

Dear Reader ...

We would like to congratulate you on the purchase of your new Bürstner 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 special equipment in the individual instructions and send these cards to the respective manufacturers. This ensures your warranty claim for each appliance.

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Contents

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 special equipment. These sections are specially marked. It may be that your vehicle has not been fitted with this special equipment. In some cases, the actual equipment of your vehicle may therefore be different from that shown in some illustrations and descriptions.

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

Special equipment is described when an explanation is required.

Adhere to the instruction manuals which are separately enclosed.



- ▷ The details "right", "left", "front" and "rear" always refer to the vehicle in direction of travel.

- ▷ All dimensions and weight details are "approximate".

Should the vehicle be subjected to damage due to a failure to follow the instructions in this instruction manual, then the 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.

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

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.

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 vehicle 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	
Date	Signature

24 months _____	
Stamp of the Bürstner dealer	
Date	Signature

36 months _____	
Stamp of the Bürstner dealer	
Date	Signature

48 months _____	
Stamp of the Bürstner dealer	
Date	Signature

60 months _____	
Stamp of the Bürstner dealer	
Date	Signature

72 months _____	
Stamp of the Bürstner dealer	
Date	Signature

84 months _____	
Stamp of the Bürstner dealer	
Date	Signature

96 months _____	
Stamp of the Bürstner dealer	
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. 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 CO₂ 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 special 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 support in the initial position. If the screen holder is installed in a TV cabinet: close the 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 when taking a rest from driving, in order to load luggage or food, for example, observe the maximum permissible gross weight and axle loads (refer to vehicle documents).
- ▷ Before commencing the journey, 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 a 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. 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 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 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 Payload



- ▶ Overloading the vehicle and wrong tyre pressure can cause tyres to burst. You can lose control of the vehicle (see section 4.3.1).
- ▶ The maximum permissible gross weight and the weight including special equipment fitted at the factory (actual weight) is shown in the vehicle documents, but not the weight of the loaded vehicle (see section 14.6). 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 maximum permissible gross weight (permissible total weight) stated in the vehicle documents and the maximum axle loads as a result of the payload.
- ▷ Built-in accessories and special equipment reduce the payload.

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.

Maximum permitted payloads

Description	Load (kg)
Pull-down bed	200
Roof load	90
Rear garage and rear storage space	150
Pull-out in the rear storage space	60
Bike rack, not lowerable	Double/triple 60
Bike rack, lowerable	Double/triple 60
Load rack (SAWIKO)	130

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.

Maximum permissible gross weight in a laden condition

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

The maximum permissible gross weight in a laden condition consists of the **actual weight** and the **payload**.

In the vehicle documents, the manufacturer has specified the maximum permissible gross weight in a laden condition.

Actual weight

The actual weight consists of the mass in ready-to-drive condition and the weight of the special equipment fitted at the factory.

Mass in ready-to-drive condition

The mass in ready-to-drive condition is the weight of the ready-to-drive standard vehicle (excluding special equipment fitted at the factory).

The mass in ready-to-drive condition is made up as follows:

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

Unladen weight includes lubricants such as oils and coolants which have been filled, the on-board tool set and a fuel tank which has been filled up 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 gas bottle filled up to 90 %
- 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 mass in ready-to-drive condition and the actual weight are shown in the vehicle documents (e.g. 2900/2950 kg).

Payload

The payload is made up as follows:

- Conventional load
- Additional equipment
- Personal equipment



- ▷ The vehicle's payload can be increased by reducing the actual weight. 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 as part of the mass in ready-to-drive condition and must **not** be calculated as part of the conventional load.

In the vehicle documents, the manufacturer specifies the number of seats.

Additional equipment

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

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

Chapter 16 lists the weights of the various items of special equipment; they may also be obtained from the manufacturer.

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

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

No matter where kept, personal equipment also includes:

- Animals
- Bikes
- Boats
- Surfboards
- Sports equipment

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

Formula Minimum weight M (kg) = $10 \times N + 10 \times L$

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 payload



- ▶ The payload calculation at the factory is partly based on all-inclusive weights. For safety reasons, the maximum permissible gross weight in a laden condition must not be exceeded.
- ▶ The maximum permissible gross weight and the weight including special equipment fitted at the factory (actual weight) is shown in the vehicle documents, but not the weight of the loaded 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 payload (see section 4.3.1) is the difference in weight between

- the maximum permissible gross weight in a laden condition and
- the actual weight.

Example for calculating the payload

	Mass in kg to be calculated	Calculation
Maximum permissible gross weight according to vehicle documents	3500	
Actual weight including basic equipment according to vehicle documents	- 3070	
This results in a permissible payload of	430	

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

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

To do this, proceed as follows:

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

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

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

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

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

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

4.3.3 Loading the vehicle correctly



- ▶ For safety reasons, never exceed the maximum permissible gross weight in a laden condition.
- ▶ Distribute the load evenly on the left and right sides of the vehicle.
- ▶ Distribute the load evenly on both axles. In doing so, observe the axle loads 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 ($\frac{1}{2} \frac{l}{L}$). 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 spaces, such as the rear garage, also have room for heavy objects (e.g. motorcycle). This might mean that the axle load on the rear axle is exceeded.

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.

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

$A \times G : R =$ 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.

Calculating axle loads:

- 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 rear axle load and add (or subtract) all weights calculated for the front axle to (from) the front axle load.
How to determine rear axle load and front axle load is described in section 4.3.3.

If the calculated value exceeds the permissible axle load, 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)

4.3.4 Rear garage/rear storage space



- ▶ 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 permissible axle loads and maximum permissible gross weight when loading the rear garage/the rear storage space.
- ▶ The maximum permitted load of the rear garage/the rear storage space is 150 kg. Do not exceed the permissible rear axle load.
- ▶ Observe: If the rear garage or (depending on the model) the rear storage space is **loaded** to its maximum capacity, this will **reduce the load** on the front axle due to the levering action. The driving quality is impaired.



- ▷ 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.

4.3.5 Bike rack (special equipment)



- ▶ Observe the permissible axle loads and maximum permissible gross weight when loading the bike rack.
- ▶ A total width of 2.55 m must not be exceeded. Adjust the attachments for the bikes accordingly. The overhang to the side and 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, not lowerable

▷ Also read the manufacturer's instruction manual.



Fig. 1 Bike rack, not lowerable

Depending on the model, the bike rack can be used to transport 2 or 3 bicycles comfortably.

Loading the bicycles:

- Fold the swivel clip down.
- Place the bicycles on top and secure them with quick straps.
- Fasten the spacer to the frame of the outermost bicycle.

Bike rack, lowerable

▷ Also read the manufacturer's instruction manual.

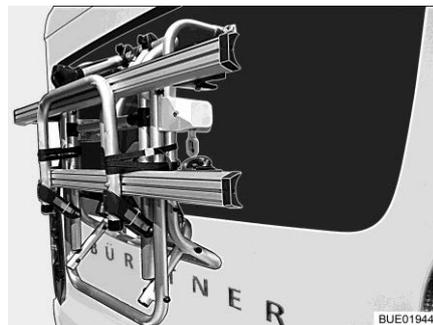


Fig. 2 Bike rack, folded upwards

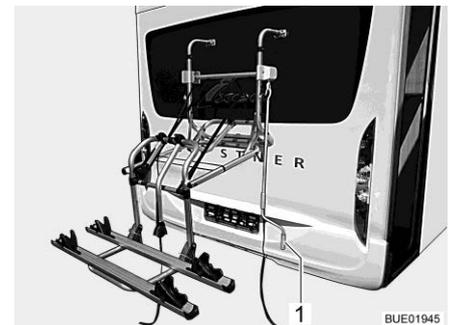


Fig. 3 Bike rack, lowered

The bike rack (Fig. 2) 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. 3,1) 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.

4.3.6 Bike/e-bike bike rack (special equipment)



- ▶ Observe the permissible axle loads and maximum permissible gross weight when loading the bike rack.
- ▶ A total width of 2.55 m must not be exceeded. Adjust the attachments for the bikes accordingly. The overhang to the side and rear must be marked in accordance with the regulations for the country in which you are travelling.
- ▶ Lock bike rack in drive position before starting your journey.
- ▶ 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 designed only to carry bicycles and electrically assisted bicycles (e-bikes, pedelecs).
- ▷ 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 80 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.
- ▷ Before fixing bicycles, check that the retaining arms and the wheel-holders of the bike rack are in the correct position. If necessary, adjust the retaining arm or wheel-holder to fit the bicycle.
- ▷ 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?
- ▷ If the bicycle rack is equipped with a charging unit:
 - Are the charging cables securely fastened? Otherwise, charging cables can tear off.

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:

- Place the heaviest bicycle directly against the rear wall.
- Position the lighter bicycle on the outside of the bike rack.
- Secure the front and rear wheels of each bicycle with the retaining straps on the bike rack.
- Fix every bicycle to the retaining arm.

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

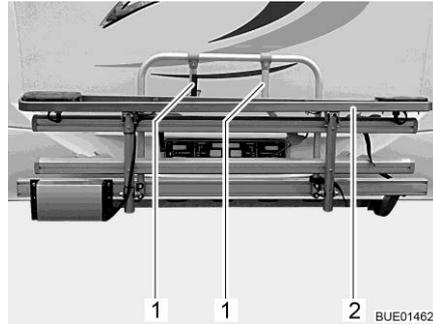


Fig. 4 E-bike bike rack



Fig. 5 Positioning of e-bikes

- Loosen the strap and fold the e-bike bike rack (Fig. 4,2) down.
- Lift the first e-bike onto the bike rack and place it on the wheel-holders (with the front wheel pointing left).
- Swing out the shorter retaining arm (Fig. 4,1) and secure the e-bike's front frame tube (Fig. 5,1) with straps.
- Using the straps, fix both wheels to the wheel-holders.
- Lift the second e-bike onto the bike rack and place it on the wheel-holders (with the front wheel pointing right).
- Swing out the longer retaining arm (Fig. 4,1) and secure the e-bike's front frame tube (Fig. 5,1) with straps.
- Using the straps, fix both wheels to the wheel-holders.
- If necessary, place third e-bike on the wheel-holders and secure it.
- Check that all bicycles are securely fastened.

4.3.7 Load rack (special equipment)



- ▶ Do not exceed the rear axle load.
- ▶ Heavy loads behind the rear axle can reduce the load on the front axle due to the leverage effect ($\frac{L}{L_0}$). 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 the load roadworthy and secure it against falling off.
- ▶ The load may not jut out beyond the maximum width of the vehicle. The lighting and the official licence plate on the load rack may not be covered by the load.



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



- ▷ An entry must be made in the vehicle documents in order to attach a load rack. The required documents are enclosed with the load rack.
- ▷ Have your dealer or service centre install the load rack.
- ▷ Observe the country-specific regulations.
- ▷ Also read the manufacturer's instruction manual.

The load rack permits transport of a load weighing up to 130 kg. For the transport of the load different attachments are available. They are e.g. bike rack or a transport box. Our authorised dealers and service centres will be happy to advise you.

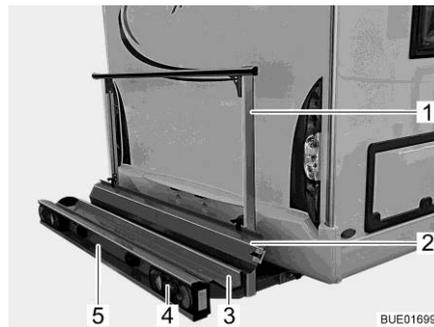


Fig. 6 Load rack

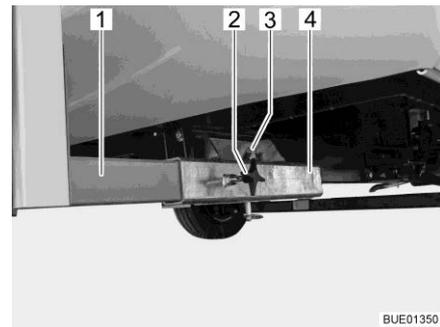


Fig. 7 Attachment to vehicle

The load rack (Fig. 6) permits transport of a motorcycle or a motor scooter weighing up to 130 kg.

Scope of delivery

The following parts belong to the scope of delivery:

- Rack trough (Fig. 6,3) and retaining clip (Fig. 6,1) with attachment to vehicle (Fig. 7)
- Rear lights (Fig. 6,4)
- Vehicle licence plate light (Fig. 6,5)
- 13-pole Jäger System plug
- Ramp (Fig. 6,2)

Attachment to vehicle

The two side members (Fig. 7,1) of the load rack are fixed to the floor of the vehicle by means of tommy screws (Fig. 7,2) on the square drives (Fig. 7,4). The load rack is secured by a bolt (Fig. 7,3) with locking ring.

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.

4.4 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.
- ▶ 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.

4.5 Caravan coupling (special 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.

The permissible nose weight is:

Model	Permissible nose weight
SAWIKO MT026	100 kg

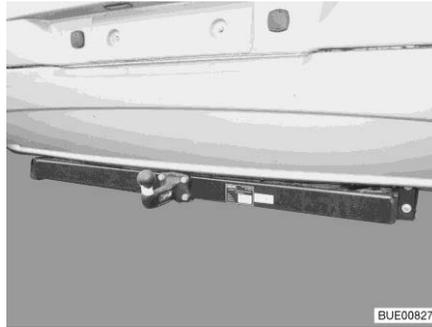


Fig. 8 Caravan coupling, rigid

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.

4.6 Entrance step (partially special equipment)

- ▶ Before commencing the journey and after short interruptions of the journey, ensure that the entrance step is completely retracted.
- ▶ Do not step on the entrance step until it has extended completely. There is a risk of injury!



- ▷ 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 not been retracted correctly, a red indicator lamp lights up on the dashboard when switching on the ignition.

Depending on the model, the vehicles will have an electrically extendable entrance step.



Fig. 9 Entrance step

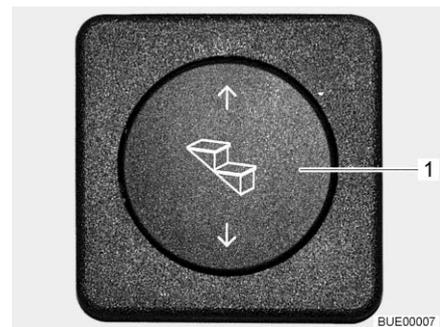


Fig. 10 Rocker button for entrance step

Before stepping on the entrance step, fully extend it (Fig. 9).

- Extending:**
- Press the rocker button (Fig. 10,1) down and hold it pressed (at least 3 seconds) until the entrance step has extended completely.
- Retracting:**
- Press the rocker button (Fig. 10,1) up until the entrance step has retracted completely.

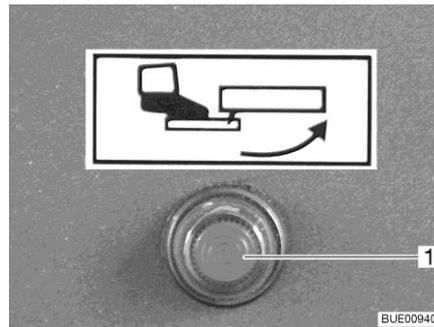


Fig. 11 Indicator lamp

When the ignition is switched on and the entrance step is extended, an indicator lamp (Fig. 11,1) is illuminated on the dashboard.

Emergency operation:

- Make sure that the vehicle is parked such that it has a firm stand
- Make sure that the voltage supply is disconnected.
- Push step carefully and slowly by hand.

4.7 TV unit (special equipment)



- ▶ 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.
- ▶ 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.

4.8 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. The add-on parts are retained in different ways. To open and close the furniture flaps, see section 7.4.

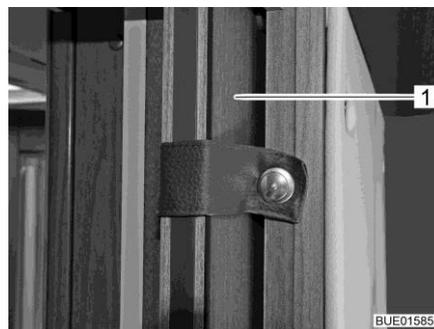


Fig. 12 Sliding door (example)



Fig. 13 Shower partition

Securing add-on parts:

- Secure doors (Fig. 12,1) or partition walls (Fig. 13,1) with the locks or means of securing provided.

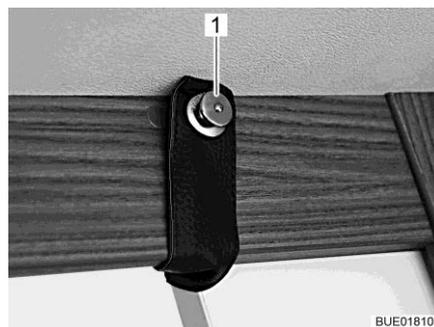


Fig. 14 Pull knob



Fig. 15 Catch with spring

Opening the pull knob:

- Pull at the pull knob (Fig. 14,1).

Closing the pull knob:

- Press the pull knob onto the bottom part.

Opening the catch:

- Compress the spring (Fig. 15,1).

Closing the catch:

- Push add-on part back until the spring engages.

4.9 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.

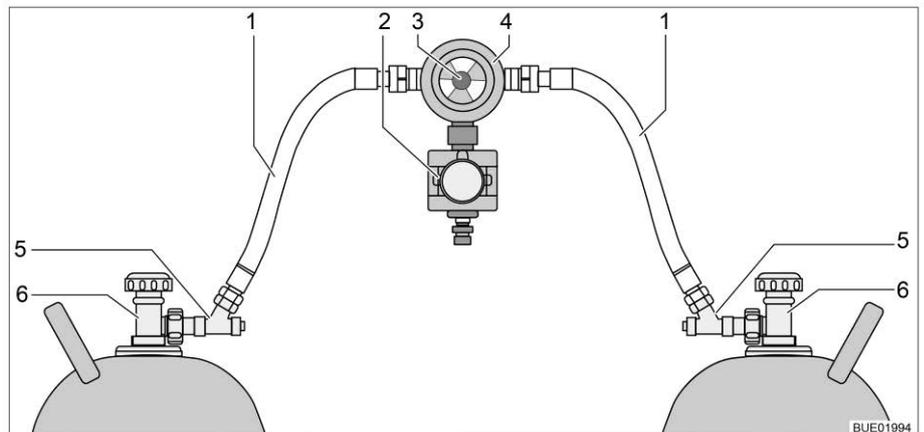


Fig. 16 Gas regulator with CPU and hose break guard

- 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. 16,2) and hose break guard (Fig. 16,5) 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.

4.10 Snow chains (special 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.

4.11 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).

Before commencing the journey, work through the checklist:

Base vehicle

No.	Checks	Checked
1	All vehicle documents are on board	
2	Tyres in proper condition 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

No.	Checks	Checked
9	Awning completely retracted	
10	Roof free of snow and ice (in winter)	
11	External connections and lines disconnected and stored away	
12	External supports removed	
13	Fitted steady legs retracted and fixed in place	
14	Wheel chocks removed and stored away	
15	External flaps closed and locked	
16	Rear conversion door closed	
17	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

18	Windows and skylights closed and locked	
19	Flat screen secured	
20	Satellite antenna retracted (if built in)	
21	Loose parts and add-on parts stored away or fixed in position	
22	Open storage spaces empty	
23	Store sink and drain basin covers securely	
24	Refrigerator door secured	
25	Refrigerator set to 12 V operation (only required in case of manual power selection)	
26	All drawers and flaps closed	
27	All doors secured	
28	All objects removed from pull-down bed	
29	For pull-down bed with lowerable head section: head section lowered	
30	Pull-down bed secured in top end position	
31	Children's seats only mounted on the seats approved for this purpose	
32	Swivel seat locking device for driver's seat and front passenger's seat locked	
33	Shades in the driver's cabin opened and secured	

Gas system

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

Electrical system

No.	Checks	Checked
37	<p>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</p> <p> ▷ Commence journey with fully charged starter and living area batteries.</p>	

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.
- ▷ If the vehicle is equipped with the automatic transmission Comfort-Matic from Fiat, please note the following: The acoustic signal described in the instruction manual for Comfort-Matic is not active in our vehicles. No warning tone will sound.

5.2 Reversing camera (special equipment)



Fig. 17 Reversing camera with infrared LEDs

A reversing camera (Fig. 17) is installed in the vehicle.

When it is dark, the infrared LEDs of the reversing camera illuminate the field of view.

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.
- ▶ Special 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 special equipment, we recommend to drive at an appropriate speed. In case of doubt, please contact the special 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 Seat belts

5.5.1 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.

5.5.2 Fastening the seat belts correctly



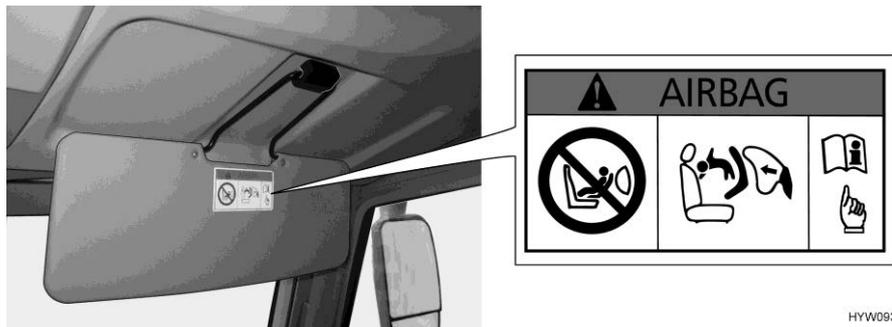
- ▶ Do not twist the belt. The belt must be positioned smoothly against the body.
- ▶ When fastening the seat belt, adopt the correct sitting position.

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.

5.6 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. We strongly recommend to install child restraint systems preferably in the second row of seats.
- ▶ 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.



HYW09354

Fig. 18 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. 18) 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.

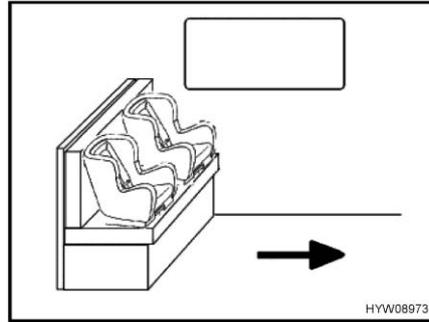


Fig. 19 Child seats on bench

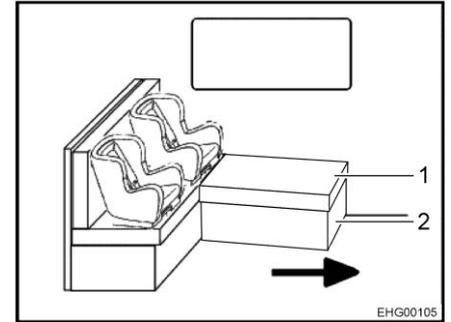


Fig. 20 Child seats on L-shaped bench

Child restraint systems in the living area

The arrow in Fig. 19 and Fig. 20 shows the direction of travel.

On the L-shaped bench, the back cushion on the side wall must be removed when a child seat is fitted.

- Lower the table.
- Remove the cushion (Fig. 20,1) if necessary.
- Fold the chest frame (Fig. 20,2) if necessary.

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		Second row of seats (in the opposite direction to travel, if present)	Third row of seats (row of seats in the direction of travel)
	Airbags active	Airbags not active		
0, 0+	X	U	X	U**
I	U*	U	X	U**
II	U	U	X	U**
III	U	U	X	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)			
**	Only possible in the respective seat if the distance between the seat and the table is large enough or if the table has been removed			

5.7 ISOFIX child safety seat mounting system (special equipment)

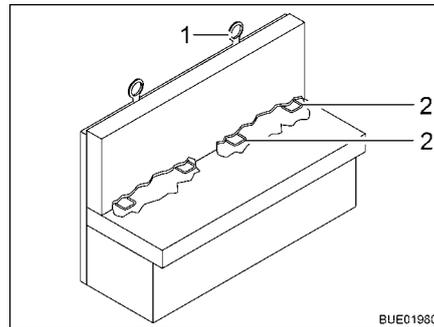


Fig. 21 ISOFIX child safety seat mounting system

If the vehicle is equipped with the ISOFIX child safety seat mounting system, the vehicle seats suitable for it are marked with the ISOFIX symbol. These vehicle seats have retaining brackets (Fig. 21,2) and another anchorage point at the top of the seat backrest (Top Tether) (Fig. 21,1). Use child restraint system suitable for ISOFIX. The child restraint systems possess connectors which are latched to the retaining brackets of the vehicle seat.

The bench with the special equipment ISOFIX child safety seat mounting system is suitable for child seats with ISOFIX system, which are specially authorised for this vehicle type according to the standard ECE-R 44.

Child restraint systems of the groups 0, 0+, and 1 with ISOFIX child safety seat mounting system can be fastened at the ISOFIX anchorage points on the bench.

Fastening a child seat:

- Push the connectors of the child seat into the ISOFIX anchorage points until they engage audibly.
- By pulling the child seat, check whether both sides have engaged correctly.
- If possible, fasten the child seat at the Top Tether (Fig. 21,1).



- ▷ Also observe the instruction manual of the child restraint system manufacturer.

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 handbrake.

5.8.1 Seats (Aguti-Liner) (partially special equipment)



Fig. 22 Release lever for rotating



Fig. 23 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. 22,1) 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. 23,4) upwards.
- Push the seat forwards or backwards.
- Release the bar. The seat must audibly lock into place.

Setting the seat inclination (partially special equipment)

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

- Pull the front or rear lever (Fig. 23,3) 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. 23,2). The backrest inclines forwards or backwards, depending on the rotation direction.

Adjusting the armrest

The height of the armrests can be continuously adjusted.

- Turn the knurled wheel (Fig. 23,1). The armrest inclines upwards or downwards, depending on the rotation direction.

5.8.2 Seat heater (special 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.

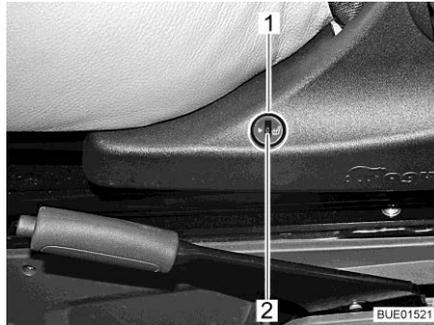


Fig. 24 Seat heater switch

Switching on the seat heater:

- Press the lower half of the switch (Fig. 24,1) on the left side of the seat console.

Adjusting the seat heater:

- To lower the heat output, turn the adjustment wheel (Fig. 24,2) towards "0".
- To increase the heat output, turn the adjustment wheel (Fig. 24,2) towards "5".

Switching off the seat heater:

- Press the upper half of the switch (Fig. 24,1) on the left side of the seat console.

5.9 Additional seat with folding table (dependent on model) (special equipment)

Depending on the equipment, the divan can be converted into an additional seat. This seat is equipped with a seat belt and can be used during the journey. The front part of the divan can be converted into a folding table.

If the divan has not been converted into the additional seat, it is not permitted to use it during the journey.



Fig. 25 Divan

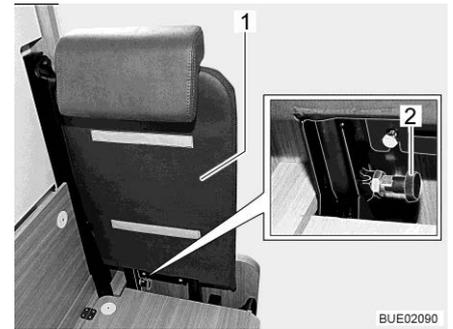


Fig. 26 Backrest

Converting the seat:

- Remove the covering cushion (Fig. 25,1), both seat cushions, and the back cushion from the divan.
- Insert the included backrest (Fig. 26,1) into the divan's side wall. When doing this, make sure that the catch in the knob (Fig. 26,2) engages.

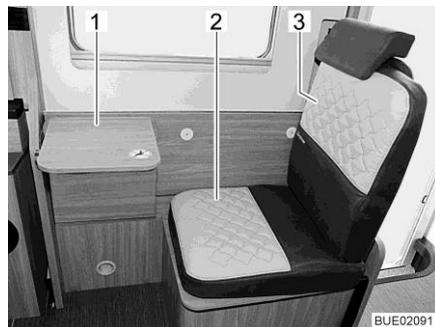


Fig. 27 Additional seat with folding table

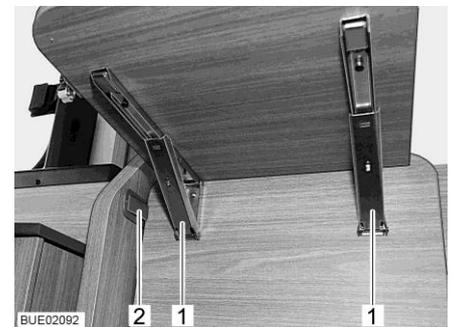


Fig. 28 Catches on the folding table

- Attach the included seat cushion (Fig. 27,2) and the back cushion (Fig. 27,3).
- Swing the divan's front part upwards until it engages in the plastic catch (Fig. 28,2).
- Folding the table top away: Unlock both catches (Fig. 28,1) and swing table top (Fig. 27,1) downwards.



- ▷ Adjust the headrest and put on the seat belt before setting off.

5.10 Additional seat secured by belts (partially special equipment)

Depending on the model and the ground plan, the vehicle can be equipped with an additional seat secured by belt. This seat is fitted in the opposite direction to travel on the chest frame behind the front passenger's seat.



Fig. 29 Chest frame

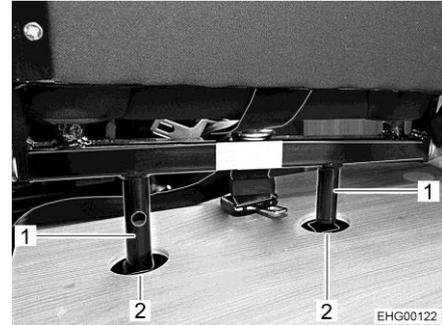


Fig. 30 Bars (inserted)

- Mounting the seat:
- Insert both bars (Fig. 30,1) of the seat in the holes (Fig. 30,2) the chest frame (Fig. 29).

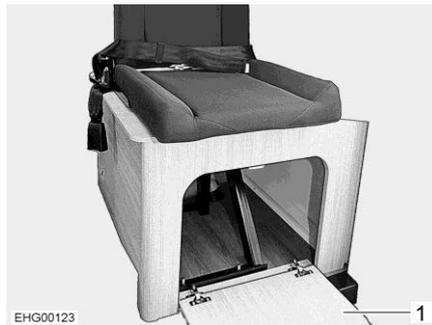


Fig. 31 Chest frame (open)



Fig. 32 Wing screws

- Fold flap (Fig. 31,1) on the chest frame downwards.
- Tighten the three wing screws (Fig. 32,1) on the rods (Fig. 32,2) in the chest frame.



Fig. 33 Retaining belt



Fig. 34 Seat (completely fitted)

- Plug retaining belt (Fig. 33,1) into the seatbelt lock. The additional seat is now completely fitted (Fig. 34).

5.11 Headrests

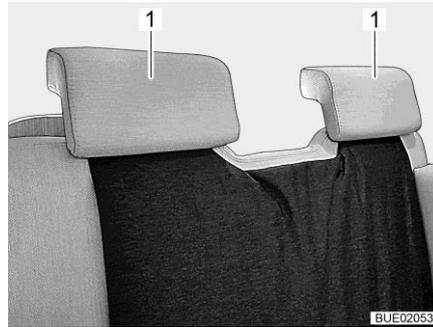


Fig. 35 Bench headrest

Before commencing the journey, adjust the headrests (Fig. 35,1) so that the back of the head is supported at approximately ear height.

Push the headrests upwards or downwards by hand.

5.12 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. 36 Symbol "Do not use seat during the journey"

Seats which may not be used during the journey are equipped with the depicted sticker (Fig. 36).

5.13 Branch block

The living area heater and the heater of the base vehicle can be coupled or disconnected from each other (via a branch block). When the heating circuits are coupled, you can for example heat the windscreen even when the vehicle is parked and, therefore, the heater of the base vehicle is not working.

It is recommended, though, to close the branch block during the journey and, thus, disconnect the heating circuits from each other. In this way, the full power of the heater of the base vehicle is available for the panes in the driver's cabin.

The sliding regulator for the branch block is located in the driver's cabin.

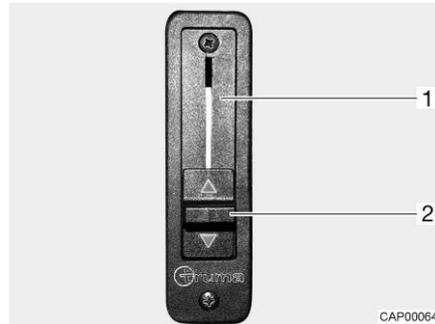


Fig. 37 Sliding regulator for branch block

- Opening branch block:**
- Push the sliding regulator (Fig. 37,2) fully upwards. The branch block (Fig. 37,1) is open. The living area heater also heats the windscreen.
- Closing branch block:**
- Push the sliding regulator (Fig. 37,2) fully downwards. The branch block is closed. The living area heater and the heater of the base vehicle are disconnected from each other.

5.14 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.

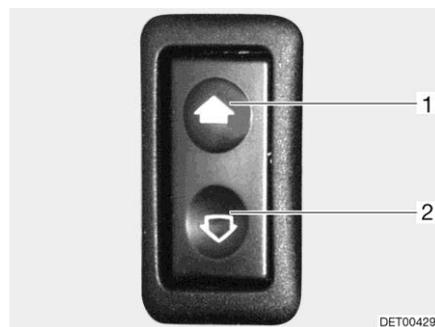


Fig. 38 Switch for electrical window winder

- Opening:**
- Press the lower part (Fig. 38,2) of the switch.
- Closing:**
- Press the upper part (Fig. 38,1) of the switch.

5.15 External mirrors, electrically adjustable (partially special equipment)



Fig. 39 External mirrors

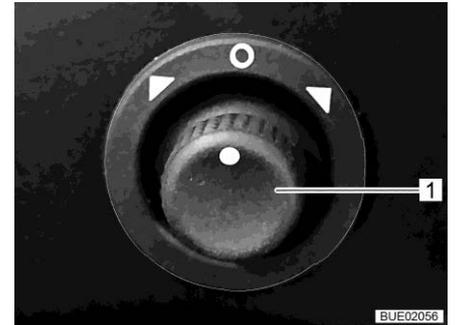


Fig. 40 Rotary switch for external mirror adjustment

The vehicle is equipped with two electrically adjustable and heated external mirrors (Fig. 39,1). Depending on the model, the external mirrors will be one-part mirrors or be additionally equipped with a wide-angle mirror.

The rotary switch (Fig. 40,1) for the adjustment of the external mirrors is located on the left side of the dashboard.

The switch for the external mirror heater is located on the dashboard.

Adjusting the external mirrors:

- Select the external mirror to be adjusted. To do so, turn the rotary switch (Fig. 40,1) to the left or right.
- Push the rotary switch (Fig. 40,1) into the desired direction.



Fig. 41 External mirror heater switch

Switching on the external mirror heater:

- Press the switch (Fig. 41,1) on the dashboard. The switch indicator lamp shows it is in operation.

5.16 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.

5.16.1 Manually adjustable Roman shades (partially special equipment)



Fig. 42 Roman shade (windscreen)

- Closing: ■ Press handles (Fig. 42,1) together and pull shade downwards.
- Opening: ■ Push shade upwards.

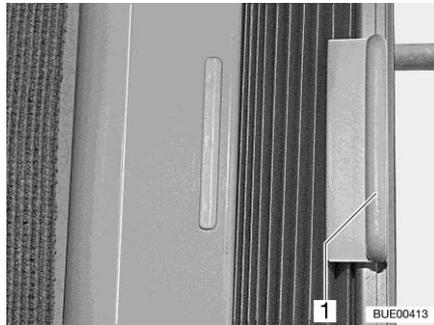


Fig. 43 Roman shade (side window)

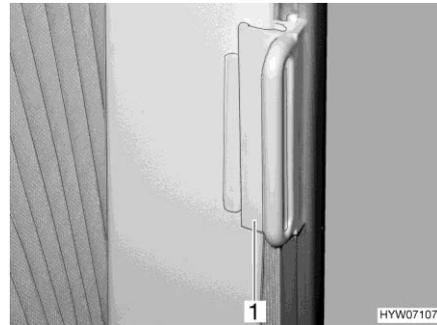


Fig. 44 Lock for Roman shade

- Opening and closing: ■ Grasp the handle (Fig. 43,1) of the Roman shade and slide to the left or the right.
- Securing: ■ Push the handle (Fig. 44,1) onto the cap. The Roman shade is secured.

5.16.2 Electrically adjustable Roman shade (special equipment)

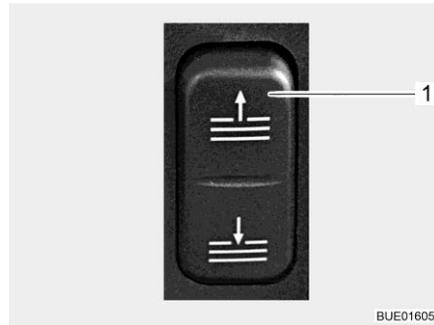


Fig. 45 Switch (electric operation of the Roman shade)

Opening and closing: ■ Press switch on the dashboard (Fig. 45,1).

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.

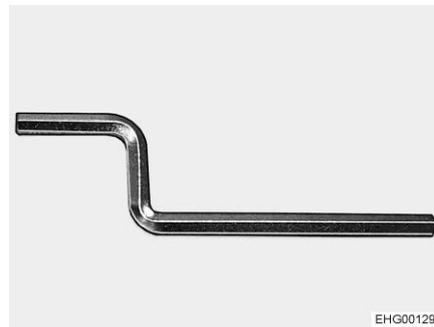


Fig. 46 Crank

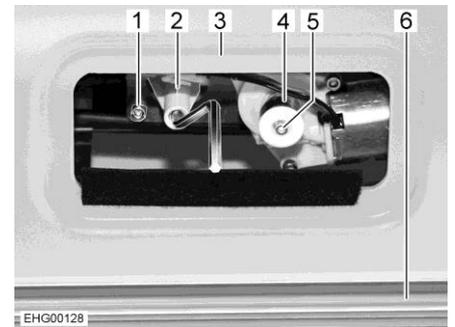


Fig. 47 Access to the motor



▷ 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. 47,3). The motor (Fig. 47,1) is accessible.
- Remove plastic sleeve (Fig. 47,4).
- Press and hold white securing button (Fig. 47,5).
- Position crank (Fig. 47,2) on crank socket.
- Move Roman shade (Fig. 47,6) upwards or downwards with the crank.

- If both holding bars have moved out of the visible range: pull securing button (Fig. 47,5) 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.

5.17 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.

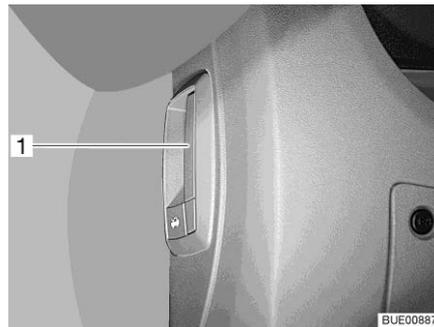


Fig. 48 Release lever for the bonnet (inside the vehicle)

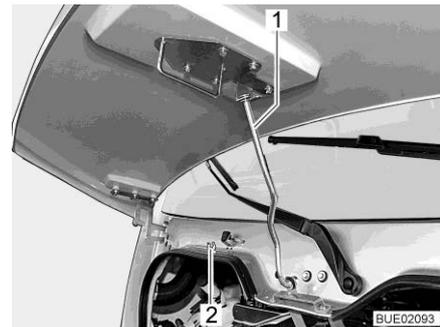


Fig. 49 Securing rod (Ixeo I)

- Opening (Ixeo I):**
- Pull the lever (Fig. 48,1) on the left under the dashboard or next to it.
 - Move the bonnet up.
 - Take securing rod (Fig. 49,1) out of holder (Fig. 49,2) and hook into retainer on the bonnet.

- Closing (Ixeo I):**
- Hold bonnet.
 - Unhook securing rod (Fig. 49,1) from retainer on the bonnet and press into holder (Fig. 49,2).
 - Move the bonnet downwards until the catch lock engages audibly.
 - Check whether the bonnet is locked correctly. In order to carry this out, pull on the bonnet.

- Opening (Lyseo Time I):
- Pull the lever (Fig. 48,1) on the left under the dashboard or next to it.
 - Swivel bonnet downwards.
- Closing (Lyseo Time I):
- Move the bonnet upwards until the catch lock engages audibly.
 - Check whether the bonnet is locked correctly. In order to carry this out, pull on the bonnet.

