for a long period of time.

Even a completely charged living area battery can, after an extended period, be fully discharged via a closed-circuit current (inactive appliances).

Low temperatures outside reduce the capacity available.

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

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.

9.4.3 Charging batteries via 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.

9.4.4 Charging batteries via the vehicle engine (alternator)

When the vehicle engine is running, the vehicle alternator recharges the living area battery and the starter battery. 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 or the starter battery can be read on the panel.

9.5 Charging booster for the living area battery

- ▶ Do not carry out any maintenance or repair work on the device. There is an electrical shock hazard and risk of fire.
- ▶ If the housing or the cables are damaged: do not put the device into operation. Disconnect device from the power supply.
- ▶ Make sure that no liquids enter the device.
- ▶ Device components can get hot during operation. Do not touch the device. Do not store any heat sensitive objects close to the device.

- ▷ Only use battery types as living area battery which are supported by the charging booster.
- ▷ In the event of a change of battery type: have the charging booster reset and re-programmed at a service centre.

During the journey, the living area battery is charged by the vehicle's alternator. Fluctuations in the charging current and a drop in voltage between the alternator and the living area battery affect the battery's performance. The charging booster is used to keep the charging current of the alternator constant and to compensate for any drops in voltage.

The charging booster has been set in the factory for the living area battery used and works automatically. No operating actions are required.

In the event of a high heat development, a built-in fan prevents the charging booster from overheating.

For any information about the fuse of the voltage sensor, see section 9.13.1.

Position The charging booster is installed underneath the driver's seat (next to the transformer/rectifier).

9.6 Transformer/rectifier (EBL 402)

- ▶ The unit contains parts that carry 230 V mains voltage. Potentially fatal electric shock or fire hazard!

  Do not carry out any maintenance or repair work on the unit. If the cable or housing is damaged, do not put the unit into operation and disconnect it from the mains supply. Do not allow liquid to enter the unit.
- ▶ Replace defective fuses only when the unit is de-energised.
- ▶ Only replace defective fuses when the cause of the defect is known and has been remedied.
- ▶ Never bypass or repair fuses.
- ▶ Only use original fuses with the values specified on the unit.
- ▶ Device components can get hot during operation. Do not touch.
- ▶ Do not cover the ventilation slots. Danger of overheating!
- ▶ Do not store any heat-sensitive objects close to the unit (e.g. temperature-sensitive clothes if the unit is installed in the wardrobe).
- ▶ Observe the safety instructions and information in the separate device manufacturer's instruction manual.

- ▷ An extended period of total discharge may cause irreparable damage to the living area battery. Therefore, completely charge the living area battery before and after a lay-up.
- ▷ The transformer/rectifier, 12 V appliances or connected devices can be damaged if the limit values of the 230 V mains voltage are exceeded. Therefore, remember that it is essential for a generator to remain within the mains power ratings.
- ▷ Do not connect the vehicle to a generator until the generator is in stable operation.
- ▷ When on car ferries, do not connect the transformer/rectifier to the mains voltage (a perfect mains voltage is not always guaranteed with the mains supply on car ferries).

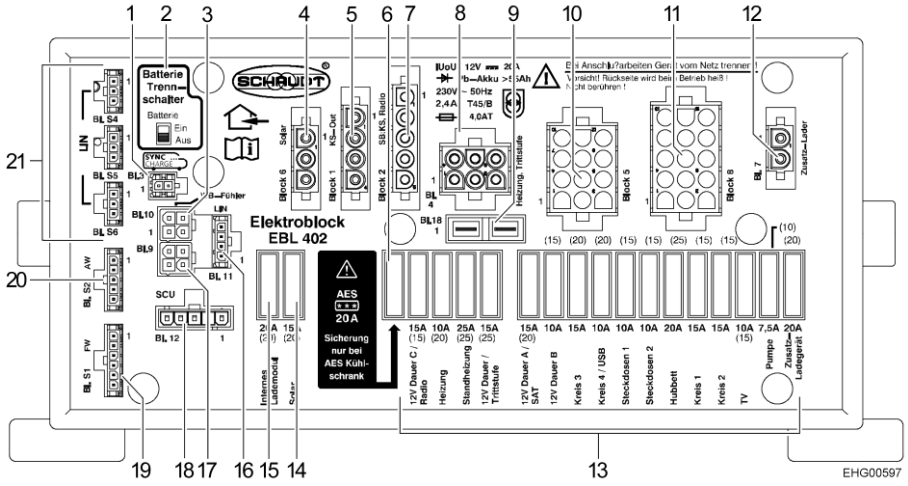


Fig. 107 Transformer/rectifier (EBL 402)

1 Block 3 SYNCCHARGE®
2 Battery cut-off switch (battery on/off)
3 Block 10 TSF01 (parallel to block 9)
4 Block 6 Solar charge regulator
5 Block 1 Refrigerator
6 AES 20 A fuse (only if vehicle is equipped with an AES refrigerator)
7 Block 2 Input D+, starter battery, refrigerator control
8 Block 4 Heater, Step
9 Block 18 Independent vehicle heater
10 Block 5 Power supply for 12 V appliances
11 Block 8 Power supply for 12 V appliances
12 Block 7 Auxiliary charging unit
13 Flat fuses (protection for the 12 V appliances)
14 Fuse, Solar
15 Fuse, Internal charger module
16 Block 11 LIN BUS
17 Block 9 TSF01 (parallel to block 10)
18 Block 12 (not used)
19 Block S1 Fresh water probe
20 Block S2 Waste water probe/sensors
21 Block S4, block S5, block S6 LIN BUS

Position The transformer/rectifier is installed in the double floor in the living area section and is accessible via a floor trap.

Operation The transformer/rectifier is operated via the connected 7" operating panel (exception: battery cut-off for lay-up, see below).

In normal operation, no operating steps are required on the transformer/rectifier.

In following cases, adjustments are required:

- For initial commissioning.
- When the battery type is changed.
- When accessories are retrofitted.

This adjustment work must be carried out by an authorised service centre.

Purpose

Together with the control unit SCU and the bus modules, the transformer/rectifier EBL 402 forms the central control and power supply system for all 12 V appliances in the electrical system on board of the vehicle.

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.
- When the vehicle 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 controls and monitors connected solar charge regulators and auxiliary charging units.
- The transformer/rectifier supplies all BUS modules and the connected sensors and appliances with current.
- Via BUS lines, the transformer/rectifier provides the communication with the BUS modules, the panel will and the control unit SCU.

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

The power in the transformer/rectifier is divided into charging current and current to the appliances. The charging current is always just the portion that is not being used by any appliances. If the current to the appliances exceeds the current available, then the living area battery is discharged.

Lay-up

Some circuits are still supplied with current even when the 12 V power supply is switched off on the panel. These are all appliances connected to the 12 V constant positive, for example:

- Entrance step
- Heater

When the vehicle is laid up, these appliances are also disconnected from the battery.

Lay-up:

- Switch off the 12 V power supply on the panel.
- Move the battery cut-off switch (Fig. 107,2) to the "Aus" (Off) position on the transformer/rectifier EBL 402.

Coming out of lay-up:

- Move the battery cut-off switch (Fig. 107,2) to the "Ein" (On) position on the transformer/rectifier EBL 402.
- Switch on the 12 V power supply on the panel.

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

9.6.1 Battery selector switch

▶ If the battery selector switch is set incorrectly, there is a risk of generating oxyhydrogen gas. Danger of explosion!

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

▷ The factory settings of the battery selector switch must not be changed.

Position The battery selector switch is located on the transformer/rectifier.

9.6.2 Battery monitor

▷ You must fully recharge a discharged living area battery as soon as possible.

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

If the voltage of the batteries falls below 10.5 V, the battery monitor in the transformer/rectifier switches off all the 12 V appliances.

Measures:

- Switch off all electrical appliances that are not absolutely essential at the corresponding switch.
- If necessary, use the 12 V main switch to switch the 12 V power supply back on for a short while. 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.

9.6.3 Charging the battery

When the vehicle engine is running, a relay in the transformer/rectifier alternator switches on the living area battery and the starter battery together and recharges them with the vehicle generator. When the vehicle engine is switched off, the batteries are automatically disconnected from one another again by 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 terminal voltage of the living area battery or the starter battery can be read on the panel.

If the vehicle is connected to the 230 V power supply via the CEE socket outlet, the living area battery and the starter battery are 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.

9.6.4 Entrance step

After an overload, the self-resetting fuse will reset automatically within approx. 1 minute.

9.6.5 Solar charge regulator

Before removing or changing the living area battery, disconnect the connector of the solar charge regulator from the transformer/rectifier.

9.7 7" panel

Various functions can be displayed, monitored and controlled on the 7" panel. The 7" panel can be connected to the My Bürstner app.

Fig. 108 7" panel, start screen

1 Display field Battery charging condition and Water tanks fill level
2 Display field My Bürstner App
3 Connection button (pairing button)
4 Main menu

Position The 7" panel is installed above the living area door.

Start screen The start screen (Fig. 108) shows the following information:

- Charging condition of the batteries
- Fill level of fresh water and waste water tank
- Information of the My Bürstner App
- Main menu

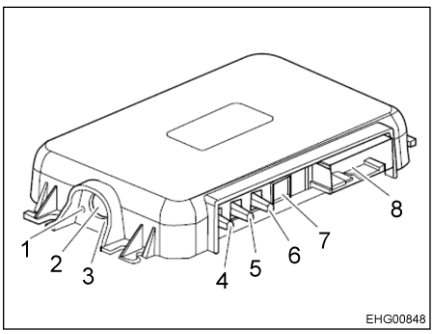
Further sub menus can be called up via the buttons in the main menu line.

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

9.8 System Control Unit (SCU)

▷ FAQs on the operation of the SCU and the My Bürstner App can be found at the following link:
https://www.buerstner.com/de/en/my-buerstner-app
The FAQs are constantly being expanded.

The SCU takes over central control and monitoring functions in the vehicle. On the SCU itself, operation is limited to initiating the connection process (pairing).



1 LED indicator (green)
2 Pairing button to connect with Bluetooth-enabled device
3 LED indicator (blue)
4 Bluetooth antenna connection (curry)
5 GPS antenna connection (blue)
6 LTE antenna connection (bordeaux)
7 Diagnostics connection
8 Vehicle communication connection

Fig. 109 System Control Unit

Active operation

The display shows the following data:

- 12 V On/Off
- 230 V indicator
- Water pump on/off indicator (only when 12 V on)
- Starter battery indicator
- Living area battery indicator with lithium bat. in % (for AGM battery in volts)
- Settings
- Menu bar

▷ After a longer absence, it can take up to 2 minutes until the display displays current data.

Emergency operation

During emergency operation of the vehicle, the display of the SCU is without function.

Functions in emergency operation:

- 12 V power supply
- Lamps via light switches
- Water pump active

▷ In emergency operation, battery and water levels **cannot** be called up.

Requirements for emergency operation:

- No external power supply connected
- Engine switched off
- All water taps closed

▷ Before activating the emergency operation, make sure that all water taps in the vehicle are closed.
If not all water taps are closed, the pump can run dry and water can escape uncontrollably. Property damage may occur.

Activating the emergency operation:

- Gain access to the transformer/rectifier.
- Switch the battery cut-off switch ("Battery On/Off") off and on again four times in succession.
- Leave the battery cut-off switch in the "On" position.

▷ If the SCU fails or is defective, contact an authorised dealer.

Energy-saving mode

The SCU will automatically enter energy-saving mode after 48 hours if no user is connected to the SCU and the vehicle is not connected to an external power supply.

The energy-saving mode is ended by the following actions, for example, and the SCU then returns to "Active operation":

- Connecting the vehicle to an external power supply
- Unlocking/locking the vehicle (depending on the vehicle type)
- Activating the ignition of the vehicle
- Touching the display
- Starting the My Bürstner app on a mobile device connected to the SCU

▷ After a longer absence, it can take up to 2 minutes until the display displays current data.

Position

The SCU is installed underneath the floor trap in the entrance area.

9.9 My Bürstner App

Mobile devices can be connected to the vehicle via the My Bürstner app.

Requirements for connecting the mobile device to the SCU:

- Completed installation of the My Bürstner app on a mobile device
- Vehicle QR code
- Compatible vehicle equipped with a SCU

For each vehicle equipped with a SCU, a main user can connect to the SCU via their mobile device (using the My Bürstner app and the vehicle QR code). This main user can create guest accesses for other mobile devices via the My Bürstner app and also manage them there.

▷ The My Bürstner app is available free of charge in the Apple App Store (iOS) and the Google Play Store (Android).

▷ The vehicle QR code can be found in the vehicle's document pocket.
Keep the vehicle QR code in a safe place.
If the vehicle QR code has been lost, contact the manufacturer's customer service or an authorised dealer.

To connect the mobile device to the vehicle, follow the instructions in the My Bürstner app.

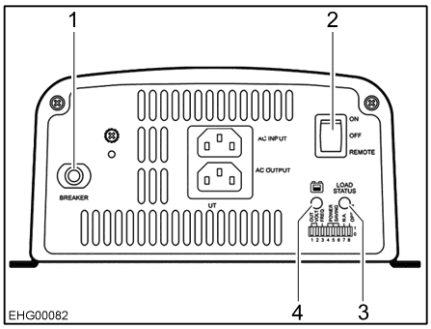
9.10 AC converter (MSI 1812T)

- If, when the AC converter is switched on, the 230 V connection is disconnected or the 230 V main fuse is switched off, this will not activate the sockets since these are supplied by the AC converter.
- The safety cut-out in the additional fuse box for the AC converter secures and breaks the circuit only for the sockets in the vehicle.
- Only by switching off both fuse boxes and the AC converter is the mains power supply fully activated.

- When connecting appliances, always observe the permissible values for output power and peak output power:
  - Output power (for 10 min at 25 °C): 1800 W
  - Peak output power: 3200 W

  Appliances with higher power demands must not be connected.
- Do not cover the ventilation slots. Danger of overheating!
- During continuous operation, the fuse may blow due to overheating. Position of the fuse, see section 9.13.1.
- Do not place additional objects in the storage space of the AC converter. Danger of overheating!
- Check the fault current protection switch for each connection to the 230 V power supply, at least once every 6 months.
- If the vehicle is not connected to the 230 V power supply and no electricity is required, switch off the AC converter. Even in idle state, the AC converter still uses power from the living area battery.

- The AC converter is equipped with a 230 V priority circuit. If an external 230 V voltage is connected, it will be used primarily. Only if no external 230 V voltage is connected, the living area battery will be used for voltage supply.
- If not external 230 V power supply is connected, the AC converter draws energy from the living area battery. The living area battery has a limited power supply only. For this reason, the electrical appliances should not be operated from the electrical sockets for long periods without using the 230 V connection.
- To protect the living area battery against total discharge, the AC converter automatically switches itself off if there is undervoltage. The AC converter automatically switches itself on again when the voltage is back up to the standard value.
- In the event of overload or insufficient cooling, the AC converter switches itself off automatically. The AC converter automatically switches itself back on when there is no longer an overload and the temperature of the device is down to a safe level.
- If the appliance fuse has triggered, it must be pushed in again manually.
- Further information can be obtained in the manufacturer's instruction manual.



1 Appliance fuse
2 Main switch "ON/OFF/REMOTE"
3 LED input voltage range
4 LED "LOAD LEVEL"

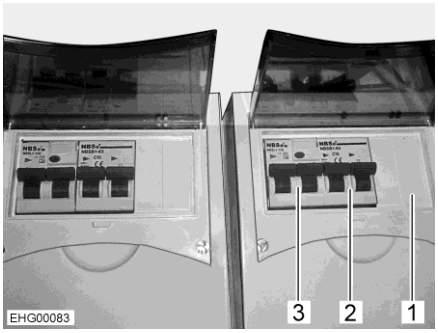
Fig. 110 AC converter (exemplary illustration)

Functions

The AC converter has the following functions:

If no external 230 V power supply is connected, the AC converter generates a 230 V voltage for all sockets in the vehicle out of the 12 V DC voltage of the living area battery.

If an external 230 V power supply is connected, this will be used to supply the sockets. In this case, the AC converter will not draw power from the living area battery.



1 Fuse box
2 Safety cut-out for sockets
3 Fault current protection switch for sockets

Fig. 111 Additional fuse box

The sockets are protected by a safety cut-out (Fig. 111,2) and a fault current protection switch (Fig. 111,3) in the additional fuse box (Fig. 111,1).

Position

The AC converter and the additional fuse box are installed in the double floor and accessible via a floor trap.

Operating the AC converter

The operating controls are located on the front of the AC converter.

Switching on:

- Switch the main switch (Fig. 110,2) into position "ON". The input voltage range LED (Fig. 110,3) will be lit green.
- Switch the main switch (Fig. 110,2) into position "REMOTE". The control via the remote control switch will be activated.

Switching off:

- Switch the main switch (Fig. 110,2) into position "OFF". The input voltage range LED (Fig. 110,3) goes out.

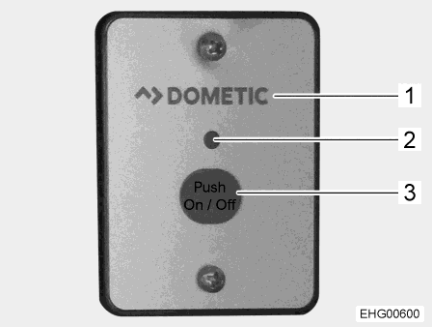


Fig. 112 External switch (AC converter)

Position of external switch

The external switch (Fig. 112,1) is installed In the tall cupboard in the entrance area.

▷ The main switch directly on the AC converter must be in the position "REMOTE".

Switching on:

- Press "On/Off" button (Fig. 112,3). The LED (Fig. 112,2) is on.

Switching off:

- Press "On/Off" button (Fig. 112,3). The LED (Fig. 112,2) goes out.

Operating and indicator elements

During normal operation, the AC converter does not require any operation except switching on and off through the external switch. The indicator elements on the AC converter are mainly used for the diagnosis of faults.

No. in Fig. 110	Designation	Function
1	Appliance fuse	Protects the AC converter against overload. Before pushing in the appliance fuse again, the cause of the fault must have been eliminated
2	Main switch	"OFF" position = AC converter switched off "ON" position = AC converter switched on "REMOTE" position = external switch enabled
3	LED input voltage range	Indicates the voltage range of the input voltage: Red, slow flashing = undervoltage (< 10.6 V) Red = undervoltage (10.6 to 11.0 V) Orange = undervoltage (11.0 to 12.0 V) Green = input voltage OK (12.0 to 14.2 V) Orange, flashing = overvoltage (14.2 to 15.0 V) Red, fast flashing = overvoltage (> 15.0 V)
4	LED "LOAD LEVEL"	Indicates the power range of the AC converter output: Off = 0 to 160 W Green = 160 to 640 W Orange = 640 to 1440 W Red, slow flashing = 1440 to 1600 W Red, fast flashing = > 1600 W

Checking the fault current protection switch:

- When the vehicle is connected to the 230 V power supply, press the test button on the fault current protection switch (Fig. 111,3). The fault current protection switch (FI-switch) must be activated.

9.11 Solar installation (optional equipment)

▷ Protect the solar collectors (solar module) against mechanical overload.

▷ The solar installation supplies the most current under optimal sunlight conditions.

▷ Provide the solar collectors (solar module) open access to sunlight.

▷ Sunlight is greater in the open air than under trees and bridges.

▷ Tarpaulins block out sunlight.

▷ Always keep collector surfaces free of contamination.

▷ Also read the manufacturer's instruction manual.

The solar installation provides an environmentally compatible power supply independent of the mains. It converts energy from sunlight into electric current. The solar installation supplies additional current for the battery and appliances.

The solar charge regulator has an integrated overload protection as well as deep discharge protection.

