



BEDIENUNGSANLEITUNG **E:DERO**

OPERATING MANUAL

GEBRUIKERSHANDLEIDING

MANUEL D'UTILISATION

MANUAL DE INSTRUCCIONES

ISTRUZIONI D'USO

BRUGSANVISNING

KÄYTTÖOHJEET

KULLANIM KILAVUZU

操作说明

**Travel in comfort and convenience -
your home on four wheels**

Welcome to the group of caravan owners!

Congratulations on the purchase of your new LMC caravan!

You have purchased a high-quality, reliable and elegant vehicle that offers special advantages and extraordinary comfort.

Our employees extend their best wishes for your satisfaction when travelling, on holiday, or in your free-time; we are confident that you will always enjoy pleasant hours in your new home on wheels.

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1 Introduction

Before the first trip

Your dealer will provide extensive instruction in all important functions when your vehicle is transferred to you so that you can properly operate and use your vehicle at any time.

In addition, this operating manual provides important information for using the vehicle and equipment. Carefully read this operating manual prior to using your caravan for the first time. Always comply with the instructions and safety instructions contained in this operating manual!

Strictly comply with the instructions in the accompanying operating manuals provided by the manufacturers of the built-in devices!

In an emergency situation: Help...!

If there are questions about operation, care, maintenance or repair, you can contact your nearest authorised dealer with confidence. You can find an overview of the dealers with their addresses on our homepage under the heading "Dealer search".

The dealers know your vehicle and are familiar with our latest innovations and they can provide prompt and expert assistance.

1.1 Technical documentation

Manufacturer documentation

The following vehicle documents are in the document case:

- Operating manual with inspection booklet for leakage warranty

Supplemental documents

- Documents from the chassis manufacturer
- Device operating manual for optional accessories

Topicality

We continuously work on further enhancing the performance characteristics of our caravans. Thus we reserve the right to make changes in shape, equipment and technology on the vehicle compared to the information provided in this operating manual. Descriptions are for the equipment known and installed at the time this manual went to press. Consequently, no claims against the manufacturer can be derived based on the content of this manual.

Retention

The operating manual and all accompanying documents concerning the vehicle and the installed devices are considered to be a fixed component of your vehicle. They must always be accessible to all users.

Keep this operating manual and associated documents on hand in the vehicle.

Transfer all documents to the next owner if the vehicle is sold. If loaning the vehicle to a third party provide the documents to the user.

Introduction

1.2 Explanation of symbols used

Safety and warning signs

Important instructions are especially marked by symbols and signal term. Comply exactly with the specified instructions to prevent personal injury, material damage and environmental damage.

DANGER



Danger to life and/or severe damage to health

This symbol combined with the "DANGER" signal term identifies an immediate hazard resulting in death or severe (irreversible) injuries.

WARNING



Severe damage to health

This symbol combined with the "WARNING" signal term identifies an imminent hazard potentially resulting in death or severe (irreversible) injuries.

CAUTION



Damage to health

This symbol combined with the "CAUTION" signal term identifies an hazard potentially resulting in slight (reversible) injuries.

CAUTION



Damage to property

This symbol combined with the "ATTENTION" signal term identifies a situation that may cause to damages to the product or objects in its vicinity.

Tips and recommendations**NOTE**

This symbol combined with the "NOTE" signal term identifies useful tips and recommendations for the efficient handling of the vehicle and its equipment.

Environmental protection**NOTE**

This symbol combined with the "NOTE" signal term identifies important information regarding an environmentally conscious behaviour.

Directions

The "right", "left", "front", and "rear" directions always refer to the view in driving direction.

Dimensions and weights are rounded ("approximate" information).

Terms**Caravan, vehicle**

Refers to the entire vehicle from the draw-bar to the rear lights, including chassis and caravan body.

Caravan body

Refers to the superstructure mounted on the chassis, including all systems and furnishings.

Introduction

1.3 Vehicle registration

Obligation to register

Pursuant to applicable national regulations, your vehicle must be registered with the relevant authority. Registration is issued by the vehicle licensing organization of your local government.

Required documents

For registration you require:

- Registration certificate part I (vehicle registration certificate)
- Registration certificate part II (vehicle title document)
- COC document (European certificate of conformity)
- Insurance verification
- Verification of inspection (MOT certificate)
- ID card or passport
- Registration authority (if registered by a third party)
- Registration application if required

The registration certificate part II also serves as the holder's verification of ownership. Do not keep it in the vehicle!

The vehicle documents (registration certificate part I, insurance slip and MOT certificate) are considered to be the proof of authorisation for the use of the vehicle and must be carried during its use. Never store any vehicle documents in or at the vehicle!

Vehicle license

Holders are provided at the rear for attachment of the license plate.

Note that in some countries, in addition to the country code shown on the license plate, a separate nationality tag is also prescribed.

1.4 Keys

When you pick up your vehicle, you are given three keys:

- Entry door to the caravan body
- Intake port for the fresh water tank
- Additional service hatch(es) (if present)

2 Safety

This section lists all the important safety aspects for optimal protection of persons in the vehicle, and for safe and trouble-free use of the furnishings.

Moreover, the following sections include additional safety instructions for avoiding imminent dangers when using devices and equipment.

Always comply with the handling instructions specified and keep the pictograms, signs, and texts that are affixed to the built-in equipment in a legible condition.

2.1 Intended use

The caravan is designed exclusively for private habitation purposes and transport of travel luggage, and it can be used in public traffic in accordance with the provisions of the German Road Traffic Act and the German Road Traffic Registration Act.

The caravan must not be used for commercial transport of persons and/or goods.

Transporting unsecured loads and/or packed goods that are not used as travel luggage is not permitted.

Passengers are not allowed to be in the caravan when the vehicle is in motion. Every passenger must be seated in the towing vehicle with seat belts fastened during the trip.

The gross vehicle weight rating and the gross axle weight rating per axle should not be exceeded.

Any use of the caravan other than that described herein is prohibited and is considered to be improper use.

2.2 Responsibility of the vehicle owner

The vehicle has been designed and built in accordance with state of the art and in accordance with recognised safety-related rules.

Nevertheless if the instructions in the operating manual are not followed serious personal injury, significant material damage to or on the vehicle or environmental damage can occur.

Consequently the vehicle owner is obligated:

- To always keep the vehicle in technically faultless and road-safe condition.
- To exactly follow the instructions in the operating manual, and to ensure that all passengers comply with the instructions contained in the operating manual.
- To comply with the specified service intervals and to ensure that the legally prescribed tests and inspections are executed.
- Not to make any unauthorised modifications to the vehicle or to the caravan body.
- To have technical problems that may adversely affect the safety of people and/or public road transport remedied immediately by specialist personnel.
- To always act in an environmentally responsible manner.
- To stay informed of current regulations and laws that can contain additional obligations.

