Dear Customer,

We are pleased that you have chosen a motorhome from ***HYMER*** and would like to thank you for the trust you have shown in our company.

This instruction manual is intended to help you get to know and use your new motorhome. **It is essential that you read and comply with the safety instructions in chapter 2.**

Don't hesitate to contact our ***HYMER*** service centres if you have any questions. Their staffs are fully conversant with your vehicle and will be pleased to help in any way they can. Our list of ***HYMER*** service centres in Europe is updated regularly. You can obtain a copy of the latest edition from our customer service department or from your ***HYMER*** dealer.

In addition to this instruction manual, you are also receiving from us

- **the service folder containing all information about the inspection intervals and the water ingress tests,**
- **the separate instruction manuals for the base vehicle and the various appliances.**

We are sure that you will get a lot of enjoyment from your motorhome. Have a good trip!

You will also find ***HYMER GmbH & Co. KG*** on the Internet at: http://www.hymer.com

Yours, ***HYMER GmbH & Co. KG***

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

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

Observe the following instructions before first journey of the vehicle:

- **Re-tighten the wheel nuts/wheel bolts after 50 km (30 miles).**
- **Read the instruction manual to avoid personal and material damage.**

Observe the following instructions before each journey of the vehicle:

- **Check the tyre pressures.**
  See Tyre pressure section.
- **Load the vehicle correctly. Observe the technically permissible maximum laden mass.**
  See Payload section.
- **Fully charge batteries before each journey.**
  See Starter battery and Living area battery sections.
- **In case of external temperatures below 0 °C first heat vehicle, then fill water system.**
  See Water supply/Filling the water tank section.
- **Gas bottles are only to be transported within the designated gas bottle compartment.**
- **Keep forced ventilations clear.**
  See Skylights and Ventilation sections.
- **Before filling the vehicle with fuel switch off the gas/diesel-operated appliances.**

If there is any risk of frost, observe the following instructions:

- **If there is any risk of frost, always heat the vehicle.**
  See Heater section.
- **If the vehicle is not being used when there is risk of frost, empty the entire water system. Make sure that the 12 V power supply on the panel is switched off. Otherwise, the water pump will overheat and may get damaged. Leave the water taps on in central position. Leave all drain cocks open. This will avoid frost damage to appliances and to the vehicle.**
  See Emptying the water system section.

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

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

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

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

▷ This symbol indicates recommendations or special aspects.

▷ This symbol indicates actions which lead to environmental awareness.

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

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

Optional equipment is described when an explanation is required.

Adhere to the instruction manuals which are separately enclosed.

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

▷ All dimensions and weight details are "approximate".

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

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

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

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 sewage container at disposal stations, camping sites or caravan sites provided especially 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 sewage container to become too full. Empty the sewage container frequently, at the latest as soon as the filling 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 which are specially reserved for motorhomes. Enquire at the town or community authority about parking spaces.
- Always leave the parking places in a clean condition.

Chapter overview

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

2.1 Fire prevention

2.1.1 Avoidance of fire risks

- ▶ Never leave children in the vehicle unattended.
- ▶ Keep flammable materials clear of heating and cooking appliances.
- ▶ Never use portable heating or cooking appliances.
- ▶ Only authorised qualified personnel may make changes to the electrical system, gas system or appliances.

2.1.2 Fire-fighting

- ▶ Please inform yourself about the country- and location-specific requirements for firefighting in the place where you are staying and keep the required tools on hand.

2.1.3 In case of fire

- ▶ Evacuate all passengers.
- ▶ Cut off the electrical power supply and disconnect from the mains.
- ▶ Close the 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.

2.2 General

- ▶ The oxygen in the vehicle interior is used up by breathing and the use of gas/diesel-operated appliances. Therefore, the used air must be replaced permanently. For this purpose, forced ventilation options (e.g. skylights with forced ventilation, mushroom-shaped vents or floor vents) are fitted to the vehicle. Never cover or block forced ventilations from the inside or outside with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves. There is a danger of suffocation due to increased CO_2 levels.
- ▶ Do not use storage spaces (nor rear storage spaces) as places for people or animals to stay or sleep in. These spaces are not forced-air ventilated. There is a danger of suffocation due to oxygen deprivation or exhaust from the heater.
- ▶ Observe the headroom of the doors.

- ▷ As far as the fitted appliances (heater, cooker, refrigerator, etc.) and the base vehicle (engine, brakes, etc.) are concerned, the instruction manuals are authoritative. It is imperative that they be observed.
- ▷ Fitting accessories or optional equipment can alter the dimensions, weight and road behaviour of the vehicle. Some of the add-on parts must be entered in the vehicle documents.
- ▷ Only use wheel rims and tyres which are approved for the vehicle. Information concerning the size of the approved wheel rims and tyres is included in the vehicle documents or can be obtained from authorised dealers and service centres.
- ▷ If the technically permissible maximum laden mass of the vehicle exceeds 4 tonnes, a wheel chock must be used when parking on gradients. The wheel chock is provided as standard for vehicles with a technically permissible maximum mass exceeding 4 tonnes.

- ▷ When the vehicle is parked, the electric handbrake is applied automatically.
- ▷ 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.

2.3 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, open and secure the shades on the windscreen and on the driver's and front passenger's windows.
- Before commencing the journey, place and secure the flat screen and screen holder in the initial position.
- Before commencing the journey, remove the loose sink cover and store it securely in the kitchen unit or wardrobe.
- Carefully store all moving parts and all loose objects before starting your journey.
- Before commencing the journey, fix adjustable tables.
- 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.
- During the journey, persons are only to sit on the permitted seats (see chapter 4). The authorised number of seats is stipulated in the vehicle documents.
- Seat belts must be worn by all passengers.
- 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 the case of subways, tunnels or similar, observe the overall height of the vehicle (including roof loads).
- 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 13.9).
- 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 3).
- ▷ When loading the vehicle and during breaks in the journey, e.g. when reloading luggage or food, observe the technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle (see the vehicle documents).
- ▷ Before commencing the journey, close and lock, if possible, all inner doors, adjustable partition walls, drawers and flaps. Engage the refrigerator door securing device.
- ▷ Before commencing the journey, close windows and skylights.
- ▷ Before commencing the journey, close all external flaps and lock them.
- ▷ Before commencing the journey, remove the external supports and retract the corner steadies or steady legs, which are fitted to the vehicle.
- ▷ Before commencing the journey, put the antenna in park position.
- ▷ During the initial journey and each time after changing a wheel, retighten 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 13 for tightening torque.
- ▷ Tyres should not be older than 6 years as the material becomes brittle over time (see chapter 13).
- ▷ 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.

2.4 Towing

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

2.5 Gas system

2.5.1 General instructions

- ▶ The operator of the gas system is responsible for the performance of recurring inspections and for complying with the maintenance intervals.
- ▶ If there is no DuoControl regulating system with crash sensor installed: Before commencing the journey, when leaving the vehicle or when the gas devices are not in use, close all gas isolator taps and the main regulator tap on the gas bottle.
  If there is a DuoControl regulating system with crash sensor installed, the gas isolator taps and the main regulator tap may remain open during the journey.

- All gas/diesel-operated devices (depending on the equipment: heater, cooker, oven, grill, refrigerator) 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.

2.5.2 Gas bottles

- Handle full or emptied gas bottles outside the vehicle only with closed regulator tap and attached protective cap.
- Gas bottles are only to be transported within the designated gas bottle compartment.
- Place the gas bottles in vertical position in the gas bottle compartment.
- Fasten the gas bottles so that they are unable to turn or tilt.
- Connect the gas tube to the gas bottle without tension.
- If the gas bottles are not connected to the gas tube, always place the protective cap on top.
- Close the regulator tap on the gas bottle before the gas pressure regulator or gas tube are removed from the gas bottle.
- Depending on the connection, unscrew the gas tube from the gas bottle and screw it on the gas bottle again by hand or using an suitable special spanner. The screw connection on the gas bottle generally has a left-hand thread. **Do not** tighten too firmly.
- Only use special gas pressure regulators with a safety valve designed for vehicle use. Other gas pressure regulators are not permitted and cannot meet the demanding requirements.
- Use the gas pressure regulator defroster (EisEx) if the temperature falls below 5 °C.
- Use only 11 kg or 6 kg gas bottles. (The size of the gas bottles may vary depending on the country.) Exception: Only 5 kg gas bottles can be used with the special model CrossOver.
- Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- Never block the floor ventilation openings below the gas bottles.

2.6 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.

2.7 Water system

- ▶ Water left standing in the water tank or in the water pipes becomes undrinkable after a short period. Therefore, before each use of the vehicle, thoroughly clean the water pipes and the water tank. After each use of the vehicle completely empty the water tank and the water pipes.
- ▶ In the case of lay-ups lasting more than a week, disinfect the water system before using the vehicle (see section 11.7.3).

▷ If the vehicle is not used for several days or if it is not heated when there is a risk of frost, empty the entire water system. Make sure that the 12 V power supply on the panel is switched off. 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.

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.

3.1 Initial start-up

▷ 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 13 for tightening torque.

The motorhome is supplied with a set of keys, consisting of keys for the base vehicle and keys for the body.

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.

Further information in chapter 12.

When starting up for the first time or after a lay-up, the electrical system must be started up as follows:

- Switch on the fuses or (if the fuses have been pulled out) insert the fuses.
- Switch on the battery cut-off switch.
- Switch on 12 V power supply.

▷ The 12 V power supply must only be switched on in vehicles **without** SCU (System Control Unit). On vehicles **with** SCU, the 12 V power supply is activated automatically.

▷ The vehicle is not ready for operation until the above measures have been carried out.

3.2 Vehicle load capacity

▶ Overloading the vehicle and the axles may result, for example, in a diminished steering response (altered driving behavior), an overloading of the tires, and, as a result, an increased risk of tire blowouts or an extended braking distance. This may cause you to lose control of the vehicle, endangering yourself and other road users.
If you are not sure whether the loaded vehicle complies with the technically permissible maximum laden mass, you can weigh/check the vehicle on public scales or have it weighed by certain dealers.

▶ The vehicle documents state the technically permissible maximum laden mass or the mass including optional equipment ex works (actual vehicle mass), but not the weight of the laden vehicle (see section 3.2.1). For your own safety, we recommend that you have your loaded vehicle (with all passengers, luggage and personal objects) weighed on a public weighbridge before you set out on your journey.

▶ Adapt the speed to the payload. The stopping distance is increased if the payload is high.

- ▷ Do not exceed the technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle as stated in the vehicle documents by the payload.
- ▷ Built-in accessories and optional equipment reduce the vehicle load capacity.
- ▷ On loading, make sure that the payload's centre of gravity is as low as possible (directly above the floor of the vehicle). Otherwise this may affect the driving characteristics of the vehicle.

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

3.2.1 Terms

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

Technically permissible maximum laden mass

The technically permissible maximum laden mass is a value specified by the manufacturer that, for safety reasons, the vehicle must never exceed, even when loaded (e.g. 3500 kg). Information on the technically permissible maximum laden mass of the model you have chosen can be found in the registration papers and on the body manufacturer's nameplate in the vehicle.

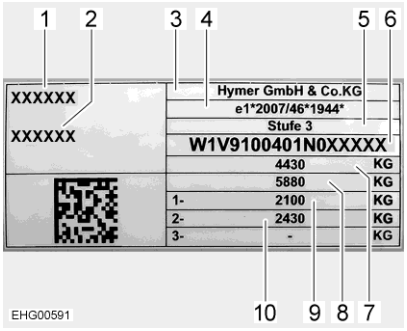


Fig. 1 Nameplate

1 Vehicletype
2 Consecutive serial number
3 Manufacturer
4 Vehicle type approval
5 Body stage
6 Chassis number
7 Technically permissible maximum laden mass
8 Permissible total towing mass (with caravan coupling option)
9 Technically permissible maximum laden mass on axle 1
10 Technically permissible maximum laden mass on axle 2

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

In the vehicle documents, the manufacturer has specified the technically permissible maximum laden mass.

Actual vehicle mass

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

Mass in running order

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

The mass in running order is made up as follows:

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

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

Basic equipment includes all equipment and fluids required for safe and proper vehicle use. The weight of the basic equipment includes:

- A full fresh water system
- A full heating system
- The power cables for the 230 V power supply
- A full toilet flushing system
- The installation kit for an auxiliary battery if an auxiliary battery can be used

The waste water tank and the sewage container are empty.

Example for calculating the basic equipment

Water tank with 20 l (during the journey)	20 kg
Gas bottle (11 kg $_{gas}$ + 14 kg $_{bottle}$)	+ 25 kg
230 V power cable	+ 4 kg
Installation kit for auxiliary battery	+ 20 kg
Total	**= 69 kg**

The mass in running order and the actual vehicle mass are specified by the manufacturer in the vehicle documents.

Remaining load capacity

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

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

Example:

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

- ▷ Please note that the factory calculation of the remaining load capacity for the mass of the driver (included in the actual weighed mass) and the mass of the passengers is based on a generalized mass of 75 kg per seat. Due to deviating body weights, however, the actual remaining load capacity of your vehicle may vary.
- ▷ The actual factory-weighed mass of your vehicle may vary slightly afterwards due to weather conditions and, for example, the associated absorption or release of moisture. Any further subsequent modification of your vehicle, e.g. through the additional installation of accessories by the dealer or other attachments and/or conversions, will additionally influence the actual weighed mass of the vehicle communicated and consequently also the remaining load capacity. It is the responsibility of the dealer after picking up the vehicle at the factory until delivery, and subsequently your responsibility from the time of handover by the dealer, to ensure that the technically permissible maximum laden mass is not exceeded. If you are not sure whether the loaded vehicle complies with the technically permissible maximum laden mass, you can weigh/check the vehicle on public scales or have it weighed by certain dealers.
- ▷ We will inform your dealer of the actual weighed mass of your vehicle and the remaining load capacity when we issue the invoice. Your dealer is required to pass on the information to you. If you have not received this information, you can contact your dealer and request it. Our scales meet all legal and standard requirements and are regularly maintained, tested and, calibrated. Nevertheless, a slight tolerance is technically unavoidable. Moreover, the weight of the vehicle may vary slightly due to weather conditions and, for example, the associated absorption or release of moisture. The actual weight of the vehicle may therefore deviate from the actual weight communicated by a few kilograms.

The payload is made up as follows:

- Conventional load
- Optional equipment
- Personal equipment

- ▷ The vehicle load capacity can be increased by reducing the actual 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 in the mass in running order and must **not** be counted.

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

Optional equipment

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

- Caravan coupling
- Bike or motorcycle rack
- Satellite unit

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

Personal equipment

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

- Foodstuffs
- Crockery
- Television
- Radio
- Clothes
- Bedding
- Toys
- Books
- Boiler water

No matter where kept, personal equipment also includes:

- Animals
- Bikes
- Boats
- Surfboards
- Sports equipment

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

Formula

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

Explanation

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

L = total length of the vehicle in metres

3.2.2 Calculating the vehicle load capacity

- ▶ Never exceed the technically permissible maximum laden mass!
- ▶ The technically permissible maximum laden mass and the weight including optional equipment fitted at the factory (actual mass) is shown in the vehicle documents, but not the weight of the laden vehicle (see section 3.2.1). For your own safety, we recommend that you have your loaded vehicle (with all passengers, luggage and personal objects) weighed on a public weighbridge before you set out on your journey.

The vehicle load capacity (see section 3.2.1) is the difference in weight between

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

Example for calculating the vehicle load capacity

	Mass in kg to be calculated	Calculation
Technically permissible maximum laden mass according to vehicle documents	3500	
Actual vehicle mass including standard equipment according to the vehicle documents	- 3070	
This results in a permissible load capacity of	**430**	
Flat-rate value of 10 kg per meter vehicle length (in the example: 7.00 m)	- 70	
Conventional load e.g.: 3 persons each weighing 75 kg	- 225	
Optional equipment and accessories	- 40	
For the personal pay-mass this results in	**= 95**	

The pay-mass is calculated based on the regulation (EC) no. 1230/2012.

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

Only if the vehicle is weighed on a public scale with filled tanks (fuel and water), filled gas bottles and complete optional equipment (and accessories) can the actual vehicle load capacity be determined.

To do this, proceed as follows:

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

The individual values give the current masses on the axles. These are important for the correct loading of the vehicle (see section 3.2.3). The sum of these values is the current weight of the vehicle.

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

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

- Determine the weight of the passengers and subtract it from the value for the actual vehicle load capacity.

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

3.2.3 Load securing and load distribution

- ▶ For safety reasons, never exceed the technically permissible maximum laden mass.
- ▶ Distribute the load evenly on the left and right sides of the vehicle.
- ▶ Distribute the load evenly on both axles. Observe the technically permissible maximum laden mass on the axle specified in the vehicle documents. Observe the permissible load-carrying capacity of the tyres (see chapter 13).
- ▶ Heavy loads behind the rear axle can reduce the load on the front axle due to the leverage effect (). This applies especially to long rear extensions, if a motorbike is transported on the rear carrier or if there is a heavy load in the rear storage space. The release of the front axle negatively affects the driving quality, especially for front-driven vehicles.
- ▶ Store all objects in such a way that they cannot slip.
- ▶ Store heavy objects (awning, tin cans, etc.) close to the axles. Low-lying storage spaces whose doors do not open in the direction of travel are particularly suited for storing heavy objects.
- ▶ Stack light objects (laundry) in the roof storage cabinets.
- ▶ Load the bike rack with bicycles only.

- ▷ Only load the drawers with a maximum of 15 kg.
- ▷ Do not exceed the maximum loading for roof storage cabinets.
  The maximum loading per running metre of roof storage cabinet is 10 kg.

  When loading, consider the respective length of the roof storage cabinet and calculate the maximum load accordingly.

  Example of a 0.5 m long roof storage cabinet:
  10 kg maximum loading per running metre x 0.5 m length of the storage compartment = 5 kg load is possible.

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

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

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

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

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

▷ The technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle must not be exceeded. Especially when stowing or attaching heavy accessories or heavily laden accessories (such as motorcycle carriers or bicycle carriers) at the rear, the mass on the axle must be checked and complied with. If you are not sure whether the loaded vehicle complies with the technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle, you can weigh/check the vehicle on public scales or have it weighed by certain dealers.

▷ For individual models, a maximum load is specified by the body manufacturer for cabinets, drawers, storage compartments, or other storage spaces. This maximum load can be seen on the stickers attached on site and must be observed at all times. However, the technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle must not be exceeded under any circumstances. For this reason, please note that the stated maximum load may not be fully utilized if this would result in the exceedance of the technically permissible maximum laden mass or technically permissible maximum laden mass on the axle.

▷ Further information on correct loading can be found in the sections "Technically permissible maximum laden mass" (page 22), "Technically permissible maximum laden mass on the axle (mass on the axle)" (page 29) and "Rear storage space" (page 33).

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

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

Formulas

A x G : R = weight on the rear axle

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

Explanation

A = distance between storage space and front axle in cm

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

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

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

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

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

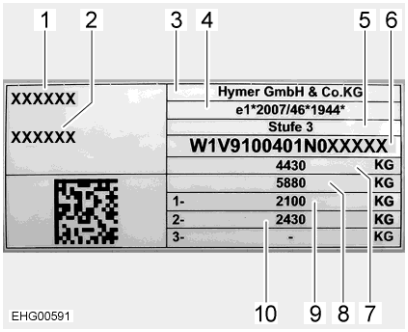


Fig. 2 Nameplate

1 Vehicle type
2 Consecutive serial number
3 Manufacturer
4 Vehicle type approval
5 Body stage
6 Chassis number
7 Technically permissible maximum laden mass
8 Permissible total towing mass (with caravan coupling option)
9 Technically permissible maximum laden mass on axle 1
10 Technically permissible maximum laden mass on axle 2

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

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

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

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

▷ Further information on correct loading can be found in the sections "Load securing and load distribution" (page 27) and "Rear storage space" (page 33).

Calculating masses on the axles:

- Multiply the distance between storage space and front axle (A) with the weight of the load in the storage space (G) and divide the result by the wheelbase (R). The result is the weight of the load in the storage space on the rear axle. Make a note of this weight and of the storage space.
- In a second step, subtract the weight in the storage space (G) from the weight calculated beforehand. If the result is a **positive** value (example 1), this means that the load on the front axle is **reduced** by this value. If the result is a **negative** value (example 2), this means that the load on the front axle is **increased**. Make a note of this value, too.
- Calculate all storage spaces of the vehicle in the same way.
- In a last step, add all weights calculated for the rear axle to the mass on the rear axle and add (or subtract) all weights calculated for the front axle to (or from) the mass on the front axle.
  How to determine the mass on the rear axle and the mass on the front axle is described in section 3.2.2.

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

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

Example calculation

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

Increase and reduction of load capacity

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

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

- ▷ Due to the change in the technically permissible maximum laden mass, increases or reductions of load capacity may affect the permitted seats, the chassis, and the mass on the axle. If you have any questions, feel free to contact the responsible technical testing center for advice.
- ▷ A reduction or increase of load capacity may result in changes to the legal requirements resulting from the new technically permissible maximum laden mass of the vehicle. This applies in particular to the legal requirements from the German Road Traffic Act (StVO), the German Road Vehicle Registration Regulation (StVZO), and tax and insurance regulations. An increase of technically permissible maximum laden mass to over 3500 kg may, for example, affect the driving license class or result in different speed limits or prohibitions on passing and overtaking. Toll payment requirements may also change due to the new technically permissible maximum laden mass. Therefore, inform yourself about the current legal situation with regard to the new technically permissible maximum laden mass of the vehicle and seek advice on this from the appropriate bodies. Please note that national regulations in the country of your destination and countries visited in transit may differ from those in your home country.
- ▷ For more information on the actual weighed mass of your vehicle and the remaining load capacity, please refer to section "Remaining load capacity" (page 23).

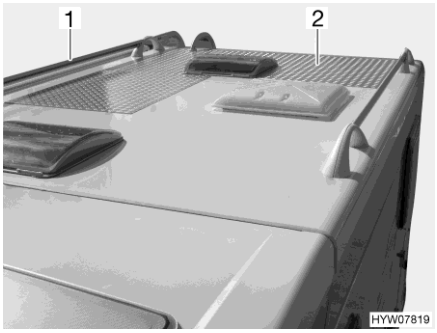
3.2.4 Roof load

- ▶ Only climb on to the roof if a roof rail or step has been fitted. Always use the ladder at the rear to climb onto the roof.
- ▶ Take care when stepping onto the ladder. There is danger of slipping when the ladder is moist or icy.
- ▶ Take care when stepping onto the roof. There is danger of slipping when the roof is moist or icy.
- ▶ Do not overload the roof. Road behaviour and brake reaction deteriorate as the roof load increases.

- ▷ If the vehicle is equipped with crossbars, mounting objects (such as surfboards or boxes) on the carrier system can prevent the skylight from opening fully. Use the carrier system only with the approved crossbars from Hymer Original Parts. The authorised dealer or service centre is available to advise you on this.
- ▷ The maximum permissible roof load is 140 kg. The load capacity of the carrier system with crossbars from Hymer Original Parts is 75 kg.
- ▷ If there is a step, only access the roof using the step provided for this purpose.
- ▷ Secure roof loads with tension belts. Do not use rubber expanders.
- ▷ Observe the overall height of the vehicle when the roof rack is loaded.

- ▷ The driver's cabin should have a clearly visible notice stating the overall height. This eliminates the need for calculations at bridges and thoroughfares.

Roof rail and step

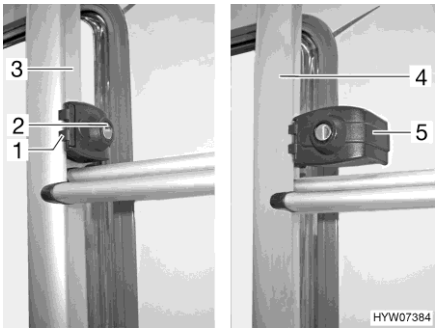


1 Roof rail
2 Step

Fig. 3 Roof rail and step

If the vehicle is equipped with a roof rail (Fig. 3,1), then depending on the version a step (Fig. 3,2) will also be mounted on the roof. In this case, only access the roof using the step.

Rear ladder



1 Rear ladder lock
2 Locking cylinder
3 Fixed part of the rear ladder
4 Rear ladder
5 Securing bracket

Fig. 4 Lock (rear ladder)

Folding downwards:

- Insert the key into the locking cylinder (Fig. 4,2) of the rear ladder lock (Fig. 4,1) and turn it a quarter turn until the key is in a vertical position.
- Hold the foldable part of the rear ladder (Fig. 4,4) and swing out the securing bracket (Fig. 4,5).
- Pull out the key and fold the rear ladder downwards.

Folding upwards:

- Fold the rear ladder upwards and hold it firmly.
- Insert the key into the locking cylinder (Fig. 4,2) of the rear ladder lock (Fig. 4,1).
- Swivel the securing bracket (Fig. 4,5) inward around the tube of the fixed part of the rear ladder (Fig. 4,3).
- Turn the key a quarter turn until it is in a horizontal position.
- Check the rear ladder lock: Slightly pull on the rear ladder.

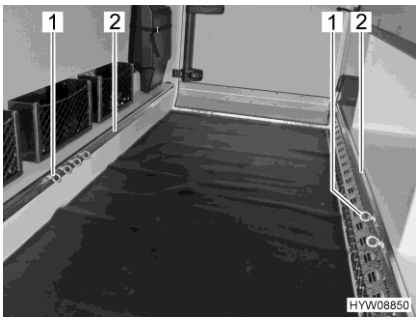
3.2.5 Rear storage space

- ▶ Observe the technically permissible maximum laden mass on the axle and the technically permissible maximum laden mass when loading the rear storage space.
- ▶ The maximum permitted load of the rear storage space is 350 kg. If the vehicle is fitted with a frame extension, the permitted load is 450 kg. Do not exceed the technically permissible maximum mass on the rear axle.
- ▶ Uneven loading or overloading has a negative effect on driving behavior. A rear-heavy load in particular results in a reduction of the load on the front axle due to leverage effects and thus, for example, to a loss of traction, a diminished steering response (altered driving behavior), an overloading of the tires and, as a result, an increased risk of tire blowouts. This may cause you to lose control of the vehicle, endangering yourself and other road users. An evenly distributed load over the entire vehicle leads to optimum driving behavior during travel. If you are not sure whether the loaded vehicle complies with the technically permissible maximum laden mass and the technically permissible maximum laden mass on the axle, you can weigh/check the vehicle on public scales or have it weighed by certain dealers.
- ▶ Do not exceed the maximum permissible external load on the rear wall/rear flap. Only equipment components approved by the manufacturer are permitted (e.g. certain bike racks).
- ▶ When transporting vehicles powered by gasoline, diesel, gas, or other flammable material, make sure that the tank of the transported vehicle is completely empty. When transporting electric bikes, we also recommend that you remove and securely stow the battery before commencing travel.
- ▶ Rear storage spaces are not designed at the factory to function as sleeping or living areas for people or animals. These spaces are not provided with ventilation at the factory. There is a risk of suffocation due to a lack of oxygen.

- ▷ Observe that only factory-fitted equipment components (e.g. storage nets) are permitted on rear doors/rear flap.
- ▷ Observe the maximum permissible load of 5 kg for the factory-attached storage nets.
- ▷ Depending on the vehicle equipment, clamping rails with clamping eyelets are mounted 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.
- ▷ Use the holding system offered by your dealer if two-wheelers are transported in the rear storage space.
- ▷ Do not drill into the vehicle floor. Do not screw any screws into the vehicle floor.

When loading rear storage spaces, please observe the following instructions to ensure safe mobile operation:

- Baggage and items carried in rear storage spaces must also be evenly distributed in accordance with the section "Load securing and load distribution" (page 27).
- All items stored in rear storage spaces must be fastened and secured accordingly using suitable clamping systems at the existing fastening points provided at the factory.
- Before driving off, it must be ensured that the rear storage space is properly locked.



1 Clamping eyelet
2 Clamping rail

Fig. 5 Clamping eyelets (rear storage space)

Moving the clamping eyelets:

- Turn the clamping eyelet (Fig. 5,1) half a turn in an anticlockwise direction. Now, the clamping eyelet (Fig. 6) may be moved.

Fig. 6 Clamping eyelet (movable)

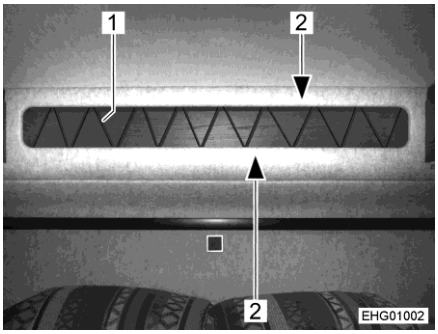
Fig. 7 Clamping eyelet (clamped)

- Push the clamping eyelet into the clamping rail (Fig. 5,2) to the desired position.
- Give clamping eyelet one half turn in a clockwise direction. The clamping eyelet (Fig. 7) sits tightly in the clamping rail again.
- Check that the clamping eyelet is tight.

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

▷ Further information on correct loading can be found in the sections "Technically permissible maximum laden mass" (page 22), "Technically permissible maximum laden mass on the axle (mass on the axle)" (page 29) and "Load securing and load distribution" (page 27).

3.3 Open storage space above the beds



1 Rubber
2 Rail

Fig. 8 Fall out protection above the beds

Fall out protection is included for storage space above the beds.

Attach fall out protection:

- Thread the sliding eyelets that are enclosed onto the rubber (Fig. 8,1).
- Secure both ends of the rubber with knots.
- Insert the sliding eyelets of the rubber alternately into the upper and lower rail (Fig. 8,2).

3.4 Bike rack

- ▶ Observe the technically permissible maximum laden mass on the axle and the technically permissible maximum laden mass when loading 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.
- ▶ Do not transport more than the permitted number of bicycles for the bike rack used (max. 50 kg).
- ▶ 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.
- ▶ Observe the instruction manual of the bike rack manufacturer.

- ▷ The identification plate and rear lights must not be covered.
- ▷ 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?
- ▷ Remove all parts that are only loosely attached (examples: child seat, bicycle basket, air pump) before riding.

- ▷ The driver of the vehicle is responsible for the condition as well as the safe attachment and loading of the bike rack.
- ▷ Mounting a bike rack depends on the configuration of the vehicle.

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:

- ■ Fold the bike rack downwards.
- ■ 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 on the retaining bracket or retaining arm.

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

3.5 Towing

- ▶ Care is to be taken when connecting and detaching a trailer. Risk of accident and injury!
- ▶ No persons are to be between the motorhome and the trailer during positioning for connecting and detaching.
- ▶ Observe the permissible nose weight and rear axle load of the motorhome. Nose weight and rear axle load must not be exceeded. The values of the nose weight and rear axle load are included in the documents of the vehicle and the caravan coupling.

- ▷ 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 instruction manual for the caravan coupling.

- ▷ The maximum permissible nose weight of the vehicle is 80 kg.

3.6 Caravan coupling

- ▶ When attaching a caravan coupling, refer to the vehicle documents for the maximum nose weight and the technically permissible maximum towable mass.
- ▶ Retighten the caravan coupling fixing screws after 1000 operating hours.

- ▷ The bike rack and caravan coupling may not be used simultaneously.

- ▷ Have your authorised dealer or authorised service centre install the add-on parts. They will also take care of all the formalities for you.
- ▷ Observe the manufacturer's instruction manual.

Fig. 9 Caravan coupling (detachable)

3.7 Entrance step

- ▶ Before commencing the journey and after short interruptions of the journey, ensure that the entrance step is completely retracted.
- ▶ Do not stand in the direct range of the entrance step while it is being retracted or extended.
- ▶ Do not step on the entrance step until it has extended completely. There is a risk of injury!
- ▶ To prevent danger of slipping, clean the entrance step if necessary before entering (snow, ice, mud, etc.).
- ▶ Do not under any circumstances raise or lower persons or loads with the entrance step.
- ▶ Following a cold start, for vehicle-related reasons it can take a few seconds before the warning tone sounds.
- ▶ Observe the maximum load for the entrance step according to the manufacturer's instruction manual.

▷ Do not grease or lubricate the pivot bearing and joints of the entrance step (see chapter 11).

The electrically operated entrance step makes it easier to enter and exit the vehicle through the living area door.

Depending on the model, the switch panel with the rocker buttons is installed either in the dashboard or on the side, in the driver's door.

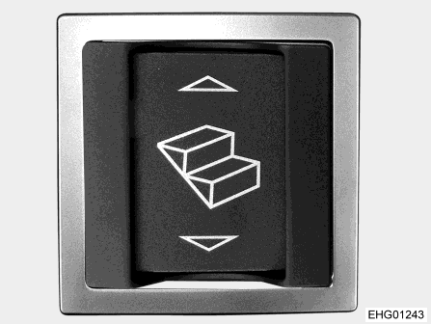


Fig. 10 Rocker button for entrance step (entrance area)

Fig. 11 Rocker button for entrance step (switch panel)

▷ The rocker button in the entrance area (Fig. 10) has an additional frame to protect it from being actuated unintentionally.

Retracting:

- ■ Press upper part of the rocker button in the entrance area (Fig. 10) or press the rocker button (Fig. 11) on the switch panel in the driver's cabin.

Extending:

- ■ Press lower part of the rocker button in the entrance area (Fig. 10).

When the engine is running and the entrance step is extended, a warning tone is heard. The warning tone stops as soon as the entrance step has been retracted.

3.8 TV unit

- ▶ Before commencing the journey, return the flat screen and the screen holder into the initial position and secure them.
- ▶ Before commencing the journey, ensure that the antenna is in park position. Danger of accidents!

▷ Further information on positioning the flat screen can be obtained from chapter 6.

3.9 Thitronik WiPro III alarm system

- ▶ Observe the brief operating instructions and operating instructions of the alarm system manufacturer.

The WiPro III alarm system is a wireless alarm system specially developed for leisure vehicles that warns of break-ins.

It is operated via the Thitronik hand-held radio transmitter supplied (alternatively via the vehicle radio key) and/or via the Thitronik app.

An optional gas sensor and the "Pro-finder" function can be retrofitted by the dealer. The gas sensor warns when a critical gas concentration is reached in the room air. The "Pro-finder" enables an emergency text message to be sent to predefined phone numbers.

Control of the alarm system

	Vehicle radio key	**Hand-held radio transmitter**
Condition	Only with closed driver's cabin doors	With closed and open driver's cabin doors
Activate alarm function	Locking button	Any button
Reaction	• Vehicle direction indicators flash 1 to 2 times depending on the vehicle type. • Internal beeper sounds 1 time. • Status LED starts flashing.	• Vehicle direction indicators flash 1 time. • Internal beeper sounds button 1 time depending on the button. • Status LED starts flashing.
Deactivate alarm function	Unlocking button	Any button
Reaction	• Vehicle direction indicators flash 1 to 2 times depending on the vehicle type. • Internal beeper sounds 2 times. • Status LED no longer flashes.	• Vehicle direction indicators flash 2 times. • Internal beeper sounds button 2 times depending on the button. • Status LED no longer flashes.