9.12 230 V power supply

▶ Only allow qualified personnel to work on the electrical system.

▶ Have the vehicle's electrical system checked by a qualified electrician at least once every 3 years. If the vehicle is used frequently, an annual check is recommended.

The 230 V power supply provides electricity for the following devices (if present):

- sockets with earth contact for appliances with maximum 10 A
- refrigerator
- transformer/rectifier
- an auxiliary charging unit
- air conditioning unit

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.

Depending on the equipment, optional devices are fuse-protected by their own two-pole automatic circuit breaker.

9.12.1 230 V connection (CEE socket outlet)

▷ Overvoltage can damage connected devices. Overvoltage can be caused by lightning, irregular voltage sources (e.g. petrol-operated generators) or power connections on ferries for example.

Requirements concerning the 230 V connection

- The connecting cable, the plug connectors at the point of supply and the plug connector to the vehicle must comply with IEC 60309. The standard designation for the plug connectors is "CEE blue".
- Use H07RN-F rubber sheathed cable with a minimum cable cross-section of 2.5 mm² and a maximum length of 25 m.
- Earth contact connectors (safety) are not permitted. The interconnection of CEE/safety adapters is also prohibited.

9.12.2 Connecting the 230 V power supply

▶ The external 230 V power supply must be protected by fuse with a fault current protection switch (FI-switch, 30 mA).

▶ To prevent overheating, the cable must be fully uncoiled from the cable reel.

▶ In case of doubt or if the 230 V supply is not available or is faulty, contact the operator of the power supply device.

▷ The 230 V connection in the vehicle is equipped with a fault current protection switch (FI-switch).

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

The vehicle can be connected to an external 230 V power supply. As a principle, only use the 230 V connection on the vehicle (CEE socket outlet) for connecting.

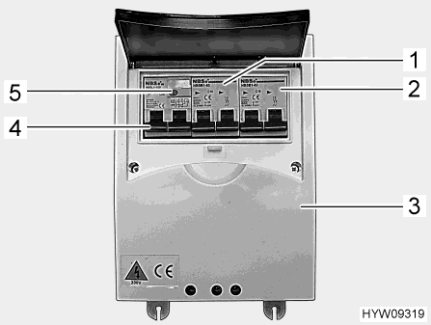


Fig. 113 Safety cut-out and FI-switch (230 V fuse box)

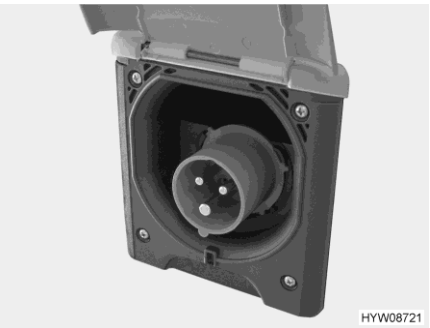


Fig. 114 230 V connection on the vehicle (CEE socket outlet)

Connecting the vehicle:

- Check whether the power supply device is suitable regarding connection, voltage, frequency and current.
- Check whether the cables and connections are suitable.
- Check the plug connectors and cables for visible damage.
- Switch off both safety cut-outs (Fig. 113,1 and Fig. 113,2) in the fuse box (Fig. 113,3).
- Open the cover of the 230 V connection on the vehicle (Fig. 114) and insert the plug connector. Ensure that the detent of the spring-mounted pivoting cover is engaged in position.
- Plug the connector of the connecting cable into the socket of the camping distributor. Ensure that the detent of the spring-mounted flap is also engaged here.
- Switch on both safety cut-outs in the fuse box.

Checking the fault current protection switch:

- When the vehicle is connected to the 230 V supply, press the test button (Fig. 113,5) of the fault current protection switch (FI-switch) (Fig. 113,4) in the fuse box (Fig. 113,3). The fault current protection switch must trip.
- Switch the fault current protection switch (Fig. 113,4) back on again.

Unplugging the connection:

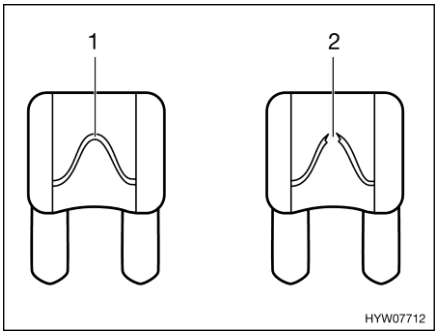
- Switch off both safety cut-outs (Fig. 113,1 and Fig. 113,2) in the fuse box (Fig. 113,3).
- Loosen the detent on the camping distributor and unplug the connecting cable from the socket.
- Loosen the detent on the vehicle unplug the plug connector and close the cover of the 230 V connection.

9.13 Fuses

- Only replace defective fuses when the cause of the defect is known and has been remedied.
- Replace defective fuses only after the power supply has been turned off.
- Never bridge or repair fuses.
- Only replace faulty fuses with a new fuse with the same rating.

9.13.1 12 V fuses

The appliances connected to the 12 V power supply in the living area are fused individually. The fuses are accessible at different positions in the vehicle.



1 Unbroken fuse element
2 Broken fuse element

Fig. 115 12 V fuse

An intact 12 V fuse can be detected by the unbroken fuse element (Fig. 115,1). If the fuse element is broken (Fig. 115,2), change the fuse.

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.

Fuses on the starter battery

The following fuses are installed in the foot area of the driver's cabin in a floor compartment:

- 50 A jumbo flat fuse, red (starter battery)
- 20 A jumbo flat fuse, yellow (starter battery auxiliary charging unit)
- 2 A flat fuse, grey (starter battery voltage sensor for booster)
- 2 A flat fuse, grey (Signal D+)
- 20 A jumbo flat fuse, yellow (starter battery voltage for transformer/rectifier)

Seat console of the driver's seat

The fuses in the seat console of the driver's seat are accessible via a removable cover. A sticker on the seat console or a separate assignation diagram hold information about the installed fuses.

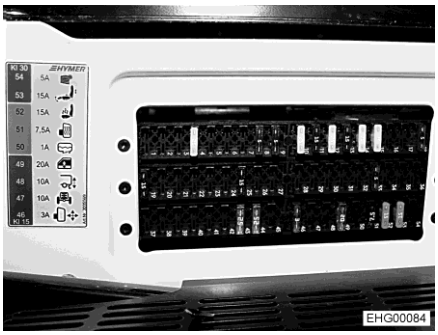
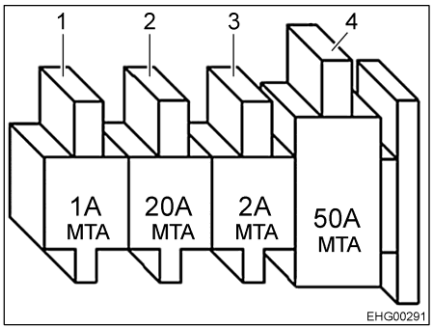


Fig. 116 Seat console of the driver's seat

Fuses on the living area battery

The fuses are installed next to the living area battery in the floor compartment.



1 Flat fuse 1 A/black (for voltage sensor, charging booster)
2 Flat fuse 20 A/yellow (for refrigerator)
3 Flat fuse 2 A/grey (for voltage sensor, transformer/rectifier)
4 Jumbo flat fuse 50 A/red (for transformer/rectifier)

Fig. 117 Fuses (living area battery with charging booster)

Fuses for 12 V consumer circuits

The 12 V consumer circuits are protected in the bus modules by maintenance-free self-resetting fuses.

Fuses for iNDUS toilet

Fuse for	Location	Pin	Value
Pump	Transformer/rectifier / pump	Pin 9/14	7.5 A
Toilet	Transformer/rectifier / socket 2	Pin 4/11	10 A
Tank	Transformer/rectifier / circuit 4 / USB	Pin 6/11	20 A

Fuses for pull-down bed

Engine	Transformer/rectifier	1/5	25 A
Engine	Pull-down bed	1/5	25 A
Control	Pull-down bed (at key switch)		2 A

Fuses for lighting system

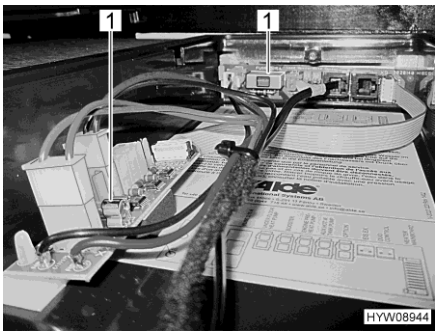
Fuse for	Location	Pin	Value
Living area	Transformer/rectifier / circuit 1	Pin 2/8	15 A
Bed	Transformer/rectifier / circuit 2	Pin 3/10	15 A

Fuses for step

12 V continuous / step	EBL	Pin 2	15 A/max. 25 A

Fuses for the hot-water heater (Alde)

The electrical system of the hot-water heater is protected by two fuses.



1 3.5 A glass fuse

Fig. 118 Fuses (hot-water heater)

The two 3.5 A fine fuses (glass fuses) (Fig. 118,1) are installed underneath a cover behind the service flap on the left side of the vehicle. This cover can be released from its lock moving it upward.

Fuse for the AC converter

The fuse for the AC converter is installed close to the living area battery.

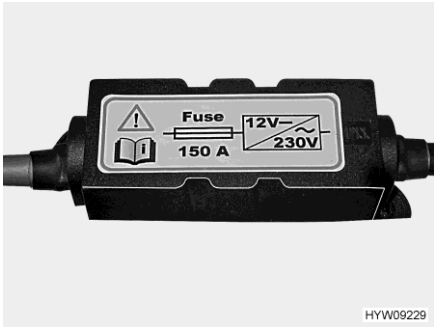


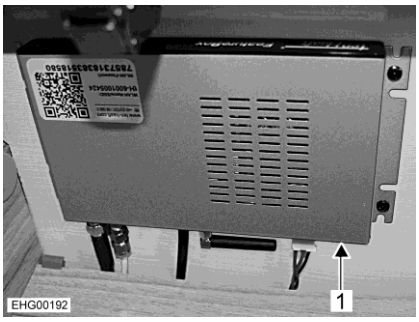
Fig. 119 Fuse (AC converter (150 A))

The fuse can be identified by its sticker.

Fuse for TV satellite unit (ten Haaft)

The fuse is located on the control unit of the TV satellite unit.

The control unit is installed in the furniture section next to the conversion door.



1 10 A fuse/red

Fig. 120 Control unit (TV satellite unit, ten Haaft)

9.13.2 230 V fuse

▷ Check the fault current protection switch for each connection to the 230 V power supply, at least once every 6 months.

Fig. 121 Safety cut-out and FI-switch (230 V fuse box)

A fault current protection switch (FI-switch) (Fig. 121,3) in the fuse box protects the complete vehicle from fault current (30 mA).

The downstream safety cut-out (10 A) (Fig. 121,1) secures the 230 V sockets, the power supply unit, the auxiliary power supply unit and the refrigerator.

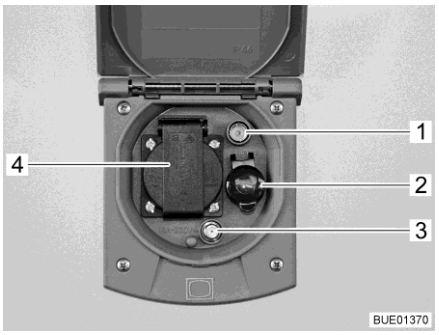
For vehicles with optional equipment, e.g. air conditioning unit, an additional safety cut-out (16 A) (Fig. 121,2) secures the device.

Checking the fault current protection switch:

- When the vehicle is connected to the 230 V power supply, press the test button (Fig. 121,4). The fault current protection switch (FI-switch) must be activated.

Position See chapter 17.

9.14 External socket (optional equipment)



1 TV socket
2 12 V socket
3 SAT socket
4 230 V socket

Fig. 122 External socket

The 230 V socket and the 12 V socket can be used to power electrical devices in the awning.

Connection possibilities

TV socket and SAT socket offer various possibilities for TV operation:

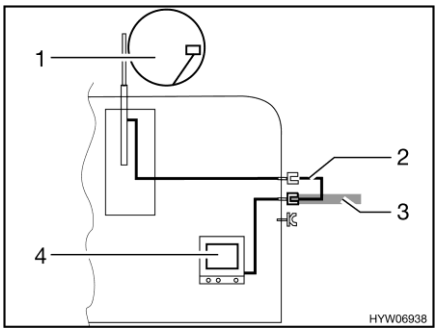


Fig. 123 TV inside the vehicle

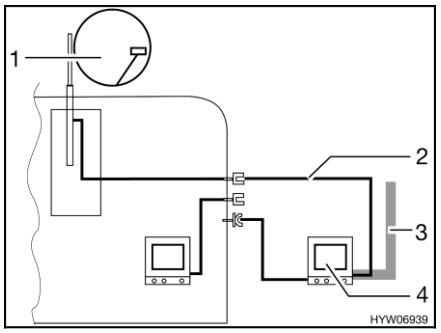


Fig. 124 TV in the awning

- TV inside the vehicle (Fig. 123,4): Connection to roof antenna (Fig. 123,1) with connection cable (Fig. 123,2)
- TV inside the vehicle (Fig. 123,4): Connection to external antenna (Fig. 123,3)
- TV inside the awning (Fig. 124,4): Connection to roof antenna (Fig. 124,1) with connection cable (Fig. 124,2)
- TV inside the awning (Fig. 124,4): Connection to external antenna (Fig. 124,3)

9.15 Circuit diagrams

9.15.1 Block diagram 230 V

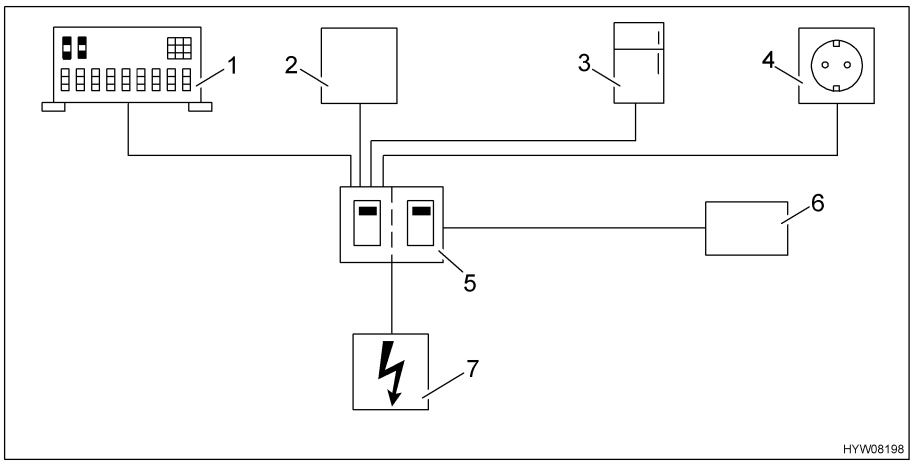


Fig. 125 230 V circuit diagram

1 Transformer/rectifier
2 Auxiliary charging unit
3 Refrigerator
4 Sockets
5 Automatic circuit breaker
6 Optional device (e.g. air conditioning unit)
7 230 V connection

Fig. 125 shows a schematic diagram of the 230 V network.

9.15.2 Block diagram 12 V

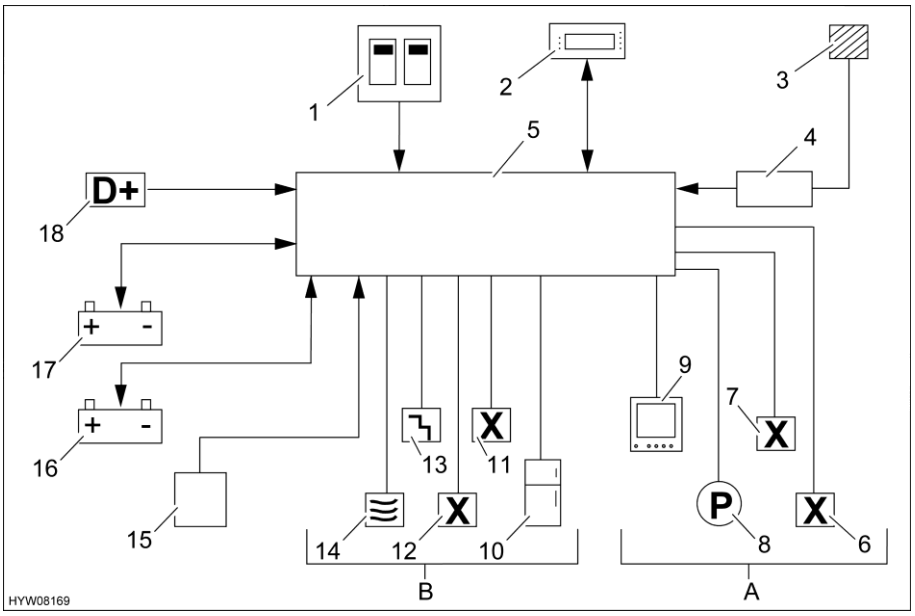


Fig. 126 12 V circuit diagram

1	230 V automatic circuit breaker
2	Panel with 12 V main switch
3	Solar
4	Solar regulator
5	Transformer/rectifier with battery cut off switch
A	**Light, consumer circuits can be switched on/off via 12 V main switch**
6	Sockets 1, Sockets 2, spare 1, 2
7	Circuit 1, circuit 2
8	Pump (water pump)
9	Multimedia/TV
B	**Basic supply can be switched on/off via battery cut-off switch**
10	Refrigerator
11	Main switch 4A
12	Main switch 4B
13	Main switch Step
14	Heater
15	Auxiliary charging unit
16	Living area battery
17	Starter battery
18	(D+)

Fig. 126 shows a schematic diagram of the 12 V network.

Chapter overview

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.

10.1 General

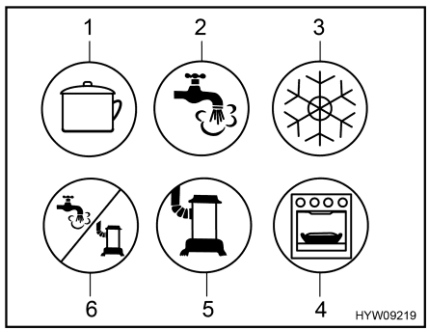
▷ For safety reasons, spare parts for pieces of heating appliances must correspond with manufacturer's instructions and be permitted by the manufacturer as a spare part. These spare parts may only be fitted by the manufacturer or an authorised specialist workshop.

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

The heater, boiler, 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.



1 Cooker
2 Hot water
3 Refrigerator
4 Oven/grill
5 Heater
6 Hot water/heater

Fig. 127 Possible symbols for the gas isolator taps

10.2 Heater and boiler

The heater can both heat up the vehicle interior (heating the room air) and heat up the domestic water (boiler function). The following instructions are also valid if the heater is only used as boiler.

- ▶ Never let gas escape unburned due to danger of explosion.
- ▶ Never run the heater in gas operation when refuelling, on ferries or in the garage. Danger of explosion!
- ▶ Never operate the heater in gas operation in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- ▶ The waste gas vent may neither be closed nor blocked.
- ▶ Do not use the space behind the heater as a storage space.
- ▶ The water in the boiler can be heated up to 65 °C. Risk of scalding!

- ▷ Hot air may damage the floor covering. Do not point the air outlet nozzles towards the floor covering.
- ▷ Never use boiler when empty.
- ▷ If the boiler is not being used, empty it if there is any risk of frost.
- ▷ Only operate the boiler with the maximum temperature setting if you require a large quantity of warm water. This protects the boiler against the build-up of limescale.

- ▷ Do not use the water from the boiler as drinking water.
- ▷ If the power supply to the heater was interrupted, the time must be reset.