2.3 General requirements

For your own safety and the safety of your passengers always comply with the following instructions:

- People must travel in the towing vehicle, and never in the caravan body.
- Travel with the caravan only when it is technically sound and fully roadworthy.
 - Prior to every trip, ensure the technically sound condition of the vehicle.
 - Always comply with the operating instructions and traffic regulations.
- Always secure the vehicle when parking and leaving.
 - Engage the parking brake.
 - Lock all doors, hatches and windows.
- Always ensure adequate ventilation of the vehicle.
 - Always ensure clear air flow through the forced ventilation openings.
 - Thoroughly ventilate the living area when cooking or heating.
- Exercise caution when using doors and hatches. There is danger of crushing injuries.
- Pay attention to passage heights when entering and exiting, and performing cleaning and maintenance work. There is danger of crushing and impact injuries.
- Always be prepared to respond to accidents.

2.4 Fire safety

Avoid fire and fire propagation!

- Always keep the smoke alarm, located in the ceiling of the caravan body, in functional condition.
 - Prior to using the vehicle for the first time, remove the protective foil from the block battery in the smoke alarm and connect the block battery to activate the smoke alarm.
 - Do not hook things into the openings on the smoke alarm housing, or cover the openings on the housing.
 - Replace the battery installed in the smoke alarm on a regular basis.
 - Replace the installed smoke alarm with a new smoke alarm every 10 years at the latest.
- Always carry an approved and tested dry-powder fire extinguisher (at least 1 kg) in the vehicle (not included in the scope of delivery).
- Always keep fire extinguisher in reach and have it tested regularly. Be aware of the test date.

Avoid fire hazards!

- Never leave children alone in the vehicle.
- Keep flammable materials away from the heater and hob.
- Never use portable heating and cooking devices.
- Never cover electrical components that can develop heat during operation (e.g. charger, electric block, lights).
- Never modify the electrical equipment. Have all repairs performed by qualified personnel.

Act appropriately if there is a fire!

- If the smoke alarm trips or if you detect signs of a fire in the vehicle:
- Evacuate vehicle passengers without delay. If necessary provide first-aid.
 - Switch off the power supply and disconnect it from the mains.
 - Secure the danger zone around the vehicle.
 - Sound the alarm and call the fire department.
 - Fight the fire, if this is possible without danger.

2.5 Traffic safety

Driving in public traffic always demands special caution and attentiveness. Always comply with locally applicable traffic regulations, the operating guidelines for the vehicle and the following instructions!

2.5.1 Vehicle

Dimensions and weight

Caravan and towing vehicle together comprise a rig with large dimensions and heavy weight. The driving and braking behaviour of the rig differ significantly from that of a single vehicle.

Inappropriate behaviour in road traffic - particularly by inexperienced rig drivers - can cause accidents resulting in serious or fatal injury.

Always adjust your manner of driving and comply with the following:

- Do not exceed the permissible gross vehicle weight and permissible axle load when loading the vehicle (→ nameplate)
- Compared to your car, the rig has a longer braking distance.
- If the automatic vehicle stabilization device - if present - responds, stay calm and slow down.
- Prior to driving into parking facilities, underpasses, bridges, tunnels, or vehicle decks of ferries, note the passage dimensions as well as height and width information.
- Comply with local driving restrictions or special driving instructions for caravans.
- Due to the load or attachment of accessories, dimensions, weight and driving behaviour of the caravan can change.
- When driving with the caravan attached, carry wheel chocks and use them when parking on inclines and slopes.

NOTE



Dimensions, weight and permissible load are specified in the motor vehicle registration certificate part I.

Safety

Rig operation

Risk of injury for people in the coupling area when the caravan is coupled.

Always ensure that:

- The towing vehicle has a functionally safe trailer pulling device and electrical connector coupling.
- The caravan is in an operationally safe condition, has a valid license, and is designed for the towing vehicle. Do not exceed the permissible trailer load and maximum draw-bar load (→ registration certificate part I, operating manuals for the towing vehicle and the towing device).
- Before starting your trip, ensure that the entry step is retracted
- Do not couple or uncouple caravan if the overrun brake is activated.
- Ensure that the handbrake lever has a sufficient range of movement.
- When using couplings with a removable hitch ball, ensure that the hitch ball is properly mounted (→ operating manual provided with the towing device).
- Always proceed with caution when coupling or uncoupling the caravan.
- Ensure that a helper standing away from the towing vehicle assists the driver of the towing vehicle in approaching the caravan coupling.
- Ensure that no one is in the caravan and that no one is in the space between towing vehicle and caravan.
- Enter the danger zone between the towing vehicle and caravan only when the towing vehicle and caravan are at standstill and are both secured with parking brakes.
- Immediately after coupling always check the vehicle lighting equipment and brakes on the caravan for correct function.

Wheels and tyres

Worn tyres and incorrect tyre pressures adversely affect the driving and braking behaviour of the vehicle and can cause accidents.

Always ensure that:

- Rims and tyres must be approved for the vehicle (→ motor vehicle registration certificate part I).
- Regularly (during every refuelling stop, for example) check the proper condition and correct tyre pressure of the vehicle (→ Section "Tyre pressure table")
- Immediately replace worn tyres.
- For the first trip, after every wheel fitting, and after every wheel change, re-tighten the lug nuts after 50 km (30 miles).
- During longer trips, check the lug nuts for firm seat at regular intervals.
- Tyres must not be older than six years. The same applies for spare tyres - even if they have not been used.
- Use summer tyres or snow tyres in accordance with the outdoor temperatures in the country of travel.
- Depending on the tyres, comply with the specified tread regulations.
- Prior to a longer parking period, offload the tyres (e.g. jack up the vehicle, dismount the wheels, apply a preserving agent to the tyres and store them horizontally or on a wheel tree in a dry and frost-free location).

Brakes

Defects in the braking system can cause serious accidents with fatal consequences.

Always ensure that:

- Prior to each trip check brakes for functional safety, uniform response, and directional stability. Have any defects repaired immediately by an authorised specialised workshop.
- Never make unauthorised changes to braking system components..
- Always firmly engage the parking brake when parking the vehicle.
- After a longer period of non-use (≥ 10 months), have the braking system checked by an authorised workshop.
- When travelling with a loaded caravan, on slippery roads and on routes with gradients, always drive with utmost caution and bear in mind that driving stability and braking capacity of the rig are significantly impaired.

Vehicle equipment

Mandatory equipment

- 2 Wheel chocks

Depending on the local regulations in the country of initial registration, additional equipment may be pre-installed in the vehicle. For example, vehicles for initial registration in Germany contain:

- 1 Entry step

Recommended optional equipment

- 1 water canister with spout attachment or watering can
- CEE connector cable for external 230-V connection
- Adapter set for external power supply
- Cable drum (25 m)
- Fire extinguisher (minimum 1 kg content)

2.5.2 Load

Excessive load and improper arrangement of the load adversely affect the driving characteristics and braking behaviour of the vehicle and can cause accidents.

Always ensure that:

- Do not exceed the gross vehicle weight rating (→ motor vehicle registration certificate part I).
- Accessories and/or special equipment options reduce the possible load.
- Never exceed the maximum permissible axle loads (→ nameplate).
- Always evenly distribute the load over the entire vehicle. Avoid placing the load on one side.
- Never place heavy objects in the cabinets or compartments so that they may suddenly shift forward when braking, performing an emergency stop, or if there is collision in the direction of travel.
- Arrange the load so that its centre of gravity is as close as possible to the floor of the vehicle. Heavy and bulky objects should be placed beneath other items.
- Secure loose and movable objects, such as luggage, adjustable tables and adjustable beds against shifting.
- Prior to starting the trip, close doors, cabinets and hatches and lock in place.
- When driving at night adjust the headlight levelling control to offset the load effect.