5.18 Washer nozzles

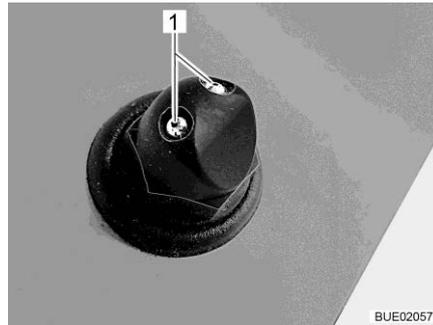


Fig. 50 Washer nozzles (variant 1)

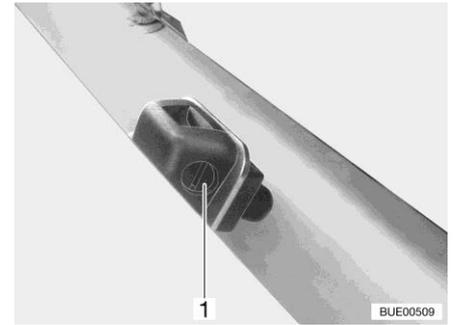


Fig. 51 Washer nozzles (variant 2)

The vehicle has washer nozzles with an adjustable angle of spray.

- Adjusting variant 1:
- Use a pointed object to adjust the washer nozzles (Fig. 50,1) until the desired position has been reached.
- Adjusting variant 2:
- Use a suitable screwdriver to turn the adjusting screw (Fig. 51,1) until you reach the desired position.

5.19 Filling with windscreen washer fluid

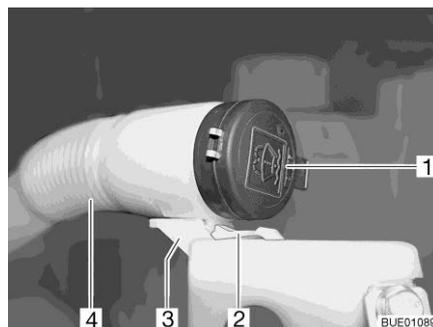


Fig. 52 Washer fluid container filler neck



Fig. 53 Filler neck in filling position

- Unlock and open the bonnet.
- Push the handle (Fig. 52,2) down and keep it pressed.
- Pull the flexible hose (Fig. 52,4) to the front and out of the holder (Fig. 52,3).
- Remove the lid (Fig. 52,1) from the filler neck of the washer fluid container.

- Twist the flexible hose in a way so that the filling hole points upwards (Fig. 53).
- Slowly fill in washer fluid.
- Push the lid onto the filler neck of the washer fluid container.
- Push the flexible hose back into the holder and lock it into place.

5.20 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.

5.20.1 Fuel filler neck



Fig. 54 Fuel filler neck external flap

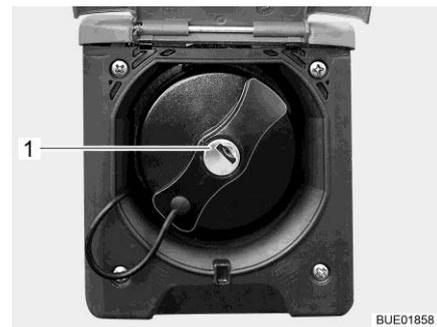


Fig. 55 Cap for the fuel filler neck

- Opening:**
- Swivel the external flap (Fig. 54,1) upwards.
 - Insert the key in the locking cylinder (Fig. 55,1) 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.

5.21 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 fuel tank's filler neck. The filler neck is closed with a blue lid.



Fig. 56 Filler neck for AdBlue®

Topping up AdBlue®:

- Turn blue lid (Fig. 56,1) in an anticlockwise direction and remove it.
- Top AdBlue® up from container or dispenser system.
- Place blue lid on filler neck and turn in a clockwise direction as far as it will go.
- Immediately remove any liquid that has possible been spilled around the filler neck with a moist cloth.
- Before the next start of the engine, switch ignition on for approx. 10 seconds **without** starting the engine while doing so.



- ▷ 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.



- ▷ Further information can be found in the instruction manual of the base vehicle.

5.22 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. 57 Cover for the towing eye holder (example)

- Remove the cover (Fig. 57,1).
- 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 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.

6.3 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.

6.4 Supports

6.4.1 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.
- ▷ Do not use the fitted supports as a vehicle jack. They supports are only for stabilising the parked vehicle to prevent the rear axle from bottoming out.
- ▷ 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.

6.4.2 Steady legs (special equipment)



- ▷ Depending on the model, the hexagonal nut has a joint, which can be used to bring the attached socket spanner into a more convenient position for turning.

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.

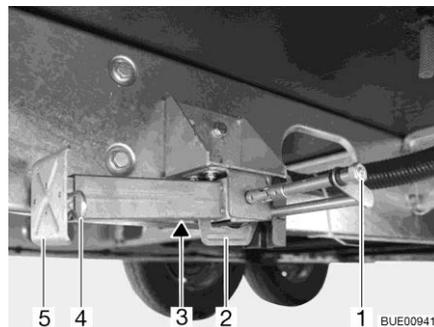


Fig. 58 Steady leg

- Extending:**
- Place the socket spanner on the hexagonal nut (Fig. 58,1) and rotate until the steady leg is in a perpendicular downward position.
 - If the length of the steady leg can be adjusted, remove the splint (Fig. 58,4) out of the support foot extension (Fig. 58,5).
 - Pull out 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. 58,1) and rotate until the steady leg is clear of the ground.
 - If the length of the steady leg can be adjusted, remove the splint (Fig. 58,4) out of the support foot extension (Fig. 58,5).
 - Push in the support foot extension (Fig. 58,5) and insert the splint (Fig. 58,4) in the drilled hole in the support foot extension.
 - Rotate the hexagonal nut (Fig. 58,1) until the steady leg has swung upwards and the guide (Fig. 58,2) has reached the very end of the slot (Fig. 58,3).



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

6.5 230 V connection

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

6.6 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.

6.7 Satellite unit (special 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.

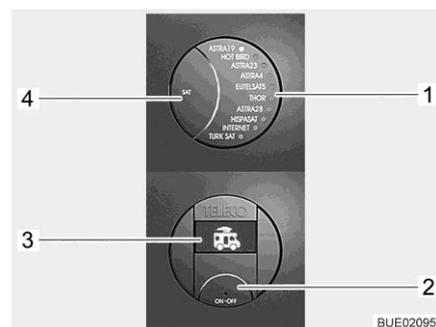
6.7.1 Satellite unit with manual satellite selection (TeleSat)

The selection of the desired satellite is carried out on the operating panel of the unit. The automatic advance unit ensures that the antenna is precisely aligned to the desired satellite.

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

The satellite unit is operated via the operating panel. When the antenna is moving (retracting/extending or satellite search), this is indicated by an animation on the display.

The operating panel changes into standby mode after a few seconds without any operation.



- 1 LED indicator of the selected satellite
- 2 On/Off button
- 3 Display
- 4 SAT button

Fig. 59 Operating panel (TeleSat)

Switching on the unit:

- Press the On/Off button (Fig. 59,2). The LED indicator of the selected satellite (Fig. 59,1) and the background lighting of the buttons are lit. The symbol of the vehicle with retracted antenna appears on the display (Fig. 59,3).
- Press the On/Off button (Fig. 59,2) again. The system has been switched on. If the antenna had been retracted, it will now extend to operating position.
If the LED of the desired satellite (Fig. 59,1) is already flashing, wait a few seconds. The antenna automatically aligns with this satellite (the last satellite position is saved after switching off).
When the unit has found the satellite, the LED (Fig. 59,1) is lit permanently and "SAT OK" is shown on the display (Fig. 59,3).
- Switch on the SAT receiver and select the desired television channel.

- Choosing a satellite:**
- Press the SAT button (Fig. 59,4) repeatedly until the LED (Fig. 59,1) indicates the desired satellite. The antenna automatically aligns with this satellite.
When the unit has found the satellite, the LED (Fig. 59,1) is lit permanently and "SAT OK" is shown on the display (Fig. 59,3).
- Switching off the unit:**
- Press the On/Off button (Fig. 59,2). The LED indicator of the selected satellite (Fig. 59,1) and the background lighting of the buttons are lit. The currently selected satellite is shown on the display (Fig. 59,3).
 - Press the On/Off button (Fig. 59,2) again. The antenna retracts. When the antenna has been fully retracted, the symbol of the vehicle with retracted antenna is shown on the display. The system changes to the standby mode after a few seconds.

6.7.2 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.

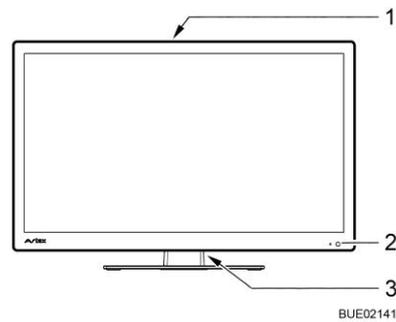
The antenna will automatically be aligned with a pre adjusted satellite if the receiver system is within the reach of this satellite.

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.

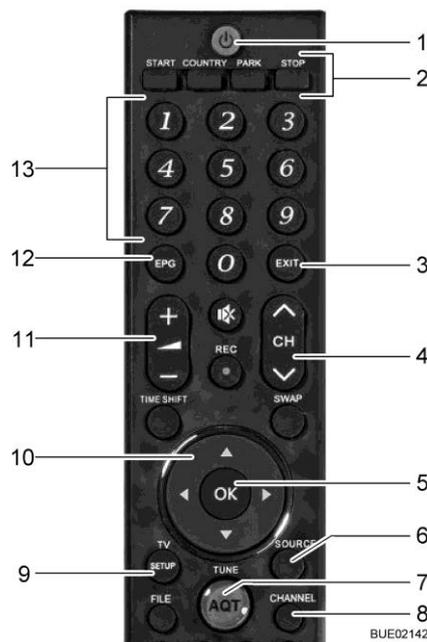
The remote control's basic operating functions are listed here; refer to the manufacturer's separate instruction manual for a full description.

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. 60 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. 61 Remote control

Switching on the unit:

- Set flip switch (Fig. 60,3) on the flat screen's back to ON. The system changes to standby mode. The LED (Fig. 60,2) is lit red.

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

- Press the POWER button (Fig. 61,1) on the remote control. The LED (Fig. 60,2) is lit blue.

Choosing a TV programme:

- Press the programme selection buttons (Fig. 61,4 or Fig. 61,13) 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. 61,6) 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. 61,2). The antenna moves into parking position.
- Press the SOURCE button (Fig. 61,6) repeatedly until the desired signal source (e.g. DVD) has been selected.

Switching off the unit:

- Press the POWER button (Fig. 61,1) on the remote control. The system changes to standby mode. The LED (Fig. 60,2) is lit red.
- Set flip switch (Fig. 60,3) on the flat screen's back to OFF.

The system is disconnected from the power supply.

The antenna automatically moves into parking position.

6.8 Awning (special 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 (special equipment) will provide additional light.



Fig. 62 Awning

Putting up the awning:

- Use the manual crank to open up the awning (Fig. 62,1).
- Set up the brackets (Fig. 62,2) when the awning is open.

Chapter overview

This chapter contains instructions about living in the vehicle.

7.1 Central locking system (special equipment)



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



Fig. 63 Remote control for central locking system (2 buttons)

Unlocking doors: ■ Press the  button (Fig. 63,1) once briefly. The door locks are unlatched.

Locking doors: ■ Press the  button (Fig. 63,2) once briefly. The door locks are locked.

Multifunctional remote control for central locking system

Depending on the equipment, the vehicle will be equipped with a remote control with 3 buttons.

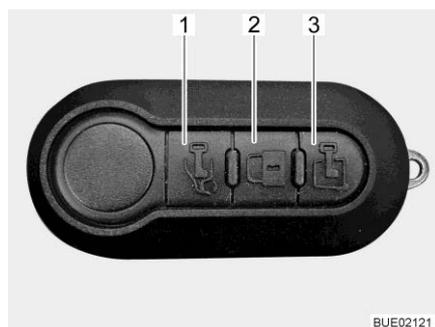


Fig. 64 Multifunctional remote control (3 buttons)

Unlocking driver's door: ■ Press the  button (Fig. 64,1) once briefly. The driver's door is unlocked.

Unlocking conversion door: ■ Press the  button (Fig. 64,3) once briefly. The conversion door is unlocked.

Locking all doors: ■ Press the  button (Fig. 64,2) once briefly. All doors have been locked. If one or more doors have not been correctly closed, the direction indicators will be flashing rapidly.



▷ Further information can be found in the instruction manual of the base vehicle.

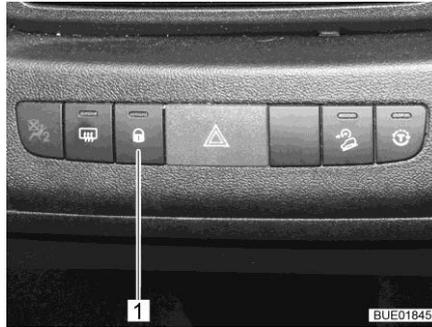


Fig. 65 Central locking system switch

The switch for the central locking system is located on the centre console.

Unlocking: ■ Press the button (Fig. 65,1). The door locks are unlatched.

Locking: ■ Press the button (Fig. 65,1). The door locks are locked. The indicator lamp in the button lights up.

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, outside

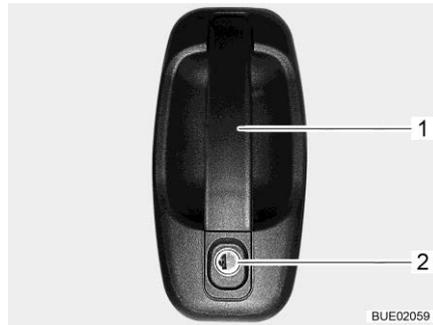


Fig. 66 Door lock (driver's door, outside)

- Opening:**
- Insert the key into locking cylinder (Fig. 66,2) and turn until the door lock is unlatched.
 - Return the key to the central position and remove it.
 - Pull on the door handle (Fig. 66,1). The door is open.
- Locking:**
- Insert the key into locking cylinder (Fig. 66,2) 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. 67 Door lock (driver's door, inside)

- Opening:**
- Pull on the handle (Fig. 67,1). The door lock is unlatched.
- Locking:**
- Close the door.
 - Push the handle (Fig. 67,1) inwards or lock the door via the central locking system (special equipment) (see section 7.1).

7.2.3 Conversion door, outside



Fig. 68 Door lock (conversion door, outside)

- Opening:**
- Insert the key into locking cylinder (Fig. 68,1) and turn until the door lock is unlatched.
 - Return the key to the central position and remove it.
 - Pull on the door handle (Fig. 68,2). The door is open.
- Locking:**
- Insert the key into locking cylinder (Fig. 68,1) and turn until the door lock is engaged.
 - Return the key to the central position and remove it.

7.2.4 Conversion door, inside

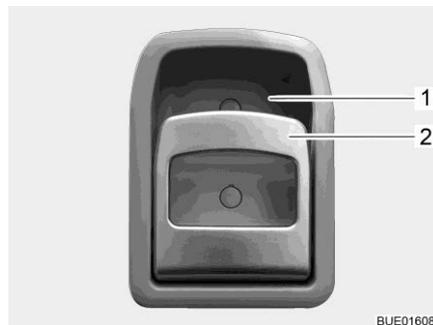


Fig. 69 Door lock (conversion door, inside)

- Opening:**
- Pull on the handle (Fig. 69,2). The door lock is unlatched or opened.
- Locking:**
- Press the upper part of the handle (Fig. 69,2) in the direction of the recessed handle (Fig. 69,1). The door lock is locked.

7.2.5 Window conversion door (partially special equipment)

The conversion door window is fitted with a Roman shade.



Fig. 70 Roman shade

- Closing:**
- Grip the Roman shade (Fig. 70,2) in the middle of the holding bar (Fig. 70,1), 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.

7.2.6 Folding insect screen on the conversion door (partially special equipment)



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



Fig. 71 Insect screen

- Closing:**
- Pull out the insect screen completely by the bar (Fig. 71,1).
- Opening:**
- Push the insect screen into its initial position by the bar (Fig. 71,1).

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.



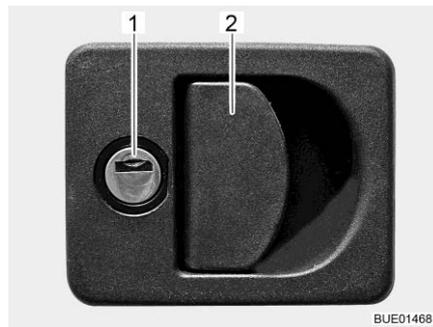
- ▷ When leaving the vehicle, close all external flaps.

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 recessed handle



- ▷ To open the external flap, pull all the lock handles fitted to that particular external flap at the same time.



- 1 Locking cylinder
- 2 Lock handle

Fig. 72 Flap lock with recessed handle

- Opening:**
- Insert key into locking cylinder (Fig. 72,1) and turn a quarter turn. The flap lock is unlatched.
 - Remove the key.
 - Pull on the lock handle (Fig. 72,2). The external flap is open.
- Closing:**
- Firmly close the external flap.
 - Insert key into locking cylinder and turn a quarter turn. The flap lock is locked.
 - Remove the key.

7.3.2 Garage flap emergency release

The garage flap can be opened from the interior using the emergency release. The emergency release is even possible if the garage flap has been locked with the key.

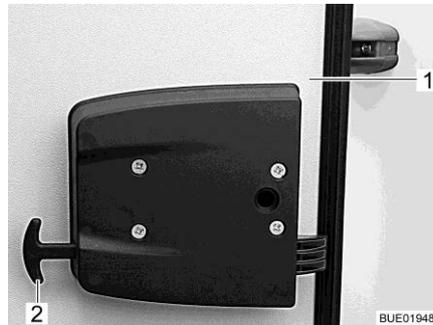


Fig. 73 Garage flap emergency release

- Unlocking the garage flap:
- Pull both handles of the emergency release (Fig. 73,2).
 - Push the garage flap (Fig. 73,1) outwards.

7.3.3 Flap lock, elliptical-shaped



- ▷ During rain, water can penetrate the opened flap lock. Therefore close the lock handle.

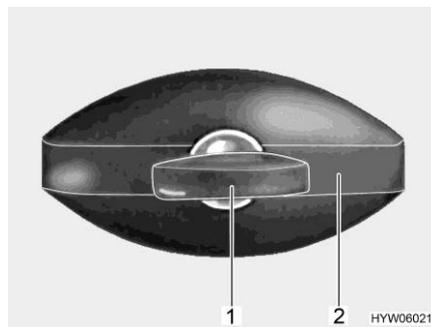


Fig. 74 Flap lock (elliptical-shaped, closed)

- Opening:
- Insert key into locking cylinder (Fig. 74,1) and turn a quarter turn in an anticlockwise direction. The lock handle (Fig. 74,2) snaps out.
 - Remove the key.
 - Turn lock handle one quarter turn in an anticlockwise direction. The flap lock is open.

- Closing:**
- Firmly close the external flap.
 - Turn lock handle in a clockwise direction until it is horizontal. The flap lock is now engaged but not locked.
 - Insert key into locking cylinder.
 - Press down lock handle with key inserted and turn key a quarter turn in a clockwise direction. The lock handle will stay bolted.
 - Remove the key.

7.3.4 Service unit flap lock



Fig. 75 Flap lock, locked

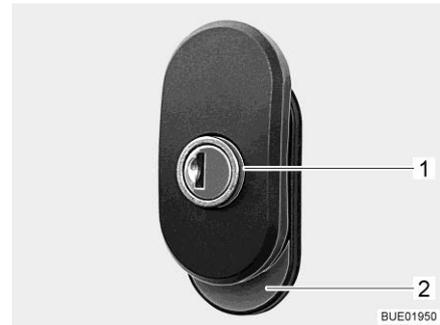


Fig. 76 Flap lock, locked

- Opening:**
- Insert the key into the locking cylinder and turn until the red ring (Fig. 76,1) is visible. The flap lock is unlatched.
 - Remove the key.
 - Turn the handle half a turn in an anticlockwise direction until the red area (Fig. 76,2) is visible. The lock is open.
- Closing:**
- Close flap.
 - Turn the handle half a turn in a clockwise direction until the red area (Fig. 76,2) is no longer visible.
 - Insert the key into the locking cylinder and turn until the red ring (Fig. 76,1) is no longer visible.
 - Remove the key.

7.3.5 Flap lock, square



- 1 Cap
- 2 Locking cylinder

Fig. 77 Flap lock, square

- Opening:**
- Open the cap (Fig. 77,1).
 - Insert key into locking cylinder (Fig. 77,2) 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.

7.3.6 Flap lock with push button

Depending on the flap size the service flap is equipped with one or two lockable push-button locks.

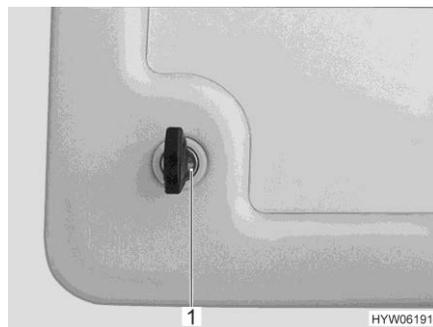


Fig. 78 Service flap push-button lock

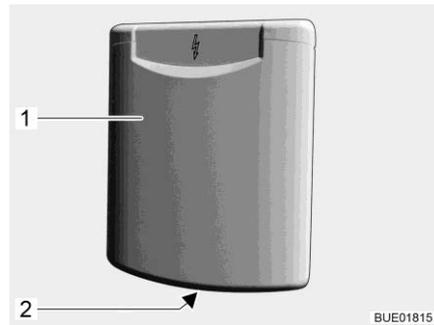


Fig. 79 Service flap push-button lock (alternative)

- Opening:**
- Insert the key into locking cylinder of the lockable push-button lock (Fig. 78,1 or Fig. 79,1) and turn a quarter turn. The push-button lock is unlatched.
 - Remove the key.
 - If equipped, unlock the second lockable push-button lock as well.
 - Press the two push buttons (Fig. 79,2) of the push-button locks simultaneously with the thumb and open the service flap.

- Closing:**
- Close the service flap and press it shut. The push-button locks are now engaged but not locked.
 - Insert the key into locking cylinder of the lockable push-button lock (Fig. 78,1 or Fig. 79,1) and turn a quarter turn. The push-button lock is locked.
 - Remove the key.
 - If equipped, lock the second lockable push-button lock as well.

7.3.7 Flap for the 230 V connection (Lyseo Time I)



- 1 External flap
- 2 Recessed grip

Fig. 80 Flap for the 230 V connection

- Opening:**
- Reach into the recessed grip (Fig. 80,2) on the external flap (Fig. 80,1) and swing the external flap upward.

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

7.3.8 Cap for the drinking water filler neck (Lyseo Time I)



Fig. 81 Cap for the drinking water filler neck



- ▶ The cap for the drinking water filler neck and for the fuel filler neck are very similar. Before filling the tank, always check the label.



- ▷ The drinking water filler neck is indicated by the symbol "☕" (Fig. 81,1).
- ▷ Opening and closing of the cap (Fig. 81,2) is described in section 11.2.

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

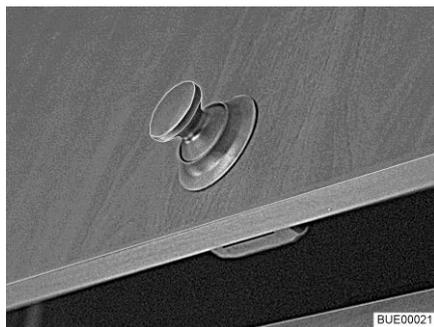


Fig. 82 Furniture flap with push button (round) (round)



Fig. 83 Furniture flap with push button (square)

- Opening:**
- Press inner part of the lock. The push button (Fig. 82 or Fig. 83) 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 handle and release button

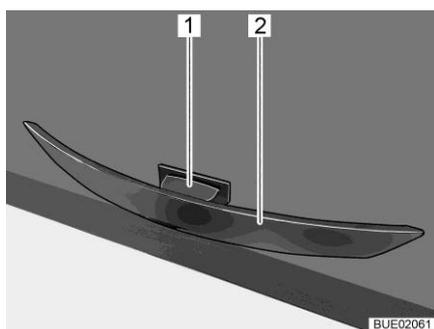


Fig. 84 Handle with release button

- Opening:**
- Press the release button (Fig. 84,1) and hold it down.
 - Pull the handle (Fig. 84,2) until the furniture flap is open.
- Closing:**
- Press the furniture flap down until you can feel the flap hinge close and hear the lock snap into place.

7.4.3 Furniture flaps with handle and push button

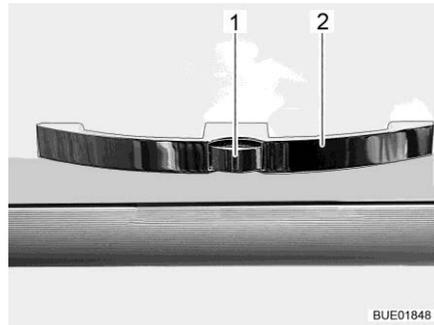


Fig. 85 Furniture flap with handle (example)

- Opening:**
- Press the release knob (Fig. 85,1) on the handle (Fig. 85,2) and hold it down.
 - Pull handle until furniture flap is open.
- Closing:**
- Press the furniture flap down until you can feel the flap hinge close and hear the lock snap into place.

7.4.4 Furniture flaps / drawers with release handle

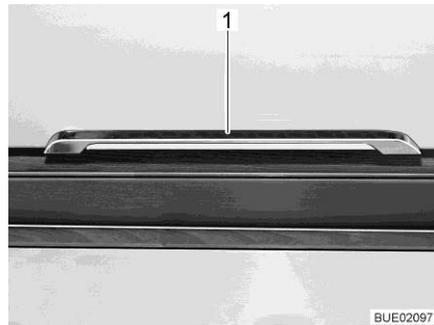


Fig. 86 Release handle

- Opening:**
- Press the release handle (Fig. 86,1) upwards, to the side or downwards depending on the fitted position and hold it down.
 - Pull the release handle until the furniture flap / drawer is open.
- Closing:**
- Close furniture flap / drawer until the lock engages audibly.

7.5 Floor compartment cover

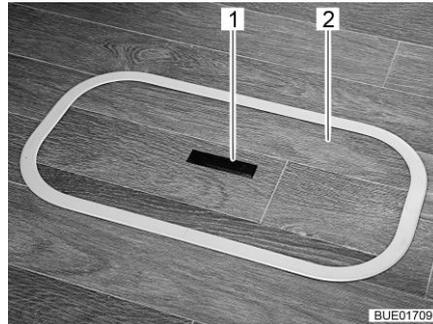


Fig. 87 Floor compartment cover
(handle recessed)

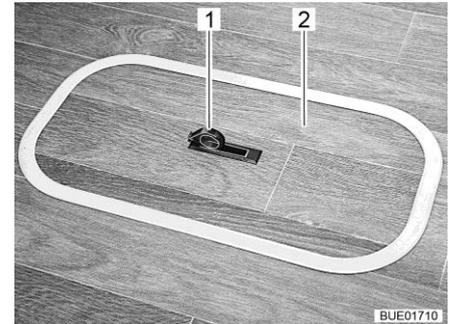


Fig. 88 Floor compartment cover
(handle swung out)

- Opening:**
- Push one side of the grip plate (Fig. 87,1) downwards. The handle (Fig. 88,1) swivels upwards.
 - Remove the cover (Fig. 87,2 or Fig. 88,2) upwards.
- Closing:**
- Insert the cover in the frame on the floor.
 - Swivel handle downwards.

7.6 Storage compartment with pull-out

Depending on the equipment, the storage compartment will be equipped with a coffee machine or a spices pull-out.

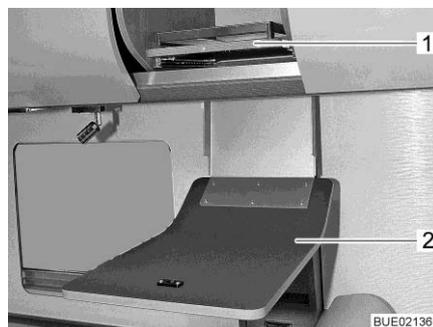


Fig. 89 Storage compartment with
flap

A pull-out (Fig. 89,1) for a capsule coffee machine or the like is installed in the storage compartment. The storage compartment is equipped with a socket.

After swinging the flap (Fig. 89,2) downwards, it can be used as a tray (e.g. for coffee cups, sugar, milk).

The maximum permitted load on the flap is 5 kg.

7.7 Light switches

7.7.1 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.

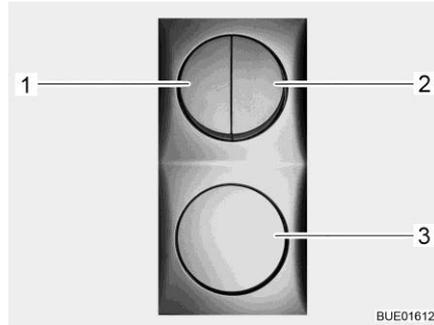


Fig. 90 Light switch

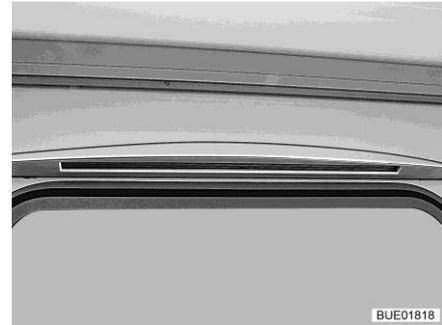


Fig. 91 Awning light

The entrance area has light switches (Fig. 90,1-3) for the following lamps:

- Entrance lighting
- Awning light (Fig. 91)
- Living area lighting
- Canvas blind lighting (special equipment)

7.7.2 Interior



- ▷ The lamps shown in this section are examples. Not all lamps used in the vehicle are shown. The examples are intended to clarify the possible positions for the light switches. The type and appearance of the light switches can deviate from those shown here.

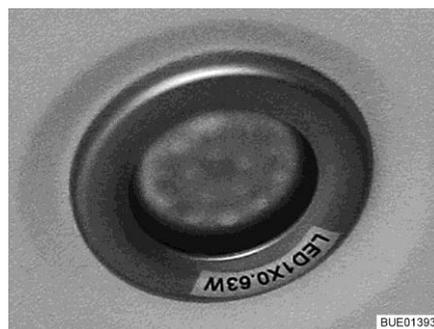


Fig. 92 Recessed light (example)



Fig. 93 Light rail (example)

Depending on the model, the light switches are fitted at various points: The light switch (Fig. 94,1) is separated from the light (Fig. 92 or Fig. 93,1) at easily accessible locations.

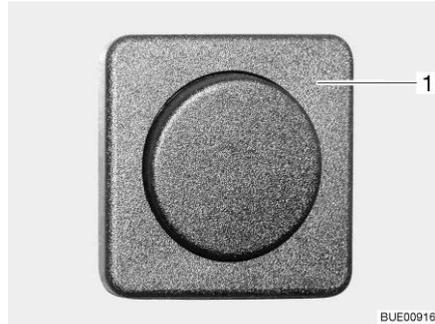


Fig. 94 Separate light switch

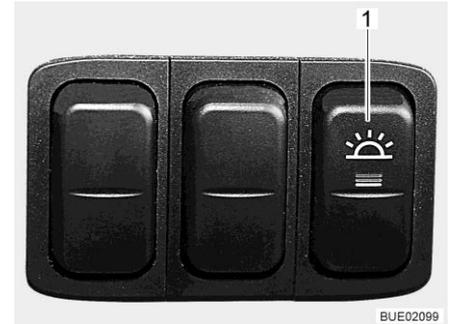


Fig. 95 Switch (driver's cabin)

The reading lamp in the driver's cabin is switched via a switch (Fig. 95,1) in the driver's cabin.



Fig. 96 Spotlight, shiftable

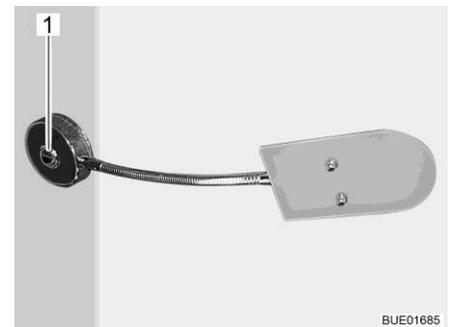


Fig. 97 Spotlight

In the case of spotlights, the light switch (Fig. 96 or Fig. 97,1) is normally located directly at the lamp.

The spotlight (Fig. 96) can be swung and shifted.



Fig. 98 Recessed light, light switch in the lamp

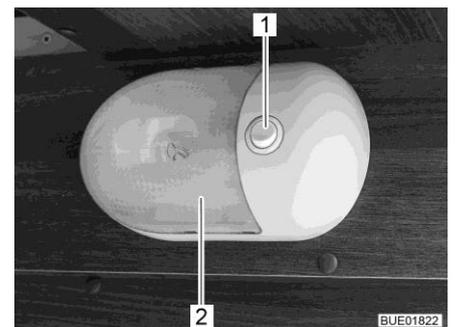


Fig. 99 Surface mounted light

To switch the recessed light on and off, press the interior of the recessed light (Fig. 98,1).

To switch the surface mounted light (Fig. 99,2) on and off, press the light switch (Fig. 99,1).

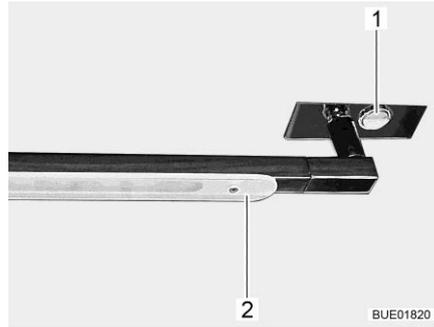


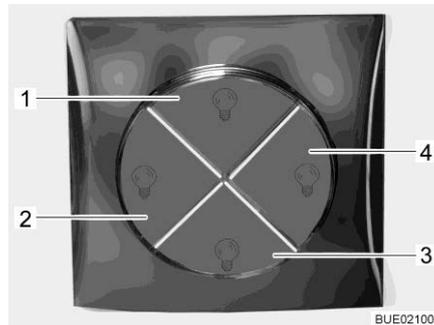
Fig. 100 Tube lamp, swivelling

The light switch (Fig. 100,1) for the tube lamp is mounted directly on the lamp.

The tube lamp (Fig. 100,2) can be swivelled to the side.

7.7.3 Light control (Ixeo I)

Depending on the model, the vehicle is equipped with a light control. At the switches in the living and sleeping area, you can switch lighting scenarios for these areas via four buttons. With the light control, you can switch combinations of various illuminants.



- 1 Main light, living area
- 2 Main light, sleeping area
- 3 Ambiente lighting, living area
- 4 Ambiente lighting, sleeping area

Fig. 101 Switch for light control

Via the buttons on the switches, you can the switch the following lighting scenarios for the living and sleeping area, respectively:

- Main light: ceiling lighting and spotlights
- Ambiente lighting: indirect lighting by various LED strips.

7.7.4 Wardrobe light



- ▷ The wardrobe light can be removed from its holder (Fig. 102,1) 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.

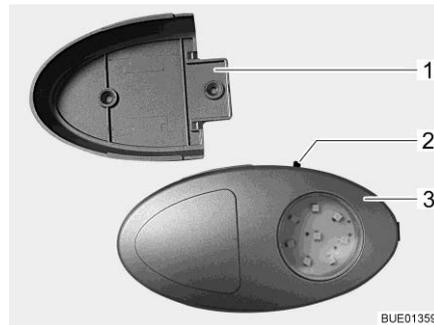


Fig. 102 Wardrobe light/torch

The On/Off switch (Fig. 102,2) is located directly on the wardrobe light (Fig. 102,3).

7.7.5 Surface mounted light

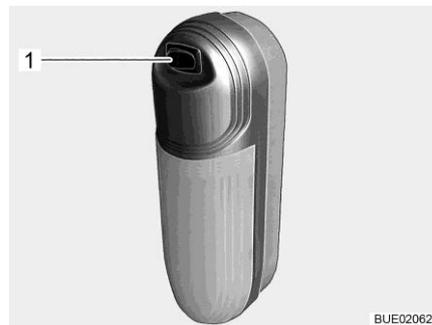


Fig. 103 Surface mounted light

Actuate switch (Fig. 103,1) to switch on and off.

7.7.6 Mobile lamp (special equipment)



- ▶ Fasten all mobile lamps at the active docking stations 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 a docking station in the wardrobe.



Fig. 104 Mobile lamp (pushed together)



Fig. 105 Mobile lamp (pulled out)

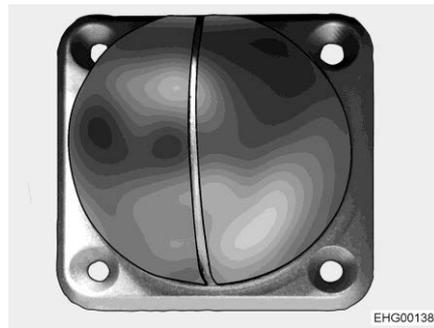


Fig. 106 Docking station (active and passive)

Use as an additional lamp

The mobile lamp is pushed together (Fig. 104) and is plugged onto a passive docking station (Fig. 106).

Use as table lamp

The mobile lamp is pulled out (Fig. 105) and placed on the table or any other place.

Use as torch

The mobile lamp is pulled out (Fig. 105) and used as a torch.

Switching on/off:

- Press the On/Off switch (Fig. 104,1).

Dimming:

- Press and hold On/Off switch (Fig. 104,1).



- ▷ The lighting intensity adjusted most recently is saved.

- Charging:**
- Push lamp together (Fig. 104) and plug onto active docking station (Fig. 106) in the wardrobe.
- The LED (Fig. 104,2) 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.

7.8 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 Wall holder

The flat screen is fastened to a wall holder.

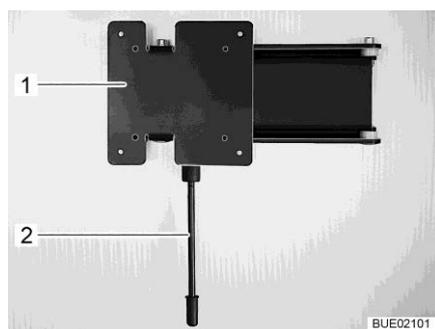


Fig. 107 Wall holder

- Positioning:**
- Pull down the release lever (Fig. 107,1) and turn the holder (Fig. 107,2) with the flat screen to the desired position.
- Storing away:**
- Pull down the release lever and push back the flat screen until the holder engages.

7.8.2 Holder with release lever

The holder for the flat screen is attached to the wall.

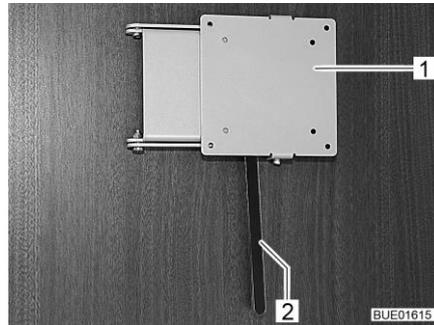


Fig. 108 Holder with release lever

- Positioning:**
- Push the release lever (Fig. 108,2) to the side and turn the holder (Fig. 108,1) with the flat screen to the desired position.
 - Press the flat screen slightly upwards and swivel it to the desired position. Three different inclination angles may be used.
- Storing away:**
- Turn flat screen back until the holder (Fig. 108,1) engages 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 CO₂ 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.

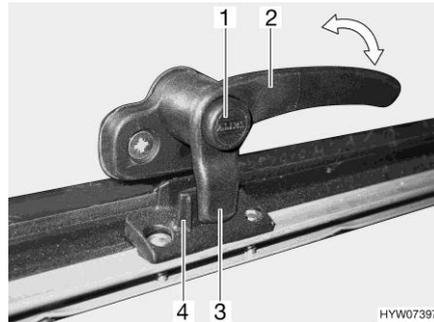


Fig. 109 Catch lever with safety knob in "closed" position

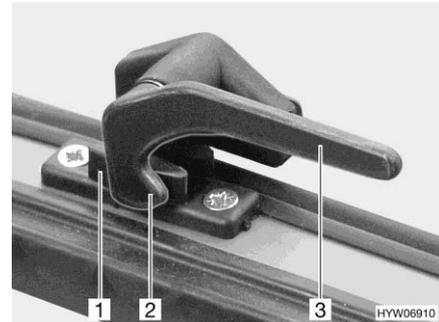


Fig. 110 Catch lever in "closed" position

- Opening:**
- Press and hold the security button (Fig. 109,1), if present.
 - Turn the catch lever (Fig. 109,2 or Fig. 110,3) a quarter turn towards the centre of the window.

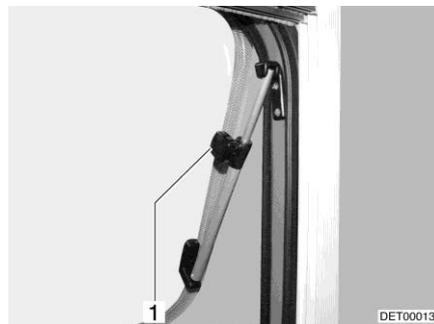


Fig. 111 Hinged window with rotary hinge



Fig. 112 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. 111,1) to secure in position.