10.2.1 Models with waste gas vent on the right-hand side of the vehicle

- ▶ If the awning is put up and the heater or the boiler is running in gas operation, exhaust gases from the heater or boiler can escape into the awning area. Danger of suffocation! Make sure the area is sufficiently ventilated.

10.2.2 Alde hot-water heater and boiler

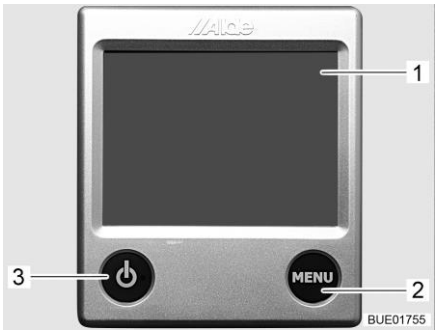
- ▷ Never run hot-water heater without heating fluid. Observe the notes in chapter 13.
- ▷ Never drill holes in the floor. This might damage the hot-water pipes.

- ▷ The circulating pump must always be turned on when the hot-water heater is in operation.
- ▷ We recommend to bleed the heating system after the initial heater operation and to check the glycol content. Observe the notes in chapter 13.
- ▷ When the heater is turned on, it starts with the last settings used.
- ▷ Depending on the equipment, there is an underfloor heater in the driver's cabin.
- ▷ For further information, see the separate manufacturer's instruction manual and observe the maintenance instructions found in chapter 13.

Position The boiler is installed in a floor compartment. The operating unit is installed in the entrance area to the left of the 7" panel.

Operating unit The operating unit is divided into two sections:

- Display (touch screen)
- Operating buttons



1 Display (touch screen)
2 "Menu" button
3 "On/Off" button

Fig. 128 Operating unit (hot-water heater)

- ▷ When no button is pressed, the operating unit automatically switches to home position after two minutes.
- ▷ Changes to the settings are saved automatically after 10 seconds.

Operating buttons

The operating buttons have the following functions:

Pos. in Fig. 128	Button	Function
2	MENU	Open adjustment menu
3	⏻	Activate heating

Display

The display (Fig. 128,1) is designed as a touch screen. Touching the symbols calls up the relevant function.

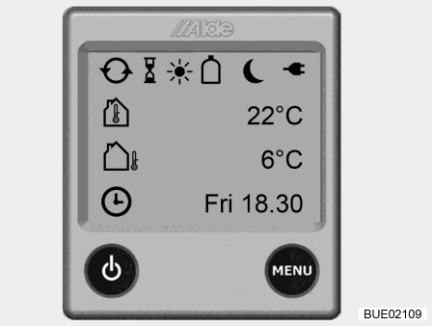


Fig. 129 Start screen (operating unit)

Start screen

The start screen appears on the display after the heater is switched on. The start screen contains the following information:

Symbol	Signification
	This symbol appears when the circulating pump is activated
	This symbol appears when the Automatic start function of the heater is activated
	This symbol appears when the daytime automatic mode function is activated
	This symbol appears when the night-time automatic mode function is activated
	This symbol appears when a switching facility for gas bottles is activated
	This symbol appears when a voltage of 230 V is present at the heater
	The internal temperature is displayed next to this symbol
	The external temperature is displayed next to this symbol if an external sensor is fitted

Adjustment menu

The "MENU" button calls up the adjustment menu. The meanings of the individual symbols are described in the following table.

Fig. 130 Adjustment menu (operating unit)

The values can be increased or reduced via the "+" or "-" symbols.

Symbol	Signification
	Setting the desired temperature of +5 to +30 °C
	Setting the water temperature in the boiler
	Setting the heat output in electrical operation
	Heater button in gas operation On/Off
	Tool menu button
AC	AC button for switching on the automatic air conditioning (only visible when the Truma Aventa air conditioning unit is installed)
A	Button for activated functions

Tool menus

The various heater functions can be called up and adjusted via the tool menus. The arrow symbols are used to change between the menus. The meanings of the individual symbols are described in the manufacturer's instruction manual.

Selecting the operating mode

The hot-water heater can be operated with the following energy sources:

- Gas operation
- 230 V electrical operation
- Gas and 230 V electrical operation

The operating mode is selected from the operating unit.

Selecting gas operation:

- Press "" button. The button lights up green. The gas operation is activated.
- Press "" button again. The button lights up blue. The gas operation is switched off.

Selecting 230 V electrical operation:

- Press the "+" button next to the "⚡" symbol until the desired heat output is reached.

▷ Select the output level during 230 V electrical operation in such a way that it corresponds to the 230 V connection protection:

Level 1 (1 kW) at 6 A

Level 2 (2 kW) at 10 A

Level 3 (3 kW) at 16 A

Selecting gas and 230 V electrical operation:

- Select gas operation and 230 V electrical operation on the operating unit.

▷ If gas and 230 V electrical operation is selected and if the vehicle is connected to the 230 V power supply, then the hot-water heater at first only operates in 230 V electrical operation. Only if the heat output is insufficient does the gas operation also automatically switch on.

▷ The gas operation is only possible when the regulator tap on the gas bottle and the gas isolator tap are opened.

▷ 230 V electrical operation is only possible when the vehicle is connected to the 230 V power supply.

When the heater is turned on, it starts with the last set operating mode.

Switching on the heater:

- Press "⏻" button. The start screen appears in the display. The heater starts automatically.

Switching off the heater:

- Press "⏻" button. The heater is turned off.

Setting the rotational speed of the circulating pump

▷ The hot-water heater is equipped with a very powerful pump. In smaller vehicles, the pump can only be operated at full power if the system is emptied or the pipes are bled. Otherwise, this will increase wear; loud operating noises are the result.

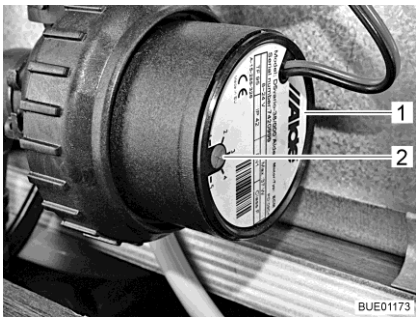


Fig. 131 Speed reduction

The rotational speed of the circulating pump can be set with the control knob (Fig. 131,2). At a lower rotary speed, the operating sounds of the pump are quieter.

The control knob is located on the circulating pump (Fig. 131,1).

Setting the output:

- Turn the control knob (Fig. 131,2) in an anticlockwise direction. The output is reduced.
- Rotate the control knob in a clockwise direction. The output is increased.

3-way valve

For models with a rear bed, a 3-way valve is connected to the hot-water heater circulation. The 3-way valve is installed in the rear garage. The 3-way valve can be accessed via an external flap.

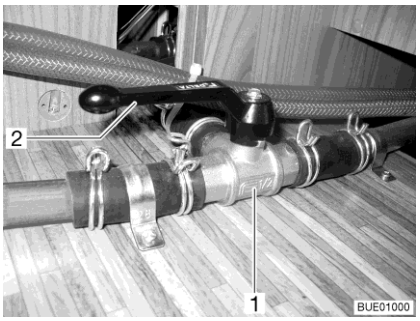


Fig. 132 3-way valve

Opening the heat circulation in the rear area:

- Set the lever (Fig. 132,2) of the 3-way valve (Fig. 132,1) parallel to the straight flow direction (Fig. 132).

Locking the heat circulation in the rear area:

- Set the lever (Fig. 132,2) of the 3-way valve (Fig. 132,1) transverse to the straight flow direction.

Alde heat exchanger (optional equipment)

▷ The heat exchanger only works when the vehicle engine is running.

▷ If the heat exchanger is not being used (as in the summer), the heat exchanger on the stopcock should be shut off.

The heat exchanger can be used to heat the living area of the vehicle during travel without operating the hot-water heater in the living area.

The heat exchanger is connected to the vehicle engine's cooling circuit and thus has the same function as the vehicle heater.

Heat output is set with the living area's heating regulator.

The heat exchanger stopcock is located directly on the exchanger.

Turning on the vehicle heating by heat exchanger:

- Make sure the heat exchanger stopcock is open.
- Press the "⏻" button (Fig. 128,3) on the operating unit (Fig. 128). The start screen appears in the display. That turns on the heating control system and makes the circulating pump run.
- Press "MENU" button (Fig. 128,2).
- Turn off gas operation or 230 V electrical operation (if turned on).
- Set the desired room temperature. To do that, press the "+" or "-" button next to the " " symbol.

Turning off the vehicle heating by heat exchanger:

- Press the "⏻" button (Fig. 128,3) on the operating unit (Fig. 128).

Fig. 133 Alde heat exchanger

Turning on:
- Set stopcock handle (Fig. 133,1) parallel to the pipe.

Turning off:
- Set stopcock handle (Fig. 133,1) at a right angle to the pipe.

Position

The heat exchanger is installed in the rear bench seat of the central seating group.

Alde auxiliary circulating pump (optional equipment)

▷ The auxiliary circulating pump works only if the heat exchanger has been installed and started, and the hot-water heater is running.

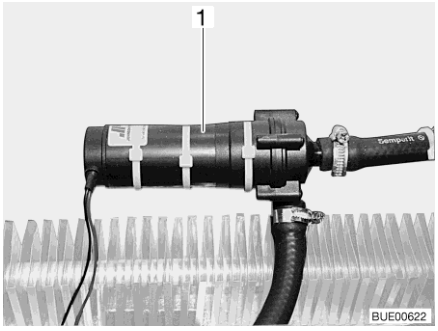


Fig. 134 Auxiliary circulating pump

The auxiliary circulating pump (Fig. 134,1) can be used to heat the vehicle engine when parked.

The auxiliary circulating pump is connected to the vehicle engine's cooling circuit and thus functions as an engine heater.

Fig. 135 Operating switch for auxiliary circulating pump

The auxiliary circulating pump switch (Fig. 135) is located next to the hot-water heater operating unit. The yellow indicator lamp illuminates when the pump is operated.

Alde auxiliary fan

The hot-water heater is equipped with an auxiliary fan to heat the driver's cabin. Warm air is blown into the driver's cabin via the dashboard and via the seat console underneath the driver's seat.

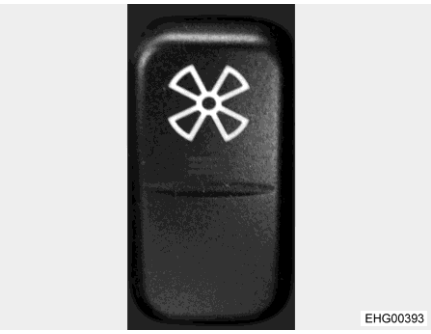


Fig. 136 Auxiliary fan rocker switch

The rocker switch to switch the auxiliary fan on and off is located to the right of the front passenger's seat.

Filling/emptying the boiler

The boiler can be supplied with water from the water tank.

▷ Depending on the model, the vehicle is fitted with one or two drain cocks.

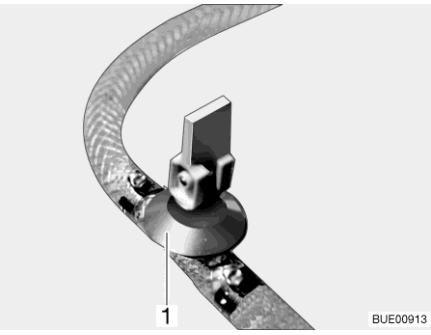


Fig. 137 Drain cock

Filling the boiler with water:

- Close the drain cock(s). Position the rocking lever (Fig. 137,1) horizontally.
- Switch on the 12 V power supply on the panel.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the water taps open until the water flowing out of the water taps has no bubbles in it. This is the only way to ensure that the boiler is full of water.
- Close all water taps.

Emptying the boiler:

- Switch off the boiler.
- Open all water taps and set to the central position.
- Open drain cock(s) (Fig. 137). To do so, set the rocking lever (Fig. 137,1) in a vertical position. The boiler is drained to the outside.
- Check whether the water has been drained completely from the boiler (approx. 10 litres).

▷ For further information, see the separate manufacturer's instruction manual and observe the maintenance instructions found in chapter 13.

Position of the drain cock(s)

See chapter 17.

10.2.3 Wall flue

Fresh air and exhaust gases of the heater system are conducted in a two-chamber wall flue.

- ▷ Park the vehicle such that the wall flue gets enough fresh air.
- ▷ The wall flue must be free at all times. Do not cover the wall flue.
- ▷ When camping in winter, maintain wall flue free of snow and ice.
- ▷ Check the wall flue periodically depending on the weather (snow, leaf fall, dirt, etc.). If necessary, clean the wall flue.
- ▷ When washing the vehicle do not aim the water jet directly at the wall flue.
- ▷ When disregarding this, the flawless operation of the heater can not be guaranteed.

Fig. 138 Wall flue (hot-water heater)

The wall flue is mounted on the left side wall.

Flue shield

If the wall flue is installed above the service flap, condensation may drip on the gasket of the service flap. Use the flue shield to protect the gasket from condensation.

Fig. 139 Flue shield

Installing the flue shield:

- Push the flue shield (Fig. 139,1) in from below, between the wall flue and the wall, until it engages in the fastening screws of the wall flue.

▷ If a flue shield (Fig. 139,1) is installed on the wall flue: Remove flue shield before setting off.

10.3 Telair air conditioning unit (optional equipment)

▷ Always wait at least 2 minutes between switching off and switching on again. Otherwise the compressor will be damaged.

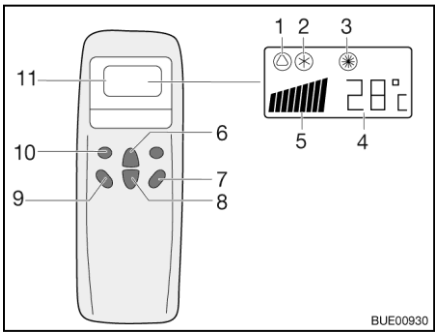
▷ If the unit is operating, always open at least one ventilation flap.

▷ The air conditioning unit only runs if the vehicle is connected to a 230 V power supply.

▷ In the winter, vehicle heating can be supported but not replaced by the air conditioning unit.

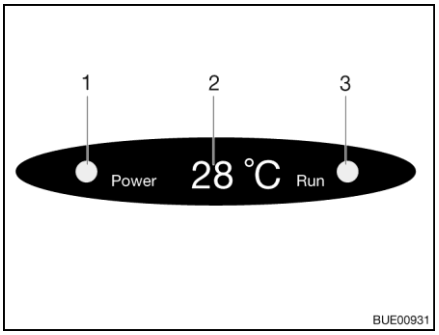
▷ Following switch-on the air conditioning unit needs approx. 3 minutes until the compressor starts to run and cold air or hot air is output.

▷ Also read the manufacturer's instruction manual.



1 Symbol for automatic
2 Symbol for cooling
3 Symbol for heater
4 Temperature (set) display
5 Fan speed display
6 Temperature increase button
7 "ON/OFF" button
8 Temperature reduction button
9 Ventilation speed button
10 "Mode" button
11 Display

Fig. 140 Remote control



1 Mains connection indicator lamp
2 Temperature (current) display
3 Operating mode indicator lamp
green: cooling
red: heater

Fig. 141 Display on the diffusor

To execute the individual switching commands, always point the remote control in the direction of the receiver.

Operating modes

- Automatic
- Cooling
- Heater

Switching on:

- Press the "ON/OFF" button (Fig. 140,7).
- Press the "Mode" button (Fig. 140,10) as often as required until the required operating mode (Fig. 140,1, 2 or 3) is indicated on the display. The corresponding indicator lamp on the diffusor display (Fig. 141,3) lights up.
- Use the temperature increase button (Fig. 140,6) or temperature reduction button (Fig. 140,8) to set the required temperature.
- Use the ventilation speed button (Fig. 140,9) to select the required ventilation level.

Switching off:

- Press the "ON/OFF" button (Fig. 140,7).

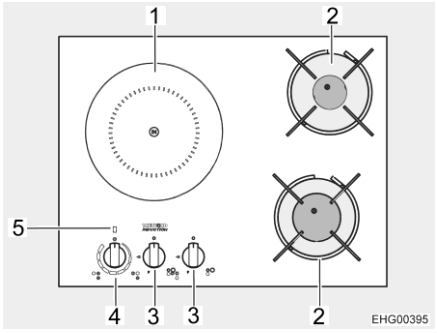
▷ If the air conditioning unit has run in heating mode, the blower will run on for some minutes in order to dissipate the heat completely.

10.4 Cooker

10.4.1 Hybrid hob (gas burner / induction hob)

- ▶ Only use the appliance for cooking.
- ▶ Do not use the appliance for heating.
- ▶ Keep children away from the appliance.
- ▶ The appliance becomes hot during operation. Do not touch hot surfaces.
- ▶ During operation of the appliance, do not leave the appliance unattended.
- ▶ Do not place any objects on the cooking surface. Fire hazard!
- ▶ The ignition process of the gas burners must be visible from above and must not be concealed by cooking pots placed on top.
- ▶ Only use pots and pans whose diameter is suitable for the particular cooker.
- ▶ For the induction hob, only use pots and pans that are especially suitable for induction hobs.
- ▶ Only use pots and pans with smooth bases for the induction hob.
- ▶ Do not leave any empty pots and pans on the induction hob.
- ▶ To avoid scratches, do not slide pots and pans over the glass surface.
- ▶ When cracks form in the glass surface: switch off the appliance and disconnect it from the electricity and gas supply. Go to an authorised service centre.
- ▶ When the power cord is damaged: have the power cord replaced by an authorised service centre.
- ▶ Do not extinguish open flames with water. Switch off the burner and cover the flames with a lid or fire blanket.
- ▶ Observe further safety instructions and information in the instruction manual of the manufacturer.

▷ For initial commissioning, proceed as described in the manufacturer's instruction manual.



1 Induction hob
2 Gas burner
3 Control knob, gas burner
4 Control knob, induction hob
5 LED indicator

Fig. 142 Hybrid hob

The hybrid hob is equipped with two gas burners (Fig. 142,2) and one induction hob (Fig. 142,1).

Switching on the gas burners:

- Open the regulator tap on the gas bottle and the gas isolator tap "Cooker".
- Turn the control knob (Fig. 142,3) of the desired gas burner (Fig. 142,2) to the ignition position (large flame).
- Press the control knob down and hold it.
- Hold a gas lighter or burning match to the gas burner.
- Once the flame is burning, press control knob pressed for another 10 to 15 seconds, until the thermocouple automatically keeps the gas supply open.
- Release the control knob and turn to the desired setting.

Switching off the gas burners:

- Turn the control knob (Fig. 142,3) to 0 position. The flame fades.
- Close the gas isolator tap "Cooker" and the regulator tap on the gas bottle.

Switching on induction hob:

- Turn the control knob (Fig. 142,4) in a clockwise direction to the desired output level.

Switching off induction hob:

- Turn the control knob (Fig. 142,4) in a clockwise direction to the 0 position.

▷ When using the induction hob, the pots may make a noise (depending on the design of the pot). This is not a fault.

▷ When the induction hob is switched on, an LED indicator (Fig. 142,5) shows the output level set.

▷ When the induction hob is switched off, the LED indicator goes out.

▷ For any further information (also about further displays of the LED indicator) see the manufacturer's instruction manual.