Break-in alarm / gas concentration

If the radio magnetic contacts on the doors, windows and flaps register an attempted break-in or if the optionally available gas sensors detect a critical gas concentration, the integrated siren and the vehicle horn (not included for all vehicle types) sound for 30 seconds. In addition, the vehicle's indicator lights and status LED flash for 180 seconds.

After the alarm cycle has ended and an alarm pause of approx. 30 seconds, the alarm is set off again. If the critical gas concentration remains as the cause of the alarm, the flashing lights and the status LED flash until the gas concentration has reached a non-critical level.

Panic alarm

In the event of a threatening situation, the panic alarm function can be used to attract attention. In the event of a panic alarm, the siren, indicators and, depending on the vehicle type, the horn are activated. If an optionally available "Pro-finder" is connected, an emergency text message with the last known position is sent to all predefined destination numbers. The panic alarm can be triggered both when the system is activated and deactivated.

Activating:

- Press both buttons on the wireless hand-held radio transmitter simultaneously.

Deactivating:

- Press any button on the wireless hand-held radio transmitter.

▷ The Thitronik app is available free of charge from the App Store or Google Play. For terms of use see www.thitronik.de.

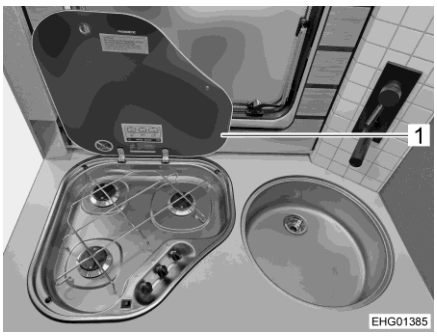
▷ For further information (e.g. on changing the transmitter batteries), refer to the manufacturer documentation.

▷ Follow instructions on the manufacturer's website: www.thitronik.de

▷ Do not dispose of the device with household waste. Municipal collection points have suitable disposal containers for electronic devices.

3.10 Kitchen area

▶ In the event of an accident or heavy braking, flying objects could injure the occupants of the vehicle. Before moving off, secure all moveable objects and remove all loose objects and store them securely.



1 Gas cooker cover

Fig. 12 Gas cooker

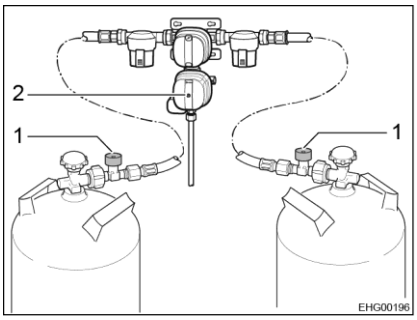
- Close cover for the gas cooker (Fig. 12,1).

3.11 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 sensor prevent an escape of gas in the event of an accident.

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

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



1 Hose break guard
2 Crash sensor

Fig. 13 Gas regulator (DuoControl CS)

Gas regulator with crash sensor and hose break guard

If a gas regulator with crash sensor (Fig. 13,2) and hose break guard (Fig. 13,1) is installed in the vehicle:

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

The design details of the gas regulators can vary (vertical or horizontal).

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

3.12 Snow chains

▷ 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.

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.

3.13 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 13.9).
- ▶ Add-on parts can be exposed to adverse conditions (storms, ice, vibrations, etc.) and require close monitoring despite careful design and manufacturing. Therefore, check the tight fit of the add-on parts at certain intervals and before long journeys.
- ▶ Before commencing the journey, collect all loose items and secure them safely.

Before commencing the journey, work through the checklist:

	No.	Checks	Checked
Service partners	1	Service and sales partners noted (see section 12.1)	
Base vehicle	2	All vehicle documents are on board	
	3	Tyres in proper condition and tyre pressure correct	
	4	Vehicle lighting, brake lights and reversing lights function	
	5	Oil levels for engine, gearbox and power steering controlled	
	6	Coolant and fluid for windscreen washers filled up	
	7	Brakes function	
	8	Brakes react evenly	
	9	When braking, the vehicle remains in the lane	
Housing body, outside	10	Awning completely retracted	
	11	Roof free of snow and ice (in winter)	
	12	External connections and lines disconnected and stored away	
	13	External supports removed	
	14	Fitted steady legs retracted and fixed in place	
	15	Wheel chocks removed and stored away	
	16	Entrance step retracted (observe warning tone)	
	17	External flaps closed and locked	
	18	Rear living area door locked	
	19	Overall height of the vehicle including roof rack when loaded measured and noted. Keep the height information close at hand in the driver's cabin	

Housing body, inside

No.	Checks	Checked
20	Windows and skylights closed and locked	
21	Television secured	
22	Loose parts stored away or fixed in position	
23	Open storage spaces empty	
24	Loose sink cover (if present) stored securely	
25	Refrigerator door secured	
26	Refrigerator set to 12 V operation	
27	All drawers and flaps closed	
28	Living area doors and sliding doors secured	
29	Children's seats only mounted on the seats approved for this purpose	
30	Swivel seat locking device for driver's seat and front passenger's seat locked	
31	Shades in the driver's cabin opened and secured	
32	Satellite unit switched off	

Gas system

33	Gas bottles firmly fixed in the gas bottle compartment so that they are unable to turn	
34	If the gas bottles are not connected to the gas tube, always place the protective cap on top	
35	Regulator tap on the gas bottle and gas isolator taps are closed ▷ If there is a DuoControl regulating system with crash sensor installed, the gas isolator taps and the main regulator tap may remain open during the journey.	

Electrical system

36	Check the battery voltage/battery capacity (in %) of the starter and living area battery (see chapter 8). If the panel indicates that the battery voltage/battery capacity is too low, the respective battery will need to be recharged. Observe the notes and instructions in chapter 8 ▷ Commence journey with fully charged starter and living area batteries.	

Chapter overview

This chapter contains instructions on how to drive the motorhome.

4.1 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.
- ▶ When you start the engine, warning signals such as "entrance step extended" can sound. Under certain conditions (a cold start in winter) after the engine is started it can take up to 15 seconds for these warning signals to sound.
- ▶ 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.

- ▷ 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, e.g. a motorcycle rack.

- ▷ 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 2 have to be observed.

4.2 Breakdown assistance in the event of vehicle-related technical problems

▶ In case of emergency call the national emergency number or use the Mercedes-Benz emergency call system (SOS button, refer to base vehicle instruction manual).

For breakdown assistance and any questions on the base vehicle, the Mercedes-Benz customer centre is at your disposal. The call to the Mercedes-Benz customer centre is set up via the "me connect" communication module in the vehicle.

Position The button for the call for breakdown assistance is installed in the roof console.

▷ Only use the button for the call for breakdown assistance in the event of technical problems with the base vehicle. Any questions on the superstructure of the vehicle cannot be answered.

Fig. 14 Button for the call for breakdown assistance (roof console)

Calling:

■ Press the button (Fig. 14) for the call for breakdown assistance. A call to the Mercedes-Benz customer centre is initiated.

On the multifunction display appears a message indicating that the call is being initiated. The audio output is muted. The vehicle data are transmitted; this might take a few seconds. After that, a staff member of the Mercedes-Benz customer centre will contact you.

▷ In some countries, a voice message prompts you to confirm the transmission of the vehicle data. After confirming, the vehicle data are transmitted.

Disconnecting the call:

■ Press phone button on the multifunction steering wheel.

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

4.3 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 cross-wind 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.

4.4 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:

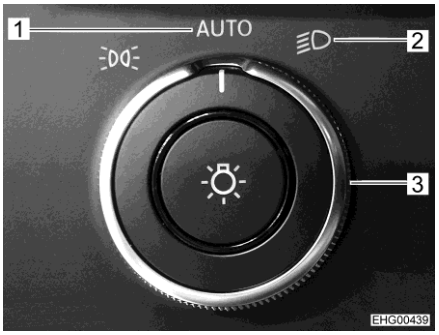
- Do the brakes function?
- Do the brakes react evenly?
- Does the vehicle remain in the lane when braking?

4.5 Additional main beam (Special model CrossOver)

With optional equipment "LED additional main beam", an additional headlight is mounted on the roof of the driver's cabin.

- ▶ The additional LED main beam strongly dazzles oncoming traffic. Dip the headlights in case of oncoming traffic. Take into account that the additional main beam has a longer range than the principal main beam.
- ▶ Do not use the Mercedes light assistant to dip the lights. Even when the function "AUTO" has been set, dip the lights manually (switch off the principal main beam and the additional LED main beam on the steering column lever).

- ▷ The engine must be running to be able to activate the additional LED main beam.
- ▷ The function "Headlight flashing" is not supported by the additional LED main beam.

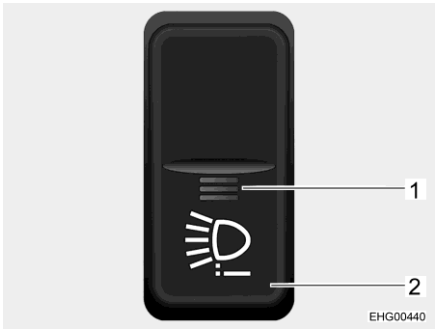


1 AUTO position
2 Driving light position
3 Rotary light switch Mercedes

Fig. 15 Rotary light switch

Using the additional LED main beam:

- Turn the Mercedes rotary light switch (Fig. 15,3) to the position AUTO (Fig. 15,1) or to the position Driving light (Fig. 15,2).



1 Function indicator
2 Rocker button

Fig. 16 Rocker button

- Press the rocker button (Fig. 16,2). The function indicator (Fig. 16,1) is lit red. The text message "Additional lighting active" appears briefly in the display of the combined instrument.
- Switch the principal main beam on or off at the steering column lever of the vehicle (see instruction manual of the vehicle).

To deactivate the additional LED main beam, either switch off the engine or press the rocker button (Fig. 16,2) again. The red function indicator (Fig. 16,1) goes out.

4.6 Seat belts

4.6.1 General

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

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

4.6.2 Fastening the seat belts correctly

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

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

4.6.3 Seat belt cover

- When using the bench during the journey: Do not use the bench without the headrests.

If the headrests have been removed from the back cushion of the bench and the seat belt cover (Fig. 17) has been attached (see section 6.9): Remove the seat belt cover and refit the headrests before commencing the journey.

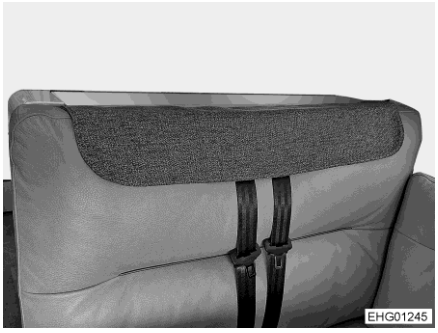


Fig. 17 Seat belt cover attached

4.7 Child restraint systems

4.7.1 Child seats

- 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.
- Fasten the children's seat belts before commencing the journey and make sure that their seat belts are kept fastened during the journey.
- If a front passenger airbag is fitted in the vehicle, do not use a child restraint system ("reboard systems") that faces the back of the front passenger's seat. Follow warning notices in the vehicle.
- If it is necessary to let an infant travel in a cradle in the opposite direction to travel on the front passenger's seat, the airbags on the passenger side must be deactivated via the setup menu of the base vehicle. When the airbags are deactivated, an indicator lamp must be lit on the instrument panel (refer to the operating manual of the base vehicle). Before setting off, verify whether the indicator lamp is lit. Push the front passenger's seat backwards as far as it will go such that the child seat does not touch the dashboard.

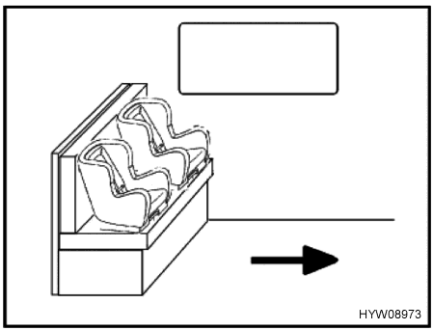


Fig. 18 Child seats on bench

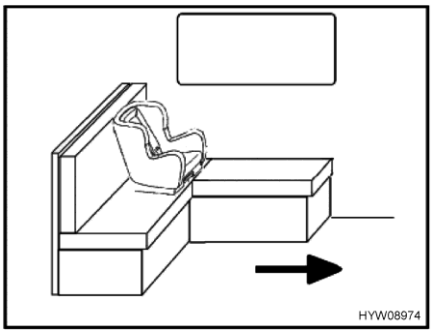


Fig. 19 Child seat on L-shaped bench

The arrow in Fig. 18 and Fig. 19 shows the direction of travel.

Child seats are only allowed on the bench (Fig. 18) if the table has been removed and stowed. A maximum of 2 child seats can be fitted.

Only one child seat is allowed next to the window on the L-shaped bench (Fig. 19). The back cushion on the side wall must be removed when a child seat is fitted. If the table is a fixed table, move the table top towards the centre of the vehicle and lock it.

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 tables show, which child restraint systems can be used on which seats.

Seats	Age groups			
	< 10 kg (0-9 months)	< 13 kg (0-24 months)	9-18 kg (9-48 months)	15-36 kg (4-12 years)
Front passenger's seat, front	X	X	UF	UF
Second row of seats (bench) Fig. 18	U[2)]	U[2)]	U	U
Second row of seats (L-shaped bench Fig. 19	U[3)]	U[3)]	U	U

Meaning of letters:	
U:	Suitable for universal restraint systems which are authorised for this age group
UF:	Suitable for front facing restraint systems of "universal" category, authorised for the use in this weight category
X:	Seat is not suitable for children in this age group
U[1)]:	Only when front passenger's airbag is deactivated
U[2)]:	Only with table removed
U[3)]:	Only seat next to the window; back cushion on side wall removed

4.7.2 Isofix fastening system for child seat

Position The Isofix fastening system is installed on the bench on the window side.

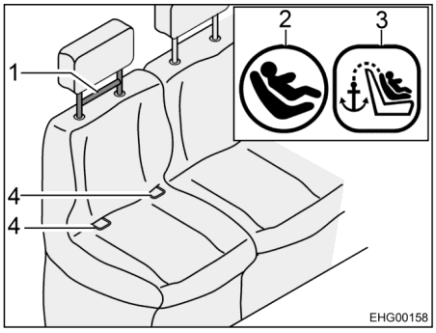


Fig. 20 Seat with Isofix

1 Top tether
2 Isofix symbol
3 Top tether symbol
4 Retaining clip

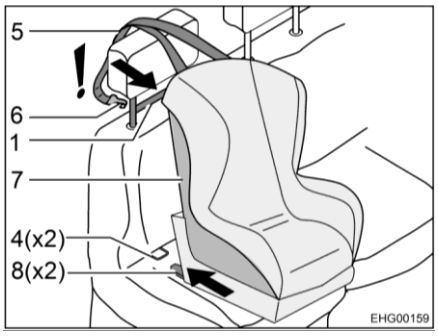


Fig. 21 Fixing with Isofix

5 Top tether strap
6 Fixing hook
7 Child seat
8 Connector

- ▶ Only fit child seats that are suitable and classified for the Isofix fastening system with top tether to the Isofix car seat fitting system.
- ▶ Observe the safety instructions and fitting instructions of the child seat manufacturer.

Isofix-suitable vehicle seats are provided with the Isofix symbol (Fig. 20,2). The position of the top tether is marked with a symbol (Fig. 20,3), too.

Installing:

- ■ Connect the connectors (Fig. 21,8) to the retaining clips (Fig. 20,4) such that they are firmly engaged. While doing this, a distinctive click must be heard.
- ■ With a strong jerk, check if the child seat (Fig. 21,7) is firmly connected.
- ■ Route the top tether strap (Fig. 21,5) over the headrest of the vehicle seat.
- ■ Hook the fixing hook (Fig. 21,6) in at the top tether (Fig. 20,1).

The removal is carried out analogously in inverted order.

4.8 Driver's seat and front passenger's seat

- ▶ 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.

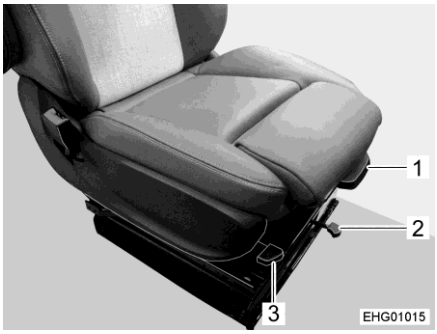


Fig. 22 Front operating controls

1 Handle (shifting the seat cushion)
2 Locking lever (rotating the seat)
3 Handle (adjusting in longitudinal direction)

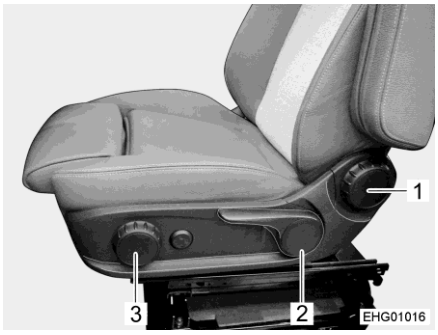


Fig. 23 Operating controls on the side

1 Rotary knob (adjusting the backrest)
2 Lever
3 Rotary knob (adjusting the seat inclination)

Driving position

The seats can be rotated in any direction.

- ■ Push both armrests upward.
- ■ Push the seat to the central position.
- ■ Pull the locking lever (Fig. 22,2) and turn the seat to desired position.
- ■ Release the locking lever.

▷ Rotating the seats in the pitched vehicle is described in chapter 6.

Seat cushion

- ■ Pull out the seat cushion by the handle (Fig. 22,1) or push it in until the desired position is reached.

Distance to the pedals

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

- ■ Pull the handle (Fig. 22,3) upwards.
- ■ Push the seat forwards or backwards.
- ■ Release the handle. The seat must audibly lock into place.

Seat inclination

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

- Turn the rotary knob (Fig. 23,3) until the desired seat inclination is reached.

Seat height

Adjust the seat height so that a comfortable sitting position and an unobstructed view of the road are possible.

- Pull the lever (Fig. 23,2) upward or push it downward until the desired seat height is reached.

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 knob (Fig. 23,1) until the desired backrest inclination is reached.

Armrest

The height of the armrests can be continuously adjusted.

- Swivel the armrest all the way up.
- Swivel the armrest all the way down.
- Swivel the armrest upwards to the desired position.

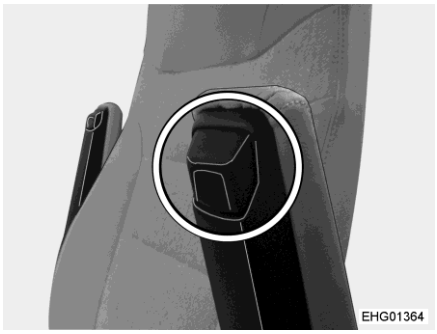


Fig. 24 Armrest lock (Aguti version)

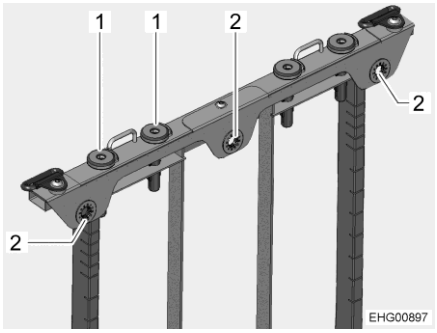
Armrest (Aguti version)

- Press the lock (Fig. 24) and swivel the armrest to the desired position.

4.9 Headrests

Fig. 25 Headrest (bench)

Before commencing the journey, adjust the headrest (Fig. 25) so that the back of the head is supported at approximately ear height.



1 Guide sleeve
2 Clip connection

Fig. 26 Adjusting the headrest

Adjusting the headrest:

- Pull the cushion in the shoulder area firmly forwards to release the cushion from the three clip connections (Fig. 26,2).
- Press the release button on the left side of the headrest and pull the headrest up or press it down until it engages in the guide sleeves (Fig. 26,1) in the desired locking position.
- Fold back the cushion and snap it into the three clip connections.

4.10 Seating arrangement

- ▶ During the journey, persons are only to sit on the permitted seats. The authorised number of seats is stipulated in the vehicle documents.
- ▶ During the journey sitting on the divans is not permitted.
- ▶ Seat belts must be worn by all passengers.

Seats which may be used during travel are equipped with a seat belt.

4.11 Reversing camera

Fig. 27 Reversing camera

The vehicle is equipped with a reversing camera (Fig. 27). The reversing camera is installed on top, at the rear of the vehicle.

When engaging reverse, the reversing camera switches on automatically and records the close-up area behind the vehicle. The image of the reversing camera is fed into the multimedia system and shown on the display in the driver`s cabin.

No camera image is displayed while travelling forward.

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

▶ During the journey, the Roman shades for the driver's window and front passenger's window must be open, in a fixed position and secured.

Securing:

- Carefully push back the Roman shades for the side panes.
- Secure Roman shades.

4.13 Checking the oil level

▷ The oil is measured via the combined instrument.

4.14 Refuelling

▶ When refuelling, all gas/diesel-operated devices must be switched off. Danger of explosion!

▷ The fuel filler neck is part of the base vehicle.

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

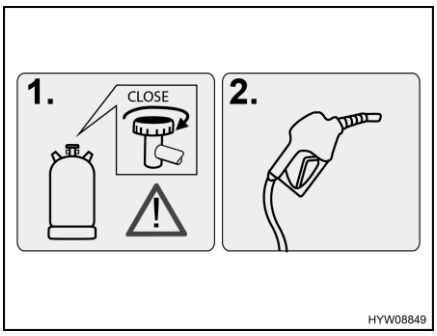


Fig. 28 Warning notice (fuel filler neck)

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

4.15 Ad-Blue®

▷ Refer to the instruction manual of the base vehicle for any information and instructions regarding Ad-Blue®.

4.16 Towing

- ▶ To prevent any damages on the vehicle due to inadequate towing, observe the instructions in the operating manual of the base vehicle before towing.
- ▶ If the ignition key cannot be turned in the ignition lock, do not tow the vehicle. The steering will be locked.
- ▶ If, in the case of a vehicle with front-wheel drive and automatic transmission, the engine is not running: carefully push the vehicle a stretch of maximum of 15 meters. In the event of a breakdown, only transport these vehicles on a trailer or a transportation vehicle.

▷ 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.

The vehicle manufacturer recommends to transport the vehicle on a transportation vehicle or a trailer. If the vehicle has to be towed, use a towing bar. The towing bar must be approved for the weight of the vehicle.

▷ National regulations apply to towing.

Chapter overview

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

5.1 Handbrake

When the vehicle is parked, the electric handbrake is applied automatically.

5.2 Entrance step

In order to exit the vehicle, first fully extend the entrance step. If the entrance step is extended while the engine is still running, a warning tone will sound.

5.3 Ramps

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

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

5.4 Wheel chock

When parking the vehicle on slopes or inclines use a wheel chock.

If the technically permissible maximum laden mass of the vehicle exceeds 4 tonnes, a wheel chock must be used when parking on gradients. The wheel chock is provided as standard for vehicles with a technically permissible maximum laden mass exceeding 4 tonnes.

5.5 Supports

5.5.1 General instructions

▷ 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.

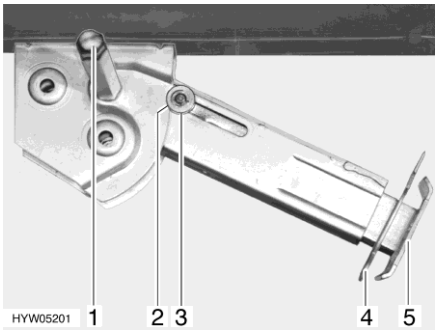
5.5.2 Steady legs

- ▶ 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.

▷ 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.



1 Hexagon
2 Notch
3 Guide disc
4 Splint
5 Support leg extension

Fig. 29 Steady leg

Extending:

- ■ Place the socket spanner on the hexagon nut (Fig. 29,1) and rotate until the steady leg is in a perpendicular downward position.
- ■ Remove the splint (Fig. 29,4) out of the support foot extension (Fig. 29,5).
- ■ Extend the support foot extension until it has reached the required length.
- ■ Insert the splint in the support foot extension.
- ■ Rotate the hexagon 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. 29,1) and rotate until the steady leg is clear of the ground.
- ■ Remove the splint (Fig. 29,4) out of the support foot extension (Fig. 29,5).
- ■ Push in the support foot extension (Fig. 29,5) and insert the splint (Fig. 29,4) in the drilled hole in the support foot extension.
- ■ Rotate the hexagon nut (Fig. 29,1) with the socket spanner until the steady leg has swung upwards and the guide disc (Fig. 29,3) has completely retracted into the notch (Fig. 29,2).

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

5.6 230 V connection

The vehicle can be connected to a 230 V power supply (see chapter 8).

5.7 Refrigerator

For units with an automatic power selection, the 12 V operation of the refrigerator only functions in the automatic mode when the vehicle engine is running. When the vehicle engine is switched off, the automatic energy selection switches the refrigerator to 230 V operation.

5.8 Awning

- ▷ When the support legs are not positioned, extend the awning a maximum of 1 m.
- ▷ 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.
- ▷ In case of light wind or rain, anchor the awning with ropes on both sides.
- ▷ 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.

- ▷ The lighting of the awning is switched on and off using the awning tent light button, see section 12.8.3.

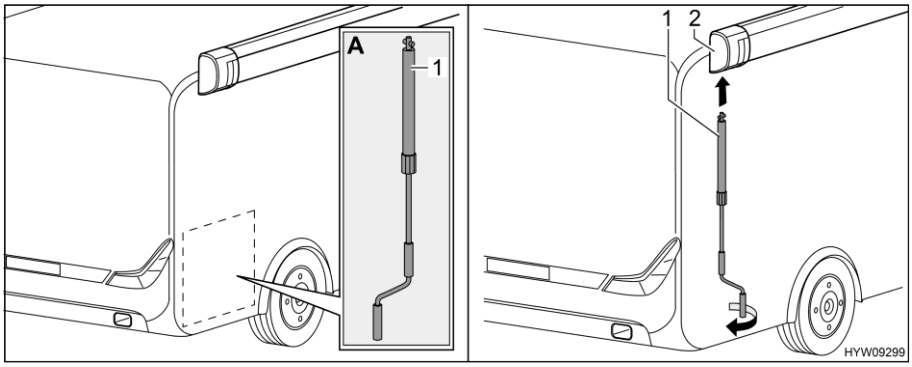


Fig. 30 Installing crank

1 Crank
2 Bayonet socket

Extending the awning:

- ■ Take the crank (Fig. 30,1) out of the rear storage space (Fig. 30,A).
- ■ Insert crank into bayonet socket (Fig. 30,2) of the awning.
- ■ Turn the crank in an anticlockwise direction until the awning is extended to a maximum of 1 m.

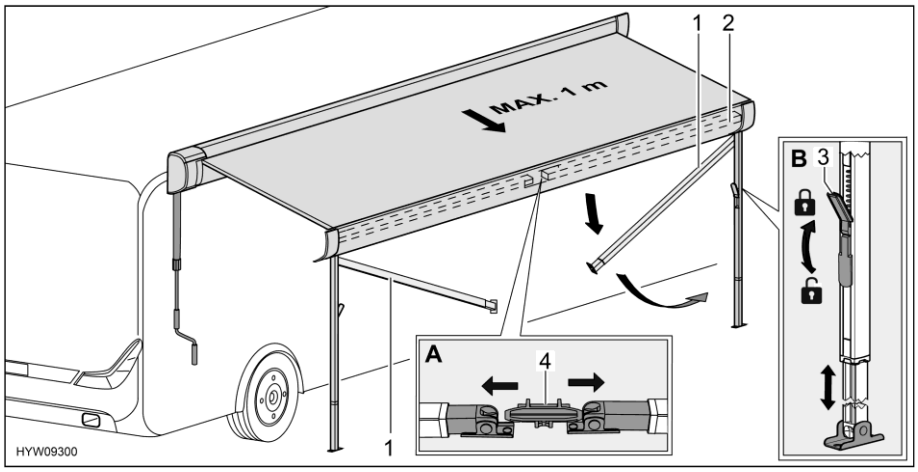


Fig. 31 Preparing support legs

1 Support leg
2 Front bar
3 Lock
4 Holder

- Release support legs (Fig. 31,1) from holder (Fig. 31,4) in the front bar (Fig. 31,2). In order to do this, apply slight outward pressure on the support legs (Fig. 31,A).
- Fold out the support legs.
- Release the locks (Fig. 31,3) of the support legs. In order to do this, fold the catch lever downwards.
- Pull lower part of the support legs out to the desired length (Fig. 31,B).
- Position the support legs.
- Close the locks (Fig. 31,3) of the support legs. In order to do this, fold the catch lever upwards.

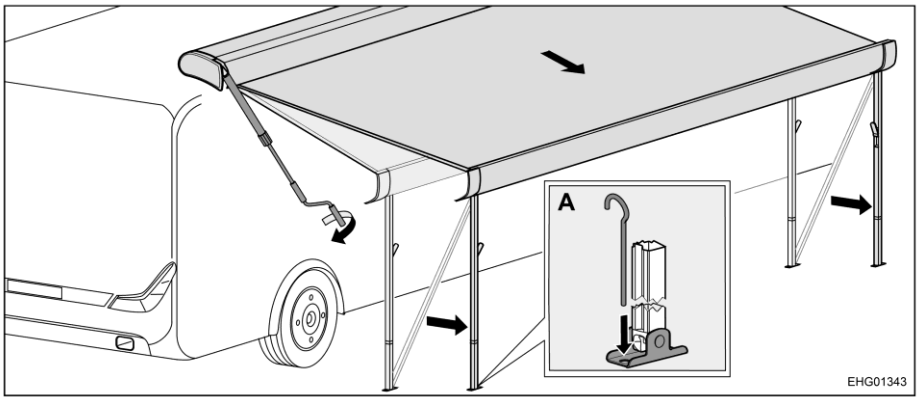


Fig. 32 Bringing awning into end position

- Use the crank to completely extend the awning. While doing so, reposition the support legs several times.
- Set the support legs to their final height.
- Pull off and store the crank in the rear storage space.
- Fix the support legs to the floor with tent pegs (Fig. 32,A).

Retracting the awning:

- If present, remove guy ropes and tent pegs.
- Insert the crank in the bayonet socket of the awning ant turn in a clockwise direction until the awning has been retracted up to approx. 1 m.
- If necessary, clean the support legs.
- Open the lock on the support legs. In order to do this, fold the catch lever downwards.
- Push the lower part of the support legs in completely.
- Fold both support legs upward into the front bar and let them click into position. In order to do this, apply slight outward pressure on the support legs.
- Continue turning the crank until the awning has been retracted completely.
- Remove the crank from the bayonet socket and store it.

Chapter overview

This chapter contains instructions about living in the vehicle.

6.1 Central locking system (optional equipment)

- ▷ The central locking system locks the driver's door, the living area door of the body and the rear platform.
- ▷ The central locking system is inoperative when the battery cut-off switch on the transformer/rectifier is switched off.

The locking function of the living area door is powered by the living area battery and is only active when the battery cut-off switch on the transformer/rectifier is switched on (see section 8.7).

The battery cut-off switch is switched off for a lay-up of the vehicle. The central locking system then only opens the driver's door (depending on the vehicle, also the front passenger's door). If the vehicle is laid up, the living area door must be unlocked manually using the key.

1 "Locking" button
2 "Unlocking" button

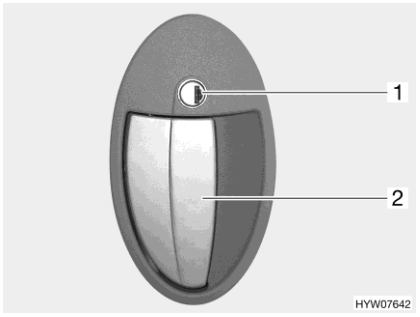
Fig. 33 Remote control for central locking system

6.2 Doors

▶ 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.

6.2.1 Living area door, outside



1 Locking cylinder
2 Door handle

Fig. 34 Door lock (living area door, outside)

Opening:

- Insert the key in the locking cylinder (Fig. 34,1) and turn it in a clockwise direction until the door lock is unlatched.
- Return the key to the central position and remove it.
- Pull on the door handle (Fig. 34,2). The door is open.

Locking:

- Insert the key in the locking cylinder (Fig. 34,1) and turn it in an anti-clockwise direction until the door lock is engaged.
- Return the key to the central position and remove it.

6.2.2 Living area door, inside

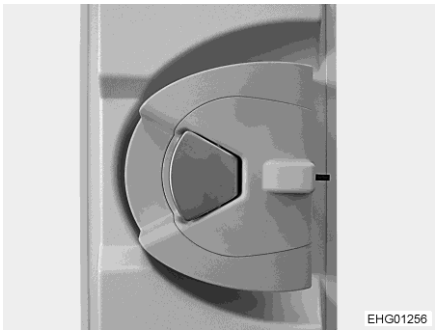


Fig. 35 Door lock (living area door, inside)

Opening:

- When the door lock is locked: Pull once at the door handle (Fig. 35). The door is unlocked.
- Pull at the door handle. The door is open.

Locking:

- Press the door handle (Fig. 35).

6.2.3 Driver's door, living area door, outside

Fig. 36 Door lock (driver's door / living area door, outside)

Opening:
- Insert the key into the locking cylinder (Fig. 36) and turn until the door lock is unlatched.
- Return the key to the central position and remove it.
- Pull at the door handle (Fig. 36). The door is open.

Locking:
- Insert the key into the locking cylinder (Fig. 36) and turn until the door lock is engaged.
- Return the key to the central position and remove it.

6.2.4 Driver's door, living area door, inside

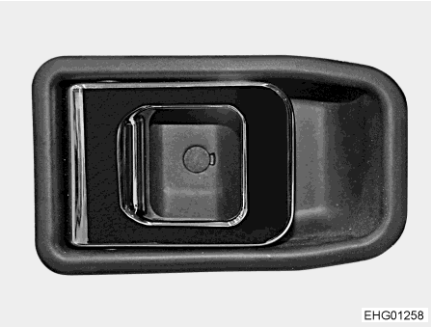


Fig. 37 Door lock (driver's door / living area door, inside)

Opening:
- Pull at the handle (Fig. 37). The door lock is unlatched or opened.

Locking:
- Press the handle (Fig. 37). The door lock is locked.

6.2.5 Insect screen on the living area door, extendable

- ▷ Open the insect screen completely before closing the living area door.
- ▷ Hold holding bar with both hands when closing or opening. This reduces the risk of the insect screen getting stuck in the guides (Fig. 38).
- ▷ Do not push into the mesh area when opening or closing the insect screen.
- ▷ Keep dogs and cats away from the insect screen.
- ▷ Before leaving the vehicle, always return the insect screen completely into the door holder.

- ▷ The body manufacturer excludes any guarantee if the damage of the mesh seems to have been caused through third parties or own fault.

Fig. 38 Insect screen (bottom guide)

1 Insect screen
2 Holding bar

Fig. 39 Insect screen (living area door)

Closing:

- ■ Hold holding bar (Fig. 39,2) with both hands and pull the insect screen (Fig. 39,1) evenly out of the door holder.
- ■ On the opposite side, push the insect screen as far as it will go.