NOTE



Information on calculating the possible load and proper arrangement of the load → Section "Loading the vehicle".

ATTENTION



Vehicle damage due to excessive roof load!

The vehicle roof is not designed for heavy roof load and may collapse.

- Do not climb, step or walk on the roof; do not overload.
- Remove snow and ice from the vehicle's roof if parked outdoors during winter.

2.5.3 Driving

Before the trip

Unsecured load, a vehicle in a condition that is not ready to drive and/or technical defects can cause accidents with severe or fatal injuries.

Before starting your trip, always perform the following tasks:

- Remove any branches, twigs, leaves, snow or ice from the vehicle roof.
- Check that the entry step is retracted.
- Check the functioning of signalling and lighting equipment.
- Switch off the canopy light on the right side wall.
- Ensure faultless functioning of brakes and steering gear.
- Check rims and tyre tread for proper condition. Ensure that the tyres are inflated to the proper pressure.
- Securely stow luggage and loose objects. Also ensure that the load is uniformly distributed in the vehicle.
- Close and secure all inner and outer doors, service hatches, windows and skylights.
- Folding bed – if fitted – fold out and additionally secure with the belts.
- In the living area, close and secure cabinets.
- Lock adjustable tables and beds.
- Take off magnet lights and store safely.
- If available, push the TV drawer back and secure. Close the hatch of the TV compartment or secure the TV drawer so that it cannot twist.
- Remove the wheel chocks and retract the vehicle supports.

On the road

Failure to comply with local traffic regulations can cause accidents with serious or fatal injuries.

When driving the towing vehicle:

- Always comply with local traffic regulations.
- Always adjust your driving to current road and traffic conditions and the total weight and dimensions of your rig.
- Comply with driving restrictions for caravans.
- Always ensure that your rig does not exceed passage dimensions such as heights and widths when entering parking facilities, underpasses, bridges, tunnels or the vehicle decks of ferries.
- Never open door locks during driving.
- Avoid sudden and abrupt braking.
- Drive slowly and carefully on roads with damaged surfaces.
- Avoid bottoming out on ramps (when entering a ferry, for example), uneven surfaces, or when driving in reverse.

After the road trip

Unsecured vehicles can roll way and cause serious injury and material damage.

Always ensure the following when stopping and parking the caravan:

- Never stop or park the caravan on steep slopes, embankments or gradients.
- Firmly engage the parking brake first when parking and stopping the caravan. Then place the wheel chocks.
- On slight embankments, inclines, or slopes, place wheel chocks in front of and behind one or more wheels. Secure the wheels through the curved stop surface of the wheel chock.
- Do not use wheel chocks to compensate for uneven terrain or roads.
- Extend the supports when parking the caravan for some time.
- In winter conditions, free the vehicle of the snow and ice load. Do not exceed the permissible roof load of 75 kg.

2.6 Operational reliability

2.6.1 Electrical system

General

The vehicle is equipped with a power supply system for:

- a. Combined operation, that is, the 230 V input via CEE-outlet and use of 230 V consumers and 12 V-consumers, thanks to the 12 V converted installed in the caravan.
- b. 12 V operation via the towing vehicle when the caravan is coupled and the 13-pole outlet at the towing vehicle is fully assigned.

NOTE



The poles 10 to 13 are frequently not assigned when the coupling system with outlet is installed at a later time!

All external lights required for road traffic are controlled as with the towing vehicle.

Emergency lighting in the caravan is also ensured (exception with stand-alone package (optional)).

NOTE



Before travelling to foreign countries, obtain information about the plug and connector systems used at your destination. Adapters are available from specialised dealers.

Touching live components can cause serious or fatal injury. Improper connection or defective electrical devices can cause fires. Always ensure that:

External power connection

- Prior to connecting, ensure that the external power supply matches the specifications of the vehicle's electrical system.
- The external power supply must be protected with a residual current circuit breaker (RCD, 30 mA).
- Use only connecting cable with the following properties:
 - Flexible CEE rubber-sheathed cable for outdoor use
 - Cross-section 3 x 2.5 mm² minimum
 - Plug connector and coupling should each have earthing contact
- Before use, check the connecting cable, plug and coupling for damage.
- The extension cable must not be longer than 25 m.
- When using cable drums, completely unroll the power cable; this prevents the cable from overheating.
- Lay the cable so that it does not cause a stumbling hazard; mark the cable routing, if necessary.

Electrical system and devices

- Connect only tested and intact devices.
- Any device exhibiting defects, faults or external damages must be immediately disconnected from the vehicle system.
- Periodic testing by an electrician.
 - Annually for frequent use
 - Every three years for occasional use
 - Half-yearly activation of the RCD test button
- Any work on the system, repairs or replacement of electrical devices must be performed by an authorised workshop only.
- Prior to starting any work on the system, switch off all electrical consumers, such as lights, TV, radio and other devices; disconnect the external power supply and disconnect the supply battery (if present).
- Check the function of the integrated residual current circuit breaker in the fuse box at regular intervals.
- Never bridge, manipulate or repair any miniature circuit breaker or safety fuse.
- Replace defective fuses only after the cause of the fault has been identified and rectified.
- Replace defective fuses only with new original fuses with prescribed ampere rating.

2.6.2 Sanitary system

As standard, the caravan comes with a freshwater canister.

ATTENTION



Damages after extended stand time or frost!

If the vehicle is not used in winter, the sanitary system may be damaged due to frost.

Extended stand times can cause algae growth in the sanitary system.

- Ensure that the overflow valve is free from contamination and ice formation.
- In the event of frost or extended stand time, completely empty the water tanks, containers, hoses, and conduits. Dry-run the pump for approximately five minutes to avoid frost damage caused by residual water in the pump.

NOTE



Waste water and chemical substances can cause significant environmental damage.

- *Only drain the waste water tank at the designated disposal stations.*

Hygiene

WARNING



Health hazard due to germs and bacteria in the drinking water!

Contaminated drinking water can cause serious infections.

- Prior to the first use, disinfect the fresh water system of the vehicle, and thoroughly flush with drinking water.
- Transfer water only from supply systems with proven drinking water quality.
- Filling hose and container must be approved for drinking water.

-
- Fresh water becomes undrinkable very quickly! Prior to every start-up, thoroughly flush the fresh water tank, the lines and water cocks with plenty of tap water.
 - Regularly sterilise the fresh water tank. Special sterilizing agents are available from specialised dealers. Comply with the manufacturer's instructions specified on the packaging of the sterilising agent, and with local application guidelines and fresh water regulations.
 - Wear hygiene gloves (from specialist suppliers) when handling the waste water tank; and thoroughly cleanse any exposed skin.
 - Only drain the waste water tank at designated disposal points, never in nature. If needed, information about the nearest disposal station can be obtained from the municipal administration.

2.7 Environmental protection

Cleanliness

Real camping enthusiasts always leave their stopover clean and tidy. Always behave in such a manner that you will be welcomed back!