10.4.2 Extractor hood (optional equipment)

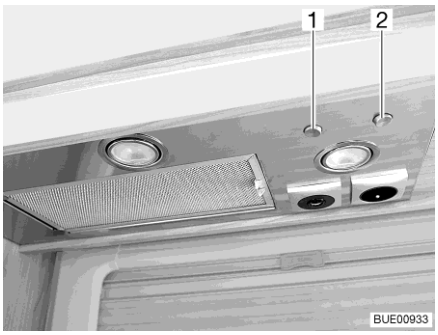


Fig. 143 Extractor hood

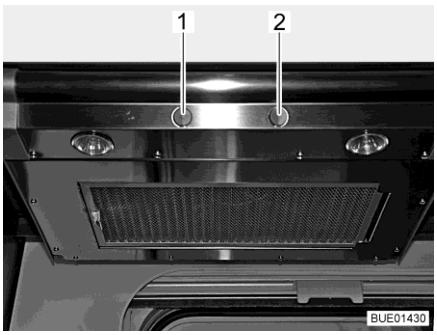


Fig. 144 Extractor hood (alternative)

The cooking area is equipped with an extractor hood. The powerful fan blows the cooking steam directly outside. To switch on the extractor hood, press the right flip switch (Fig. 143,2 or Fig. 144,2).

Use the left flip switch (Fig. 143,1 or Fig. 144,1) to switch on the two lights in the extractor hood.

10.5 Refrigerator

During the journey, only operate the refrigerator via the 12 V power supply. At high ambient temperatures the refrigerator is unable to reach its full cooling power.

- ▷ When leaving the vehicle, always mount the refrigerator ventilation grill. Otherwise water can enter during rain.
- ▷ The cooling power of the refrigerator depends on the vehicle setup. The cooling power can decrease if the vehicle is inclined by 5° or more. Therefore, always park the vehicle on level ground.
- ▷ Absorption refrigerators operate at normal room temperature (approx. 21 °C) within the specified temperature range. At significantly higher ambient temperatures (> 30 °C), the cooling power is reduced.
- ▷ Observe the safety instructions and manufacturer's instruction manual.

10.5.1 Refrigerator ventilation grill

At high external temperatures, the full cooling power of the cooling unit is only guaranteed if the refrigerator is ventilated sufficiently. In order to achieve a better ventilation the refrigerator ventilation grill can be removed.

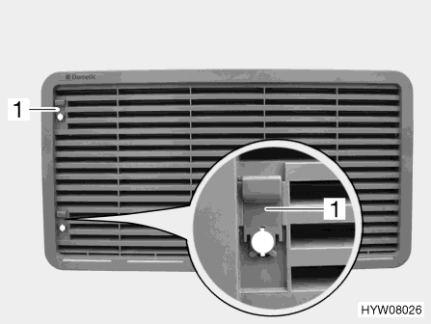


Fig. 145 Refrigerator ventilation grill (with sliding trap)

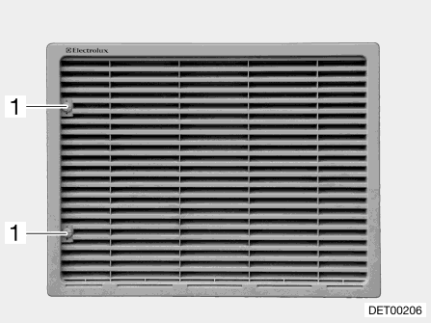


Fig. 146 Refrigerator ventilation grill (with screw)

Removing:

- Depending on version: Push up the sliding trap (Fig. 145,1) or turn the screw (Fig. 146,1) a quarter turn using a coin.
- Remove refrigerator ventilation grill.

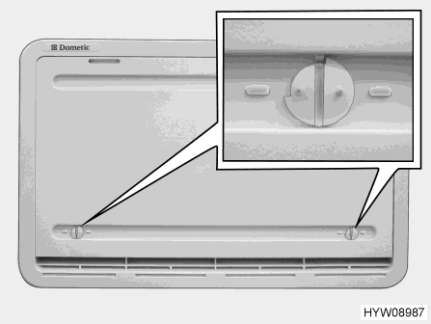


Fig. 147 Winter cover

Winter cover

If the refrigerator is to be operated at low external temperatures, the manufacturer recommends the use of a winter cover (Fig. 147) for the refrigerator ventilation grills.

The table below shows the temperature ranges in which the winter cover or the insulated winter cover may be used.

Temperature	Cover
Below 10 °C	Winter cover (for refrigerators with capacity below 130 litres: fit only on the lower ventilation grill)
Below -5 °C	Insulated winter cover (fit only on the lower ventilation grill)

▷ If the temperatures are higher than the indicated values, it is absolutely necessary to remove the winter cover. Otherwise the vehicle could be damaged.

Mounting:
- Open both locks (Fig. 147) (groove in horizontal position).
- Put winter cover in front of the ventilation grill.
- Lock the locks with a small coin (groove in vertical position).

Removing:
- Open both locks (Fig. 147) (groove in horizontal position).
- Remove winter cover from ventilation grill.

▷ The winter cover may remain mounted during the journey.

10.5.2 Dometic Automatic (series 10)

This refrigerator is a so-called absorber refrigerator with a separate freezer compartment.

The operating modes and settings are shown on a display (Fig. 148) between the refrigerator and freezer compartment.

Operating modes

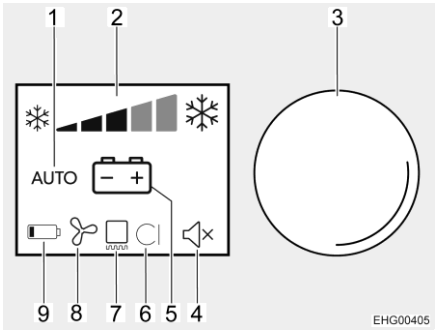
The refrigerator is equipped with an automatic system to select the type of power. The refrigerator automatically selects the optimum energy source. Manual intervention to select the type of power is possible but not required.

The refrigerator selects from the following energy sources:

- 230 V AC
- 12 V DC
- Gas

Choosing the available energy source highest on the list.

▷ The refrigerator always requires a 12 V control voltage, regardless of which type of energy it is using. The control voltage is drawn from the living room area battery. Therefore the closed circuit current always flows even if the refrigerator is switched off. Always disconnect the refrigerator from the battery for a temporary lay-up.



1 Automatic mode
2 Display of the cooling power
3 Control knob
4 Beeping tone OFF
5 Display of the current energy source
6 Not used
7 Frame heater
8 Fan (optional)
9 Not used

Fig. 148 Display

230 V operation

If the "AUTO" operating mode has been set and the 230 V supply is connected, this energy source is the preferred selection.

12 V operation

If the "AUTIO" operating mode is set, the refrigerator only selects the 12 V operation if the vehicle engine is running.

Gas operation

- ▶ Never let gas escape unburned due to danger of explosion.
- ▶ Use only liquefied gas to operate the refrigerator; do not use natural gas.
  At altitudes above 1000 m, ignition problems may occur in the gas operation mode. If possible, change to another type of energy.

- ▷ If LPG is used, the gas burner must be cleaned more frequently.
- ▷ Open the regulator tap on the gas bottle and the gas isolator tap "Refrigerator".

If the "AUTO" operating mode is set, the 230 V supply is **not** connected, and the vehicle engine is **switched off**, the refrigerator selects the gas supply. When selecting gas operation the ignition fuse is opened automatically so gas can get into the burner. At the same time the electronic ignition is activated. If the gas flame is extinguished, e.g. by blast of wind, the ignition is activated immediately and re-ignites the gas. If there is a fault in gas operation, the symbols "Gas" and "Fault" flash and an alarm sounds for 20 seconds.

Stop to fill tank

- ▶ Open flames are prohibited at petrol stations.

  If the refrigerator was manually set for gas operation during the journey: switch off the refrigerator in the petrol station area or change over to 12 V operation.

  If the refrigerator was operated in the automatic mode during the journey and the stop for filling the tank takes longer than 15 minutes: switch off the refrigerator. Switch off the refrigerator. Otherwise, the refrigerator will automatically change over to gas operation 15 minutes after stopping the vehicle engine.

Refrigerating temperature control

When turned on the first time the refrigerator automatically selects the middle thermostat position. This setting can be adjusted manually via the control knob (Fig. 148,3). The bars (Fig. 148,2) indicate the selected thermostat position. It takes a few hours till the refrigerator reaches its normal operating temperature. When changing over the operating mode the thermostat setting will be maintained. The refrigerating temperature is retained regardless of the type of energy being used.

Frame heater (FH)

- ▷ When the frame heater is turned on, it uses about 4 Watts, including in gas operation. To avoid running down the living area battery, in gas operation refrain from running the frame heater in continuous operation or turn the frame heater off entirely.

▷ The frame heater is permanently switched on during the 230 V operation and the 12 V operation.

High external temperatures and high humidity can cause drops of water to form on the metal frame of the freezer compartment. This is why the refrigerator is equipped with a frame heater for the freezer compartment. If the temperature and humidity are high, switch on the frame heater. This prevents corrosion. If the frame heater is switched on, the frame heater symbol (Fig. 148,7) is lit.

In the gas operation mode, the frame heater can be switched manually.

Switching frame heater on/off:

- Turn control knob (Fig. 148,3) until the bottom line (adjustment menu) is active.
- Press the control knob to open the adjustment menu
- Turn the control knob until the frame heater symbol is active.
- Press the control knob.

Manual operation

Switching on:

- Open the regulator tap on the gas bottle and the gas isolator tap "Refrigerator".
- Press and hold the control knob (Fig. 148,3) for about 2 seconds. The refrigerator switches on with the settings selected most recently.
- Selecting the temperature: Press the control knob to switch on the display.
- Turn the control knob to set the cooling power. The display of the cooling power changes accordingly.

Selecting operating mode:

- Press the control knob to switch on the display.
- Turn control knob until the centre line (operating modes menu) is active.
- Press the control knob.
- Turn control knob until the desired operating mode is displayed.
- Press the control knob to accept the operating mode set.

When operated with 12 V, the refrigerator draws power only from the living area battery.

▷ If the refrigerator is manually set to "12 V", it will constantly consume current. Therefore, switch over to gas operation when the vehicle engine is **not** running, and the vehicle is **not** connected to the 230 V power supply.

Switching off:

- Press and hold the control knob (Fig. 148,3) for about 4 seconds. The refrigerator switches off and no displays are lit.
- Close the gas isolator tap "Refrigerator" and the regulator tap on the gas bottle.

Dimming function and warning function

In automatic mode, "AUTO" and the type of energy currently in use are displayed. The brightness of the display is reduced after a few seconds if no other buttons are pressed. When the door is opened, the interior light goes out after 2 minutes. If the door remains open for more than 2 minutes, a warning signal sounds.

Ventilation position (winter position)

Bring the refrigerator door and the freezer compartment door to ventilation position if the refrigerator is not in use for a longer period of time. The formation of mold is avoided in this way.

▷ During the journey, the door may not remain in the ventilation position.

Bringing refrigerator door to ventilation position:

- Defrost the refrigerator.
- On one side, unscrew the hook as far as it will go both on the top and at the bottom of the door in the area of the lock.
- Press the refrigerator door on. The protruding pin snaps into the hook. The door is in the ventilation position.

Bringing refrigerator door to operating position:

- Open the door.
- Press the protruding hooks on the top and the bottom of the door in again. The door is in operating position again.

▷ Further information can be obtained from the separate instruction manual "Refrigerator".

Chapter overview

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

11.1 Water supply, general

- ▶ Fill water tank from supply systems that have been verified to provide drinking water quality.
- ▶ Only use such hoses or containers when filling that have been approved for use with drinking water.
- ▶ Thoroughly rinse filling hose or container with drinking water before use (2 to 3 times capacity).
- ▶ Empty filling hose or container completely after use and close openings of the filling hose or container.
- ▶ 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.
- ▶ In the case of lay-ups lasting more than a week disinfect the water system before using the vehicle (see chapter 12).

- ▷ 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. Make certain that the water pump is switched off on the panel. Otherwise, the water pump will overheat and may get damaged. Leave the water taps on in central position. Leave 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 after one minute at the latest. Never operate water pump when the water tank is empty.

Opening a water tap automatically switches on the water pump and pumps water to the tap.

- ▷ Before the water fittings can be used, the 12 V power supply on the panel must be switched on. Otherwise the water pump will not work.
- ▷ When the water tank is re-filled, an air bubble may form at the bottom of the pump. This air bubble will prevent water from being drawn in. Shake the water pump up and down energetically in the water.

11.2 Water system

11.2.1 Overview of water tanks

The vehicle is equipped with 3 water tanks:

Tank	Volume
Water tank	140 l
Grey water tank	110 l
Black water tank	50 l

The water tanks are built into the double floor of the vehicle and are accessible via floor traps inside the vehicle.

11.2.2 Drinking water filler neck

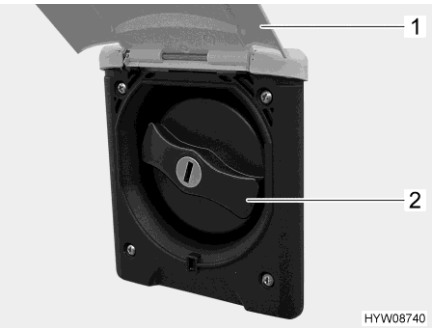


Fig. 149 Cap (drinking water filler neck)

The drinking water filler neck is behind a flap on the left side of the vehicle.

The drinking water filler neck is marked by the symbol "".

Opening the drinking water filler neck:

- Swivel the external flap (Fig. 149,1) upwards.
- Insert key into locking cylinder and turn a quarter turn. The cap is unlocked.
- Remove the key.
- Turn the blue cap (Fig. 149,2) one quarter turn.
- Remove the cap.

Filling with water:

- Fill the water tank with drinking water. Use a water hose, a water canister with a funnel or similar for filling.

Closing the drinking water filler neck:

- Place cap on the drinking water filler neck.
- Turn cap one quarter turn.
- Insert key into locking cylinder and turn a quarter turn. The cap is locked.
- Remove the key.
- Check that the cap sits firmly on the drinking water filler neck.
- Swivel external flap downwards and close it.

11.2.3 Filling the water system

▶ When filling the water tank, observe the technically permissible maximum laden mass of the vehicle. Luggage must be reduced accordingly when the water tank is full.

▷ The water pump will overheat without water and can get damaged. Never operate water pump when the water tank is empty.

▷ Depending on the model, the Alde system (heater/boiler) has one or two drain cocks for emptying.

▷ The water quantity can be monitored in the iNDUS app while the water tank is being filled.

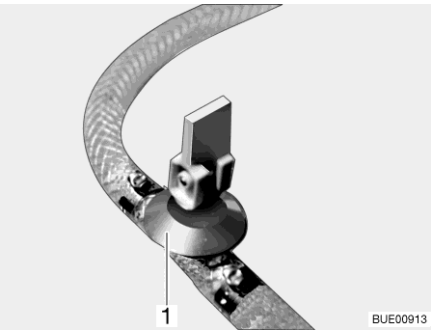


Fig. 150 Drain cock (with rocking lever)

- Position the vehicle horizontally.
- Switch on the 12 V power supply on the panel.
- If necessary, switch on the water pump on the panel.
- Clean or disinfect water system.
- Close all drain cocks. In order to do this, position the rocking lever of the drain cock (Fig. 150,1) horizontally.
- Close the drainage opening of the water tank.
- Close all water taps.
- Open the drinking water filler neck on the outside of the vehicle.
- Fill the water tank with drinking 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 warm water pipes are filled with water.
- Keep the water taps open until the water flowing out of the water 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 water taps open until the water flowing out of the water taps has no bubbles in it.

- Close all water taps.
- Close drinking water filler neck.
- Check that the cap on the water tank is not leaking.

Position of the drain cocks See chapter 17.

11.2.4 Topping up the water

▶ When filling the water tank, observe the technically permissible maximum laden mass of the vehicle. Luggage must be reduced accordingly when the water tank is full.

- Open drinking water filler neck.
- Fill the water tank with drinking water. Use a water hose, a water canister with a funnel or similar for filling.
- Close drinking water filler neck.

11.2.5 Emptying the water system

▷ 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. Make certain that the water pump is switched off on the panel. Otherwise, the water pump will overheat and may get damaged. Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) 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.

▷ Switch off water pump on panel. Otherwise the water pump runs until it overheats or the battery is empty.

▷ Depending on the model, the Alde system (heater/boiler) has one or two drain cocks for emptying.

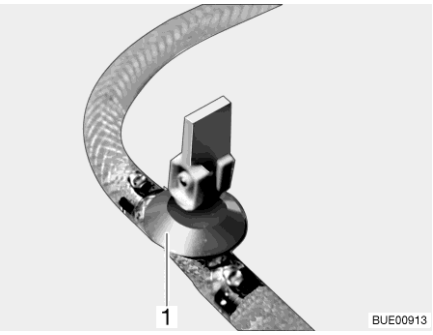


Fig. 151 Drain cock (with rocking lever)

To empty and ventilate the water system, proceed as follows. This will avoid frost damage:

- Position the vehicle horizontally.
- Switch off water pump on panel.
- Switch off the 12 V power supply on the panel.
- Shut off the boiler (see section 10.2).
- Open all drain cocks. In order to do this, position the rocking lever of the drain cock (Fig. 151,1) vertically.
- Open the water tank drain.
- Open all water taps and set to the central position.
- Hang the shower handset up in the shower position.
- Unscrew the lock ring on the water tank.
- Take water pump (fitted to the cover) as far as the connecting lines allow.
- Hold the water pump up until the water pipes are completely empty.
- Check whether the water tank is completely empty.
- Set the shower handset down in the shower tray.
- Blow out the remaining water in the water pipes (max. 0.5 bar). In order to do this, remove the water pipe from the water pump and blow into the water pipe in the direction of the appliances.
- Empty the grey water tank and black water tank.
- Clean the water tank and then rinse it out 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.

Position of the drain cocks See chapter 17.

11.3 iNDUS waste water system

▶ Wear personal protective equipment when handling waste water.

▷ If waste water escapes from the waste water system, remove the waste water immediately and disinfect the surroundings.

▷ Wear personal protective equipment when handling cartridges. Avoid contact of the ingredients with skin and eyes.

▷ Keep cartridges away from children.

▷ If the waste water system is not used for a long time and the ambient temperature falls below 0 °C, drain the water in the system completely.

▷ Observe further safety instructions and information in the instruction manual of the manufacturer.

The iNDUS waste water system consists of the following components:

- Grey water tank / black water tank
- Emptying module
- iNDUS app
- Dosing module with cartridges
- Toilet

Functioning

The waste water system collects **grey water** from kitchen and bathroom in a separate **grey water tank**. The grey water is filtered, provided with a special additive, and reused for flushing the toilet. If no grey water is available in sufficient quantity for the flushing process, fresh water is added.

After using the toilet, the **black water** (toilet waste water) is pumped from the toilet into the separate **black water tank**. When the black water tank is full, the black water is emptied into a suitable disposal point using the emptying module .

By adding various additives, the system ensures a hygienic and odourless disposal of the waste water and prevents deposits in the hoses and tanks. In order to do this, the system uses three different cartridges with additives for this purpose. Dosing is done automatically via a dosing module.

Fig. 152 Cartridge holder with cartridges

Cartridges

The cartridge are located in a cartridge holder (Fig. 152,1). The cartridge holder is installed in the rear garage of the vehicle and contains cartridges with the following additives:

- iNDUS Grey (grey water additive)
- iNDUS Flush (flush water additive)
- iNDUS Black (black water additive)

LEDs on the operating panel of the cartridge holder indicate the status of each cartridge. To insert the cartridges, refer to the manufacturer's instruction manual.

▷ The cartridges operate optimally at ambient temperatures between 0 °C and 45 °C.

▷ Store cartridges in a cool, dry place, frost-free and protected from direct sunlight.

iNDUS app

Via the iNDUS app, the fill levels of the individual tanks and cartridges can be queried. The iNDUS app also helps to find suitable disposal points. How to install the iNDUS app on a smartphone or tablet and connect it to the water system is described in the manufacturer's instruction manual.