Opening:

- ■ Hold holding bar (Fig. 39,2) with both hands and push the insect screen (Fig. 39,1) back into the door holder applying slight pressure.

6.3 External flaps

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

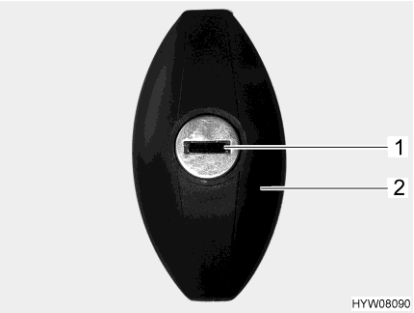
▷ To open and close the external flap, open or close all locks that are fitted to the external flap.

▷ 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.

6.3.1 Flap lock, elliptical

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



1 Locking cylinder
2 Lock handle

Fig. 40 Flap lock

Opening:

- Insert key into locking cylinder (Fig. 40,1) and turn one half turn in an anticlockwise direction. The lock handle (Fig. 40,2) snaps out.
- Remove the key.
- Turn lock handle one half turn in an anticlockwise direction. The flap lock is open.

Closing:

- Firmly close the external flap.
- Give the lock handle one half turn in a clockwise direction. The flap lock is now engaged but not locked.
- Insert key into locking cylinder.
- Press down lock handle with key inserted and turn key one half turn in a clockwise direction. The lock handle will stay bolted.
- Remove the key.

6.4 Ventilation

▶ The oxygen in the vehicle interior is used up by breathing and the use of gas/diesel-operated appliances. Therefore, the used air must be replaced permanently. For this purpose, forced ventilation options (e.g. skylights with forced ventilation) are fitted to the vehicle. Never cover or block forced ventilations from the inside or outside with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves. There is a danger of suffocation due to increased CO_2 levels.

▷ 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. 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.

6.5 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.
- ▷ Grab the bottom rod of the blind by the centre when opening and closing. If the bottom bar is not grabbed by the centre, the blind may jam and be damaged.
- ▷ 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.
  For that reason, close the blind/Roman shade only 2/3 of the way in direct sunlight.
  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.

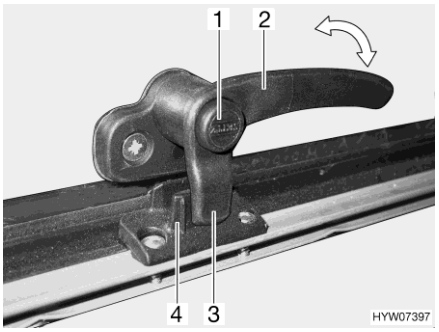
- ▷ When leaving the vehicle, always close the windows.
- ▷ In extreme weather conditions or if the temperature fluctuates strongly, a light condensation film can form on the double-glazed acrylic glass. The glass is designed in such a way that condensation can evaporate when the external temperature increases. There is no danger of the double-glazed acrylic glass being damaged by condensation.
- ▷ The upholstery will fade over time, if it is exposed to sunlight. If the temperature within the vehicle rises rapidly as well, the colour will change at an accelerated rate.
  Therefore, we recommend to close the shades on the windows when there is strong sunlight. Ensure that heat does not build up when you close the blind.

6.5.1 Hinged window with automatic hinges

▷ Open the window completely, 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.

▷ The catch lever is fitted with a safety knob. When operating the catch lever, always press the safety knob.



1 Safety knob
2 Catch lever
3 Locking catch
4 Window catch

Fig. 41 Catch lever ("closed" position)

Opening:

- Press the safety knob (Fig. 41,1) and keep it pressed.
- Turn the catch lever (Fig. 41,2) a quarter turn towards the centre of the window.

1 Automatic hinge

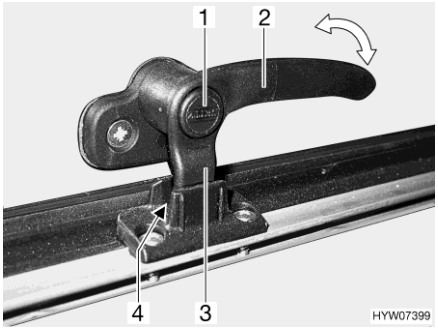
Fig. 42 Hinged window with automatic hinge

- Open the hinged window to the desired latched position. The automatic hinge (Fig. 42,1) locks in place automatically.

The hinged window remains locked in the required position.

Closing:

- Open the hinged window as wide as is necessary to release the lock.
- Close the hinged window.
- Press the safety knob (Fig. 41,1) and keep it pressed.
- Turn the catch lever (Fig. 41,2) a quarter turn towards the window frame. The locking catch (Fig. 41,3) on the catch lever is entirely on the inner side of the window catch (Fig. 41,4).



1 Safety knob
2 Catch lever
3 Locking catch
4 Window catch

Fig. 43 Catch lever ("continuous ventilation" position)

Continuous ventilation

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

- "Continuous ventilation" (Fig. 43)
- "Firmly closed" (Fig. 41)

Bringing the hinged window to the "continuous ventilation" position:

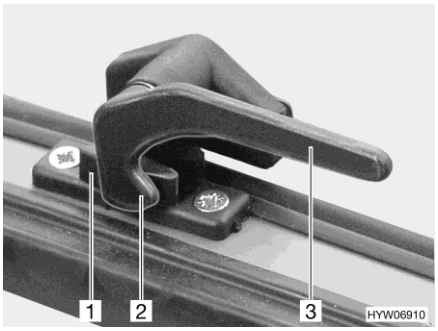
- Press the safety knob (Fig. 43,1) and keep it pressed.
- Turn the catch lever (Fig. 43,2) a quarter turn towards the centre of the window.
- Lightly open the hinged window outwards.
- Return the catch lever to its initial position. Move the locking catch (Fig. 43,3) on the catch lever into the recess of the window catch (Fig. 43,4).
- Release the safety knob (Fig. 43,1).
- 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.

6.5.2 Hinged roof window with rotary window supports

▷ When opening the hinged roof window, ensure that there are no torsional forces. Open and close the hinged roof window evenly.



1 Window catch
2 Locking catch
3 Catch lever

Fig. 44 Catch lever ("closed" position)

Opening:

- Turn all catch levers (Fig. 44,3) a quarter turn towards the centre of the window.

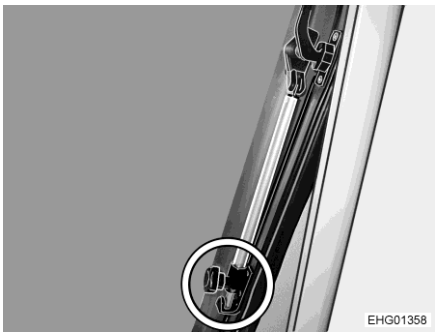


Fig. 45 Window support (hinged roof window)

- Open the hinged roof window to the desired position and use knurled knob (Fig. 45) to lock it in position.

The hinged roof window remains locked in the desired position.

Closing:

- Turn the knurled knob (Fig. 45) until the latch is released.
- Close the hinged roof window.
- Turn all catch levers (Fig. 44,3) a quarter turn towards the window frame. The locking catch (Fig. 44,2) is located on the inside of the window catch (Fig. 44,1).

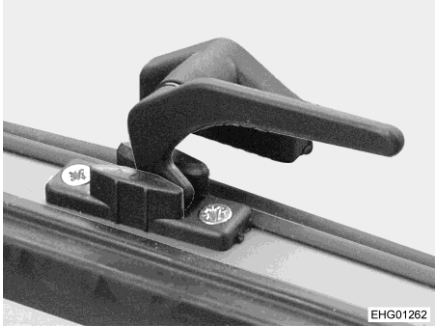


Fig. 46 Catch lever ("continuous ventilation" position)

Continuous ventilation

The hinged roof window can be brought to 2 different positions using the catch levers:

- "Continuous ventilation" (Fig. 46)
- "Firmly closed" (Fig. 44)

Bringing the hinged roof window to the "continuous ventilation" position:

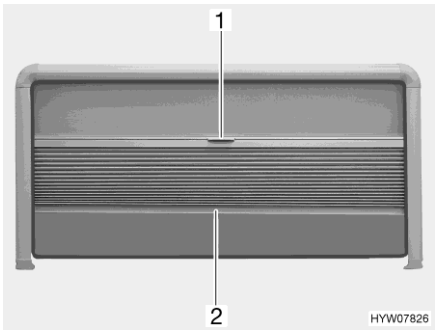
- Turn all catch levers (Fig. 46) a quarter turn towards the centre of the window.
- Press the hinged roof window slightly outwards.
- Return all catch levers to their initial position. The locking catch has to be moved into the corresponding recess of the window catch.

During the journey, the hinged roof window may not be in the "continuous ventilation" position.

In the event of rain, splashing water can ingress into the living area if the hinged roof window is in the "continuous ventilation" position. Therefore, close the hinged roof window completely.

6.5.3 Roman shade and insect screen

The windows are fitted with a Roman shade and an insect screen. Roman shade and insect screen are fixed to each other.



1 Handle, insect screen
2 Bottom rod, Roman shade

Fig. 47 Roman shade and insect screen (hinged window)

Roman shade

The Roman shade is located in the upper window frame.

Closing:

- Hold the Roman shade in the centre of the bottom rod (Fig. 47,2) and carefully draw it downwards.

Opening:

- Hold the bottom rod (Fig. 47,2) of the Roman shade in the centre and carefully slide the Roman shade upwards.

Insect screen

The insect screen is located in the upper window frame.

Closing:

- Pull insect screen at the handle (Fig. 47,1) downwards.
- Move the insect screen continuously.

If the insect screen is not drawn fully to the bottom, the Roman shade can be stretched up to the end of the side window frame.

Opening:

- Move insect screen at the handle (Fig. 47,1) fully upwards.

6.5.4 Roman shade for windscreen, driver's window and front passenger's window

Fig. 48 Locking handle (front passenger's window)

Fig. 49 Roman shade (front passenger's window)

Closing:

- Press locking handle (Fig. 48) together and keep it pressed.
- Pull Roman shade carefully to the opposite side until the magnetic catch holds the Roman shade (Fig. 49) in closed position.

Opening:

- Press locking handle (Fig. 48) together and keep it pressed.
- Using the locking handle, carefully push back the Roman shade.
- Release the locking handle. The lock must engage.

6.6 Skylights

Depending on the model, skylights with 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 an 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.
- ▷ 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.
- ▷ The upholstery will fade over time, if it is exposed to sunlight. If the temperature within the vehicle rises rapidly as well, the colour will change at an accelerated rate.
  Therefore, we recommend closing the shades on the skylights of the parked vehicle by 2/3 when there is strong sunlight.

6.6.1 Skylight with crank handle (KLAKU)

▶ Observe the safety instructions and information in the separate instruction manual of the manufacturer.

The skylight is equipped with a pleated blind (as shade) and with an insect screen. With the integrated crank, the skylight can be opened on one side for ventilation.

Fig. 50 Skylight (closed)

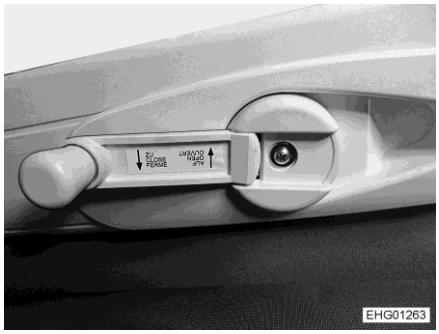


Fig. 51 Crank

Opening the skylight:

- Unfold the crank (Fig. 51) and turn it in a clockwise direction until the skylight has reached the desired position.
- Fold in the crank.

▷ Only turn the crank until you feel a slight resistance. At that point, you will have reached the maximum opening angle of the skylight.

Closing the skylight:

- Unfold the crank (Fig. 51) and turn it in an anticlockwise direction until the skylight is closed.
- Fold in the crank.

Fig. 52 Skylight (pleated blind closed)

Closing/opening the shade:

- Reach into the recessed grip of the pleated blind and pull the pleated blind to the desired position.

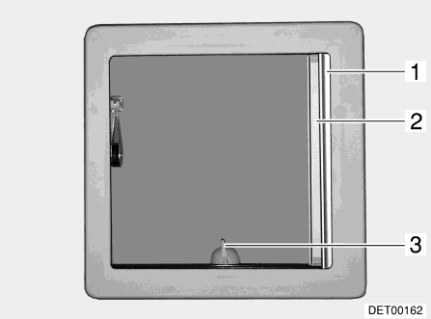
Closing/opening the insect screen:

- Reach into the recessed grip of the insect screen and pull the insect screen to the desired position.

▷ The pleated blind and the insect screen can be infinitely adjusted independently of each other.

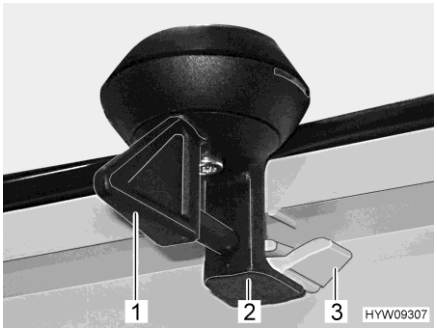
6.6.2 Hinged skylight

The hinged skylight may be opened on one side only. Three inclination angles and a ventilation position are available.



1 Roman shade
2 Insect screen
3 Lever

Fig. 53 Hinged skylight



1 Lever
2 Lock
3 Catch

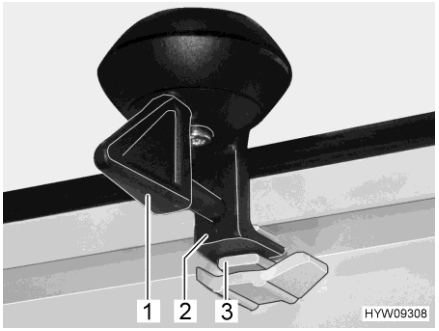
Fig. 54 Lock (hinged skylight)

Opening:

- Turn the lever (Fig. 53,3 or Fig. 54,1) one quarter turn.
- Grip lever and push hinged skylight upwards.

Closing:

- Grip lever and pull hinged skylight downwards.
- Turn the lever one quarter turn. The lock (Fig. 54,2) must slide into the bottom catch (Fig. 54,3).



1 Lever
2 Lock
3 Recess

Fig. 55 Lock (ventilation position)

Locking in the ventilation position:

- Grip lever and pull hinged skylight downwards.
- Turn the lever (Fig. 55,1) one quarter turn. The lock (Fig. 55,2) must slide into the top recess (Fig. 55,3).

▷ If it rains and the hinged skylight is in ventilation position, that could lead to water penetrating the living area. Therefore close hinged skylight completely.

Roman shade

The Roman shade may be closed at any position, either with the hinged skylight open or closed.

Closing:

- Pull out Roman shade (Fig. 53,1) and release in the required position. The Roman shade will stay in that position.

Opening:

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

Insect screen

▷ The insect screen may be damaged if it is closed with the hinged skylight closed. Therefore only close the insect screen when the hinged skylight is open.

Closing:

- Pull insect screen (Fig. 53,2) out until it engages with the latch on the opposite side.

Opening:

- Slightly push up insect screen along the strip. Latch is released.
- Slowly return insect screen into its initial position.

6.6.3 Wind-up skylight

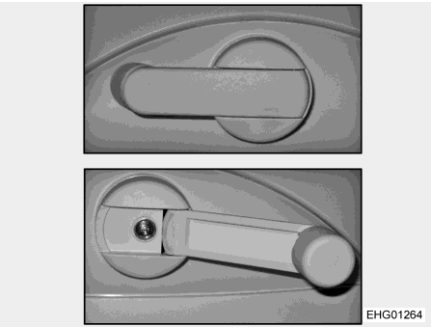
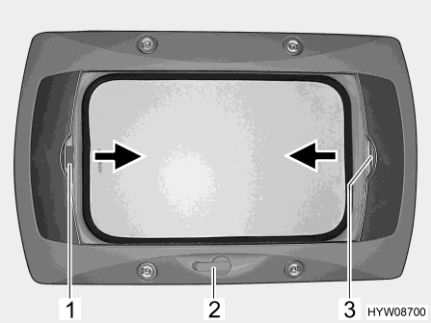


Fig. 56 Hand crank

The wind-up skylight can be opened using the hand crank. The hand crank is folded out (Fig. 56, bottom) for opening and closing. The hand crank is folded in (Fig. 56, top) when in resting position.



1 Handle, insect screen
2 Hand crank
3 Handle, Roman shade

Fig. 57 Wind-up skylight

Opening:
- Rotate the hand crank (Fig. 57,2) 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. 57,3) in the direction of the arrow and release it 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:
- Use the handle to pull the insect screen (Fig. 57,1) in the direction of the arrow to the opposite handle of the Roman shade (Fig. 57,3) and allow it to engage.

Opening:

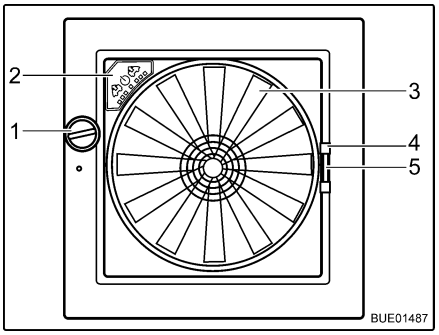
- Press the handle of the insect screen (Fig. 57,1) at the back upwards and detach the insect screen from the Roman shade (Fig. 57,3).
- Use handle to return the insect screen slowly to its initial position.

6.6.4 Skylight with fan (Omni-Vent) (optional equipment)

▷ Before commencing the journey, close the skylight.

▷ 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.



1 Knob
2 Fan operating panel
3 Fan
4 Insect screen handle
5 Shade handle

Fig. 58 Omni-Vent skylight

Opening:

- Turn the knob (Fig. 58,1) until the desired opening angle is reached.

Closing:

- Turn the knob (Fig. 58,1) until the skylight is fully closed.

Insect screen

To close and open the insect screen:

Closing:

- Use the handle (Fig. 58,4) to 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

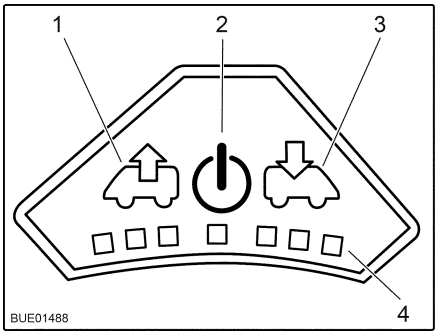
To close and open the shade:

Closing:

- Press together the handle (Fig. 58,5) 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.



1 Vent button
2 On/Off button
3 Aerate button
4 LEDs

Fig. 59 Operating panel for fan

Fan If the skylight is open, the interior can be vented and aerated with the 6-speed fan (Fig. 58,3). The fan is operated via the operating panel (Fig. 58,2).

Switching on:

- Press the On/Off button (Fig. 59,2). The fan runs in comfort mode (venting at slowest fan speed).

Venting:

- To increase the fan speed: Press the Vent button (Fig. 59,1). The fan speed in the venting direction increases by one level. LEDs (Fig. 59,4) show the operating levels.
- To lower the fan speed: Press the Aerate button (Fig. 59,3). The fan speed decreases by one level.

Aerating:

- To increase the fan speed: Press the Aerate button (Fig. 59,3). The fan speed in the aerating direction increases by one step. LEDs (Fig. 59,4) show the operating levels.
- To lower the fan speed: Press the Vent button (Fig. 59,1). 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. 59,2). The fan stops, the LEDs go out.

6.7 Rotating seats

▶ 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.

▷ The driver's seat and the front passenger's seat are in some cases part of the base vehicle. Rotation of the seats is described in the operating manual of the base vehicle.

The lever for rotating the seat is located at the side of the seat.

Fig. 60 Driver's seat and front passenger's seat

Rotating:

- Push both armrests at the driver's/front passenger's seat upward.
- Push the driver's seat/front passenger's seat backwards or into the central position.
- Actuate the locking lever (Fig. 60) to rotate the seat. The seat is released from the locking device.

The seats can be rotated in any direction.

6.8 Storage spaces

- ▶ Follow the safety instructions (sticker) that indicate when a space may not be used as a storage space (e.g. gas bottle compartment or spaces close to electrical wiring).
- ▶ When loading, observe the technically permissible maximum laden mass on the front and rear axle and the technically permissible maximum laden mass (see section 3.2.3).
- ▶ Do not transport fluids in the living area that emit gases hazardous to health.
- ▶ Close fluid containers tightly, secure them against sliding and against falling over.
- ▶ Always store heavy objects safely and slip-proof in the foot area. Lighter objects can be also stored safely in higher areas.

▷ Do not store wet clothes in cabinets or storage spaces.

▷ While storing the load, take into account how accessible the different objects should be, and how often they are used.

In the vehicle, there are the following possibilities for storage:

- Double floor area (interior and exterior access)
- Rear storage space
- Storage cases
- Wall-mounted cupboards
- Storage options in the bathroom unit

▷ To prevent objects from falling out during the journey, secure the shelf in the sleeping area (so-called "S-swing") and the open shelf in the driver's cabin with a net.

6.8.1 Floor storage compartment

▷ The floor storage compartments must not be loaded with more than 40 kg.

▷ Depending on the equipment, a carpet segment will have to be put aside to gain access to the floor storage compartments.

The level underneath the floor is divided into various floor storage compartments.

These floor storage compartments are accessible via service covers in the living area. The disposition of the floor storage compartments depends on the model.

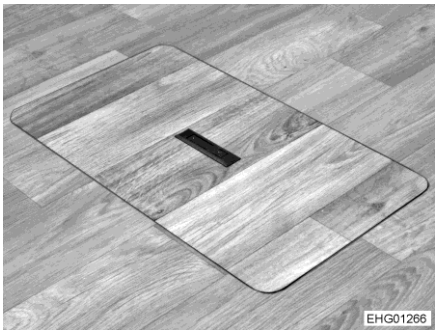


Fig. 61 Service cover (handle recessed)

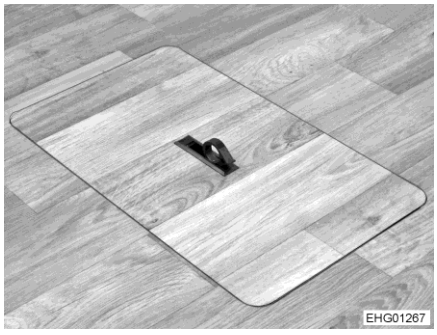


Fig. 62 Service cover (handle swivelled out)

Opening:

- If necessary, lay carpet segment aside.
- Press the grip plate (Fig. 61) in the service cover downward on one side. The handle (Fig. 62) swivels upwards.
- Remove the service cover upwards.

▶ Close the service cover again as soon as possible and recess the handle. Otherwise, there will be danger of tripping due to the open floor storage compartment or the protruding handle.

▶ Do not bend the carpet segments.

▶ Do not leave the carpet segments laying in the room. Danger of tripping!

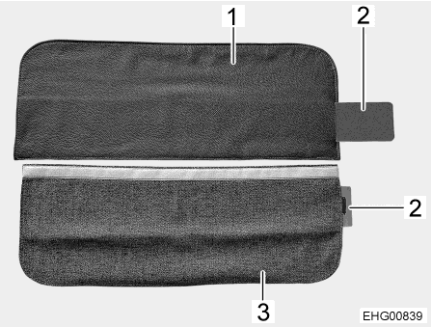
Closing:

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

6.9 Seat belt cover

When the vehicle has been positioned, the headrests can be removed from the back cushion of the bench to allow for more comfortable seating. The openings for the headrests and the cut-out for the seat belts can then be covered with a seat belt cover (Fig. 64).

The seat belt cover can be made of leather (Fig. 63,1) or fabric (Fig. 63,3).



1 Seat belt cover (leather version)
2 Reinforcement
3 Seat belt cover (fabric version)

Fig. 63 Seat belt cover

Attaching the seat belt cover:

- Remove both headrests.
- Slide the reinforcement (Fig. 63,2) completely into the pocket of the seat belt cover (Fig. 63,1 or Fig. 63,3).

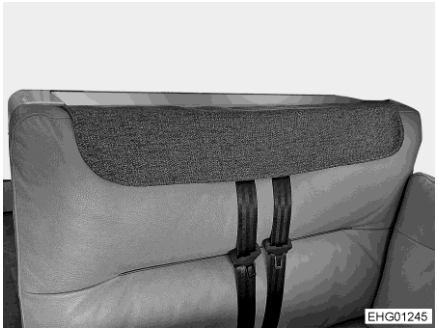


Fig. 64 Seat belt cover attached

- Attach the seat belt cover over the cut-out for the seat belts (Fig. 64).

6.10 Tables

6.10.1 Lift-off table

▷ Do not place a load onto the lowered table top until the cushions have been laid correctly on the table top (see section 6.13). Otherwise the table could be damaged.

The table top can be moved in both a lengthways and a crossways direction. Using the lifting mechanism, the table can be lowered and used as a bed foundation.

Fig. 65 Catch lever (lift-off table)

Shifting the table top:

- Pull or press down the catch lever (Fig. 65).
- Push the table top to the desired position.
- Press the catch lever (Fig. 65) upwards.

Lower the table:

- Slightly lift the table as far as it will go.
- Press the table top all the way down as far as it will go. The table remains in this position.

Lift table:

- Pull the table all the way up as far as it will go. The table then engages in the intended rest position slightly below the stop position.

6.10.2 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. 66 Lever for shifting the table top

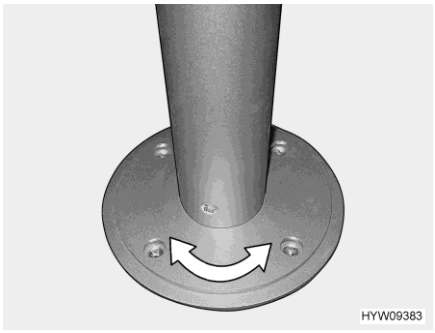


Fig. 67 Pillar table leg (rotatable)

Shifting the table top:

- Pull or press down the lever (Fig. 66).
- Move the table top to the desired position.
- Press the lever back up.

Rotating the table top:

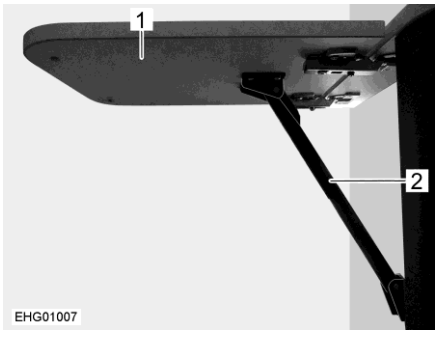
- Rotate table top to the desired position. In order to do this, you need a little effort, because the table top rotates against the friction resistance on the pillar table leg (Fig. 67).

6.10.3 Folding worktop

▷ The folding worktop is designed only for minimal loads (e.g. kitchen utensils). Do not use the folding worktop as a repository for heavy objects.

▷ Do not place any objects that are fragile or filled with liquids on the table top. If the table top is lifted slightly when accidentally bumping into the table, the table may fold unintentionally.

▷ The maximum permitted folding worktop load is 5 kg.



1 Folding worktop
2 Telescopic holder

Fig. 68 Folding worktop

To increase the size of the kitchen work surface, a folding worktop can be folded out at the side of the kitchen counter.

Bringing the folding worktop into the work position:

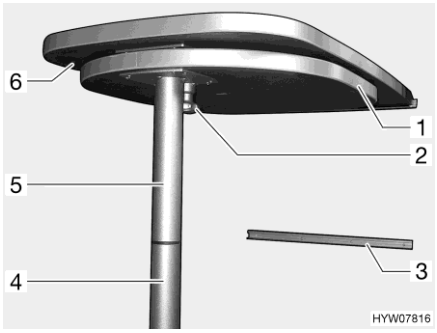
- Hold the folding worktop (Fig. 68,1) from below and pull gently to release it from the lock position.
- Swing up the table top until the fixture of the telescopic holder (Fig. 68,2) engages. Let go of the table top.

Bringing the folding worktop into the travel position:

- Hold the folding worktop (Fig. 68,1) at the edges and lift gently. With your other hand, swing down the fixture on the telescopic holder (Fig. 68,2).
- Fold down the table top until the telescopic holder clicks into position in the holder.

6.10.4 Suspension table with separable support leg

▷ The maximum permissible load on the swung-out table-top extension is 3 kg.



1 Table top extension
2 Knob (locking)
3 Lower retainer
4 Support leg (lower part)
5 Support leg (upper part)
6 Table top

Fig. 69 Suspension table with separable support leg

The suspension table size can be enlarged by swinging out a table top extension.

Extending:

- Pull the knob (Fig. 69,2) of the lock down and swing out the table top extension (Fig. 69,1).

Reducing size:

- Swing the table top extension (Fig. 69,1) under the table top (Fig. 69,6) until the lock latches in place audibly.

The suspension table's separable support leg enables it to be used as a bed foundation.

Converting into bed foundation:

- Lift the front of the table top (Fig. 69,6) by approx. 45°.
- Pull out the lower part of the support leg (Fig. 69,4) down and lay aside.
- Remove the table top from the upper retainer.
- Hook the table top at a 45° angle to the supports into the lower retainer (Fig. 69,3) and place on the floor with the upper part of the support leg (Fig. 69,5).

6.11 TV unit

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

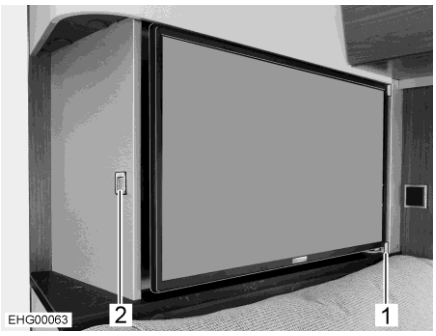
▷ For version with ***HYMER*** Smart Multimedia system:
When a television is used in conjunction with the special feature "***HYMER*** Smart Multimedia system", the television must have the following data in order to guarantee faultless operation:

– TV power consumption in stand-by mode < 0.5 W
– TV power consumption in operation ≥ 15 W (max. 30 W)
– Headphones output (3.5-mm-jack) on the TV should have a voltage of 1.2 V_{SS} at one third maximum volume

▷ Depending on the equipment, the vehicle is equipped with an antenna for the reception of television signals of the standard DVB T2. The antenna cable has already been laid to the position of the flat screen and only has to be connected to the flat screen. Setting the channels is done via the channel search on the TV set. Depending on the location and the surroundings, the type and number of receivable channels may vary.

Flat screen, integrable

The flat screen is secured on the side by a guide rail (Fig. 70,1).



1 Guide rail
2 Release button

Fig. 70 Flat screen

Positioning the flat screen:

- Press the release button (Fig. 70,2).
- Pull the flat screen out of the guide rail (Fig. 70,1), into the desired position.
- Take hold of the flat screen at the top and bottom edge and tilt it as desired.

Bringing the flat screen into the initial position:

- Take hold of the flat screen at the top and bottom edge and move it into the straight position.
- Push the flat screen back until it engages in the guide rail (Fig. 70,1) on the side.

Flat screen, movable laterally

The flat screen can be shifted sideways on a rail.

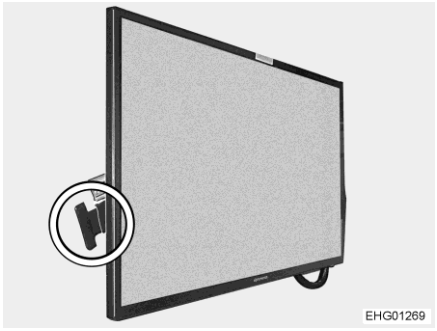


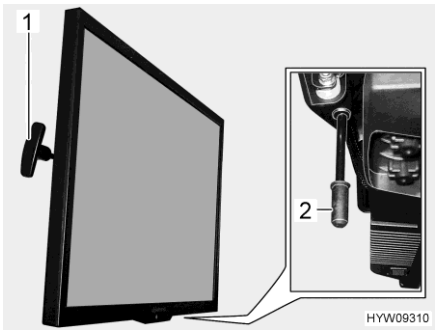
Fig. 71 Handle to unlock the flat screen

Moving the flat screen:

- Press handle (Fig. 71) towards the flat screen and hold it there. The flat screen is unlocked.
- Push the flat screen to the desired position.
- Release the handle. The flat screen is locked.

Flat screen, movable

The flat screen can be shifted upwards and downwards or sideways.



1 Handle (unlock height adjustment)
2 Handle (unlock lateral adjustment)

Fig. 72 Flat screen

Adjusting height of flat screen:

- Pull and hold handle (Fig. 72,1). The flat screen is unlocked.
- Push flat screen upward or downward into the desired position.
- Release the handle. The flat screen is locked.

Moving the flat screen laterally:

- Pull down the handle (Fig. 72,2) and hold it there. The flat screen is unlocked.
- Push the flat screen to the desired position.
- Release the handle. The flat screen is locked.

6.11.1 Satellite unit with automatic antenna alignment

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

▷ When switching on the ignition, the antenna will automatically retract into the idle position and lock there within a short period of time. However, before setting off, the driver must verify the correct position of the antenna.

▷ Retract the satellite antenna in case of strong wind or storm.

▷ 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.

▷ The vehicle must be still during the satellite search.

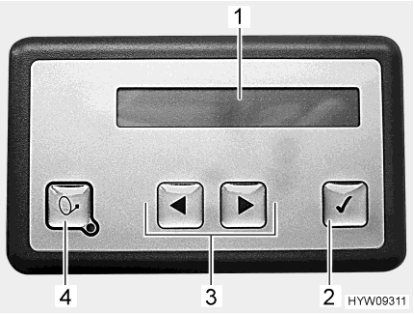
▷ Pay attention to a "free visibility towards the south". From the European point of view, all the satellites are located approximately to the south.

▷ 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.

▷ The satellite unit can be adjusted with the control unit. Refer to the manufacturer's instruction manual about this.

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

The satellite antenna will automatically be aligned with a pre adjusted satellite if the receiver system is within the reach of this satellite. The operation of the satellite unit is not possible while the ignition is switched on.



1 Lighted display
2 OK Button
3 Next/Back buttons
4 On/Off button

Fig. 73 Control unit (satellite unit)

Position of control unit

The control unit is installed in a wall-mounted cupboard above the seating group.

The lighted display shows information regarding the current operating status of the satellite unit. To protect the battery, the lighting goes out after a while.

Switching on, erecting and aligning:

■ Switch the receiver on. The satellite antenna raises automatically after starting up the receiver (up to 90 seconds).

■ Alternatively: Press On/Off button on the control unit.

▷ The satellite unit will start the search with the most recently adjusted position. If the vehicle's location has changed, the fully automatic satellite search will start. When the system has found the satellite, the selected TV programme appears automatically.

Switching off, retracting:

- Switch the receiver off. The satellite unit changes into idle mode. Depending on the adjustment, the satellite antenna will remain extended or will be retracted.
- Alternatively: Press On/Off button on the control unit. The satellite antenna retracts.

Stopping the satellite antenna:

- Press the OK button. The satellite antenna's movement is stopped immediately.

Selecting and changing adjustments:

- Press the Next and Back buttons until the desired menu item is displayed.
- Press the OK button. The menu item is activated.
- Press the Next and Back buttons to change adjustments.
- Press the OK button to save adjustments.
- Press On/Off button to abandon menu item without saving.