Many towns and communities offer designated and well-equipped compounds with all necessary supply and disposal facilities for caravans.

Waste

Separate glass, plastic, paper, and kitchen waste, and dispose of waste in the containers provided for the various recyclable materials. If necessary, contact municipal authorities for information on disposal possibilities.

Please note: Do not dispose of household waste in the waste containers provided at rest stops and parking facilities!

Waste water

Do not dispose of waste water in street drains or in free nature!

Always empty waste water and solid waste containers in designated disposal points in camping grounds or specifically equipped communal compounds.

Toilet chemistry

Use only environment-friendly and biodegradable WC chemicals.

3 Technical data

General

This section contains a selection of important technical data. A complete overview of all technical specifications is provided in the price list and the enclosed operating manuals of the devices installed.

3.1 Caravan body

Specification	Value	Unit
Freshwater canister	12	l
Filling volume, fresh water tank ¹⁾	44	l
Intake volume, grey water tank ¹⁾	25	l
Capacity, supply battery ¹⁾ , at least	60	Ah

¹⁾ Special option (See also "Special Options → chapter "Overview").

3.2 Built-in devices

The technical data of the built-in devices are provided in the respective operating manuals. These are in the document case. Depending on the selected fittings, they include the documentation for:

- Electric control, storage battery, charger
- Optional equipment

3.3 Loads

ATTENTION



Vehicle damage due to excessive roof load!

The vehicle roof is not designed for heavy roof load and may collapse.

- Do not climb, step or walk on the roof; do not overload.
- Remove snow and ice from the vehicle's roof if parked outdoors during winter.

Depending on the selected equipment your caravan is equipped with different load units.

The maximum permissible load of these components is:

Load unit	Max. weight
Bunk beds	80 kg
Folding beds	50 kg

3.4 Nameplate

The nameplate is affixed in the front storage compartment. The chassis number has been also stamped into the right draw-bar strut below the superstructure.

The nameplate must be neither modified nor removed. It must always be in legible condition.

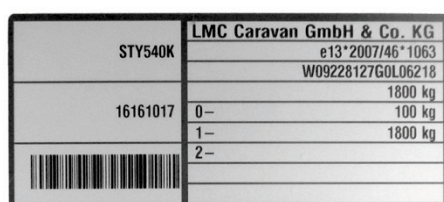


Fig. 1: Nameplate

The nameplate provides the following information:

- Manufacturer
- ETG No.
- LMC Chassis No.
- Permissible total weight
- Permissible axle load, axle 1
- Permissible axle load, axle 2
- Permissible bearing load
- Type designation

4 Driving

Fundamentals

When driving your caravan, always comply with the regional traffic regulations and laws. Carefully plan your route in advance. Drive carefully and in an environmentally responsible manner.

Bear in mind that your rig has dimensions and weight that are significantly greater than those of a car. Always remember that towing a caravan is subject to additional regulations.

towing a caravan is described in the operating manuals of many towing vehicles. Always keep this operating manual on board for easy access for anyone driving the vehicle. Comply with the information and the handling instructions provided in the manual.

In addition, always comply with the instructions specified in the "Safety" section of this manual.

4.1 Loading the vehicle

4.1.1 Terminology and specifications

Technically permissible gross weight

The total gross weight that must not be exceeded. Provided in → Registration certificate Part II

Mass in running order

Unloaded weight including weight of the basic equipment required for proper use and to drive the vehicle, (including fresh water, wheel chocks, cable drum, etc., without optional equipment).

Provided in → Registration certificate Part II

Vehicle load capacity

Mass of all objects carried including luggage, personal items and properties, and the optional equipment.

Optional equipment

Accessories offered by the manufacturer beyond the standard equipment and that may be either ordered with the vehicle or installed at a later time, such as a satellite dish.

Driving

Personal items

Weight of all items carried in the caravan not contained in the aforementioned list, such as foodstuff, crockery, radio, TV, clothing, bedding, toys, books, toiletry articles, bicycles, boats, surfboard, sport equipment. These objects must be taken into account in any event, regardless of where they are stored.

For personal items, you may use a ballpark figure of 20 kg per person plus 10 kg per metre of vehicle length, if the actual individual requirement does not significantly differ from this value.

4.1.2 Calculating the maximum load

Sample calculation

Specification	Value
Technically permissible gross weight	1600 kg
of which the weight in ready-to-drive status (including basic equipment such as fresh water)	- 1350 kg
The maximum load is	= 250 kg
Personal items (20 kg each for 4 persons)	+ 80 kg
General equipment (10 kg per metre caravan body)	+ 50 kg
Special options	+ 35 kg
The general load is	= 165 kg
Remaining possible residual load	= 85 kg

4.1.3 Loading and stowing luggage

Prior to loading the vehicle, check the location and arrangement of storage spaces in the vehicle (→ section "Storage spaces"). Follow the instructions in the "Safety" section!

Distribute the luggage properly.

1. Ensure that all weights are correctly taken into account.

NOTE



Do not forget to add all books, leisure and sport equipment, foodstuff, etc.

2. Evenly distribute the luggage items according to their individual weights:
 - Taking the maximum axle loads into account, place heavy items (such as tent hardware and canned goods):
 - in lower placed storage lockers with doors not opening in driving direction, or
 - securely attached to the floor in the living area to prevent movement.
 - Store light objects (garments) in the built-in wardrobe and the hinged compartments.

Driving

4.1.4 Reviewing the check list

Before the trip, review all required travel documents and equipment using the following list.

Amend this list to meet your specific requirements.

Checks
■ All vehicle documents are on board (operating manuals for caravan, towing vehicle, installed equipment and devices)
■ Motor vehicle registration certificate, part I carried by the driver
■ Certificate of insurance on board
■ Travel documents for all passengers on board
■ Currencies of transit countries and destinations on board
■ Trip route, road maps, country information on board
■ Luggage completely and properly stored
■ Veterinary certificates required for transit countries and destinations, for pets on board.
■ Road regulations for caravans in the transit countries and destinations are known

4.2 Checking the vehicle

WARNING



Danger of accident and injury due to vehicle defects!

Defects on and in the vehicle can cause accidents with severe to fatal injuries as the consequence.

- Prior to every start, check the vehicle and the load for condition and driving safety.

Copy (and amend, if necessary) the following list to meet your needs and tick each line when the respective list item has been completed, before starting your trip.

Tasks and checks that must be executed immediately before starting the journey	✓
1. Free vehicle, particularly the roof, from deposits such as branches, twigs, leaves, snow, and ice.	
2. Check the functioning of signalling and lighting equipment.	
3. Switch off the canopy light on the right side wall.	
4. Ensure faultless functioning of brakes and steering gear.	
5. Ensure that the handbrake lever has a sufficient range of movement.	
6. Check rims and tyre tread for proper condition. Ensure that the tyres are inflated to the proper pressure.	
7. Check load for proper distribution and fastening.	
8. Close and secure all inner and outer doors, service hatches, windows and skylights.	
9. Folding bed – if fitted – fold out prior to travel and additionally secure with the belts.	
10. Close and secure cabinets.	
11. Lock adjustable tables and beds.	
12. Push in and secure TV stand. Close the hatch or secure the stand against twisting.	
13. Take off magnet lights and store safely.	
14. Disconnect the external 230 V power supply with CEE plug.	
15. Remove the wheel chocks and retract the vehicle supports.	