Emptying module

▷ The iNDUS waste water system can be disposed of at most grey water disposal stations. The prerequisite for this is that the disposal station is connected to the general sewer system and that no special rules or regulations apply to the disposal of black water. If special rules and regulations apply to the disposal of black water, use special disposal stations for black water and comply with the rules and regulations. The iNDUS app shows the nearest disposal stations.

▷ If the water system is not used for a longer period of time, e.g. in winter, the complete water system must be drained. For further information on winter storage, see section 12.9.2 and the manufacturer's instruction manual.

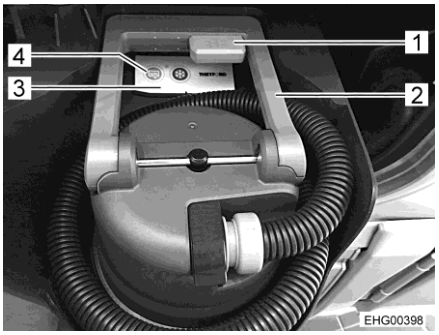


Fig. 153 Emptying module

The black water tank and grey water tank are emptied together via the emptying module (Fig. 153). The toilet, grey water tank, and black water tank are also flushed automatically at the same time.

LED lights on the operating panel of the emptying module indicate the status of the emptying process.

The emptying module is located behind a storage space flap on the right side of the vehicle.

Emptying the waste water:

- Open the storage space flap and unscrew the holder of the emptying module.
- Pull the handle (Fig. 153,2) of the emptying module upwards.
- Take out the emptying module and unwind the hose.
- Position the emptying module directly above the chute of the disposal station.
- Press button (Fig. 153,1) on the handle (Fig. 153,2) to open the emptying module.
- Press the blue emptying button (Fig. 153,4) on the operating panel (Fig. 153,3). The emptying process begins.
- Wait until the waste water has been completely pumped out. The emptying process is complete when the blue emptying button (Fig. 153,4) is no longer illuminated.
- Press the button (Fig. 153,1) again to close the emptying module.
- Insert the emptying module back into the holder and turn it so that the hose wraps around the emptying module.
- Fold in the handle (Fig. 153,2).

▷ If the handle cannot be folded in, the emptying module may still be open. In this case, press the button (Fig. 153,1) again.

- Push back the holder with the emptying module and close the storage space flap.

Toilet

▷ Do not sit or stand on the toilet lid. The lid may break.

The toilet is flushed with grey water from the grey water tank. If not enough grey water is available, fresh water is added.

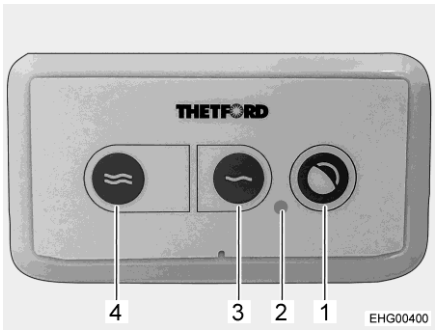


Fig. 154 Operating panel of toilet

Fig. 155 Toilet

Operating the toilet:

- To flush the toilet with large quantities of water: Press the button (Fig. 154,4).
- To flush the toilet with a small amount of water: Press the button (Fig. 154,3).
- To open the closing plate of the toilet manually: Press the button (Fig. 154,1).

▷ The closing plate in the toilet is normally closed and opens automatically when flushing. If necessary, the closing plate can be opened manually.

▷ The blue LED (Fig. 154,2) is required for the first commissioning, see the manufacturer's instruction manual.

11.4 Toilet compartment

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

▷ For ventilation purposes during or after a shower, and for drying wet clothing, close the toilet compartment door and open the window or the toilet compartment skylight. This improves the air circulation.

▷ Close the shower curtain completely when showering, so that no water is able to enter the area between the wash room wall and the shower tray.

▷ After taking a shower, rinse soap residue from the shower tray, otherwise cracks can appear in the shower tray over time.

▷ After using the shower, wipe it dry to prevent moisture from collecting.

▷ Further information about cleaning the toilet compartment can be found in the section 12.2.

Chapter overview

This chapter contains instructions regarding the care of the vehicle.

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.

12.1 External care

12.1.1 General

Standard external care consists of regular washing. The use and the environmental conditions will determine how often the vehicle needs to be washed. Wash the vehicle more frequently in areas which are exposed to heavy air pollution or heavy traffic or roads treated with de-icing salts. If the vehicle is exposed to salty and humid air (coastal areas, humid climates), wash the vehicle more frequently.

Do not park under trees if at all possible. The resin-like discharge which many trees secrete, give the paintwork a matt look and can promote the onset of corrosion.

Wash off bird droppings straight away and thoroughly, as the acid it contains is extremely corrosive.

12.1.2 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 manual 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, the ventilation grill or the skylights. The vehicle may be damaged or water may enter the interior.

12.1.3 Washing the vehicle

▷ Never clean the vehicle in the car wash. Water can penetrate the refrigerator grills, the waste gas vent or the forced ventilations. 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.
- Painted exterior walls may also be cleaned with a caravan cleaner.
- 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.
- Rub a conventional rubber care product onto the rubber seals on doors and storage flaps.
- Treat locking cylinder of doors and storage flaps with graphite dust.

12.1.4 Add-on parts made of glass-fibre reinforced plastic (GRP)

▷ Avoid contact between polish and window rubber and piping.

▷ The glass-fibre reinforced plastic (GRP) may not become too hot. Therefore when polishing with a polishing machine, keep the machine in constant motion.

▷ In the case of large-surface GRP components, superficial cracking may occur due to ageing. This is a property of the GRP material composite with GelCoat coating that does not affect the function of the component. Therefore, there is no reason for complaint.

GRP add-on parts can turn yellow or become weather-worn due to insufficient care for the vehicle or ageing of the material.

GRP add-on parts should therefore undergo regular follow-up treatment. This way, these parts will not turn yellow and the sealing of the surface remains intact.

Follow-up treatment of GRP add-on parts:

- Wash the vehicle and allow to dry as described above. Check if the GRP add-on parts are clean and dry.
- Apply the polisher with a soft cloth evenly on the surface of the GRP add-on part.
- Wait until a light grey film forms.
- Wipe the GRP add-on part with a dry, soft cloth. Move the cloth in circles over the surface of the GRP add-on part.

We recommend using a polishing machine for this work.

▷ Paint protection has to be used to preserve the polish. Please read the instructions of the paint protection for details on how to apply it.

12.1.5 Windows of acrylic glass

Acrylic glass windows are delicate and require very careful handling.

- ▷ Never rub acrylic glass windows dry as dust particles might damage the surface.
- ▷ Only clean acrylic glass windows with plenty of warm water, some 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 clean vehicle in car wash.
- ▷ Do not attach stickers to the acrylic glass windows.
- ▷ Having cleaned the vehicle rinse acrylic glass with sufficient clear water.
- ▷ Treat rubber seals with a conventional rubber care product.

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

12.1.6 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. Therefore, do not lubricate the moving parts of the entrance step.

12.1.7 Air suspension

- ▷ Never clean the individual parts of the air suspension with steam or high-pressure cleaners, abrasive or organic solvents.

Clean the air suspension bellows, air duct and shock absorber regularly.

Use soapy water, methanol, ethanol or isopropyl alcohol for cleaning.

12.2 Interior care

- ▷ If possible, treat stains immediately.
- ▷ Acrylic glass windows are delicate and require very careful handling (see section 12.1.5).
- ▷ Synthetic parts in the toilet and living area are very delicate and should be treated with care. Do not use solvents, alcohol-containing cleansers or scourers. This procedure will help you to avoid brittleness and formation of cracks.
- ▷ Hair colourants, nail varnish, cigarette ash and similar substances may cause permanent stains or discolouration. For this reason, you should prevent these substances from getting onto plastic parts. If they do get onto plastic parts, you should remove these substances immediately.
- ▷ 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 descaling the water system. Vinegar-based products may cause damage to seals or parts of the installation. Use standard descaling products for descaling.
- ▷ 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.

- ■ 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 required, use furniture polish for the painted surfaces.
- ■ Clean upholstery with dry foam specially manufactured for the use on upholstery or with the foam of a mild detergent. Do not wash upholstery. Always have it cleaned. Protect cushions from direct sunlight so that they do not loose their colour.
- ■ Leather covers should be cleaned with a cotton cloth and a mild soap (curd soap). Make sure that the leather is not soaked through and that no water seeps through the seams of the leather covers.
- ■ Wash panel curtains and gathered blinds. When washing observe washing instructions on the product. The sticks may be removed for washing.
- ■ Vacuum clean the carpet, if necessary clean with carpet shampoo.
- ■ Clean PVC-floor covering with a mild, soapy cleaning agent for PVC floors. Do not place carpet on wet PVC-floor covering. The carpet and the PVC-floor covering may stick together.
- ■ Clean the sink cover manually using water and washing-up liquid. Do not clean the sink cover in the dishwasher.
- ■ Never clean the sink or the gas cooker with a scourer. Avoid anything which may cause scratching or grooves.

- Clean the burners on the gas cooker using a damp cloth only. Prevent any water from penetrating the burner covers. Water may damage the burners on 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 belt must be completely dry before being rolled up.

12.2.1 Kitchen worktop from mineral material

Simple care

- Wipe the kitchen worktop periodically with a sponge cloth. In order to do this, use water and a fat-dissolving cleaner.

▷ Do not use any re-greasing detergents.

Soiling

- Remove stains with soap sud, water and a sponge and wipe dry.
- Remove limescale and slight discolouration caused by food with standard household cleaners (e.g. vinegar-based).
- Remove stubborn stains such as cigarette burns with a mild scouring milk and a sponge (e.g. Scotch Brite). Note: This can lead to matting on glossy surfaces.
- Remove strong colouring substances such as tea, coffee, hair dye, or iodine solution with liquid cleaners based on chlorine bleach (e.g. "Klorix").

Scratching

▷ Do not cut directly on the worktop.

▷ Avoid handling sharp-edged objects on the worktop.

▷ The surface can be sanded to remove traces of use and restore an even appearance to the worktop. This requires special technical equipment and knowledge. Have this work carried out by qualified personnel only.

12.3 Water system

12.3.1 Cleaning the water tank

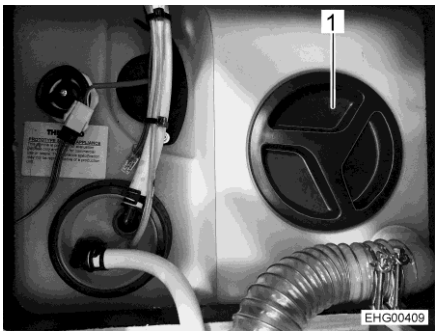


Fig. 156 Water tank, iNDUS system

- Empty the water tank and close the drainage opening.
- Remove the cap (Fig. 156,1) of the water tank.
- Fill water tank with water and some washing-up liquid (do not use any scourers).
- Using a trade standard brush for washing dishes, scrub the water tank until there is no longer any visible deposit.
- If possible, clean fresh water sensors through the cleaning openings by hand.
- Rinse water tank with copious amounts of drinking water.

▷ If, due to the design of the water tank, it is not possible to clean the water tank mechanically: Use a suitable chemical cleaning agent.

▷ The authorised dealers would be happy to assist you in choosing a suitable cleaning agent.

▷ Follow the cleaning agent manufacturer's instructions.

12.3.2 Cleaning the water pipes

▷ Only use approved cleaning agents as sold by the specialist trade.

▷ The cleaning agent must meet national regulations and be approved (if required).

▷ Collect any emerging mixture of water and cleaning agent for correct disposal.

- Empty the water system.
- Close all drainage openings and drain cocks.
- Fill mixture of water and cleaning agent into the water tank. Observe the manufacturer's instructions regarding the mixing ratio.
- Open the drain cocks one by one.
- Leave the drain cocks open until the mixture of water and cleaning agent has reached the respective drain.

- Close the drain cocks.
- Set all the water taps to "Hot" and open them.
- Leave the water taps open until the mixture of water and cleaning agent has reached the drain.
- Set all water taps to "Cold" and open them.
- Leave the water taps open until the mixture of water and cleaning agent has reached the drain.
- Close all water taps.
- Flush the toilet several times.
- Allow the cleaning agent to act in accordance with the manufacturer's instructions.
- Empty the water system. Collect the mixture of water and cleaning agent for correct disposal.
- For rinsing fill the entire water system with drinking water and empty again several times over.

12.3.3 Disinfecting the water system

▷ Only use approved disinfectants as sold by the specialist trade. Observe the tolerance of humans and animals.

▷ The disinfectant must meet national regulations and be approved (if required).

▷ Collect any emerging mixture of water and disinfectant for correct disposal.

When disinfecting the water system, proceed the same way as when cleaning the water pipes (see section 12.3.2). Simply use disinfectant instead of cleaning agent.

12.4 iNDUS waste water system

▷ The iNDUS waste water system (including grey water tank / black water tank) is automatically cleaned by adding the additives from the cartridges.

Replacing the cartridges

The cartridges are not interchangeable among each other and cannot be refilled. When the cartridges are empty, they must be replaced. Replacement cartridges are available from authorised Thetford dealers.

While replacing the cartridges, proceed as described in the manufacturer's instruction manual.

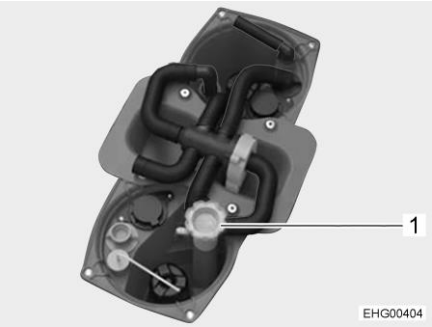


Fig. 157 Grey water filter

Cleaning the grey water filter

The grey water filter (Fig. 157,1) upstream from the grey water tank is self-cleaning. If the grey water filter is clogged nevertheless: clean the grey water filter as described in the manufacturer's instruction manual.

12.5 Hybrid hob (gas burner / induction hob)

▷ Disconnect the appliance from the electricity and gas supply before starting cleaning.

▷ Do not use abrasive cleaners, metal scouring pads or hard brushes.

▷ Do not clog the holes of the burner rings when cleaning.

▷ Observe the instructions in the instruction manual of the manufacturer.

■ After each use, remove splashes and dirt with soap and hot water. Dry the surface with a soft cloth.

■ Use a special cleaner for glass hobs for routine cleaning.

12.6 Extractor hood

Clean the extractor hood filter occasionally. How often cleaning is necessary depends on how often the extractor hood is used. Do not wait to clean the filter until the performance of the extractor hood has noticeably decreased.

Cleaning the filter:

■ Wash the filter with warm water and some washing-up liquid.

12.7 Air conditioning unit Telair

Every now and then clean the filter and the ventilation grilles on the outside of the housing. How often cleaning is necessary depends on how often the air conditioning unit is used. Do not wait to clean the filter and the ventilation grill until the performance of the air conditioning unit has noticeably decreased.

▷ Only use mild cleaning solutions to clean the filter, never use benzene or solvents.

Cleaning the filter:

- Wash the filter with warm water and some washing-up liquid.
- Allow the filter to dry thoroughly before reassembly.

Cleaning the ventilation grill:

- Use a brush to remove coarse dirt or deposits from the external ventilation grilles. If a cleaning solution is used, ensure that no water ingresses into the inside of the housing.

12.8 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. Switch the circulation fan (if there is one) to automatic. 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.

▷ Keep waste gas vents and forced ventilations free of snow. Use a vent extension, if necessary.

12.8.1 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.

12.8.2 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.
- Only heat if the circulation system is switched on.
- 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.

▷ It is only possible to guarantee unrestricted operation during winter for models without double floor in connection with the "winter package" from the original equipment.

12.8.3 At the end of the winter season

- Thoroughly clean the underbody of the vehicle and the 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.

12.9 Lay-up

12.9.1 Temporary lay-up

- If the vehicle has been stationary for a long 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!

Before laying up the vehicle, go through the following checklist:

	Activity	Done
Base vehicle	Completely fill fuel tank. This prevents corrosion damage within the fuel tank system	
	Jack up vehicle so that the wheels do not bear any load, or move vehicle every 4 weeks. 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	
	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	
	In addition observe the notes in the operating manual of the base vehicle	
Body	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	
	Air the interior, all storage spaces accessible from the outside, and the parking space (e.g. garage) every 3 weeks in order to prevent the occurrence of condensation and resulting mould formation	
Interior	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	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

Activity	Done
Completely 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. In order to do this switch off the battery cut-off switch on the transformer/rectifier or activate the battery separation via the panel (see chapter 9)	

Water system

Empty the entire water system. Blow out the residual water from the water pipes (0.5 bar max.). Leave the water taps on in central position. Leave all drain cocks open. Observe the notes in chapter 11.	

12.9.2 Winter lay-up

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

Base vehicle

Activity	Done
Clean body and underbody thoroughly and spray with hot wax or protect with varnish	
Fill fuel tank with winter diesel	
Check antifreeze in the cooling water	
Rectify damage to the paintwork	
Fill in windscreen washer fluid with frost protection	

Body

Clean vehicle from outside thoroughly	
Keep the forced ventilation open	
Clean and grease installed supports	
Clean and grease all door and flap hinges	
Brush oil or glycerine on all locking mechanisms	
Treat all rubber seals with a conventional rubber care product	
Use graphite dust to treat locking cylinders	

Interior

Set up the de-humidifier (granulate)	
Remove cushions and mattresses from the vehicle and store them in a dry place	
Air the interior every 3 weeks	
Empty all cabinets and storage compartments, open flaps, doors and drawers	
Thoroughly clean the interior	
If there is a risk of frost, do not leave the flat screen in the vehicle	

	Activity	Done
Electrical system	Remove the starter battery and the living area battery and store them in a place protected from frost (see chapter 9) or connect the vehicle to a 230 V supply. Before removing, remove the fuses on the living area battery	
iNDUS water system	Remove cartridges from the cartridge holder, close with cap and store in a frost-free place	
	Press the winter storage button on the operating panel of the emptying module and drain the water	
	Drain residual water via the hand valves of the water tanks	
	Open the drain cocks	
	Leave the water taps on in central position	
Complete vehicle	Arrange the tarpaulins in such a way that the ventilation openings are not covered, or use porous tarpaulins	

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

Go through the following checklist before start-up:

	Activity	Done
Base vehicle	Check the tyre pressure on all tyres	
	Check the tyre pressure of the spare wheel (if present)	
Body	Clean the pivot bearing of the entrance step	
	Check the functioning of the fitted supports	
	Check that the doors, windows and skylights are working properly	
	Check that all the external locks are working, such as the storage flaps, the filler neck and the conversion door	
	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	Put the gas bottles in the gas bottle compartment, tie down and connect to the gas pressure regulator	

Electrical system

Activity	Done
Connect to 230 V external power supply	
Install the living area battery and starter battery, insert the fuses on the living area battery and completely charge the battery  ▷ Charge the battery for at least 20 hours after lay-up.	
Connect the living area battery with the 12 V power supply. In order to do this switch on the battery cut-off switch on the transformer/rectifier or deactivate the battery separation via the panel (see chapter 9)	
Check that the electrical system are working, e.g. interior light, socket and all installed electrical appliances	

iNDUS water system

Remove caps from cartridges and insert cartridges into cartridge holder	
Close the hand valves on the water tanks	
Close all drain cocks and water taps.	
Put the water system into operation. In order to do this, flush the toilet  ▷ A delay of 10 seconds for the first flush is normal	
Check water system for leaks	

Appliances

Check the function of the appliances	

Chapter overview

This chapter contains instructions about official inspections and inspection and maintenance work in the vehicle.

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

13.1 Official inspections

Depending on the national legislative provisions, the following official inspections must be carried out periodically:

- Main inspection
- Emissions test
- Inspection of the gas system

The inspection intervals in accordance with the national legislative provisions must be adhered to. The inspection stickers attached to the vehicle indicate when the next inspection is required.