Hinged window with automatic hinge: Open the hinged window to the desired latched position. The automatic hinge (Fig. 112,1) locks in place automatically.

The hinged window remains locked in the required position.

- Closing:**
- Hinged window with rotary hinge: Turn knurled knob (Fig. 111,1) 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. 109,1), if present.
 - Turn the catch lever (Fig. 109,2 or Fig. 110,3) a quarter turn towards the window frame.
The locking catch (Fig. 109,3 or Fig. 110,2) on the catch lever is entirely on the inner side of the window catch (Fig. 109,4 or Fig. 110,1).

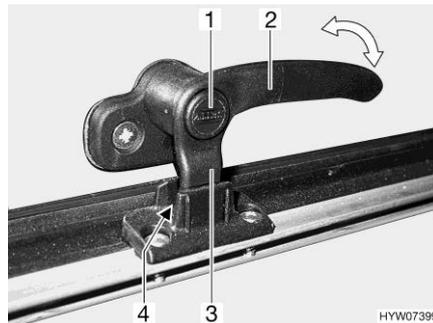


Fig. 113 Catch lever with safety knob in "continuous ventilation" position

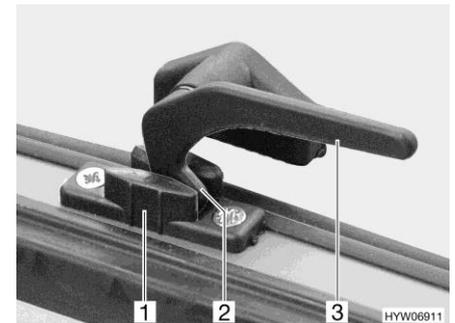


Fig. 114 Catch lever in "continuous ventilation" position

Continuous ventilation

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

- "Continuous ventilation" (Fig. 113 and Fig. 114)
- "Firmly closed" (Fig. 109 and Fig. 110)

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

- Press and hold the security button (Fig. 113,1), if present.
- Turn the catch lever (Fig. 113,2 or Fig. 114,3) 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. 113,3 or Fig. 114,2) on the catch lever into the recess of the window catch (Fig. 113,4 or Fig. 114,1).
- Press and hold the security button (Fig. 113,1), 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

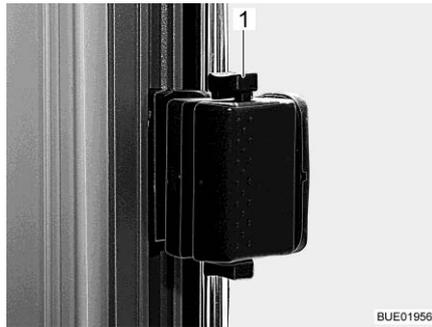


Fig. 115 Sliding window, locked

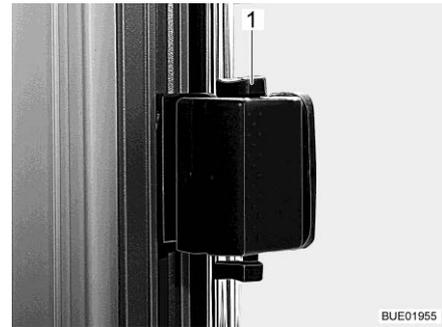


Fig. 116 Sliding window, unlocked

- Opening:**
- Push the latch (Fig. 115,1) downwards.
 - Open the window to the desired position.
- Closing:**
- Close the window as far as it can go.
 - Push the latch (Fig. 116,1) upwards.

7.10.3 Sliding window, front passenger window

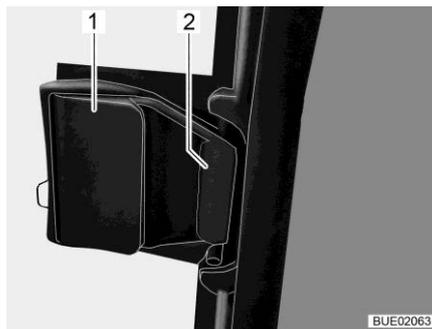


Fig. 117 Sliding window, locked

- Opening:**
- Pull the release element (Fig. 117,1). The latch (Fig. 117,2) opens.
 - Open the window to the desired position.
- Closing:**
- Close the window as far as it can go. The latch must engage.

7.10.4 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.

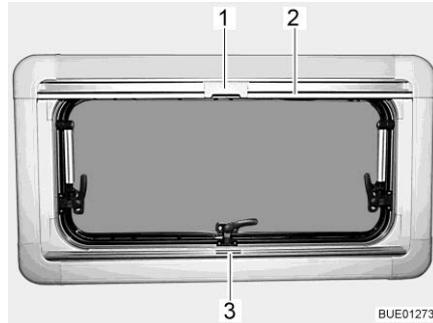


Fig. 118 Hinged window

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. 118,3), 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. 118,2), until it touches the holding bar of the Roman shade (Fig. 118,3).

■ Clip the catch (Fig. 118,1) on the insect screen into the handle of the Roman shade.

Opening: ■ Push the catch (Fig. 118,1) on the insect screen inwards.

■ Move the insect screen back slowly on the holding bar (Fig. 118,2).

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

Operation of the manually adjustable Roman shade, see section 5.16.1.

Operation of the electrically adjustable Roman shade, see section 5.16.2.

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

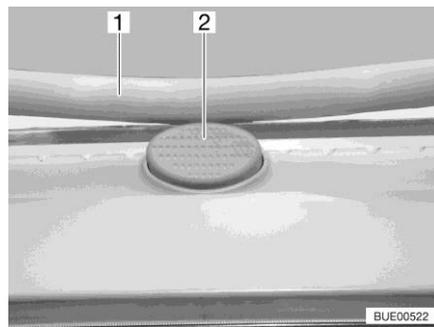


Fig. 119 Safety knob (Heki skylight)

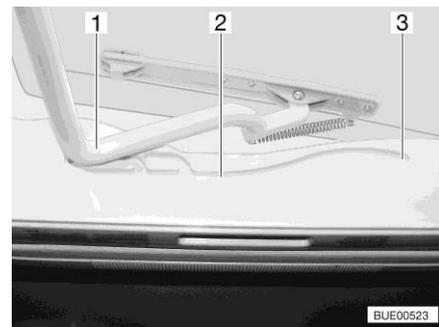


Fig. 120 Guide (Heki skylight)

The Heki skylight is opened on one side only.

- Opening:
- Press the safety knob (Fig. 119,2) and pull the bar (Fig. 119,1) down with both hands.
 - Pull the bar (Fig. 120,1) in the guides (Fig. 120,2) to the rearmost position (Fig. 120,3).

- Closing:**
- Use both hands to push the bar (Fig. 120,1) slightly upwards.
 - Push the bar back in the guides.
 - Push the bar upwards with both hands until it is above the safety knob (Fig. 119,2).

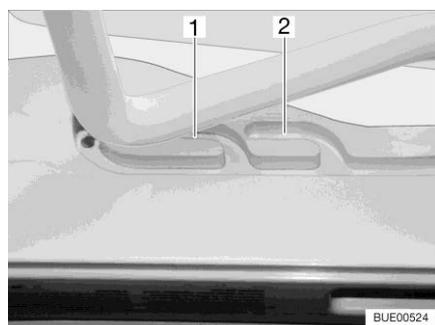


Fig. 121 Guide (ventilation position)

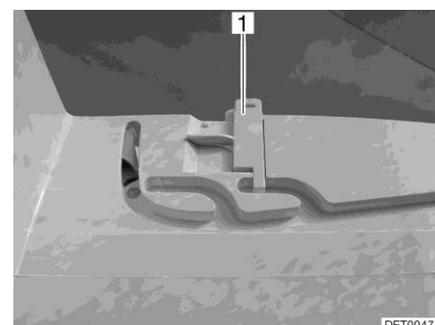


Fig. 122 Lock (ventilation position)

Ventilation position

The Heki skylight can be put in two ventilation positions: Bad weather position (Fig. 121,1) and central position (Fig. 121,2). Depending on the model, the skylight can be locked in the central position with both left and right latches (Fig. 122,1) on the skylight frame.

- Press the safety knob (Fig. 119,2) and pull the bar (Fig. 119,1) down with both hands.
- Pull the bar in the guides (Fig. 120,2) to the desired position.
- Push the bar slightly upwards and into the selected guide (Fig. 121,1 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. 123 Skylight with snap latch

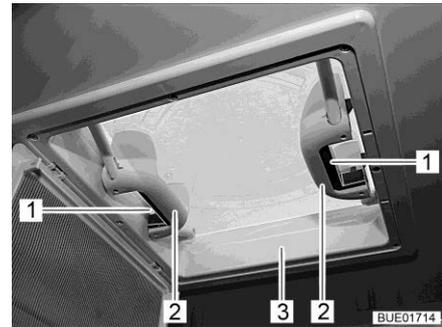


Fig. 124 Handles with snap latches

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

- Opening:**
- Use handle (Fig. 123,1) to swing down the insect screen (Fig. 123,2).
 - Push the snap latch (Fig. 124,1) towards the inside of the skylight (Fig. 124,3). At the same time use the handle (Fig. 124,2) to press the skylight upwards.
 - Swing insect screen upwards until it latches in place.
- Closing:**
- Use handle (Fig. 123,1) to swing down the insect screen (Fig. 123,2).
 - Using both handles (Fig. 124,2), pull down the skylight (Fig. 124,3) with force until the two snap latches (Fig. 124,1) lock into place.
 - Swing insect screen upwards until it latches in place.

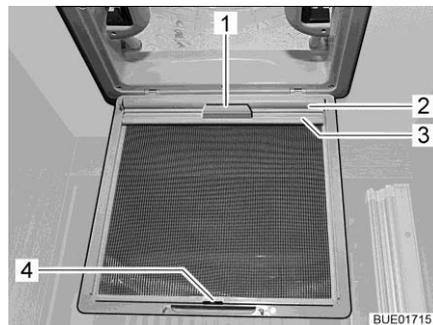


Fig. 125 Blind (skylight)

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

- Closing:**
- Use handle (Fig. 123,1) to swing down the insect screen (Fig. 123,2).
 - Using the handle (Fig. 125,1), pull out the blind (Fig. 125,2) and hook the retainer (Fig. 125,3) into the hook (Fig. 125,4) on the insect screen.
 - Swing insect screen upwards until it latches in place.
- Opening:**
- Use handle (Fig. 123,1) to swing down the insect screen (Fig. 123,2).
 - Release the retainer (Fig. 125,3) from the hook (Fig. 125,4) and, using the handle (Fig. 125,1), slowly return the blind (Fig. 125,2).
 - Swing insect screen upwards until it latches in place.

7.11.3 Wind-up skylight (partially special equipment)

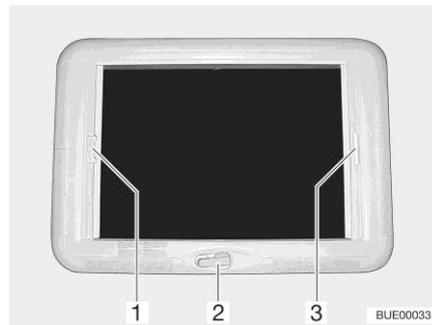


Fig. 126 Wind-up skylight

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

- Opening:** ■ Rotate the hand crank (Fig. 126,2) until a resistance can be felt.
- Closing:** ■ Rotate the hand crank until the wind-up skylight is closed. The wind-up skylight can be locked after rotating two or three more times.
- Check the locking mechanism. To do so, press your hand against the acrylic glass.

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

- Closing:** ■ Pull the handle of the Roman shade (Fig. 126,3) and release in the desired position. The Roman shade will stay in that position.

- Opening:** ■ Slowly push the Roman shade at the handle to its initial position.

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

- Closing:** ■ Pull insect screen at the handle (Fig. 126,1) to the opposite handle of the Roman shade (Fig. 126,3) and allow to engage.
- Opening:** ■ Press the handle of the insect screen (Fig. 126,1) at the back upwards and detach the insect screen from the Roman shade (Fig. 126,3).
- Slowly push insect screen at the handle to its initial position.

7.11.4 Skylight with fan (special equipment)



- ▷ To save the battery, after one hour the fan automatically switches from level 6 down to level 1.

The skylight is equipped with an insect screen, blind and an adjustable fan for aerating and venting.

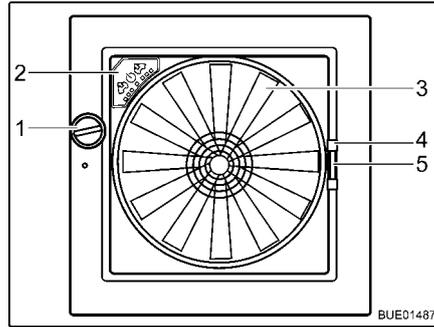


Fig. 127 Omni-Vent skylight

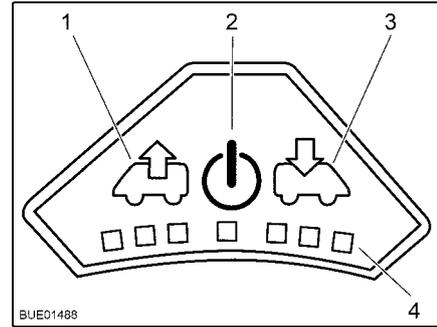


Fig. 128 Control panel for fan

Opening: ■ Turn the knob (Fig. 127,1) until the desired opening angle is reached.

Closing: ■ Turn the knob (Fig. 127,1) until the skylight is fully closed.

Insect screen To close and open the insect screen:

Closing: ■ Using the handle (Fig. 127,4) pull the insect screen across to the other side of the frame.

Opening: ■ Press the handle of the insect screen together. The latch is released.
■ Use handle to return the insect screen slowly to its initial position.

Shade To close and open the shade:

Closing: ■ Press together the handle (Fig. 127,5) of the shade.
■ Pull out the shade to the desired position and release. The shade will stay in that position.

Opening: ■ Press together the handle of the shade.
■ Slowly return the shade to its initial position.

Fan If the skylight is open, the interior can be vented and aerated with the 6-speed fan (Fig. 127,3). The fan is operated via the operating panel (Fig. 127,2).

Switching on: ■ Press the On/Off button (Fig. 128,2). The fan runs in comfort mode (venting at slowest fan speed).

Venting: ■ To increase the fan speed: Press the Vent button (Fig. 128,1). The fan speed in the venting direction increases by one level. LEDs (Fig. 128,4) show the operating levels.

■ To lower the fan speed: Press the Aerate button (Fig. 128,3). The fan speed decreases by one level.

Aerating: ■ To increase the fan speed: Press the Aerate button (Fig. 128,3). The fan speed in the aerating direction increases by one step. LEDs (Fig. 128,4) show the operating levels.

■ To lower the fan speed: Press the Vent button (Fig. 128,1). The fan speed decreases by one level.

- Boost function:**
- Press and hold the Aerate button for approx. 3 seconds. The fan switches to the maximum aeration level and then, after approximately 5 minutes, automatically switches back to the previously selected level.
 - Press and hold the Vent button for approx. 3 seconds. The fan switches to the maximum venting level and then, after approximately 5 minutes, automatically switches back to the previously selected level.
- Switching off:**
- Press the On/Off button (Fig. 128,2). The fan stops, the LEDs go out.

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 / lift-off table
(at L-shaped bench)**

**Suspension table
(at dinette)**

Table leg	Table top	Conversion to bed foundation
Screwed to the floor	Shiftable, rotatable	Partially possible
Single section	Extendible	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 Lift-off table

Table leg

The table leg is screwed into the floor. The table can be lowered via a lifting mechanism to become a bed foundation.

Adjusting the table top

Depending on the model, the table top can be moved both lengthwise and crosswise.



Fig. 129 Adjustment of lift-off table

**Moving in a lengthways
direction:**

- Fold lever (Fig. 129,1) downward.
- Push the table top to the desired position.
- Fold the lever back upwards.

Moving in a crossways direction:

- Fold lever (Fig. 129,1) downward.
- Push the table top to the desired position.
- Fold the lever back upwards.



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

Rotating the table top:

- Rotate table top to the desired position. In order to do this, you need a little effort, because the table top rotates against the friction resistance on the pillar table leg.

Conversion to bed foundation:

- Swivel the lever (Fig. 129,2) underneath the table top by 180° in a clockwise direction. The lifting mechanism in the table leg is unlocked.
- Push the table top downwards as far as possible and hold it in that position. Press on the centre of the table top.
- Swivel back the lever by 180° in an anticlockwise direction. The table top remains in the lowest position.

Moving the table top upwards:

- Swivel the lever (Fig. 129,2) underneath the table top by 180° in a clockwise direction. The table top moves automatically upwards to the limit stop.
- Swivel back the lever by 180° in an anticlockwise direction. The table top remains in the uppermost position.

7.12.2 Lift-off table, divisible

Table leg

The table leg is screwed into the floor. The table can be converted into the bed foundation by means of a lifting mechanism.

Table top

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

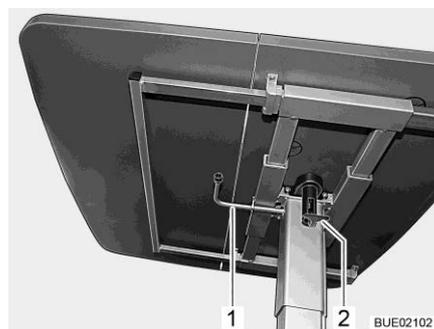


Fig. 130 Lift-off table

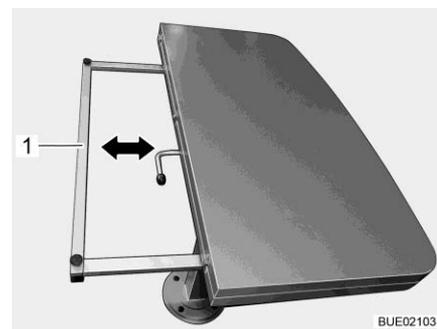


Fig. 131 Reducing the table top size

Shifting the table top:

- Fold down the catch lever (Fig. 130,2).
- Push the table top to the desired position.
- Fold the catch lever back up.

Reducing the table top size:

- Lift table top half by its free side and set it down carefully on the other table top half.
- Hold the supporting frame (Fig. 131,1) on both sides and push it underneath the table top as far as it will go.



- ▷ Before increasing the table tops' size again, pull the supporting frame out as far as it will go. Only then set the table top half down on it. The hinges could otherwise be damaged.



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

Conversion to bed foundation:

- Swivel the lever (Fig. 130,1) underneath the table top by 180° in a clockwise direction. The lifting mechanism in the table leg is unlocked.
- Push the table top downwards as far as possible and hold it in that position. Press on the centre of the table top.
- Swivel back the lever by 180° in an anticlockwise direction. The table top remains in the lowest position.

Moving the table top upwards:

- Swivel the lever (Fig. 130,1) underneath the table top by 180° in a clockwise direction. The table top moves automatically upwards to the limit stop.
- Swivel back the lever by 180° in an anticlockwise direction. The table top remains in the uppermost position.

7.12.3**Table with pillar table leg**

The table top can be moved in both a lengthways and a crossways direction, and can also be rotated. It is not possible to convert it into a bed foundation.

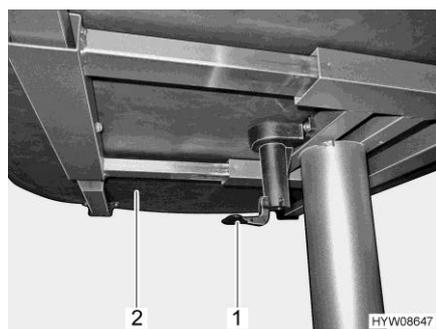


Fig. 132 Lever for moving the table top

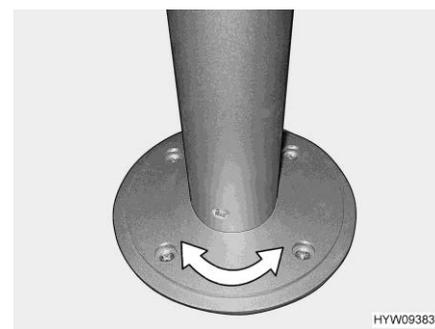


Fig. 133 Pillar table leg (rotatable) (dependent on model)

Shifting the table top:

- Pull or press down the lever (Fig. 132,1).
- Move the table top (Fig. 132,2) to the desired position.
- Press the lever back up.

Rotating the table top: (dependent on model)

- Rotate table top to the desired position. In order to do this, you need a little effort, because the table top rotates against the friction resistance on the pillar table leg (Fig. 133).

7.12.4 Suspension table with fold-out leg

Table leg The fold-out leg can be folded at the centre for the conversion to bed. Two additional support legs can then be inserted on the table top's bottom side.

Table top The suspension table size can be enlarged by inserting a table top extension.

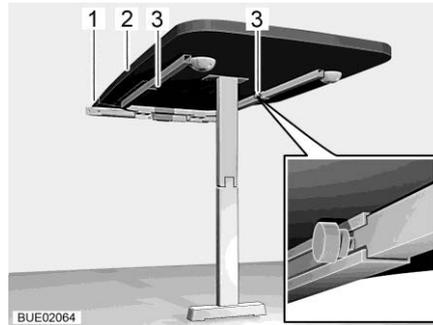


Fig. 134 Suspension table with fold-out leg

Expanding the table:

- Release two knurled screws (Fig. 134,3).
- Raise the table top (Fig. 134,2) slightly and pull it out as far as possible. The table extension has now been fully pulled out.
- Set the table down on the floor again.
- Insert the table top extension (Fig. 134,1) into the table extension.
- Lift the table top slightly and push back as far as possible.
- Tighten two knurled screws.

Reducing the table size:

- Release two knurled screws (Fig. 134,3).
- Slightly lift the front of the table top (Fig. 134,2) and pull out.
- Remove the table top extension (Fig. 134,1) and store it securely.
- Lift the table top slightly and push back as far as possible. The table extension has now been fully pushed in.
- Tighten two knurled screws.
- Set down the table.

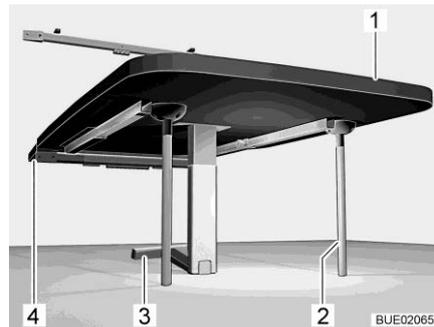


Fig. 135 Suspension table as bed foundation

Conversion to bed foundation:

- Increase the table size using table-top extension (see above).
- Lift the front of the table top (Fig. 135,1).
- Fold the lower part of the fold-out leg (Fig. 135,3) by 90°.
- Swing the table top approx. 45° upward and lift the table out of the upper retainer.
- Insert two additional support legs (Fig. 135,2) on the table top's bottom side.
- Insert and lock the table in the lower retainer (Fig. 135,4).

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, manually operated



- ▶ Switch off the reading lamps in the pull-down bed before the bed is pushed up. Fire hazard!
- ▶ Switch off the reading lamps on the underside of the pull-down bed when the bed is lowered. Fire hazard!
- ▶ The maximum permitted pull-down bed load is 200 kg.
- ▶ Before commencing the journey, secure the pull-down bed. To do this, lock the pull-down bed.
- ▶ Before use, pull the pull-down bed into the lower end position. Ensure that the pull-down bed is not resting on obstacles such as headrests, cushions or similar.
- ▶ If there is a safety net: Only use the pull-down bed, if the safety net is set up.
- ▶ 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.
- ▶ Use separate children's beds or travel cots suitable for children.



- ▷ You must be able to close the pull-down bed without any great effort, so that there is no tension in the locking position. Objects on the pull-down bed can distort the lifting mechanism on one side, resulting in damage.

Depending on the model, the pull-down bed will be secured in the top end position either by retaining belts or by a latching mechanism.

The pull-down bed is located in the driver's cabin above the seats.

Lowering the pull-down bed:

- Switch off the lamps underneath the pull-down bed.
- Rotate the driver's and front passenger's seats in the direction of travel, lock in position, push backwards as far as possible and fold the backrest as far to the front as possible.
- Close the shade in the driver's cabin.

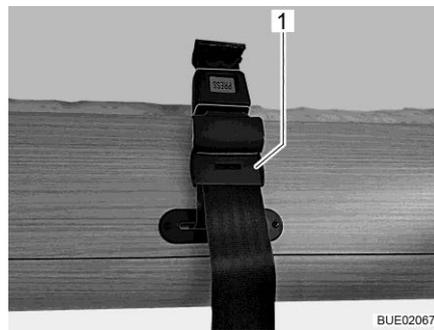


Fig. 136 Retaining belt on pull-down bed

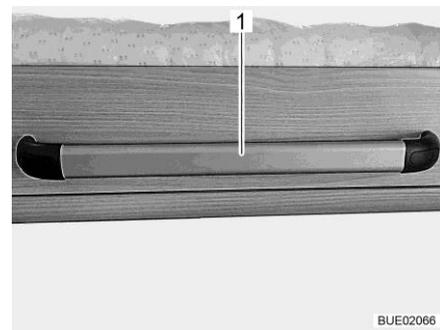


Fig. 137 Handle on pull-down bed (Lyseo Time I)

- Pull-down bed with retaining belts: Release retaining belts (Fig. 136,1) and pull pull-down bed (Fig. 137,1) down at the handle.

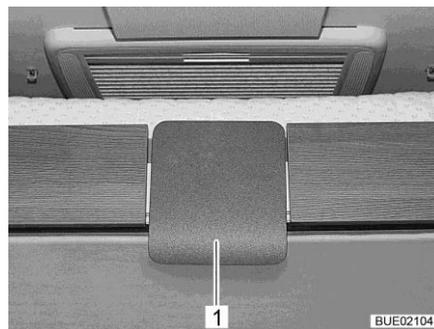


Fig. 138 Release plate on the pull-down bed (Ixeo I)

- Pull-down bed with latching mechanism: pull lower part at the release plate (Fig. 138,1) and pull pull-down bed downwards as far as it will go.
- Make sure that the pull-down bed is in the lower end position and is not resting on obstacles such as headrests, cushions or similar.



- ▷ When closing the pull-down bed, pull the side fabric panels inwards. This prevents the fabric from getting trapped in the lock of the pull-down bed.

- Lifting the pull-down bed:**
- Switch off the lamps in the pull-down bed.
 - Pull-down bed with retaining belts: push pull-down bed upwards at the handle (Fig. 137,1). Secure pull-down bed with both retaining belts (Fig. 136,1) on the left and right.
 - Pull-down bed with latching mechanism: Use both hands to push pull-down bed upwards as far as it will go. When doing this, make sure that the pull-down bed engages audibly in the top end position.
 - Check that the pull-down bed is locked correctly. To do this, pull down the pull-down bed firmly.

Safety net If fitted, the safety net (Fig. 139,2) and the retaining belts are located beneath the mattress of the pull-down bed. Only use the safety net if persons are already in the pull-down bed.



Fig. 139 Pull-down bed complete with applied safety net

Setting up: ■ Attach retaining belts (Fig. 139,1) to the hooks on the ceiling.

Access ladder Always use the provided access ladder to climb up to the pull-down bed.



▷ The access ladder will differ according to the model.

7.13.2 Pull-down bed, electrically operated (partially special equipment)



- ▶ Switch off the reading lamps in the pull-down bed before the bed is pushed up. Fire hazard!
- ▶ Switch off the reading lamps on the underside of the pull-down bed when the bed is lowered. Fire hazard!
- ▶ The maximum permitted pull-down bed load is 200 kg.
- ▶ Do not allow children to play with the pull-down bed.
- ▶ Store the remote control in a safe place inaccessible to 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.
- ▶ Use separate children's beds or travel cots suitable for children.
- ▶ If there is a safety net: Only use the pull-down bed, if the safety net is set up.
- ▶ 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.
- ▶ Bring the pull-down bed into the lower end position before use. Ensure that the pull-down bed is not resting on obstacles such as headrests, cushions or similar.



- ▷ Only raise or lower the pull-down bed if it is loaded with a maximum of 15 kg. This maximum load includes the contents of the wall-mounted cupboard at the base of the pull-down bed. If the pull-down bed is overloaded, the overload protection switches off the lifting motor. However, the lifting mechanism can still be damaged.
- ▷ Lower the head section before setting off.
- ▷ Remove all objects (even bed linen) from the pull-down bed before commencing the journey.
- ▷ Before commencing the journey, move the pull-down bed into the top end position.



- ▷ In order to ensure that the pull-down bed functions correctly, the living room temperature must be at least 5 °C.

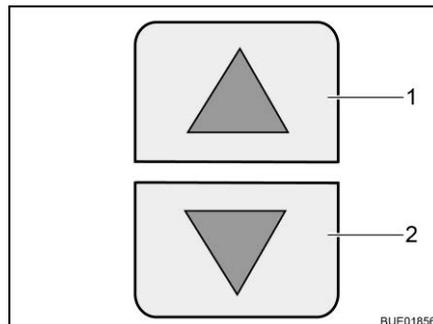


Fig. 140 Arrow keys on the control unit



Fig. 141 Pull-down bed complete with applied safety net

The control unit for the pull-down bed is located directly on the pull-down bed.



- ▶ When making ready for operation, overload protection is not in use.

Making ready for operation

After every power interruption (e.g. lay-up over winter), the electrical drive must be made ready for operation again. To do so carry out a reference run.



- ▷ If the pull-down bed is at an angle during the reference run: Immediately end the reference run. Proceed as described under "Emergency operation" (see below).

Carrying out a reference run/reset:

- Press the arrow keys (Fig. 140,1 and 2) on the control unit simultaneously and keep them pressed until the pull-down bed has moved all the way down.
- When a beeping tone sounds (bottom end position has been reached): Release the arrow keys. The pull-down bed is ready for use again.

Lowering the pull-down bed:

- Switch off the lamps underneath the pull-down bed.
- Press the arrow key (Fig. 140,2) on the control unit and keep it pressed until the pull-down bed has moved down into the end position.
- Make sure that the pull-down bed is in the lower end position and is not resting on obstacles such as headrests, cushions or similar.



- ▷ When closing the pull-down bed, pull the side fabric panels inwards. This prevents the fabric from getting trapped in the lock of the pull-down bed.

Lifting the pull-down bed:

- Switch off the reading lamps on the ceiling.
- Press the arrow key (Fig. 140,1) on the control unit and keep it pressed until the pull-down bed has moved up into the end position.
- Ensure that there are no objects stuck between the roof and the pull-down bed.

Overload protection

If the pull-down bed meets an obstacle during opening or closing (e.g. a person or a headrest), the overload protection stops the movement. For release, move the pull-down bed with the arrow key in the opposite direction.

Safety net

If fitted, the safety net (Fig. 141,2) and the retaining belts are located beneath the mattress of the pull-down bed. Only use the safety net if persons are already in the pull-down bed.

Setting up:

- Attach the retaining belts (Fig. 141,1) to the hooks on the ceiling.

Access ladder

Always use the provided access ladder to climb up to the pull-down bed.

Attaching:

- Hook access ladder (Fig. 141,5) to the pull-down bed by attaching the two hooks (Fig. 141,4) in the holding bar (Fig. 141,3).
- Grasp the upper edge of the folded-up part of the access ladder and unfold it so that all four feet are securely on the ground.

Storing away:

- Fold in steps.
- Hang the access ladder from the holding bar on the pull-down bed.
- Store the access ladder securely.

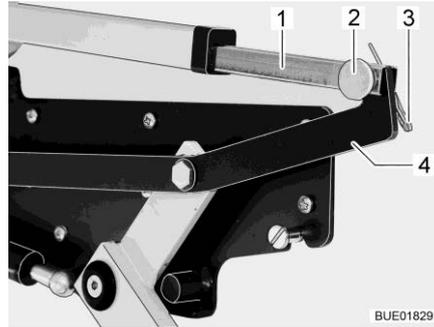


Fig. 142 Drive for the pull-down bed

Emergency operation

If it is not possible to move the pull-down bed via the arrow keys (Fig. 140), check the fuse Circuit 5 on the EBL 220 (see section 9.12.1). If the pull-down bed cannot be moved despite an intact fuse, the pull-down bed must be operated manually. To do this, proceed as follows:

- Remove the pull-down bed mattress and reduce loading the storage cupboards as much as possible (to avoid the pull-down bed from swinging back and forth).
- Release the connection between the push rod (Fig. 142,1) and lever (Fig. 142,4). To do this, pull out the splint (Fig. 142,3) and pin (Fig. 142,2).
- Move the pull-down bed manually into the upper park position and temporarily secure it.
- Contact customer service.

7.13.3 Pull-down bed at the rear, electrically operated (special equipment)



- ▶ Before setting off, always move the pull-down bed into the top end position.
- ▶ 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.
- ▶ 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.
- ▷ 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.

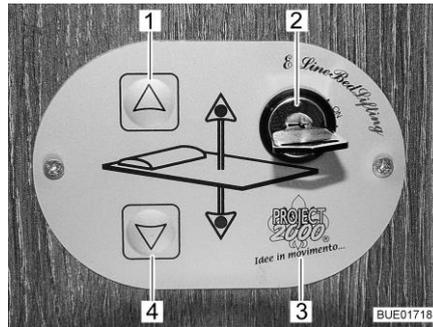


Fig. 143 Control unit

Control unit

The pull-down bed is raised or lowered using the buttons (Fig. 143,1 and 4) on the control unit (Fig. 143,3). The control unit is protected against unauthorized use with the key switch (Fig. 143,2).



Fig. 144 Fixed corner element, rear area couch

Before lowering the pull-down bed, remove the fixed corner element (Fig. 144).



Fig. 145 Storage compartment and removed back cushion



Fig. 146 Pull-down bed at the rear, lowered

Lowering the pull-down bed:

- Remove back cushion (Fig. 145,1) of the rear seating group.
- Remove any other obstacles in the area into which the pull-down bed extends, e.g. bring the television into driving position.
- Switch off the lamps underneath the pull-down bed.
- At Ixeo I 746: Fold table top in the rear. Thereby, the pull-down bed can rest on the table top's bottom side which is upholstered with felt. This prevents furniture parts from damage.
- Turn the key in the key switch (Fig. 143,2) through 90° clockwise. The control unit (Fig. 143,3) is activated.
- Press the arrow key (Fig. 143,4) and keep it pressed until the pull-down bed has moved down into the desired position.
- Make sure that the pull-down bed is not resting on obstacles such as cushions or similar.

Lifting the pull-down bed:

- Switch off the reading lamps in the pull-down bed.
- Press the arrow key (Fig. 143,1) 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.

Access assistance

The storage compartment (Fig. 145,2) can be used as an access assistance.

Emergency operation

If it is no longer possible to move the pull-down bed with the arrow keys (Fig. 143,1 and 4), first of all check the fuse behind the panelling (Fig. 147,2) (see section 9.12.1). If the fuse is okay and it is still not possible to move the pull-down bed, operate the pull-down bed manually.

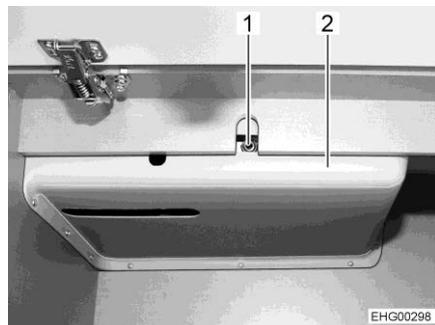


Fig. 147 Access to drive

- 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 accommodation on the motor (Fig. 147,1).
- Turn crank or Allen wrench manually until the pull-down bed has reached the upper parking position.

7.13.4 Queen size bed, extendable in length (Ixeo Time I)



- ▷ If the extension has been pulled out: do not put the entire body weight on the extension (e.g. do not kneel on it). Do not put the weight of heavy objects onto the extension.

Depending on the ground plan, a queen size bed extendable in length may be installed.



Fig. 148 Queen size bed



Fig. 149 Extension

Extending the queen size bed in length:

- Lift the mattress (Fig. 148,1).
- Use the handle (Fig. 149,2) to pull the extension (Fig. 149,1) out as far as it will go.

Shortening the queen size bed:

- Lift the mattress (Fig. 148,1).
- Use the handle (Fig. 149,2) to push the extension (Fig. 149,1) in as far as it will go.

7.13.5 Fixed bed, height-adjustable via strap system (special equipment)



- ▶ Lower the bed to its lowest position to sleep in it.



- ▷ Before using the bed, make sure that the lever of the locking device is in the locked position (horizontal).
- ▷ If the head section has been raised: do not put the entire body weight on the head section (e.g. do not kneel on it). Do not put the weight of heavy objects onto the head section.
- ▷ Lower the head section before setting off.

The height of the fixed bed can be adjusted via a crank in the rear garage. The bed can be raised before setting off. This increases the storage space under the bed.

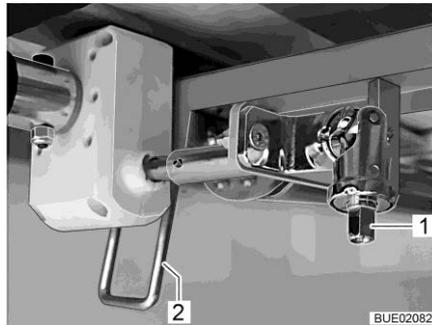


Fig. 150 Height adjustment

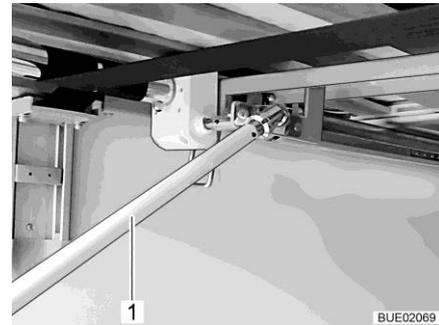


Fig. 151 Crank in the rear garage

- Attach the crank onto the journal (Fig. 150,1).
- Swivel the lever (Fig. 150,2) downwards into vertical position.
- To lift the bed: Turn the crank (Fig. 151,1) clockwise.
To lower the bed: Turn crank (Fig. 151,1) in an anticlockwise direction.
- Swivel the lever (Fig. 150,2) upwards into horizontal position.
- Remove the crank and store it.

7.13.6 Lying surface of single beds

The two single beds in the rear can be converted into a combined lying surface.

The additional cushions are stored in a cabinet underneath the bed.

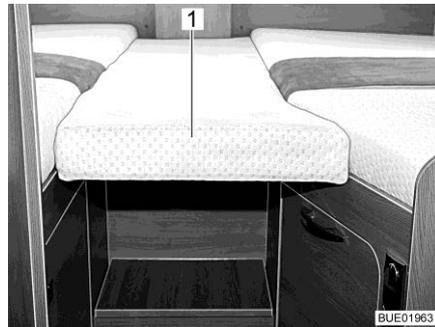


Fig. 152 Additional cushion

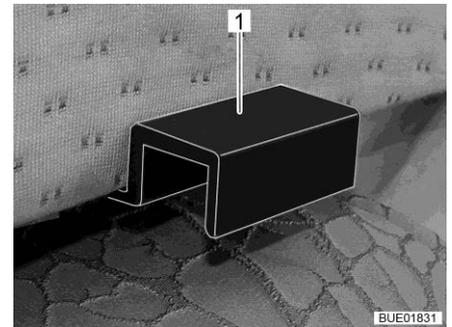


Fig. 153 Additional cushion holder

- Take the additional cushion out of the cabinet.
- Hook the additional cushion (Fig. 152,1) with the holders (Fig. 153,1) into the panels of the single beds so that a closed lying surface is created.

7.13.7 Lying surface of single beds (variant)

The two single beds in the rear can be converted into a combined lying surface.

The additional cushions are stored in a cabinet underneath the bed.



Fig. 154 Conversion to lying surface

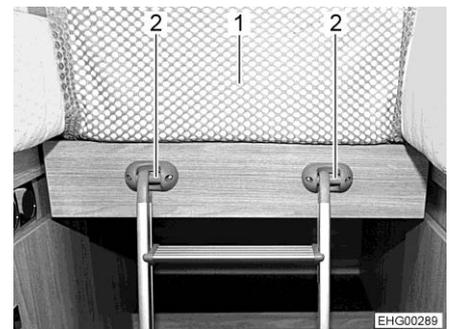


Fig. 155 Access ladder and safety net

- Extend the centre piece (Fig. 154,1) between the beds.
- Take the additional cushion out of the cabinet.
- Place the additional cushion on the centre piece such that a closed lying surface is created.

If brackets (Fig. 155,2) to attach an access ladder and a safety net (Fig. 155,1) are present on the center piece:

- Attach the access ladder to the brackets (Fig. 155,2).
- Set up the safety net (Fig. 155,1).

7.14 Converting seating groups for sleeping

The following table gives an overview of the seating groups installed in the different models and names the section in which the bed conversion is described.