Driving

4.3 Coupling the caravan and the towing vehicle

4.3.1 Prerequisites for coupling

Safety

WARNING



Risk of injury when moving or standing between caravan and towing vehicle!

If the towing vehicle is moved backward, persons positioned between the vehicles can be caught between the vehicles and severely injured.

- Never remain between the vehicles when the towing vehicle is reversed.
- Provide the driver with directions and signals during reversing. Be aware of persons in the vicinity or approaching the vehicles.
- Wait with establishing the connection between the two vehicles until the towing vehicle has closely approached the coupling system of the caravan, shut down the engine, and engaged the parking brake.
- You may optionally push the caravan toward the towing vehicle.

ATTENTION



Damage to property when permissible values are exceeded

The towing vehicle and/or the caravan may be damaged when permissible values are exceeded during coupling.

When coupling, ensure that the following values are not exceeded:

- Permissible axle load
- Permissible support load
- Permissible rear axle load of the towing vehicle
- Permissible total weight of towing vehicle plus caravan

Refer to the documentation of the towing vehicles and the caravan nameplate for the permissible values.

The design of the coupling system depends on the caravan model and the selected equipment.

Additional information on handling the caravan coupling is supplied in the accompanying operating manual provided by the manufacturer.

- Before using the caravan coupling for the first time, note the instructions in the manufacturer's operating manual, particularly the safety instructions!

Prerequisites

Coupling prerequisites:

- The support wheel must be lowered to the ground and secured so that it bears the draw-bar load.
- The parking brake of the caravan is engaged.

4.3.2 12 V power supply in towing operation

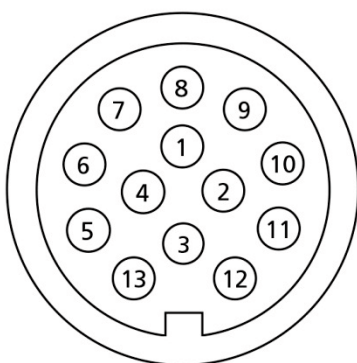


Fig. 2: 13-pole plug

13-pole plug

The 12 V-power supply of the caravan in coupled condition is ensured only when the towing vehicle and the caravan are connected via a 13-pole plug.

Contact No.	Power circuit	Wire Ø in mm / colour
1 / L	Indicator left	1.5 / yellow
2 / 54 g	Rear fog lamp	1.5 / blue
3 / 31	Earth (for power circuit contacts 1-8)	1.5 / white
4 / R	Indicator right	1.5 / green
5 / 58 R	Right rear lamp, outline lamp, side light and license plate lamp	1.5 / brown
6 / 54	Brake lights	1.5 / red
7 / 58 L	Left rear lamp, outline lamp, side light and license plate lamp	1.5 / black
8	Reversing light	1.5 / pink
9	Power supply (steady plus)	2.5 / orange
10	Charge cable plus (refrigerator)	2.5 / grey
11	Earth (refrigerator)	2.5 / white/black
12	Coding for coupled caravan (free)	1.5 / white/blue
13	Earth (for power circuit contact 9)	2.5 / white/red

Information

NOTICE



It must be ensured that the towing vehicle makes available sufficient power for the safe operation of 12 V consumers in caravans when driving. With some vehicles it is possible that the battery management of the towing vehicle switches off consumers to protect the battery. Contact your vehicle manufacturer for more information.

4.3.3 Coupling with "AL-KO" safety coupling



Fig. 3: Basic position

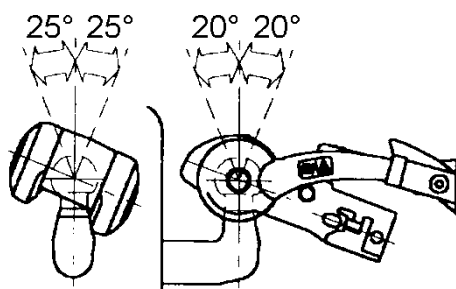


Fig. 4: Maximum swivel range of the ball coupling on the coupling ball of the towing vehicle.



Fig. 5: Tow-ball coupling open

- 1 Coupling handle, position open
- 2 Stabilising lever, open

WARNING



Danger of accident and injury if the caravan becomes detached!

If improperly coupled, the caravan can become detached from the towing vehicle and cause serious accidents with fatal consequences.

- The coupling ball on the towing vehicle must be free of grease and other residue.
- Immediately replace any friction linings that are fouled with grease; do not attempt to clean them.
- Do not exceed the maximum permissible swivel range of the tow bar coupling.
- After each coupling action, check the coupling for correct seat and solid, secure connection of the rig vehicles.

- | | |
|--|-------|
| ■ Maximum permissible vertical swivel range: | ± 20° |
| ■ Maximum permissible horizontal swivel range: | ± 25° |

Coupling process

1. Release the parking brake on the caravan and position the caravan with the tow-bar coupling precisely above the trailer ball of the towing vehicle.
2. Engage the parking brake.
3. Pull the coupling handle (1) upward.
4. Slowly crank down the support wheel, while placing the opened tow-ball coupling on the towing coupling of the towing vehicle.

NOTE



Due to the draw-bar load, the tow ball coupling engages automatically and audibly and the coupling handle returns to the initial position.

5. Use your hands to firmly press the coupling handle (1) downward.
6. Check the coupling for firm seating.
The tow-ball coupling is correctly coupled if the green edge of the safety display (→ Fig. 6) is visible.
7. Place the brake away cable of the towing vehicle around the coupling of the towing vehicle and hook the cable's spring hook onto the cable itself.

Driving



Fig. 6: Safety display

8. Insert the electrical connector plug of the caravan into the towing outlet on the towing vehicle.
9. Check the lights (rear light, brake lights, blinkers, reverse light, clearance lights) on the caravan.
10. Release the parking brake before starting the trip.
11. Ensure that the handbrake lever can be moved up and is not obstructed by a bicycle mounted on the draw-bar.

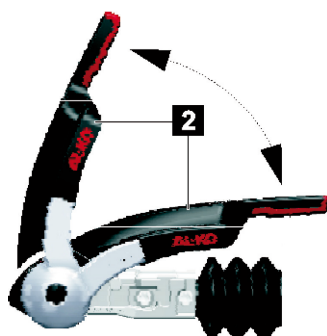


Fig. 7: Wear indicator

Wear indicator

1. Couple the caravan to the towing vehicle.
2. Open the stabilising lever (/2).
3. Close the stabilising lever (2) until resistance is noticeable, (friction linings rest on the trailer ball of the towing vehicle, however, they are not yet tensioned.).



Visible green mark:

- Front and rear friction linings are okay
- Coupling ball okay

Green mark no longer visible:

- Front and rear friction linings worn → Replace friction linings
- Coupling ball $\varnothing < 49$ mm



Arrow position	Condition
Arrow below mark 1-green	New status
Arrow above mark 1-red	Left and right friction linings worn → Replace friction linings
Arrow at mark -2	AKS closed

4.3.4 Uncoupling with "AL-KO" safety coupling

NOTE



When uncoupling the caravan, the overrun device must be relaxed and the bellows must be extended.