For Germany, for example, the following regulation applies:

From April 1st 2022, the inspection obligation for the gas system as part of the main inspection (HU) will no longer apply. Instead, an independent gas inspection (according to DVGW (German Technical and Scientific Association for Gas and Water) worksheet G 607) must be carried out for recreational vehicles (motorhomes and caravans). The gas inspection is evidenced by the correctly completed yellow inspection book and a valid inspection sticker on the vehicle.

For more information on the gas inspection and the intervals at which it must be carried out, see the following websites:

- German Federal Ministry of Digital Affairs and Transport (BMDV): www.bmvi.de
- German Technical and Scientific Association for Gas and Water (DVGW): www.dvgw.de
- German Association for Liquefied Gas (DVFG): www.dvfg.de

As long as the intervals at which the gas inspection must be carried out are not regulated by law, the DVGW recommends an inspection every two years.

Many camping site operators demand proof of a valid gas inspection when allocating a parking place.

▷ Any changes on the gas system must be carried out by a certified expert for gas systems.

▷ Even in the case of vehicles that are not registered, an inspection of the gas system is required.

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 our 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.

Have the "First Programmed Inspection" carried out at one of our service centres 12 months after initial registration.

Further inspections should be carried out once a year.

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 indicated 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 serves as valid proof in the event of damage and guarantee claims.

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 base vehicle and the appliances serviced at the intervals specified in the corresponding instruction manuals.

- ▷ Do not attach the lifting platform to the longitudinal frame or the frame extension during maintenance work.
- ▷ Use the vehicle jack holders (Fig. 158,1) underneath the axle support (in front of the axle tube) to attach the lifting platform.

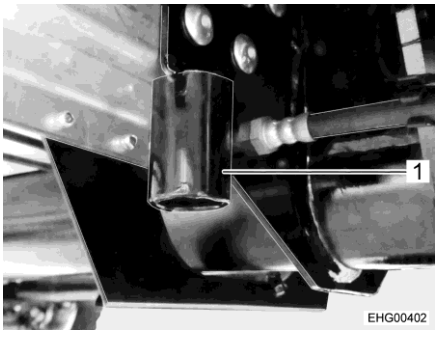


Fig. 158 Holder for vehicle jack

13.4 Doors

13.4.1 Conversion door

To maintain gliding capability between springs and hinges, grease the conversion door hinges occasionally.

▷ We recommend either Molykote PG 65 or Vaseline as lubricants.

13.4.2 Driver's door

To preserve the functional properties of the driver's door, lubricate the driver's door from time to time.

Lubricating the driver's door:

- Lubricate the locking system and the locking claws with an adherent lubricating oil (e.g. HHS 2000).
- Grease the door catch strap with machine grease or an equivalent grease.

13.5 Living area battery

Observe the following to extend battery life:

- Keep the battery surface clean and dry.
- Protect the battery poles and the terminals from corrosion.
- Check the charging condition periodically or use a charge conservation device.
- Always keep stored batteries in charged condition and in a cool place.

13.6 Alde hot-water heater

▷ Check the level of the heating fluid regularly on the compensator reservoir.

▷ During or after the first operating hours of the hot-water heater, the filling level may fall below the minimum mark. If this is the case, top up the heating fluid.

▷ We recommend to bleed the heating system after the initial heater operation and to check the glycol content.

▷ Have heating fluid changed by an authorised dealer or a service centre at intervals of five years as corrosion-protection wears off after some time.

▷ Only top up heating system with a standard G13 water-glycol mixture (60 : 40). This mixture offers frost protection up to approx. -25 °C. When topping up hot-water heaters that are connected to the engine's cooling circuit, please observe the instructions in the manufacturers' instruction manuals.

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

▷ Depending on the equipment, there is an underfloor heater in the driver's cabin. Small amounts of heating fluid can escape when the quick-release connections are disconnected.

13.6.1 Checking the fluid level

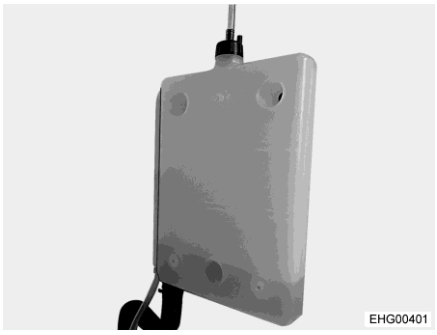


Fig. 159 Compensator reservoir

- Switch off the hot-water heater and allow it to cool down.
- Check if the fluid level is between the marks "MIN" and "MAX" on the compensator reservoir (Fig. 159).

13.6.2 Topping up heating fluid

- Position the vehicle horizontally. This prevents the formation of bubbles.
- Switch off the hot-water heater and allow it to cool down.
- If necessary, unscrew or remove the panel (depending on the model).
- Open the rotary lid (Fig. 159,1) on the compensator reservoir.
- Remove cover.
- Check anti-freeze with an anti-freeze hydrometer. The frost protection content must be 40 % or correspond to a frost protection of -25 °C.
- Fill water frost protection mixture slowly into the compensator reservoir.

▷ The optimum fluid level is reached when the fluid in the compensator reservoir is 1 cm above the "MIN" mark when it is cooled down.

13.6.3 Bleeding the heating system

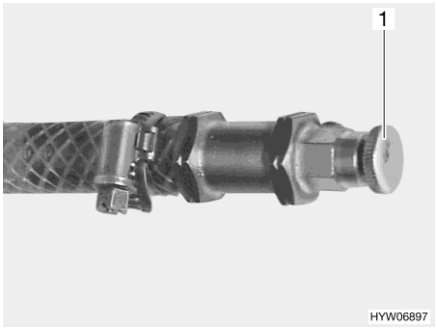


Fig. 160 Bleeding valve of hot-water heater

The bleeding valves are built in nearby the radiators. For position of the bleeding valves, see also table "Position of the bleeding valves".

- Switch off the hot-water heater and allow it to cool down.
- Open bleeding valve (Fig. 160,1) and leave open until no more air escapes.
- Close bleeding valve.
- Repeat this procedure at all bleeding valves.
- Check to see if the hot-water heater warms up.

13.6.4 Position of the bleeding valves

	Position of the bleeding valves
Elegance I 910	Total emptying at the double T-piece directly at the Alde heater
	In the entrance step area on the driver's side (2 ea.)
	On the seating group behind the driver's seat, top left and right
	At the rear bed, left and right front
	In the rear garage, on the left underneath the 3 cartridges
	In the linen cupboard (2 ea.)
	On the seating group behind the front passenger's seat's seat, top left and in the bench seat
	In the bottom cupboard on the front passenger's seat
	Rear right on the front passenger's seat console

Elegance I 920	Total emptying at the double T-piece directly at the Alde heater
	In the entrance step area on the driver's side (2 ea.)
	On the seating group behind the driver's seat, top left and right
	At the rear bed, left and right front
	In the rear garage, on the left underneath the 3 cartridges
	On the seating group behind the front passenger's seat's seat, top left and in the bench seat
	In the bottom cupboard on the front passenger's seat
	Rear right on the front passenger's seat console

13.7 Replacing bulbs, external

- ▶ Bulbs and lamp holders can be extremely hot. Therefore, allow lamps to cool down before changing bulbs.
- ▶ 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.

- ▷ Do not touch a new bulb with bare fingers. Use a cloth when installing the new bulb.
- ▷ Only use bulbs of the same type and with the correct wattage.
- ▷ If LEDs in lamps are defective, contact an authorised dealer or service centre.

Types of bulbs

Different types of bulbs are used in the vehicle. Below, we have described how to change the different types of bulbs.

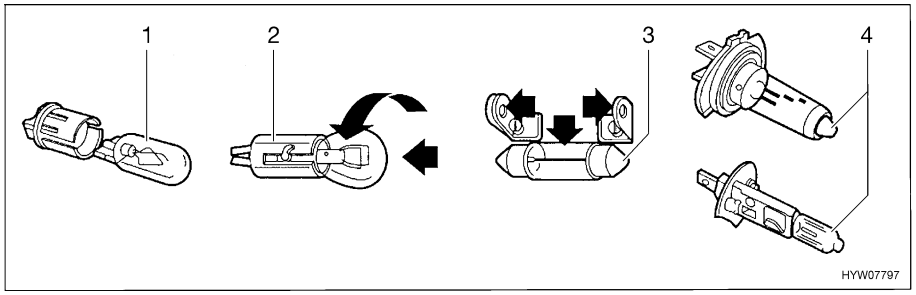
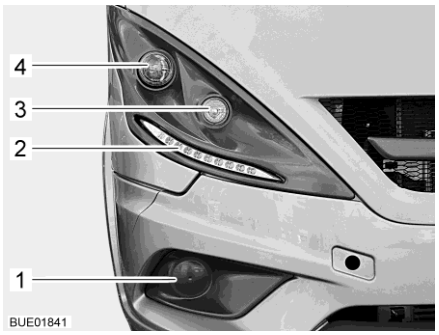


Fig. 161 Types of bulbs

Pos. in Fig. 161	Fixture type/bulb type	Changing
1	Plug-in fixture	To remove, pull out the bulb
		To mount, push the bulb into the socket with gentle pressure
2	Bayonet socket	To remove, press the bulb down and turn in an anticlockwise direction
		To insert, place the bulb in the socket and turn in a clockwise direction
3	Cylindrical bulbs	To remove and to insert, carefully bend the contacts of the lamp holder outwards
4	Halogen bulb	To remove, release retaining springs
		After inserting, hook the retaining springs again

13.7.1 Front lights



1 Fog light (optional)
2 Daytime running light (LED)
3 Direction indicator
4 Low beam/main beam

Fig. 162 Front lights

Low beam/main beam The bulbs are changed in the engine compartment.

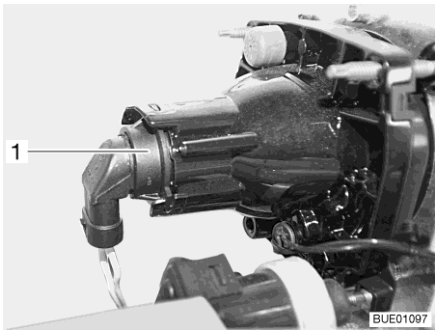


Fig. 163 Low beam/main beam/parking light

- Open the bonnet (see chapter 5).
- Put your hand behind the lamp holder (Fig. 163,1).
- Turn the lamp holder with the lamp in an anticlockwise direction and remove.
- Turn bulb in an anticlockwise direction and remove from the holder.
- Put in a new bulb.

Direction indicator The bulbs are changed in the engine compartment.

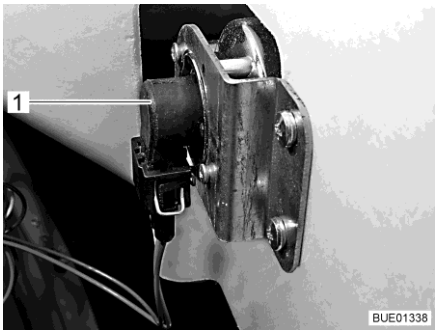


Fig. 164 Direction indicator

- Open the bonnet (see chapter 5).
- Put your hand behind the lamp holder (Fig. 164,1).
- Turn the lamp holder with the lamp in an anticlockwise direction and remove.
- Remove bulb.
- Put in a new bulb.
- Reassemble the direction indicator in the reverse order.

Daytime running light The lights have LEDs. To change the LEDs, contact an authorised dealer or a service centre.

Fog light The bulbs are changed in the engine compartment.

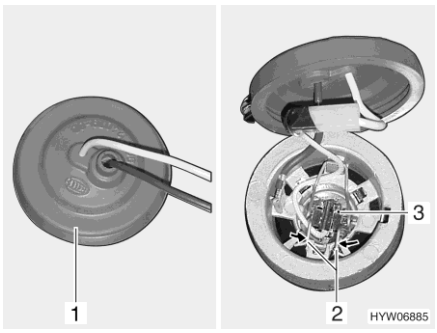


Fig. 165 Fog light

- Open the bonnet (see chapter 5).
- Put your hand behind the fog light and remove rubber cap (Fig. 165,1) from lamp housing.
- Press metal clip (Fig. 165,2) together and release from holder.
- Remove bulb (Fig. 165,3) with cable from lamp housing.
- Put in a new bulb.
- Reassemble the lamp in the reverse order.

13.7.2 Rear lights

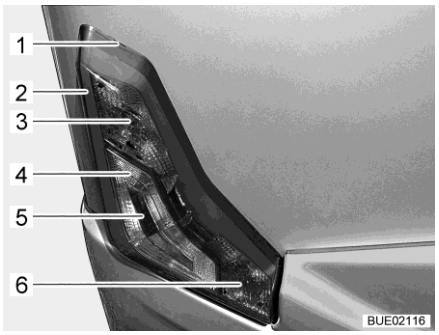


Fig. 166 Rear lights

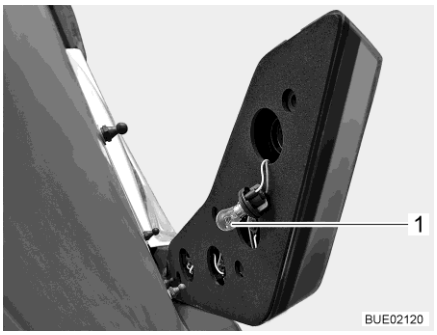


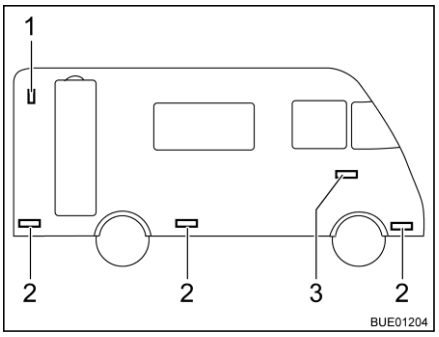
Fig. 167 Rear light

1 Notch
2 Rear light
3 Brake light
4 Reverse light
5 Direction indicator
6 Fog tail light

- Insert flat tool into notch (Fig. 166,1) and carefully lever off the housing.
- Reach into the hole on the back of the housing. Turn and pull holder (Fig. 167,1) out (bayonet fitting). The figure shows the brake light as an example.
- Remove bulb.
- Put in a new bulb.
- Insert holder into the hole and turn it until it has been fixed.
- Align housing with the conic pin and press it against the vehicle's rear.

The rear lights are equipped with LEDs. To change the LEDs, contact an authorised dealer or a service centre.

13.7.3 Side lights



1 Side marker light
2 Marker light
3 Direction indicator

Fig. 168 Side lights

Side marker light

The side marker light (Fig. 168,1) is fixed in the rear area at the top.

▷ Please have the LEDs of the side marker light replaced at a service centre.

Direction indicator

The lamp is glued in. If the bulb is faulty, contact an authorised dealer or service centre.

Marker lights

The marker lights (Fig. 168,2) are fitted in the lower part of the vehicle.

▷ The lights have LEDs. To change the LEDs, contact an authorised dealer or a service centre.

13.7.4 Types of bulbs for exterior lighting

Front

Exterior lighting	Type of bulb
Main beam	H7 12 V 55 W
Low beam	H7 12 V 55 W
Direction indicator	Bay 9s 12 V 21 W
Fog light	H3 12 V 55 W

Rear

Rear light	Ba15s 12 V 5 W
Brake light	Ba15s 12 V 21 W
Direction indicator	Ba15s 12 V 21 W
Fog tail light	Ba15s 12 V 21 W
Reverse light	Ba15s 12 V 21 W
Third brake light	LED

13.8 Replacing bulbs, internal

- ▶ Bulbs and lamp holders can be extremely hot. Therefore, allow lamps to cool down before changing bulbs.
- ▶ Shut off the power supply on the safety cut-out in the 230 V fuse box before changing bulbs.
- ▶ 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.
- ▶ Halogen lamps can get very hot. When the light is switched on, there must always be a safety distance of 30 cm between light and flammable objects. Fire hazard!
- ▶ Do not replace the LEDs in lamps with standard light bulbs. Risk of fire due to intense heat build up.

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

13.8.1 Light with LED

Fig. 169 Recessed light (example)

- ▷ LED lights have a very long life. It is not normally necessary to replace a light.

Changing bulbs:

- ■ Contact a dealer or service centre.

13.9 Spare parts

- Every alteration of the original condition of the vehicle can alter road behaviour and jeopardize road safety.
- The optional equipment and original spare parts recommended by us have been specially developed and supplied for your vehicle. These products are available at the authorised dealer or service centre. The authorised dealer or service centre is informed about admissible technical details and carries out the required work correctly.
- The use of accessories, parts and fittings not supplied by us 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 released by us. 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.

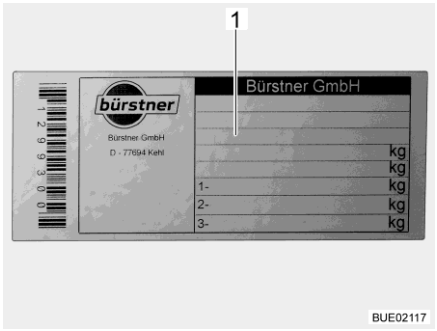
Here are some suggestions of important spare parts:

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

When ordering spare parts please indicate the chassis number and the vehicle type to the dealer.

The vehicle described in this instruction manual is built and equipped to factory standards. Optional equipment is offered depending on its purpose or use. When fitting optional 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.

13.10 Vehicle identification plate



1 Chassis number

Fig. 170 Vehicle identification plate

The vehicle identification plate with the chassis number is located inside in the entrance area.

Do not remove the vehicle identification plate (Fig. 170). The vehicle identification plate:

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

▷ Always include the **chassis number** with all inquiries for the customer service office.

▷ The chassis number of the base vehicle is located under a cover in the entrance at the passenger side for vehicle with passenger's door, for vehicles without passenger's door under a cover on the right hand side next to the front passenger's seat.

13.11 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 a service centre.

Chapter overview

This chapter contains instructions regarding the tyres of the vehicle.

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

14.1 General

▶ Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle (see section 14.6).

- ▷ Check the tyre pressure on cold tyres. Do not reduce the higher tyre pressure when the tyres are warm.
- ▷ Tubeless tyres have been installed on the vehicle. Never install tubes in these tyres.
- ▷ Read the instruction manual for the base vehicle.

- ▷ Depending on the model, the vehicle may only be equipped with a tyre repair kit as standard.
- ▷ In the case of a puncture, pull the vehicle over to the side of the road. Make vehicle safe with a hazard warning triangle. Switch on the warning lights.
- ▷ Tyres on vehicles with tandem axles may wear faster.
- ▷ Tyres should not be older than 6 years because the material will become brittle over time. Have the tyres inspected after 6 years. 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: (0722) Week 07, year of manufacture 2022

Observe:

- ■ 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.
- ■ We recommend always using tyres of the same model, same brand and same version (summer and winter tyres).
- ■ Only use tyres approved for the wheel rim type fitted. The permitted rim and tyre sizes are quoted 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.

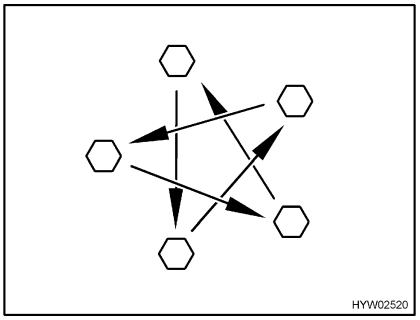


Fig. 171 Tighten the wheel nuts or wheel bolts cross-wise

- Check regularly that the wheel nuts or wheel bolts are firmly seated. Re-tighten the wheel nuts or wheel bolts of a changed wheel after 50 km (30 miles) (Fig. 171).
  For tightening torque see section 14.5.1.
- When using new or newly painted rims, re-tighten the wheel nuts or wheel bolts once again after approx. 1,000 to 5,000 km (600 miles to 3,000 miles) (Fig. 171).
- For lay-ups or long periods of inactivity of the vehicle, keep the tyres and tyre bearings free from pressure points: 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.