▷ The ground plans for the individual models are shown in chapter 17.

Lyseo Time I

Model	Seating group	Table type	Bed	Section
I 690	Dinette	Suspension table	Guest bed	7.14.4
I 690	L-seating group	Lift-off table	Guest bed	7.14.3
I 720	Dinette	Suspension table	Transverse bed	7.14.2
I 720	L-seating group	Lift-off table	Transverse bed	7.14.1
I 728	Dinette	Suspension table	Transverse bed	7.14.2
I 728	L-seating group	Lift-off table	Transverse bed	7.14.1
I 734	Dinette	Suspension table	Transverse bed	7.14.2
I 734	L-seating group	Lift-off table	Transverse bed	7.14.1

Ixeo I

I 690	L-seating group	Lift-off table	Transverse bed	7.14.5
I 700	L-seating group	Lift-off table	Transverse bed	7.14.5
I 720	L-seating group	Lift-off table	Transverse bed	7.14.5
I 727	Bench seating group	Lift-off table	Transverse bed	7.14.6
I 728	L-seating group	Lift-off table	Transverse bed	7.14.5
I 729	L-seating group	Lift-off table	Transverse bed	7.14.5
I 736	Bench seating group	Lift-off table	Transverse bed	7.14.6
I 744	L-seating group	Lift-off table	Transverse bed	7.14.5
I 746	L-seating group	Lift-off table	Transverse bed	7.14.5

7.14.1 Conversion of L-seating group into transverse bed

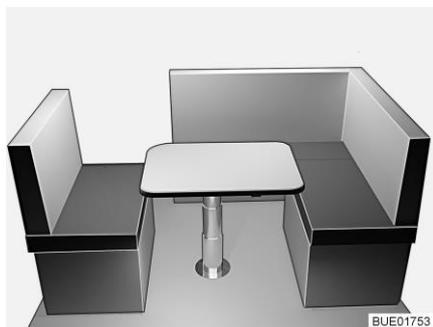


Fig. 156 Prior to conversion

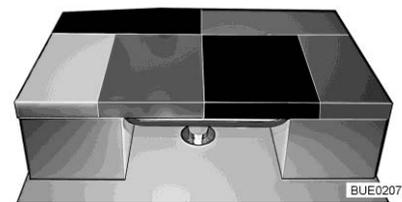


Fig. 157 After conversion

- Convert the lift-off table as a bed foundation (see section 7.12).
- Place the additional cushion on the table (see Fig. 157). When doing this, put the angled cushion side of the in touch with the lateral seat of the L-seating group.
- Push the seat cushion of the lateral bench towards the centre of the vehicle until it touches the additional cushion.
- Place the back cushion of the lateral bench on the lateral bench.
- Fully unfold the support underneath the additional cushion with reinforcement plate.
- Hook the hooks on the additional cushion with reinforcement plate into the retainers on the bench seat of the L-shaped bench and set the support down on the floor.

7.14.2 Conversion of semi-dinette into transverse bed

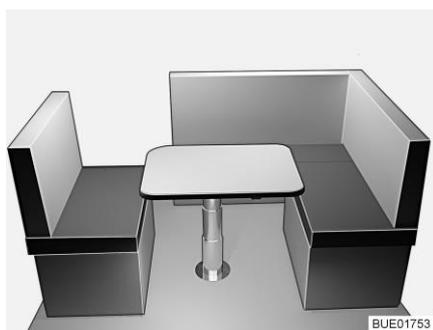


Fig. 158 Prior to conversion

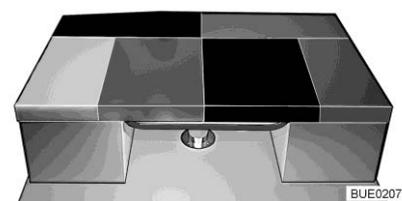


Fig. 159 After conversion

- Convert the suspension table into a bed foundation (see section 7.12).
- Place the additional cushion on the table (see Fig. 159).
- Push the seat cushion of the lateral bench towards the centre of the vehicle until it touches the additional cushion.
- Place the back cushion of the lateral bench on the lateral bench.
- Fully unfold the support underneath the additional cushion with reinforcement plate.
- Hook the hooks on the additional cushion with reinforcement plate into the holders on the bench seat and place the support on the floor.

7.14.3 Conversion of L-seating group into guest bed

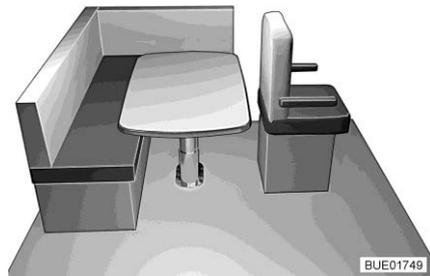


Fig. 160 Prior to conversion

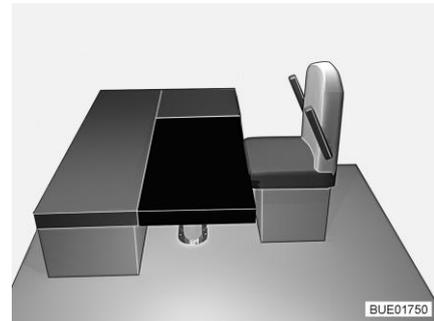


Fig. 161 After conversion

- Rotate the driver's seat towards the table.
- Push driver's seat fully forward (away from the table).
- Convert the lift-off table as a bed foundation (see section 7.12).
- Lay aside the back cushions of the bench.
- Place the rectangular additional cushion on the table (in front of the seat cushions of the bench, see Fig. 161).
- Push the driver's seat towards the table until a closed lying surface is created.

7.14.4 Conversion of semi-dinette into guest bed

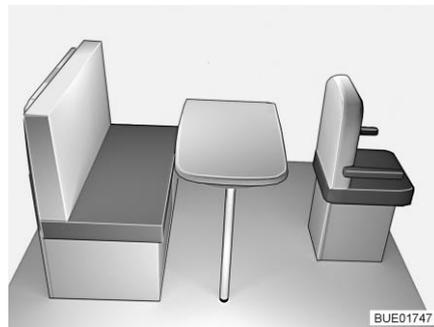


Fig. 162 Prior to conversion

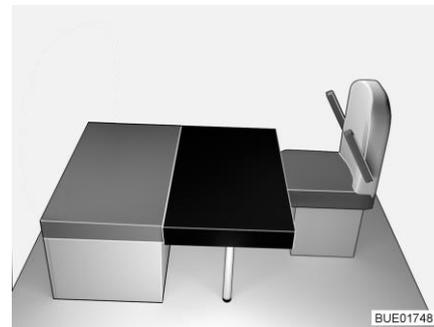


Fig. 163 After conversion

- Rotate the driver's seat towards the table.
- Push driver's seat fully forward (away from the table).
- Convert the suspension table into a bed foundation (see section 7.12).
- Remove the back cushion of the bench and lay it aside.
- Place the rectangular additional cushion on the table (in front of the seat cushion of the bench, see Fig. 163).
- Push the driver's seat towards the table until a closed lying surface is created.

7.14.5 Conversion L-seating group into transverse bed (with additional cushion table)

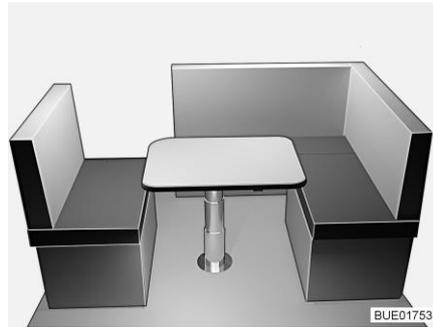


Fig. 164 Prior to conversion

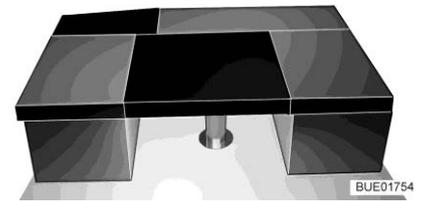


Fig. 165 After conversion

- Turn and shift table top such that it can be lowered between the L-seating group and the lateral seat.
- Convert the lift-off table as a bed foundation (see section 7.12).
- Lay aside the back cushions of the benches.
- Hook the hooks of the bed widening into the retainers on the bench seat of the L-shaped bench and set the support down on the floor.
- Place the rectangular additional cushion on the table (between the seat cushions of the benches, see Fig. 165).

7.14.6 Conversion of facing seating unit into transverse bed

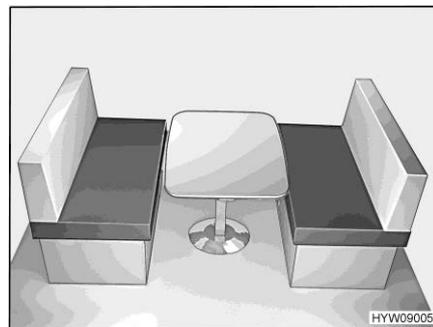


Fig. 166 Prior to conversion

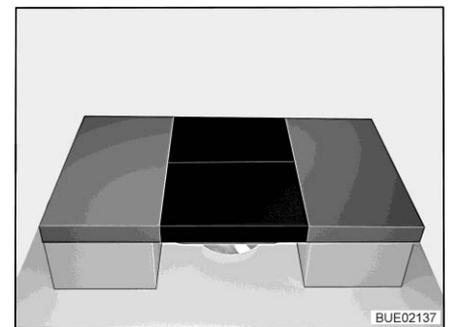


Fig. 167 After conversion

- Convert the lift-off table as a bed foundation (see section 7.12).
- Lay aside the back cushions of the benches.
- Place two additional cushions on the table (see Fig. 167).

7.15 Shower connection point for external shower (special 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.

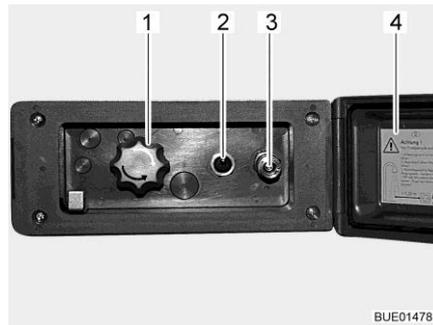


Fig. 168 External shower connection point

Connecting an external shower:

- Unlock and open the cover (Fig. 168,4).
- Attach hose of the external shower to the quick closure (Fig. 168,3).

Using the shower:

- Switch on the water pump using the switch (Fig. 168,2).
- Adjust the water temperature with the rotary knob (Fig. 168,1) as desired.
- Switch off the water pump using the switch (Fig. 168,2).

Shutting off the shower connection point:

- Switch off the water pump using the switch (Fig. 168,2).
- Disconnect the hose from the quick closure. The quick closure is equipped with a check valve to prevent any further water from escaping.
- Close the cover (Fig. 168,4) 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. 168,1) to the central position.
- Empty the water system (see section 11.2.7).

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 a 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. 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.

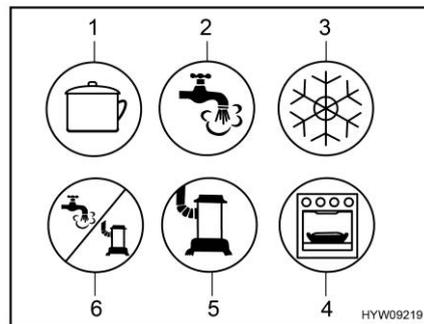


- ▷ The screw connections on the gas bottles generally have a left-hand thread.
- ▷ For gas-operated units the gas pressure must be reduced to 30 mbar.
- ▷ Connect gas pressure regulator complete with safety valve directly to bottle valve.
The gas pressure regulator reduces the gas pressure in the gas 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

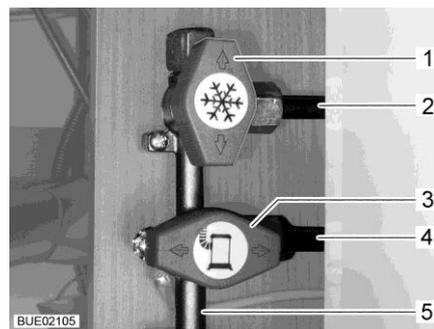


- 1 Cooker
- 2 Hot water
- 3 Refrigerator
- 4 Oven/grill
- 5 Heater
- 6 Hot water/heater

Fig. 169 Possible symbols for the gas isolator taps

A gas isolator tap (Fig. 169) 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. 170 Gas isolator taps position (example)

Opening: ■ Position the gas isolator tap of the corresponding gas device parallel (Fig. 170,3) to the pipe (Fig. 170,4) leading to the gas device.

Closing: ■ Position the gas isolator tap of the corresponding gas device transverse (Fig. 170,1) to the pipe (Fig. 170,2) leading to the gas device.

8.4 External gas connection (special 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.

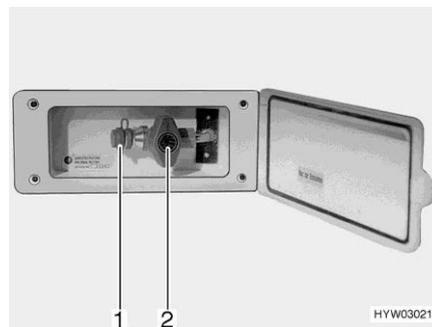


Fig. 171 External gas connection
(gas isolator tap closed)

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. 171,1).
- Open the gas isolator tap (Fig. 171,2).

8.5 Gas bottle switching facility (special 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. 172,3). The gas bottle switching facility is installed between the two gas tubes (Fig. 172,1).

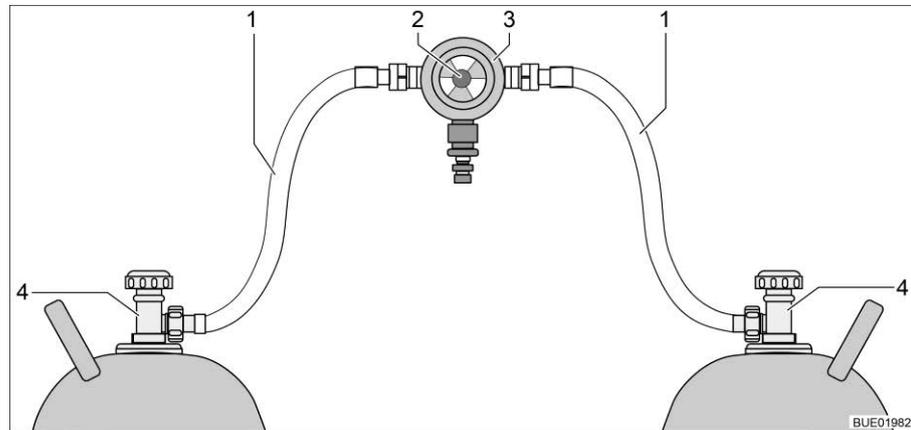


Fig. 172 Gas bottle switching facility

- 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. 173,4), and an electrovalve (Fig. 173,2). 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. 173,1) with hose break guards (Fig. 173,5).

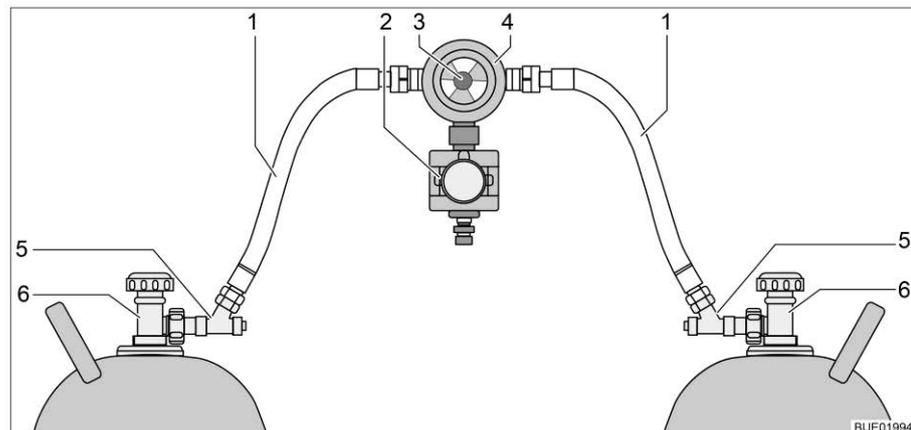


Fig. 173 Gas bottle switching facility with CPU

- 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. 172,2 or Fig. 173,3) 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. 174 Operating unit

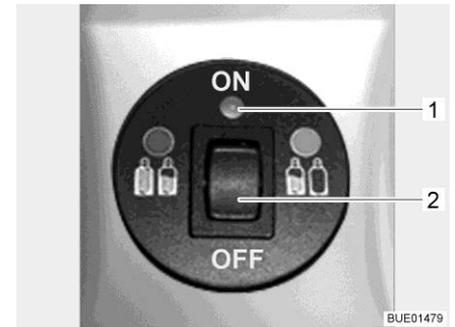


Fig. 175 Operating unit with remote display

Only the electrical functions can be switched at the operating unit (Fig. 174). The regulator taps on the gas bottles (Fig. 172,4 or Fig. 173,6) 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. 174,1) 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. 175,1) 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. 172,4 or Fig. 173,6).
 - Press the hose break guards (Fig. 173,5) successively for 10 seconds.
 - Use the knob (Fig. 172,2 or Fig. 173,3) 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. 174,2 or Fig. 175,2) to "ON". The reversing valve is now deaerated. The indicator lamp (Fig. 174,1 or Fig. 175,1) flashes yellow (system test) and lights up green.

- Switching off:
- Set the rocker switch (Fig. 174,2 or Fig. 175,2) to "OFF". The indicator lamp (Fig. 174,1 or Fig. 175,1) goes out.
 - Close the regulator taps of the gas bottles (Fig. 172,4 or Fig. 173,6).



- ▶ 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 a 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.

8.6 Changing gas bottles



- ▶ 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 a suitable special spanner. The screw connection on the gas bottle generally has a left-hand thread. **Do not** tighten too firmly.
- ▶ When you have changed the gas bottle, check whether gas escapes at the connection points and unions. Use a leakage search spray to spray the relevant connection point or union. These agents are available at the accessories shop.

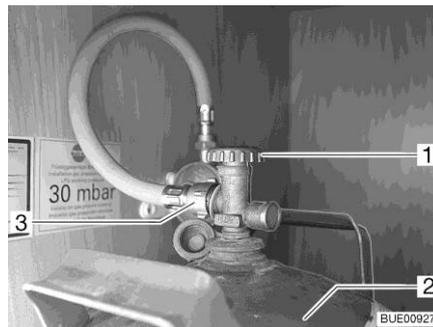


Fig. 176 Gas bottle compartment

- Open the external flap for the gas bottle compartment (see chapter 7).
- Close the regulator tap (Fig. 176,1) on the gas bottle (Fig. 176,2). Pay attention to the direction of the arrow.
- Unscrew the gas tube (Fig. 176,3) from the gas bottle.
- Attach the protective cap to the gas bottle.
- Release the fixing belts and remove the gas bottle.
- Place a filled gas bottle in the gas bottle compartment.
- Fix gas bottle in place with the fixing belts.
- Remove the protective cap from the gas bottle.
- Screw the gas tube onto the gas bottle.
- Close the external flap for the gas bottle compartment.

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 $4 \text{ A} \times 20 \text{ h} = 80 \text{ Ah}$.

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 special equipment)



▷ The charging current is maximum 1 amp.

The vehicle is equipped with one or more USB sockets.

If the vehicle is equipped with a rail system, the housing with the USB socket (Fig. 178,1) can be attached at various positions as necessary.

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



Fig. 177 USB socket

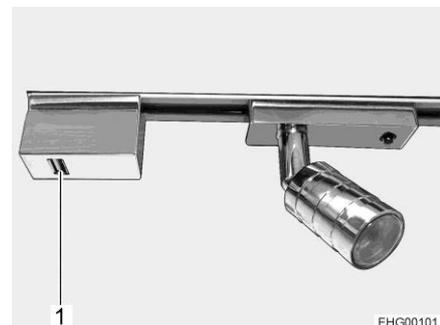


Fig. 178 USB socket on rail system

9.4 12 V power supply



- ▷ Only connect devices with a maximum of 10 A to the sockets (Fig. 179,1) of the 12 V power supply.

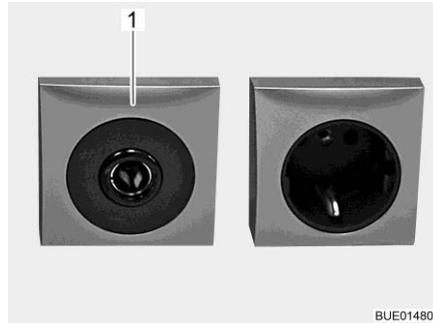


Fig. 179 12 V/10 A socket

9.4.1 Selector switch for power supply of the multimedia system (special equipment)

Depending on the equipment, a multimedia system may be installed in the vehicle.

Depending on the model of the multimedia system, it may be possible to choose whether power to the multimedia system is supplied by the starter battery or by the living area battery.



Fig. 180 Selector switch for power supply

Power supply by starter battery:

- Set the selector switch to the "0" position. The multimedia system will be switched on and off with the ignition.

Power supply by living area battery:

- Set the selector switch to the "I" position. The multimedia system can also be operated while the ignition is switched off.

9.4.2 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.

9.4.3 Living area battery



- ▷ 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.
- ▷ After the trip, charge the living area battery fully.
- ▷ Before a temporary lay-up, charge the battery fully.
- ▷ When the living area battery is changed, only use batteries of the same type and the same capacity.
- ▷ If there are several living area batteries, always change all the batteries together. The batteries must **always** be the same age and have the same capacity.
- ▷ When changing the living area battery, use only batteries which meet the minimum capacity of the charger. Observe the separate instruction manual for the charger. Lower-capacity batteries will generate a great deal of heat when they are charged. Danger of explosion!
- ▷ 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.
- ▷ Take note of the battery manufacturer's users and maintenance instructions.



- ▷ If possible, begin the trip with a fully charged living area battery. Therefore, charge the living area battery before starting the trip.
- ▷ During the trip, use every available opportunity to charge the living area battery.
- ▷ The radio device in the driver's cabin is connected to the living area battery.
- ▷ The battery is maintenance-free. Maintenance-free means:
It is not necessary to check the acid level.
It is not necessary to lubricate the battery poles.
It is not necessary to refill the distilled water.
Even a maintenance-free battery 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 fully 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.

9.4.4 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.

9.4.5 Charging batteries via the vehicle engine

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 9.12.1.

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

9.6 Transformer/rectifier (EBL 119) (Lyseo Time I)



- ▷ Do not cover the ventilation slots. Danger of overheating!



- ▷ Depending on the model, not all slots for the fuses are occupied.
- ▷ Deviating from the default assignment, the following fuse values are inserted:
 - "Basic light / step": 20 A
 - "Spare 3": 10 A (fuse for USB socket)
- ▷ Further information can be obtained in the manufacturer's instruction manual.

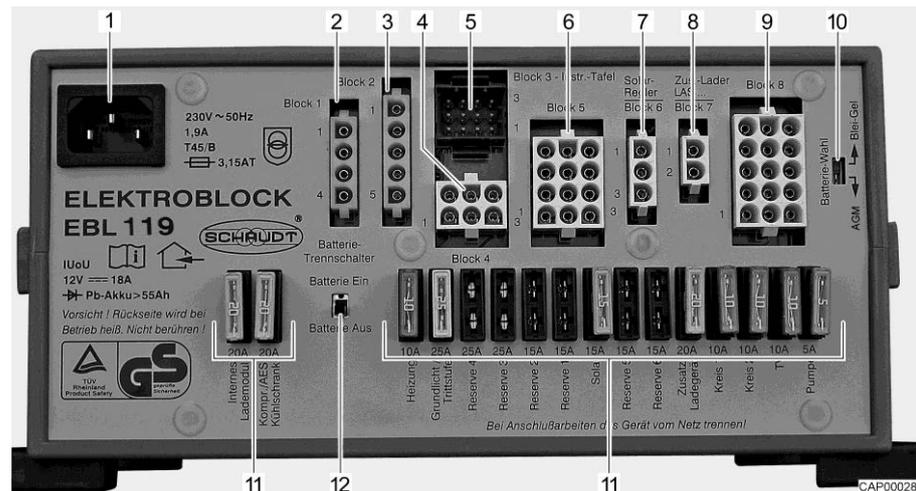


Fig. 181 Transformer/rectifier (EBL 119)

- 1 Main supply socket 230 V~
- 2 Output: Block 1 – refrigerator
- 3 Input: Block 2 – control lines
- 4 Output: Block 4 – heater, safety/drainage valve, basic light (lighting in the entrance area), entrance step
- 5 Output: Block 3 – panel
- 6 Output: Block 5 – solar cell (if fitted), spare 2, spare 3, spare 4
- 7 Output: Block 6 – solar charge regulator (if fitted)
- 8 Output: Block 7 – auxiliary charging unit
- 9 Output: Block 8 – consumer circuit 1, consumer circuit 2, 12 V socket, water pump, spare 1, spare 5, spare 6
- 10 Battery selector switch (lead-gel/AGM)
- 11 Fuses
- 12 Battery cut-off switch ("Batterie Ein/Aus" (battery On/Off))

Functions

The transformer/rectifier has the following functions:

- The transformer/rectifier charges the living area battery. The transformer/rectifier charges the starter battery with a float charge only.
- The transformer/rectifier monitors the voltage in the living area battery.
- The transformer/rectifier distributes the current to the 12 V circuits and secures them. Devices with a maximum of 10 A can be connected to the sockets.
- The transformer/rectifier provides connections for a solar charge regulator, an auxiliary charging unit, as well as other control and monitoring functions.
- 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 battery cut-off switch in the transformer/rectifier separates all the appliances from the living area battery.

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

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

Position See chapter 17.

9.6.1 Battery cut-off switch



- ▷ After switching the battery cut-off switch back on again: Put the basic light (lighting in the entrance area), entrance step, heater and spare 4 back into service (depending on the model). To do so, switch on the 12 V main switch briefly. This also applies if the living area battery was disconnected and then reconnected.

The battery cut-off switch disconnects all the living area 12 V appliances. This prevents the living area battery from slowly discharging if the vehicle is not used for a longer period of time (e.g. temporary lay-up).

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

- Switching on/off:**
- Push the battery cut-off switch upwards: Battery On ("Batterie Ein").
 - Push the battery cut-off switch downwards: Battery Off ("Batterie Aus").

9.6.2 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.

9.6.3 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.

9.6.4 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.

9.7 Transformer/rectifier (EBL 630) (Ixeo I)



- ▶ The unit contains parts that carry 230 V line 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.



- ▷ Do not cover the ventilation slots. Danger of overheating!



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

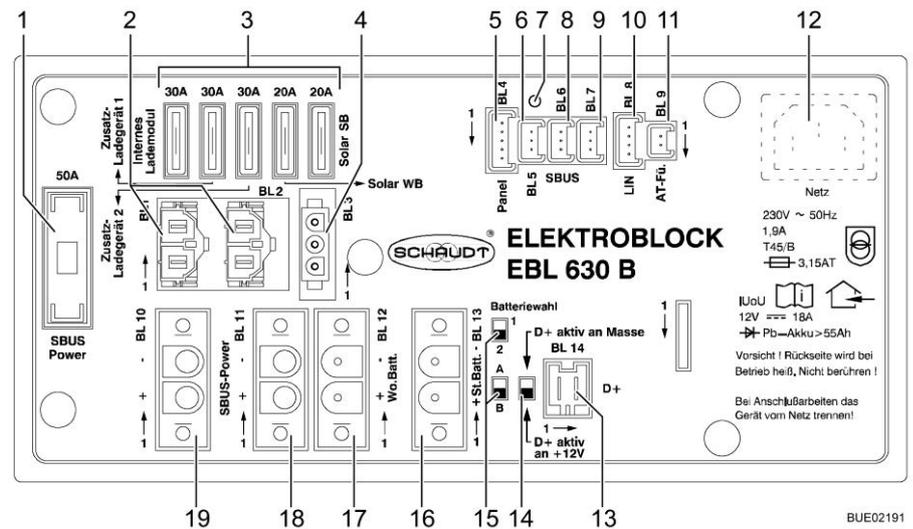


Fig. 182 Transformer/rectifier (EBL 630)

- 1 50 A main fuse, 12 V power supply
- 2 Connection for auxiliary charging unit 1
- 3 Flat fuses for chargers and solar regulator
- 4 Connection for solar regulator
- 5 Connection for panel
- 6 Bus connection
- 7 Diagnostics LED
- 8 Bus connection
- 9 Bus connection
- 10 LIN bus connection
- 11 Connection for external temperature sensor
- 12 Mains connection
- 13 Connection D+ (input/output)
- 14 D+ signal change-over switch
- 15 Battery type change-over switch
- 16 Connection for starter battery
- 17 Connection for living area battery
- 18 Connection for 12 V main supply for bus modules
- 19 Connection for 12 V main supply for bus modules

Position The transformer/rectifier is installed underneath the left seat in the driver's cabin.

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

No handling is required neither on the transformer/rectifier nor on one of the bus modules for the vehicle's operation. Handling the system is performed exclusively via the connected panel.

You can either switch the 12 V power supply on and off or deactivate it (see section 9.9).

Some electric circuits are still supplied with current even when the 12 V power supply has been switched off on the panel. These include:

- Basic light
- Refrigerator
- Step
- Awning light
- Heater

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

Functions The transformer/rectifier controls and monitors connected solar charge regulators and auxiliary charging units.

The transformer/rectifier charges the living area battery. The transformer/rectifier charges the starter battery with a float charge.

The transformer/rectifier monitors the voltage of the living area battery and the starter 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 supplies all bus modules and the connected sensors and appliances with current. The 12 V distribution and the protection by fuses of the 12 V electric circuits is carried out in the individual bus modules.

The transformer/rectifier communicates with the bus modules and the panel via bus lines.

The power in the transformer/rectifier is divided into charging current and current to the appliances. In this, the charging current is 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.

Bus modules The bus modules are connected to the transformer/rectifier via bus lines. The components to be controlled and monitored are connected to the bus modules.

The following bus modules are installed in the vehicle:

Description	Purpose
KM 630	Refrigerator
TM 630	Tank sensors
PM 630	Water pump
HM 630	Heater
AM 631	Outputs; number depends on the equipment
AM 632	Outputs; number depends on the equipment

Battery selector switch

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



- ▷ The factory settings of the battery selector switch must not be changed.
- ▷ Have batteries changed by qualified persons only.

The manufacturer sets the battery selector switch depending on the living area battery installed or depending on the living area batteries installed.

9.7.1 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.

9.7.2 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.

9.8 Panel LT 96 (Lyseo Time I)

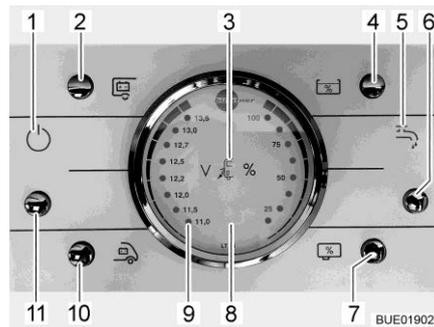


Fig. 183 Panel LT 96

- 1 12 V indicator lamp
- 2 Button for reading the battery voltage of the living area battery
- 3 230 V indicator lamp
- 4 Button for reading the filling level in the water tank
- 5 Indicator lamp water pump
- 6 Button for water pump (On/Off)
- 7 Button for reading the filling level in the waste water tank
- 8 V/tank gauge
- 9 "ALARM" warning light for the living area battery
- 10 Button for reading the battery voltage of the starter battery
- 11 Button for 12 V power supply (On/Off)

9.8.1 Button for 12 V power supply

The button (Fig. 183,11) switches the panel and the 12 V power supply to the living area on and off.

Exception: Depending on the model, heater, basic light (lighting in the entrance area), entrance step, spare 4 and a refrigerator with automatic power selection system (AES) remain ready to operate.

Switching on: ■ Press the button (Fig. 183,11): The 12 V living area power supply is switched on. The indicator lamp (Fig. 183,1) lights up.

Switching off: ■ Press the button (Fig. 183,11): The 12 V living area power supply is switched off. The indicator lamp (Fig. 183,1) goes out.



- ▷ When leaving the vehicle, switch off the main 12 V power supply at the panel. This prevents any unnecessary discharge of the living area battery.
- ▷ Appliances, such as control units (e.g. solar charge regulator, defroster or panel) or fitted appliances (e.g. heater, refrigerator or step) continue to take power from the battery capacity, even if the 12 V power supply on the panel is switched off. Therefore disconnect the living area battery from the 12 V power supply via the switch on the transformer/rectifier if the vehicle will not be used for a long period of time.

9.8.2 V/tank gauge for battery voltage and water or waste water levels

Battery voltage The V/tank gauge is for the indication of the battery voltage of the starter battery or the living area battery.

With the V/tank gauge (Fig. 183,8), note the left scale. The gauge automatically lights up as soon as a button is pressed.

- Displays:**
- Press the button (Fig. 183,10): The battery voltage of the starter battery is displayed.
 - Press the button (Fig. 183,2): The battery voltage of the living area battery is displayed.

The following tables will help you correctly interpret the battery voltage of the living area battery displayed on the panel LT 96.

Danger of total discharge (battery alarm)

Battery voltage (values during operation)	Mobile operation (vehicle moving, no 230 V connection)	Battery operation (vehicle stationary, no 230 V connection)	Power operation (vehicle stationary, 230 V connection)
11 V or less	12 V power supply overload	If appliances are switched off: Battery flat If appliances are switched on: Battery overload	12 V power supply overload
	The battery is not charged by the alternator, the alternator's regulator is defective		The battery is not charged by the transformer/rectifier, the transformer/rectifier is defective
11.5 V to 13.0 V	12 V power supply overload ¹⁾	Normal range	12 V power supply overload ¹⁾
	The battery is not charged by the alternator, the alternator's regulator is defective ¹⁾		The battery is not charged by the transformer/rectifier, the transformer/rectifier is defective
Over 13.5 V	Battery being charged	Occurs only briefly after charging	Battery being charged

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

Values for off-load voltage	Charging condition of the battery
Less than 12 V	Discharged or totally discharged
12.2 V	25 %
12.5 V	50 %
More than 12.7 V	100 %



▷ Total discharge causes irreparable damage to the battery.



- ▷ Measure the off-load voltage preferably several hours after the previous charging (e.g. in the morning) and not directly after a current drain.

Volume of water/ waste water

The V/tank gauge is for the indication of the quantity of water or waste water.

With the V/tank gauge (Fig. 183,8), note the right scale. The gauge automatically lights up as soon as a button is pressed.

- Displays:
- Press the button (Fig. 183,4): The volume of water is displayed.
 - Press the button (Fig. 183,7): The volume of waste water is displayed.



- ▷ Only read the tank levels briefly. Keeping the reading option on for a long time can damage the transducers.

9.8.3 Button for water pump

- Switching on:
- Press the button (Fig. 183,6): The water supply is ON. The water pump indicator lamp (Fig. 183,5) lights up.

- Switching off:
- Press the button (Fig. 183,6): The water supply is OFF. The water pump indicator lamp (Fig. 183,5) goes out.

Level indicator

No LED	2 LEDs	4 LEDs	6 LEDs	8 LEDs
0 %	25 %	50 %	75 %	100 %



- ▷ If the vehicle is not connected to the 230 V power supply and the water pump is not used for a longer period of time: Switch off the power supply for the water pump. The pump relay uses around 4 Ah current each day.

9.8.4 Battery alarm for the living area battery

The red "ALARM" warning light (Fig. 183,9) flashes as soon as the voltage of the living area battery falls below 11 V (measured under operation) and there is a risk of a total discharge.



- ▷ Total discharge damages the battery.

- Measures:
- When the battery alarm comes on, switch off the appliances and charge the living area battery, either by mobile operation or by connection to a 230 V power supply.

9.8.5 12 V indicator lamp

The 12 V indicator lamp (Fig. 183,1) lights up when the 12 V main button (Fig. 183,11) is switched on.

9.8.6 230 V indicator lamp

The 230 V indicator lamp (Fig. 183,3) illuminates whenever line voltage is available at the transformer/rectifier input.



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

9.9 Panel LT 633 (Ixeo I)



- ▷ When the 12 V power supply is switched off, the appliances that require power supply while using the vehicle remain active (e.g. the step or the basic light).
- ▷ When the 12 V power supply is deactivated, all appliances are disconnected from the living area battery. Any devices that charge the living area battery (e.g. solar regulator) are still connected to the living area battery.

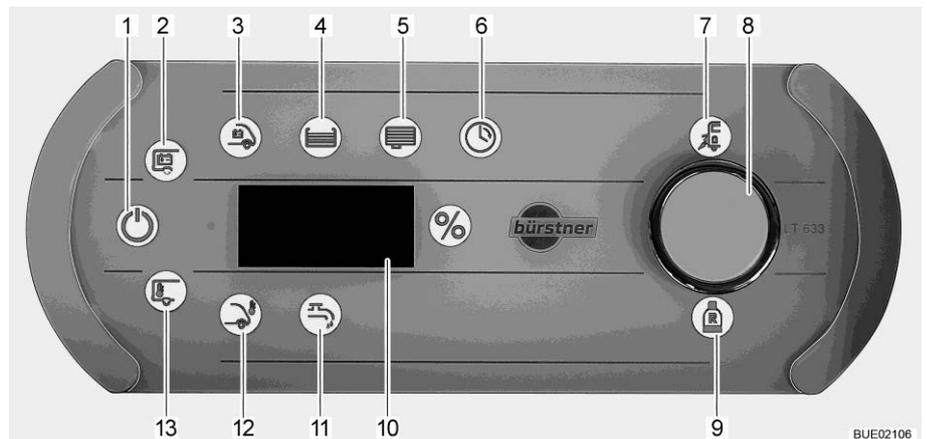


Fig. 184 Panel LT 633

- 1 12 V ON symbol
- 2 Living area battery symbol
- 3 Starter battery symbol
- 4 Water tank symbol
- 5 Waste water tank symbol
- 6 Clock symbol
- 7 Mains check symbol
- 8 Rotary knob
- 9 Reserve gas bottle symbol
- 10 Display
- 11 Water pump symbol
- 12 External temperature symbol
- 13 Internal temperature symbol

The mains check symbol (Fig. 184,7) lights up when the vehicle is being supplied with 230 V line voltage. The batteries are charged.

- Switching on:**
- Briefly press the rotary knob (Fig. 184,8). The 12 V ON symbol (Fig. 184,1) is lit. When the 12 V ON living area battery (Fig. 184,2) symbols flash three times, the power supply has been deactivated.

- Cancelling deactivation:**
- Press and hold rotary knob (Fig. 184,8) for approx. 5 seconds. The living area battery symbol (Fig. 184,2) is flashing and "On" appears on the display (Fig. 184,10).
 - Release the rotary knob. The 12 V ON symbol (Fig. 184,1) is lit. The power supply has been switched on.
- Switching off:**
- Briefly press the rotary knob. The 12 V ON symbol goes out. The 12 V power supply has been switched off.
- Deactivating 12 V power supply:**
- Switch off 12 V power supply.
 - Press and hold rotary knob for approx. 10 seconds. The living area battery symbol is flashing and "OFF" appears on the display.
 - Release the rotary knob. The power supply has been deactivated.
- Switching the water pump on/off:**
- Turn the rotary knob until the water pump symbol (Fig. 184,11) lights up. The current switching state ("On" or "OFF") is shown on the display.
 - Press the rotary knob. The switching state changes from "On" to "OFF" or from "OFF" to "On": The water pump's power supply has been switched on or off.
The water pump symbol (Fig. 184,11) lights up when the water pump is switched on.
- After approx. 10 seconds, the panel changes into idle mode.
- When switching off the 12 V power supply, the water pump's power supply is switched off, too.
- Displaying battery values:**
- Turn the rotary knob until the living area battery symbol (Fig. 184,2) lights up. The battery voltage of the living area battery appears for approx. 20 seconds on the display (e.g. "13,8U" for 13.8 Volt).
 - Press the rotary knob while the living area battery symbol is illuminated. The charging current or the discharging current (if a preceding minus sign is shown) of the living area battery appears for approx. 20 seconds on the display (e.g. "2.3 A" for a charging current of 2.3 A).
 - Push the rotary knob while the living area battery symbol is illuminated. while the living area battery symbol is lit and the charging current or the discharging current is displayed. The remaining battery capacity ("fill level") of the living area battery is displayed in % (e.g. "80 %"). When "---" is displayed, the system is automatically gathering the current battery capacity. This process may last up to 5 hours.
 - Turn the rotary knob until the starter battery symbol (Fig. 184,3) lights up. The battery voltage of the starter battery appears for approx. 20 seconds on the display.

The following tables will help you correctly interpret the battery voltage of the living area battery displayed on the panel.