Fig. 8: "AL-KO" safety coupling

1. Engage the parking brake of the caravan.
2. Detach the contact breaking cable and remove from the towing vehicle.
3. Remove the electric connection plug from the towing vehicles and securely store in the plug receptacle in the caravan draw-bar to prevent moisture.
4. Lower the support wheel to the ground, secure and crank down until the caravan's draw-bar slightly lifts.
5. Pull up the stabilising lever (2) to the stop.
6. Pull the coupling handle (1) upward and hold.
7. Crank the support wheel further until the coupling bell fully lifts from the towing ball of the towing vehicle.
8. Reset coupling handle (1) and stabiliser lever (2) to their start positions.

4.3.5 Electronic stabilisation systems



Fig. 9: Electronic stabilisation system

Electronic stabilisation systems continuously monitor the running behaviour of the caravan.

In driving conditions causing the caravan to swerve, the lateral acceleration, sensors of the ATC control electronic capture even minuscule lateral movements. The system immediately slows the caravan without driver intervention. Some few seconds of braking are sufficient to return the rig into a safe driving condition.

- Refer to the attached operating manual of the manufacturer.

NOTE



The running speed must always be matched to the weather, road and traffic conditions, irrespective of the fitted assistance system.

Actions prior to attachment of the 13-pin connector to the towing vehicle:

- Release the parking brake.
- Check for an extended overrun device!

After the 13-pin plug is plugged in on the towing vehicle, the system starts a self-test. Then the LED should light up in green.

4.4 Travelling and parking

Travelling

WARNING



Risk of injury and accident due to incorrect behaviour!

The rig comprised of towing vehicle and caravan has large dimensions and a great weight. Incorrect behaviour can result in accidents with serious or fatal injury as the consequences.

- Remember changed driving properties, longer braking distance, higher total weight, and larger dimensions when driving the rig.
 - Always adjust your driving style to the current road and weather conditions.
 - Comply with local traffic regulations.
 - Comply with specific regulations for rigs in transit countries and destinations.
-

Parking

WARNING



Risk of injury due to an unsecured vehicle!

Unsecured vehicles can roll away and cause serious injury or material damage.

- Never stop or park the caravan on steep slopes, embankments or gradients.
- When stopping or parking the vehicle, always secure with wheel chocks against uncontrolled rolling away.

1. Turn off the engine of the towing vehicle.
2. Put the vehicle in gear. For a towing vehicle with automatic transmission, place the selection lever in park position "P".
3. Firmly engage the parking brake of the towing vehicle.

If the caravan is parked without towing vehicle:

1. Firmly engage the parking brake of the caravan.
2. On slight inclines, slopes, or embankments, place wheel chocks in front of and behind one or more wheels of the caravan.

NOTE



Do not use wheel chocks to compensate for uneven terrain.

4.5 Parking the caravan at the destination

4.5.1 Parking the caravan

Selecting a parking place

For optimal and trouble-free use of all technical vehicle equipment, select the parking place in accordance with the following criteria:

- Stable, horizontal, level surface.
- Electrical mains connection in the immediate vicinity (maximum distance: 25 metres).
- Fresh water and waste water connections as well as approved disposal station in the immediate vicinity.
- Adequate parking space dimensions ensuring that all doors and maintenance hatches are accessible after parking the caravan.

Parking the caravan

1. Uncouple the caravan, push it to the parking space and align it in the desired position.
2. Firmly engage the parking brake.
3. Place wheel chocks, if necessary.

NOTE



Do not use wheel chocks to compensate for uneven terrain.

4. Extend the corner support elements

4.5.2 Extending and retracting the support elements

WARNING



Crushing hazard when extending or retracting the support elements!

Extending and retracting support elements can cause feet, hands, or other body parts to be crushed and injured.

- Do not position yourself in the swivel area of the supports.
- Do not tamper with support elements.

NOTE



On soft, yielding surfaces, place large plates under the supporting elements before extending to prevent them from sinking into the ground.

NOTE



The supporting elements do not serve as vehicle jacks, rather they are used exclusively to stabilise the vehicle.

When extending, load all supporting elements uniformly.

To compensate for inclines use special drive-on wedges that are commercially available!

Extending the prop

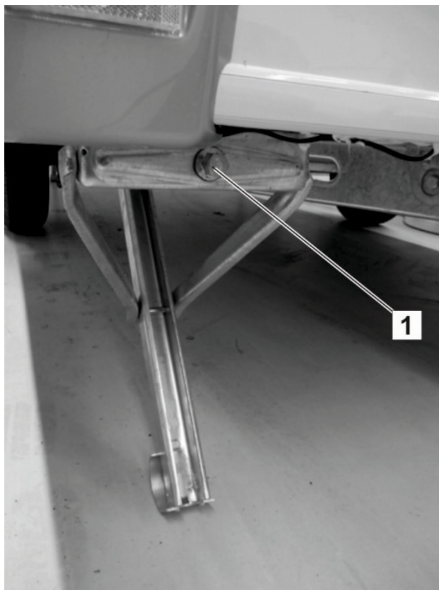


Fig. 10: Hexagonal bolt (1) for socket wrench

1. Place the socket wrench from the vehicle interior on the hexagonal bolt (1) at the front right caravan corner.
2. Turn the socket wrench clockwise until the support element rests firmly on the ground.
3. Extend the support element on the left front side of the caravan in the same manner. Use the two front support elements to align the caravan horizontally and bring it into a stable position.
4. Extend the rear corner support elements. Align the vehicle as described for the forward support elements and bring the vehicle to a stable position.
5. Once all 4 support elements are correctly extended and the caravan is stabilised, return the socket wrench to its holder in the vehicle interior.

Retracting the support element

WARNING



Danger of injury due to improperly retracted support elements!

Support elements that are not properly retracted can cause accidents, severe injury and material damage. Therefore:

- Prior to starting each trip, ensure that all support elements are properly retracted.

1. Place the socket wrench from the vehicle interior on the hexagonal bolt head of the threaded rod at the front right caravan corner.
2. Turn the socket wrench counter clockwise until the support element is completely retracted to the stop.
3. Repeat steps 1 and 2 with the other support elements.
4. Withdraw the socket wrench and store it in its holder in the vehicle interior.

Overview

5 Overview

General

This section provides an overview of the caravan body and its equipment. The arrangement and important control elements of the built-in devices are explained.

NOTE



Some of the built-in items described here are only available on express special option, or as accessories. These equipment elements are only in your caravan body if they were specifically requested when the vehicle was ordered.

Several equipment elements are presented as examples, or are presented in different model variants in the descriptions below. The variant actually installed the vehicle in these cases always depends on the model or price, and due to its design cannot always be replaced with a different variant. Claims to equip the vehicle with a specific variant cannot be derived from this operating manual.

■ Optional equipment

Optional equipment (identified below by "(optional)") directly affect the design, manufacturing and price of a vehicle and, in most cases, it cannot be retrofitted or installed at a later time. Optional equipment requirements that are not directly listed in the purchase contract cannot be derived from this operating manual.