14.2 Tyre selection

▶ A wrong tyre can damage the tyres during the journey and even cause it to burst.

▷ 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.

The weight is based on the technically permissible maximum laden mass on the axle, which is distributed between two tyres. The maximum load-carrying capacity of a tyre is indicated by its load index (= LI, load index code).

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.

14.3 Tyre specifications

215/70 R 15C 109/107 Q (example)

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)
109	Load index code for single tyres
107	Load index code for twin tyres
Q	Speed index (Q = 160 km/h)

14.4 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 the event of an uneven thread wear, contact customer service.
- 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.

14.5 Changing wheels

- ▶ Due to the size and weight of the vehicle, have changing wheels only carried out in an authorised specialist workshop.

14.5.1 Tightening torque

Depending on the wheel rim type and the wheel manufacturer, the wheels must be tightened with different tightening torques.

Fig. 172 Alloy wheel rim

Description	Rim type	Tightening torque
16" Mercedes	Alloy wheel rim	180 Nm
17" Mercedes	Alloy wheel rim	180 Nm

14.6 Tyre pressure

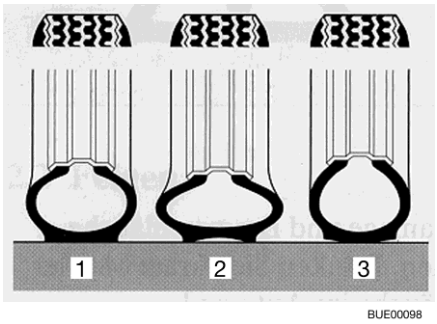
- ▶ Tyres overheat if the tyre pressure is too low. This can cause serious tyre damage.
- ▶ Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.
- ▶ Use only valves that are approved for the specified tyre pressure.

▷ Check the tyre pressure on cold tyres. Do not reduce the higher tyre pressure when the tyres are warm.

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 contact surface of the tyre changes, depending on the tyre pressure.



1 Correct tyre pressure
2 Tyre pressure too low
3 Tyre pressure too high

Fig. 173 Contact surface of the tyre

- ▷ The information on pressure levels is valid for cold tyres and loaded vehicles.
- ▷ Pressure in hot tyres must be 0.3 bar higher than in cold tyres. Recheck the pressure when the tyres are cold.
- ▷ Tyre pressures in bar.
- ▷ The tyre pressure tolerance is +/- 0.05 bar.

Description	Rim type	Type of tyres	Air pressure in bar	
			Front	Rear
16" Mercedes	Alloy wheel rim	C	4.1	4.0
17" Mercedes	Alloy wheel rim	C	4.2	4.0

Chapter overview

This chapter contains instructions about possible faults in your vehicle.

The faults are listed with their possible causes and corresponding remedies.

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.

15.1 Braking system

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

15.2 Shade, electrically adjustable

In the event of a fault during operation, the system automatically switches off and must be reinitialised. If the holding bar collides with an object and can no longer be positioned via the operating button, the system must also be reinitalised after removing the interfering element.

- Start the vehicle engine again. The system performs a referencing run of the holding bars and is then ready for use again.
- If the fault has not been remedied, go to a service centre.

15.3 Air suspension

▶ Have defects on the air suspension immediately remedied by an authorised specialist workshop.

Fault	Cause	Remedy
Vehicle is at an angle	Alternation of load after switching off the air suspension	Switch air suspension on, lower it and reset the driving level
Remote control does not react	Ignition switched off	Switch on ignition
	Fuse 7.5 A is defective	Replace fuse 7.5 A
	Operating voltage too low	Charge vehicle battery
Compressor does not run	Ignition switched off	Switch on ignition
	Fuse 40 A is defective	Replace fuse
	Operating voltage too low	Charging the starter battery

Fault	Cause	Remedy
Compressor does not switch off	Compressor relay is defective	Remove fuse 40 A
	Deflation	Contact a specialist workshop
Air suspension does not lower	Driving speed is too high	Observe speed limit
	Fuse is defective	Replace fuse 7.5 A
Air suspension does not lift	Vehicle too heavily loaded	Reduce load
	Driving speed is too high	Observe speed limit
	Fuse is defective	Replace fuse 7.5 A

▷ If the system identifies a fault, the indicator lamp will blink. A fault code can then be called up using the stop button.

See the manufacturer's operating manual for the meaning of individual fault codes.

15.4 Satellite unit

Fault	Cause	Remedy
No signal during search for satellites	No satellite found	Make sure that, towards the south, there are no obstacles in front of the satellite unit
		Make sure that the location is within the reception range of the satellite
		Make sure that the connecting cable of the signal converter (LNB) is fastened correctly on the antenna
		Make sure that all cables on the advance unit are connected correctly
Black screen	Receiver or TV set are not switched on	Switch the receiver and the TV set on
	Wrong satellite selected	Make sure that the correct satellite has been selected
The satellite unit cannot be switched on	The vehicle engine is running	Switch the vehicle engine of
	Remote control battery is empty	Change the battery
	Fuse on the supply cable is damaged	Replace fuse

Further faults can occur, which are shown by an error code on the display of the operating panel. For information on this, see the manufacturer's indications.

15.5 Electrical system

▷ When the living area battery is changed, only use batteries of the same type and the same capacity.

▷ See chapter 9 for changing the fuses.

Fault	Cause	Remedy
Road light system does no longer work correctly	Bulb is defective	Replace bulb. Note volts and watts specifications
Interior lighting does no longer work correctly	Bulb is defective	Replace bulb. Note volts and watts specifications
	Plug connector or cables defective	Contact customer service
	Fuse on the transformer/rectifier defective	Replace fuse on the transformer/rectifier
One or more light circuits cannot be switched on	One of the voltage inputs is not supplied	Check supply from transformer/from the 12 V supply: • If a fuse is defective: replace the fuse • If the supply device is switched off: switch on the supply device • If the supply device is defective: contact the customer service
	Wiring defective	Check connecting cables and plug connectors, replace if necessary
	Light control defective	Contact customer service
No light circuit can be switched on	Battery is discharged	Charge the battery
	Light control defective	Contact customer service
Light scenes cannot be saved	Light control defective	Contact customer service
The electrically operated entrance step cannot be moved in or out	Fuse on the transformer/rectifier is defective	Replace fuse on the transformer/rectifier
"-40" or "60" flashes when the temperature display is selected	Outdoor temperature sensor or connecting cable to the outdoor temperature sensor is defective	Contact customer service
230 V indicator lamp does not light up even though 230 V mains supply is connected	The mains connection is de-energised	Check mains connection (e.g. camping site)

Fault	Cause	Remedy
No 230 V power supply in spite of connection	230 V automatic circuit breaker has triggered	Switch on 230 V automatic circuit breaker
	The mains connection is de-energised	Check mains connection
Starter or living area battery is not charged when operated in 230 V mode	Jumbo flat fuse (50 A) on the starter battery or on the living area battery is defective	Replace the jumbo flat fuse (50 A) on the starter battery or on the 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 terminal D+ of the alternator is defective	Replace fuse
	Disconnector relay in the transformer/rectifier is defective	Contact customer service
Living area battery overloaded ("hot")	Battery selection switch set wrongly	Move position of battery selection switch
	Defective load sensor or relay	Contact customer service
12 V power supply does not work	12 V power supply switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off or battery disconnect activated	Switch on the battery cut-off switch or cancel battery disconnect via the panel
	Living area battery discharged	Charge the living area battery
	Jumbo flat fuse (50 A) on the living area battery defective	Replace the jumbo flat fuse (50 A) on the living area battery
	Disconnector relay in the transformer/rectifier defective	Contact customer service
12 V power supply does not work in 230 V operation	12 V power supply is switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off or battery disconnect activated	Switch on the battery cut-off switch or cancel battery disconnect via the panel
	Charger module in the transformer/rectifier is defective	Contact customer service
	230 V automatic circuit breaker has triggered	Contact customer service
	Jumbo flat fuse (50 A) on the living area battery defective	Replace the jumbo flat fuse (50 A) on the living area battery

Fault	Cause	Remedy
Starter battery is discharged in 12 V operation	Disconnector relay in the transformer/rectifier is defective	Contact customer service
	Battery cut-off switch on the transformer/rectifier is switched off or battery disconnect activated	Switch on the battery cut-off switch or cancel battery disconnect via the panel
No voltage is supplied by the living area battery	Living area battery is discharged	Charge living area battery immediately  ▷ Total discharge damages the battery. In the event of longer periods of inactivity of the vehicle, fully charge the living area battery and then activate battery disconnect / lay-up function Discharging is caused by inactive appliances e.g. frost protection valve of the hot-water heater (see chapter 9)
The fault number is shown on the display after switching on the panel	Various faults in the electrical system	Narrow down the cause of the fault using the error code list in the manufacturer's instruction manual
		Contact customer service
12 V indicator lamp not lit or no indicator on the panel	12 V power supply is switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off or battery disconnect activated	Switch on the battery cut-off switch or cancel battery disconnect via the panel
	Starter or living area battery is not charged	Charge the starter or living area battery
	Disconnector relay in the transformer/rectifier is defective	Contact customer service
	Flat fuse (2 A) on the living area battery defective	Replace flat fuse (2 A) on the living area battery

15.6 Gas system

- In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.). Check the tightness of gas-conducting parts and lines with leakage search spray. Do not check with an open flame.
- Have the defective gas system repaired by an authorised specialist workshop.

Fault	Cause	Remedy
No gas	Gas bottle is empty	Change gas bottle
	Gas isolator tap closed	Open the gas isolator tap
	Regulator tap on the gas bottle is closed	Open regulator tap on the gas bottle
	External temperature is too low (-42 °C for propane gas, 0 °C for butane gas)	Wait for higher external temperatures
	Built-in appliance is defective	Contact customer service

15.7 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.

15.7.1 Alde heater/boiler

▷ If a fault occurs in the system, the cause is shown on the display.

Fault	Cause	Remedy
Heater does not ignite with gas operation	Lack of gas	Open regulator tap and gas isolator tap
		Connect a full gas bottle
Heater does not ignite	Battery voltage too low	Charge battery. If the battery voltage rises above 11 V, the heater is switched on automatically
Heater does not ignite at 230 V electrical operation	No 230 V power supply	Switch on 230 V automatic circuit breaker
		Connect 230 V power supply

Fault	Cause	Remedy
Heater switches off	Overheating	Allow the heater to cool. Disconnect and connect the 12 V power supply to the heater again to reset the indicator
Heater running, but no heat at the convectors	Circulating pump does not work	Switch on room thermostat
		Contact customer service
Heater and circulating pump running, but no heat at the convectors	Air in the heating system	Bleed hot-water heater

15.8 Air conditioning unit Telair

Fault	Cause	Remedy
Air conditioning unit does not start up	No 230 V power supply	Connect 230 V power supply
	230 V automatic circuit breaker has triggered	Switch on 230 V automatic circuit breaker
	Remote control batteries empty	Change batteries (2 x AAA)
Air conditioning unit does not cool	Room temperature is lower than the preset temperature	Reset temperature
Air conditioning unit does not heat	Room temperature is higher than the preset temperature	Reset temperature
Insufficient ventilation rating	Ventilation flaps closed	Open at least one ventilation flap
	Filter dirty	Clean the filter
Water is entering the vehicle	Drainage holes for condensation are clogged	Clean air conditioning unit

15.9 Cooker

15.9.1 Hybrid hob

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	Correctly reset thermocouple sensor (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
Induction hob does not heat up	Unsuitable cooking pot on the induction hob	Use a suitable cooking pot
	Child safety lock is switched on	Switch off child safety lock
	No 230 V power supply	Check external mains connection
	230 V automatic circuit breaker has triggered	Switch on 230 V automatic circuit breaker
Indicator on the control knob for the induction hob shows something different to the described signs	Internal fault	Turn the control knob to the 0-position. Disconnect power supply and switch on again
		If the fault persists, contact customer services

Observe further instructions in the instruction manual of the manufacturer.

15.9.2 Extractor hood

Fault	Cause	Remedy
Extractor hood does not work	230 V automatic circuit breaker is switched off	Switch on 230 V automatic circuit breaker
	Fuse (15 A) at the transformer/rectifier is defective	Replace fuse (15 A)
	Extractor hood is defective	Contact customer service

15.10 Refrigerator

15.10.1 General

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.

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

Fault	Cause	Remedy
Refrigerator does not refrigerate sufficiently	Insufficient ventilation of unit	Check if ventilation grills are covered; remove covers if necessary
		Remove ventilation grills and clean the space behind them (of leaves etc.)
	Thermostat adjusted too low	Adjust higher value on thermostat
	Cooling fins heavily iced-over	Check if refrigerator door closes correctly
	Too many warm foods stored in a short period of time	Let warm foods cool down before storage
	Appliance has not been running long enough	Check again after 4 or 5 hours if the refrigerator cools
	Ambient temperature is too high	Remove the ventilation grills periodically
	The vehicle is not in a horizontal position	Set the vehicle up in a horizontal position
Refrigerator does not refrigerate in gas operation	Lack of gas	Connect a full gas bottle
		Open regulator tap and gas isolator tap
	Air in the gas pipe	Switch appliance off and start it up again (if necessary, repeat procedure 3 to 4 times)
Refrigerator does not refrigerate in 12 V operation	Fuse is defective	Replace fuse
	Battery is discharged	Check and charge battery
	Ignition switched off	Switch on ignition
	Heating element is defective	Contact customer service
Refrigerator does not refrigerate in 230 V operation	Fuse is defective	Change fuse; switch fuse on again at fuse box
	No 230 V power supply	Connect 230 V power supply
	Heating element is defective	Contact customer service

Fault	Cause	Remedy
Refrigerator changes into gas mode in spite of mains connection	Line voltage too low	Check line voltage (refrigerator will automatically change into 230 V operation in case of correct line voltage)

15.10.2 Dometic 10 series

Faults are displayed via a fault code with a warning symbol in the centre of the display and signalled by an alarm tone. The alarm tone sounds 2 minutes and is repeated every 30 minutes until the fault has been remedied.

Warnings All faults of the WARNING type are automatically reset after the fault has been remedied.

Display	Cause	Remedy
W01	Temperature sensor in the refrigerator compartment defective	Contact customer service
W05	Alternating current not connected or alternating current < 190 V	Connect refrigerator to alternating current or select another type of energy, e.g. gas or direct current
W06	Direct current not connected	Connect refrigerator to the direct current or select another type of energy, e.g. gas or alternating current
W11	Direct current overvoltage (> 16 V)	Contact customer service
"Fuel pump" symbol	Fuel stop mode Gas operation is blocked for 15 minutes	Wait 15 minutes or switch to another operating mode
W10 + beeping tone	Door has been open for longer than 2 minutes	Close door

Error All faults of the ERROR type must be reset manually. In order to do this, press the control knob for 2 seconds.

Display	Cause	Remedy
E03	No connection between power module and display	Contact customer service
E07	No cooling power in gas operation mode	Check if the appliance is in a tilted position, and correct the position if necessary. Reset the error. Contact customer service if the error persists
E08	No cooling power in alternating current mode	Check if the appliance is in a tilted position, and correct the position if necessary. Reset the error. Contact customer service if the error persists

Display	Cause	Remedy
E09	No cooling power in direct current mode	Check if the appliance is in a tilted position, and correct the position if necessary. Reset the error. Contact customer service if the error persists
E12	Error during gas valve test	Gas operation is not possible. Reset the error. Contact customer service if the error persists
E13	Internal communication error	Gas operation not possible. Reset the error. Contact customer service if the error persists
E50	Gas cut-off after 3 ignition intents	Ignition not possible. Gas bottle is empty. Change the gas bottle. Reset the error.
E51	Gas cut-off, internal error in the power module	Reset the error. Contact customer service if the error persists
E52	Contact to ground, gas valve	Reset the error. Contact customer service if the error persists
E53	Contact to ground ignition electrode	Reset the error. Contact customer service if the error persists

Observe further instructions in the instruction manual of the manufacturer.

15.11 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 is 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
	Water pump switched off on panel	Switch water pump on
Drain on the single lever mixer tap is clogged	Perlator calcified	De-calcify or replace perlator
Water jets on the shower nozzle clogged	Water jets calcified	De-calcify shower nozzle or rub off 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
Milkiness 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	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water. If not successful: Contact a specialist workshop
	Microbiological deposits in the water system	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water
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

15.12 iNDUS waste water system

Faults in the iNDUS waste water system are indicated by red LEDs on the operating panels of the toilet, dosing module and emptying module.

To rectify faults observe further instructions in the instruction manual of the manufacturer.

15.13 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
Front bonnet swivel system is difficult to operate	Front bonnet swivel system is not (sufficiently) lubricated	Lubricate front bonnet swivel system with acid-free and resin-free grease
Electric pull-down bed does not move	Fuse on the transformer/rectifier or on the pull-down bed drive motor faulty	Replace fuse
	Living area battery is empty or the transformer/rectifier has switched off due to insufficient voltage	Charge the living area battery
	Drive is defective	In an emergency, the pull-down bed can be moved manually; afterwards, contact customer service

▷ The authorised dealers and service centres are available for any spare parts requirement.

16.1 Weight details for optional equipment

- ▶ The use of accessories, parts and fittings not supplied by us 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 released by us. This also applies to impermissible alterations to the vehicle.

Depending on the model series, different optional equipments are offered. You can find out which optional equipments are available for your vehicle in the separate document "Price List & Technical Data". There you will also find information on the weights of the individual optional equipments.

- ▷ The factory installation of optional equipment increases the actual weight of the vehicle and reduces the pay-mass. The additional weight indicated for packages and optional equipment shows the surplus weight compared to the standard equipment of the respective model or ground plan.
- ▷ The total weight of the selected optional equipment must not exceed the manufacturer's specified mass for optional equipment in the model overviews. This is a calculated value for each type and ground plan, with which Bürstner determines the maximum weight available for factory-fitted optional equipment.
- ▷ For detailed notes and explanations on the weight issue, see chapter 20.
- ▷ For further information about the payload issue, see section 4.3 in this instruction manual.
- ▷ In the event of an increase of the GVW, the mass specified by the manufacturer for optional equipment increases. The increase results from the higher pay-mass due to the alternative chassis. The increased net weight of the alternative chassis and, in particular, the weight of any mandatory heavier engine variants (e.g. 180 hp) must be deducted from this.