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

6.12 Lighting for living area

Several LED strips (ambient lighting) and recessed spotlights (work lights) are installed in the vehicle. In addition, pendant lights and reading lamps can be attached in different places as required (power supply via light sockets).

LED lights are economical, low-maintenance and have a very long life. It is not normally necessary to replace a light.

▷ If LEDs lamps are defective, contact an authorised dealer.

All the lighting can be individually controlled via the HYMER Connect app or the 7" panel. Different light settings can be stored.

In addition, multi-light switches (Fig. 74) have been installed at various points in the vehicle with which the lights can be switched on and off individually.

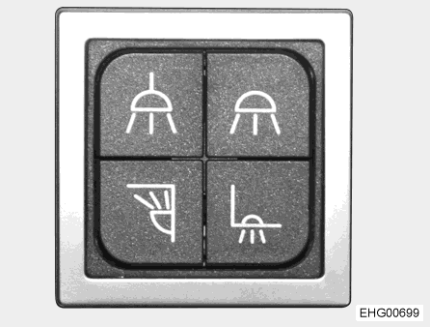


Fig. 74 Multi-light switch

6.12.1 Light switches

The meaning of the switch symbols of the multi-light switches is explained in the table below.

Switch symbol	Meaning
	Main light switch (switches off the entire lighting)
	Pendant lamp
	Recessed spotlights / entrance light / LED strips in the elevating or sleeping roof
	Kitchen plinth lighting / canopy lighting
	Lamp in the step well / kitchen work light / awning LED strip
	Staircase lighting

The light switches can be used to switch the lamps on and off and dim them.

Switching on the lamp:

- Tap the light switch.

Dimming the lamp:

- Press and hold the light switch until the desired brightness has been reached.

▷ If the brightness was increased during the last change, the lamp will now get brighter. To decrease the brightness, release the switch briefly, then press and hold again. The lamp will now get darker.

▷ If the brightness was reduced during the last change, the lamp will now get darker. To increase the brightness, release the switch briefly, then press and hold again. The lamp will now get brighter.

Switching off the lamp:

- Tap the light switch.

6.12.2 Connecting the lamps

- Hang the lamp in the desired location.
- Insert the plug of the lamp into the nearest socket designated for lamps.

The lamps can be operated with the associated light switches or via the HYMER Connect app.

6.12.3 Pendant light

▷ Before commencing the journey, remove the pendant light and store it securely.

The pendant light can be mounted in different places in the vehicle as required:

- On the ceiling above the seating group in the living area
- In an opening in the floor of the sleeping area

When the pendant light is used in the opening in the floor of the sleeping area, it can optionally be mounted such that it shines upwards or downwards.

Fig. 75 Pendant light

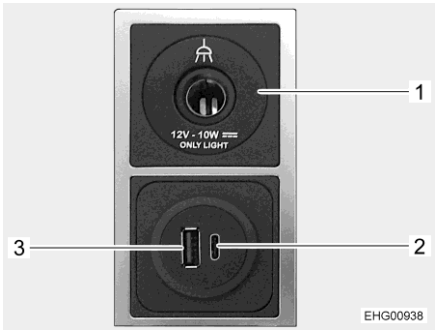


Fig. 76 Combination socket for lamps and USB

1 12 V socket
2 USB C port
3 USB A port

- Install the pendant light (Fig. 75) at the desired location.
- Connect the cable of the pendant light to the nearest 12 V socket (Fig. 76,1).
- Switch on the pendant light at the associated light switch (symbol:).

▷ Other pendant lights can be added as desired as original accessories from the after-sales service. All pendant lights are switched via one switch.

6.12.4 Mobile reading lamp

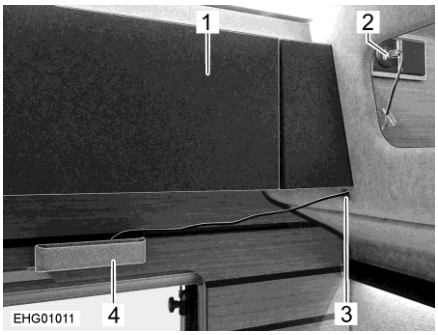
Mobile reading lamps can be attached to the multifunctional rails in the vehicle. Any number of further reading lamps can be added as required as accessories from the After Sales service.

Connecting the reading lamps:

- Attach the mobile reading lamp to one of the multifunctional rails at the desired location.
- Connect the 12 V plug of the of the mobile reading lamp to the nearest 12 V socket.
- Switch on the mobile reading lamp at the associated light switch.

Installation position 12 Volt socket in rear area

The 12 V socket (Fig. 77,2) for the reading lamp (Fig. 77,4) in the rear area is located behind the wall-mounted cupboard (Fig. 77,1) behind an opening (Fig. 77,3) in the wall covering (felt).



1 Wall-mounted cupboard
2 12 V socket
3 Opening for cable
4 Reading lamp

Fig. 77 Reading lamp in rear area

- Insert the 12 V plug through the opening (Fig. 77,3) in the wall cover and plug it into the 12 V socket (Fig. 77,2).

6.13 Sleeping conversion

▷ Depending on the model, seating groups can be converted into additional beds.

▷ Depending on the model, the seating group can be different in shape and position to the one shown here.

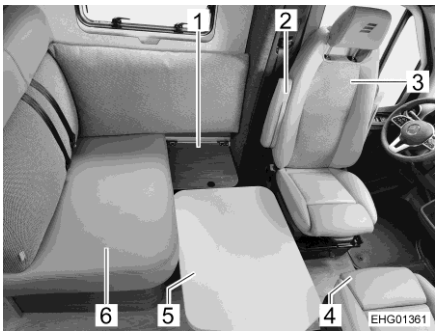
▷ Depending on the model, use a second narrow additional cushion. These additional cushions are not standard for all models.

▷ Before converting the table into the bed foundation: Lift seat cushions or fold them upwards such that the table top does not collide with the seat cushions when moving.

6.13.1 Additional sleeping possibility by also using the driver's seat

▷ Securely store the seat cushion before commencing the journey.

The seating group of the ML-T can be transformed into an additional sleeping area by incorporating the driver's seat. This requires additional cushions, which are not necessarily included in the standard equipment, depending on the model. Depending on the model, cushions are located in the rear storage space or in the right-hand bedding box.



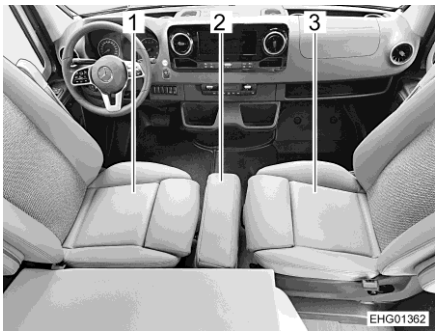
1 Shelf for small cushion
2 Armrest
3 Driver's seat
4 Front passenger's seat
5 Top of the lift-off table
6 Seating group

Fig. 78 Seating group prepared for conversion

▷ Make sure that the table top does not rub against the seat cushions. The upholstery fabric may be damaged.

Preparing the seating group:

- Rotate the driver's seat (Fig. 78,3) and front passenger's seat (Fig. 78,4) by 90° so that the backrests face the driver's door and the passenger's door, respectively.
- Push the driver's seat and front passenger's seat as far as they will go towards the driver's door and the passenger's door, respectively.
- Swivel all armrests (Fig. 78,2) upwards.
- Remove the small cushion from the shelf (Fig. 78,1).



1 Driver's seat
2 Small cushion
3 Front passenger's seat

Fig. 79 Seating group with small cushion

- Optionally place small cushion (Fig. 79,2) between driver's seat (Fig. 79,1) and front passenger's seat (Fig. 79,3).
- Unlock the table top (Fig. 78,5) of the lift-off table (see section 6.10).

- Slide the tabletop between the seating group (Fig. 78,6) and the driver's seat (Fig. 78,3).
- Lift the table top.
- Push the table top down until the bottom edge of the seat cushions becomes visible.
- Lock the table top.

1 First additional cushion
2 Second additional cushion

Fig. 80 Seating group converted

Placing an additional cushion on top:

- Place the first additional cushion (Fig. 80,1) on the table between the seating group (Fig. 78,6) and the driver's seat (Fig. 78,3).
- Place the second additional cushion (Fig. 80,2) on the surface of the driver's seat (Fig. 79,1), the small cushion (Fig. 79,2) and the front passenger's seat (Fig. 79,3).
- If necessary, remove the back cushion of the seating group.

6.13.2 Lying surface extension of rear single bed (XXL bed)

The lying surface of the single bed on the right can be extended.

Fig. 81 Lying surface extension with additional cushion

- Place the additional cushion (Fig. 81) on the shelf above the half-height wardrobe.

6.13.3 Width extension of rear bed

▷ The maximum permitted load on the long shelf (Fig. 83) is 80 kg.
▷ Only use the long shelf when the additional cushion is put on.
▷ Follow the instructions on the stickers.

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

1 Short shelf
2 Flap

Fig. 82 Short shelf (at the head end of the bed)

Enlarging the lying surface:

■ Remove the short shelf (Fig. 82,1).

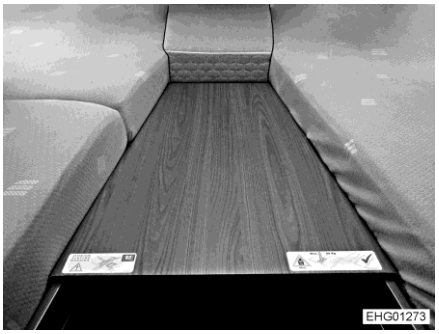


Fig. 83 Long shelf (hooked in)

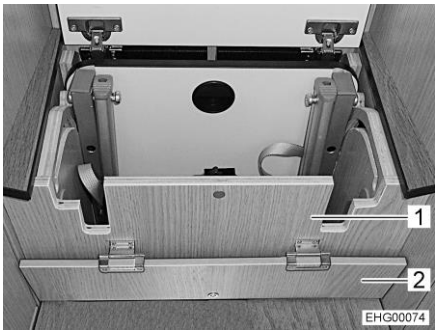
■ Attach the long shelf (Fig. 83) to the edge of the single beds.
■ Place the additional cushion on the shelf.

1 Flap
2 Panel

Fig. 84 Step (closed)

Folding the access ladder out:

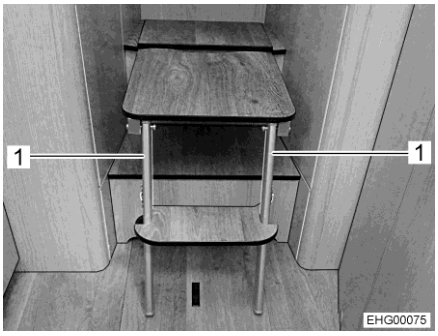
- Open flap (Fig. 84,1 and Fig. 82,2).
- Remove the panel (Fig. 84,2).



1 Access ladder tread
2 Narrow flap

Fig. 85 Step (open)

- Fold the narrow flap (Fig. 85,2) to the front.
- Swivel the tread of access ladder (Fig. 85,1) outwards.



1 Bar

Fig. 86 Access ladder (folded out)

- Fold the bars (Fig. 86,1) fully out and set them down on the floor.

▷ Depending on the equipment, there will be a safety net present. If there is a safety net, it must be used.

6.14 Multifunctional rail

▷ Before commencing the journey, remove all hook-in elements and store them securely.

1 Multifunctional rail

Fig. 87 Multifunctional rails in living area (example)

The living area of the vehicle is equipped with multifunctional rails (Fig. 87,1) in several places, e.g. above the living area window, on the bedroom wall or above the hob.

The multifunctional rails have aluminium profiles to which various hook-in elements can be attached.

Examples of hook-in elements (selection):

- Reading lamp
- Herb pot
- Coat hook
- Shelf

▷ The hook-in elements are available as accessories in the after-sales service.

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 9.

7.1 General instructions

- The operator of the gas system is responsible for the performance of recurring inspections and for complying with the maintenance intervals.
- If there is no DuoControl regulating system with crash sensor installed: Before commencing the journey, when leaving the vehicle or when the gas devices are not in use, close all gas isolator taps and the main regulator tap on the gas bottle.
  If there is a DuoControl regulating system with crash sensor installed, the gas isolator taps and the main regulator tap may remain open during the journey.
- All gas/diesel-operated devices (depending on the equipment: heater, cooker, oven, grill, refrigerator) 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.

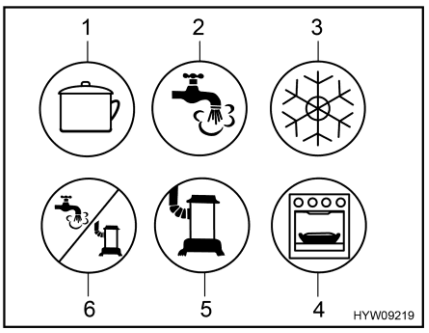
- If there are several gas devices, each gas device must have its own gas isolator tap. If individual gas devices are not in use, close the respective gas isolator tap.
- Ignition safety valves must close within 1 minute after the gas flame has extinguished. A clicking sound is audible. Check function 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.

7.2 Gas bottles

- ▶ Handle full or emptied gas bottles outside the vehicle only with closed regulator tap and attached protective cap.
- ▶ Gas bottles are only to be transported within the designated gas bottle compartment.
- ▶ Place the gas bottles in vertical position in the gas bottle compartment.
- ▶ Fasten the gas bottles so that they are unable to turn or tilt.
- ▶ Connect the gas tube to the gas bottle without tension.
- ▶ If the gas bottles are not connected to the gas tube, always place the protective cap on top.
- ▶ Close the regulator tap on the gas bottle before the gas pressure regulator or gas tube are removed from the gas bottle.
- ▶ Depending on the connection, unscrew the gas tube from the gas bottle and screw it on the gas bottle again by hand or using an suitable special spanner. The screw connection on the gas bottle generally has a left-hand thread. **Do not** tighten too firmly.
- ▶ Only use special gas pressure regulators with a safety valve designed for vehicle use. Other gas pressure regulators are not permitted and cannot meet the demanding requirements.
- ▶ Use the gas pressure regulator defroster (EisEx) if the temperature falls below 5 °C.
- ▶ Use only 11 kg or 6 kg gas bottles. (The size of the gas bottles may vary depending on the country.) Exception: Only 5 kg gas bottles can be used with the special model CrossOver.
- ▶ Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- ▶ Never block the floor ventilation openings below the gas bottles.

- ▷ 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.
- ▷ In Germany, removable gas bottles may only be filled by authorised specialist personnel in filling plants. Observe the national regulations in all countries.

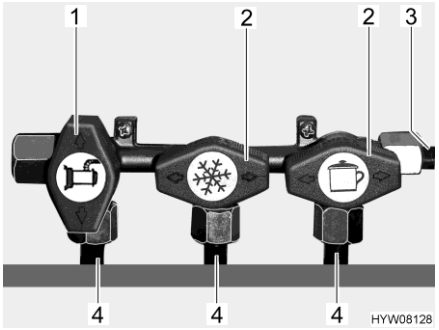
7.3 Gas isolator taps



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

Fig. 88 Possible symbols for the gas isolator taps

A gas isolator tap (Fig. 88) for every gas device is built into the vehicle. The gas isolator taps can be found under the cooker.



1 Gas isolator tap open
2 Gas isolator tap closed
3 Gas pipe
4 Pipe to the gas device

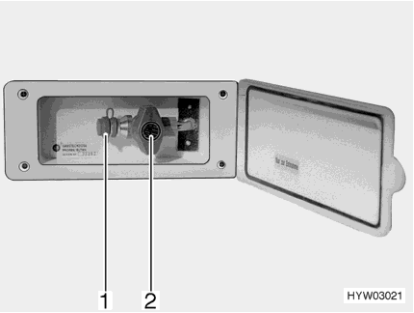
Fig. 89 Gas isolator taps position (example)

Opening:
- Position the gas isolator tap of the corresponding gas device parallel (Fig. 89,1) to the pipe (Fig. 89,4) leading to the gas device.

Closing:
- Position the gas isolator tap of the corresponding gas device transverse (Fig. 89,2) to the pipe (Fig. 89,4) leading to the gas device.

7.4 External gas connection

- 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.



1 Connection point
2 Gas isolator tap

Fig. 90 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. 90,1).
- Open the gas isolator tap (Fig. 90,2).

7.5 Gas bottle compartment pull-out

▷ Do not open the rear storage space flap if the gas bottle compartment pull-out is completely pulled out. Otherwise the gas bottle compartment pull-out collides with the rear storage space flap.

To facilitate the changing of gas bottles, the gas bottles and the DuoControl switching facility are stored (optional equipment) in an extractable gas bottle compartment.

Fig. 91 Gas bottle compartment pull-out

Fig. 92 Knob with locking device

Pulling out the gas bottle compartment:

- Open flap (Fig. 91) for the gas bottle compartment.
- Pull the knob (Fig. 92) upwards. The gas bottle compartment pull-out is unlocked.
- Pull out the gas bottle compartment pull-out (Fig. 91) until the knob engages again. Now, the gas bottle compartment pull-out is locked in this position.

Changing the gas bottle:

- Change the gas bottle as described in section 7.8.

Fig. 93 Gas bottle compartment pull-out in changing position

Pushing in the gas bottle compartment:

- Pull the knob (Fig. 92) upwards. The gas bottle compartment pull-out is unlocked.
- Push the gas bottle compartment pull-out (Fig. 93) inwards until the knob engages again.
- Close flap.

7.6 Gas pressure regulating system DuoControl CS

- ▷ The regulating system and the hose lines shall be changed at the latest 10 years after manufacturing date. The operator is responsible for this.
- ▷ Also read the manufacturer's instruction manual.
- ▷ The DuoControl CS gas pressure regulating system is not available for vehicles with a diesel heater.

DuoControl CS is a safety gas pressure regulating system with automatic switching for a two-bottle gas system and with crash sensor. The DuoControl regulating system automatically switches the gas supply from the primary bottle to the reserve bottle as soon as the primary bottle is either empty or no longer ready for operation. The gas appliances may still continue operation. The DuoControl regulating system is suitable for all commercial gas bottles with liquefied gas (propane/butane) and a pressure of 0.7 bar to 16 bar.

The DuoControl regulating system ensures a constant gas pressure for the gas-operated devices, no matter which gas bottle is supplying the gas.

In the event of an accident, the crash sensor in the DuoControl regulating system will interrupt the gas flow.

The gas bottles are connected via high pressure hoses. A hose break guard prevents gas leakage in the event of a damaged hose.

The operation of gas-operated devices during the journey is permitted in all of Europe if the vehicle is equipped with a gas pressure regulating system with crash sensor and high-pressure hoses with hose break guard.

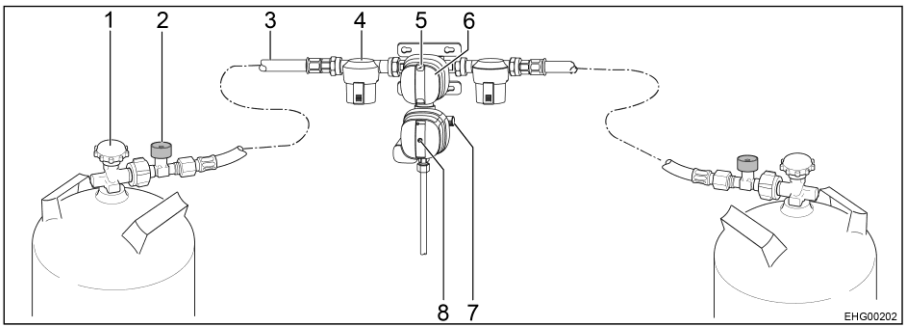


Fig. 94 Safety gas pressure regulating system DuoControl CS

1 Regulator tap
2 Hose break guard
3 High-pressure hose
4 Gas filter
5 Status indicator - primary bottle / reserve bottle (green/red)
6 Knob for primary bottle / reserve bottle change-over
7 Screw cap (test connection)
8 Reset button of the crash sensor (yellow)

Construction of the unit

The DuoControl regulating system consists of a reversing valve and a crash sensor. The DuoControl regulating system is installed between the high-pressure hoses (Fig. 94,3) with hose break guard (Fig. 94,2). The knob (Fig. 94,6) on the reversing valve is used to select which of the gas bottles is to be used as primary bottle and which is to be used as reserve bottle.

The status of the gas supply is indicated in the inspection window (Fig. 94,5):

- Green: Primary bottle
- Red: Reserve bottle.

The operation with only one gas bottle is allowed but in this case the open connection must be closed with a blind cover.

Crash sensor

The crash sensor blocks the gas supply in the event of a significant impact (e.g. accident). The situation of the yellow reset button (Fig. 94,8) indicates the operating status of the crash sensor:

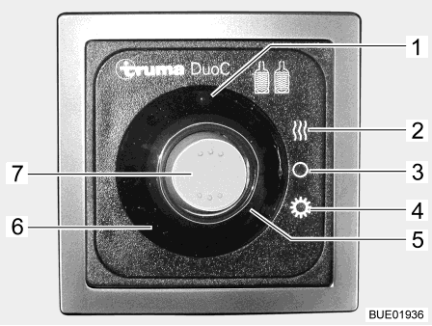
- If the yellow reset button (Fig. 94,8) is in the pressed-in position, the crash sensor is ready to operate.
- If the yellow reset button (Fig. 94,8) is protruding, the crash sensor is **not** ready to operate. Putting into operation, see below.

Hose break guard

The hose break guard (Fig. 94,2) blocks the gas flow if the connected hose breaks. The hose break guard must be activated by pressing the green button.

EisEx (defroster)

The DuoControl regulating system can be heated (EisEx). If winter operation is set on the control unit, the DuoControl regulating system will be heated automatically. Thus, faults of the gas system due to frost in winter are prevented.



1 Yellow indicator lamp Defroster
2 Winter operation position
3 OFF position
4 Summer operation position
5 Red indicator lamp Primary bottle empty
6 Green indicator lamp Supply from primary bottle
7 Rocker switch

Fig. 95 Control unit (DuoControl)

Control unit

The control unit shows the status of the primary bottle. When the green indicator lamp (Fig. 95,6) is lit, the primary bottle is full. When the red indicator lamp (Fig. 95,5) is lit, the primary bottle is empty. In this case, the reserve bottle is used for the gas supply.

If the heater of the DuoControl regulating system (defroster) is active, the yellow defroster indicator lamp (Fig. 95,1) is lit.

In addition, the control unit (Fig. 95) is also used to set summer operation or winter operation.

Setting summer operation:

- Press lower part of the rocker switch (Fig. 95,7) (summer operation position (Fig. 95,4)).

Setting winter operation:

- Press upper part of the rocker switch (Fig. 95,7) (winter operation position (Fig. 95,2)).

Putting into operation:

- Connect the gas bottles.
- Use the knob (Fig. 94,6) on the reversing valve 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.
- Open the regulator taps (Fig. 94,1) on the gas bottles.
- Press and hold the green button of the hose break guard (Fig. 94,2) for about 5 seconds. The green marking is shown in the inspection window (Fig. 94,5).
- If the crash sensor has triggered (the yellow reset button (Fig. 94,8) is protruding):
  Press the yellow reset button (Fig. 94,8) in forcefully, turn it slightly in a clockwise direction and hold it for about 5 seconds. Make sure that the reset button remains in the pressed-in position ("ready for operation"). If it is not possible, reset the system as described: Use the Torx insert T20 on the included screwing aid to strengthen the rotary movement.

Switching off:

- Set the rocker switch (Fig. 95,7) to the OFF position (Fig. 95,3). The indicator lamps go out.
- Close the regulator taps (Fig. 94,1) on the gas bottles.

Changing gas bottles

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

▶ 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.

▷ Use the included screwing aid to screw the high-pressure hoses on and off. The screwing aid makes the required tightening torque possible and prevents any damage caused by using the wrong tool.

▷ If there are gas filters present, also change the filter pad with every change of gas bottles (see section 7.7).

If the green indicator lamp (Fig. 95,6) goes out during operation and the red indicator lamp (Fig. 95,5) lights up, the primary bottle is empty and must be changed. The red marking is shown in the inspection window (Fig. 94,5) of the associated gas bottle. The reserve bottle continues supplying the gas appliances with gas.

You may also change an empty gas bottle while gas-operated devices are in operation.

Changing the gas bottle:

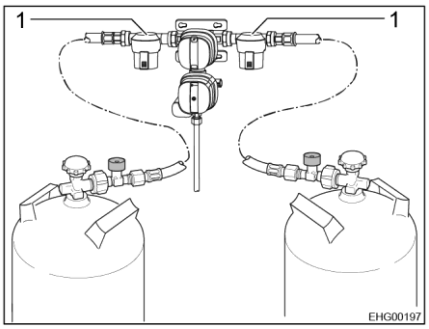
- Turn the knob (Fig. 94,6) as far as it will go in the direction of the gas bottle currently used. In this way, this gas bottle is the primary bottle now, and the empty gas bottle becomes the reserve bottle. The marking in the inspection window (Fig. 94,5) changes from red to green.
- Close the regulator tap (Fig. 94,1) on the empty gas bottle. Pay attention to the direction of the arrow.
- Unscrew the high-pressure hose from the empty gas bottle (normally a left-hand thread).
- Release the fixing belts and remove the empty gas bottle.
- Place a filled gas bottle in the gas bottle compartment and retain with the fixing belts.

- Connect the high-pressure hose to the filled gas bottle (normally a left-hand thread).
- Open the regulator tap on the gas bottle.
- Press the green button of the hose break guard (Fig. 94,2).

7.7 Gas filter

▷ If the gas pressure regulating system fails due to oiling or due to foreign substances, no warranty claim can be made for the gas pressure regulating system.

The gas filter (Fig. 96,1) must be checked periodically. When changing the gas bottles, the filter pad must be replaced (see section 12.5).



1 Gas filter

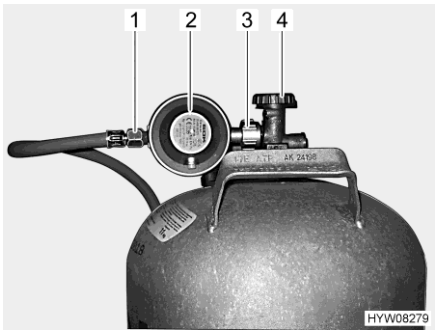
Fig. 96 Gas filter

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

7.8 Changing gas bottles

- ▶ When changing gas bottles, do not smoke or create any open fire.
- ▶ After changing the gas bottles, check whether gas is leaking at the connection points. To do this, spray the connection point with leakage search spray. These agents are available at the accessories shop.

▷ The procedure described below applies to vehicles that are equipped with a single gas connection. If the vehicle is equipped with an regulating system: When changing the gas bottle, proceed as described for the regulating system.



1 Gas tube
2 Gas pressure regulator
3 Knurled nut
4 Regulator tap

Fig. 97 Gas bottle connection

- ■ Open flap for the gas bottle compartment.
- ■ Close the regulator tap (Fig. 97,4) on the gas bottle. Pay attention to the direction of the arrow.
- ■ Hold the gas pressure regulator (Fig. 97,2) and open the knurled nut (Fig. 97,3) (normally a left-hand thread).
- ■ Remove the gas pressure regulator and the gas tube (Fig. 97,1) from the gas bottle.
- ■ Release the fixing belts and remove the gas bottle.
- ■ Place a filled gas bottle in the gas bottle compartment.
- ■ Fix gas bottle in place with the fixing belts.
- ■ Position the gas pressure regulator (Fig. 97,2) with gas tube (Fig. 97,1) on the gas bottle and tighten the knurled nut (Fig. 97,3) (normally a left-hand thread). Do not tighten too firmly.
- ■ Close 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 9.

8.1 General safety instructions

- ▶ Only allow qualified personnel to work on the electrical system.
- ▶ All electrical devices (e.g. mobile phones, radios, televisions or DVD players) that are retrofitted into the vehicle and operated during the journey must have a CE marking and be verifiably tested according to ECE-R10. Please contact an authorised specialist workshop.

  This is the only way to ensure the functional safety of the vehicle during the journey. 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.

8.2 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 indicator lamps, TV unit or USB sockets, require electrical current all the time; that is why they are also 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 can deliver over a period of 20 hours without being damaged.

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

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

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

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

▷ A practical example is shown in section 8.6.4.

8.3 7" panel

The 7" panel with touch display is part of the vehicle's BUS system. (Other components of the BUS system are the transformer/rectifier EBL 402, the system control SCU and the HYMER Connect app.)

Via the 7" panel you can display, monitor and control the vehicle's operating functions. In addition, different functions can be combined and saved as scenarios. Private information can also be included.

The 7" panel can be connected to the HYMER Connect app.

Position

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

Fig. 98 7" panel, start screen

1 Battery voltage indicator
2 Charging condition indicator
3 Time
4 Main menu navigation bar
5 Water tank level indicator
6 Selection switch field
7 Switching on/off

The 7" panel displays the following data:

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

▷ After a longer absence, it can take up to 2 minutes until the display shows current data (see energy-saving mode).

▷ If the display fails, emergency operation of the SCU is possible (see section 8.4).

The following functions can be activated in the selection switch field (Fig. 98,6):

- Switch on the 12 V power supply
- Displaying the status of the 230 V power supply
- Switch on the water pump

The following main menus can be called up via the navigation bar (Fig. 98,4):

- COMMUNAL
- PERSONAL
- INSTALLATION
- VEHICLE DETAILS

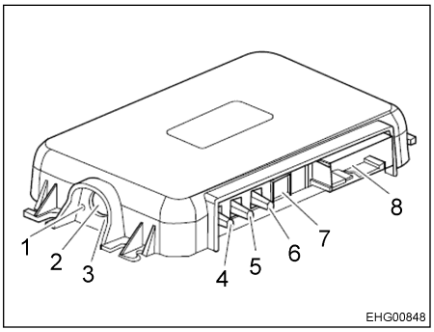
Clicking a button opens the respective sub menu.

- ▷ Operating functions can be controlled either via the 7" panel or via the control unit of an device (e.g. heater), but not via both operating elements at the same time.
- ▷ Before operating a device using the control unit, exit the corresponding menu on the 7" panel or switch off the 7" panel.

8.4 System Control Unit (SCU)

- ▷ FAQs on the operation of the SCU and the HYMER Connect app can be found under the following link:
  https://www.hymer.com/de/en/connect-app
  The FAQs are constantly being expanded.
- ▷ When the SCU fails / is faulty, contact an authorised specialist workshop.

The SCU takes over central control and monitoring functions in the vehicle. The control and monitoring functions are operated on the 7" panel or using the HYMER Connect app. Operation on the SCU is limited to starting the connection process (pairing).



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

Fig. 99 System Control Unit

Active operation

The 7" panel displays the following data:

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

- ▷ After a longer absence, it can take up to 2 minutes until the 7" panel displays current data (see energy-saving mode).

Emergency operation

When it is no longer possible to control the vehicle functions using the 7" panel or the HYMER Connect app, emergency mode can be activated manually. The following functions are active in emergency mode:

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

▷ During emergency operation of the vehicle, the display of the SCU is without function. Battery and water levels cannot be retrieved.

Requirements for emergency operation:

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

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

Activating the emergency operation:

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

Energy-saving mode

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

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

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

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

Position

The SCU is installed in the floor trap behind the driver's seat.

8.5 HYMER Connect App

Mobile devices can be connected to the vehicle via the HYMER Connect app.

Requirements for connecting the mobile device to the SCU:

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

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

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

▷ The vehicle QR code can be found in the vehicle's document pocket.

Keep the vehicle QR code in a safe place.

If the vehicle QR code has been lost, contact the manufacturer's customer service or an authorised dealer.

To connect the mobile device to the vehicle, follow the instructions in the HYMER Connect app.

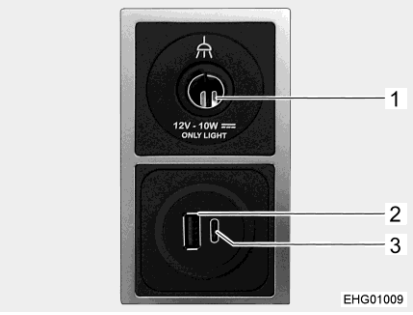
8.6 12 V power supply

▷ Only connect devices with a maximum of 10 A to the sockets of the 12 V power supply.

▷ Connect only devices with a maximum of 2.5 A to the USB sockets.

8.6.1 Sockets

Various sockets for operation and charging of electrical appliances are installed in the vehicle. The sockets can be built in individually or as a combination.



1 12 V socket
2 USB A port
3 USB C port

Fig. 100 Combination socket 12 V/USB

USB socket The vehicle is equipped with several USB sockets as standard. The USB sockets each contain a connection for a USB A plug (Fig. 100,2) and a connection for a USB C plug (Fig. 100,3).

12 V socket Appliances with a power consumption of up to 10 A (equivalent to a power of 120 W) can be connected to the 12 V socket (Fig. 100,1).

8.6.2 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.

- ▷ If the radio unit is used on Mercedes-based vehicles without the vehicle engine running, the radio unit will put a load on the starter battery. However, in order to always maintain the vehicle's starting ability, it may not be possible to operate the radio (depending on the charging condition of the starter battery).

Charging The starter battery has its own charger, which charges it at up to 18 A when connected to a 230 V supply. As a result, there is no need to charge the starter battery via an external charger. Safety instructions and information on charging the starter battery, see instruction manual of the base vehicle.

Position The starter battery is fitted in the footwell of the driver's cabin under the floor plate.

8.6.3 Living area battery (HYMER-Smart-Battery-System)

The HYMER Smart Battery System with one lithium battery LiFePO4 80 Ah (HYMER Battery S) is installed in the vehicle.

The lithium batteries are equipped with a protective function against overload and total discharge. The charging condition of the batteries is controlled by an internal battery management system and cannot be limited manually.

- ▷ The "HYMER Battery S" is part of the standard equipment. As optional equipment up to three additional "HYMER Battery S" batteries can be connected.

- ▷ Do not make any changes to the installation of the lithium battery carried out at the factory.
- ▷ Do not open the lithium battery.
- ▷ Observe the recommended operating temperature between 15 and 25 °C. Take any further details on the operating temperature from the manufacturer's instruction manual.
- ▷ Fully charge the battery system every 6 months.
- ▷ Switch the transformer/rectifier of for installation and maintenance.
- ▷ If the battery capacity indicator does not reach 100 % any more after a longer charging time, contact the customer service.
- ▷ Use only the built-in charging system to charge the living area battery. In order to do this, connect the 230 V connection (CEE connector) of the vehicle to an external 230 V power supply.
- ▷ Prior to commencing a journey ensure the living area battery is completely charged. Therefore, fully charge the living area battery before starting the trip.
- ▷ During the trip, use every opportunity to charge the living area battery.
- ▷ After the trip, charge the living area battery completely.
- ▷ Charge the battery fully before a temporary lay-up.
- ▷ Care and maintenance of the living area battery should only be carried out by an authorised specialist workshop.

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. Therefore, do not operate electrical appliances such as lamps for a prolonged period without 230 V supply.

Position

The living area battery is installed in an underfloor storage compartment well and is accessible via a floor trap.