Danger of total discharge (battery alarm)

Battery voltage (values during operation)	Mobile operation (vehicle moving, no 230 V connection)	Battery operation (vehicle stationary, no 230 V connection)	Power operation (vehicle stationary, 230 V connection)
11 V or less	12 V power supply overload	If appliances are switched off: Battery flat If appliances are switched on: Battery overload	12 V power supply overload
	The battery is not charged by the alternator, the alternator's regulator is defective		The battery is not charged by the transformer/rectifier, the transformer/rectifier is defective
11.5 V to 13.2 V	12 V power supply overload ¹⁾	Normal range	12 V power supply overload ¹⁾
	The battery is not charged by the alternator, the alternator's regulator is defective ¹⁾		The battery is not charged by the transformer/rectifier, the transformer/rectifier is defective
Over 13.2 V	Battery being charged	Occurs only briefly after charging	Battery being charged

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

Values for off-load voltage	Charging condition of the battery
Less than 12 V	Discharged or totally discharged
12.2 V	Approx. 25 %
12.3 V	Approx. 50 %
More than 12.8 V	Approx. 100 %



▷ Total discharge causes irreparable damage to the battery.



▷ Measure the off-load voltage preferably several hours after the previous charging (e.g. in the morning) and not directly after a current drain.

Battery alarm for the living area battery

The living area battery symbol will be flashing if the voltage of the living area battery falls below 11 V and, thus, there is the risk of total discharge.

Measures:

- When the battery alarm comes on, switch off the appliances and charge the living area battery, either by mobile operation or by connection to a 230 V power supply.

- Displaying tank levels:
- Turn the rotary knob until the water tank symbol (Fig. 184,4) lights up. The symbol "%" is lit. The fill level of the water tank appears for approx. 20 seconds on the display.
 - Turn the rotary knob until the waste water tank symbol (Fig. 184,5) lights up. The symbol "%" is lit. The fill level of the waste water tank appears for approx. 20 seconds on the display.

If the displayed value is flashing, the water tank is empty or the waste water tank is full.

- Gas reserve** The reserve gas bottle symbol (Fig. 184,9) lights up when the reserve gas bottle is in use.

- Displaying internal and external temperature:
- Turn rotary knob until the internal temperature symbol (Fig. 184,13) or the external temperature symbol (Fig. 184,12) is lit. The selected temperature appears on the display.

The temperature sensor for the internal temperature is an optional feature.

- Setting clock:
- Turn the rotary knob until the clock symbol (Fig. 184,6) is lit.
 - Press and hold rotary knob for approx. 3 seconds. The hour display is flashing.
 - Set the hours by turning the rotary knob.
 - Press the rotary knob. The minute display flashes.
 - Set the minutes by turning the rotary knob.
 - Press the rotary knob. The display stops flashing. The time has been set.

If the rotary knob is not actuated for 10 seconds, the clock will return to the time display. When there is no mains supply, the time display is switched off after 6 minutes.

9.10 Solar installation (special 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.

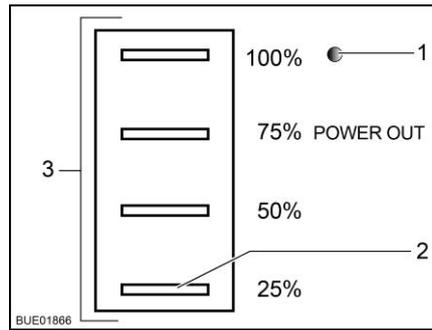


Fig. 185 Status indicator, solar charge regulator

Four LEDs (Fig. 185,3) show the current operating state. Another LED (Fig. 185,1) shows whether output voltage is present.

LED	Status	Signification
Operating state LEDs (Fig. 185,3)	Flashing cyclically	Battery being charged
	Lit up	Battery is fully charged
LED 25 % (Fig. 185,2)	Flashes	Battery is fully discharged
Output voltage LED (Fig. 185,1)	Lit up	Output voltage present
	Not lit up	Output voltage not present

9.11 230 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.

9.11.1 230 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.

9.11.2 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 combined fault current protection switch with safety cut-out.
- ▷ Depending on the equipment, an additional safety cut-out is installed in the fuse box.
- ▷ 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.

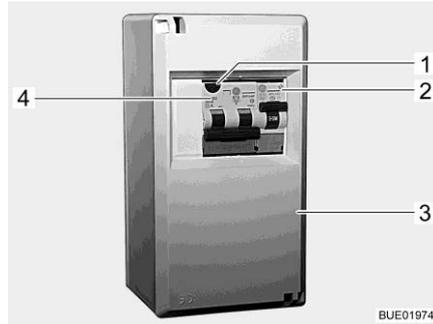


Fig. 186 230 V fuse box

- 1 Test button
- 2 Safety cut-out
- 3 Fuse box
- 4 Combined fault current protection switch / safety cut-out

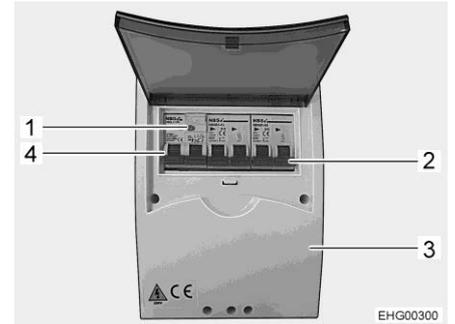


Fig. 187 230 V fuse box (variant)

- 1 Test button
- 2 Safety cut-out
- 3 Fuse box
- 4 Combined fault current protection switch / safety cut-out

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 the safety cut-outs (Fig. 186,2, Fig. 186,4 or Fig. 187,2, Fig. 187,4) in the fuse box (Fig. 186,3 or Fig. 187,3).

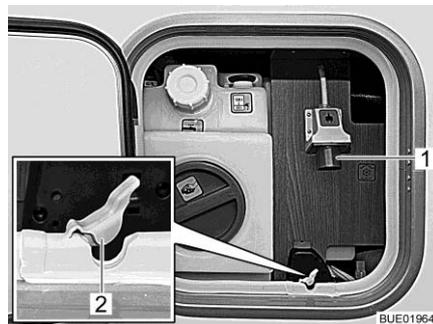


Fig. 188 230 V connection on the vehicle (with service unit)



Fig. 189 230 V connection on the vehicle (without service unit)

- Plug connector in service unit: Open the service flap.
- Open the seal (Fig. 188,2) of the cable feedthrough.
- Guide the cable through the cable feedthrough into the vehicle.
- Plug the plug connector into the 230 V connection (Fig. 188,1) of the vehicle.
- Close the service flap.
- Plug connector outside the vehicle: Open the cover of the 230 V connection on the vehicle (Fig. 189) 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 power supply device. Ensure that the detent of the spring-mounted pivoting cover is engaged in position.
 - Switch on the 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. 186,1 or Fig. 187,1) of the combined fault current protection switch /safety cut-out (Fig. 186,4 or Fig. 187,4) in the fuse box (Fig. 186,3). The fault current protection switch must trip.
 - Switch the fault current protection switch back on again.
- Unplugging the connection:
- Switch off the safety cut-outs (Fig. 186,2, Fig. 186,4 or Fig. 187,2, Fig. 187,4) in the fuse box (Fig. 186,3 or Fig. 187,3).
 - Loosen the detent on the power supply device and unplug the connection cable from the socket.
 - Plug connector in service unit: Open the service flap.
 - Unplug the plug connector from the connection (Fig. 188,1) of the vehicle and remove the connecting cable.
 - Press the seal (Fig. 188,2) of the cable feedthrough into the recess of the service flap gasket.
 - Close the service flap.
 - Plug connector outside the vehicle: Release detent, unplug plug connector, and close cover of the 230 V connection.

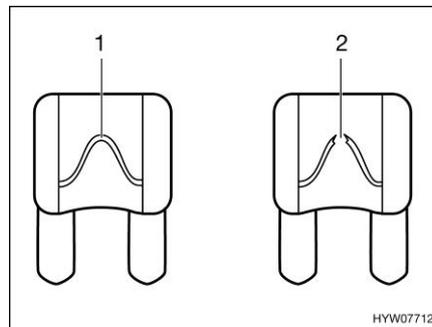
9.12 Fuses



- ▶ 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.

9.12.1 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

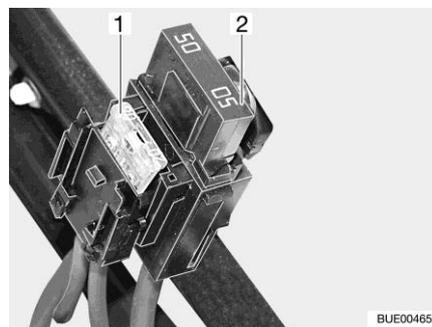
Fig. 190 12 V fuse

An intact 12 V fuse can be detected by the unbroken fuse element (Fig. 190,1). If the fuse element is broken (Fig. 190,2), 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 fuses are installed in the vicinity of the starter battery. The starter battery is on the floor between the seats in the driver's cabin and can be accessed under a cover.



- 1 Flat fuse 20 A/yellow (for refrigerator)
- 2 Jumbo flat fuse 50 A/red

Fig. 191 Fuses on the starter battery

Fuses on the living area battery

The fuses are fitted next to the living area battery.

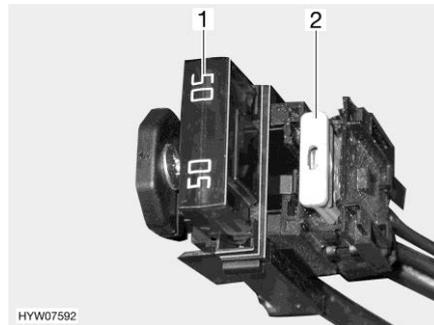


Fig. 192 Fuses (living area battery)

- 1 Jumbo flat fuse 50 A/red (for transformer/rectifier)
- 2 Flat fuse: 2 A/grey (Lyseo Time I) 5 A/light brown (Ixeo I) (for battery sensor, living area battery)

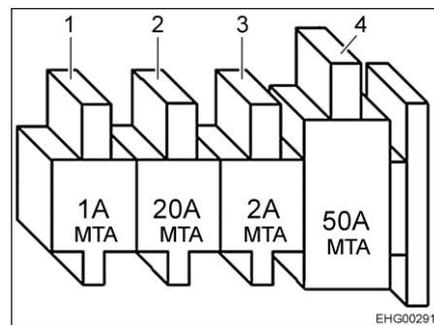


Fig. 193 Fuses (living area battery with charging booster)

- 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)

Fuses on the relay box AD01

A relay box (AD01) is installed in one of the two seat consoles. The relay box helps generate the signals for the chassis lighting not provided by the base vehicle. The relay box can be used anywhere.

The circuit used by us can vary from the circuit provided by the manufacturer. Consequently, the circuit can also vary from the display on the relay box type plate, which the manufacturer affixed.

Fu No	Function	Value/colour
B2	Cl. 15 (ignition on)	15 A blue
B3	Cl. 30 (constant positive)	15 A blue
B5	Signal D+	Internal Polyswitch (2 A)
B6	Spare	15 A blue
B7	Front side marker lights (white/red)	5 A light brown

Fuses on the transformer/rectifier EBL 119

Function	Value/colour
Internal charger module	20 A yellow
Compressor/AES refrigerator	20 A yellow
Heater	10 A red
Basic light/electrically operated entrance step/radio	25 A white
Spare 4	25 A white
Spare 3	25 A white
Spare 2	15 A blue
Spare 1	15 A blue
Solar	15 A blue
Spare 5	15 A blue
Spare 6	15 A blue
Auxiliary charging unit	20 A yellow
Circuit 1	10 A red
Circuit 2	10 A red
TV	10 A red
Water pump	5 A light brown

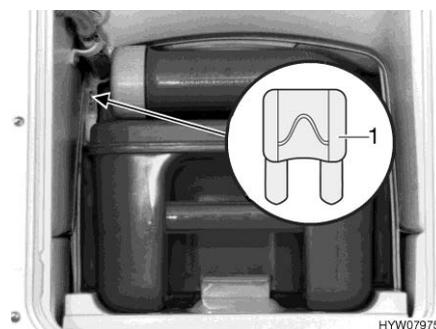
Fuses on the transformer/rectifier EBL 630 (depending on the equipment)

Main fuse 12 V power supply	50 A red
Internal charger module	30 A green
Auxiliary charging unit 1	30 A green
Auxiliary charging unit 2	30 A green
Solar regulator WB	20 A yellow
Solar regulator SB	20 A yellow

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

Fuse for the Thetford toilet (swivel toilet)

The fuse is located in the locker wall of the Thetford cassette.



1 Flat fuse 3 A/purple

Fig. 194 Fuse for the Thetford toilet

- Changing:**
- Open the flap for the Thetford cassette on the outside of the vehicle.
 - Pull out the Thetford cassette completely.
 - Replace fuse (Fig. 194,1).

**Fuse for the Thetford toilet
(swivel toilet C-260)**

The toilet has a maintenance-free fuse which resets automatically.

**Fuse for waste water
heating**

The control unit has an electronic overload protection. In the event of an overload, the waste water heating switches off. To restart, disconnect the control unit briefly from the power supply.

Depending on the model, the supply voltage of the waste water heating will be protected by the fuse circuit Spare 3 or Spare 4.

**Electrical pull-down bed
fuse (Ixeo I)**

Control fuse	Power fuse
Polyswitch (self-restoring) integrated in bus module	Polyswitch (self-restoring) integrated in bus module

Rear pull-down bed fuse

The fuse (2 A/grey) is installed behind panelling (Fig. 195,1) in a wall-mounted cupboard in the rear.

In addition, the pull-down bed also has a fuse on the transformer/rectifier at the Reserve 3 connection for protection.

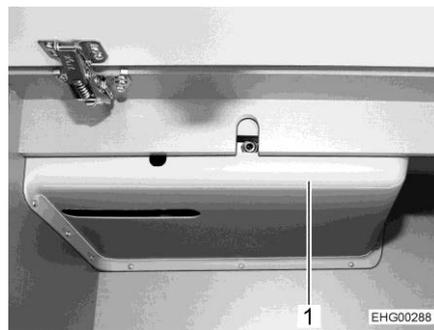


Fig. 195 Panelling wall-mounted cupboard

9.12.2 230 V fuse



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



- ▷ In international language usage, the fault current protection switch is also denominated RCD (Residual Current Device).

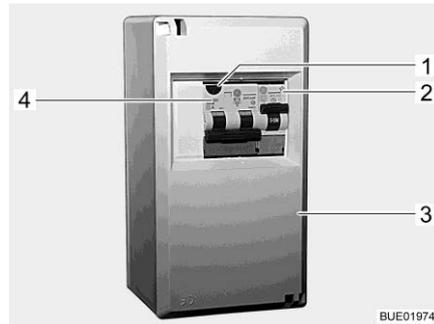


Fig. 196 230 V fuse box

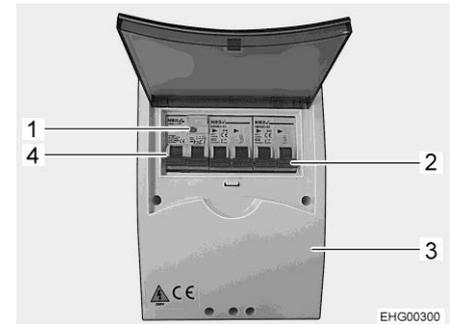


Fig. 197 230 V fuse box (variant)

A combined fault current protection switch / safety cut-out (Fig. 196,4 or Fig. 197,4) in the fuse box (Fig. 196,3 or Fig. 197,3) protects the complete vehicle from fault current (0.03 A).

The integrated safety cut-out (16 A) protects the 230 V sockets, the power supply unit, the auxiliary charging unit, and the refrigerator.

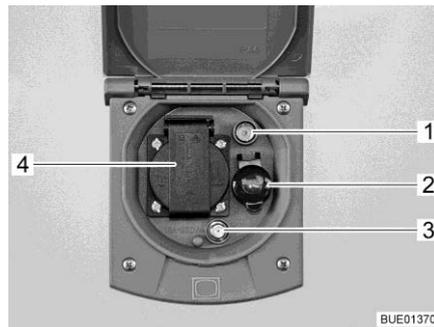
For vehicles with special equipment (e.g. air conditioning unit) an additional safety cut-out (10 A) (Fig. 196,2 or Fig. 197,2) secures the device.

Checking the fault current protection switch:

- When the vehicle is connected to the 230 V power supply, press the test button (Fig. 196,1 or Fig. 197,1). The fault current protection switch must trip.

Position See chapter 17.

9.13 External socket (special equipment)



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

Fig. 198 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:

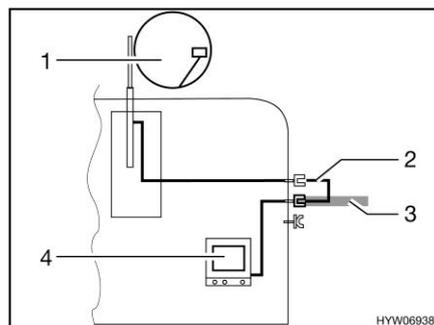


Fig. 199 TV inside the vehicle

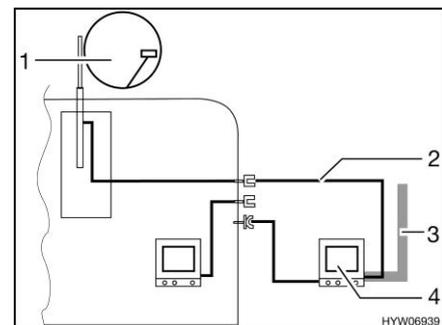


Fig. 200 TV in the awning

- TV inside the vehicle (Fig. 199,4): Connection to roof antenna (Fig. 199,1) with connection cable (Fig. 199,2)
- TV inside the vehicle (Fig. 199,4): Connection to external antenna (Fig. 199,3)
- TV inside the awning (Fig. 200,4): Connection to roof antenna (Fig. 200,1) with connection cable (Fig. 200,2)
- TV inside the awning (Fig. 200,4): Connection to external antenna (Fig. 200,3)

9.14 Circuit diagrams

9.14.1 Circuit diagram, interior (EBL 119)

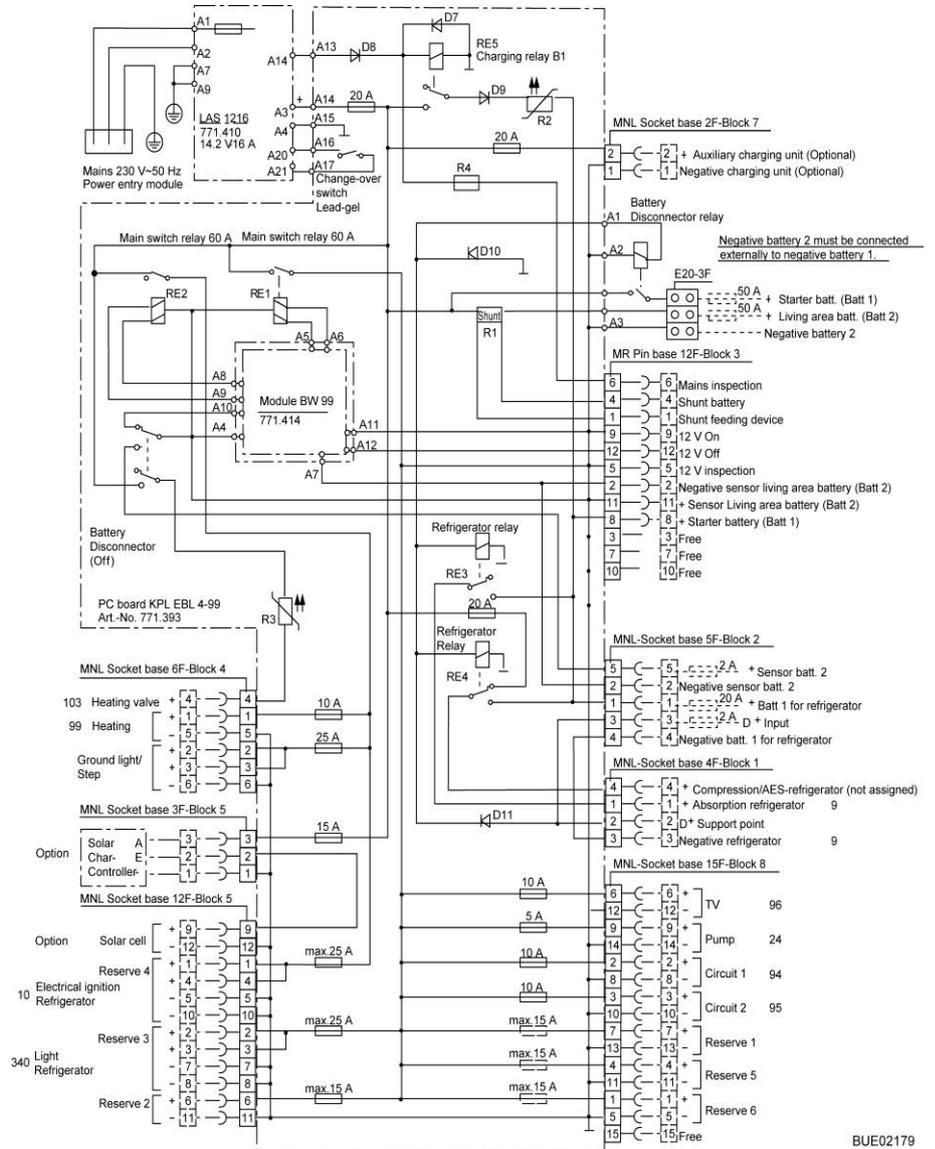
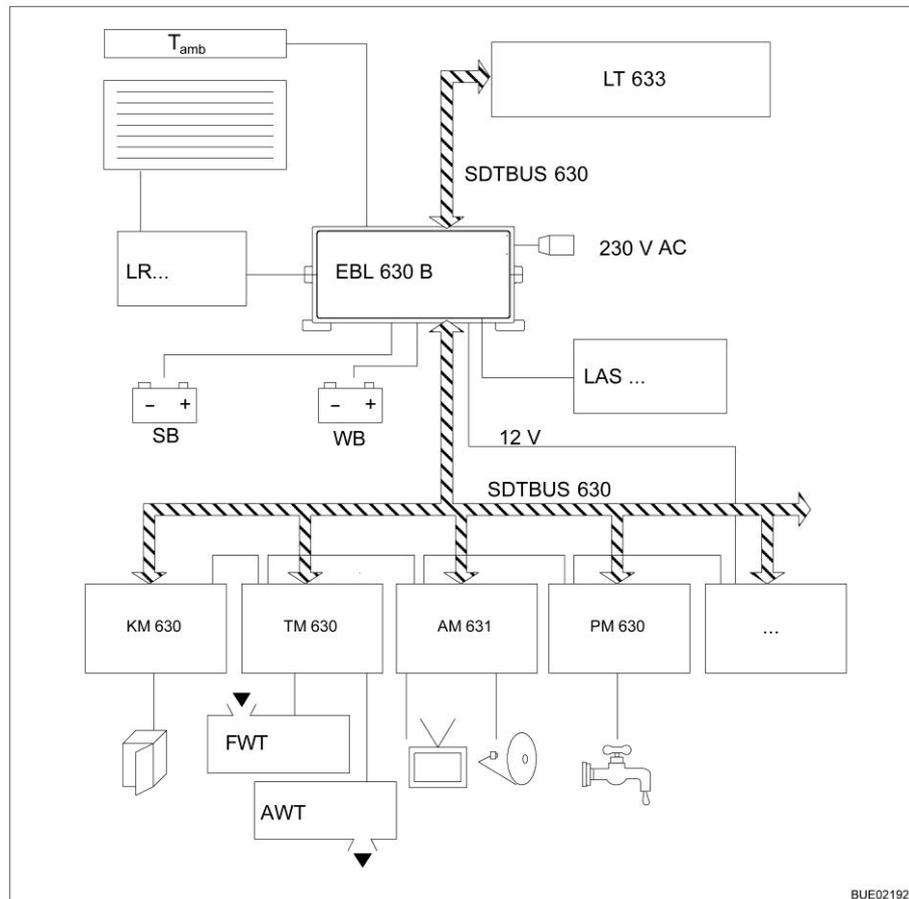


Fig. 201 Circuit diagram, interior (EBL 119)

BUE02179

9.14.2 Circuit diagram, interior (EBL 630, bus system)



BUE02192

Fig. 202 Block diagram for energy supply of transformer/rectifier EBL 630

Description	Signification
T _{amb}	External temperature sensor
LT 633	Panel
LR...	Solar regulator
EBL 630 B	Transformer/rectifier
SB	Starter battery
WB	Living area battery
LAS...	Auxiliary charging unit
SDTBUS	Bus system
KM 630	Bus module for refrigerator
TM 630	Bus module for tank
AM 631	Bus module for outputs
PM 630	Bus module for pumps
FWT	Fresh water tank
AWT	Waste water tank
...	Further bus modules depending on the equipment

9.14.3 Connection diagram, panel (LT 96)

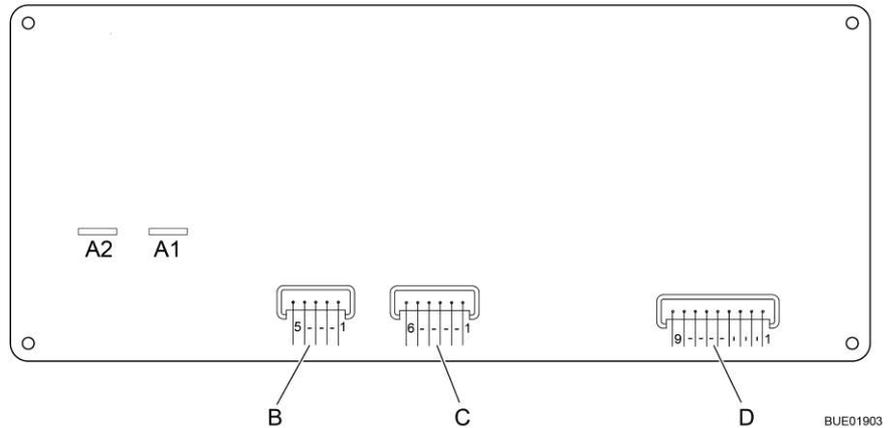


Fig. 203 Connection diagram, panel (LT 96)

A	2 x AMP connectors 4,8 x 0,8
1	Pump
2	+ 12 V
B	Lumberg MSFQ 5-pin
1	full
2	3/4
3	1/2
4	1/4
5	Base waste water tank
C	Lumberg MSFQ 6-pin
1	full
2	3/4
3	1/2
4	1/4
5	Base water tank
6	n. c.
D	Lumberg MSFQ 9-pin
1	12 V indicator
2	Main button 12 V Off
3	Main button 12 V On
4	Positive Starter battery 12 V
5	Positive Living area battery sensor
6	Negative Living area battery sensor
7	230 V indicator
8	n. c.
9	n. c.

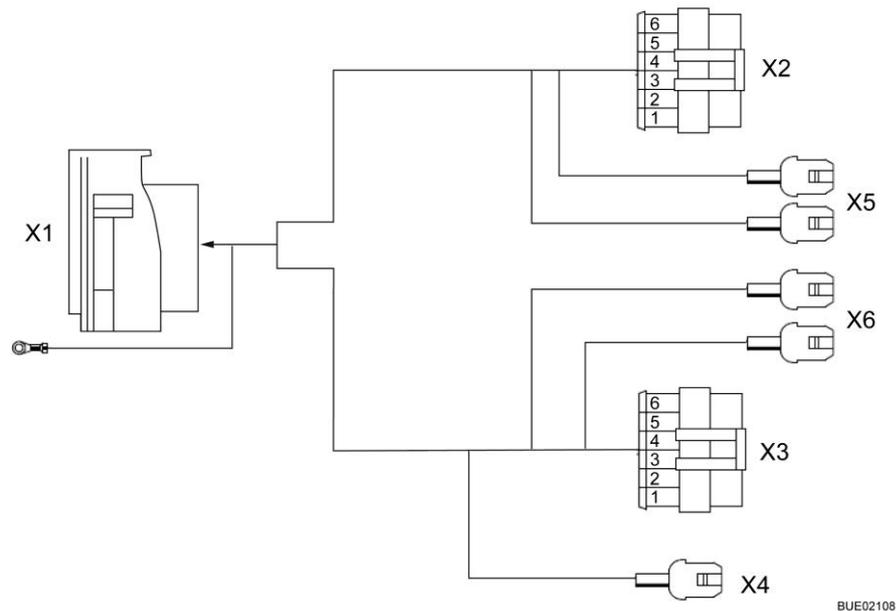
9.14.4 Connection diagram, panel (LT 633)



Fig. 204 Connection diagram, panel (LT 633)

Pin header	Type	Pin	Signal
A	MSFQ/0 4-pin	1	AD 1
		2	AD 2
		3	+ 12 V LED
		4	GND
B	MSFQ/0 3-pin	1	BUS
		2	GND
		3	+ 12 V
C	MSFQ/0 5-pin	1	BUS
		2	GND
		3	+ 12 V
		4	+ 12 V panel
		5	EBL On
D	MSFQ/0 2-pin	1	Internal temperature
		2	Internal temperature

9.14.5 Circuit diagram, exterior



BUE02108

Fig. 205 Circuit diagram, exterior

X1 Central connector
(MCP 12-pole)

Pin	Colour of conductor	Signal
1	wh	GND
2	gy	Tail light, left
3	bn	Tail light, right
4	ye	Direction indicator lamp, left
5	gn	Direction indicator lamp, right
6	rd	Brake light, left
7	or	Brake light, right
8	rd	Third brake light
9	bu	Fog tail light, left
10	vt	Right fog tail lights
11	pi	Licence plate light
12	vt	Reverse light, left
13	vt	Reverse light, right

**Connector for
tail light, left
(Superseal 6-pole)**

Pin	Colour of conductors of wiring harness	Colour of conductors of tail light	Signal
1	wh	wh	GND
2	vt	gy	Reverse light
3	bu	bu	Fog tail light
4	ye	ye	Direction indicator light
5	rd	rd	Brake light
6	gy	bk	Tail light

**Connector for
tail light, right
(Superseal 6-pole)**

1	wh	wh	GND
2	vt	gy	Reverse light
3	vt	bu	Fog tail light
4	gn	ye	Direction indicator light
5	or	rd	Brake light
6	bn	bk	Tail light

**X4 Connector for
third brake light
(MNL 2-pole)**

1	rd	-	Third brake light
2	wh	-	GND

**X5/X6 Licence
plate light
(spade connector)**

1	pi	-	Licence plate light
2	wh	-	GND

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.

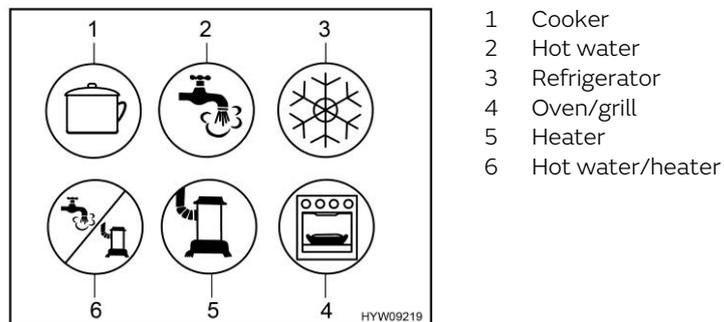


Fig. 206 Possible symbols for the gas isolator taps

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!



- ▷ 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.
- ▷ In winter operation (heater and hot water), the circulation fan is automatically switched on when the hot-air heater is activated, and it stays on. This drains the living area battery when the vehicle is not connected to an external 230 V power supply. Take into consideration that the living area battery only has limited reserves of energy.



- ▷ Do not use the water from the boiler as drinking water.
- ▷ The hot-air heater can even run on an empty boiler.
- ▷ If the power supply to the heater was interrupted, the time must be reset.

Initial start-up

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

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



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

10.2.2 To heat properly



- ▷ Hot air may damage the floor covering. Do not point the air outlet nozzles towards the floor covering.



Fig. 207 Air outlet nozzle (hot-air heater)

Hot air distribution

Several air outlet nozzles (Fig. 207) are built into the vehicle. Pipes conduct the warm air to the air outlet nozzles. Turn the air outlet nozzles in a suitable position so the air can escape as required. To avoid draft close the air outlet nozzles on the dashboard and set the air distribution of the base vehicle to air circulation.

Adjusting the air outlet nozzles

- Fully open: Full hot air stream
- Half or partially open: Reduced hot air stream

When five air outlet nozzles are completely opened, less warm air escapes through each nozzle. However, if only three air outlet nozzles are opened, more warm air flows out of each nozzle.

10.2.3 Hot-air heater and boiler with CP plus digital operating unit



- ▷ If there is a risk of frost and the heater is not in operation, empty the boiler.
- ▷ In winter operation (heater and hot water), the circulation fan is automatically switched on when the hot-air heater is activated, and it stays on. This puts an immense strain on the living area battery, if the vehicle is not connected to an external 230 V power supply. Take into consideration that the living area battery only has limited reserves of energy.



- ▷ Depending on the equipment, the heater can be operated from a mobile terminal (e.g. smartphone, tablet PC) via an app (see section 10.4). The Truma app can be loaded for common mobile terminals via the respective app stores.
- ▷ The hot-air heater can even run on an empty boiler.
- ▷ If the power supply to the heater was interrupted, the time must be reset.

Maximum heat output

Gas operation	Electrical operation	Mixed operation (gas and electrical operation)
6000 W	1800 W	5800 W

Operating unit

The operating unit is divided into two sections:

- Display
- Operating buttons



- 1 Display
- 2 Rotary push button
- 3 Back button

Fig. 208 Operating unit (hot-air heater and boiler)

After being switched on, the most recently set values/operating parameters are activated.

If no button is pressed, the operating unit switches to stand-by mode after a few minutes.

If the time is set, the display in stand-by mode alternates between the time and the room temperature set.

After being switched off, the display in the control unit may remain active for several minutes since the heater is still running.

Operating buttons

The operating buttons have the following functions:

Button	Button operation	Function
Rotary push button (Fig. 208,2)	Turn to the right	Menu is run through from left to right
		Values are increased
	Turn to the left	Menu is run through from right to left
		Values are decreased
Press briefly	Press (3 seconds)	Selected value is saved
		Menu item is selected for changing values (selected menu item flashes)
Back button (Fig. 208,3)	Press	Return from a menu item without saving values

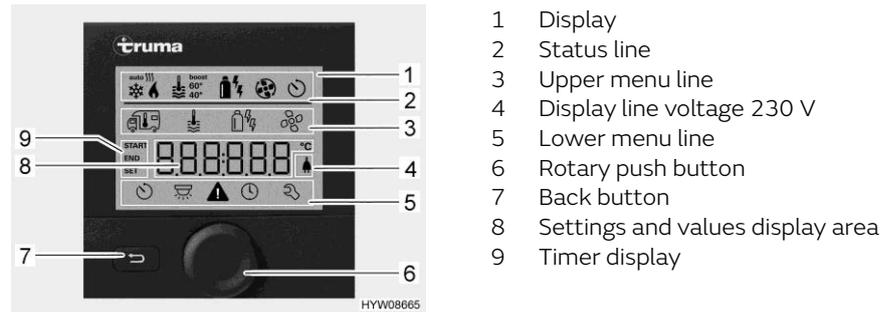


Fig. 209 Operating unit with displays

Display

The display is divided into four sections:

- Status line (Fig. 209,2)
- Upper menu line (Fig. 209,3)
- Display area (Fig. 209,8)
- Lower menu line (Fig. 209,5)

Switching operating unit on-/off:

- Press and hold the rotary push button (Fig. 209,6) for approx. 3 seconds. Both menu lines (Fig. 209,3 and Fig. 209,5) are displayed. The first symbol flashes.



- ▷ Switching the operating unit on/off means switching between stand-by and setting mode. In stand-by mode, the display alternates between the room temperature and the time that have been set.

Carrying out settings:

- Turn rotary push button (Fig. 209,6) until the required menu symbol flashes.
- Press rotary push button.
- Turn rotary push button until the required value is displayed.
- Press rotary push button to save the value set. If you do not wish to change the value originally set: Press back button (Fig. 209,7).

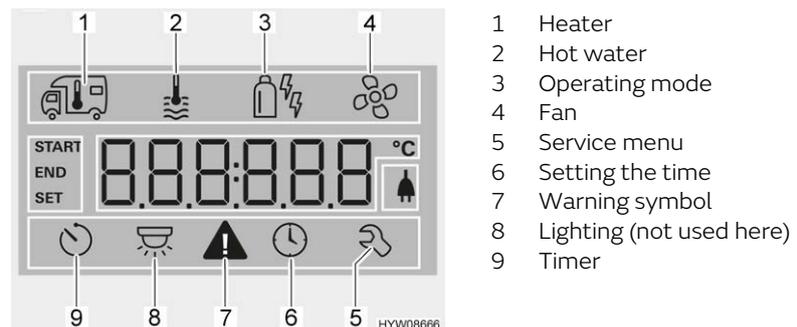


Fig. 210 Display (operating unit)

Switching on the heater:

- Open the regulator tap on the gas bottle and the gas isolator tap "Heater/boiler".
- Turn rotary push button (Fig. 209,6) until the heater menu symbol (Fig. 210,1) flashes.
- Press rotary push button.

- Turn rotary push button until required value is displayed.
- Press rotary push button to save the value set. The symbol in the status line (Fig. 209,2) flashes until the room temperature set is reached. If you do not wish to change the value originally set: Press back button (Fig. 209,7).

Switching off the heater:

- Turn temperature value back until OFF is displayed. Press rotary push button to save.



- ▷ The required room temperature can also be changed in stand-by mode by turning the rotary push button.

Switching on production of hot water:

- Open the regulator tap on the gas bottle and the gas isolator tap "Heater/boiler".
- Turn rotary push button (Fig. 209,6) until the hot water menu symbol (Fig. 210,2) flashes.
- Press rotary push button.
- Turn rotary push button until the required value is displayed:
 - OFF: Production of hot water is switched off.
 - 40°: Hot water is heated to 40 °C.
 - 60°: Hot water is heated to 60 °C.
 - BOOST: Fast heating of hot water (boiler priority) for max. 40 minutes. The water temperature is then held at a higher level for two reheating cycles (approximately 62 °C).
- Press rotary push button to save the value set. The symbol in the status line (Fig. 209,2) flashes until the hot water temperature set is reached. If you do not wish to change the value originally set: Press back button (Fig. 209,7).

Switching off production of hot water:

- Turn rotary push button until OFF is displayed. Press rotary push button to save.

Safety/drainage valve

The boiler is equipped with a safety/drainage valve (Fig. 211). The safety/drainage valve prevents water in the boiler from freezing, when there is frost and the heater is not switched on.



- ▷ When the vehicle is not used for a long period of time, open the safety/drainage valve and empty the boiler.
- ▷ At temperatures below 2 °C the safety/drainage valve opens automatically. Only if the temperature of the safety/drainage valve lies above 6 °C can it be shut again.
- ▷ The water pump and the water fittings are not protected against freezing by the safety-/drainage valve.



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

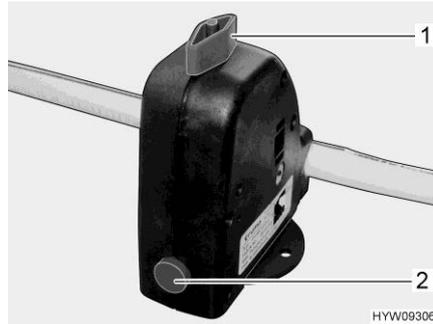


Fig. 211 Safety/drainage valve (boiler)

Position See chapter 17.

Filling/emptying the boiler The boiler can be supplied with water from the water tank.

Filling the boiler with water:

- Switch on the 12 V power supply on the panel.
- Close the safety/drainage valve. Turn the knob (Fig. 211,1) perpendicular to the safety/drainage valve and push the push button (Fig. 211,2) in.
- 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 hot water production.
- Open the safety/drainage valve. To do this turn the knob (Fig. 211,1) parallel to the safety/drainage valve. The push button (Fig. 211,2) jumps out. The boiler is drained to the outside by the safety/drainage valve.
- Check whether the water has been drained completely from the boiler (approx. 10 litres).

Operating modes

The hot-water heater with the boiler can be operated with various energy sources.

Selecting operating mode:

- Turn rotary push button (Fig. 209,6) until the menu symbol operating mode (Fig. 210,3) flashes.
- Press rotary push button.
- Turn rotary push button until the desired operating mode is displayed:
 -  Gas operation
 -  Electrical operation (900 W)
 -  Electrical operation (1800 W)
 -  Gas and electrical operation (900 W)
 -  Gas and electrical operation (1800 W)



- Press the rotary push button to save the set operating mode. To revert to the original setting: Press back button (Fig. 209,7).
- ▷ 230 V electrical operation is only possible when the vehicle is connected to the 230 V power supply.
- ▷ Select the output level for 230 V electrical operation so that it corresponds to the fuse protection of the 230 V connection (900 W for 3.9 A fuse, 1800 W for 7.8 A fuse).