17.1 View of ground plans

Explanations

- (1) Alde auxiliary heat exchanger
- (2) 230 V fuse
- (3) Transformer/rectifier with 12 V fuses
- (4) Alde hot-water heater
- (5) Water drain cock - yellow
- (6) Compensator reservoir for Alde hot-water heater
- (7) iNDUS waste water system cartridges
- (8) Living area battery with main fuse
- (9) Water tanks (fresh water tank, grey water tank, black water tank)
- (10) Water pump
- * Access via service flap
- ** Access via floor trap

Specifications without guarantee

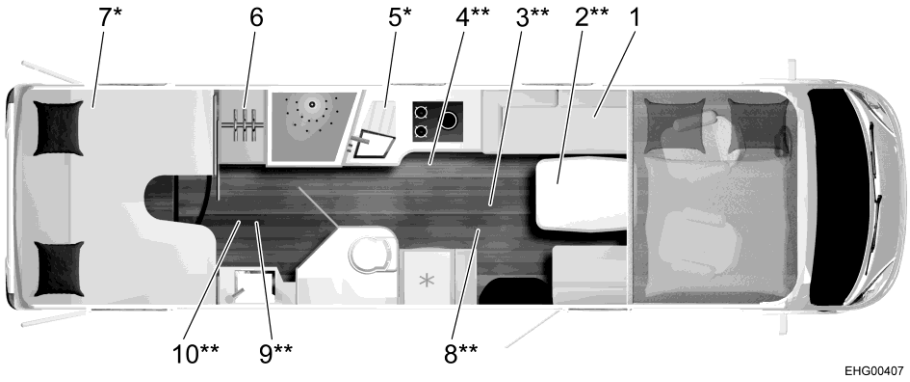


Fig. 174 Ground plan I 910 G Elegance

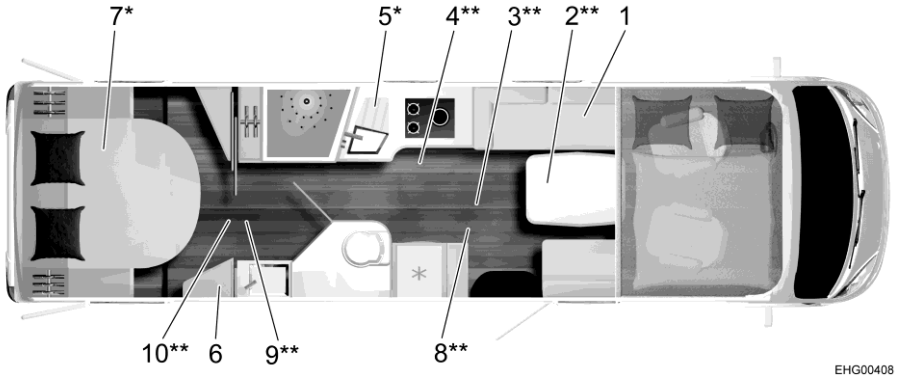


Fig. 175 Ground plan I 920 G Elegance

17.2 Table of linear measures / sleeping places

Type	Wheelbase in cm	Total length in cm	Body width in cm	Overall height without antenna in cm	Sleeping places
I 910 G	470	891	235	300	4
I 920 G	470	891	235	300	4

Chapter overview

This chapter contains helpful tips for the journey.

At the end of the chapter there is a checklist containing the most important equipment for the journey.

18.1 Traffic rules in foreign countries

- ▷ The vehicle driver is required to inform himself as to the traffic rules of the countries in which he plans to travel before beginning the trip. Contact your automobile club or embassy for further information.
- ▷ In some European countries, warning vests must be worn when exiting the vehicle outside of towns in the case of vehicle failures or accidents.
- ▷ Depending on the country, different rules and regulations apply (e.g. different warning signs for rear carriers, obligation to carry breathalyzer kits, spare bulbs, high-visibility vests, size of reserve canister). The driver of the vehicle must familiarise him or herself with these rules before every journey.
- ▷ Up-to-date information can generally be found on the web pages of the national automobile associations.

Information about traffic regulations is especially important as state law applies in case of damage. For your own safety, always observe the following rules when travelling abroad:

- Carry your insurance certificate with you.
- Always register accidents with the police.
- Never sign documents that you have not read and understood completely.

18.2 Help on Europe's roads

- ▷ Before commencing the trip, gather information on national phone numbers for rescue and police. In many countries the central emergency phone number 112 (without area code) applies.
- ▷ As far as possible, draw up a list with the important phone numbers in the travelled countries and keep the table in the vehicle.

Motoring clubs at home or in the travelled country are happy to help.

18.3 Gas supply in European countries

▷ In Europe, there are several different connection systems for gas bottles. It is not always possible to fill or exchange your gas bottles in a foreign country. Get information about the connection system in the country you are travelling to before embarking on your journey, e.g. at a motoring club or in the trade press.

General tips

Always observe the following instructions:

- Only go on vacation with completely filled gas bottles.
- Use all of the gas bottles' capacity.
- Take along adapter sets (available in camping supply stores) for filling gas bottles in foreign countries and for connecting the gas pressure regulator to foreign gas bottles.
- During the cold time of the year observe filling with propane gas component (butane does not gas below 0 °C).
- Use blue bottles from the firm Campingaz (distributed world-wide). Only use gas bottles with safety valves.
- When bottles from other countries are used, check the gas bottle compartments to see if the gas bottles fit into them. Gas bottles from other countries do not always display the same size as your own gas bottles.
- The web site www.mylpg.eu provides an overview of gas suppliers in Europe.

18.4 Toll regulations in European countries

Many European countries have introduced a mandatory toll system. The toll regulations and how they are collected vary greatly from country to country. Nevertheless, ignorance is no excuse. Penalties can be quite severe.

As is the case with traffic regulations, the vehicle driver is required to be familiar with the toll formalities before starting out on a trip. For example, in Austria the vignette does not meet the toll requirements for vehicles that weigh more than 3.5 t. There, a so-called "Go-Box" must be obtained and charged.

Contact your automobile club or the Internet for further information.

▷ Windscreens with solar filters can affect the functioning of automatic toll collection systems (e.g. Go-Box). This must be taken into account when acquiring the appropriate device (e.g. Split-Go-Box).

18.5 Tips on staying overnight safely during travel

Prudent behaviour is the most important protective measure for insuring a safe night in the vehicle.

The risk of thievery is reduced to a minimum when the following basic rules are observed:

- During high season do not spend the night at highway rest stops or parking areas located along typical vacation routes.
- Several vehicles on one site at the same time do not necessarily decrease the chances of thievery occurring. Consult your own feelings about the parking site.
- Even if it is just for one night, go to a camping site.
- When parking on open space keep emergency routes clear. The way to the driver's seat should be clear. The ignition key should always be within reach.
- Only take with you those valuables which are absolutely necessary for the journey. If possible, store valuables in a small safe and not in the immediate vicinity of windows or doors.
- Always lock up the vehicle.

18.6 Tips for winter campers

The following tips will help make your winter camping experience as agreeable as possible.

- Reserve your parking place in good time. Good winter camping sites are often booked up early.
- Do not start your trip without winter tyres.
- Bring snow chains.
- Choose your parking place with care. Observe the ground beneath you. Snow and ice may melt.
- When the vehicle has been positioned, release the handbrake to prevent freezing.
- No snow walls should be allowed to cover the built-in forced ventilation.
- Keep the built-in forced ventilation free from snow and ice.
- Make sure the air circulation is good. Good air circulation prevents moisture from collecting and makes it easier to heat the living area.
- Cover the single-paned driver's cabin window with insulation mats to avoid thermal bridges.
- Follow the instructions in the section "Gas supply in European countries".
- Use a two-bottle system with automatic controller for the gas system, so that the supply does not run out during the night.
- Only operate the gas system using propane gas.
- Do not use the space behind the heater as a storage space.
- Never operate catalytic ovens or infra-red gas radiators in the interior of the vehicle, since they consume oxygen for burning.
- Lay the 230 V power cable in such a way that the cable cannot be frozen or be damaged (e.g. during snow removal).
- When it is snowing heavily, clear the roof of the vehicle of snow regularly. A few centimetres of powdery snow serves as insulation, but wet snow quickly becomes a heavy burden.
- Before embarking on the return journey, remove all the snow from the roof to avoid impeding vehicles behind you with a "snow flag".

18.7 Travel checklists

The following checklists will help that nothing important is left at home although not everything on the checklists might be necessary.

▷ Do not leave checking of documents (e.g. vehicle papers and information) as well as checking the condition of the vehicle until just before commencing the trip. Planning and checking documents well in advance will save unnecessary trouble.

Kitchen area

✓	Object	✓	Object	✓	Object
	Wiping cloth		Cleansing agent (detergent)		Salad servers
	Silverware		Dishcloths		Chopping board
	Turnspit		Glasses		Brush to wash the dishes
	Can opener		Set of knifes and forks for grilling		Cloth to wash the dishes
	Ice cube tray		Corkscrew		Matches
	Lighter		Kitchen paper		Thermos jug
	Bottle opener		Garbage bags		Pots
	Air-tight storage boxes		Frying pans		
	Crockery		Stirring spoons		

Bathroom/sanitary items

	Towels		Sanitary items		Toilet paper
	Hygiene products		Toilet brush		Toothbrush glass

Living area

	Dustbin		Deck of cards		Rucksack
	Road atlas		Broom		Sleeping bags
	Bath towels		Dust pan		Pencils and paper
	Bath shoes		Candles		Shoes
	Batteries		Coat-hangers		Shoe polish
	Bed linen		Clothes brush		Sports equipment
	Laundry bag		Pillow		Vacuum cleaner
	Books		Map		Flash light
	Camping guide/parking space directory		Medicine		Pocket knife
	Binoculars		Mobile phone		Table cloth
	Fire extinguisher		Sewing kit		Drinking bottle
	Gas bottle		Rain clothes		Clothes pins
	Insect lamp		First aid kit		Clothesline
	Insect repellent		Travel guide		

Vehicle/tools

✓	Object	✓	Object	✓	Object
	Waste water container		Gas tube		Snow chains (winter)
	Adapter socket		Fabric tape		Screwdriver
	CEE adapter		Watering can for drinking water		Current-measuring instrument
	Wire		Cable reel		Wheel chocks
	Spare wheel		Glue		First-aid kit
	Spare lamps		Universal pliers		Vehicle jack
	Spare fuses		Compressor		Hazard warning triangle
	Hammer		Loops		Warning sign
	Flat wrench		Tube adapter		Warning vest(s)
	Gas filling adapter		Hose clips		Flashing hazard warning light

Outside

	Stay rope		Camping table		Lock
	Bellows		Luggage racks		String
	Camping chairs		Grill		Tent pegs/tightening ropes

Documents

	List of addresses		Registration book		Passport
	Registration confirmation(s)		Driving licence		Writ of protection
	Allergy certificate		Vaccination certificate		Insurance documents
	Instruction manuals		Credit card		Vignette/toll card
	Instruction leaflets for medicines		Identity card		Visa

Pos.	Component	Activity	Interval
1	Auxiliary support	Lubrication	Annually
2	Tyres and wheel rims	Air pressure check (see section 14.6). Visual check for damage	Annually
3	Outside lighting	Function check	Annually
4	Joints, hinges	Lubrication	Annually
5	Refrigerator, heater, boiler, cooker, lighting, flap and door closures, toilet, seat belts	Function check	Annually
6	Windows, skylights	Function check, water ingress test	Annually
7	Cushions, curtains, blinds	Visual check	Annually
8	Sealing strips, edges, rubber	Check for damage	Annually
9	Water supply	Water ingress test	Annually
10	Hot-air system	Function check, clean fan wheel as necessary	Annually
11	Floor skirt attachment	Visual check	Annually
12	Pull-down bed suspension	Function check	Annually
13	Electrical system	Function check	Annually
14	Gas system	Official gas inspection	Every two years
15	Connections between the chassis and body	Check	Every two years

Delivery _____ Item 1-13 Stamp of the Bürstner dealer	
Date	Signature

1st year _____ Item 1-13 Stamp of the Bürstner dealer	
Date	Signature

2nd year _____ Item 1-15 Stamp of the Bürstner dealer	
Date	Signature

3rd year _____ Item 1-13 Stamp of the Bürstner dealer	
Date	Signature

4th year _____ Item 1-15 Stamp of the Bürstner dealer	
Date	Signature

5th year _____ Item 1-13 Stamp of the Bürstner dealer	
Date	Signature

6th year _____ Item 1-15 Stamp of the Bürstner dealer	
Date	Signature

7th year _____ Item 1-13 Stamp of the Bürstner dealer	
Date	Signature

8th year _____ Item 1-15 Stamp of the Bürstner dealer	
Date	Signature

The weight specifications and tests for motorhomes are uniformly regulated throughout the EU in EU Implementing Regulation No. 2021/535 (until June 2022: EU Implementing Regulation No. 1230/2012). We have summarised and explained the key terms and legal requirements from this regulation for you below. Our dealers and the Bürstner configurator on our website offer you additional assistance in configuring your vehicle.

1. Technically permissible maximum laden mass

   The technically permissible maximum laden mass of the vehicle (e. g. 3,500 kg) is a mass specification set by the manufacturer which the vehicle must not exceed. Information on the technically permissible maximum laden mass of the model you have chosen can be found in the technical data. If the vehicle exceeds the technically permissible maximum laden mass in everyday driving, this constitutes an administrative offence which may result in a fine.

2. Mass in running order

   In simple terms, the mass in running order is the basic vehicle with standard equipment plus a legally fixed standard weight of 75 kg for the driver. This essentially includes the following items:

   - the unladen weight of the vehicle together with the bodywork, including operating fluids such as greases, oils and coolants;
   - the standard equipment, i.e. all equipment items that are included as standard in the factory-fitted scope of delivery;
   - the fresh water tank filled to 100 % in driving mode (driving fill according to manufacturer's specifications; 20 litres) and an aluminium gas cylinder filled to 100 % with a weight of 16 kg;
   - the fuel tank, which is 90 % full, including fuel;
   - the driver, whose weight – regardless of the actual weight – is generally specified as 75 kg in accordance with EU law.

   Information on the mass in running order can be found for each model in our sales documents. It is important to note that the value for mass in running order given in the sales documents is a default value determined in the type-approval procedure and verified by the authorities. It is legally permissible and possible for the mass in running order of the vehicle delivered to you to deviate from the nominal value stated in the sales documents. The legally permissible tolerance is ± 5 %. In this way, the EU legislator accounts for the fact that certain fluctuations in the mass in running order occur due to variations in the weight of supplied parts as well as due to processes and weather conditions.

   These weight deviations can be illustrated by means of an example calculation:

   - Mass in running order acc. to sales documents: 2,850 kg
   - Legally permissible tolerance of ± 5 %: 142.50 kg
   - Legally permissible range of mass in running order: 2,707.50 kg to 2,992.50 kg

The specific range of permissible weight deviations can be found for each model in the technical data. Bürstner makes great efforts to reduce weight variations to the minimum that is unavoidable for production reasons. Deviations at the upper and lower end of the range are therefore very rare; however, they cannot be completely ruled out technically, even with all optimisations. The real weight of the vehicle and compliance with the permissible tolerance is therefore checked by Bürstner by weighing each vehicle at the end of the line.

3. Mass of the passengers

   The mass of the passengers is set a standard value of 75 kg for each seat provided by the manufacturer, regardless of the actual weight of the passengers. The mass of the driver is already included in the mass in running order (see no. 2 above) and is therefore not included again. In the case of a motorhome with four permitted seats, the mass of the passengers is therefore 3 x 75 kg = 225 kg.

4. Optional equipment and actual mass of the vehicle

   Optional equipment (also: additional equipment) includes, according to the legal definition, all optional equipment parts not included in the standard equipment which are fitted to the vehicle under the responsibility of the manufacturer – i.e. ex works – and can be ordered by the customer (e. g. awning, bicycle or motorbike carrier, satellite system, solar system, oven, etc.). Information on the individual or package weights of the optional equipment that can be ordered can be found in our sales documents. Optional equipment in this sense does not include other accessories that are retrofitted by the dealer or you personally after the vehicle has been delivered ex works.

   The mass of the vehicle in running order (see no. 2 above) and the mass of the optional equipment fitted to a specific vehicle at the factory are together referred to as the actual mass. You will find the corresponding information for your vehicle after handover under item 13.2 of the Certificate of Conformity (CoC). Please note that this specification also represents a standardised value. Since the mass in running order – as an element of the actual mass – is subject to a legally permissible tolerance of ± 5 % (see no. 2), the actual mass may also deviate accordingly from the stated nominal value.

5. Pay-mass and minimum pay-mass

   The installation of optional equipment is also subject to technical and legal limits: Only so much optional equipment can be ordered and fitted at the factory that sufficient free weight remains for baggage and other accessories ("pay-mass") without exceeding the technically permissible maximum laden mass. The pay-mass is calculated by subtracting the mass in running order (nominal value according to sales documents, see no. 2 above), mass of the optional equipment and the mass of the passengers (see no. 3 above) from the technically permissible maximum laden mass (see no. 1 above). The EU regulations stipulate a fixed minimum pay-mass for motorhomes, which must remain as a minimum for baggage or other non-factory-fitted accessories. This minimum pay-mass is calculated as follows:

   Minimum pay-mass in kg ≥ 10 x (n + L)

Where: "n" is the maximum number of passengers plus the driver and "L" is the overall length of the vehicle in metres.

For a motorhome with a length of 6 m and 4 approved seats, the minimum pay-mass is therefore e. g. 10 kg x (4 + 6) = 100 kg.

To ensure that the minimum pay-mass is maintained, there is a maximum combination of optional equipment that can be ordered for each vehicle model. In the above example with a minimum pay-mass of 100 kg, the total mass of optional equipment for a vehicle with four permitted seats and a mass in running order of 2,850 kg should not exceed 325 kg:

3,500 kg technically permissible maximum laden mass
- 2,850 kg mass in running order
- 3 x 75 kg mass of the passengers
- 100 kg minimum pay-mass
= 325 kg maximum permissible mass of optional equipment

It is important to note that this calculation is based on the default value for mass in running order as defined in the type-approval procedure, without taking into account the permissible weight deviations for mass in running order (see no. 2 above). If the maximum permissible value for the optional equipment of (in the example) 325 kg is almost or completely exhausted, an upward weight deviation can therefore result in the minimum pay-mass of 100 kg being met mathematically using the default value for the mass in running order, although in fact there is no corresponding load capacity. Here, too, an example calculation for a vehicle with four seats, whose real weighed mass in running order is 2 % above the nominal value:

3,500 kg technically permissible maximum laden mass
- 2,907 kg real weighed mass in running order (+ 2 % compared to the stated value of 2,850 kg)
- 3 x 75 kg mass of the passengers
- 325 kg optional equipment (maximum permissible value)
= 43 kg actual load capacity (< minimum pay-mass of 100 kg)

In order to avoid such a situation, Bürstner further reduces the maximum permissible weight of the total optional equipment that can be ordered on a model-specific basis. The limitation of optional equipment is intended to ensure that the minimum pay-mass, i.e. the legally prescribed free mass for baggage and retrofitted accessories, is actually available for the vehicle load capacity of the vehicles delivered by Bürstner.

Since the weight of a specific vehicle can only be determined when it is weighed at the end of the line, in very rare cases a situation may arise in which the minimum pay-mass at the end of the line is not guaranteed, despite this limitation of optional equipment. In order to guarantee the minimum pay-mass even in these cases, Bürstner will check together with your trade partner and you before delivery of the vehicle whether, for example, the vehicle is loaded up, seats are reduced or optional equipment is removed.

6. Effects of tolerances of the mass in running order on the pay-mass

   Regardless of the minimum pay-mass, you should note that unavoidable production-related fluctuations in the mass in running order – both upwards and downwards – have a mirror-image effect on the remaining load capacity: If you order our example vehicle (see no. 3. above), for example, with optional equipment with a total weight of 150 kg, the calculated pay-mass based on the default value for the mass in running order is 275 kg. The load capacity actually available may deviate from this value due to tolerances and may be higher or lower. If the mass in running order of your vehicle is, for example, permissibly 2 % higher than stated in the sales documents, the load capacity is reduced from 275 kg to 218 kg:

   3,500 kg technically permissible maximum laden mass
   - 2,907 kg real weighed mass in running order (+ 2 % compared to the stated value of 2,850 kg)
   - 3 x 75 kg mass of the passengers
   - 150 kg optional equipment ordered for the specific vehicle
   = 218 kg actual load capacity

   As a precaution to ensure that the calculated pay-mass is actually given, you should therefore take the possible and permissible tolerances for the mass in running order into account when configuring your vehicle.

   We also recommend that you weigh the laden motorhome on a non-automatic scale before each journey and, taking the individual weight of the passengers into account, determine whether the technically permissible maximum laden mass and the technically permissible maximum mass on the axle are observed.

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