Discharging

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

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

Note that even a fully charged living area battery can be fully discharged by closed circuit currents (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: At 35 °C the self-discharge rate is approx. 20 % of the capacity per month.

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.

Charging

Only use the transformer/rectifier to charge the living area battery. Therefore, connect the vehicle to a 230 V power supply system as often as possible. As a principle, only use the 230 V connection on the vehicle (CEE socket outlet) for connecting.

- ▷ Simultaneous use of local power and charging by the engine running is not permitted as this may result in increased charging currents. The battery system switches off for self-protection. Allow only authorised specialist workshops to switch on a battery that has been switched off.
- ▷ Charge the battery for at least 48 hours after a total discharge.
- ▷ At temperatures below 0 °C, a living area battery consumes less power. At approx. -20 °C, there will be no more power. The living area battery can no longer be charged.
- ▷ The living area battery is galvanically isolated from the starter battery. The batteries are charged independently of each other.

Storage

In the case of adequate use, the lithium battery has a lifetime of up to 10 years.

The "Hymer Battery S" is networked with various internal elements and installed accordingly. Manual removal is not recommended for this reason. If removal is still necessary, contact an authorised specialist workshop.

Prior to storage, fully charge the battery system and disconnect it from the transformer/rectifier (switch off battery cut-off switch on the transformer/rectifier).

At the latest, check the charge status on the display of the lithium battery after 6 months. When the battery cut-off switch is switched off, the charging condition of the battery can drop to approx. 40 to 80 %. To check the charging condition, switch on the battery cut-off switch on the transformer/rectifier. Charge battery if necessary.

For longer storage periods: Charge battery if necessary.

Store the battery system in a place that is dry and well ventilated.

Observe the recommended storage temperature between 10 and 20 °C. Take any further details on the storage temperature from the manufacturer's instruction manual.

- ▷ If there is an intelligent charger with float charge functionality, have the charger connected to the battery and switched on over the entire lay-up time.
- ▷ The charger must support LiFePO4 batteries.

Display

The voltage and charge data of the battery system are displayed on the 7" panel.

Battery change

▷ When changing batteries, use only batteries which meet the minimum capacity of the charger. Observe the separate instruction manual for the charger. Lower-capacity batteries will generate a great deal of heat when they are charged. Danger of explosion!

When the living area battery is changed, only use batteries of the same type and the same capacity. Living area batteries must have a capacity of at least 80 Ah.

Only use batteries for which there are charging characteristics available. After changing the battery the charging characteristics must be adjusted at the transformer/rectifier or at the auxiliary charging unit.

If the living area battery is replaced and the charging unit does not provide a charging current of 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.

▷ When changing, ensure that the batteries are properly installed. Install the batteries so that the positive terminal on one battery is lying next to the negative terminal of the other battery.

▷ When changing, ensure that the batteries are properly connected.

Changing the battery:

- Turn off the vehicle engine.
- Switch off all appliances.
- Switch off 230 V power supply.
- Switch off 12 V power supply.
- Disconnect the negative terminal.
- Disconnect the positive terminal.
- Remove the old battery.
- Insert the new battery in the correct position.
- Connect the positive terminal.
- Connect the negative terminal.
- Switch on 12 V power supply.
- Switch on 230 V power supply.
- Switch on consumers as required.

▷ After changing the battery, have the battery voltage indicators checked at an authorised specialist workshop / service centre.

8.6.4 Energy balance of the living area battery

The living area battery has a limited power supply only. For this reason, the electrical appliances should not be operated without a 230 V power supply for a longer period of time.

Below, the calculation of the maximum operating time of the currently available battery capacity is described.

▷ The example calculation refers to a new, optimally charged battery. The actual effective battery capacity depends on the current charging condition and the age of the battery. The current battery capacity can be determined by means of special indicator units.

▷ If there is a second living area battery, the available capacity doubles.

▷ All lamps are LED lamps with very low power consumption. Approximately 2 W of power consumption can be expected per LED lamp.

■ Record the daily requirement. Note the switching on times and the power output of the devices used (see table below).

Example: The television (power consumption 36 W) with satellite unit (power consumption 36 W) is in operation every day for 2 hours.

■ Convert the power data into the required capacity in accordance with the following formulas:

Power consumption [W] : 12 V = Current [A]

Current [A] x Operating time [h] = Capacity [Ah]

36 W + 36 W = 72 W

72 W : 12 V = 6 A

6 A x 2 h = 12 Ah

The table for a whole day could look like this:

Balance of energy consumption (example)

Appliance	Power consumption [W]	Current [A]	Operating time [h]	Capacity [Ah]
Submerged pump	42	3.5	0.1	0.35
LED lamp	12	1.5	3.0	4.50
Television	36	3.0	2.0	6.00
Satellite unit	36	3.0	2.0	6.00
Refrigerator control	2	0.2	24.0	4.00
Lighting (10 LED lamps à 2 W)	20	1.6	3.0	4.80
Average daily requirement				**25.65**

Maximum effective energy

■ Calculate the maximum effective energy with the following formula or determine it with a special indicator unit:
Current capacity [Ah] : Deep discharge protection = Maximum effective energy [Ah]

Example: 80 Ah : 1.0 (Battery S) = 80 Ah

Maximum operating time

- Calculate the maximum operating time in accordance with the following formula:
  Max. effective energy [Ah] : Daily requirement [Ah] = Max. operating time (in days)

Example: 80 Ah : 25.65 Ah = 3.11

The current battery capacity would be sufficient for more than three days if the daily requirement remains the same.

Solar cells

The independent time period can be extended with use of the solar cells.

Two solar cells of 95 W produce the following gain:

- Summer: Approx. 60 Ah/day (independent operation reached)
- Winter: Approx. 15.5 Ah/day (in order to prolong independent operation, another living area battery must be installed)

8.6.5 Retrofitting an AC converter

▷ Only allow authorised specialist workshops to retrofit the intended system with an AC converter. Improper installation may result in damage to the electrical system. We will not be held liable for this damage.

The installation of a 230 V AC converter results in a very high current load. For example an AC converter with a power output of 800 W on the 12 V side has a current consumption of up to 75 A.

This current is much too big for the outputs on the transformer/rectifier (see section 8.10.1).

Using the AC converter may result in voltage drops. Operating under an AC converter requires a higher amount of energy. A battery system without enough remaining energy may cause a rapid shutdown.

8.7 Transformer/rectifier (EBL 402)

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

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

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

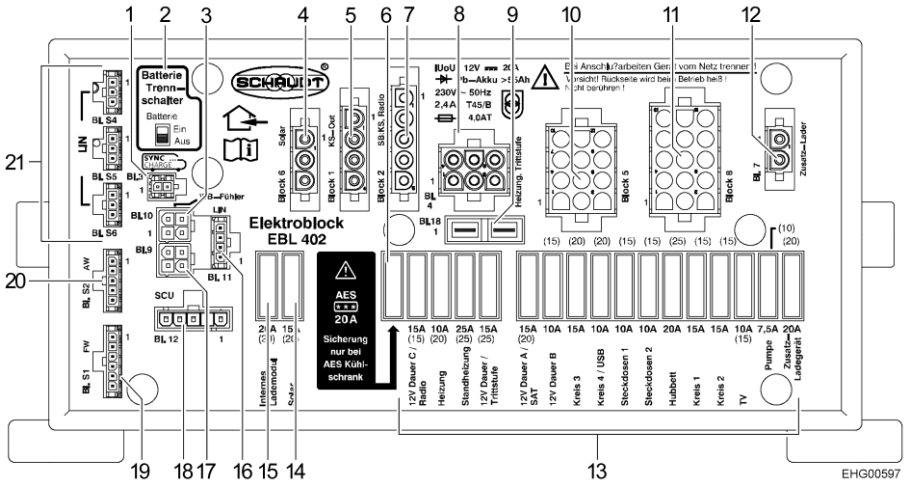


Fig. 101 Transformer/rectifier (EBL 402)

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

Position The transformer/rectifier is installed under the bench on the driver's side (towards the kitchen) and is accessible by lifting the seat cushion.

Operation

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

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

In following cases, adjustments are required:

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

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

Purpose

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

Functions

- The transformer/rectifier charges the living area battery. The transformer/rectifier charges the starter battery with a float charge only.
- The transformer/rectifier monitors the voltage in the living area battery.
- When the vehicle engine is turned off, the transformer/rectifier separates the starter battery electrically from the living area battery. This prevents the 12 V living area appliances from discharging the starter battery.
- The transformer/rectifier controls and monitors connected solar charge regulators and auxiliary charging units.
- The transformer/rectifier supplies all BUS modules and the connected sensors and appliances with current.
- Via BUS lines, the transformer/rectifier provides the communication with the BUS modules, the panel will and the control unit SCU.

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

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

Lay-up

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

- Entrance step
- Heater

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

Lay-up:

- ■ Switch off the 12 V power supply on the panel.
- ■ Move the battery cut-off switch (Fig. 101,2) to the "Aus" (Off) position on the transformer/rectifier EBL 402.

Coming out of lay-up:

- ■ Move the battery cut-off switch (Fig. 101,2) to the "Ein" (On) position on the transformer/rectifier EBL 402.
- ■ Switch on the 12 V power supply on the panel.

8.7.1 Battery cut-off switch

The battery cut-off switch switches off all the appliances in the living area, even inactive ones. In the process, all appliances supplied by the transformer/rectifier are disconnected from the living area battery. Even appliances such as the entrance step, basic lighting or the refrigerator will stop working. 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).

Position The battery cut-off switch (Fig. 101,2) is located on the transformer/rectifier.

If the vehicle is connected to the 230 V power supply via the CEE socket outlet, the batteries are charged, even if the battery cut-off switch is switched off.

8.7.2 Battery monitoring

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

The battery monitor in the transformer/rectifier measures the voltage in the living area battery. All 12 V appliances are switched off when the battery voltage falls below 11.0 V for longer than 10 s or 10.5 V for longer than 1 s. Only the appliances not switched using the 12 V main switch on the 7" panel are still supplied with power.

When the voltage drops so low due to overload or an insufficiently charged living area battery that the automatic shutoff is triggered, appliances that are not absolutely necessary must be switched off. It may now be possible to put the 12 V power supply back into operation for a short time. To do this, first turn the battery cut-off switch on the EBL off and then on again. Then turn on the 12 V main switch on the 7" panel.

However, when the battery voltage remains below 12.0 V, it is not possible to turn the 12 V power supply back on. To increase the battery voltage, start the vehicle engine and let it run for a while or connect the vehicle to local power.

8.7.3 Battery charge

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.

8.7.4 Retrofitting additional 12 V appliances

The electrical system in the living area of the vehicle may be equipped with optional devices. The optional devices are to be connected to the reserve outputs on the transformer/rectifier. The output of the optional devices may not exceed the rating of the fuse (e.g. 15 A). Do not use fuses on the transformer/rectifier that are higher than those stated on the transformer/rectifier.

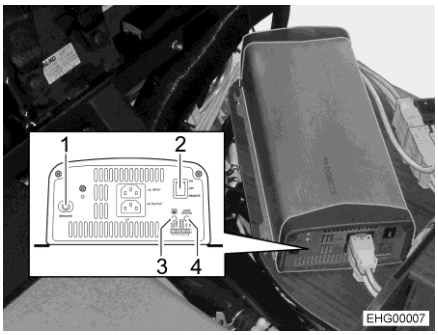
8.8 AC converter (MSI 1812T)

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

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

  Appliances with higher power demands must not be connected.
- ▷ Do not cover the ventilation slots. Danger of overheating!
- ▷ Do not place additional objects in the storage space of the AC converter. Danger of overheating!
- ▷ Check the fault current protection switch for each connection to the 230 V power supply, at least once every 6 months.
- ▷ Switch off the AC converter at the main switch (Fig. 102,2) when not in use. Otherwise, the closed circuit current of the AC converter can drain the living area battery within a few days.

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



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

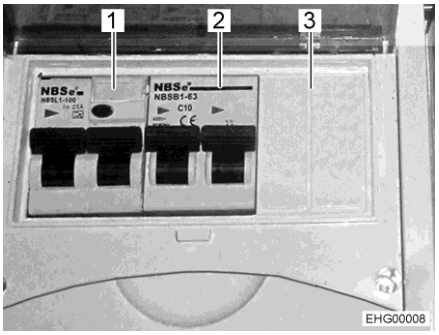
Fig. 102 AC converter (exemplary illustration)

Functions

The AC converter has the following functions:

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

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



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

Fig. 103 Additional fuse box

The sockets are protected by a safety cut-out (Fig. 103,2) and a fault current protection switch (Fig. 103,1) in the additional fuse box (Fig. 103,3).

Fig. 104 Position of AC converter

Position

The AC converter is installed in the rear storage space on the driver's side (see Fig. 104). The additional fuse box is located at the living area battery underneath the L-seating group in an underfloor box and is accessible via an external flap.

Voltage-free state

To operate the electrical system completely voltage-free, the fault current protection switch must be deactivated at both the AC converter fuse box and the shore power fuse box.

Operating the AC converter

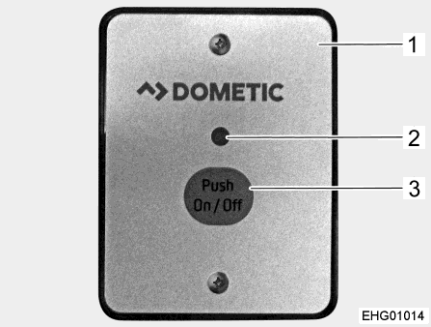
The operating controls are located on the front of the AC converter.

Switching on:

- Switch the main switch (Fig. 102,2) to position ON. The input voltage range LED (Fig. 102,3) will be lit green.
- Switch the main switch (Fig. 102,2) to position REMOTE. The control via the remote control switch will be activated.

Switching off:

- Switch the main switch (Fig. 102,2) to position OFF. The input voltage range LED (Fig. 102,3) goes out.



1 External switch
2 LED
3 On/Off button

Fig. 105 External switch (AC converter)

Operation on the external switch

The external switch (Fig. 105,1) is installed in the roof storage cabinet above the seating group on the left in the direction of travel.

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

Switching on:

■ Press On/Off button (Fig. 105,3). The LED (Fig. 105,2) is on.

Switching off:

■ Press On/Off button (Fig. 105,3). The LED (Fig. 105,2) goes out.

Operating and indicator elements

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

No. in Fig. 102	Designation	Function
1	Appliance fuse	Protects the AC converter against overload. Before pushing in the appliance fuse again, the cause of the fault must have been eliminated
2	Main switch	Position OFF = AC converter switched off Position ON = AC converter switched on Position REMOTE = external switch enabled
3	LED input voltage range	Indicates the voltage range of the input voltage: Red, slow flashing = undervoltage (< 10.6 V) Red = undervoltage (10.6 to 11.0 V) Orange = undervoltage (11.0 to 12.0 V) Green = input voltage OK (12.0 to 14.2 V) Orange, flashing = overvoltage (14.2 to 15.0 V) Red, fast flashing = overvoltage (> 15.0 V)
4	LED LOAD STATUS	Indicates the power range of the AC converter output: Off = 0 to 160 W Green = 160 to 640 W Orange = 640 to 1440 W Red, slow flashing = 1440 to 1600 W Red, fast flashing = > 1600 W

Checking the fault current protection switch:

- When the vehicle is connected to the 230 V power supply, press the test button on the fault current protection switch (Fig. 103,1). The fault current protection switch (FI-switch) must be activated.

8.9 230 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
- Transformer/rectifier
- Auxiliary charging unit
- AC converter

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 and the auxiliary charging unit (optional equipment) charge the living area battery automatically. The starter battery is also buffered with a float charge.

Depending on the variant, optional devices (such as electric heaters with heating elements) are protected by their two-pole automatic circuit breaker.

8.9.1 230 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

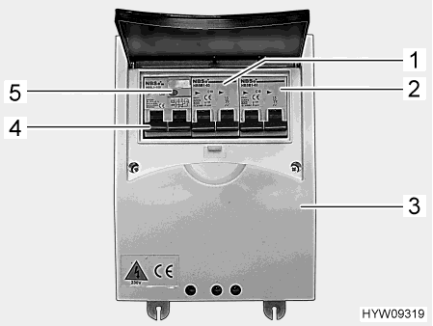
- The connecting cable, the plug connectors at the point of supply and the plug connector to the vehicle must comply with IEC 60309. The standard designation for the plug connectors is "CEE blue".
- Use H07RN-F rubber sheathed cable with a minimum cable cross-section of 2.5 mm² and a maximum length of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

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

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



1 Safety cut-out
2 Safety cut-out
3 Fuse box
4 FI switch
5 Test button

Fig. 106 Safety cut-out and FI-switch (230 V fuse box)

- ▷ The second safety cut-out (Fig. 106,2) is optional. Whether this safety cut-out is present or not depends on the equipment of the vehicle.

Connecting the vehicle:

- ■ Check whether the power supply device is suitable regarding connection, voltage, frequency and current.
- ■ Check whether the cables and connections are suitable.
- ■ Check the plug connectors and cables for visible damage.
- ■ Switch off both safety cut-outs (Fig. 106,1 and Fig. 106,2) in the fuse box (Fig. 106,3).

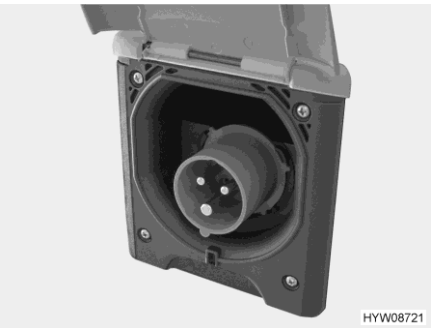


Fig. 107 230 V connection on the vehicle (CEE socket outlet)

- Open the cover of the 230 V connection on the vehicle (Fig. 107) and insert the plug connector. Ensure that the detent of the spring-mounted pivoting cover is engaged in position.
- Plug the connector of the connecting cable into the socket of the camping distributor. Ensure that the detent of the spring-mounted flap is also engaged here.
- Switch on both safety cut-outs in the fuse box.

Checking the FI switch:

- When the vehicle is connected to the 230 V supply, press the test button (Fig. 106,5) of the FI switch (Fig. 106,4) in the fuse box (Fig. 106,3). The FI switch must trip.
- Switch FI switch (Fig. 106,4) back on again.

Unplugging the connection:

- Switch off both safety cut-outs (Fig. 106,1 and 2) in the fuse box (Fig. 106,3).
- Loosen the detent on the camping distributor and unplug the connecting cable from the socket.
- Loosen the detent on the vehicle unplug the plug connector and close the cover of the 230 V connection.

8.10 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.
- ▶ Do not replace screwed fuses yourself. Contact an authorised specialist workshop to have these replaced.
- ▶ Never bridge or repair fuses.
- ▶ Only replace faulty fuses with a new fuse with the same rating.

8.10.1 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.

Before changing fuses, take the function, value and colour of the relevant fuses from the following specifications. When changing fuses, only use fuses with the values shown below.

Some signals are protected by "Polyswitch" fuses. Polyswitch is an internal self-resetting fuse. After the overcurrent or short circuit has been remedied, the operating current is enabled again automatically. This can take a few seconds (cooling-down phase).

Fuses on the living area battery

The fuses are fitted next to the living area battery.

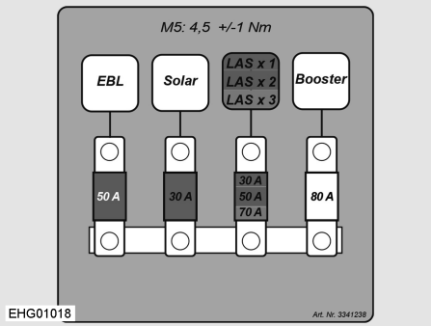


Fig. 108 Fuse rating in socket 1

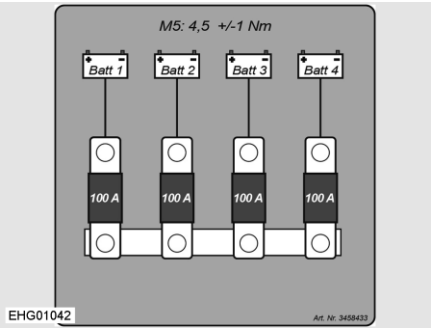


Fig. 109 Fuse rating in socket 2

Fuses on the fuse holder

The fuses are installed in the underbody installation compartment and are accessible via the floor trap behind the driver/passenger seat under the black cover.

Number	Appliances	Value
4	Lithium battery	100 A
1	AC converter	225 A
1	Solar installation	30 A
1	Charge booster	80 A
1	Transformer/rectifier	50 A
1/2/3	Charger	30/50/70 A

Fuses for the driver's area

The fuses are installed behind a cover (Fig. 110) in the console of the left-hand driver's cabin seat.

Fig. 110 Cover (left-hand seat console)

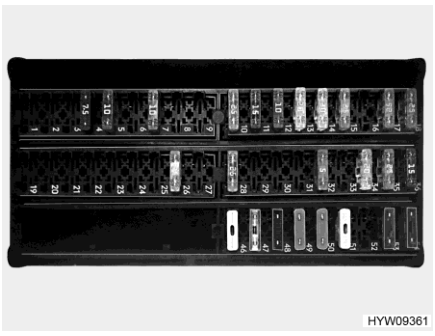


Fig. 111 Fuses (left-hand seat console)

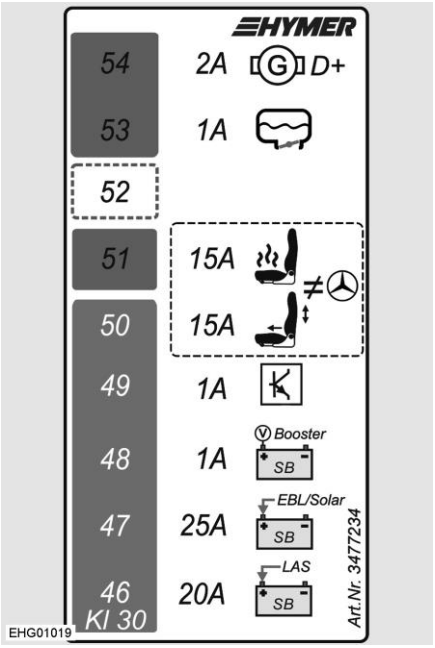


Fig. 112 Fuse sticker (driver's seat console)

FuNo.	Appliances	Value/colour
46	Recharging the LAS starter battery	20 A/yellow
47	EBL/solar installation	25 A/white
48	Booster	1 A/black
49	Electric power supply unit	1 A/black
50	Seat adjustment (for non-Mercedes seat)	15 A/blue
51	Seat heater (for non-Mercedes seat)	15 A/blue
52		
53	Wastewater valve	1 A/black
54	Signal D+ (engine running)	2 A/grey

Fuses on the transformer/rectifier

There are several fuses installed on the transformer/rectifier. The fuses are clearly identified by their colour and by the indications about function and value.

Fuse for the Thetford toilet

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

Fuses for the hot-water heater (Alde)

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

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

Fuse for the AC converter

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

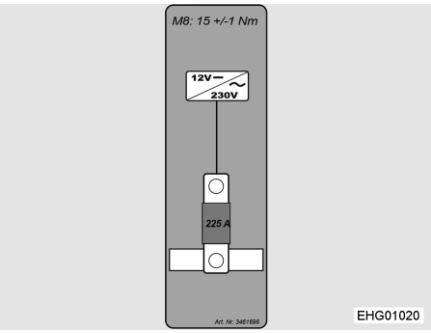


Fig. 113 AC converter fuse

The fuse can be identified by its sticker.

Fuse for additional main beam (Special model CrossOver)

The fuse for the additional main beam is installed in the driver's seat console.

Fuse for TV satellite unit (ten Haaft)

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

The control unit is installed in the wardrobe or in a wall-mounted cupboard.

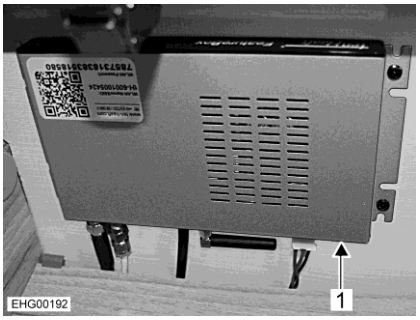


Fig. 114 Control unit (TV satellite unit, ten Haaft)

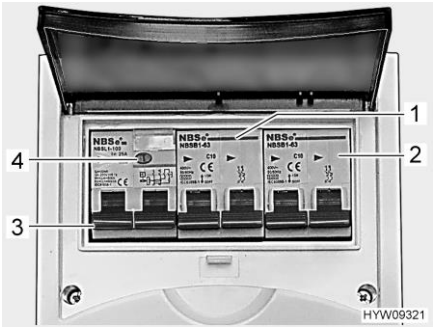
1 10 A fuse/red

8.10.2 230 V fuse

For vehicles with an AC converter as optional equipment, observe the following:

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

▷ Check the fault current protection switch (FI switch) every time a connection to the 230 V power supply is established but at least once every 6 months.



1 Safety cut-out (10 A)
2 Safety cut-out (16 A)
3 FI switch
4 Test button

Fig. 115 Safety cutout and FI-switch (230 V fuse box)

A FI switch (Fig. 115,3) in the fuse box protects the complete vehicle from fault current (30 mA).

The downstream safety cut-out (10 A) (Fig. 115,1) secures the 230 V sockets, the transformer/rectifier, the auxiliary charging unit and the refrigerator.

For vehicles with optional equipment, e.g. roof air conditioning unit, the device is protected by an additional safety cut-out (16 A) (Fig. 115,2).

Checking the FI switch:

■ When the vehicle is connected to the 230 V power supply, press the test button (Fig. 115,4). The FI switch must trip.

Position The fuse box is installed in the wardrobe.

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.

9.1 General

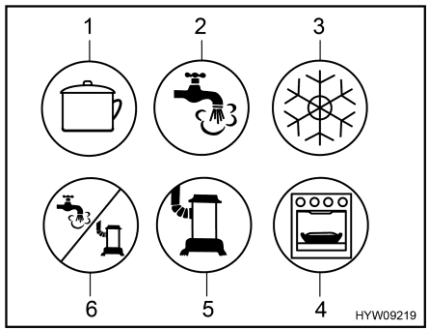
▷ For safety reasons, spare parts for pieces of heating appliances must correspond with manufacturer's instructions and be permitted by the manufacturer as a spare part. These spare parts may only be fitted by the manufacturer or an authorised specialist workshop.

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

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

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

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



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

Fig. 116 Possible symbols for the gas isolator taps

9.2 Control units

In the roof storage cabinet (Fig. 117) above the seating group is where the control units for the following devices are installed:

- AC converter
- Satellite unit
- Heater
- DuoControl (for switching gas bottles)

▷ The DuoControl CS gas pressure regulating system is not available for vehicles with a diesel heater.

Fig. 117 Control units in the roof storage cabinet

9.3 Heater and boiler (diesel operation)

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 operate the heater in diesel operation when refuelling, on ferries or in the garage. Danger of explosion!

▶ Never operate the heater in diesel 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.

▷ The boiler water does not count towards the mass in running order. Empty the boiler for the trip or add boiler water to personal equipment.

▷ Do not use the water from the boiler as drinking water.

▷ If the power supply to the heater was interrupted, the time must be reset.

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.

9.3.1 To heat properly

- ▷ The air outlet nozzles must always remain unobstructed and must not be blocked or obstructed in order to allow a free air current and to avoid heat build-up.
- ▷ Objects placed in front of the air outlet nozzles can be damaged by the heat build-up.
- ▷ If the air current is persistently blocked, the heat build-up can cause damage to the vehicle.

Fig. 118 Air outlet nozzle (hot-air heater)

Hot air distribution

Several air outlet nozzles (Fig. 118) 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.

9.3.2 Hot-air heater and boiler Truma Combi D with digital CP plus digital control unit

- ▶ If leakage occurs at the heater or at the exhaust gas routing, there is a risk of poisoning! If leakage is detected: switch off the diesel hot-air heater. Open windows and doors. Have the system checked by an authorised service centre.
- ▶ Observe the safety regulations and safety instructions of the manufacturer; see separate instruction manual of the manufacturer.

- ▷ If there is a risk of frost and the heater is not in operation, empty the boiler.
- ▷ 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.

- ▷ 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.
- ▷ The electrical operation of the hot-air heater must be protected by a fuse rated at least 8 A when using an external 230 V supply.

Maximum heat output

Diesel operation	Electrical operation *	Mixed operation (diesel and electrical operation)*
6000 W	1800 W	6900 W

* (optional for Truma DE)

Control unit

The control unit is divided into two sections:

- Display
- Operating buttons

1 Display
2 Rotary push button
3 Back button

Fig. 119 Control unit (hot-air heater and boiler)

Position

The control unit is installed in roof storage cabinet above the seating group.

Operating buttons

The operating buttons have the following functions:

Button	Button operation	Function
Rotary push button (Fig. 119,2)	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
	Tap	Selected value is saved
		Menu item is selected for changing values (selected menu item flashes)
	Press (3 seconds)	Switch on or switch off
Back button (Fig. 119,3)	Press	Return from a menu item without saving values

1 Display
2 Status line
3 Upper menu line
4 Display of the line voltage 230 V (optional)
5 Lower menu line
6 Rotary push button
7 Back button
8 Settings and values display area
9 Timer display

Fig. 120 Control unit with display

Display

The display is divided into four sections:

- Status line (Fig. 120,2)
- Upper menu line (Fig. 120,3)
- Display area (Fig. 120,8)
- Lower menu line (Fig. 120,5)

▷ To prevent a malfunction, do not operate the heater on the 7" panel or in the HYMER Connect app and on the control unit (Fig. 119 and Fig. 120) at the same time.

▷ Before operating the heater using the control unit, exit the corresponding menu on the 7" panel or switch off the 7" panel.

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

If no button is pressed, the control 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.

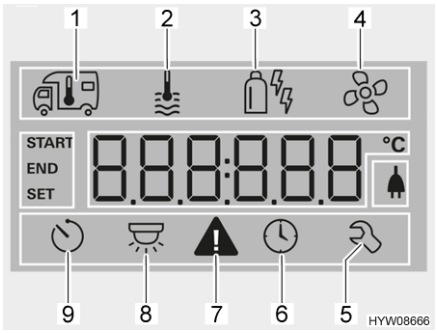
Switching the control unit on/off

- Press and hold the rotary push button (Fig. 120,6) for approx. 3 seconds. Both menu lines (Fig. 120,3 and Fig. 120,5) are displayed. The first symbol flashes.

▷ Switching the control 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 the rotary push button (Fig. 120,6) until the required menu symbol flashes.
- Press the rotary push button.
- Turn the rotary push button until the required value is displayed.
- Press the rotary push button to save the value set. If you do not wish to change the value originally set: Press the back button (Fig. 120,7).



1 Heater
2 Hot water
3 Operating mode
4 Fan
5 Service menu
6 Setting the time
7 Warning symbol
8 Lighting (not used here)
9 Timer

Fig. 121 Display (control unit)

Switching on the heater:

- Turn the rotary push button (Fig. 120,6) until the heater menu symbol (Fig. 121,1) flashes.
- Press the rotary push button.
- Turn the rotary push button until required value is displayed.
- Press the rotary push button to save the value set. The symbol in the status line (Fig. 120,2) flashes until the room temperature set is reached. If you do not wish to change the value originally set: Press the back button (Fig. 120,7).

Switching off the heater:

- Turn the temperature value back until OFF is displayed. Press the 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:

- Turn the rotary push button (Fig. 120,6) until the hot water menu symbol (Fig. 121,2) flashes.
- Press the rotary push button.
- Turn the 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 the rotary push button to save the value set. The symbol in the status line (Fig. 120,2) flashes until the hot water temperature set is reached. If you do not wish to change the value originally set: Press the back button (Fig. 120,7).

Switching off production of hot water:

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

Safety/drainage valve

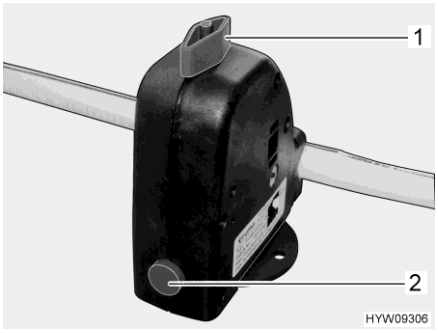
The boiler is equipped with a safety/drainage valve (Fig. 122). The safety/drainage valve prevents water in the boiler from freezing, when there is frost and the heater is not switched on.

▷ When the vehicle is not used for a long period of time, open the safety/drainage valve and empty the boiler.

▷ At temperatures below 3 °C the safety/drainage valve opens automatically. Only if the temperature of the safety/drainage valve lies above 7 °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.



1 Knob
2 Push button

Fig. 122 Safety/drainage valve (boiler)

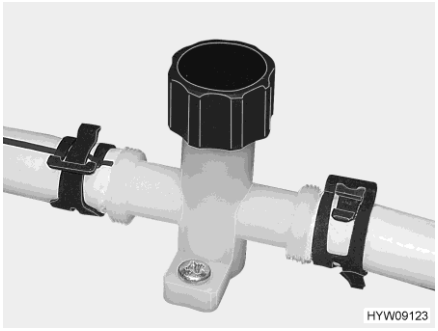


Fig. 123 Drain cock (water pipe)

Position

The safety/drainage valve is installed in the seat box next to the boiler. The drain cock (water pipe) is installed under a floor trap.

Filling/emptying the boiler

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

When the vehicle is connected to a central water supply, a pressure reducer must be used. The maximum allowed pressure in the boiler is 2.8 bar.

Filling the boiler with water:

- Switch on the 12 V power supply on the panel.
- Close the safety/drainage valve. Turn the knob (Fig. 122,1) perpendicular to the safety/drainage valve and push the push button (Fig. 122,2) 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. 122,1) parallel to the safety/drainage valve. The push button Fig. 122,2) 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).
- Close the drain cocks. In order to do this, turn the cap of the drain cock (Fig. 123) in a clockwise direction.

Operating modes

Depending on the equipment, the hot-water heater with the boiler can be operated by means of various energy sources.

Selecting operating mode:

- Turn the rotary push button (Fig. 120,6) until the menu symbol operating mode (Fig. 121,3) flashes.
- Press the rotary push button.
- Turn the rotary push button until the desired operating mode is displayed:
  - Diesel operation
  - Electrical operation, output level 1 (900 W) *
  - Electrical operation, output level 2 (1800 W) *
  - Diesel operation and electrical operation, output level 1 (900 W) *
  - Diesel operation and electrical operation, output level 2 (1800 W) *

  * (optional for Truma DE)
- Press the rotary push button to save the set operating mode. To revert to the original setting: Press the back button (Fig. 120,7).

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

▷ At output level 1 (900 W), current consumption is 3.9 A. At output level 2 (1800 W), current consumption is 7.8 A.

Setting the fan:

- Turn the rotary push button (Fig. 120,6) until the fan menu symbol (Fig. 121,4) flashes.
- Press the rotary push button.
- Turn the 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 the rotary push button to save the value set. If you do not wish to change the value originally set: Press the back button (Fig. 120,7).