The combination of gas operation and 230 V electrical operation shortens the time required to heat up the vehicle.

Setting the fan:

- Turn rotary push button (Fig. 209,6) until the fan menu symbol (Fig. 210,4) flashes.
- Press rotary push button.
- Turn rotary push button until the required value is displayed:
 - OFF: Fan is switched off.
 - VENT: Air circulation
 - ECO: Low fan setting
 - HIGH: High fan setting
 - BOOST: Fast room heating. Boost is available if the current room temperature is at least 10 °C below the selected room temperature.
- Press rotary push button to save the value set. If you do not wish to change the value originally set: Press back button (Fig. 209,7).

Setting the timer:

- Turn rotary push button (Fig. 209,6) until the timer menu symbol (Fig. 210,9) flashes.
- Press rotary push button. The start time is displayed and the hour display flashes.
- Turn rotary push button until the hour of the selected start time is displayed.
- Press rotary push button. The minute display flashes.
- Turn rotary push button until the minute of the selected start time is displayed.
- Press rotary push button.
- Proceed in the same way to set the switch-off time, the required room temperature, the hot water setting and the fan setting.
- Press rotary push button. The timer is activated. The timer symbol (Fig. 210,9) flashes when the timer is programmed and active.



- ▷ The service menu contains items that generally only need to be set once (language, background brightness, calibration), as well as information for service centres (version numbers).

Fault display The warning symbol (Fig. 210,7) flashes in the event of a warning. The heater continues to operate. In the event of only a temporary fault, the warning symbol goes out automatically.

In the event of a warning, the control unit displays the error code for the fault. The heater is switched off. Press rotary push button to restart the heater.



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

10.2.4 Alde hot-water heater and boiler (partially special equipment)



- ▷ 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 See chapter 17.

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. 212 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. 212	Button	Function
2	MENU	Open adjustment menu
3		Activate heating

Display

The display (Fig. 212,1) is designed as a touch screen. Touching the symbols calls up the relevant function.



Fig. 213 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. 214 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 button for switching on the automatic air conditioning (only visible when the Truma Aventa air conditioning unit is installed)
	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.

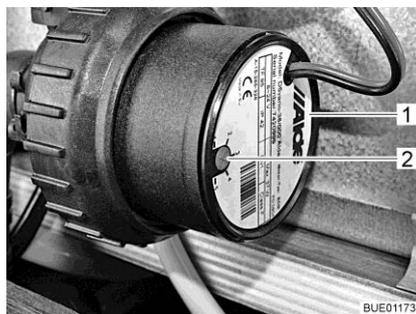


Fig. 215 Speed reduction

The rotational speed of the circulating pump can be set with the control knob (Fig. 215,2). At a lower rotary speed, the operating sounds of the pump are quieter.

The control knob is located on the circulating pump (Fig. 215,1).

- Setting the output:**
- Turn the control knob (Fig. 215,2) 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.

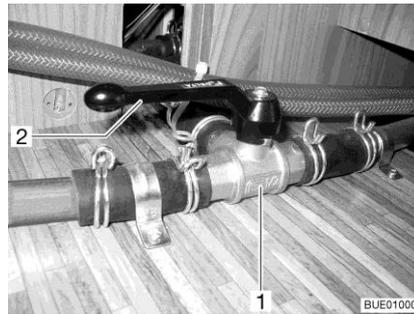


Fig. 216 3-way valve

Opening the heat circulation in the rear area:

- Set the lever (Fig. 216,2) of the 3-way valve (Fig. 216,1) parallel to the straight flow direction (Fig. 216).

Locking the heat circulation in the rear area:

- Set the lever (Fig. 216,2) of the 3-way valve (Fig. 216,1) transverse to the straight flow direction.

Alde heat exchanger (special 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. 212,3) on the operating unit (Fig. 212). The start screen appears in the display. That turns on the heating control system and makes the circulating pump run.
- Press "MENU" button (Fig. 212,2).
- 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. 212,3) on the operating unit (Fig. 212).



Fig. 217 Alde heat exchanger

- Turning on: ■ Set stopcock handle (Fig. 217,1) parallel to the pipe.
- Turning off: ■ Set stopcock handle (Fig. 217,1) 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 (special equipment)



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

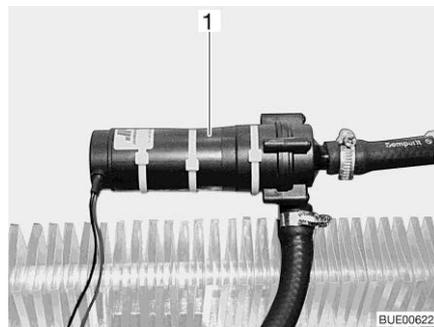


Fig. 218 Auxiliary circulating pump

The auxiliary circulating pump (Fig. 218,1) 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. 219 Operating switch for auxiliary circulating pump

The auxiliary circulating pump switch (Fig. 219) is located next to the hot-water heater operating unit. The yellow indicator lamp illuminates when the pump is operated.

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.

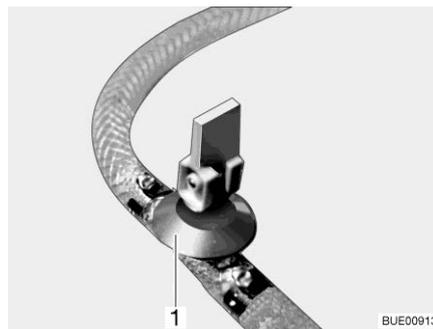


Fig. 220 Drain cock

Filling the boiler with water:

- Close the drain cock(s). Position the rocking lever (Fig. 220,1) 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. 220). To do so, set the rocking lever (Fig. 220,1) 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.

10.2.5 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. 221 Wall flue (hot-water heater)



Fig. 222 Wall flue (hot-air heater)

The wall flue is mounted on the left side wall.

10.2.6 Electrical floor warming unit (special equipment)



- ▶ On models with electrical floor warming unit, never drill holes in the floor or screw in any screws. Careful with sharp objects. There is danger of a power cut or a short circuit due to damage to a heater wire.



- ▷ Do not cover the transformer. Danger of overheating!



- ▷ The electrical floor warming unit only operates if the vehicle is connected to the 230 V power supply.
- ▷ The output of the electrical floor warming unit alone is not sufficient to heat the living area.



Fig. 223 Transformer for electrical floor warming unit

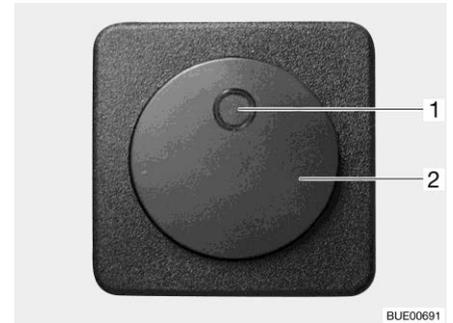


Fig. 224 Switch for electrical floor warming unit

The transformer for the electrical floor warming unit is installed either in the bench seat, in the bedding box or in the rear garage, depending on the model.

- Switching on:**
- Connect the vehicle to the 230 V power supply (see chapter 9).
 - Press the rocker switch (Fig. 224,2). The indicator lamp (Fig. 224,1) on the switch is illuminated.

- Switching off:**
- Press the rocker switch (Fig. 224,2). The indicator lamp (Fig. 224,1) on the switch goes off.

After switching off, the floor remains warm for a while, due to residual heat. If the transformer (Fig. 223,1) is overloaded, the overload protection is actuated. The pin (Fig. 223,2) jumps out.

- Switching on overload protection:**
- Press the pin (Fig. 223,2) on the overload protection when the transformer is cooled.

10.3 Air conditioning unit (special equipment)

10.3.1 Truma Aventa air conditioning unit



- ▷ The cooling circuit may only be opened by the manufacturer or an authorised specialist workshop.
- ▷ Do not block the air inlets and air outlets.
- ▷ Do not drive on any gradients or inclines greater than 8 % when the air conditioning unit is in operation. Otherwise the compressor could be damaged.
- ▷ Do not operate the unit in cooling mode for extended periods when the vehicle is on an incline. Condensation can enter the interior.



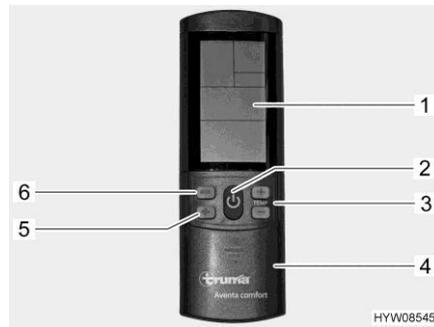
- ▷ The air conditioning unit only runs if the vehicle is connected to a 230 V power supply.
- ▷ The external 230 V power supply must be protected by a fuse of at least 6 A. It is otherwise not possible to operate the air conditioning unit properly.
- ▷ Heating at external temperatures below 4 °C is not possible, as the heating output then falls sharply. The unit switches to defrosting for a short time at temperatures between 4 °C and 7 °C. Unrestricted heating operation is possible at external temperatures above 7 °C.
- ▷ Always point the remote control at the infrared receiver when using it.
- ▷ Depending on the equipment, the air conditioning unit can be operated from a mobile terminal (e.g. smartphone, tablet PC) via an app (see section 10.4). The Truma app can be loaded for common mobile terminals via the respective app stores.
- ▷ Also read the manufacturer's instruction manual.

Operating modes

The air conditioning unit can be operated in the following modes:

- Automatic
- Cooling
- Heater
- Air circulation

Remote control All functions of the air conditioning unit can be operated via the remote control.



- 1 Display
- 2 On/Off button
- 3 Buttons "+" and "-" for temperature selection
- 4 Sliding door for field with setting buttons
- 5 Fan setting selection button (three levels)
- 6 Mode selection button

Fig. 225 Remote control (air conditioning unit)

Automatic mode In automatic mode the desired temperature merely has to be set. Depending on the room temperature, the air conditioning unit automatically selects cooling or heating mode and the fan setting.

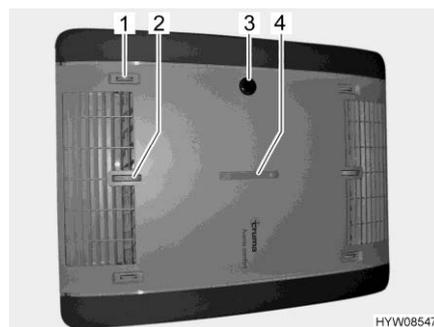
Switching on: ■ Press the On/Off button (Fig. 225,2). The last settings selected are accepted.



▷ The circulation fan runs after switching on. The compressor switches itself on after no more than 3 minutes. The blue LED (cooling) or the yellow LED (heating) flashes.

■ Use the "+" and "-" buttons (Fig. 225,3) to set the desired temperature.

Switching off: ■ Press the On/Off button (Fig. 225,2). The lighting can continue to be operated.



- 1 Air distribution right/left
- 2 Air distribution ceiling/floor
- 3 IR receiver, function display, manual on/off
- 4 Air distribution front/rear

Fig. 226 Function display and air distribution (air conditioning unit)

Operation and display on the unit

Certain functions can be operated directly on the unit.

Air distribution adjustment: ■ Set the small adjustment wheel and sliding regulator for stepless air distribution as desired.

- Switching on/off manually: ■ Press the micro button (e.g. with a ballpoint pen if the remote control is not in reach).

Function display

Status LED	Signification
Blue LED flashes	Compressor starts up (cooling mode)
Blue LED lights up	Cooling operation
Yellow LED flashes	Compressor starts up (heating mode)
Yellow LED lights up	Heating mode
Red LED flashes	Data is transferred
Red LED lights up	Fault

Manual mode

In the manual mode, the cooling, heater, and air circulation can be set separately on the remote control.

- Switching on the cooling:
- Press the On/Off button (Fig. 225,2).
 - Press the mode selection button (Fig. 225,6) until the cooling symbol appears in the display (Fig. 225,1).
 - Use the "+" and "-" buttons (Fig. 225,3) to set the desired temperature.
 - Use the "🌀" selection button (Fig. 225,5) to set the desired fan level.

When the room temperature set on the remote control is reached, the compressor switches itself off and the blue LED in the IR receiver goes out. The circulation fan continues to run.

When the room temperature rises above the set temperature, the unit automatically switches itself back to cooling mode.

- Switching on the heater:
- Press the On/Off button (Fig. 225,2).
 - Press the mode selection button (Fig. 225,6) until the heating symbol appears in the display (Fig. 225,1).
 - Use the "+" and "-" buttons (Fig. 225,3) to set the desired temperature.
 - Use the "🌀" selection button (Fig. 225,5) to set the desired fan level.

When the room temperature set on the remote control is reached, the compressor switches itself off and the yellow LED in the IR receiver goes out. The circulation fan continues to run.

When the room temperature falls below the set temperature, the unit automatically switches itself back to heating mode.

- Switching on air circulation:
- Press the On/Off button (Fig. 225,2).
 - Press the mode selection button (Fig. 225,6) until the air circulation symbol appears in the display (Fig. 225,1).
 - Use the "+" and "-" buttons (Fig. 225,3) to set the desired temperature.
 - Use the "🌀" selection button (Fig. 225,5) to set the desired fan level.

In air circulation mode, the inside air is circulated and is cleaned by the filter. No LEDs light up in the IR receiver.

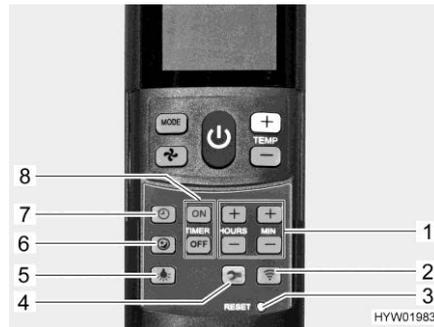


Fig. 227 Remote control with setting buttons (air conditioning unit)

- 1 Buttons for setting the time and the timer
- 2 Send button (repeat data transfer)
- 3 Micro button "RESET" (resetting to the factory setting)
- 4 Setup button for start-up
- 5 Light button (for operating the lighting)
- 6 Soft-start button (for quiet cooling operation)
- 7 Time button (for setting the time)
- 8 "TIMER" buttons for switching time preselection on/off

Activating soft-start: ■ Press the soft-start button (Fig. 227,6). The fan then runs at low speed in cooling mode, which makes it especially quiet.

Setting the time: ■ Press the time button (Fig. 227,7).
 ■ Set the hours and minutes with the buttons (Fig. 227,1).

Switching on the timer: ■ Press the On/Off button (Fig. 225,2).
 ■ Set the desired mode and temperature.

Programming the switching on time: ■ Press "ON" button (Fig. 227,8).
 ■ Press the buttons for setting the time (Fig. 227,1) until the desired time span until switch-on is reached.
 ■ Press "ON" button (Fig. 227,8).

Programming the switch-off time: ■ Press "OFF" button (Fig. 227,8).
 ■ Press the buttons for setting the time (Fig. 227,1) until the desired time span until switch-off is reached.
 ■ Press "OFF" button (Fig. 227,8).

Deactivating the timer: ■ Press the "ON" or "OFF" button (Fig. 227,8) again.

The integrated timer enables the switch-on/switch-off time for the air conditioning unit to be set between 15 minutes and 24 hours in advance (calculated from the current time).

Switching on the lighting: ■ Press the light button (Fig. 227,5). The light is switched on at the last set dimming level.

Dimming the lighting: ■ Press the light button (Fig. 227,5) and keep it pressed until the desired brightness is reached.

Switching off the lighting: ■ Press the light button (Fig. 227,5).



- ▷ The Setup button (Fig. 227,4) is used to connect the remote control with the air conditioning unit during first set-up.

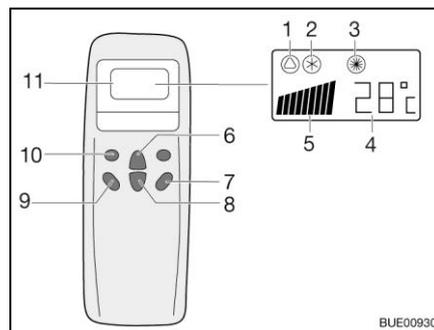
10.3.2 Telair



- ▷ 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.

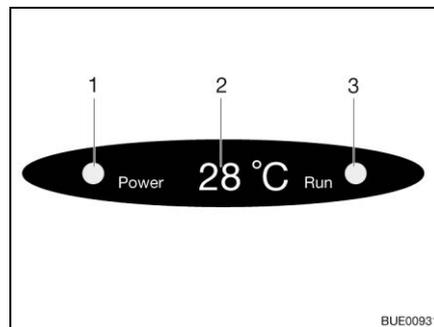


- ▷ The air conditioning unit only runs if the vehicle is connected to a 230 V power supply.
- ▷ In the winter, vehicle heating can be supported but not replaced by the air conditioning unit.
- ▷ Following switch-on the air conditioning unit needs approx. 3 minutes until the compressor starts to run 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. 228 Remote control



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

Fig. 229 Display on the diffuser

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. 228,7).
- Press the "Mode" button (Fig. 228,10) as often as required until the required operating mode (Fig. 228,1, 2 or 3) is indicated on the display. The corresponding indicator lamp on the diffuser display (Fig. 229,3) lights up.

- Use the temperature increase button (Fig. 228,6) or temperature reduction button (Fig. 228,8) to set the required temperature.
- Use the ventilation speed button (Fig. 228,9) to select the required ventilation level.

Switching off:



- Press the "ON/OFF" button (Fig. 228,7).
- ▷ 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 Controlling terminals via an app (special equipment)

Depending on the equipment, a Truma iNet-Box is installed in the vehicle. With the Truma iNet-Box, the Truma heater, the Truma air conditioning unit, and the Alde hot water heating can be operated from a mobile terminal (e.g. smartphone, tablet PC) via an app. The Truma app can be downloaded for common mobile terminals from the respective app stores.

There are two possibilities for the communication between appliance and mobile terminal:

- Bluetooth connection (limited range)
- Connection via the mobile communication network (a mini SIM card with own telephone number and sufficient credit is required; not included in the scope of delivery). Operating is carried out via SMS.

The operation of the appliance is also possible from various mobile terminals. In order to do this, the Truma app must be installed on each mobile terminal.



- ▷ When the mobile terminal has an Internet connection, the instructions for operating the appliances are downloaded and stored. The instructions will then be available at any time (even without Internet connection).

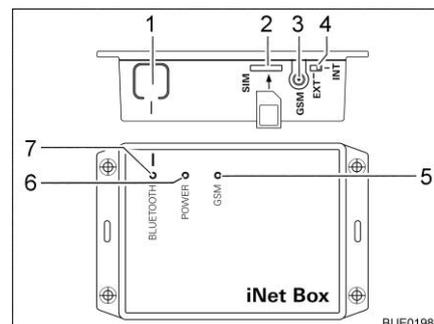


Fig. 230 Truma iNet-Box

- 1 BLUETOOTH button
- 2 Slot for mini SIM card
- 3 Antenna connection for external GSM antenna
- 4 External/internal GSM antenna change-over switch
- 5 GSM LED, red (lit when GSM operation is not possible)
- 6 POWER LED, green (lit when operating)
- 7 BLUETOOTH LED, blue (flashes during pairing)

Setting up the Bluetooth connection:

- Install Truma app on the mobile terminal.
- Switch on the 12 V power supply of the vehicle on the panel.
- Switch on Bluetooth on the mobile terminal.
- Start Truma app and select the menu items "SETTINGS – Setup Truma iNet-Box – Configure Bluetooth". The individual steps are described in detail in the Truma app.

Setting up the mobile communication connection:

- Press the BLUETOOTH button (Fig. 230,1) on the iNet-Box for 1 second. The Truma iNet-Box will be visible in the mobile terminal for approx. 2 minutes (name: "Truma iNet-Box"). During this period, the blue BLUETOOTH LED (Fig. 230,7) will be flashing.
- Confirm the connection to "Truma iNet Box" in the Bluetooth settings of the mobile terminal. The communication is established as soon as the blue LED on the Truma iNet-Box is permanently lit.
- Set up the Bluetooth connection as described above.
- After setting up Bluetooth, press the "Next" button.
- Carefully insert the mini SIM card with own telephone number and sufficient credit into the slot (Fig. 230,2) of the Truma iNet-Box as shown until it engages. The red GSM LED (Fig. 230,5) must be flashing continuously. If the red LED goes out after 20 seconds: Check mini SIM card.
- Enter PIN and telephone number of the mini SIM card in the iNet-Box, as well as a freely eligible name in the respective fields of the setup wizard.
- Press the "Ready" button.

The Truma iNet-Box automatically changes from the mobile communication network to the Bluetooth connection as soon as a stored mobile terminal is located in the Bluetooth reception range. When leaving the reception range, it will automatically change to the mobile communication network (if it has been set up). The Truma iNet-Box can also be operated without mini SIM card. In this case, operating will only be possible within a limited radius via Bluetooth.

Operating Truma appliances via Truma app:



- Press the "REMOTE CONTROL" button.
 - Carry out the operating commands.
- ▷ For proper functioning of the operation via SMS it is necessary that the standard SMS app of the mobile terminal uses its telephone number as sender and does not manipulate the text. Do not use any SMS connectors.
- ▷ Further information can be obtained in the manufacturer's instruction manual.

Position The Truma iNet-Box is installed in the living area (e.g. in the wardrobe).

10.5 Cooker



- ▶ During operation of the gas cooker, do not leave the gas cooker unattended. Even if the gas cooker cannot be overseen for only a short time (e.g. Visit to the toilet), switch the gas cooker off.
- ▶ Never let gas escape unburned due to danger of explosion.
- ▶ Before using the cooker make sure that there is sufficient ventilation. Open a window or the skylight.
- ▶ Do not use gas-operated cooking and baking facilities for heating purposes.
- ▶ Always protect your hands with cooking gloves or potholders when handling hot pots, pans and similar items. There is a risk of injury!
- ▶ Do not fit any curtains in the immediate proximity of the cooker. Fire hazard!



- ▷ Do not place any hot objects such as cooking pans neither on the sink cover nor on the gas cooker cover nor on the work top.

10.5.1 Gas cooker



- ▶ During activation and operation of the gas cooker, no flammable objects or highly inflammable objects such as dishcloths, napkins etc. must be near the gas cooker. Fire hazard!
- ▶ The process of ignition must be visible from above and must not be covered by cooking pans placed on the cooker.
- ▶ If there is a flame protection, always put it up when using the gas cooker. Before driving, remove the flame protection and store it safely.
- ▶ The gas cooker cover is held closed by a spring. When closing there is danger of getting injured!



- ▷ Do not use the glass gas cooker cover as a hob.
- ▷ Do not close the gas cooker cover while the gas cooker is in operation.
- ▷ Do not apply pressure on the gas cooker cover when it is closed.
- ▷ Keep the gas cooker cover open after cooking until the burners are cool. Otherwise the glass plate could shatter.



- ▷ Only use pots and pans whose diameter is appropriate for the gas cooker burners.
- ▷ When the flame goes out, the thermocouple automatically cuts the gas supply.
- ▷ Further information can be obtained in the manufacturer's instruction manual.

The vehicle kitchen unit is fitted with a three-burner gas cooker.

**Automatic ignition
(with lighting knob)**

The gas cooker is equipped with electronic ignition.

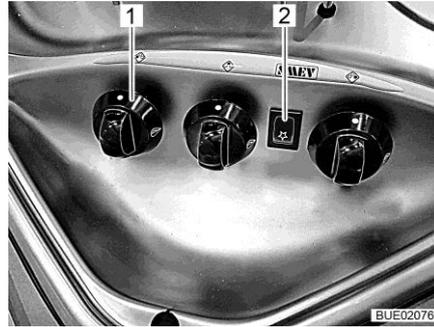


Fig. 231 Operating controls for gas cooker

- Switching on:**
- Open the regulator tap on the gas bottle and the gas isolator tap "Cooker".
 - Open the gas cooker cover.
 - Depending on the model, fold out and lock the flame protection.
 - Turn the control knob (Fig. 231,1) on the burner you wish to use to the ignition position (large flame).
 - Press the control knob down and hold it.
 - Press lighting knob (Fig. 231,2). Ignition sparks are generated at the burner.
 - Once the flame is burning, the control knob must be held down 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:**
- Turn the control knob to the 0 position. The flame fades.
 - Close the gas isolator tap "Cooker" and the regulator tap on the gas bottle.

10.5.2 Gas oven (Dometic) (special equipment)



- ▶ Keep the ventilation openings on the gas oven open at all times.
- ▶ There must be no flammable or highly inflammable objects such as dishcloths, clothes, etc. near the gas oven when it is being lit or during operation. Fire hazard!
- ▶ If ignition has not taken place, repeat the entire procedure. If necessary, check if there is gas and/or current in the gas oven.
- ▶ If the gas oven still does not work, close the gas isolator tap and notify your service centre.
- ▶ If the burner flame is accidentally extinguished, turn the control knob to "O" and leave the burner off for at least 1 minute. Then ignite it again.
- ▶ Parts of the gas oven become very hot during operation. Never touch hot parts with bare hands.



- ▶ Place the meals, wire rack and drip pan into the gas oven so that they do not come into contact with the flame.
- ▶ Only ignite the oven when the oven door is open.
- ▶ If the oven is installed into the bottom cupboard: Attach heat protection sheet to the ventilation grill. Otherwise, the drawer's handle may heat up considerably.



- ▷ There are two different versions of the gas oven, depending on the model. Although their appearance is not identical, operation is the same for both.
- ▷ Before using the gas oven for the first time run it for 30 minutes at maximum temperature without any contents.
- ▷ When the flame goes out, the thermocouple automatically cuts the gas supply.
- ▷ A safety switch prevents ignition when the oven door is closed.
- ▷ If the ignition procedure fails repeatedly, turn the control knob to "O". Wait at least 1 minute and then ignite the gas oven manually. If necessary, check if there is gas and/or current in the gas oven. If the gas oven still does not work, close the gas isolator tap and notify your service centre.
- ▷ Further information can be obtained in the manufacturer's instruction manual.



Fig. 232 Heat protection sheet (loose)

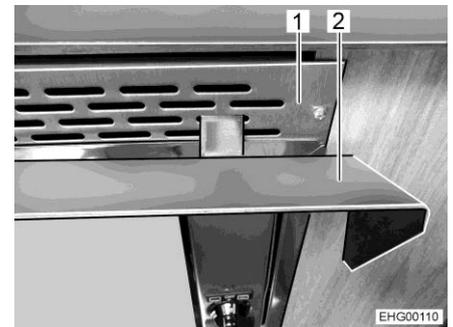


Fig. 233 Heat protection sheet (hooked in)

Hooking in the heat protection sheet:

- Hook heat protection sheet (Fig. 232,1 and Fig. 233,2) into the ventilation grill (Fig. 233,1) of the oven.

The gas oven is equipped with electronic ignition.



Fig. 234 Gas oven (Dometic TecTower)



Fig. 235 Gas oven (Dometic)

The meaning of the symbols on the control knobs (Fig. 234,1 and Fig. 235,1) of the two gas ovens is identical:  and  stand for the oven.

Switching on the oven:

- Open the regulator tap on the gas bottle and the gas isolator tap "Oven".
- Open oven door completely. The safety switch then releases the ignition.
- Press and hold control knob and turn it anti-clockwise to the required setting. Keep control knob pressed for a further 5-10 seconds. Ignition will take place automatically.
- Release control knob.
- Close oven door.

Switching off the oven:

- Turn the control knob to "O". The flame fades.
- Close the gas isolator tap "Oven" and the regulator tap on the gas bottle.

10.5.3 Microwave oven (special equipment)



- ▶ Only qualified personnel may repair the microwave oven. Improper repairs can cause major risks to the user.
- ▶ The protection device against the escape of microwave energy should never be removed.
- ▶ Use the microwave oven only if it has been properly installed.
- ▶ Only use the microwave oven when the door seal is free of damage.
- ▶ Never leave the microwave oven unattended when it is in operation.
- ▶ If there is smoke, keep the microwave oven closed, switch it off and interrupt the power supply.



- ▷ Operate the microwave oven only with the rotary plate and the rotary cross in place.
- ▷ Use only crockery suitable for microwave use.
- ▷ Only operate the microwave with appropriate contents and never run it empty.



- ▷ For cooking times under 2 minutes: First twist the cooking time control knob past "2" and then twist it back to the desired cooking time.
- ▷ Further information can be obtained in the manufacturer's instruction manual.



Fig. 236 Operating controls (microwave oven)

- Switching on:**
- Press the key (Fig. 236,3) to open the door and place food into the cooking area.
 - Close the door. A clicking noise can be heard when it engages.
 - Select the output on the control knob (Fig. 236,1).
 - Select the cooking time with the control knob (Fig. 236,2). Cooking begins.

The end of the cooking process is signaled by a signal tone. The microwave oven will switch off automatically.

- Switching off:**
- Press the key (Fig. 236,3) to open the door and take out the food.

10.5.4 Extractor hood (special equipment)

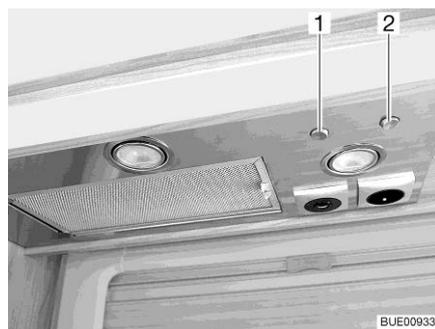


Fig. 237 Extractor hood

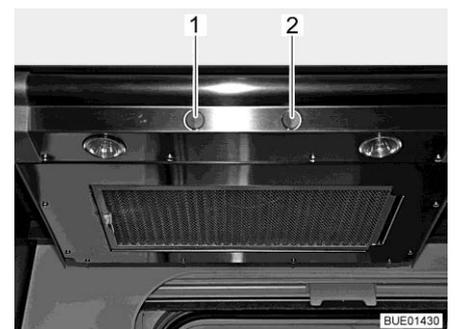


Fig. 238 Extractor hood (alternative)

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. 237,2 or Fig. 238,2).

Use the left flip switch (Fig. 237,1 or Fig. 238,1) to switch on the two lights in the extractor hood.

10.6 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.

10.6.1 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.

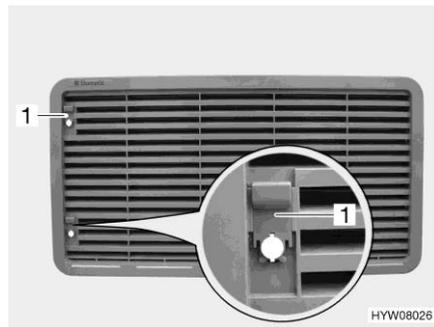


Fig. 239 Refrigerator ventilation grill (with sliding trap)



Fig. 240 Refrigerator ventilation grill (with screw)

- Removing:**
- Depending on version: Push up the sliding trap (Fig. 239,1) or turn the screw (Fig. 240,1) a quarter turn using a coin.
 - Remove refrigerator ventilation grill.

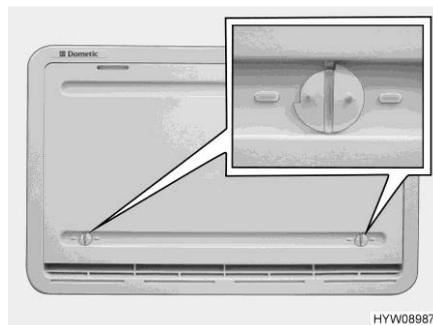


Fig. 241 Winter cover

Winter cover

If the refrigerator is to be operated at low external temperatures, the manufacturer recommends the use of a winter cover (Fig. 241) 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. 241) (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. 241) (groove in horizontal position).
- Remove winter cover from ventilation grill.



- ▷ The winter cover may remain mounted during the journey.

10.6.2 Thetford N3000 E/A

Depending on the equipment, different versions of the refrigerator will be installed.

Thetford N3000 E model Manual power selection, automatic ignition

**Thetford N3000E+/
N3000 A model** Automatic and manual power selection, automatic ignition

Operating modes The refrigerator has 3 operating modes:

- 230 V operation
- 12 V operation
- Gas operation



- ▷ The refrigerator always requires a 12 V control voltage regardless of which type of energy it is using. The control voltage is present as soon as the transformer/rectifier is switched on. Therefore the closed circuit current always flows even if the refrigerator is switched off. Always switch off the transformer/rectifier for a temporary lay-up.
- ▷ Close the gas isolator tap "Refrigerator" when the refrigerator is operated electrically.

230 V operation The refrigerator is operated via an external power supply.

12 V operation The refrigerator is operated via the vehicle battery.



- ▷ In the automatic mode, the 12 Volt operation is only selected, when the vehicle engine is running.

Gas operation The refrigerator is operated with gas from a connected gas bottle.



- ▷ If LPG is used, a filter must be used. The filter must be installed by a qualified technician.

Change-over between energy sources During change-over between the different energy sources, intended delays are installed in the version with automatic power selection. This means, that after a change-over to a new energy source the refrigerator can not be operated immediately. When changing from 12 Volt operation to gas operation, the delay is 15 minutes. This prevents a change-over to gas operation when the vehicle is stopped briefly (e.g. stop to fill tank).

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 (only in the case of the version with automatic power selection) and the stop for filling the tank takes longer than 15 minutes: switch off the refrigerator. Otherwise, the automatic power selection system will automatically change over to gas operation 15 minutes after stopping the vehicle engine.

Ignition fuse

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.

Operation

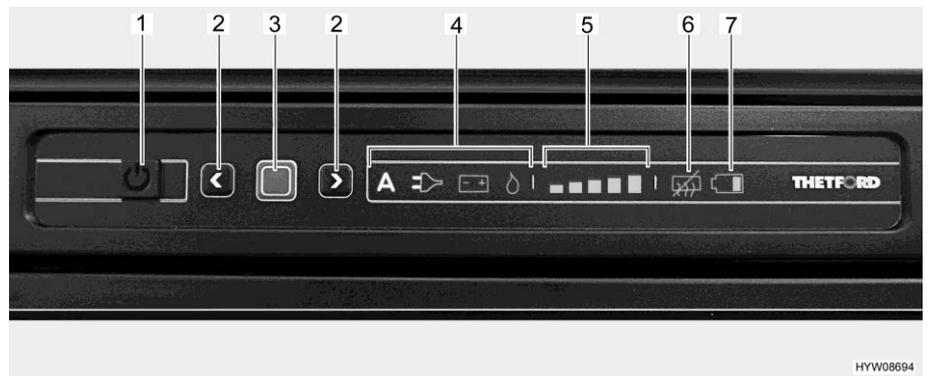


Fig. 242 LED operating panel (Thetford refrigerator)

- 1 On/Off button
- 2 Arrow keys
- 3 Confirmation button
- 4 Display of operating mode ("A" does not exist in all versions)
- 5 Cooling level indicator
- 6 Display "anti-condensation off"
- 7 Display "Battery flat" (not active)



- ▶ If the refrigerator shall be operated with gas: Open the regulator tap on the gas bottle and the gas isolator tap "Refrigerator".

Switching on:

- Press and hold the On/Off button (Fig. 242,1) for 1 second. The button lights up green. To save energy, after approximately 10 seconds the display is dimmed.
- Press confirmation button (Fig. 242,3). The operating mode previously selected is displayed.

- Selecting operating mode:**
- Press and hold the confirmation button (Fig. 242,3) for about 2 seconds. The operating mode symbols flash.
 - Manual power selection: use the arrow keys (Fig. 242,2) to select the desired energy source.
 - Automatic power selection (only version with automatic power selection): use the arrow keys (Fig. 242,2) to select the operating mode "A".
 - Confirm your selection with the confirmation button (Fig. 242,3).

In the case of the version with automatic power selection, the power selection is carried out in the following order as a function of the availability of the energy sources:

- 230 V AC
- 12 V DC
- Gas

- Setting the refrigerating temperature:**
- Press and hold the confirmation button (Fig. 242,3) for about 2 seconds. The operating mode symbols flash.
 - Press confirmation button (Fig. 242,3) again. The cooling level indicator (Fig. 242,5) flashes.
 - To change the setting, press the arrow keys (Fig. 242,2) until the desired setting is displayed.
 - Confirm your selection with the confirmation button (Fig. 242,3).

- Switching off:**
- Press and hold the On/Off button (Fig. 242,1) for about 2 seconds. All lights go out. Refrigerator is switched off.
 - If the refrigerator had been operated with gas: Close the gas isolator tap "Refrigerator" and the regulator tap on the gas bottle.

Refrigerating temperature control After switching it on, the refrigerator automatically selects the previously selected thermostat position. This position can be adjusted manually by using the arrow keys (Fig. 242,2). It takes a few hours till the refrigerator reaches its normal operating temperature. When changing over to another operating mode, the thermostat setting is kept.

Additional functions Flashing lamps on the operating unit indicate a fault. For instructions regarding troubleshooting, see chapter 15.



- ▷ Further information can be obtained from the separate instruction manual "Refrigerator".

10.6.3 Dometic MES/AES

Depending on the equipment, different versions of the refrigerator will be installed.

Version MES Manual power selection, automatic ignition

Version AES Automatic and manual power selection, automatic ignition

Operating modes The refrigerator has 3 operating modes:

- 230 V operation
- 12 V operation
- Gas operation



- ▷ The refrigerator always requires a 12 V control voltage, regardless of which type of energy it is using. The control voltage is present as soon as the transformer/rectifier is switched on. Therefore the closed circuit current always flows even if the refrigerator is switched off. Always switch off the transformer/rectifier for a temporary lay-up.
- ▷ Close the gas isolator tap "Refrigerator" when the refrigerator is operated electrically.

230 V operation The refrigerator is operated via an external power supply.

12 V operation The refrigerator is operated via the vehicle battery.



- ▷ If the vehicle engine is not running and the refrigerator is manually switched to 12 V operation, the living area battery drains very quickly.



- ▷ In the automatic mode (only AES version), the 12 V operation is only selected, when the vehicle engine is running.

Gas operation The refrigerator is operated with gas from a connected gas bottle.



- ▷ If LPG is used, the gas burner must be cleaned more frequently.

Change-over between energy sources

During change-over between the different energy sources, intended delays are installed in the automatic mode (only AES version). This means, that after a change-over to a new energy source the refrigerator can not be operated immediately. When changing from 12 Volt operation to gas operation, the delay is 15 minutes. This prevents a change-over to gas operation when the vehicle is stopped briefly (e.g. stop to fill tank).

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 (only in the case of the AES version) and the stop for filling the tank takes longer than 15 minutes: switch off the refrigerator. Otherwise, the AES will automatically change over to gas operation 15 minutes after stopping the vehicle engine.

Ignition fuse

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 illuminated buttons for Gas (Fig. 243,3) and Fault (Fig. 243,9) flash and an alarm sounds for 20 seconds.

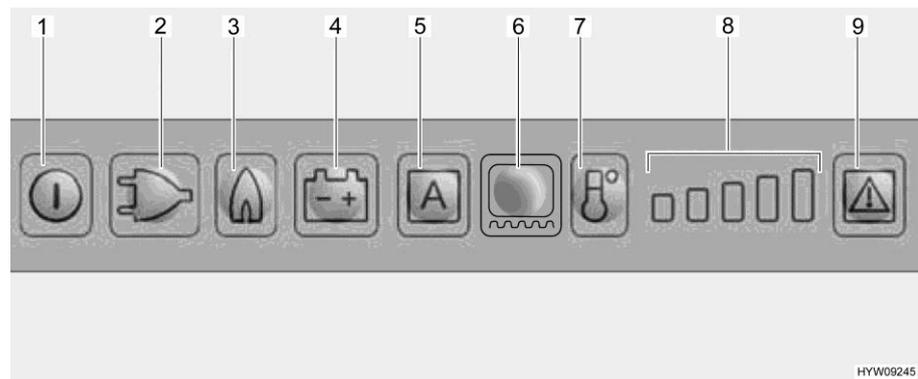
Operation

Fig. 243 LED operating panel (Dometic refrigerator)

- 1 On/Off button
- 2 Illuminated button for 230 V mode
- 3 Illuminated button for Gas mode
- 4 Illuminated button for 12 V mode
- 5 Illuminated button for AES operating mode (depending on the model)
- 6 Illuminated button for frame heater (depending on the model)
- 7 Cooling level button
- 8 Cooling level indicator
- 9 Illuminated button for Fault/Reset in gas mode



- ▷ If the refrigerator shall be operated with gas: Open the regulator tap on the gas bottle and the gas isolator tap "Refrigerator".

Switching on:

- Press and hold the On/Off button (Fig. 243,1) for about 2 seconds. The refrigerator switches on and the previously set operating mode is displayed.

Selecting operating mode:

- Press the illuminated button for the desired operating mode (Fig. 243,2 - 4) or the automatic mode "AES" (Fig. 243,5) (only in the case of AES version).

In the case of the AES version, the automatic energy selection is carried out in the following order as a function of the availability of the energy sources:

- 12 V solar (special equipment)
- 230 V AC
- 12 V DC
- Gas

Setting the refrigerating temperature:

- Use the cooling level button (Fig. 243,7) to set the refrigerating temperature. The cooling level indicator (Fig. 243,8) shows the selected thermostat setting.