A binding list of the standard equipment in your vehicle is shown in the price list used when your vehicle was ordered.

5.1 Caravan body

General

This section introduces the caravan body and provides examples of the location and function of specific elements and built-in units.

5.1.1 Keys

With your caravan you receive three copies of the same key. This key can open the following locks:

- Entrance door and intake port for drinking water
- Service and storage hatches on the outside of the caravan

5.1.2 One-piece entrance door



Entrance door without window

The entry to the living area is on the right side of the vehicle.

The entrance door can be locked from the outside with a safety lock that can also be locked and unlocked from the inside.

An awning light (optional) illuminates the entry area at night.

Fig. 11: Entrance door without window (example)

Overview

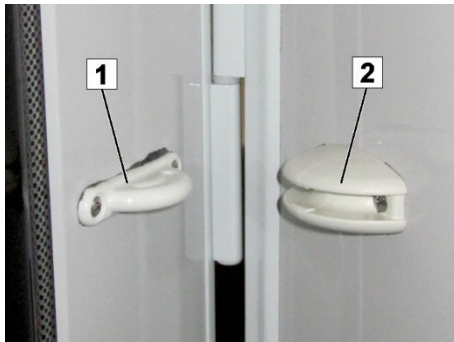


Fig. 12: Door and hatch locks

Entrance door and large hatches can be locked in open condition. This prevents unintentional slamming of doors and hatches i.e. by the wind.

- To hold the door or hatch in place, carefully open the door until the stop and then press it lightly against the holder until the catch lock (1) engages in the receptacle (2).
- To release, pull the door or hatch out of the holder with a light jerk.

Interior door lock, body door



Fig. 13: Door lock

Opening and closing the entrance door

To lock and secure the entrance door from inside:

- Turn the lever on the interior door lock downwards.

To open the entrance door from the inside:

- Turn the lever on the interior door lock upwards until the door unlocks.

5.1.3 Door and hatch locks

CAUTION



Open hatches can cause damage!

Open hatches can hit street signs, light poles, and other obstacles while driving and cause severe damage to the vehicle and third-party properties.

- Never drive with opened hinged windows/hatches!



Fig. 14: Service compartment on the outside of the caravan

Depending on the model and selected equipment, hatches are located on the outside of the caravan. e.g.: accesses to rear external storage locker, hot water tank, to small storage compartments (for vehicle accessories, tools, car jack) and for the toilet waste holding tank.

NOTE



Always keep hatches closed. This will prevent loss of equipment and theft!

Overview

Service compartment lock

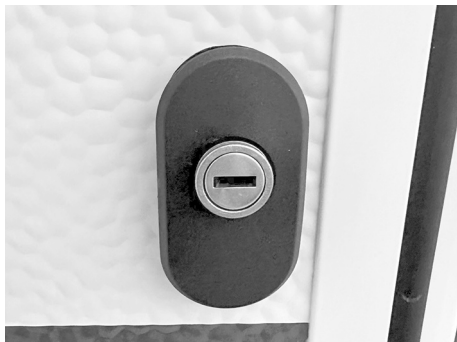


Fig. 15: Service compartment lock

The service locks can be operated with the body door key. They are not operated via remote control.

Opening the service compartment:

- Use the key to unlock the lock and rotate the knob clockwise through 90°. In this position, the contact pressure abates but the service compartment cannot yet be opened.
- To open the service compartment, rotate the knob clockwise by another 90°.

Closing the service compartment:

You can re-engage the lock in opened conditions. Then, after closing the hatch, it is only necessary to turn it back through 180 degrees and press it in so that it locks again.

ATTENTION



Property damage due to inserted keys!

Keys that are not removed can cause severe scratches in the outer shell of the caravan body. Keys can break off.

- Always remove the key immediately after opening or closing locks.

5.1.4 Hinged window operation

Hinged window



Fig. 16: Framed hinged window

The living and sleeping area features large hinged windows designed to provide superior ventilation.

- To open the hinged window, the sash fasteners located at the bottom of the frame must be turned through 90 degrees. To unlock the sash fastener, the push button (lock) must be pressed first. The hinged window can then be deployed in three stages until the support arms lock in place.
- To close the window, swing fully out and then slowly pull back down. Finally, return the sash fastener to the locked position.

CAUTION



Open windows can cause material damage!

Projecting windows can hit signs, light poles, and other elements during driving, and cause severe damage to the vehicle and other property.

- Never drive with opened hinged windows!

Overview

Correct locking of the hinged windows before any journey

Depending on the floor plan, the vehicles are equipped with different types of hinged windows.

The sash fasteners of the hinged windows have two positions:

In the open position, the sash fastener is not against the clamping block.



Fig. 17: Open position



Fig. 18: Closed position

In the closed position (sash fastener position for driving) the sash fastener is located on the inside of the clamping block.

Before driving, it must be ensured **that all** sash fasteners are in the closed position (Fig. 18).

Only with locking of **all** sash fasteners is it ensured that the hinged windows remain securely closed and that property damage and personal injury are prevented during driving.

5.1.5 Kitchen window



Fig. 19: Sliding window (optional)

Depending on the selected model and fittings, the kitchen area features a sliding window (optional) or a hinged window that must be opened during cooking to ventilate the interior.

Opening and closing the sliding window

- To open, press the inner slide handle to the side and hold; at the same time slide the moveable part of the window to the side.
- When closing, ensure that the slide handle again engages.

Overview

5.1.6 Combination blinds

Combination blind

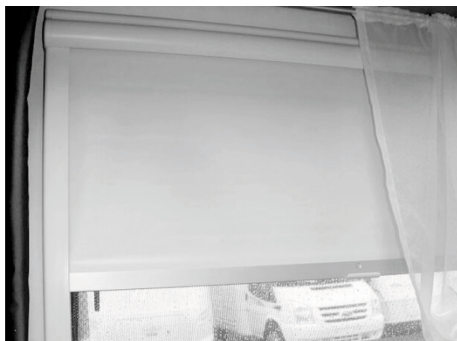


Fig. 20: Combination blind

The hinged windows are fitted combination blinds consisting of a fly screen and a blackout blind. Both blind components are hung from the window top.

For both blinds:

- To close, use the handle to pull the fly screen fully downward and slightly push against the window until the lower strip latches.
- To open, push the handle downward and slightly pull toward yourself until the lower strip detaches. Due to the tension, the blind automatically rolls up – hold the handle during this action.

The blackout blind can be lowered in three different heights. It latches in one of three possible positions in the lateral guide rails.

ATTENTION



Damage to the blinds if they fly up!

To avoid damage to the blind, ensure that the blind **CANNOT** fly up.

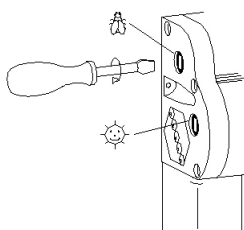
NOTE



Do not keep the blind closed during driving and over a longer period of time (several weeks).

Over time, the springs would suffer if the blinds are permanently lowered.

Re-tensioning the blinds



Use a screwdriver to re-tension the blind springs.