Setting the timer:

- Turn the rotary push button (Fig. 120,6) until the timer menu symbol (Fig. 121,9) flashes.
- Press the rotary push button. The start time is displayed and the hour display flashes.
- Turn the rotary push button until the hour of the selected start time is displayed.
- Press the rotary push button. The minute display flashes.
- Turn the rotary push button until the minute of the selected start time is displayed.
- Press the 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 the rotary push button. The timer is activated. The timer symbol (Fig. 121,9) 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. 121,7) 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 the rotary push button to restart the heater.

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

9.3.3 Digital control of Truma devices

Truma devices can be controlled via the 7" panel or via the HYMER Connect App.

Further information:

- Section 8.3
- Section 8.4
- Section 8.5

9.3.4 Alde hot-water heater and boiler Alde Compact 3030

- ▶ For safe handling of the Alde system, follow the manufacturer's separate instruction manual.
- ▶ Observe safety instructions for handling gas, see section 2.5.
- ▶ Danger of scalding from hot water. Do not set the water temperature above 48 °C. Check water temperature before use.
- ▶ Do not make any changes to the heating system or the control system.

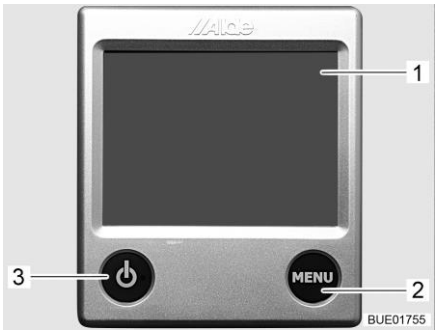
- ▷ Never run hot-water heater without heating fluid. Observe the notes in chapter 12.
- ▷ Never drill holes in the floor. This might damage the hot-water pipes.
- ▷ Ensure that there is enough water in the water tank to supply the heating system.

- ▷ 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 12.

The heating system consists of a gas- and electricity-fired boiler and convectors. The system supplies heat to the convectors by circulating a heating fluid (glycol mixture). The heating fluid is heated by gas and/or electricity. A boiler with a volume of approx. 8.5 l is also built into the heating system. Heating and boiler are controlled via a control panel and supplied with water from the water tank.

Control unit

For position of control unit, see section 9.2.



1 Display
2 "MENU" button
3 "On/Off" button

Fig. 124 Control unit

Switching on the heating system:

- ■ Press the "On/Off" button (Fig. 124,3) on the control unit. A green LED lights up on the "On/Off" button. The system starts with the last selected settings.
- ■ To change settings: Press the "MENU" button (Fig. 124,2) and select the desired function.

- ▷ For further operation, refer to the manufacturer's separate instruction manual.

Switching off the heating system:

- Press the "On/Off" button (Fig. 124,3) on the control unit. The green LED goes out.

▷ When no button is pressed, the control unit automatically switches to home position after two minutes.

▷ Changes to the settings are saved automatically after 10 seconds.

Boiler

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

▷ To be able to fill the boiler, sufficient water must be present in water tank.

Heat exchanger for engine heater

The additional heat exchanger and the additional circulating pump have the following functions:

- Heat distribution to the rear inside the vehicle during the journey
- Engine heater (independent vehicle heater)

Fig. 125 Engine heater function (auxiliary fan)

Switching on the engine heater:

- Press the Engine heater button (Fig. 125).

Summer operation

An undesirable warming of the heat exchanger and the heating system in summer can be avoided by closing the spherical valve on the heat exchanger.

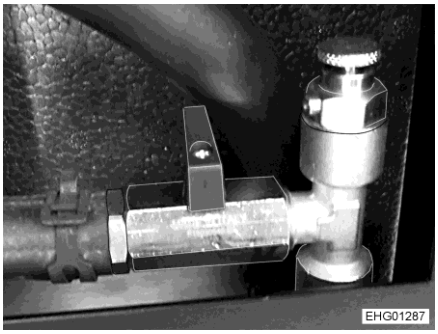


Fig. 126 Spherical valve (closed)

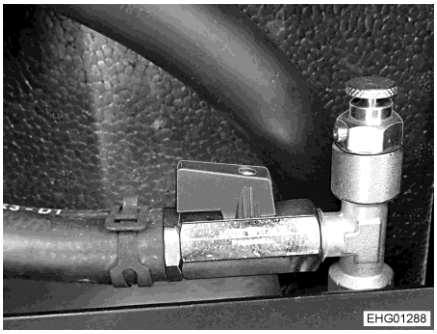


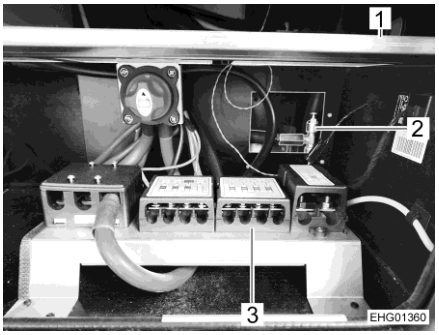
Fig. 127 Spherical valve (opened)

Closing spherical valve (summer operation):

- Set the lever (Fig. 126) at right angles to the pipe.

Opening the spherical valve:

- Set the lever (Fig. 127) parallel to the pipe.



1 Storage flap
2 Spherical valve
3 12 V fuses

Fig. 128 Position of spherical valve

Position of spherical valve

The spherical valve (Fig. 128,2) is installed in an underbody installation compartment behind the 12 V fuses (Fig. 128,3) for the living area battery (see section 8.10.1). It is accessible via a storage flap (Fig. 128,1). The spherical valve can be accessed through an opening in the rear wall of the underbody installation compartment.

9.4 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. 129 Wall flue (hot-air heater)

Fig. 130 Wall flue (diesel heater)

The wall flue is mounted on the left side wall.

9.4.1 Hydronic radiant floor heating

▷ Never drill holes in the floor. This might damage the hot-water pipes.

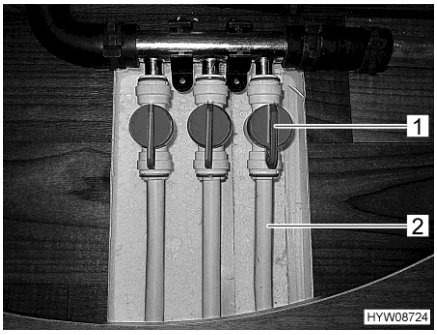
▷ The floor heating can only operate if the hot-water heating system is running.

▷ The heat output depends on the temperature of the heating liquid in the hot-water heating system.

▷ Generally, the return valves are open and the heating output is regulated using the inlet valves. As an alternative, the inlet valves can be opened to regulate the heating output using the return valves.

▷ The distribution of the hot water generated for heating is adjusted solely with the control valves. The temperature and thereby the power of the heater itself is set at the control unit.

Warm water from the heating system flows through heating circuits running through the floor, keeping the floor comfortably warm. The floor heating is divided into several heating circuits, which can be adjusted individually. Depending on the model, the heating circuits heat different parts of the living area.



1 Handle, control valve
2 Heating circuit

Fig. 131 Control valves (floor heating)

Switching on floor heating:

■ Adjust the handle of the control valve (Fig. 131,1) for the chosen heating circuit (Fig. 131,2) so that it is parallel to the heating pipe. Now this floor heating circuit will operate at maximum power.

Adjusting heat output:

■ Adjust the handle of the control valve (Fig. 131,1) of the chosen heating circuit (Fig. 131,2) to any position. This way, the heat output of this circuit can be continuously adjusted.

Switching off floor heating:

■ Adjust the handle of the control valve (Fig. 131,1) of the chosen heating circuit (Fig. 131,2) so that it is perpendicular to the heating pipe. This floor heating circuit is now switched off.

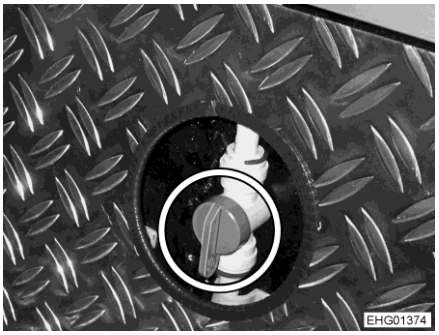


Fig. 132 Control valve (rear storage space heating)

Switching on the rear storage space heater:

- Adjust the handle on the control valve (Fig. 132) for the rear storage space heater so that it is parallel to the heating pipe. The rear storage space heater is now working at maximum power.

Adjusting heat output:

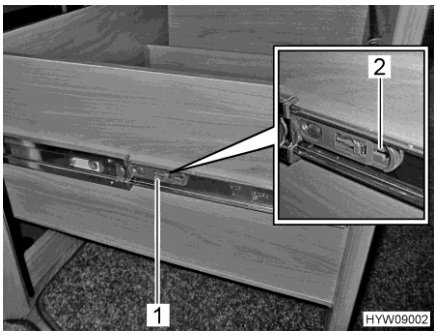
- Adjust the handle on the control valve (Fig. 132) for the rear storage space heater to the desired position. This enables the hot water distribution to the rear storage space to be continuously adjusted.

Switching off the rear storage space heater:

- Adjust the handle on the control valve (Fig. 132) for the rear storage space heater so that it is perpendicular to the heating pipe. The rear storage space heater is now switched off.

Position

The control valves for the floor heating are located under the counter drawer. The counter drawer must be unhooked in order to gain access to the control valves. The control valve for the rear storage space heater is located behind a cut-out in the front wall of the rear storage space.



1 Tongue
2 Marking

Fig. 133 Counter drawer

Unhooking the counter drawer:

- Pull out the counter drawer as far as it can go.
- On both sides of the counter drawer, pull the tongue (Fig. 133,1) in the direction of the marking (arrow, Fig. 133,2). The counter drawer can then be pulled out beyond its stop.
- Pull out the counter drawer until access to the control valves is possible.
- To close the counter drawer again: Push the counter drawer all the way back in.

9.4.2 Independent vehicle heater

▷ The optional independent vehicle heater is part of the base vehicle. Read the instruction manual for the base vehicle.

9.5 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.

▷ Also read the manufacturer's instruction manual.

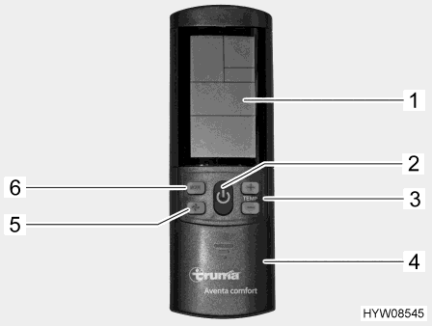
Operating modes

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. 134 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:

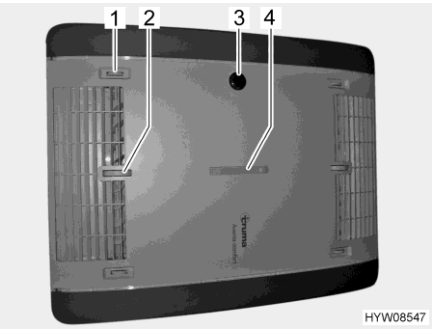
- Press the On/Off button (Fig. 134,2). The last settings selected are accepted.

▷ 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. 134,3) to set the desired temperature.

Switching off:

- Press the On/Off button (Fig. 134,2). 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. 135 Function display and air distribution (air conditioning unit)

9.5.1 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	Meaning
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. 134,2).
- Press the mode selection button (Fig. 134,6) until the cooling symbol appears in the display (Fig. 134,1).
- Use the + and – buttons (Fig. 134,3) to set the desired temperature.
- Use the selection button (Fig. 134,5) 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. 134,2).
- Press the mode selection button (Fig. 134,6) until the heating symbol appears in the display (Fig. 134,1).
- Use the + and – buttons (Fig. 134,3) to set the desired temperature.
- Use the selection button (Fig. 134,5) 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. 134,2).
- Press the mode selection button (Fig. 134,6) until the air circulation symbol appears in the display (Fig. 134,1).
- Use the + and – buttons (Fig. 134,3) to set the desired temperature.
- Use the selection button (Fig. 134,5) 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.

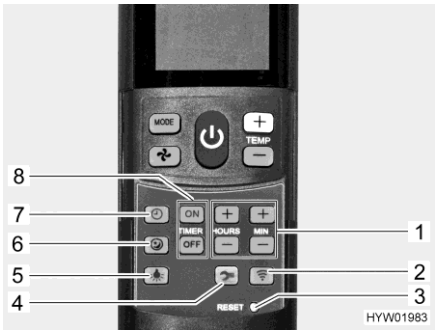


Fig. 136 Remote control with setting buttons (air conditioning unit)

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 On/Off buttons for TIMER

Activating soft-start:

- Press the soft-start button (Fig. 136,6). The fan then runs at low speed in cooling mode, which makes it especially quiet.

Setting the time:

- Press the time button (Fig. 136,7).
- Set the hours and minutes with the buttons (Fig. 136,1).

Switching on the timer:

- Press the On/Off button (Fig. 134,2).
- Set the desired mode and temperature.

Programming the switching on time:

- Press ON button (Fig. 136,8).
- Press the buttons for setting the time (Fig. 136,1) until the desired time span until switch-on is reached.
- Press ON button (Fig. 136,8).

Programming the switch-off time:

- Press OFF button (Fig. 136,8).
- Press the buttons for setting the time (Fig. 136,1) until the desired time span until switch-off is reached.
- Press OFF button (Fig. 136,8).

Deactivating the timer:

- Press the ON or OFF button (Fig. 136,8) 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. 136,5). The light is switched on at the last set dimming level.

Dimming the lighting:

- Press the light button (Fig. 136,5) and keep it pressed until the desired brightness is reached.

Switching off the lighting:

- Press the light button (Fig. 136,5).

▷ The Setup button (Fig. 136,4) is used to connect the remote control with the air conditioning unit during first set-up.

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

9.6 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 cooker or gas oven for heating.
- ▶ 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!
- ▶ While a burner is on, always place a pot or a pan over the flame.

- ▷ 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.

9.6.1 Gas cooker (CAN FC1003)

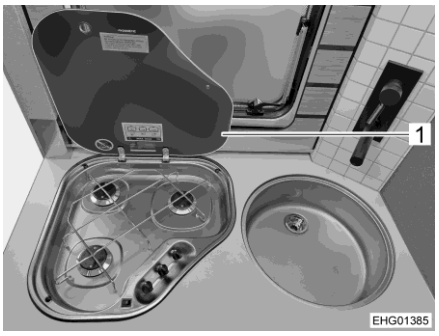
- ▶ During activation and operation of the gas cooker, no flammable objects or highly inflammable objects such as dishcloths, napkins etc. must be near the gas cooker. Fire hazard!
- ▶ The process of ignition must be visible from above and must not be covered by cooking pans placed on the cooker.
- ▶ The gas cooker cover is closed by spring force. When closing there is danger of getting injured!
- ▶ If using gas devices, make sure that the skylight and windows are open.

- ▷ 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.

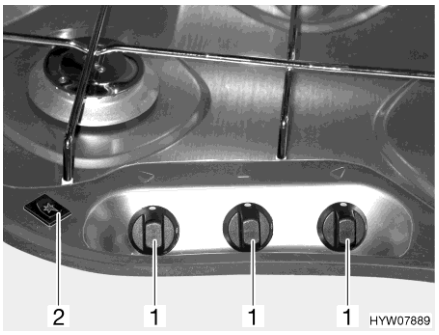
Cover The cover for the gas cooker (Fig. 137,1) is made of glass and is securely attached to the cooker via hinges.



1 Cover for the gas cooker

Fig. 137 Gas cooker

Ignition Depending on the model, the gas cooker is equipped with electronic ignition.



1 Control knob
2 Rocker switch

Fig. 138 Operating controls (gas cooker)

▷ For gas cookers without electronic ignition, there is no rocker switch (Fig. 138,2).

Switching on:

- Open the regulator tap on the gas bottle and the gas isolator tap "Cooker".
- Open the gas cooker cover.
- Turn the control knob (Fig. 138,1) on the burner you wish to use to the ignition position (large flame).
- Press the control knob down and hold it.
- Electronic ignition: Press the rocker switch (Fig. 138,2). Ignition sparks are generated at the burner.
- Manual ignition: Ignite the required burner with a gas lighter, match or cigarette lighter.
- Once the flame is burning, keep the control knob pressed for another 10 to 15 seconds, until the thermocouple automatically keeps the gas supply open.
- Release the control knob and turn to the desired setting.

Switching off:

- 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.

9.6.2 Gas oven Thetford oven 420 series

- For safe handling of the appliance, follow the manufacturer's separate instruction manual.
- Observe safety instructions for handling gas, see section 2.5.
- 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 the oven/grill is being lit and during operation. Fire hazard!
- Always leave the flap open during the ignition process.
- If ignition has not been successful, 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 the "0" position and and leave the burner off for at least 1 minute. Then ignite it again.

- ▷ 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.

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

9.6.3 Skotti gas grill (optional equipment special model CrossOver)

- ▶ For safe handling of the appliance, follow the manufacturer's separate instruction manual.
- ▶ Observe safety instructions for handling gas, see section 2.5.
- ▶ Only use the gas grill outdoors.
- ▶ Do not install the gas grill anywhere. Unobstructed air exchange must always be guaranteed.
- ▶ Do not make any modifications to the gas grill.
- ▶ Do not place the gas grill on a flammable surface. Keep a safe distance from flammable materials. Do not place any flammable items on the hot gas grill. Fire hazard!
- ▶ Do not touch the gas grill during use or after barbecuing. The surfaces of the gas grill become hot when in use. Never leave the gas grill unattended when in use.
- ▶ In case of grease fire: Switch off the gas supply. Use a special fire extinguisher. Never extinguish a grease fire with water. Call the fire brigade.
- ▶ Keep children away from the gas grill.
- ▶ Only the specialist dealer may carry out repairs.

The Skotti gas grill is a mobile gas barbecue that is placed outdoors in a suitable location.

Choose an even and stable surface for setting up the gas grill. Note that the appliance needs at least 5 cm clearance to the floor.

Assemble the gas grill according to the manufacturer's instructions.

- ▷ A video on how to set up the appliance is available at www.skotti-grill.eu.
- ▷ Use the gas grill according to the manufacturer's instructions.
- ▷ Dismantle the gas grill according to the manufacturer's instructions and store it safely.

9.7 Refrigerator

9.7.1 Compressor refrigerator Dometic RCL 10.4ET

- The refrigerant in the cooling circuit is highly flammable. If the cooling circuit is damaged (ammonia smell is noticeable), take the following steps:
  - Switch off the refrigerator.
  - Avoid fire and ignition sparks.
  - Ventilate the interior of the vehicle well.
- When the refrigerator is in operation, do not spray aerosols near it. There is a danger of explosion!
- All carrying grates in the refrigerator are fixed, so that children cannot climb into the refrigerator and get locked in accidentally. Remove carrying grates for cleaning and insert and fix them in the same place after cleaning.
- For safe handling of the refrigerator, follow the manufacturer's separate instruction manual.

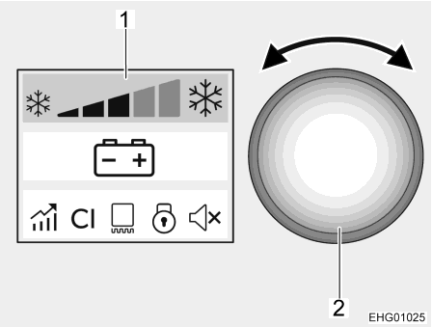
▷ The refrigerator door must be closed during the journey. If the refrigerator door is open in the winter position: Release the lock before commencing the journey and close the refrigerator door.

The refrigerator is a compressor refrigerator that is operated exclusively via 12 V power supply unit.

The refrigerator is equipped with a removable freezer compartment.

The refrigerator is controlled via a TFT display (thin-film transistor display) and a control knob.

Errors and warnings are indicated by signal tones. If the refrigerator door is left open for a long time, a warning tone also sounds.



1 Navigation menu
2 Control knob

Fig. 139 Operating controls

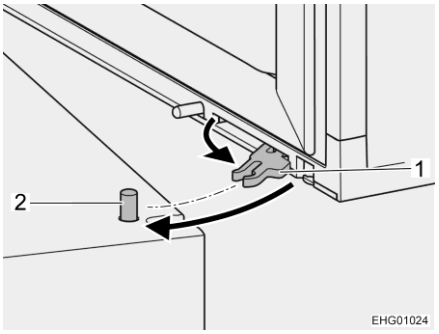
Switching on:

- Press the control knob (Fig. 139,2) for 2 seconds. The refrigerator starts with the last selected settings.
- Activate the navigation menu (Fig. 139,1). In order to do this, press the control knob.
- Select the desired detail menu. In order to do this, turn the control knob.
- Open the selected detail menu. In order to do this, press the control knob.
- Navigate through the detail menu to the desired setting. In order to do this, turn the control knob.

- Select the setting. In order to do this, press the control knob. The selected settings are displayed in blue.
- Confirm the selection. In order to do this, press the arrow key on the display.

Switching off:

- Press the control knob for 4 seconds. A beeping tone sounds and the refrigerator switches off.



1 Hook
2 Pin

Fig. 140 Winter position lock

Winter position

To prevent mould from forming during prolonged lay-up periods, put the refrigerator door in the winter position.

- Defrost the refrigerator.
- At the top and bottom of the refrigerator door (in the area of the lock) turn the hook (Fig. 140,1) outwards.
- Carefully close the refrigerator door until the protruding pin (Fig. 140,2) catches in the hook.

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

Chapter overview

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

At the end of the chapter, you will find the positions of the components of the sanitary system.

10.1 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 11).

- ▷ 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. 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. The water level in the water and waste water tanks can be checked on the panel.

Water pump

The water pump is switched on and off via the 7" panel.

- ▷ Switch on the water pump on the 7" panel before using the water fittings.
- ▷ 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.

10.2 Water system

10.2.1 Water filter clearliQ travel

- ▶ Do not use the water filter to filter well water, waste water, river water or rainwater. The water filter is not suitable for obtaining drinking water in this way.
- ▶ Do not use the water filter to filter hot water.
- ▶ There is a risk of contamination when not in use. Protect the water filter against contamination according to the manufacturer's instructions.
- ▶ For safe handling of the water filter, follow the manufacturer's separate operating manual.

Purpose

The water filter is only intended for filtering cold drinking water.

The water filter produces hygienic fresh water from it.

Position

The water filter is installed in the cold water pipe after the fresh water tank.

Start-up

The start-up is carried out by the vehicle operator. For start-up, it is necessary to vent the vehicle.

For start-up, proceed as described in the manufacturer's operating manual.

Operation

The operation of the water filter is automatic and requires no operation.

Maintenance

Check the water filter regularly for function and tightness. When doing this, proceed as described in the manufacturer's operating manual.

Change the filter cartridge regularly. When doing this, proceed as described in the manufacturer's operating manual.

Measures in case of temporary lay-up

The measures required depend on the length of the lay-up. When doing this, proceed as described in the manufacturer's operating manual.

10.2.2 Water tank

The water tank holds approx. 120 l.

Position of the water tank, see section 10.6.

Hot air from the living area heater heats the water tank. This protects the water tank from frost.

▷ If the living area heater is out of order, the water tank no longer is sufficiently protected against frost. If there is a risk of frost, empty the water tank and leave the drain cock open.

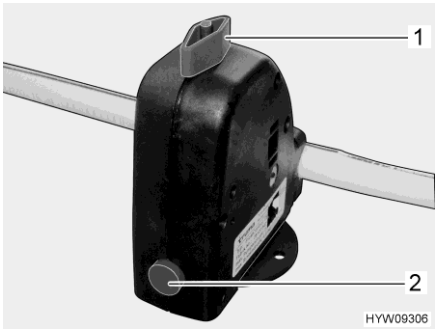
▷ For driving safety and for regulatory reasons, when the vehicle is motion the fill quantity must be reduced to approximately 20 litres. If the water is drained using the safety drainage rotary handle (see section 10.2.5), a residual quantity of approximately 20 litres will remain in the water tank.

10.2.3 Filling the water system

▷ 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 water quantity can be monitored on the panel while the water tank is filled.

- Position the vehicle horizontally.
- Switch on the 12 V power supply on the panel.



1 Knob
2 Push button

Fig. 141 Safety/drainage valve (Truma)

- Close the safety/drainage valve (Truma). Turn the knob (Fig. 141,1) perpendicular to the safety/drainage valve and push the push button (Fig. 141,2) in.
- If the temperature is below 6 °C, the safety/drainage valve cannot be closed.

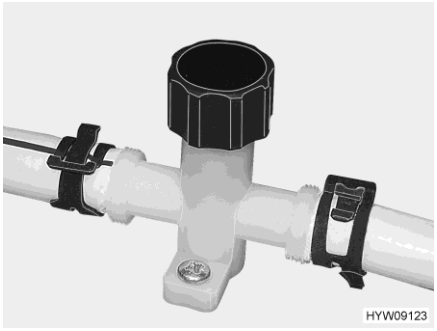


Fig. 142 Drain cock (water pipe)

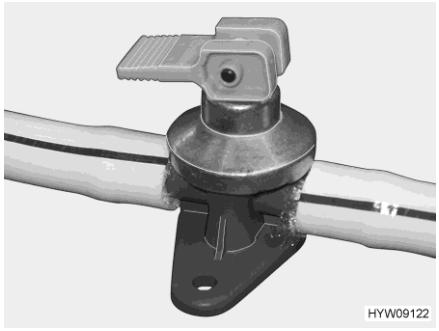


Fig. 143 Drain cock (Alde boiler)

- Close drain cocks (Fig. 142 and Fig. 143). To do so, close the caps by turning them in a clockwise direction and set the rocking lever in a horizontal position. The position of the safety/drainage valve and the drain cocks is specified in the section 10.6 at the end of this chapter.
- Close all water taps.
- Close drainage opening on the water tank.
- Open the drinking water filler neck on the outside of the vehicle.
- Fill the water tank with drinking water. Use a water hose certified for drinking water for filling.
- Switch on the water pump at the switch.
- Set all the water taps to Hot and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the water taps open until the water flowing out of the water taps has no bubbles in it. This is the only way to ensure that the boiler is full of water.
- Set all water taps to Cold and leave them open. This will fill the cold water pipes with water.
- Keep the water taps open until the water flowing out of the water taps has no bubbles in it.
- Close all water taps.
- Close drinking water filler neck.
- Check that the cap on the water tank is not leaking.

10.2.4 Topping up the water

▶ 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.

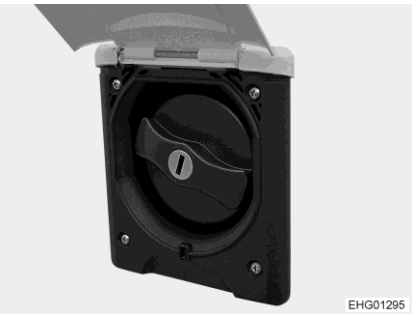


Fig. 144 Cap (drinking water filler neck)

The drinking water filler neck is on the right or left side of the vehicle, depending on the model.

The drinking water filler neck is marked by the symbol .

Opening the drinking water filler neck:

- Swivel the external flap (Fig. 144) upwards.
- Insert key into locking cylinder and turn a quarter turn. The cap is unlocked.
- Remove the key.
- Turn the blue cap (Fig. 144) one quarter turn.
- Remove the cap.

Filling with water:

- Fill the water tank with drinking water. Use a water hose certified for drinking water for filling.

Closing the drinking water filler neck:

- Place cap on the drinking water filler neck.
- Turn cap one quarter turn.
- Insert key into locking cylinder and turn a quarter turn. The cap is locked.
- Remove the key.
- Check that the cap sits firmly on the drinking water filler neck.
- Swivel external flap downwards and close it.

10.2.5 Reducing the water quantity for mobile operation

Rotary handle The rotary handle is installed on the water tank.

Fig. 145 Rotary handle (water tank)

Opening:
- Turn the rotary handle (Fig. 145) on the water tank 3/4 of a turn it in an anticlockwise direction. Excess water will drain away leaving approx. 20 litres in the tank.

Closing:
- Turn the rotary handle (Fig. 145) on the water tank in a clockwise direction as far as it will go.

Position See section 10.6.

10.2.6 Draining water (safety drainage rotary handle)

- Turn the rotary handle (Fig. 145) on the water tank in an anticlockwise direction as far as possible beyond the resistance to fully open the drainage opening.

10.2.7 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 sure that the 12 V power supply on the panel is switched off. Otherwise, the water pump will overheat and may get damaged. Leave the water taps on in central position. Leave the safety/drainage valve (Truma) 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.

▷ Take note of the environmental tip in this chapter.

The position of the safety/drainage valve and the drain cocks is specified in the section 10.6 at the end of this chapter.

To empty and ventilate the water system, proceed as follows. This will avoid frost damage:

- Position the vehicle horizontally.
- Switch off 230 V power supply.

- Switch off the 12 V power supply on the panel.
- Shut off the boiler (see section 9.3).
- Open the drain cocks. To do so, turn the cap in an anticlockwise direction or set the rocking lever in a vertical position.
- Open the safety/drainage valve (Truma). To do this, turn the knob parallel to the safety/drainage valve.
- 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.
- Empty the waste water tank. Take note of the environmental tips in this chapter.
- Empty the sewage container. 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 the safety/drainage valve (Truma) and all drain cocks open.
- If present: Remove the filter cartridge and store in a frost-free place. For any further information see section 10.2.1.

10.3 Waste water tank

The waste water tank holds approx. 100 l.

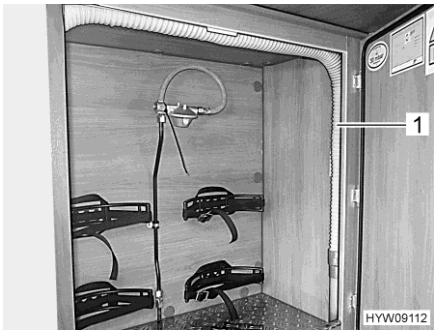
Position and access, see section 10.6.

Hot air from the living area heater heats the waste water tank. This protects the waste water tank from frost.

▷ If the living area heater is out of order, the waste water tank no longer is sufficiently protected against frost. If there is a risk of frost, empty the waste water tank and leave the drain cock open.

▷ 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.



1 Waste water hose

Fig. 146 Waste water hose (gas bottle compartment)

1 Waste water hose

Fig. 147 Waste water hose (gas bottle compartment pull-out)

Waste water hose

The waste water hose (Fig. 146,1 or Fig. 147,1) is located in the gas bottle compartment or in the gas bottle compartment pull-out and can be plugged on the drain pipe (Fig. 148) as an extension.

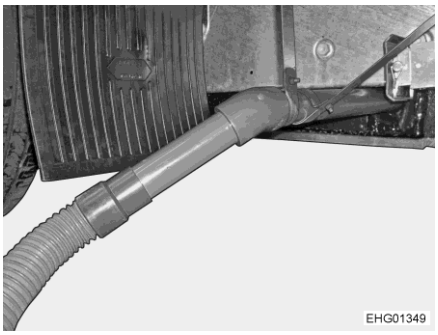
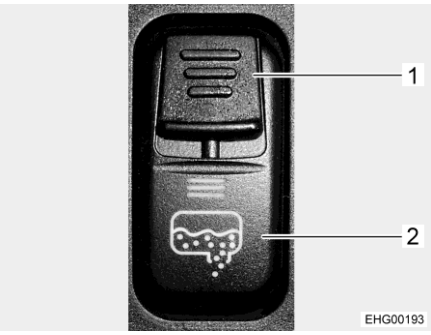


Fig. 148 Drain pipe with waste water hose

The drain pipe (Fig. 148) with connection for the waste water hose is located under the vehicle.



1 Safety slide button
2 Rocker switch

Fig. 149 Rocker switch (drain cock)

Electric drainage of the waste water tank

The drain cock for the waste water tank is opened and closed using a rocker switch of the switch panel in the driver's cabin. To prevent an unwanted opening of the drain cock, the rocker switch is provided with a safety slide button (Fig. 149,1). The drain pipe with a connection for a waste water hose is located under the vehicle.

Emptying:

- Position the vehicle over the drain of the waste water disposal station.
- Push the safety slide button (Fig. 149,1) on the rocker switch (Fig. 149,2) downwards and, at the same time, press the lower part of the rocker switch. Doing this, the waste water valve is opened and the waste water tank is emptied. The LED is lit as long as the waste water tap is open.

▷ The operation of the waste water tank drainage using the rocker switch is only possible when the vehicle is standing and the vehicle engine is switched off.

Manual drainage of the waste water tank

If electrical emptying is not possible, the waste water tank can be emptied manually.

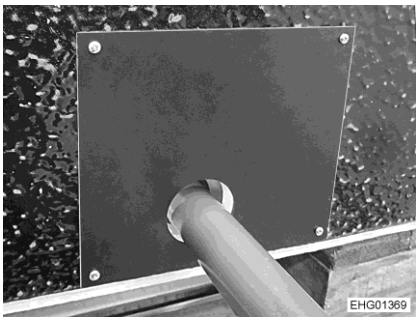


Fig. 150 Cover (waste water tank tray)

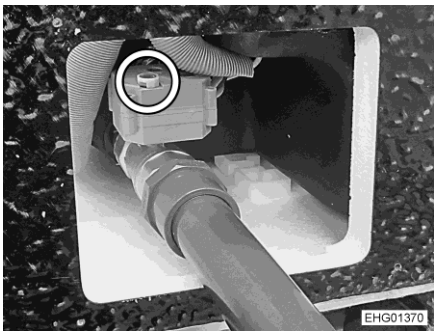


Fig. 151 Handwheel (waste water tap)

Emptying waste water tank manually:

- Position the vehicle over the outflow of the waste water disposal station or connect waste water hose and guide into outflow.
- Remove the cover (Fig. 150) on the waste water tank tray.
- To open the waste water tap, pull handwheel (Fig. 151) upwards and turn in an anticlockwise direction as far as it will go. The direction of rotation (O for opening, S for closing) is marked on the handwheel.
- Wait until the waste water tank is empty.
- To close the waste water tap, pull handwheel (Fig. 151) upwards and turn in a clockwise direction as far as it will go.
- Install the cover (Fig. 150).

10.4 Bathroom

▷ 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 (e.g. on the integrated clothes rail), close the toilet compartment door and open the window or the toilet compartment skylight. This improves the air circulation.

▷ 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.

▷ 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.

▷ Further information about cleaning the toilet compartment can be found in the section 11.3.

Shower shelf

The shelf is made of plastic. The shelf protects the shower tray and provides a dry floor, even after taking a shower. Depending on the model, the shelf consists of one or two parts.

Fig. 152 Shelf (example)

Observe the following for a long service life:

- Before taking a shower, remove the shelf (Fig. 152) from the shower.
- After taking a shower, put the shelf back into the shower tray.
- Clean the shelf at least every six months with a lint-free cloth.

10.5 Toilet

- ▷ Do not load the toilet with more than a maximum of 120 kg.
- ▷ If there is any risk of frost and the vehicle is not heated, empty the sewage container.
- ▷ 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.

- ▷ If the vehicle is equipped with an electrical ventilation system, the fan starts up automatically when opening the toilet slide valve.
- ▷ Further information can be obtained in the manufacturer's instruction manual.