Switching off:

- Press and hold the On/Off button (Fig. 243,1) for about 2 seconds.
- If the refrigerator had been operated with gas: Close the gas isolator tap "Refrigerator" and the regulator tap on the gas bottle.

Refrigerating temperature control

When turned on the first time the refrigerator automatically selects the middle thermostat position. This position can be adjusted manually using the cooling level button (Fig. 243,7). It takes a few hours till the refrigerator reaches its normal operating temperature. When changing over to another operating mode, the thermostat setting is kept.

Frame heater (depending on the model)

High external temperatures and high humidity can cause drops of water to form on the metal frame of the freezer compartment. To prevent any possible corrosion, the freezer compartment is equipped with a frame heater.



- ▷ 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 following options are available for operating times of the frame heater:

- 2 hours
- 5 hours
- Continuous operation (switched on for 30 minutes, then for 5 minutes on and 5 minutes off in alternating intervals)

Setting operating time:

- Switch on the frame heater for a 2 hour period: Push the frame heater illuminated button (Fig. 243,6) once. One bar is lit on the cooling level indicator (Fig. 243,8).
- Switch on the frame heater for a 5 hour period: Push the frame heater illuminated button (Fig. 243,6) twice. Two bars are lit on the cooling level indicator (Fig. 243,8).
- Setting frame heater for continuous operation: Push the frame heater illuminated button (Fig. 243,6) three times. Three bars are lit on the cooling level indicator (Fig. 243,8).

The cooling level indicator (Fig. 243,8) shows the operating time of the frame heater for several seconds.

Additional functions

If, after switching on or after setting, no further button is pressed, the brightness of the display is reduced after a few seconds. When pressing a button, the display will light up again. By pressing again, the desired function is activated.

In the automatic mode (only AES version), "AES" and the type of energy currently in use are displayed.

If the refrigerator door remains open for more than 2 minutes, a warning signal sounds.

In the event of a fault, the illuminated Fault button (Fig. 243,9) will flash. Also, either one of the illuminated buttons for operating mode or the cooling level indicator will flash. In addition, a warning signal will sound. For instructions on the display of errors and troubleshooting, see chapter 15.



- ▷ After eliminating a fault of the gas operation, press the illuminated Reset button (Fig. 243,9).
- ▷ Further information can be obtained from the separate instruction manual "Refrigerator".

10.6.4 Refrigerator door locking mechanism

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



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



- ▷ Lock the refrigerator door in ventilation position when the refrigerator is switched off. This prevents mould forming.

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

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

Thetford The refrigerator is opened and closed with the handle on the door.

Opening: ■ Press the handle to the side, keep it pressed and open the refrigerator door.

Closing: ■ Close the refrigerator door. The lock hook engages audibly.

Ventilation position The refrigerator door may be locked in ventilation position with a swivelling bracket.



Fig. 244 Locking device in normal position



Fig. 245 Locking device in ventilation position

Locking: ■ Open the refrigerator door.

■ Swing the bracket (Fig. 244,1) to the front (Fig. 245).

If the refrigerator door is closed now, a gap will remain between the refrigerator door and the refrigerator.

Dometic 9 series The refrigerator is opened and closed with the handle (Fig. 246,1) on the door.

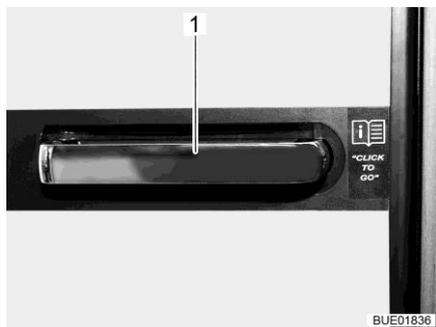


Fig. 246 Refrigerator door handle

Ventilation position The refrigerator door may be locked in ventilation position with a swivelling bracket.

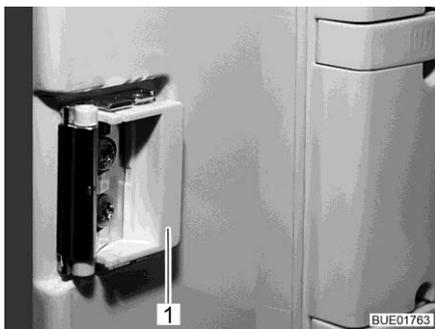


Fig. 247 Locking device in normal position



Fig. 248 Locking device in ventilation position

- Locking:**
- Open the refrigerator door.
 - Swing the bracket (Fig. 247,1) to the front (Fig. 248).

If the refrigerator door is closed now, a gap will remain between the refrigerator door and the 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. 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 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.

The vehicle is equipped with a fitted water tank. An electric water pump pumps the water to the individual water taps. Opening a water tap automatically switches on the water pump and pumps water to the tap.

The waste water tank collects the waste water. On the panel you can check how full the waste water tank is.



- ▷ 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 Water tank



- ▷ The water tank has a capacity of 125 litres (Lyseo Time I) or 120 litres (Ixeo I). However the volume has been limited to 20 litres (overflow installed) for payload reasons. The panel has not been adjusted to this volume. The level indicator on the panel shows the actual amount of water in the tank.

If necessary or if there is a sufficiently large residual vehicle payload, the water tank can be filled up to its actual capacity. To do this, close overflow. The rotary handle is on the water tank.

11.2.2 Drinking water filler neck with cap



- ▶ If the drinking water filler neck is installed in the vehicle's side wall, the cap is very similar to the cap of the fuel filler neck. Before filling the tank, always check the label.

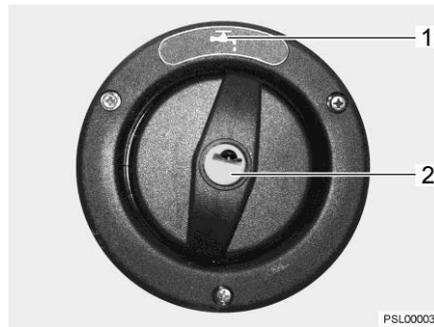


Fig. 249 Drinking water filler neck in the vehicle's side wall

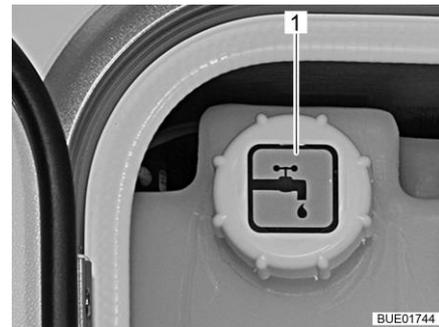


Fig. 250 Drinking water filler neck in service unit (alternative)

The drinking water filler neck is marked with the symbol "☞" (Fig. 249,1 or Fig. 250,1) and is installed either in the vehicle's side wall or in the service unit.

Drinking water filler neck in the side wall

The drinking water filler neck is installed outside, in the left-hand side wall of the vehicle.

The cap is opened and closed using the key for the external flap locks.

- Opening:**
- Insert key into locking cylinder (Fig. 249,2) and turn a quarter turn in an anticlockwise direction.
 - Remove the cap.
- Closing:**
- Place cap on the drinking water filler neck.
 - Turn key one quarter turn in a clockwise direction.
 - Remove the key.
 - Check that the cap sits firmly on the drinking water filler neck.

Drinking water filler neck in the service unit

The drinking water filler neck is part of the centralized supply unit (service unit). The central supply unit is installed behind the service flap on the left-hand side of the vehicle.

11.2.3 Filling the water system

- ▶ When filling the water tank, observe the maximum permissible gross weight 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.



- ▷ The Truma system (heater/boiler) has a safety/drainage valve and, depending on the model, one or two drain cocks for emptying.
- ▷ Depending on the model, the Alde system (heater/boiler) has one or two drain cocks for emptying.
- ▷ The water quantity can be monitored on the panel while the water tank is filled.

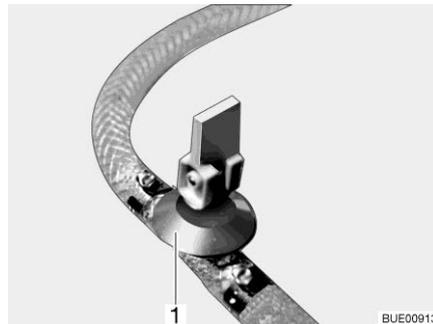


Fig. 251 Drain cock (with rocking lever)

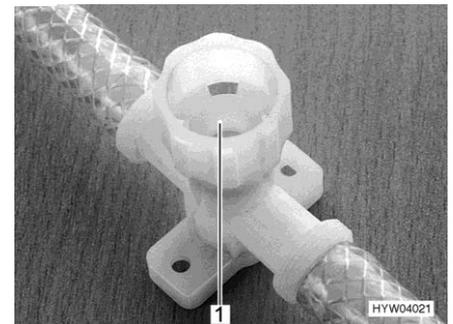


Fig. 252 Drain cock (with twist cap)

- 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. To do this, position the drain cock's rocking lever (Fig. 251,1) horizontally or turn the drain cock's cap (Fig. 252,1) in a clockwise direction.

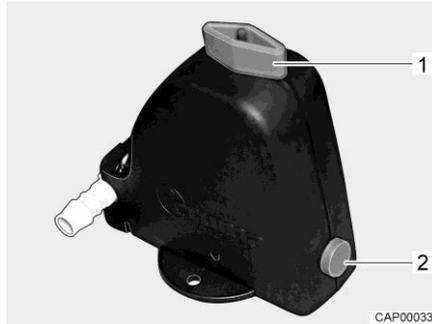


Fig. 253 Safety/drainage valve (Truma)



Fig. 254 Filling aid

- Close the safety/drainage valve (Truma). Turn the knob (Fig. 253,1) perpendicular to the safety/drainage valve and push the push button (Fig. 253,2) in.
If the temperature is below 6 °C, the safety/drainage valve cannot be closed. Therefore switch on the living area heater and wait until the temperature of the safety/drainage valve exceeds 6 °C.
- Close the drainage opening of the water tank.
- Close all water taps.
- Open drinking water filler neck.
- Ixeo I: Plug the filling aid (Fig. 254,1) onto the 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.
- 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.
- Ixeo I: Remove filling aid from the drinking water filler neck.
- Check that the cap on the water tank is not leaking.
- Close drinking water filler neck.

Position See chapter 17.

11.2.4 Topping up the water



▶ When filling the water tank, observe the maximum permissible gross weight 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 Closing/opening the overflow



▶ When filling the water tank, observe the maximum permissible gross weight of the vehicle. Luggage must be reduced accordingly when the water tank is full.



Fig. 255 Water tank (service unit)



Fig. 256 Water tank (alternative)

- Closing:**
- Turn the rotary handle (Fig. 255,1 or Fig. 256,1) on the water tank in a clockwise direction as far as it will go.
 - Fill the water tank with drinking water.
- Opening:**
- Turn the rotary handle (Fig. 255,1 or Fig. 256,1) on the water tank in an anticlockwise direction as far as it will go. Excess water will drain away leaving 20 litres in the tank.

11.2.6 Draining water (rotary handle with overflow)



Fig. 257 Water tank (service unit)



Fig. 258 Water tank (alternative)

- Turn the rotary handle (Fig. 257,1 or Fig. 258,1) on the water tank in an anticlockwise direction as far as possible beyond the resistance to fully open the drainage opening.

11.2.7 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.
- ▷ If the water pump can be turned off from the panel, always turn off the water pump from the panel before you empty the water system. Otherwise the water pump runs until it overheats or the battery is empty.



- ▷ The Truma system (heater/boiler) has a safety/drainage valve and, depending on the model, one or two drain cocks for emptying.
- ▷ Depending on the model, the Alde system (heater/boiler) has one or two drain cocks for emptying.

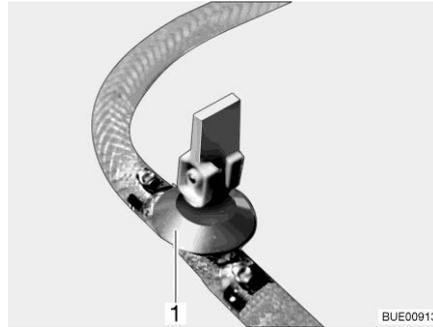


Fig. 259 Drain cock (with rocking lever)

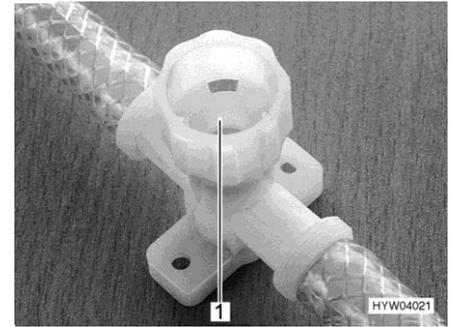


Fig. 260 Drain cock (with twist cap)

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. To do this, position the drain cock's rocking lever (Fig. 259,1) vertically or turn the drain cock's cap (Fig. 260,1) in an anti-clockwise direction.

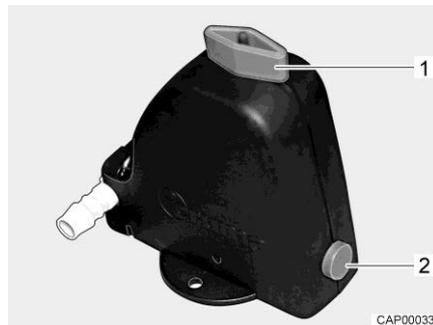


Fig. 261 Safety/drainage valve (Truma)

- Open the safety/drainage valve (Truma). To do this turn the knob (Fig. 261,1) parallel to the safety/drainage valve. The push button (Fig. 261,2) jumps out.
- 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 waste water tank. Take note of the environmental tips in this chapter.
- Empty toilet cassette or sewage tank. Take note of the environmental tips in this chapter.
- 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 and safety/drainage valve

See chapter 17.

11.3 Waste water installation



- ▷ Never pour boiling water directly into the sink outlet. Boiling water could cause deformation and leaks in the waste water pipe system.



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

11.3.1 Draining waste water



- ▷ If there is a risk of frost, empty the waste water tank and leave the drain cock open.



- ▷ If possible, place the vehicle in inclined position to drain the waste water.

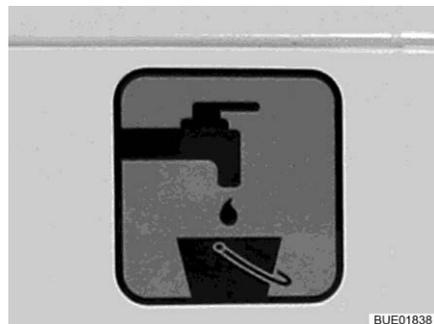


Fig. 262 Drain cock symbol



Fig. 263 Drain cock

The waste water tank is in a central position underneath the vehicle.

Waste water from the kitchen and washing unit flows through plastic pipes into the waste water tank.

The drain cock and the cleaning opening are located on the underside of the waste water tank.

The position of the drain cock is identified by a symbol (Fig. 262).

The waste water tank holds 90 litres.

- Emptying:**
- Park the vehicle such that the drainage opening is positioned above the disposal facility.
 - Open the drain cock. To do this, attach the supplied square spanner onto the square of the drain cock (Fig. 263,1).
 - To do this, turn the square spanner a quarter turn anticlockwise. The waste water is drained.
 - Close the drain cock again once all of the waste water has run out. To do this, turn the square spanner a quarter turn clockwise.
 - Remove the square spanner and store it.

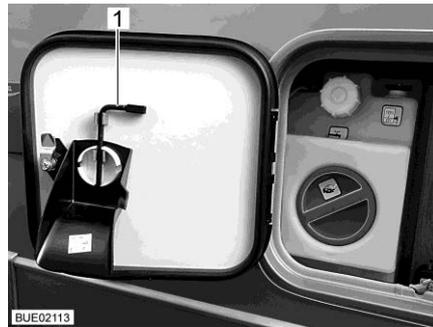


Fig. 264 Service flap with square spanner

If the vehicle is equipped with a service unit, the square spanner (Fig. 264,1) is fastened on the inside of the service flap.

11.3.2 Heater for waste water tank and waste water pipes (special equipment)

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



- ▷ The heater for the waste water system requires up to 250 W during operation. Therefore, wherever possible, connect the vehicle to a 230 V power supply while the heater for the waste water system is working. The waste water heating continues to function even if the 12 V power supply is switched off on the panel.

In order to prevent the waste water installation from freezing, depending on the model and the equipment, the following components of the waste water system can be heated electrically:

- Waste water tank
- Waste water pipes
- Waste water tank and drainage

When the respective heater has been switched on, temperature sensors monitor the temperature of the waste water tank and the waste water pipes. If there is a risk of frost, the heating elements are switched on. If the temperature rises above a pre-set value, the heating elements are switched off again.

Position The heater for the waste water tank and the waste water pipes is normally installed in the bench seat.

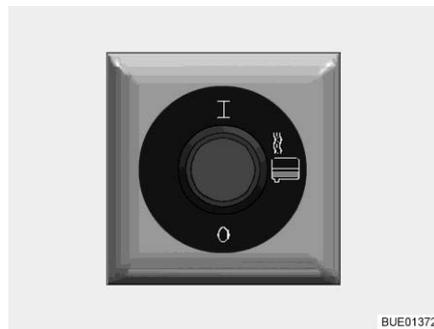


Fig. 265 Switch for waste water heating

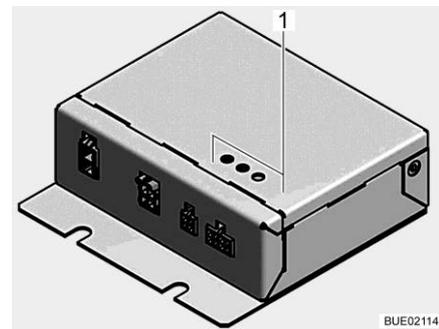


Fig. 266 Control unit for waste water heating

Switching on: ■ Press the upper part of the switch (Fig. 265). The waste water heating is switched on and prevents the heated components from freezing.

Switching off: ■ Press the lower part of the switch.

Three LEDs (Fig. 266,1) indicate the status of the control unit for the waste water heating:

LED HK 1 is lit	Heating circuit 1 is active
LED HK 2 is lit	Heating circuit 2 is active
LED HK 2 is flashing every 16 seconds	The device is in the power saving mode
LED ERR is flashing	The control has detected an error. Contact customer service



- ▷ Heating circuit 1 heats the waste water tank.
- ▷ Heating circuit 2 heats the waste water pipes and the waste water tank with emptying.
- ▷ If one of the two circuits (HK 1 or HK 2) is not connected, the LED assigned to the related heating circuit is flashing. This flashing is not an error message and may be ignored.

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.

11.5 Toilet



- ▷ If there is any risk of frost and the vehicle is not heated, empty the sewage tank (cassette).
- ▷ Do not sit on the lid of the toilet. The lid is not designed to bear the weight of a person and could break.
- ▷ Use a suitable chemical for this toilet. The ventilation will merely remove the odour but not germs and gases. Germs and gases will have a detrimental effect on the sealing rubbers.
- ▷ Never put the sanitary liquid directly in the toilet bowl.
- ▷ Do not drive when the sewage tank (cassette) is more than three-quarters full, as otherwise liquid may leak from the sewage tank through the ventilation system.



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



- ▷ Only empty the sewage tank (cassette) at disposal stations, at camping sites or caravan sites, that are especially provided for this purpose.

The flushing of the toilet is fed directly from the water system of the vehicle.

11.5.1 Preparing toilet



- ▷ The sewage tank (cassette) can only be taken out if the sliding trap is closed.

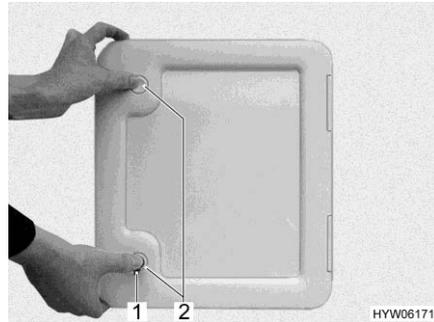


Fig. 267 Flap for sewage tank



Fig. 268 Flap for sewage tank (alternative)

- Open the flap for the sewage tank on the outside of the vehicle. To do this, insert the key into the locking cylinder of the lock (Fig. 267,1 or Fig. 268,1) and turn a quarter turn.
- Remove the key.
- If present: Press both push-button locks (Fig. 267,2) simultaneously with your thumb and open the flap.



Fig. 269 Sewage tank (example)

- Pull up the retaining clip (Fig. 269,1) and lift the sewage tank (Fig. 269,2) straight up as far as it will go.
- Tilt the sewage tank slightly and remove fully.

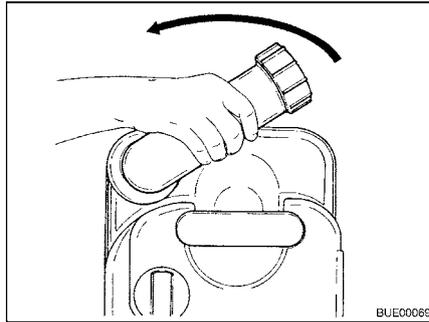


Fig. 270 Turning drainage neck

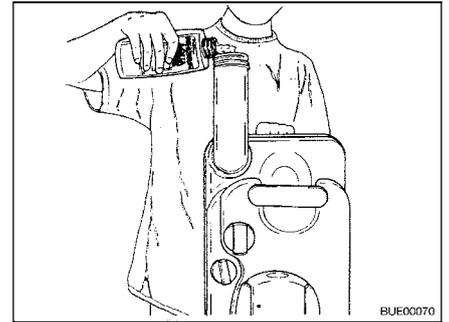


Fig. 271 Filling with sanitary liquid

- Put the sewage tank down vertically.
- Turn the drainage neck upwards.
- Remove the cap of the drainage neck.
- Fill the stated amount of sanitary liquid into the sewage tank.
- Then add enough water so that the bottom of the sewage tank is completely covered.
- Close drainage neck with the cap.
- Return the drainage neck to its original position.
- Push the sewage tank back to its original position without applying any force.
- Ensure that the sewage tank is secured by the retaining clip.
- Lock the flap for the sewage tank.

11.5.2 Swivel toilet

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

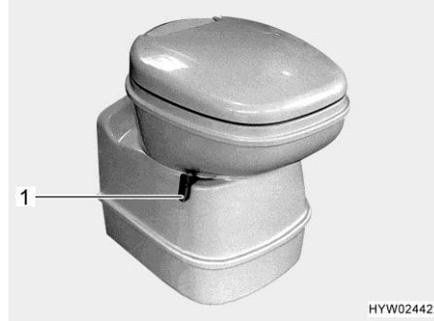


Fig. 272 Thetford toilet bowl, swivelling

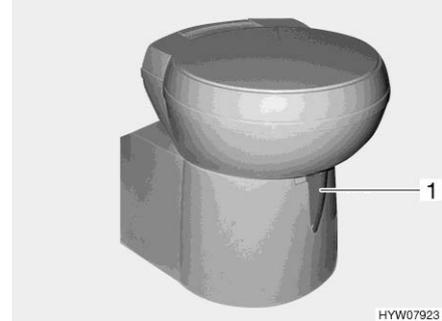


Fig. 273 Thetford toilet bowl, swivelling (alternative)

The operating unit is located close to the toilet bowl.

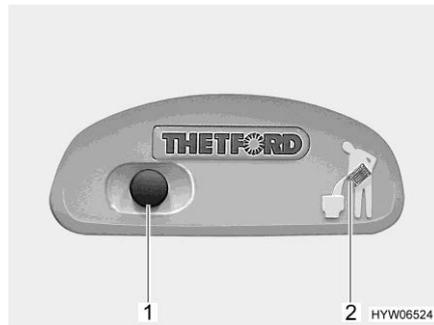


Fig. 274 Flush button/indicator lamp Thetford toilet

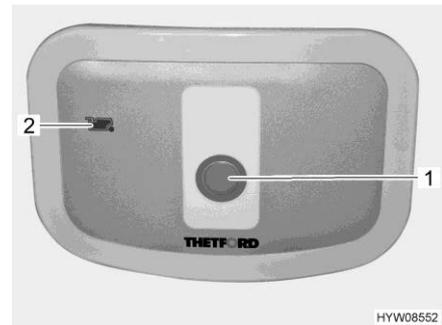


Fig. 275 Flush button/indicator lamp Thetford toilet (alternative)

- Flushing:**
- Before flushing open the sliding trap of the Thetford toilet. To do this, push the slide lever (Fig. 272,1 or Fig. 273,1) in an anticlockwise direction.
 - For flushing, press the blue flush button (Fig. 274,1 or Fig. 275,1).
 - After flushing close the sliding trap. To do this, push the slide lever in a clockwise direction.

The indicator lamp (Fig. 274,2 or Fig. 275,2) lights up whenever the sewage tank has to be emptied.

11.5.3 Emptying the sewage tank



▷ The sewage tank can only be taken out if the sliding trap is closed.

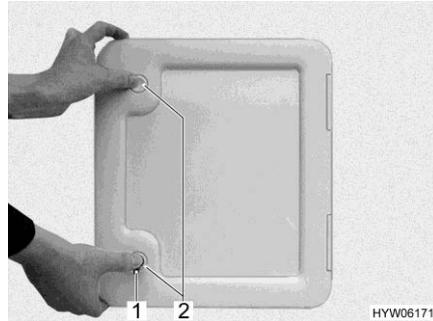


Fig. 276 Flap for sewage tank



Fig. 277 Flap for sewage tank (alternative)

- Slide the slide lever on the toilet bowl in a clockwise direction. The sliding trap is closed.
- Open the flap for the sewage tank on the outside of the vehicle. To do this, insert the key into the locking cylinder of the lock (Fig. 276,1 and Fig. 277,1) and turn a quarter turn clockwise.
- Remove the key.
- If present: Press both push-button locks (Fig. 276,2) simultaneously with your thumb and open the flap for the sewage tank.



Fig. 278 Sewage tank (example)

- Pull up the retaining clip (Fig. 278,1) and lift the sewage tank (Fig. 278,2) straight up as far as it will go.
- Completely empty the sewage tank at disposal stations that are especially provided for this purpose.



▷ Actuate the aeration knob on the sewage tank with your thumb to empty it completely.

11.5.4 Odour transformer for toilet compartment (special equipment)

The toilet compartment can be equipped with an odour transformer.



Fig. 279 Odour transformer

Components of the odour transformer:

- Holder
- Clip-on attachment
- Tin with odourant



▷ Refill boxes with odourant can be obtained from the service partner.

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 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.

12.1.5 Underbody

The underbody of the vehicle is partly coated with an age-resistant underbody protection. Should the underbody protection be damaged, repair immediately. Do not treat areas coated with underbody protection with spray oil.



- ▷ Only use products approved by the manufacturer. Our authorised dealers and service centres will be happy to advise you.

12.2 Interior care



- ▷ If possible, treat stains immediately.
- ▷ Acrylic glass windows are delicate and require very careful handling (see section 12.1.4).
- ▷ 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 lose 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 Scratch-resistant surface (kitchen worktop and table top) (special equipment)



- ▷ Do not use any cleaning agents with abrasives.
 - ▷ Do not use any sponges with abrasive material.
 - ▷ Do not use any steel wool.
 - ▷ Do not use any cleaning agents with high acid content.
 - ▷ Do not use any furniture polish nor any cleaning agent based on wax.
- Wipe the surface with a damp cloth.
 - In the case of heavy soiling, wipe the surface with an of-the-shelf cleaner, glass cleaner, dirt eraser, or disinfectant.
 - Remove adhesive, dried up bio-waste, chewing gum with sponge, hot water, and household cleaner.
 - Remove hairspray, cooking oil, wax, ball pen ink, make-up, nail varnish, marker pens (Edding) with a cloth moistened with alcohol or acetone.
 - Remove oil paints with a cloth moistened with paint thinner.
 - For descaling use a cleaning agent that contains no more than 10 % acetic or citric acid.
 - Remove minor scratches with a dirt eraser.
 - Cover deeper scratches with moist kitchen paper. Using an iron set to level II, iron the scratcher in circular motion for no more than 20 seconds. Using a lint-free cloth, rub the scratch in circular motion.

12.3 Water system

12.3.1 Cleaning the water tank

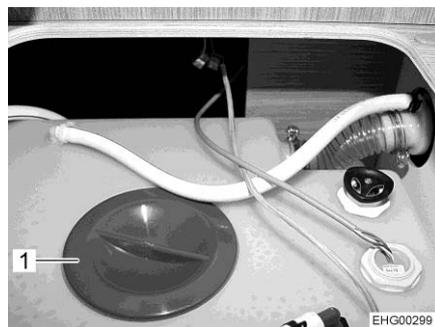


Fig. 280 Cleaning opening of the water tank



Fig. 281 Cleaning opening of the water tank (service unit)

- Empty the water tank and close the drainage opening.
- Remove the cap (Fig. 280,1 or Fig. 281,1) 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 suitable 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 suitable disinfectants as sold by the specialist trade.
- ▷ 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.

12.3.4 Cleaning the waste water tank

Clean the waste water tank after every use.

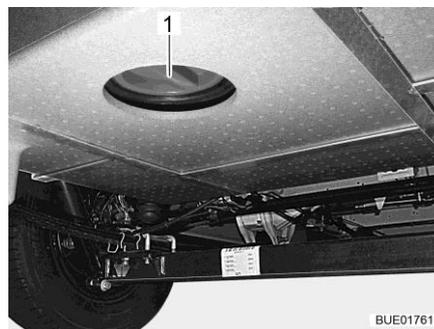


Fig. 282 Cleaning opening (waste water tank)

- Empty the waste water tank.
- Open the cleaning opening (Fig. 282,1) on the waste water tank and the drain cock.

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

12.4 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.

12.5 Air conditioning unit

12.5.1 Truma



- ▷ Do not clean the air conditioning unit with a high-pressure cleaner. Water entering can damage the air conditioning unit.
- ▷ Do not clean vehicle in car wash.
- ▷ Do not use any sharp or hard objects when cleaning. Otherwise the air conditioning unit could be damaged.

- Use only water and a gentle cleaning agent to clean the air conditioning unit.
- Wipe the air conditioning unit housing and the air outlet occasionally with a damp cloth.
- Clean the remote control occasionally with a slightly damp cloth. Clean the display with a spectacles cleaning cloth.
- Remove leaves and other dirt from the ventilation openings on the air conditioning unit regularly.
- Check the condensation drain holes regularly to ascertain whether the condensation can run off freely.
- Clean the filters on both sides of the air discharge unit regularly.



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

12.5.2 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.

12.6 Winter care

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



- ▷ If there is any risk of frost, always run heater at a minimum of 15 °C. 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.

12.6.1 Preparations

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

12.6.2 Winter operation

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

- When heating the vehicle, the heater should be at the highest setting and roof storage cabinets, curtains and blinds should be opened. This ensures optimal ventilation.
- 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.

12.6.3 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.

12.7 Lay-up

12.7.1 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	Fully charge living area and starter battery  ▷ Charge the battery for at least 20 hours before laying up.	
	Disconnect the living area battery from the 12 V power supply. To do this, switch off the battery cut-off switch on the transformer/rectifier (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.	

12.7.2 Winter lay-up

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

	Activity	Done
Base vehicle	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	
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	
Water system	Clean the water system using a cleaning agent from a specialised store	
Complete vehicle	Arrange the tarpaulins in such a way that the ventilation openings are not covered, or use porous tarpaulins	

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

Go through the following checklist before start-up:

	Activity	Done
Base vehicle	Check the tyre pressure on all tyres	
	Check the tyre pressure of the spare wheel (if present)	
Body	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	Connect to 230 V external power supply	
	Install the living area battery and starter battery, insert the fuses on the living area battery and fully 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. To do this, switch on the battery cut-off switch on the transformer/rectifier (see chapter 9)	
	Check that the electrical system are working, e.g. interior light, socket and all installed electrical appliances	
Water system	Disinfect water pipes and water tank	
	Check the functionality of the operating lever for the waste water tank	
	Close all drain cocks and water taps	
	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.



- ▷ Any changes on the gas system must be carried out by an authorised specialist workshop.
- ▷ 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.

13.4 Doors

To maintain gliding capability between springs and hinges, grease the conversion door hinges occasionally.



- ▷ We recommend either Molykote PG 65 or Vaseline as lubricants.

13.5 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

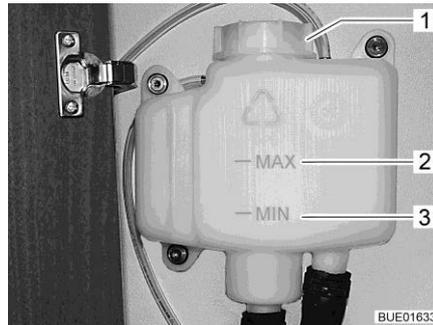


Fig. 283 Compensator reservoir without panel

- Switch off the hot-water heater and allow it to cool down.
- Check if the fluid level is between the marks "MIN" (Fig. 283,3) and "MAX" (Fig. 283,2) on the compensator reservoir (Fig. 283).

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. 283,1) 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. 284 Bleeding valve of hot-water heater

The bleeding valves are built in nearby the radiators.

- Switch off the hot-water heater and allow it to cool down.
- Open bleeding valve (Fig. 284,1) 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.

13.7 Replacing bulbs, external



- ▶ Bulbs and light fittings can be extremely hot. Therefore, allow lights 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.



- ▷ A new bulb should not be touched with the fingers. Use a cloth when installing the new bulb.
- ▷ Use only bulbs of the same type and with the correct wattage (see section 13.7.6).
- ▷ If LEDs in lights are defect, 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.

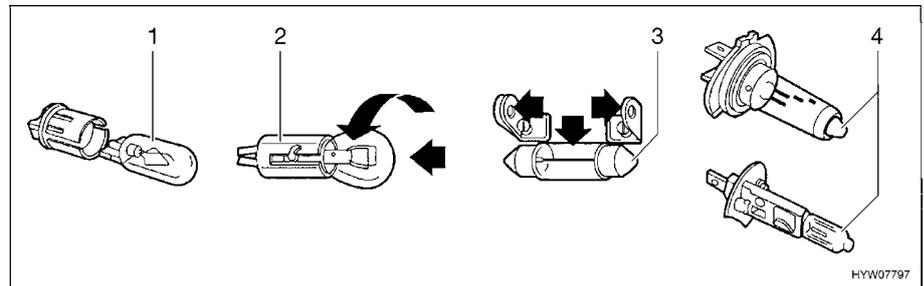
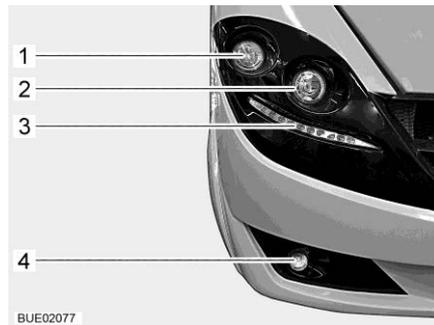


Fig. 285 Types of bulbs

Pos. in Fig. 285	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 (Lyseo Time I)



- 1 Low beam
- 2 Main beam
- 3 Daytime running light (LED)
- 4 Direction indicator

Fig. 286 Front lights

Daytime running light

The lights have LEDs. To change the LEDs, contact an authorised dealer or a service centre.

Low beam, main beam, direction indicator

The bulbs are changed in the engine compartment.

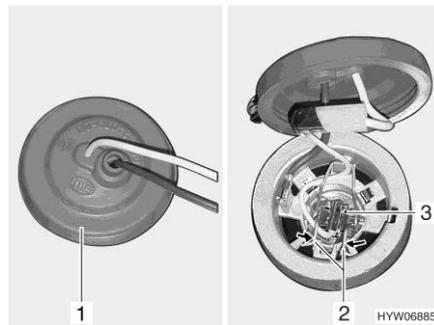
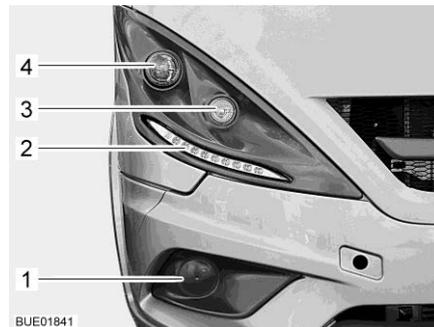


Fig. 287 Headlight (view from inside)

- Open the bonnet (see chapter 5).
- Put your hand behind the headlight and rubber cap (Fig. 287,1) off from lamp housing.
- Press metal clip (Fig. 287,2) together and release from holder.
- Remove bulb (Fig. 287,3) with cable from lamp housing.
- Put in a new bulb.
- Reassemble the lamp in the reverse order.

13.7.2 Front lights (Ixeo I)



- 1 Fog light (optional)
- 2 Daytime running light (LED)
- 3 Direction indicator
- 4 Low beam/main beam

Fig. 288 Front lights

Low beam/main beam The bulbs are changed in the engine compartment.

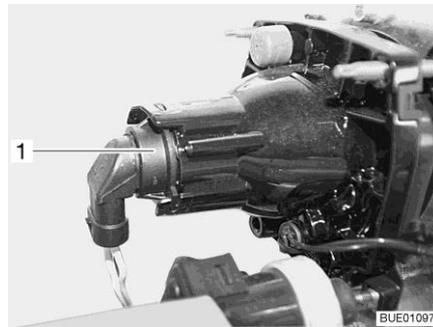


Fig. 289 Low beam/main beam/parking light

- Open the bonnet (see chapter 5).
- Put your hand behind the lamp holder (Fig. 289,1).
- 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.

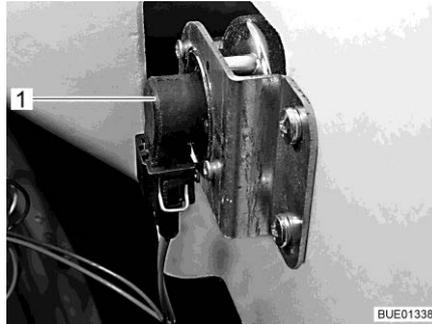


Fig. 290 Direction indicator

- Open the bonnet (see chapter 5).
- Put your hand behind the lamp holder (Fig. 290,1).
- 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.

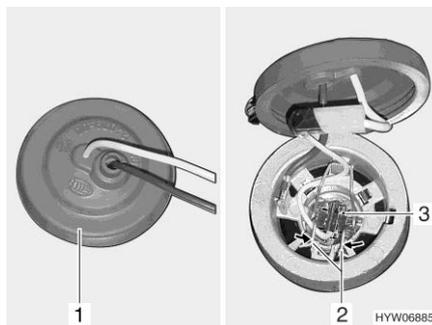
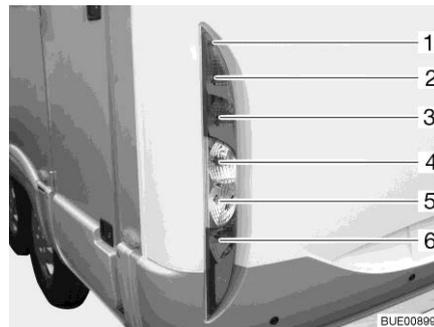


Fig. 291 Fog light

- Open the bonnet (see chapter 5).
- Put your hand behind the fog light and remove rubber cap (Fig. 291,1) from lamp housing.
- Press metal clip (Fig. 291,2) together and release from holder.
- Remove bulb (Fig. 291,3) with cable from lamp housing.
- Put in a new bulb.
- Reassemble the lamp in the reverse order.

13.7.3 Rear lights (Lyseo Time I)



- 1 Housing screws
- 2 Rear light
- 3 Brake light
- 4 Direction indicator
- 5 Reverse light
- 6 Fog tail light

Fig. 292 Rear lights

- Undo the housing screws (Fig. 292,1).
- Remove the housing.
- Remove bulb.
- Put in a new bulb.
- Reassemble the lamp in the reverse order.

13.7.4 Rear lights (Ixeo I)

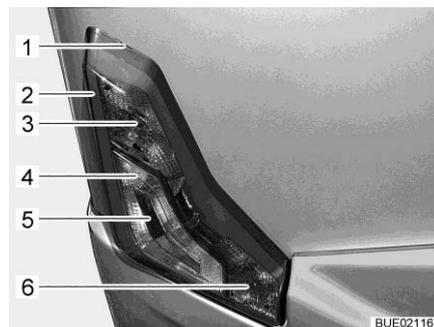


Fig. 293 Rear lights

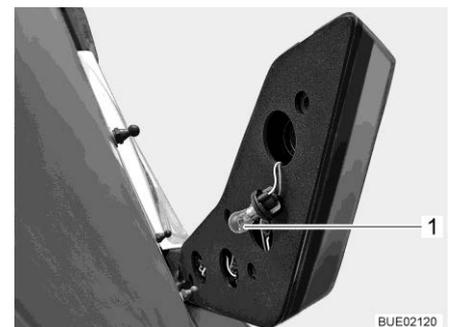


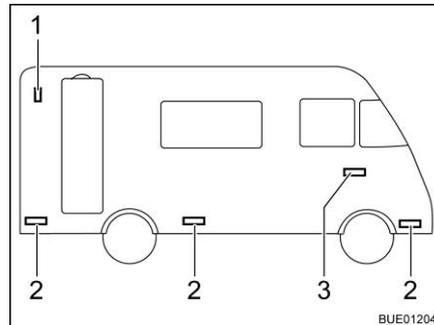
Fig. 294 Rear light

- 1 Notch
- 2 Rear light
- 3 Brake light
- 4 Reverse light
- 5 Direction indicator
- 6 Fog tail light

- Insert flat tool into notch (Fig. 293,1) and carefully lever off the housing.
- Reach into the hole on the back of the housing. Turn and pull holder (Fig. 294,1) 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.