- ▷ Only empty the sewage container at disposal stations, at camping sites or caravan sites, that are especially provided for this purpose.

10.5.1 Toilet with fixed seat

The flushing of the toilet is fed from the water system of the vehicle.

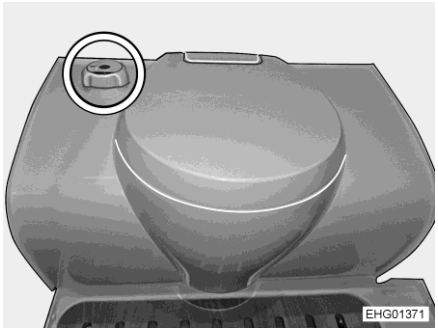
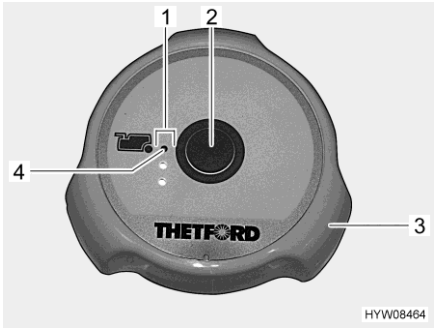


Fig. 153 Rotary handle (Thetford toilet)

The toilet can be used with the sliding trap open or closed.

Opening the sliding trap:
- ■ Turn the rotary handle (Fig. 153) in an anticlockwise direction.

Closing the sliding trap:
- ■ Turn the rotary handle (Fig. 153) in a clockwise direction.



1 Indicator lamps
2 Flush button
3 Rotary handle
4 Indicator lamp

Fig. 154 Flush button / indicator lamps (Thetford toilet)

Flushing:

- Before flushing open the sliding trap of the Thetford toilet. To do this, turn the rotary handle (Fig. 154,3) in an anticlockwise direction.
- For flushing, press the blue flush button (Fig. 154,2).
- After flushing close the sliding trap. To do this, turn the rotary handle (Fig. 154,3) in a clockwise direction.

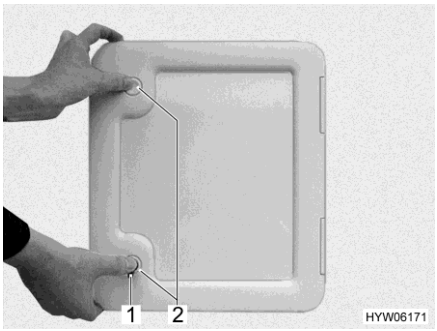
The indicator lamps (Fig. 154,1) show the filling level of the sewage container. The red indicator lamp (Fig. 154,4) is lit whenever the sewage container has to be emptied.

10.5.2 Emptying the sewage container

▷ The sewage container can only be taken out if the sliding trap is closed.

▷ Optional equipment and in the case of CrossOver model: To increase the volume, there is space for a second sewage container in the gas bottle compartment above the gas bottles in a holder provided for this purpose.

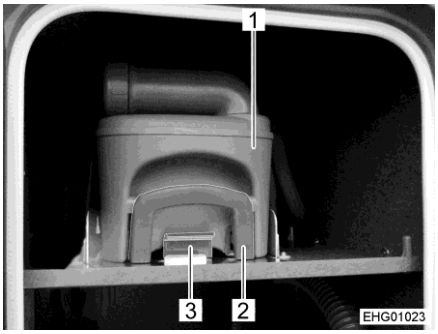
▷ Take any further information from the manufacturer's instruction manual.



1 Locking cylinder
2 Push-button lock

Fig. 155 Flap (sewage container)

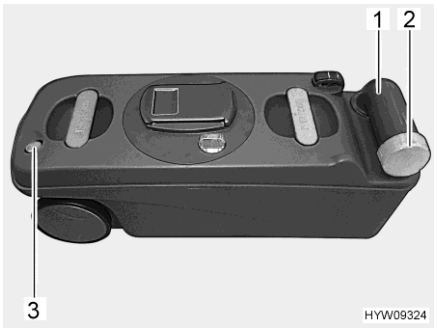
- Slide the slide lever on the toilet bowl in a clockwise direction. The sliding trap is closed.
- Open the flap for the sewage container on the outside of the vehicle. Insert the key into the locking cylinder of the push-button lock (Fig. 155,1) and turn a quarter turn in a clockwise direction.
- Remove the key.
- Press both push-button locks (Fig. 155,2) simultaneously with your thumb and open the flap for the sewage container.



1 Sewage container
2 Handle
3 Safety clamp

Fig. 156 Sewage container (in vehicle)

- Pull the safety clamp (Fig. 156,3) upwards and use the handle (Fig. 156,2) to pull out the sewage container (Fig. 156,1).



1 Outlet pipe
2 Cover
3 Ventilation button

Fig. 157 Sewage container (example)

- At a disposal station that is especially provided for this purpose, swivel the outlet pipe (Fig. 157,1) forwards and unscrew cover (Fig. 157,2).
- Press the coloured ventilation button (Fig. 157,3) and hold it there until the sewage container is empty.
- Clean the sewage container with fresh water.
- Close outlet pipe with cover and swivel it back.
- Push sewage container into the disposal chute until it engages.
- Close flap for sewage container.
- Fill in new sanitary liquid.

10.5.3 Winter operation

▷ Do not use anti-freeze. Anti-freeze can damage the toilet.

When the vehicle is being heated, the toilet, the water tank and the sewage container are in a frost-protected area. This means that the toilet can also be used in winter.

If the vehicle is not being heated and there is a risk of frost, empty the water tank, the sewage container and the water pipes. This prevents frost damage.

10.5.4 Temporary lay-up

▷ If the toilet is not to be used for an extended period, empty the water tank, the sewage container and the water pipes.

Laying up the toilet:

- Empty the water tank.
- Flush the toilet until no more water runs into the toilet. Note that the pump can get damaged after one minute at the latest if it runs dry.
- Empty the sewage container.
- Rinse the sewage container thoroughly.
- Leave the drainage neck on the sewage container open.
- Allow the sewage container to dry.

10.6 Installation positions

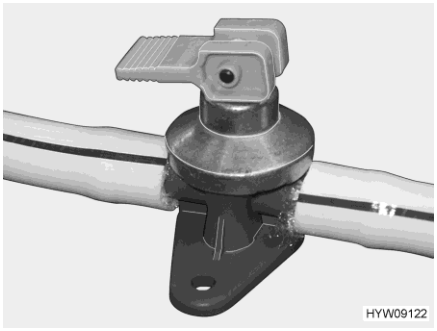


Fig. 158 Drain cock (Alde boiler)

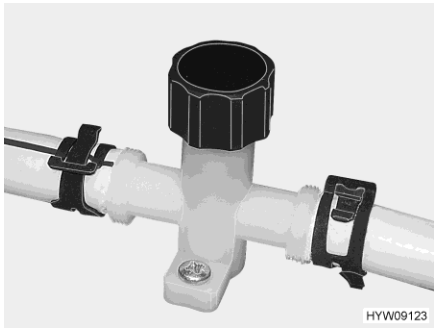


Fig. 159 Drain cock (water pipe)

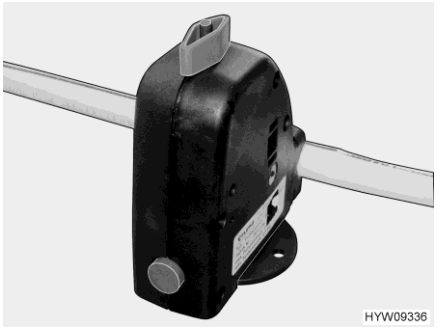


Fig. 160 Safety/drainage valve (Truma)

Depending on the model, the components of the sanitary fittings are accessible at the following positions:

Fresh water tank (access)	Waste water tank (access, cleaning)	Waste water tank (access, drain cock)	Water drain valves / safety valve
In the rear storage space behind the cover	In the rear bed step underneath floor trap	Operating switch on the dashboard	Underneath the L-seating group behind service flap (access from outside)

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.

11.1 General

▷ The vehicle is designed for recreational use. Use that goes beyond normal recreational use (permanent use) can lead to moisture forming in the interior. In addition, the interior may be affected.

11.2 External care

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.

11.2.1 Washing with a high-pressure cleaner

▷ Do not clean the tyres with a high-pressure cleaner. The tyres might be damaged.

▷ Do not spray external applications (deco-films) directly with the high-pressure cleaner. The external applications could come off.

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

11.2.2 Washing the vehicle

▷ During cleaning in automatic car washes, water may penetrate openings such as those for the waste gas vent. Never clean the vehicle in an automatic car wash. When washing by hand, make sure that no water enters through the openings.

- Wash the vehicle only on a washing site intended for this purpose.
- When cleaning in direct sunlight, make sure that the cleaning agent used does not cause harmful reactions.
- When using a cleaning agent, observe the manufacturer's instructions for use. Cleaning agent must be pH-neutral.
- First, test the suitability of the cleaning agent on an inconspicuous spot.
- 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.
- Do not treat rubber seals with agents that are corrosive or contain silicone (e.g. alcohols, plasticisers, organic solvents). It is possible to use talcum or white Vaseline without any problems. HYMER recommends a high-quality, perfluorinated lubricant to treat the rubber.
- Treat locking cylinder of doors and storage flaps with graphite dust.

11.2.3 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.

11.2.4 Add-on parts made of glass-fibre reinforced plastic (GRP)

▷ Avoid contact between polish and window rubber and piping.

▷ The glass-fibre reinforced plastic (GRP) may not become too hot. Therefore when polishing with a polishing machine, keep the machine in constant motion.

▷ In the case of large-surface GRP components, superficial cracking may occur due to ageing. This is a property of the GRP material composite with GelCoat coating that does not affect the function of the component. Therefore, there is no reason for complaint.

Add-on parts made of GRP can yellow or weather due to lack of vehicle care and material ageing.

GRP add-on parts should therefore undergo regular follow-up treatment. This way, these parts will not turn yellow and the sealing of the surface remains intact.

Follow-up treatment of GRP add-on parts:

- Wash the vehicle and allow to dry as described above. Check if the GRP add-on parts are clean and dry.
- Apply the polisher with a soft cloth evenly on the surface of the GRP add-on part.
- Wait until a light grey film forms.
- Wipe the GRP add-on part with a dry, soft cloth. Move the cloth in circles over the surface of the GRP add-on part.

We recommend using a polishing machine for this work.

▷ Paint protection has to be used to preserve the polish. Please read the instructions of the paint protection for details on how to apply it.

11.2.5 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.

11.2.6 Engine compartment

- ▷ Cleaning and care of the engine compartment may only be carried out while the ignition is switched on.
- ▷ Let the engine cool down before carrying out any work in the engine compartment. There is a danger of burns when touching motor components that are still hot!
- ▷ Before carrying out any work in the engine compartment, read and observe the corresponding warning and handling instructions in the operating manual of the base vehicle manufacturer.
- ▷ Have an engine washing only carried out by an authorised specialist workshop.
- ▷ Do not aim the steam jet directly at the lamp housings, actuators or seals. This may prevent humidity in the headlights and the defects resulting therefrom.
- ▷ Do not aim the steam jet at the windscreen wiper motor and the wiper mechanics.
- ▷ Only apply protective engine lacquer when the components in the engine compartment have cooled down and are clean.
- ▷ Only use lubricants, greases and fluids authorised by the base vehicle manufacturer.

The body manufacturer excludes any guarantee for damages, leaks, or the failure or electrical components that appear after an engine washing.

11.2.7 Windscreen washer system and windscreen wipers

- ▷ Only fill the cleaning agents (with/without frost protection) into the washer fluid container which are listed in the operating manual of the base vehicle manufacturer and in the mixing ratio specified therein. Do not use any radiator frost protection or other products. These products affect the cleaning effect and attack the windscreen blades.
- ▷ Do not switch the windscreen washer system or the windscreen wipers on when the windscreen blades are frozen to the windscreen. Release the windscreen blades first using a defrosting product.
- ▷ Do not remove the snow accumulated on the windscreen with the windscreen wipers. Remove the snow from the windscreen with a brush first.
- ▷ Do not switch on the windscreen wipers on a dry windscreen.
- ▷ Do not clean the windscreen wiper mechanics and the windscreen wiper motor with a steam blaster.

- ■ Check the correct functioning of windscreen washer system and windscreen wipers periodically.
- ■ Check the filling level of the washer fluid container periodically. Only if sufficient cleaning fluid reaches the windscreen, the windscreen wipers will be able to clean it in a satisfactory way. A clear view contributes decisively to safe driving.
- ■ Before the frost period starts, fill the washer fluid container with windscreen cleaning product containing sufficient frost protection.
- ■ Refill windscreen washing fluid on time. Only use clean water to dilute the windscreen cleaning product.

- Remove insect residues from the windscreen blades as soon as possible.
- Clean the windscreen blades periodically with a windscreen cleaning product. To do this, move a sponge or a cloth along the rubber strip.
- Remove car wax residues after the vehicle washing using a wax dissolving windscreen cleaning product.
- Remove dirt accumulations on the nozzles of the windscreen washer system periodically.
- After journeys on heavily soiled roads, spray clear water on the wiper nozzles to prevent incrustations.
- Clean obstructed wiper nozzles with a fine needle.

11.2.8 Air conditioning unit

▷ 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 and roof window can be damaged.

▷ Use only the cleaning agents recommended by the manufacturer to clean the roof window. Our authorised dealers and service centres will be happy to advise you.

- 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.
- If necessary, clean the blinds with a mild soap solution and plenty of water.
- 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.
- Change the active carbon filters on both sides of the air discharge unit annually.
- Inspect the profile seal to the vehicle roof for damage annually.

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

11.2.9 Entrance step

If the entrance step is lubricated, coarse particles of dirt can settle on the lubricant during the journey and cause damage to the operating mechanism of the entrance step. Therefore, do not lubricate the moving parts of the entrance step.

11.3 Interior care

- ▷ If possible, treat stains immediately.
- ▷ 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.

- ▷ 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.
- ■ Curtains and net curtains should be dry cleaned.
- ■ Vacuum clean the carpet, if necessary clean with carpet shampoo.
- ■ Clean PVC-floor covering with a mild, soapy cleaning agent for PVC floors. Do not place carpet on wet PVC-floor covering. The carpet and the PVC-floor covering may stick together.
- ■ Brush insect screen 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.

11.4 Kitchen installation

11.4.1 General notes on care

- Never clean the sink or the gas cooker with a scourer. Avoid anything which may cause scratching or grooves.
- The surface of the kitchen worktop is not scratch proof. When working with sharp objects, always use a pad. Only use soft cleaning agents for cleaning and care. Do not use any abrasive or scratching intensive treatment products nor scratching sponges.
- Clean the sink cover manually using water and washing-up liquid. Do not clean the sink cover in the dishwasher.
- 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.
- When cleaning the burner ring, ensure that the holes are not obstructed.
- Clean the surface of the cooker, and particularly the hob, with warm water and some washing-up liquid. Scouring agent or sharp objects damage the surface of the hob.
  The surface of the hob is easier to clean when it is still slightly warm. Before cleaning, ensure that the hob is only still warm to the touch (residual heat indicator has gone out).
  Always clean the hob before using it again.
- The knobs can be pulled off for cleaning.
- Clean the external surfaces of the kitchen installation with a wet cloth without abrasive, corrosive or chloride containing cleaning agents. Do not use any steel wool.
- Immediately remove acidic or alkaline substances (vinegar, salt, lemon juice, etc.).
- Let the oven and grill cool down before cleaning. Hot surfaces may be damaged due to cold water or a wet cloth. Clean enamelled surfaces only with soap water or washing-up liquid containing water.

11.4.2 Refrigerator

- Clean the exterior and interior of the refrigerator with a soft cloth and lukewarm water (containing a mild cleaning agent).
- Then, wash the refrigerator out with clear water and let it dry.
- Keep the defrosted water drain channel free of sediments.
- To prevent material changes, do not use any soap, nor any sharp, granular or soda containing cleaning agents.
- Keep oil and grease away from the door seal.

11.5 Stainless steel surfaces

▷ Do not clean the stainless steel surfaces with bleaching agents, with products that contain chloride or hydrochloric acid, baking powder nor with silver polish.

▷ Do not use scouring agent nor coarse sponges.

▷ Prior to cleaning, test the suitability of the cleaning product for the surface on an unobtrusive spot.

▷ Dry the surfaces thoroughly after cleaning to prevent limescale.

▷ In the case of brushed stainless steel surfaces, wipe in a direction of the grinding.

Removing scratches from the surface:

- Treat the stainless steel surface with a soft cleaning cloth and with a special stainless steel cleaner.
- Rinse the stainless steel surface and dry it with household wipes.

Removing stubborn dirt and burnt-in fat:

- Clean the stainless steel surface with an ordinary household sponge and with cleanser.
- Rinse the stainless steel surface and dry it with household wipes.

Removing fingerprints:

- Clean the stainless steel surface with a soft cleaning cloth and soapy water or a glass cleaning agent.
- Rinse the stainless steel surface and dry it with household wipes.

Removing coffee or tea stains:

- Treat the stainless steel surface with a baking soda solution. Allow the baking soda solution to work in for 15 minutes.
- Rinse the stainless steel surface and dry it with household wipes.

Removing rust stains:

- Clean the stainless steel surface with an ordinary household sponge and with cleanser. If necessary, use a soft cleaning cloth and stainless steel cleaner.
- Rinse the stainless steel surface and dry it with household wipes.

11.6 Cushions

The care and cleaning instructions below are for assistance only. They are not a guarantee of successful cleaning. These instructions cannot form the basis for any warranty claims.

▷ If possible, treat stains immediately.

▷ Never use household cleaners to remove stains (e.g. detergents).

▷ Before treating stains, test the cleaning on a hidden part of the upholstery covers. This will show you whether the cleaning will damage the materials or dyes.

▷ Always only dab moist or greasy stains, never rub them. It is most effective to gently press an absorbent cloth or a sponge onto the stain.

▷ Do not wash upholstery.

▷ When cleaning leather covers, make sure that the leather is not soaked through and that no water seeps through the seams of the leather covers.

- ▷ Treat the stain from the outside working inwards. This prevents the stain from spreading.
- ▷ In the case of both solid or softer contamination, first remove the coarse parts. Next, carefully scrape off the stain with a blunt knife or spatula.
- ▷ If the stain has already dried in, carefully brush off the coarse parts. Next, dab off the stain with a damp cloth or sponge.
- ▷ The upholstery will fade over time, if it is exposed to sunlight. If the temperature within the vehicle rises rapidly as well, the colour will change at an accelerated rate.
  Therefore, we recommend to close the shades on the windows when there is strong sunlight. Ensure that heat does not build up when you close the blind.
- ▷ Depending on the equipment, the cushions will be provided with stain protection.

Removing grease, oil, wine, milk, non-alcoholic beverages:

- ■ Moisten a cloth with commercial water-based cleaning agent. (Alternatively, mix 2 tablespoons of ammoniac with 1 litre of water.)
- ■ Gently dab the stain with the cloth.
- ■ Turn the cloth frequently so that the stain only comes into contact with a clean part of the cloth.

Removing urine, sweat:

- ■ Moisten a cloth with commercial water-based cleaning agent. (Alternatively, mix 2 tablespoons of ammoniac with 1 litre of water.)
- ■ Gently dab the stain with the cloth.
- ■ Turn the cloth frequently so that the stain only comes into contact with a clean part of the cloth.

Removing chocolate, coffee:

- ■ Moisten cloth with lukewarm water.
- ■ Dab the stain with the cloth.

Removing fruit residues:

- ■ Moisten cloth with cold water.
- ■ Dab the stain with the cloth.

Removing wax:

- ■ Carefully scrape off the wax with a blunt knife or spatula.
- ■ Cover the stain with several layers of blotting paper and iron it.

Removing blood:

- ■ Mix 2 tablespoons of salt and 1 litre of water.
- ■ Moisten the stain and dab with a dry cloth.
- ■ Dab stubborn stains with ammonia solution.

Removing (ball pen) ink:

- ■ Moisten cloth with benzine.
- ■ Gently dab the stain with the cloth.
- ■ Turn the cloth frequently so that the stain only comes into contact with a clean part of the cloth.

Removing mud:

- ■ Carefully remove as much mud as possible with a blunt knife or a spatula.
- ■ Allow the mud to dry and then remove it with a vacuum cleaner.
- ■ For stubborn stains, moisten a cloth with commercial water-based cleaning agent. (Alternatively, mix 2 tablespoons of ammonia solution with 1 litre of water.)

- Gently dab the stain with the cloth.
- Turn the cloth frequently so that the stain only comes into contact with a clean part of the cloth.

Removing pencil:

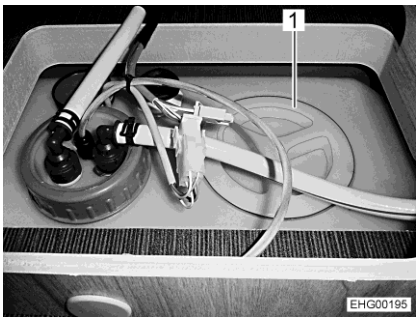
- Moisten cloth with a mild, water-free and pure fabric cleaning agent.
- Gently dab the stain with the cloth.
- Turn the cloth frequently so that the stain only comes into contact with a clean part of the cloth.

Removing vomit:

- Carefully remove vomit.
- Wash cushion with cold water.
- Moisten a cloth with commercial water-based cleaning agent. (Alternatively, mix 2 tablespoons of ammoniac with 1 litre of water.)
- Gently dab the stain with the cloth.
- Turn the cloth frequently so that the stain only comes into contact with a clean part of the cloth.

11.7 Water system

11.7.1 Cleaning the water tank



1 Cap

Fig. 161 Water tank

- Empty the water tank and close the drainage opening.
- Remove the cap (Fig. 161,1) 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.
- Scrub also the pump housing.
- 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.

11.7.2 Cleaning the water pipes

▷ Only use approved cleaning agents as sold by the specialist trade.

▷ The cleaning agent must meet national regulations and be approved (if required).

▷ Collect any emerging mixture of water and cleaning agent for correct disposal.

- Empty the water system.
- Close all drainage openings and drain cocks.
- Fill mixture of water and cleaning agent into the water tank. Observe the manufacturer's instructions regarding the mixing ratio.
- Open the drain cocks one by one.
- Leave the drain cocks open until the mixture of water and cleaning agent has reached the respective drain.
- Close the drain cocks.
- Set all the water taps to Hot and open them.
- Leave the water taps open until the mixture of water and cleaning agent has reached the drain.
- Set all water taps to Cold and open them.
- Leave the water taps open until the mixture of water and cleaning agent has reached the drain.
- Close all water taps.
- Flush the toilet several times.
- Allow the cleaning agent to act in accordance with the manufacturer's instructions.
- Empty the water system. Collect the mixture of water and cleaning agent for correct disposal.
- For rinsing fill the entire water system with drinking water and empty again several times over.

11.7.3 Disinfecting the water system

▷ Only use approved disinfectants as sold by the specialist trade. Observe the tolerance of humans and animals.

▷ The disinfectant must meet national regulations and be approved (if required).

▷ Collect any emerging mixture of water and disinfectant for correct disposal.

When disinfecting the water system, proceed the same way as when cleaning the water pipes (see section 11.7.2). Simply use disinfectant instead of cleaning agent.

11.7.4 Cleaning the waste water tank

Clean the waste water tank after every use.

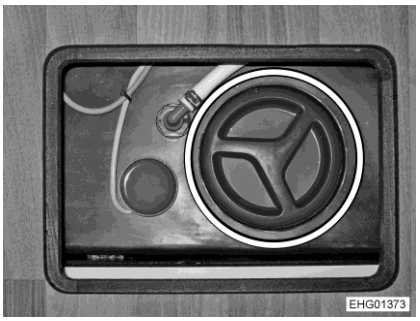


Fig. 162 Cleaning opening (waste water tank)

Cleaning:

- Empty the waste water tank.
- Open the cleaning opening (Fig. 162) 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.

Access for cleaning, see section 10.6.

11.8 Care for vehicle operation in winter

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 a risk of frost, additionally cover the windows on the outside of the vehicle overnight with winter insulation mats.

11.9 Lay-up

11.9.1 Temporary lay-up

- ▶ Take into consideration that water is undrinkable after only a short time.
- ▶ Animal damage to cables can lead to short circuits. Fire hazard!

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

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

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

11.9.2 Recommendation for long periods of inactivity of motorhomes (Mercedes-Benz)

Take into account the instructions and information in the supplied document "Recommendation for longer standing times of motorhomes" from Mercedes-Benz.

11.9.3 General/over winter lay-up

If the vehicle is to be put out of operation for a longer period of time (e.g. at the end of the travel season), some measures must be taken so that a smooth start is possible when the vehicle is put back into operation.

The focus is not only on the base vehicle or chassis, but also on the entire living area with all the components installed in it (water system, gas system, electrical system, furniture, cushions).

- ▷ On vehicles with a battery capacity indicator, the data are reset when the main switch on the transformer/rectifier is switched off. Therefore, when putting the system back into operation, a complete charging cycle must be carried out in order to calibrate the system. In addition, the date and time must be reset. If a Duomatic L Plus gas pressure control system is installed in the vehicle (optional equipment), the defroster function must be reprogrammed from "Automatic" to "Off".
- ▷ At temperatures below -11 °C AdBlue® freezes. The pump and the lines for Ad-Blue® injection can be damaged. Refer to the manufacturer's documentation for information on Ad-Blue®. Do not expose the vehicle put out of operation to temperatures below -10 °C to avoid freezing of Ad-Blue®.

- ▷ To enable gear selection in the gearbox even if the starter battery is defective, the vehicle is equipped with an "emergency P battery". This emergency P battery is only charged when the vehicle engine is running. Charging via an external charger is not possible. Therefore, the emergency P battery must be disconnected from the power supply during a lay-up (see checklists).

Carry out the following measures prior to a lay-up:

Base vehicle

General lay-up measures	Done
Increase tyre air pressure by 0.5 bar to prevent damage when stationary	
Take the weight off the wheels or move the vehicle every 3 to 4 weeks. In the case of parking sites with natural soil, place suitable wooden or plastic plates underneath the wheels if necessary	
Protect the tyres from direct exposure to the sun. Danger of formation of cracks!	
Check the tyres. Do not continue to use worn tyres or tyres that are more than 6 years old	
Ensure good ventilation at the parking site. Sufficient air circulation is especially important for the underbody. Moisture or lack of oxygen can lead to impairments	
Treat rubber seals with a conventional rubber care product	
Observe the instructions in the instruction manual of the base vehicle	

Additional measures for winter lay-up	Done
For diesel vehicles, fill the fuel tank with winter diesel	
Clean body and underbody thoroughly and spray with hot wax or protect with varnish	
Rectify damage to the paintwork	
Check the radiator frost protection and top up if necessary	
Check the frost protection of the windscreen washer system and top up if necessary	

Body (outside)

General lay-up measures	Done
All vents should be sealed with the appropriate caps and all other openings (apart from forced ventilations) should also be sealed. This prevents animals (e.g. mice) from gaining entry	
To prevent the formation of condensation and subsequently mould: Ventilate the interior, all storage space accessible from the outside and the parking site (e.g. garage) every 3 weeks	

Additional measures for winter lay-up	Done
 ▷ Keep the forced ventilation open. Arrange the covers in such a way that the ventilation openings are not covered, or use porous tarpaulins	
Clean vehicle from outside thoroughly	
Clean and grease installed supports	
Clean and grease all door and flap hinges	
Brush oil or glycerine on all locking mechanisms	
Use graphite dust to treat locking cylinders	
Treat all rubber seals with a conventional rubber care product	

Body (inside)

General lay-up measures	Done
Place upholstery in an upright position for ventilation, and cover	
Clean refrigerator (and freezer compartment) and move doors to ventilation position (see section 9.7.1)	
Disconnect the flat screen from the mains	
Open the roller blinds and thereby relieve the springs	

Additional measures for winter lay-up	Done
Set up the de-humidifier (granulate)	
Store cushions and mattresses in a dry place	
Empty all cabinets and storage compartments, open flaps, doors and drawers	
Thoroughly clean the interior	
Air the interior every 3 weeks	
If there is a risk of frost, do not leave the flat screen in the vehicle	

Gas system

General lay-up measures	Done
Close the 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	

Water system

General lay-up measures	Done
 ▷ Never operate water pump without water.	
Empty the fresh water system. Blow out residual water from the pipes (max. 0.5 bar)	
Clean the fresh water system using suitable cleaning agents from a specialised store. Open all drain cocks and water taps to empty (see section 10.2.7)	
Leave the water taps on in central position. Leave all drain cocks open.	
Clean the waste water tank (do not forget the probe) and empty it (see section 10.3), leave the drain cock open	

Additional measures for winter lay-up	Done
If possible, empty siphons at the wash basin and sink as well as in the shower to prevent freezing	

Electrical system

The electrical system of a motorhome consists of two separate supply circuits:

- Starter battery, starter motor and alternator (generator)
- Living area battery, transformer/rectifier (EBL) and operating panel

General lay-up measures	Done
Clean the battery terminals of the starter battery	
Fully charge starter battery via external charger	
Activate vehicle hibernation (see section 11.9.4)	
Observe the instructions regarding the starter battery in the instruction manual of the base vehicle	
Fully charge the living area battery via the on-board charger (the charging time depends on the equipment). Charge the battery at temperatures above 0 °C so that the battery can also absorb capacity	
Remove the fuse from the water pump on the transformer/rectifier	
Remove the fuses 31 and 32 for the emergency P battery	
Disconnect the living area battery from the 12 V power supply. In order to do this, switch off the transformer/rectifier at the main switch	
Check the voltage of the batteries periodically during the lay-up period. If the battery voltage drops below 12.5 V: recharge the battery	

Additional measures for winter lay-up	Done
Remove the starter battery and the living area battery and store them in a place protected from frost or connect the vehicle to a 230 V supply. Prior to the removal, remove the fuses on the living area battery	

11.9.4 Activating the vehicle's hibernation mode

▶ Comfort functions drain current from the starter battery even when the vehicle is stationary and the transformer/rectifier has been switched off. This may cause starting problems after longer periods of inactivity.

If the vehicle has been set to hibernation mode, the power consumption is reduced to a minimum. This protects the starter battery. Thereby, the vehicle can be easily started after longer periods of inactivity.

Activating the hibernation mode:

- Depending on the equipment, activate the hibernation mode on the MBUX display or on the electronic instrument cluster via the steering wheel buttons. The operation is described in the operating manual of the base vehicle.

Cancelling the hibernation mode:

- Switch on ignition. The hibernation mode ends when switching the ignition on, and must be activated again if necessary.

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

▷ On vehicles with a battery capacity indicator, the data are reset when the main switch on the transformer/rectifier is switched off. Therefore, when putting the system back into operation, a complete charging cycle must be carried out in order to calibrate the system. In addition, the date and time must be reset. If a Duomatic L Plus gas pressure control system is installed in the vehicle (optional equipment), the defroster function must be reprogrammed from "Automatic" to "Off".

Go through the following checklist before start-up:

	Activity	Done
Base vehicle	If the vehicle has been stationary for a longer period (approx. 10 months) have the braking system checked by an authorised specialist workshop	
	Check tyre pressure of spare wheel, if present	
	Check the tyre pressure on all tyres	
Body	Clean the pivot bearing of the entrance step	
	Check the functioning of the fitted supports	
	Check that the doors, windows and skylights are working properly	
	Check the function of all external locks, e.g. the storage flaps, the filler necks and the living area door	
	Search for traces of animals that have gained entry	
	Remove the cover from the waste gas vent of the heater (if there is one)	
Gas system	If the vehicle has been stationary for a longer period (approx. 10 months) have the gas system checked by an authorised specialist workshop	
	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 8)	
	Insert the fuses 31 and 32 for the emergency P battery into the corresponding slots	
	Check that the electrical system are working, e.g. interior light, socket and all installed electrical appliances	

	Activity	Done
Water system	Disinfect water pipes and 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 and on our dealers and service centres.

12.1 Service and sales partners

The authorised service and sales partners are the contacts when spare parts are needed or/and repairs are required.

You will find the addresses and telephone numbers of the authorised service and sales partners at:

Hymer: on the Internet at https://www.hymer.com/de/en/service/dealer-search

ALKO: on the Internet at https://www.alko-tech.com/de/servicestuetzpunkte-0

Mercedes: on the Internet at https://www.mercedes-benz.de/vans/de/content-pool/apps/dealer-locator

- ▷ Before starting your journey, check what options are available to you in the event of a breakdown.
- ▷ Observe that the manufacturer's service and mobility commitments are not valid at all destinations.
- ▷ In the case of travelling to countries without a service partner, you travel at your own risk.

12.2 Official inspections

Depending on the national legislative provisions, the following official inspections must be carried out periodically:

- Main inspection
- Emissions test
- Inspection of the gas system

The inspection intervals in accordance with the national legislative provisions must be adhered to. The inspection stickers attached to the vehicle indicate when the next inspection is required.

For Germany, for example, the following regulation applies:

From April 1st 2022, the inspection obligation for the gas system as part of the main inspection (HU) will no longer apply. Instead, an independent gas inspection (according to DVGW (German Technical and Scientific Association for Gas and Water) worksheet G 607) must be carried out for recreational vehicles (motorhomes and caravans). The gas inspection is evidenced by the correctly completed yellow inspection book and a valid inspection sticker on the vehicle.

For more information on the gas inspection and the intervals at which it must be carried out, see the following websites:

- German Federal Ministry of Digital Affairs and Transport (BMDV): www.bmvi.de
- German Technical and Scientific Association for Gas and Water (DVGW): www.dvgw.de
- German Association for Liquefied Gas (DVFG): www.dvfg.de

As long as the intervals at which the gas inspection must be carried out are not regulated by law, the DVGW recommends an inspection every two years.

Many camping site operators demand proof of a valid gas inspection when allocating a parking place.

▷ Any changes on the gas system must be carried out by a certified expert for gas systems.

▷ Even in the case of vehicles that are not registered, an inspection of the gas system is required.

12.3 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 service centres. Their experience and regular technical training by the factory as well as the equipment and tools used guarantee expert and up-to-date inspection of the vehicle.

The service centre in charge will confirm the work performed.

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

▷ Observe the inspections 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.

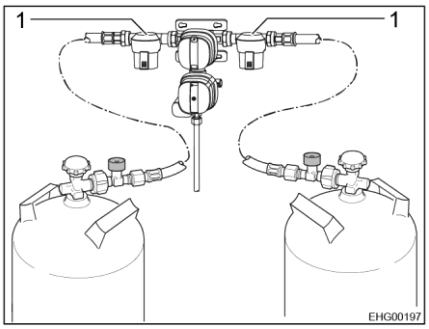
12.4 Maintenance work

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.

12.5 Changing the filter pad of the gas filter

▶ Fire hazard! Do not smoke while opening the gas filter. Do not open the gas filter near open fire.
Only open the gas filter in depressurised condition.



1 Gas filter

Fig. 163 Gas filter

The filter pad must be changed with every change of gas bottles. Only use original Truma filter pads.