13.7.5 Side lights



- 1 Side marker light
- 2 Marker light
- 3 Direction indicator

Fig. 295 Side lights

Side marker light

The side marker light (Fig. 295,1) 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. 295,2) 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.

13.7.6 Types of bulbs for exterior lighting

	Exterior lighting	Type of bulb
Front	Main beam	H7 12 V 55 W
	Low beam	H7 12 V 55 W
	Direction indicator	Bay 9s 12 V 21 W
Rear	Rear light	Ba15s 12 V 5 W (Lyseo Time I) LED (Ixeo I)
	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 light fittings can be extremely hot. Therefore, allow lights 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 lights are defect, contact an authorised dealer or service centre.

13.8.1 Light with LED

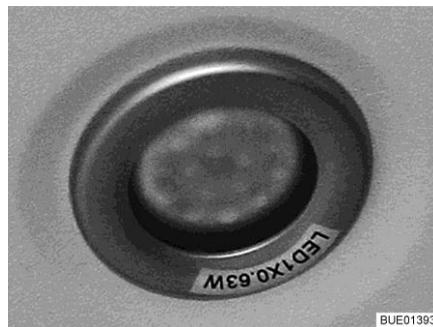


Fig. 296 Recessed light (example)



- ▷ LED lights have a very long life. It is not normally necessary to replace a light.

Changing bulbs: ■ Contact a dealer or service centre.

13.8.2 Surface mounted light

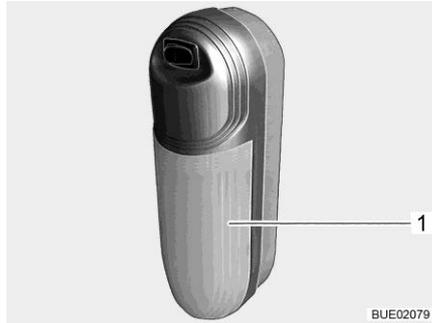


Fig. 297 Surface mounted light

Halogen bulb 12 V/16 W

- Changing bulbs:
- Pull transparent cover (Fig. 297,1) slightly away from switch and remove it.
 - Remove halogen bulb.
 - Put in a new halogen bulb.
 - Reassemble the lamp in the reverse order.

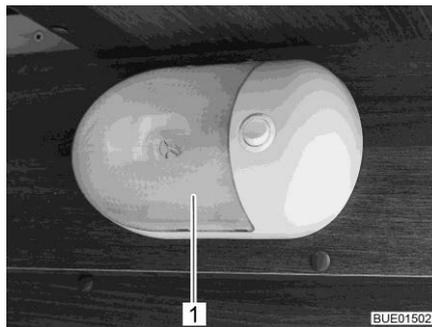


Fig. 298 Surface mounted light

Halogen bulb 12 V/16 W

- Changing bulbs:
- Carefully push the transparent cover (Fig. 298,1) together from both sides, pull it lightly from the switch and pull it off forwards.
 - Remove halogen bulb.
 - Put in a new halogen bulb.
 - Reassemble the lamp in the reverse order.

13.9 Spare parts



- ▶ Every alteration of the original condition of the vehicle can alter road behaviour and jeopardize road safety.
- ▶ The special equipment and original spare parts recommended by 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.

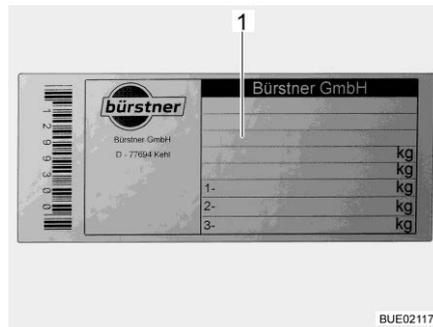
Here are some suggestions of important spare parts:

- 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. Special equipment is offered depending on its purpose or use. When fitting special equipment check if such equipment has to be entered in the vehicle documents. Observe the max. permissible gross weight. The authorised dealer or service centre will be happy to advise you.

13.10 Vehicle identification plate



1 Chassis number

Fig. 299 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. 299). 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: **0719** Week 07, year of manufacture 2019.

- 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.

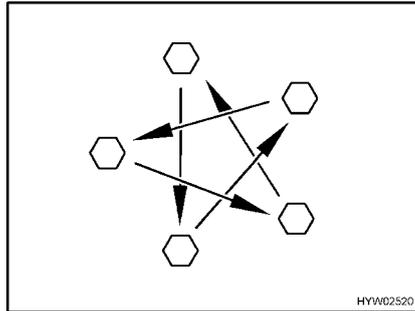


Fig. 300 Tighten the wheel nuts or wheel bolts cross-wise

- 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. 300).
For tightening torque see section 14.5.2.
- 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. 300).
- 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.

Weight refers to the maximum permissible axle load which can be distributed on two tyres. The maximum load-carrying capacity of a tyre is indicated by its load index (= LI, load index code).

The 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

14.5.1 General instructions



- ▶ The vehicle must be on level, firm ground, secure from slipping.
- ▶ Go into first gear. In the case of automatic transmission, change gear to "P" position.
- ▶ Before jacking up the vehicle firmly apply the handbrake.
- ▶ Prevent the vehicle from rolling away by blocking the opposite wheel with the wheel chocks.
- ▶ Under no circumstances jack the vehicle with the fitted supports.
- ▶ If a trailer is connected: Detach the trailer before lifting the vehicle.
- ▶ Position the vehicle jack only at the mounting points intended for this purpose. See instruction manual of the base vehicle or the information in this manual in case the information in this manual differ from the instruction manual of the base vehicle.



- ▶ Never overload the vehicle jack. The maximum permissible load is specified on the vehicle jack's identification plate.
- ▶ Use the vehicle jack only for lifting the vehicle briefly while changing the tyre.
- ▶ No persons may be in the vehicle while it is raised.
- ▶ Do not start the motor while the vehicle is jacked up.
- ▶ Whilst the vehicle is in a jacked up position, persons must not lie down under it.



- ▷ Do not damage the thread of the thread bolt or wheel bolt when changing the wheel.
- ▷ Tighten the wheel nuts or wheel bolts cross-wise (Fig. 300).
- ▷ When changing wheels (e.g. alloy wheel rims or wheels with winter tyres), use the correct wheel bolts of the correct length and shape. Otherwise the wheels may not be securely fixed or the braking system may not work correctly.
- ▷ Wheel rims or tyres that are not approved for the vehicle can jeopardize road safety and they must be separately inspected and approved by an accredited test centre.
- ▷ Do not replace wheels cross-wise.



- ▷ Protect the vehicle according to the national regulations, e.g. with a hazard warning triangle.
- ▷ Before changing the wheel, check the wheel rim and tyre size, the max. tyre load and the speed index on the tyres. Only use the wheel rim and tyre sizes stated in the vehicle documents.
- ▷ Further information can be found in the instruction manual of the base vehicle.

14.5.2 Tightening torque

Depending on the wheel rim type and the wheel manufacturer, the wheels must be tightened with different tightening torques.

Steel wheel rims

Description	Tightening torque
15" Fiat/Citroen Light	170 Nm
16" Fiat/Citroen Light	170 Nm
16" Fiat/Citroen Maxi	170 Nm



Fig. 301 Steel wheel rim (standard)

Alloy wheel rims

Description	Tightening torque
16" Fiat/Citroen Light	170 Nm
16" Fiat/Citroen Maxi	170 Nm
18" Fiat/Citroen Maxi	180 Nm



Fig. 302 Citroen



Fig. 303 Fiat Light



Fig. 304 Fiat Maxi

14.5.3 Changing a wheel



- ▶ The footplate of the vehicle jack must be levelly positioned on the ground.
- ▶ Do not tilt the vehicle jack.



- ▷ The wheel you have replaced should be repaired immediately.
- ▷ Take note of the general instructions in this chapter.



Fig. 305 Securing vehicle

- Park the vehicle on as even and stable a surface as possible.
- Switch off the engine and safeguard the area.
- Engage first gear or reverse gear.
- Apply the handbrake.
- Place wheel chocks or other appropriate objects beneath the opposite wheel of the vehicle to secure it (Fig. 305).
- Remove the spare wheel from the spare wheel support.
- If the ground is soft, place a stable support such as a wooden board beneath the vehicle jack.
- Apply the vehicle jack to the designated mounting points (refer to the instruction manual for the base vehicle).
- Using the wheel brace, turn the wheel bolts several times to loosen them, but do not remove them.
- Lift the vehicle until the wheel has been lifted 2 to 3 cm above the ground.
- Remove the wheel bolts and take off the wheel.
- Place the spare wheel on the wheel hub and adjust.
- Screw in the wheel bolts and slightly tighten them cross-wise.
- Crank down the vehicle jack and remove it.
- Using the wheel brace, tighten the wheel bolts evenly (see section 14.5.2 for tightening torque).
- Have the tightening torque checked by an authorised specialist workshop.

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.

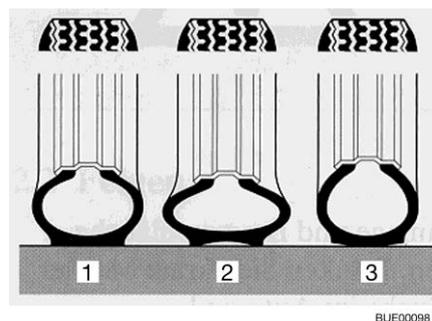


- ▷ Check the tyre pressure on cold tyres. Do not reduce the higher tyre pressure when the tyres are warm.

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. 306 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
15" Fiat/Citroen Light	Steel wheel rim	CP	5.0	5.5
16" Fiat/Citroen Light	Steel wheel rim	CP	5.0	5.5
16" Fiat/Citroen Light	Alloy wheel rim	CP	5.5	5.5
16" Fiat/Citroen Maxi	Steel wheel rim	CP	5.5	5.5
16" Fiat/Citroen Maxi	Alloy wheel rim	CP	5.5	5.5
16" Fiat/Citroen Maxi tandem axle	Steel wheel rim	CP	5.5	3.8
16" Fiat/Citroen Maxi tandem axle	Alloy wheel rim	CP	5.5	3.8
18" Fiat/Citroen Maxi	Alloy wheel rim	CP	4.8	4.8

The vehicles are constantly brought up to the newest technical standards. It is possible that new tyre sizes are not yet included in this table. If this is the case, any authorised dealer or service centre will provide the newest values.

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 reinitialised 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 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

Fault	Cause	Remedy
The satellite unit cannot be switched on	The vehicle engine is running	Switch the vehicle engine off
	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.

15.4 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
	Fuse is defective	Replace fuse
Interior lighting does not work	Illuminant, plug connector or cable faulty	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
The entrance step does not extend or only partially (in the winter)	The mechanics are iced up	Clean the entrance step, remove ice
	The protection device (pinch protection) has triggered due to a overload current	
No 230 V power supply in spite of connection	230 V automatic circuit breaker has triggered	Switch on 230 V automatic circuit breaker
Starter or living area battery is not charged when operated in 230 V mode	Jumbo flat fuse on the starter or living area battery is defective	Replace jumbo flat fuse on the starter or living area battery
	No mains voltage	Switch on automatic circuit breaker in the vehicle
	Transformer/rectifier is overheated	Ambient temperature too high or transformer/rectifier ventilation hindered
	Too many appliances are switched on	Switch off appliances that are not required
	Charger module in the transformer/rectifier is defective	Contact customer service

Fault	Cause	Remedy
Living area battery is not charged during vehicle operation	Fuse on terminal D+ of the alternator is defective	Replace fuse
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
12 V indicator lamp does not light up	12 V power supply is switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
	Starter or living area battery is not charged	Charge the starter or living area battery
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
	Flat fuse on the living area battery is defective	Replace flat fuse on the living area battery
12 V power supply does not work	12 V power supply is switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
	Living area battery is discharged	Charge the living area battery
	Jumbo flat fuse on the living area battery is defective	Replace jumbo flat fuse on the living area battery
	Disconnecter relay in the transformer/rectifier is 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	Set battery cut-off switch to on
	230 V automatic circuit breaker has triggered	Contact customer service
	Charger module in the transformer/rectifier is defective	Contact customer service
	Jumbo flat fuse on the living area battery is defective	Replace jumbo flat fuse on the living area battery

Fault	Cause	Remedy
230 V indicator lamp does not light up even though 230 V mains supply is connected	The mains connection is de-energised	Check external mains connection
	230 V automatic circuit breaker upstream of transformer/rectifier has tripped or is switched off	Reset 230 V automatic circuit breaker
No voltage at a connected appliance	Self-resetting Polyswitch fuse has tripped	Check plug connectors and cables. Switch off 12 V power supply for approx. 2 minutes, then switch it back on
	Self-resetting Polyswitch fuse has tripped several times (3 times), system has deactivated corresponding output permanently	Remedy cause of Polyswitch tripping Cancel permanent switch-off (switch on 12 V power supply for living area, press rotary knob and keep it pressed for minimum 3 seconds)
Starter battery is discharged in 12 V operation	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
No voltage is supplied by the living area battery	Living area battery is discharged	Charge living area battery immediately  ▷ Total discharge damages the battery. If the vehicle is to be laid up for a long period, fully charge the living area battery beforehand Discharging is caused by inactive appliances (see chapter 9)
Battery charge through solar module not working	Electrical connection to solar module interrupted	Check plug connectors and cables
	Fuse is defective	Replace fuse on the transformer/rectifier
	Solar charge regulator 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	Pull out the jumbo flat fuse on the living area battery, then contact customer service

15.5 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

15.6 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.

15.6.1 Heater/boiler with CP plus digital operating unit

Fault	Cause	Remedy
Heater does not ignite	Temperature sensor on operating unit or remote sensor defective	Pull out plug on operating unit. The heater then works without thermostat. Contact the customer service as soon as possible
No display on the operating unit	Fuse on the transformer/rectifier is defective	Replace fuse on the transformer/rectifier
	Fuse in the electronic control unit has been triggered	Contact customer service
	Living area battery defective	Charge or replace the living area battery (or have it charged or replaced)

Fault	Cause	Remedy
Fault with error code is displayed	See table "Fault search instruction"	See table "Fault search instruction"
Boiler empties, safety/drainage valve has opened	Internal temperature below 8 °C	Heat inside
Safety/drainage valve cannot be closed	Temperature at safety/drainage valve below 8 °C	Heat inside
Fan wheel runs noisily or not steadily	Fan wheel is soiled	Contact Truma service department

Fault search instruction

Error code	Cause	Rectification
# 17	Summer operation with empty water container	Switch off the device and allow it to cool down. Fill the boiler with water
	Warm air louvres blocked	Check outlet openings
	Air circulation suction system blocked	Remove blocking of air circulation suction system
# 18	Gas pressure regulator iced up	Use regulator heater (defroster if available)
	Proportion of butane gas in gas bottle too high	Use propane gas (butane gas is unsuitable for heating especially for temperatures under 10 °C)
# 21	Room temperature sensor or cable defective	Contact customer service
# 24	Risk of undervoltage Battery voltage too low < 10.4 V	Charge the battery
# 29	Short circuit in heating element for frost control	Remove plug of heating element on electronic control unit. Replace heating element
# 41	Electronics blocked	Contact customer service
# 42	Safety switch has triggered	(Not used here)
# 43	Overvoltage > 16.4 V	Check battery voltage and voltage sources (e.g. charger)
# 44	Undervoltage Battery voltage too low < 10.0 V	Charge battery. Replace outdated battery if required
# 45	No 230 V power supply	Check external mains connection
	230 V automatic circuit breaker has triggered	Switch on 230 V automatic circuit breaker
	Overheating protection has triggered	Reset overheating protection. Allow heater to cool, remove connection cover and press reset button

Error code	Cause	Rectification
#112, #202, #121, #211	Lack of gas	Open regulator tap and gas isolator tap
		Connect a full gas bottle
#122, #212	Combustion air inlet or exhaust gas outlet closed	Check openings for dirt (slush, ice, leaves etc.) and clean if necessary
#255	No connection between heater and operating unit	Contact customer service
	Cable defective	Contact customer service

If these measures do not rectify the fault, contact customer service.

15.6.2 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
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

15.7 Air conditioning unit

15.7.1 Truma

Fault	Cause	Remedy
Air conditioning unit does not start up	No 230 V power supply	Connect the vehicle to the local power supply
	230 V automatic circuit breaker has triggered	Switch on 230 V automatic circuit breaker
Remote control is not working	Remote control batteries empty	Change remote control batteries
Air conditioning unit does not respond to remote control commands	Obstacle between remote control and IR receiver	Remove obstacle
Air conditioning unit does not cool	Temperature has been set incorrectly	Adjust the temperature
	Thermostat defective	Contact customer service
	Defrosting process is running (external temperature between 4 °C and 7 °C)	Wait until defrosting process is finished
Air conditioning unit does not warm up	External temperature below 4 °C	Heating mode not possible
	Temperature has been set incorrectly	Adjust the temperature
	Thermostat defective	Contact customer service
	Filter dirty	Change filter
	Air passages are soiled/obstructed	Clean/clear air passages
	Defrosting process is running (external temperature between 4 °C and 7 °C)	Wait until defrosting process is finished
Water is entering the vehicle	Drainage holes for condensation are clogged	Clean air conditioning unit
	Seal is defective	Contact customer service
	Inclined position	Do not drive on gradients or inclines greater than 8 %
No more air circulation	Air filter clogged	Clean air filter
	Fan wheel defective	Contact customer service

15.7.2 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

15.8 Cooker

15.8.1 Gas cooker/gas oven

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

15.8.2 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

15.8.3 Microwave oven



- ▶ Only qualified personnel may repair the microwave oven. Improper repairs can cause major risks to the user.

Fault	Cause	Remedy
Microwave oven does not cut in	Fuse is defective	Replace fuse
	Door of the microwave oven is not properly closed	Remove foreign bodies stuck in the door of the microwave oven and close door properly

15.9 Refrigerator

15.9.1 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 re- frigerate sufficiently	Insufficient ventilation of unit	Check if ventilation grills are covered; remove cov- ers if necessary
		Remove ventilation grills and clean the space be- hind them (of leaves etc.)
	Thermostat adjusted too low	Adjust higher value on thermostat
	Post evaporator 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
Refrigerator does not re- frigerate 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 neces- sary, repeat procedure 3 to 4 times)
Refrigerator does not re- frigerate 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 defec- tive	Contact customer service
Refrigerator does not re- frigerate in 230 V opera- tion	Fuse is defective	Replace fuse
	No 230 V power supply	Connect 230 V power supply
	Heating element is defec- tive	Contact customer service
Refrigerator changes into gas mode in spite of mains connection	Line voltage too low	Check line voltage (refrig- erator will automatically change into 230 V opera- tion in case of correct line voltage)

15.9.2 Thetford N 3000 E/A

For certain faults, indicators also flash on the operating panel.

Fault	Cause	Remedy
LEDs for types of energy and display of the temperature range flash	Refrigerator does not work	Switch the refrigerator off and on again
		Check availability of an energy source
LED "⚡" and LEDs for display of the temperature range level are flashing	No 230 V power supply	Connect 230 V power supply
	230 V automatic circuit breaker has triggered	Switch on 230 V automatic circuit breaker
	230 V operating voltage too low	Have the 230 V power supply checked by an authorised specialist workshop
LED "⚡" and LEDs for display of the temperature range level are flashing	Fuse on the transformer/rectifier is defective	Replace fuse on the transformer/rectifier
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
	12 V operating voltage too low	Have the 12 V power supply checked by an authorised specialist workshop
	No D+ signal	Contact customer service
LED "🔥" and LEDs for display of the temperature range level are flashing	Lack of gas	Open regulator tap and gas isolator tap
		Connect a full gas bottle
	Cobwebs or burnt residue in the burning chamber	Remove the ventilation grill on the outside of the vehicle and clean the burning chamber

15.9.3 Dometic MES/AES

In addition to the faults mentioned in section 15.9.1, the following faults can be indicated via light symbols on the Dometic refrigerator.



- ▷ In the event of a fault, the illuminated Fault button will flash. Also, either one of the illuminated buttons for operating mode or the cooling level indicator will flash. In addition, a warning signal will sound.

Fault	Cause	Remedy
LED "⚡" flashes	No 230 V power supply	Connect 230 V power supply
	230 V automatic circuit breaker has triggered	Switch on 230 V automatic circuit breaker
	230 V operating voltage too low	Have the 230 V power supply checked by an authorised specialist workshop
LED "D+" flashes	Fuse on the transformer/rectifier is defective	Replace fuse on the transformer/rectifier
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
	12 V operating voltage too low	Have the 12 V power supply checked by an authorised specialist workshop
	No D+ signal	Contact customer service
LED "🔥" flashes ¹⁾	Lack of gas	Open regulator tap and gas isolator tap Connect a full gas bottle
	Cobwebs or burnt residue in the burning chamber	Remove the ventilation grill on the outside of the vehicle and clean the burning chamber
LEDs for display of the cooling level are flashing	Temperature sensor defective	Contact customer service
LED "⚡" and LEDs for display of the cooling level are flashing	230 V heating element defective	Contact customer service
LED "D+" and LEDs for display of the cooling level are flashing	12 V heating element defective	Contact customer service
LED "🔥" and LEDs for display of the cooling level are flashing	Faulty burner or power unit	Contact customer service

¹⁾ After fixing the issue, press the illuminated button for "Fault"/"Reset".

15.10 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
Toilet has no flush water	Water tank is empty	Replenish drinking water
	Fuse for toilet is defective	Replace fuse
Display for water and waste water indicates a wrong value	Measuring probe in the waste water or water tank is soiled	Clean water/waste water tank
	Measuring probe is defective	Replace measuring probe
Waste water tank cannot be emptied	Drain cock is clogged	Open the cleaning cap on the waste water tank and drain the waste water. Rinse the waste water tank well
Drain on the single lever mixer tap is clogged	Perlator calcified	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
Milkeness 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

Fault	Cause	Remedy
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

15.11 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
Wind-up skylight is difficult to operate	Threaded spindle not lubricated	Lubricate threaded spindle
	Threaded spindle defective	Have threaded spindle replaced
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 special 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.

Weight details for special equipment available from the manufacturer are listed in the table below. If these objects are either carried in or on the vehicle and are not part of the standard equipment, they must be taken into consideration when calculating the payload.

All weight details are approximate.

Observe the max. permissible gross weight.

The table shows an extract from the list of possible special equipment and the surplus weight in each case.

Item designation	Surplus weight (kg)
Waste water tank, heated via heating coil	1
Waste water tank and drainage isolated and heated	8
Caravan coupling	50
Body door Premium XL	11
External shower	3
Automatic transmission	17
Automatic gas bottle switching facility with remote display	1
Oven	12
Front passenger's seat, height and tilt adjustable	17
Heki skylight midi	5
Omni-Vent skylight	4
Extractor hood	4
Spare wheel with 16" support (rear garage)	22
External gas connection	1
Bike rack for 2 bicycles	9
Bike rack for 2 bicycles, lowerable	18
Bike rack for 3 bicycles	11
Bike rack for 3 bicycles, lowerable	19
Cabin black-out shade, electrical	9
Floor warming unit	3

Item designation	Surplus weight (kg)
Garage door, left	8
Gas alarm system	1
Rear storage space shelf system	11
Alde heater (hot water)	50
Truma Combi 6 E heater	5
Pull-down bed, electrically adjustable	5
ISOFIX child safety seat mounting system	3
Driver's cabin air conditioning unit	19
Air conditioning unit (Telair)	26
Air conditioning unit (Truma)	33
Fuel tank 120 l	28
Refrigerator (Tec-Tower)	40
Awning 450 cm	32
Awning 500 cm	34
Awning 550 cm	51 to 59
Minisafe	5
Central seating group, convertible into bed	10
Pioneer multimedia system incl. reversing camera	3
Queen size bed, manually height-adjustable	53
Satellite unit	16
Solar installation 1 x 100 W	12
Solar installation 2 x 100 W	20
Premium sound system	3
Storage compartment box for rear storage space	20
Steadies, rear	6
Bedsread	2
Tempomat	1
Carpet in driver's cabin	3
Carpet in living area and driver's cabin	14
Winter insulation mat, outside	7
Auxiliary battery	27

Equipment packages

The equipment packages depend on the model. To calculate the additional weight, add the additional weights of the individual special equipment per package.

17.1 View of ground plans

Explanations

- (1) 230 V fuse
- (2) Transformer/rectifier with 12 V fuses
- (3) Living area battery with main fuse
- (4) Water pump mounted in the tank area
- (5) Drain cock, waste water tank
- (6) Safety/drainage valve
- (7) Boiler/heater
- (8) Water drain cock - yellow
- (9) Water tank
- (10) Alde hot-water heater
- (11) Alde compensator reservoir
- (12) Alde heat exchanger
- * Access via service flap
- ** Beneath the vehicle

Specifications without guarantee

Lyseo Time I

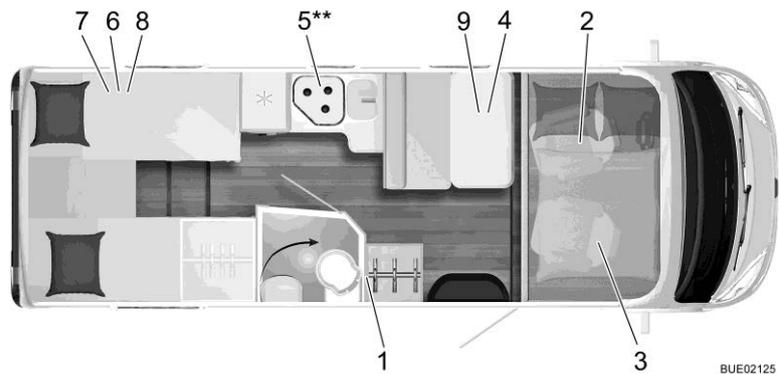


Fig. 307 Ground plan I 690 G

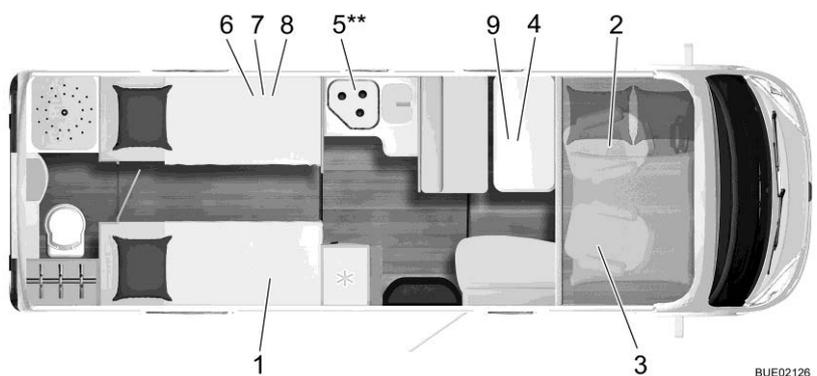
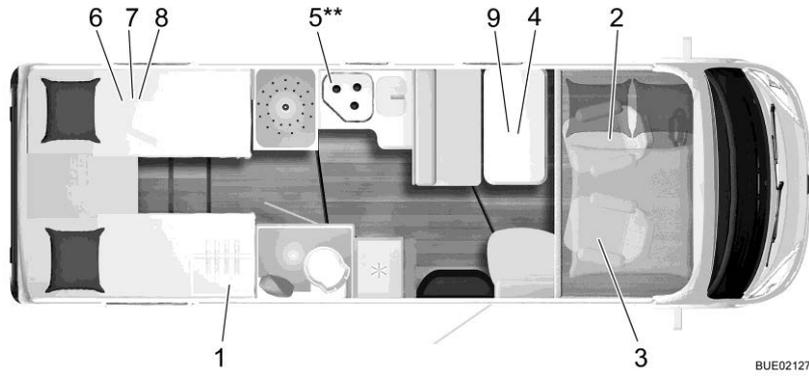
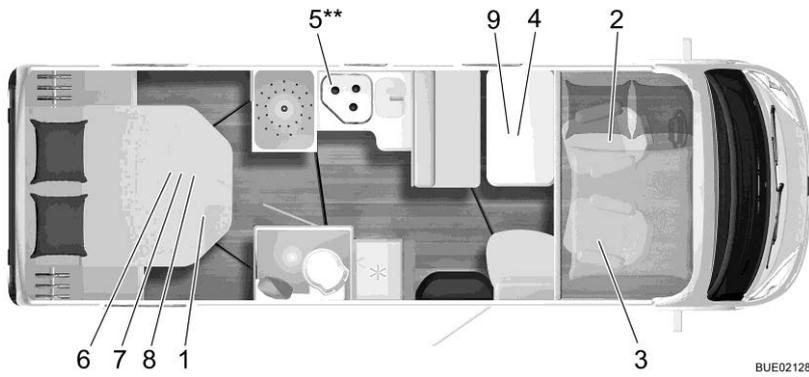


Fig. 308 Ground plan I 720



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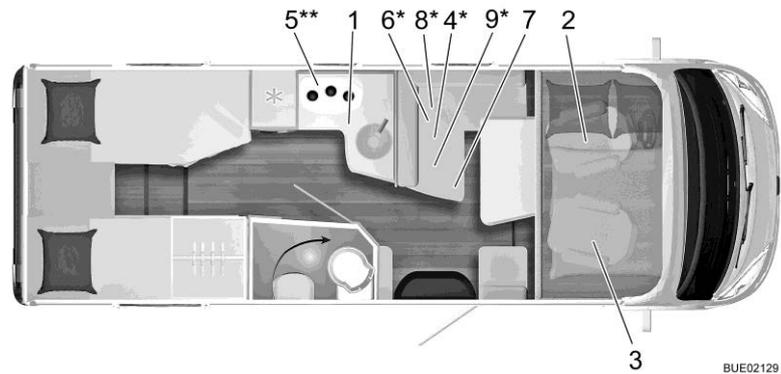
Fig. 309 Ground plan I 728 G



BUE02128

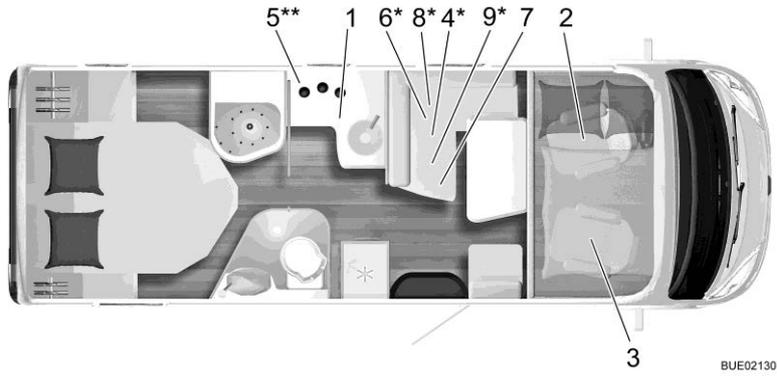
Fig. 310 Ground plan I 734 G

Ixeo I



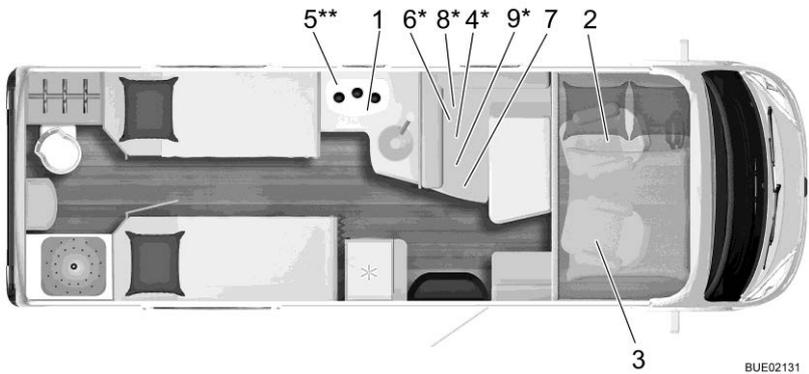
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Fig. 311 Ground plan I 690 G



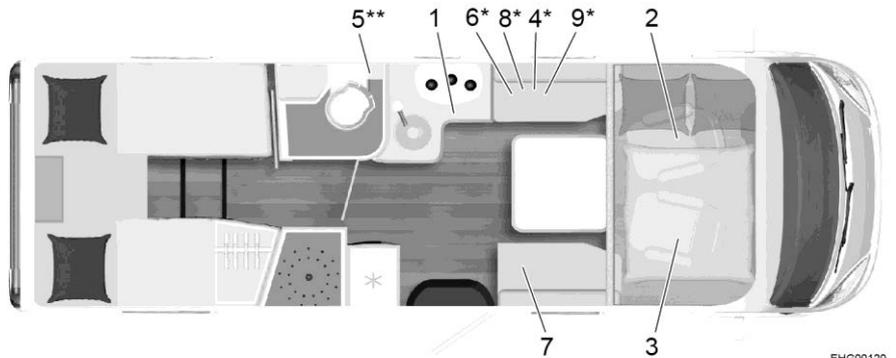
BUE02130

Fig. 312 Ground plan I 700



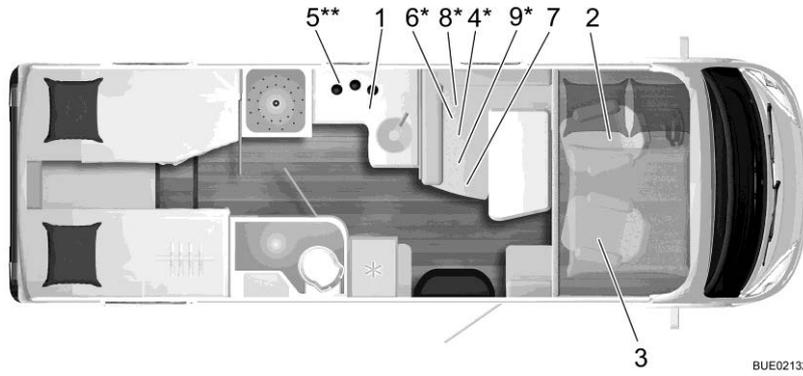
BUE02131

Fig. 313 Ground plan I 720



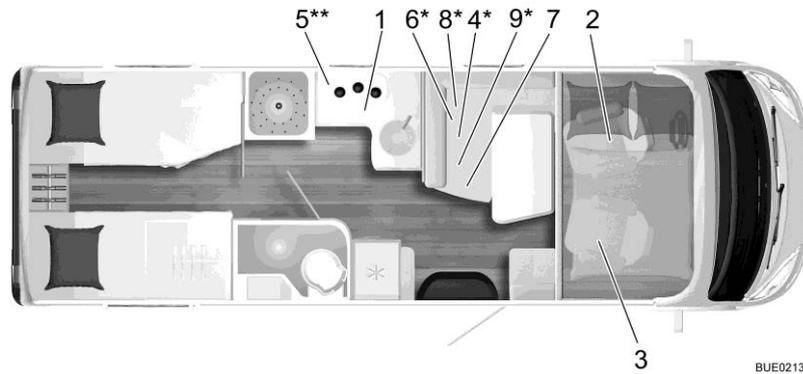
EHG00120

Fig. 314 Ground plan I 727 G



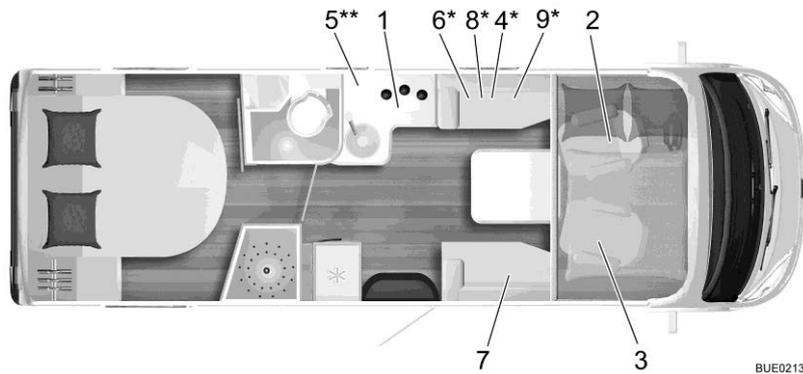
BUE02132

Fig. 315 Ground plan I 728 G



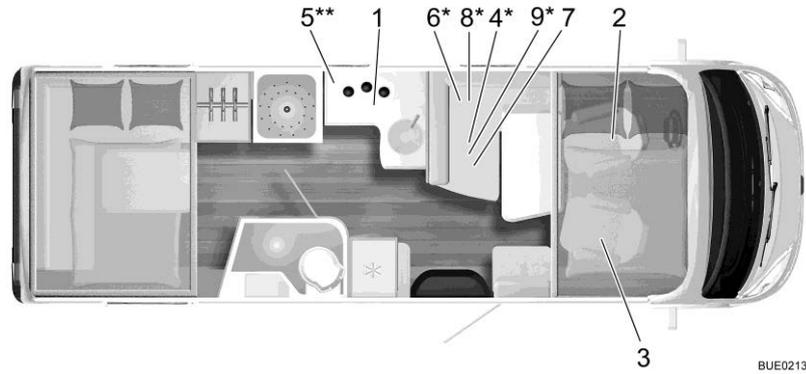
BUE02133

Fig. 316 Ground plan I 729



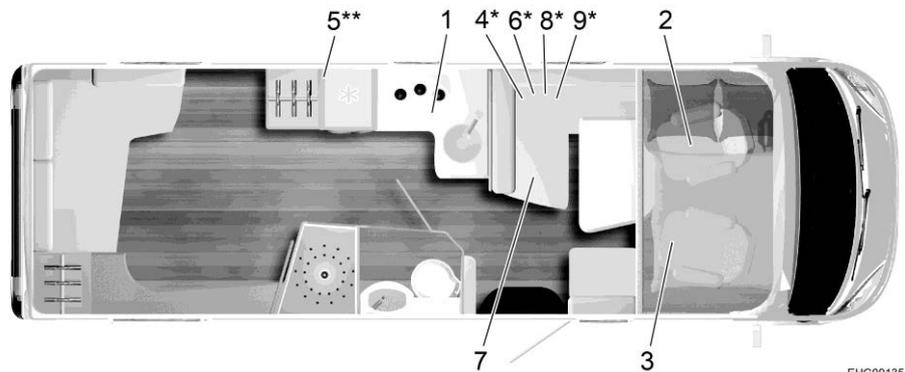
BUE02134

Fig. 317 Ground plan I 736



BUE02135

Fig. 318 Ground plan I 744



EHG00135

Fig. 319 Ground plan I 746

17.2 Table of linear measures / sleeping places

Lyseo Time I

Type	Headroom in cm	Total length in cm	Body width in cm	Overall height without antenna in cm	Regular/additional sleeping places
I 690 G	212	699	230	292	4/5
I 720	212	743	230	292	4/5
I 728 G	212	743	230	292	4/5
I 734	212	743	230	292	4/5

Ixeo I

I 690 G	198	699	232	296	4/5
I 700	198	699	232	296	4/5
I 720	198	739	232	296	4/5
I 727 G	198	749	232	296	4/5
I 728 G	198	749	232	296	4/5
I 729	198	749	232	296	4/5
I 736	198	749	232	296	4/5
I 744	198	749	232	296	4/5
I 746	198	765	232	296	4/5

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 motorhome.

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.

	✓	Object	✓	Object	✓	Object
Kitchen area		Wiping cloth		Cleansing agent (detergent)		Salad servers
		Silverware		Dishcloths		Chopping board
		Turnspit		Glasses		Brush to wash the dishes
		Can opener		Set of knives 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
16	Underbody	Visual check, repair underbody protection as necessary	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 1-16	
Stamp of the Bürstner dealer	
Date	Signature

3rd year _____ Item 1-13	
Stamp of the Bürstner dealer	
Date	Signature

4th year _____ Item 1-16	
Stamp of the Bürstner dealer	
Date	Signature

5th year _____ Item 1-13	
Stamp of the Bürstner dealer	
Date	Signature

6th year _____ Item 1-16	
Stamp of the Bürstner dealer	
Date	Signature

7th year _____ Item 1-13	
Stamp of the Bürstner dealer	
Date	Signature

8th year _____ Item 1-16	
Stamp of the Bürstner dealer	
Date	Signature

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