Changing the filter pads of the gas filter (Fig. 163,1) is described in the manufacturer's instruction manual.

▷ The filter pads can be obtained from the authorised dealer.

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

12.6 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 G12 EVO 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.
- ▷ Standard G12 EVO is miscible with standard G13 and can be used to top up the heating system operated with standard G13.

12.6.1 Changing the heating fluid

Have the heating fluid changed every five years by an authorised dealer.

12.6.2 Checking the fluid level

- ▷ The openings at the front and rear of the compensator reservoir are used for installation. However, the compensator reservoir is sealed and liquid cannot escape.

Fig. 164 Compensator reservoir (hot-water heater)

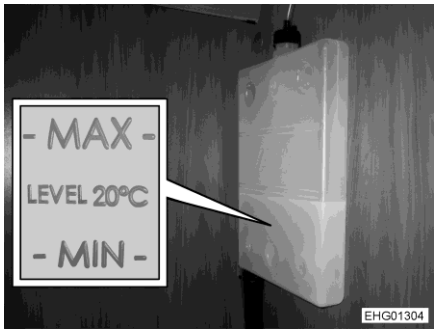


Fig. 165 Marking "MIN/MAX"

- ■ Switch off the hot-water heater and allow it to cool down.
- ■ Remove the cover for the compensator reservoir in the right-hand upper part of the shower.
- ■ Check if the fluid level is between the markings "MIN" and "MAX" (Fig. 165) on the compensator reservoir.

12.6.3 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.
- Unscrew or pull off the panel.
- Open the rotary lid 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 (standard G13) slowly into the compensator reservoir.

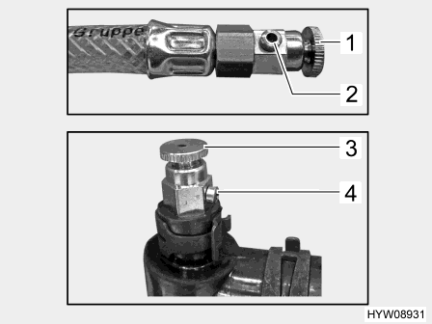
▷ The optimum fluid level is reached when the fluid in the compensator reservoir is 1 cm above the "MIN" mark when it is cooled down.

12.6.4 Bleeding the heating system

The bleeding valves of the hot-water heater are installed at the following points in the vehicle:

- Revision lid on the dashboard
- Seating group underneath the window
- Kitchen (behind drawers)
- With the booster in the electrical installation compartment
- With the booster in the staircase in the bed ascent
- Right and left at the head end of the rear bed
- Behind the small bench seat at the conversion door (only in some ground plans)

To gain access to the bleeding valves, it might be necessary to remove the associated ventilation grill above the convector. Sometimes the access is possible through panels (e.g. in the back cushion ventilation). Bleeding must be done on all bleeding valves.



1 Bleeding valve on hose extension
2 Valve opening
3 Bleeding valve on pipeline
4 Valve opening

Fig. 166 Bleeding valves (hot-water heater)

Bleeding:

- Switch off the hot-water heater and allow it to cool down.
- Open the bleeding valve (Fig. 166,1 or 3) and keep it open until no more air comes out of the valve opening (Fig. 166,2 or 4).

▷ Depending on the position, one of two bleeding valve types will be installed.

12.7 Cooker/oven/refrigerator

The manufacturer recommends a yearly inspection service in a authorised specialist workshop to maintain the appliances' efficiency. After service and maintenance work, the appliance must be checked for electrical safety as well as for gas safety.

12.8 Replacing bulbs, external

▶ Xenon spotlights are under high voltage. Touching the Xenon lamp contacts can lead to serious or fatal injuries due to electric shock. Do not remove the housing cover of the Xenon spotlight.

▶ Have the bulbs of the Xenon spotlights changed at a qualified specialist workshop. These workshops have the necessary knowledge and the required tools. ***HYMER GmbH & Co. KG*** recommends the ***HYMER*** service centres.

▶ Bulbs and lamp holders can be extremely hot. Therefore, allow lamps to cool down before changing bulbs.

▶ Store bulbs in a safe place inaccessible to children.

▶ Do not use any bulb that has been dropped or which shows scratches in its glass. The bulb might burst.

▷ Do not touch a new bulb with bare fingers. Use a cloth when installing the new bulb.

▷ Use only bulbs of the same type and with the correct wattage (see section 12.8.4).

▷ If LEDs in lamps are defective, contact an authorised dealer or service centre.

Types of bulbs

Different types are used in the vehicle. Below, we have described how to change the different types of bulbs.

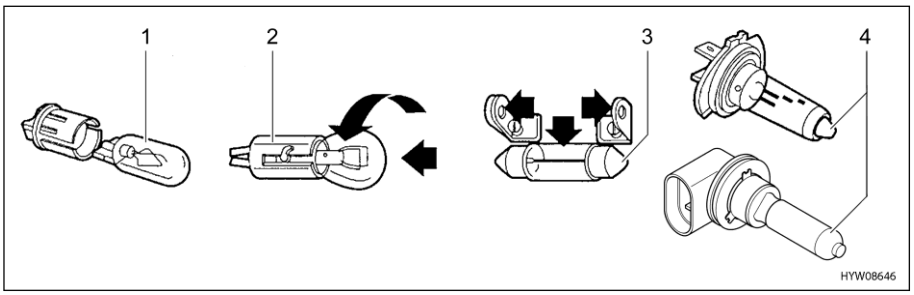


Fig. 167 Types of bulbs

Pos. in Fig. 167	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 the retaining spring / release the bayonet fitting
		After inserting, reattach the retaining spring / insert the halogen bulb into the bayonet fitting

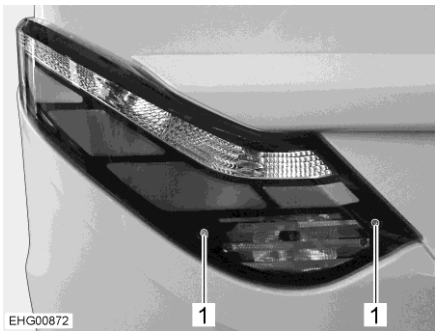
12.8.1 Front lights

Fig. 168 Front lights

The front lighting is part of the base vehicle. Replacement of light bulbs is described in the instruction manual of the base vehicle.

12.8.2 Rear lights

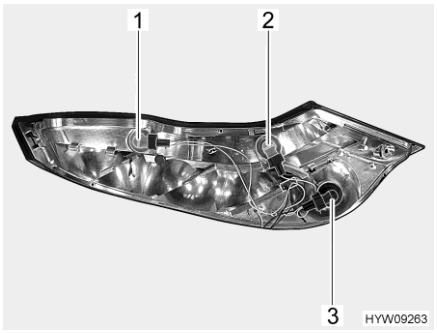
▷ To change the lamps equipped with LEDs, contact an authorised dealer or a service centre.



1 Hexagon socket screw

Fig. 169 Rear lights unit

- Loosen the hexagon socket screws (Fig. 169,1).
- Remove rear lights unit.



1 Direction indicator
2 Reverse light
3 Fog tail light

Fig. 170 Rear lights unit (removed)

- Turn defective bulb (Fig. 170) in an anticlockwise direction to unlock the bayonet socket.
- Change the faulty bulb.

Licence plate light/third brake light

The licence plate light and the third brake light are equipped with LEDs.
To change the LEDs, contact an authorised dealer or a service centre.

12.8.3 Side lights

1 Awning light
2 Side marker light
3 Direction indicator
4 Marker light

Fig. 171 Side lights

Side marker light

- Use a suitable tool (e.g. a screwdriver) to lever out the cover.
- Remove the housing.
- Change the faulty bulb

Direction indicator

The direction indicator is part of the base vehicle. Replacement of light bulbs is described in the instruction manual of the base vehicle.

Marker light

The lamp is glued in. If the bulb is faulty, contact an authorised dealer or service centre.

Awning light

The lights have LEDs. To change the LEDs, contact an authorised dealer or a service centre.

12.8.4 Types of bulbs for exterior lighting

Front

The bulb types are described in the instruction manual of the base vehicle.

To change the clearance lights, contact a dealer or service centre.

Rear

No. in Fig. 170	Exterior lighting	Type of bulb
1	Direction indicator	P 12 V 21 W
2	Reverse light	P 12 V 21 W
3	Fog tail light	P 12 V 21 W
-	Brake light	Contact a dealer or service centre
-	Rear light	Contact a dealer or service centre
-	Licence plate light	Contact a dealer or service centre
-	Third brake light	Contact a dealer or service centre

Side

No. in Fig. 171	Exterior lighting	Type of bulb
1	Awning light	Contact a dealer or service centre
2	Side marker light	C 12 V 5 W
3	Direction indicator	Contact a dealer or service centre
4	Marker light	Contact a dealer or service centre

12.9 Lighting for living area

▶ Do not replace the LEDs in lamps with standard light bulbs. Risk of fire due to intense heat build up.

All of the lights in the living area are equipped with LED technology.

LED lights are economical, low-maintenance and have a very long life. It is not normally necessary to replace a light.

▷ If LEDs in lamps are defective, contact an authorised dealer or service centre.

12.10 Spare parts

▶ Every alteration of the original condition of the vehicle can alter road behaviour and jeopardize road safety.

▶ The optional equipment and original spare parts recommended by ***HYMER GmbH & Co. KG*** 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 ***HYMER GmbH & Co. KG*** 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 ***HYMER GmbH & Co. KG***. 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 examples of important spare parts:

- Fuses
- Bulbs
- Water pump (submerged pump)

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

The vehicle described in this instruction manual is built and equipped to factory standards. Optional equipment is offered depending on its purpose or use. When fitting optional equipment check if such equipment has to be entered in the vehicle documents. Observe the technically permissible maximum laden mass. The authorised dealer or service centre will be happy to advise you.

12.11 Vehicle identification plate

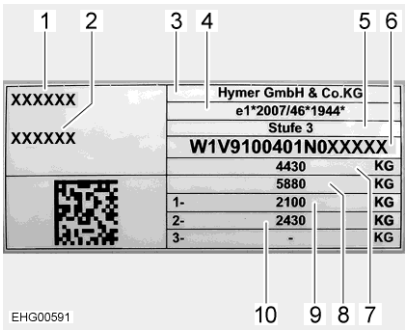


Fig. 172 Vehicle identification plate

1 Vehicle type
2 Consecutive serial number
3 Manufacturer
4 Vehicle type approval
5 Body stage
6 Chassis number
7 Technically permissible maximum laden mass
8 Permissible total towing mass (with caravan coupling option)
9 Technically permissible maximum laden mass on axle 1
10 Technically permissible maximum laden mass on axle 2

The vehicle identification plate with the serial number is attached to the right-hand wall in the centre of the bottom area.

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

- identifies the vehicle
- helps with the procurement of spare parts
- together with the vehicle documents identifies the vehicle owner

▷ Always include the serial number with all inquiries for the customer service office.

12.12 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.

12.13 Dealers

Contact your authorised dealer or service centre whenever spare parts are needed for the vehicle.

You can find the addresses and telephone numbers of the authorised dealers and service centres:

- In the brochure, which is included separately with the vehicle
- In the Internet at http://www.hymer.com

12.14 Replacement keys

To order replacement keys make a note of the following:

Locks for:	**To order keys you need:**	**Obtainable at:**	**Telephone information:**
Mercedes-Benz base vehicle	Chassis number	Mercedes-Benz authorised workshop	–
Body	Serial number, chassis number, second key or key number	Dealers	–

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.

13.1 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 13.9).

▷ 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.

▷ The maximum depth of a body of water that a vehicle can pass through without being damaged is called the "wading depth". The maximum wading depth is determined by the lower edge of the bumper, but is a maximum of 40 cm. This applies to all loading conditions.
Never cross deeper bodies of water. Water and dirt can damage the vehicle.
The driver must make sure that that no equipment can be damaged before driving through bodies of water or mud and before driving over raised obstacles.
For further details, refer to the Mercedes Benz instruction manual.

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

Example: (0723) Week 07, year of manufacture 2023

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.
- Always use tyres of the same model on one axle.
- Observe the instructions in the vehicle documents.
- 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.
- Check regularly that the wheel nuts or wheel bolts are firmly seated.
- For lay-ups or long periods of inactivity, 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.

13.2 Tyre selection

▶ A wrong tyre can damage the tyres during the journey and even cause it to burst.

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

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

The weight is based on the technically permissible maximum laden mass on the axle, which is distributed between two tyres. The maximum load-carrying capacity of a tyre is indicated by its load index (= LI, load index code).

The maximum permissible speed for a tyre (with full load-carrying capacity) is indicated by the speed index (= SI). Together, load index and speed index form the operating code of a tyre. This is an official component of the complete, standardised dimensions description which appears on every tyre. The information on the tyres must correspond to the specifications which appear in the vehicle papers.

13.3 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)

13.4 Deep tread tyres – 16"/18" (Special models)

- ▶ The tyres are approved for speeds of up to 180 km/h in accordance with speed index S. For safety reasons, the maximum possible speed for vehicles with deep tread tyres is limited to 120 km/h ex works. If vehicles are retrofitted with deep tread tyres, speeds over 120 km/h are not permitted either.
- ▶ Please note that the braking distance is longer when using deep tread tyres 16"/18" compared to standard tyres! The function of the emergency brake assistant may be restricted.
- ▶ Please note that the standard side wind assist is deactivated and, thus, is without function.
- ▶ Observe further safety instructions regarding tyres and wheels in the instruction manual of the vehicle.

▷ The Mercedes Sprinter with 4-wheel drive has been designed as traction 4-wheel vehicle and not as off-road 4-wheel vehicle. If the vehicle is driven off road, the chassis may be damaged. This is true particularly in the case of driving in ruts (e.g. in the forest).

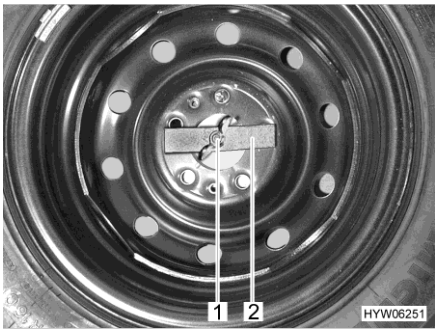
Required tyre pressures, see section 13.9.

13.5 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.

13.6 Spare wheel

The spare wheel is stowed away in the rear storage space.



1 Wing nut
2 Pad

Fig. 173 Spare wheel in the rear storage space

Removing the spare wheel:

- Loosen the wing nut (Fig. 173,1) by hand and unscrew it.
- Remove the pad (Fig. 173,2).
- Remove the spare wheel.

▷ In the case of models with 4-wheel drive, the spare wheel is attached to the rear wall.

13.7 Spare wheel on rear wall

▶ To avoid injury from the spare wheel falling off: Always remove the spare wheel from the spare wheel support or attach it to the spare wheel support together with a second person.

▷ The spare wheel can be removed from or attached to the spare wheel support using the vehicle's own tools.

▷ The spare wheel support is not suitable for 18" tyres.

13.8 Changing wheels

13.8.1 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.
- ▶ 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.
- ▶ 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.
- ▶ 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.
- ▷ 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.
- ▷ All 4 wheels must be of the same model and size and be approved for the vehicle.
- ▷ 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.
- ▷ The on-board tool set is adapted to the mounted wheel nuts or wheel bolts. When alloy wheel rims are mounted, carry an appropriate tool for the spare wheel (steel wheel rim) in the vehicle.
- ▷ Further information can be found in the instruction manual of the base vehicle.

The on-board tool set is stored in the footwell of the driver's cabin under the floor plate.

13.8.2 Changing a wheel

▶ The footplate of the vehicle jack must be levelly positioned on the ground.

▶ Only drive to the nearest workshop with the spare wheel.

▷ The wheel you have replaced should be repaired immediately.

▷ Take note of the general instructions in this chapter.

- Park the vehicle on as even and stable a surface as possible.
- Go into first gear. In the case of automatic transmission, change gear to "P" position.
- Place chocks or other appropriate objects beneath the vehicle to secure it.
- 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.
- Refer to the base vehicle's operating manual for the vehicle jack attachment point.
- 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.
- Tighten wheel nuts or wheel bolts and have the fastening checked at the nearest workshop.

13.8.3 Changing a wheel with alloy wheel rims

▶ Alloy wheel rims and steel wheel rims require different wheel bolts. When alloy wheel rims are mounted, the spare wheel (steel wheel rim) is accompanied by suitable wheel bolts.

Wheels with alloy rims are changed in the same way as wheels with steel rims (see section 13.8.2).

13.9 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 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.
- ▷ Over 5.5 bar requires a metal valve.
- ▷ The tyre pressure tolerance is +/- 0.05 bar.
- ▷ Refer to the vehicle documents for the permissible maximum mass on the axles.
- ▷ Only the tyre inflation pressure values in this instruction manual apply even if the base vehicle manufacturer indicates other values.

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 be happy to provide the newest values.

Rear-wheel drive

Tyre size	Tyre manufacturer	Air pressure front axle		Air pressure rear axle	
		Perm. mass on the axle 1860 kg	Perm. mass on the axle 2000 kg	Perm. mass on the axle 2250 kg	Perm. mass on the axle 2430 kg
235/65 R16	All	3.5 bar	3.8 bar	4.5 bar	4.9 bar
235/60 R17	All	3.8 bar	4.0 bar	4.6 bar	5.0 bar

4-wheel drive

Tyre size	Tyre manufacturer	Air pressure front axle		Air pressure rear axle	
		Perm. mass on the axle 1860 kg	Perm. mass on the axle 2000 kg	Perm. mass on the axle 2250 kg	Perm. mass on the axle 2430 kg
225/75 R16	All	3.5 bar	3.7 bar	4.3 bar	4.9 bar
LT 245/75 R16 (deep tread)	All	3.6 bar	3.6 bar	4.8 bar	4.8 bar
LT 265/60 R18	All	3.6 bar	3.6 bar	4.8 bar	4.8 bar

▷ Permissible axle loads, see the vehicle identification plate.

Depending on the model, the vehicle will be equipped with a spare wheel. If different air pressure values are specified for front and rear axle: use the higher of both values for the spare wheel.

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.

14.1 Braking system

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

14.2 Electrical system

▷ When the living area battery is changed, only use batteries of the same type and the same capacity.

▷ See chapter 8 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. The protection device (pinch protection) has triggered due to a overload current	Clean the entrance step, remove ice
No 230 V power supply in spite of connection	230 V automatic circuit breaker has triggered	Switch on 230 V automatic circuit breaker

Fault	Cause	Remedy
Starter or living area battery is not charged when operated in 230 V mode	Fuse on the starter battery or on the living area battery is defective	Replace fuse on the starter battery or on the 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
Living area battery is not charged during vehicle operation	Fuse on terminal D+ of the alternator is defective	Replace fuse
	Disconnector relay in the transformer/rectifier is defective	Contact customer service
The 12 V indicator lamp does not light up	12 V power supply is switched off	Switch on the 12 V power supply
	Battery cut-off switch on the transformer/rectifier is switched off	Switch on the battery cut-off switch
	Starter or living area battery is not charged	Charge the starter or living area battery
	Disconnector relay in the transformer/rectifier is defective	Contact customer service
	Fuse on the living area battery is defective	Replace fuse on the living area battery
12 V power supply does not work	12 V power supply is switched off	Switch on the 12 V power supply
	Battery cut-off switch on the transformer/rectifier is switched off	Switch on the battery cut-off switch
	Living area battery is discharged	Charge the living area battery
	Fuse on the living area battery is defective	Replace fuse on the living area battery
	Disconnector relay in the transformer/rectifier is defective	Contact customer service

Fault	Cause	Remedy
12 V power supply does not work in 230 V operation	12 V power supply is switched off	Switch on the 12 V power supply
	Battery cut-off switch on the transformer/rectifier is switched off	Switch on the battery cut-off switch
	230 V automatic circuit breaker has triggered	Contact customer service
	Charger module in the transformer/rectifier is defective	Contact customer service
	Fuse on the living area battery is defective	Replace fuse on the living area battery
Mains check symbol 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	Disconnector relay in the transformer/rectifier is defective	Contact customer service
	Battery cut-off switch on the transformer/rectifier is switched off	Switch on the battery cut-off switch
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 8)

Fault	Cause	Remedy
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 is defective	Contact customer service
Living area battery overloaded ("hot")	Battery selection switch set wrongly	Move position of battery selection switch
	Defective load sensor or relay	Pull out the fuse on the living area battery, then contact customer service

14.3 AC converter

Fault	Cause	Remedy
Sockets without voltage (for optional equipment AC converter)	The AC converter has switched itself off due to a fault	If the AC converter does not start again after some time, contact the customer service
	The circuit breaker in the additional fuse box has tripped	Switch the circuit breaker on

14.4 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.).
- ▶ 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 the 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
	Hose break guard has tripped or was not actuated	Acuate hose break guard

14.5 Cooker

Fault	Cause	Remedy
Ignition fuse does not operate (flame does not burn after the control knobs are released)	Heat-up time is too short	Keep control knob pressed for approx. 15 to 20 seconds after ignition
	Ignition fuse is defective	Contact customer service
Flame extinguishes when being reduced to its minimum setting	Thermocouple sensor is incorrectly set	Contact customer service

14.6 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.

14.6.1 Heater/boiler with CP plus digital control unit

▷ Observe the notes and information on the subject of malfunctions/troubleshooting in the separate instruction manual from the manufacturer.

Fault	Cause	Remedy
Heater does not ignite	Temperature sensor on control unit or remote sensor defective	Pull out plug on control unit. The heater then works without thermostat. Contact the customer service as soon as possible
No display on control 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 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
E 111 H	Room temperature sensor or cable defective	Contact customer service
E 122 H	Fuel shortage (fuel tank empty or vehicle at an angle)	Refill fuel
E 131 H	No connection between heater and control unit	Contact customer service
E 150 H	Not all hot air pipes connected	Contact customer service
	Warm air louvres blocked	Check outlet openings
	Air circulation suction system blocked	Remove blocking
E 151 H E 152 H	Overtemperature in the water tank	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
E 160 H	Undervoltage < 10.2 V	Check battery voltage, charge battery if necessary or have battery replaced
		Switch off appliances or start vehicle engine until heater is running (approx. 4 minutes)
E 161 H	Overvoltage > 16.4 V	Check battery voltage and voltage sources (e.g. charger)
E 162 H	Safety switch has triggered	(Not used here)
E 164 H	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 the heater to cool. Remove connection cover and press reset button
E 170 H	Risk of undervoltage < 11.5 V	Charge the battery
W 255 H	No 12 V power supply	Check power supply
	No connection between heater and control unit	Contact customer service

If these measures do not rectify the fault, contact customer service.

14.6.2 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 the regulator tap and the 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

14.7 Air conditioning unit

Fault	Cause	Remedy
Air conditioning unit does not cool	No 230 V power supply	Connect 230 V power supply
	Fuse is defective	Check fuse and replace if necessary
	Temperature below 16 °C	-
	Temperature has been set incorrectly	Adjust the temperature
	Air filter contaminated	Replace air filter

14.8 Compressor refrigerator Dometic RCL.4ET

▷ Observe the notes and information on the subject of malfunctions/troubleshooting in the separate instruction manual from the manufacturer.

Fault	Cause	Remedy
The refrigerator is not working	The fuse in the direct current line is defective	Have the fuse on the relay replaced. Contact an approved customer service company
	Vehicle fuse blown	Replace vehicle fuse (see instruction manual for the base vehicle)
	Vehicle battery is discharged	Check and charge vehicle battery
	Ignition not switched on	Switch on ignition
	The refrigerator switches off automatically if the voltage is not sufficient (switch-off voltage: 10.4 V)	Charge battery. Refrigerator starts again automatically (switch-on voltage: 11.7 V)
Refrigerator does not refrigerate sufficiently	Ventilation around the cooling unit is insufficient	Check if the ventilation grille is free
	Evaporator is iced up	Check if the refrigerator door closes properly. Check that the refrigerator seal is correctly fitted all round and is not damaged. Defrost the refrigerator
	Temperature is set too high	Set a lower temperature
	Ambient temperature is too high	Allow warm ambient air to escape, e.g. by opening windows and doors
	Too much food was put in the refrigerator at the same time	Take out some of the food
	Too much hot food was put in the refrigerator at the same time	Take out the warm food and let it cool down
	Refrigerator has not been in operation for long	Check temperature again after four to five hours

14.9 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
	Switch for water pump is off	Switch water pump on
	Fuse of the water pump is defective	Replace fuse on the transformer/rectifier
	Water pump defective	Exchange water pump (have it exchanged)
	Water pipe snapped off	Straighten water pipe or replace
	Transformer/rectifier defective	Contact customer service
Toilet has no flush water	Water tank is empty	Replenish drinking water
	Drain cock not closed	Close drain cock
	12 V power supply is switched off	Switch 12 V power supply on
	Switch for water pump is off	Switch water pump 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
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	Manually open electric waste water tap and empty waste water tank
Drain on the single lever mixer tap is clogged	Perlator calcified	Unclip the perlator, de-calcify in vinegar water (only for products made from metal)
Water jets on the shower nozzle clogged	Water jets calcified	De-calcify shower nozzle in vinegar water (only for products made from metal) or rub off soft nozzle burling

Fault	Cause	Remedy
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
Milkiness of the water	Tank filled with dirty water	Clean water tank mechanically and chemically; then disinfect and rinse copiously with drinking water
	Siphon soiled	
	Residues in the water tank or water system	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water
Any change in the taste or odour of the water	Tank filled with dirty water	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water
	Fuel filled into the water tank by mistake	Contact a specialist workshop
	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

14.10 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
Wind-up skylight is difficult to operate	Threaded spindle not lubricated	Lubricate threaded spindle
	Threaded spindle defective	Have threaded spindle replaced

▷ The authorised dealers and service centres are available for any spare parts requirement.

15.1 Weight details for optional equipment

- The use of accessories, parts and fittings not supplied by ***HYMER GmbH & Co. KG*** 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 ***HYMER GmbH & Co. KG***. This also applies to impermissible alterations to the vehicle.

Depending on the model series, different optional equipments are offered. You can find out which optional equipments are available for your vehicle in the accessories list, which is available separately. There you will also find information on the weights of the individual optional equipments.

16.1 Technical data

- ▷ Only the details provided in the actual vehicle documentation shall be binding with regard to the technical data.
- ▷ The measurements as well as the net weight of the vehicle may change when mounting accessories or optional equipment. Differences due to manufacturing tolerances (+/- 5 %) are possible and admissable.

16.2 Dimensions and permissible number of persons

ML-T	Wheel-base in cm	Length in cm	Width in cm	Height in cm	Permissible number of persons Regular/additional
560	367	674	222-230	290-315	2 + 1
570	367	674	222-230	292-315	4
570 Autark	367	689	222-230	292-315	4
580	367	689	222-230	292-315	4
620	433	765	222-230	290-315	2 + 1

Refer to the vehicle documents or the instruction manual of the base vehicle for further information on technical data. The authorised dealers and service centres will also provide information if necessary.

The weight specifications and tests for motorhomes are uniformly regulated throughout the EU in EU Implementing Regulation No. 2021/535 (until June 2022: EU Implementing Regulation No. 1230/2012). We have summarised and explained the key terms and legal requirements from this regulation for you below. Our dealers and the HYMER configurator on our website offer you additional assistance in configuring your vehicle.

1. Technically permissible maximum laden mass

   The technically permissible maximum laden mass of the vehicle (e.g. 3,500 kg) is a mass specification set by the manufacturer which the vehicle must not exceed. Information on the technically permissible maximum laden mass of the model you have chosen can be found in the technical data. If the vehicle exceeds the technically permissible maximum laden mass in everyday driving, this constitutes an administrative offence which may result in a fine.

2. Mass in running order

   In simple terms, the mass in running order is the basic vehicle with standard equipment plus a legally fixed standard weight of 75 kg for the driver. This essentially includes the following items:

   - the unladen weight of the vehicle together with the bodywork, including operating fluids such as greases, oils and coolants;
   - the standard equipment, i.e. all equipment items that are included as standard in the factory-fitted scope of delivery;
   - the fresh water tank filled to 100 % in driving mode (driving fill according to manufacturer's specifications; 20 litres) and an aluminium gas cylinder filled to 100 % with a weight of 16 kg;
   - the fuel tank, which is 90 % full, including fuel;
   - the driver, whose weight – regardless of the actual weight – is generally specified as 75 kg in accordance with EU law.

   Information on the mass in running order can be found for each model in our sales documents. It is important to note that the value for mass in running order given in the sales documents is a default value determined in the type-approval procedure and verified by the authorities. It is legally permissible and possible for the mass in running order of the vehicle delivered to you to deviate from the nominal value stated in the sales documents. The legally permissible tolerance is ± 5 %. In this way, the EU legislator accounts for the fact that certain fluctuations in the mass in running order occur due to variations in the weight of supplied parts as well as due to processes and weather conditions.

   These weight deviations can be illustrated by means of an example calculation:

   - Mass in running order acc. to sales documents: 2,850 kg
   - Legally permissible tolerance of ± 5 %: 142.50 kg
   - Legally permissible range of mass in running order: 2,707.50 kg to 2,992.50 kg

   The specific range of permissible weight deviations can be found for each model in the technical data. HYMER makes great efforts to reduce weight variations to the minimum that is unavoidable for production reasons. Deviations at the upper and lower end of the range are therefore very rare; however, they cannot be completely ruled out technically, even with all optimisations. The real weight of the vehicle and compliance with the permissible tolerance is therefore checked by HYMER by weighing each vehicle at the end of the line.

3. Mass of the passengers

   The mass of the passengers is set a standard value of 75 kg for each seat provided by the manufacturer, regardless of the actual weight of the passengers. The mass of the driver is already included in the mass in running order (see no. 2 above) and is therefore not included again. In the case of a motorhome with four permitted seats, the mass of the passengers is therefore 3 x 75 kg = 225 kg.

4. Optional equipment and actual mass of the vehicle

   Optional equipment (also: additional equipment) includes, according to the legal definition, all optional equipment parts not included in the standard equipment which are fitted to the vehicle under the responsibility of the manufacturer – i.e. ex works – and can be ordered by the customer (e.g. awning, bicycle or motorbike carrier, satellite system, solar system, oven, etc.). Information on the individual or package weights of the optional equipment that can be ordered can be found in our sales documents. Optional equipment in this sense does not include other accessories that are retrofitted by the dealer or you personally after the vehicle has been delivered ex works.

   The mass of the vehicle in running order (see no. 2 above) and the mass of the optional equipment fitted to a specific vehicle at the factory are together referred to as the actual mass. You will find the corresponding information for your vehicle after handover under item 13.2 of the Certificate of Conformity (CoC). Please note that this specification also represents a standardised value. Since the mass in running order – as an element of the actual mass – is subject to a legally permissible tolerance of ± 5 % (see no. 2), the actual mass may also deviate accordingly from the stated nominal value.

5. Pay-mass and minimum pay-mass

   The installation of optional equipment is also subject to technical and legal limits: Only so much optional equipment can be ordered and fitted at the factory that sufficient free weight remains for baggage and other accessories ("pay-mass") without exceeding the technically permissible maximum laden mass. The pay-mass is calculated by subtracting the mass in running order (nominal value according to sales documents, see no. 2 above), mass of the optional equipment and the mass of the passengers (see no. 3 above) from the technically permissible maximum laden mass (see no. 1 above).

   The EU regulations stipulate a fixed minimum pay-mass for motorhomes, which must remain as a minimum for baggage or other non-factory-fitted accessories. This minimum pay-mass is calculated as follows:

   Minimum pay-mass in kg ≥ 10 x (n + L)

   Where: "n" is the maximum number of passengers plus the driver and "L" is the overall length of the vehicle in metres.

   For a motorhome with a length of 6 m and 4 approved seats, the minimum pay-mass is therefore e.g. 10 kg x (4 + 6) = 100 kg.

To ensure that the minimum pay-mass is maintained, there is a maximum combination of optional equipment that can be ordered for each vehicle model. In the above example with a minimum pay-mass of 100 kg, the total mass of optional equipment for a vehicle with four permitted seats and a mass in running order of 2,850 kg should not exceed 325 kg:

3,500 kg technically permissible maximum laden mass
- 2,850 kg mass in running order
- 3 x 75 kg mass of the passengers
- 100 kg minimum pay-mass
= 325 kg maximum permissible mass of optional equipment

It is important to note that this calculation is based on the default value for mass in running order as defined in the type-approval procedure, without taking into account the permissible weight deviations for mass in running order (see no. 2 above). If the maximum permissible value for the optional equipment of (in the example) 325 kg is almost or completely exhausted, an upward weight deviation can therefore result in the minimum pay-mass of 100 kg being met mathematically using the default value for the mass in running order, although in fact there is no corresponding load capacity. Here, too, an example calculation for a vehicle with four seats, whose real weighed mass in running order is 2 % above the nominal value:

3,500 kg technically permissible maximum laden mass
- 2,907 kg real weighed mass in running order (+ 2 % compared to the stated value of 2,850 kg)
- 3 x 75 kg mass of the passengers
- 325 kg optional equipment (maximum permissible value)
= 43 kg actual load capacity (< minimum pay-mass of 100 kg)

In order to avoid such a situation, HYMER further reduces the maximum permissible weight of the total optional equipment that can be ordered on a model-specific basis. The limitation of optional equipment is intended to ensure that the minimum pay-mass, i.e. the legally prescribed free mass for baggage and retrofitted accessories, is actually available for the vehicle load capacity of the vehicles delivered by HYMER.

Since the weight of a specific vehicle can only be determined when it is weighed at the end of the line, in very rare cases a situation may arise in which the minimum pay-mass at the end of the line is not guaranteed, despite this limitation of optional equipment. In order to guarantee the minimum pay-mass even in these cases, HYMER will check together with your trade partner and you before delivery of the vehicle whether, for example, the vehicle is loaded up, seats are reduced or optional equipment is removed.

6. Effects of tolerances of the mass in running order on the pay-mass

   Regardless of the minimum pay-mass, you should note that unavoidable production-related fluctuations in the mass in running order – both upwards and downwards – have a mirror-image effect on the remaining load capacity: If you order our example vehicle (see no. 3. above), for example, with optional equipment with a total weight of 150 kg, the calculated pay-mass based on the default value for the mass in running order is 275 kg. The load capacity actually available may deviate from this value due to tolerances and may be higher or lower. If the mass in running order of your vehicle is, for example, permissibly 2 % higher than stated in the sales documents, the load capacity is reduced from 275 kg to 218 kg:

   3,500 kg technically permissible maximum laden mass
   - 2,907 kg real weighed mass in running order (+ 2 % compared to the stated value of 2,850 kg)
   - 3 x 75 kg mass of the passengers
   - 150 kg optional equipment ordered for the specific vehicle
   = 218 kg actual load capacity

   As a precaution to ensure that the calculated pay-mass is actually given, you should therefore take the possible and permissible tolerances for the mass in running order into account when configuring your vehicle.

   We also recommend that you weigh the laden motorhome on a non-automatic scale before each journey and, taking the individual weight of the passengers into account, determine whether the technically permissible maximum laden mass and the technically permissible maximum mass on the axle are observed.

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