- Insert the screwdriver and turn once or twice clockwise.
- Check the tension and repeat the process, if required. Ensure that you don't over-tension the springs.

Blind care

As a rule, never use aggressive cleaning agents (solvents or abrasives). Use a damp cloth and soapy water to clean the blinds and frame parts. Use a soft brush and/or damp cloth to clean the fly screen.

5.1.7 Skylights

Different models of skylights are installed in the ceiling depending on the model and selected equipment. The skylights are opened and locked from inside.

The skylights have fly screens, blackout blinds, and forced ventilation slots.

Depending on the model, skylights can be opened upwards or placed in a diagonal open position.

ATTENTION



Material damage due to open windows or skylights when driving!

Open windows or skylights can hit signs, light poles, and other elements and cause severe damage to the vehicle and other property.

- Never drive with opened windows or roof canopies!

Models

Model variants



Fig. 21: Skylight (Heki 2)



Fig. 22: Skylight 400x400 mm
VisionStar 700x500 mm



Fig. 23: Prop-up skylight



Fig. 24: Midi Heki / Mini Heki plus

Overview

5.1.8 Awning fastening



Fig. 25: Awning fastening

On the entry side of the caravan, on the outer edge, there is a circumferential profile strip (1) for fastening an awning.

The profile strip is widened somewhat on the rear of the vehicle.

- Start drawing the awning into the profile at this point.

5.1.9 Multifunction light switch



Fig. 26: Multifunction switch (example)

One or two switches are installed at convenient height in the entrance area. They control the various sources of light from inside and outside of the vehicle, permitting lighting the interior before entering the vehicle body.

5.1.10 LED switches and LED displays



Fig. 27: Function switch (example)

The LED switches and LED displays for the various 12V/230V consumers are arranged above the entrance. The number of switches and displays fitted in the control panel varies dependent on the specification.

A summary of all the various switches and displays with LEDs and their meaning is given in the table.

Figure	Description	Display
	Display for fresh water level	<ul style="list-style-type: none"> red = empty tank yellow = half-full/half-empty green = full tank
	Display for grey water level	<ul style="list-style-type: none"> green = empty tank yellow = half-full/half-empty red = full tank
	Battery charge status display	<ul style="list-style-type: none"> red = empty battery yellow = half-full/half-empty green = full battery

Overview

5.1.11 Smoke alarm



Fig. 28: Smoke detector

A battery-operated smoke alarm is attached to the ceiling of the living area. If smoke develops in the vehicle, an acoustic alarm sounds warning the passengers of a possible fire.

The smoke alarm's integrated power supply via the installed 9V block battery ensures that the smoke alarm functions independently of the vehicle electrical system, and that it also operates when the vehicle's power supply is switched off.

- Prior to using the vehicle for the first time, remove the protective foil from the block battery to activate the smoke alarm.
- Regularly check the block battery and replace when necessary.

5.2 Furnishings

5.2.1 Sitting area



Fig. 29: Sitting area, example

The shape and arrangement of the sitting area and table installed in the caravan depend on the model. Lower the table top to provide additional sleeping spaces (→Section "Sitting and sleeping").

NOTE



Fading of the upholstery can be effectively countered by always protecting the sitting area from direct sunlight.

5.2.2 Kitchen area



Fig. 30: Kitchen area, example

The kitchen area is designed for longer stays. The kitchen counter area has a sink and a small work surface.

Closets for crockery are installed above this counter.

Large kitchen items such as pots and pans are securely stowed in the lower kitchen cabinet.

CAUTION



Risk of injury due to flying crockery and hot cooking appliances!

Flying dishes and hot cooking appliances can cause serious injury and material damage.

Before each journey:

- Safely store crockery and kitchen appliances.
- Lock the cabinets and drawers.

Overview

5.3 Storage compartments

5.3.1 Storage space in the floor area

WARNING



Danger of accident and injury due to unsecured packed goods!

Unsecured luggage and excessive load adversely affect driving behaviour; luggage can slide and cause serious accidents.

- Comply with the specifications for maximum permissible load.
- Weigh luggage before loading and distribute weight uniformly.
- Secure all luggage so that it cannot slip.

Under-bed storage



Fig. 31: Under-bed storage

Storage compartments under the beds are available for medium-sized luggage. Under-bed compartments can be reached via a hatch or by lifting and unfolding the slatted frame under the mattress.

Wall cupboards in the living area



Fig. 32: Wall cupboards in the living area

Additional storage possibilities are offered by the hinged compartments and open storage units e.g. above the sitting area as shown in the illustration.

This is a good place to store items of common interest, such as games, maps, or magazines.

Upper kitchen cabinet



Fig. 33: Upper kitchen cabinet, example

Small and medium-sized kitchen items such as crockery, plastic glasses, or cups are best stowed in the lockable storage units above the kitchen block.

5.3.2 TV bracket

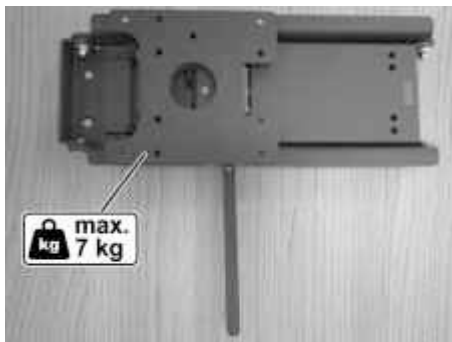


Fig. 34: TV wall mounting, example

A TV wall mounting is available for the safe carrying of a flat screen TV. The smooth-action lateral pull-out and the rotation function mean it is easy to move the TV into the desired position.

- Follow the manufacturer's instructions when mounting the TV on the retaining plate.
- The sprung steel lock must be moved left or right to unlock, depending on the seating. Simultaneously, pull the TV mounting unit to the desired length and, if necessary, adjust the angle of inclination.
- To lock the TV, position it vertically again. The TV must then be retracted as far as it will go until it clicks into place with an audible sound.

CAUTION



Damage to property due to falling TV!

While driving, the TV may fall down due to vibrations.

- Take down the TV before driving!

Overview

5.4 Technical equipment

General

Your caravan is equipped with modern and convenient technical systems. This section provides important information on the structure and function of the equipment and built-in devices.

5.4.1 Electrical system

General

The electrical system of the caravan is configured for 12 V and 230 V operation.

As soon as the 230 V input of the caravan is connected to an external 230 V supply network (e.g. via a camping site outlet), the dual devices are operated via the supplied power connection in conjunction with the power supply unit.

If the caravan is fitted with a stand-alone package (optional), a charger will charge the supply battery (optional). At full battery capacity, the charger ensures constant charge. In this case the 12 V consumers (lighting, water pump) are supplied with electricity from the supply battery.

When towing, only some of the 12 V consumers are supplied from the battery of the towing vehicle.

NOTE



During interruptions in travel (e.g. rest breaks), always switch off the 12 V consumers to prevent the rechargeable starter battery from discharging unnecessarily!

DANGER



Life-threatening danger due to electric shock!

Danger of electric shock potentially resulting in serious or fatal injury when working on electrical equipment.

- Any repair tasks on the electrical system must be performed by qualified personnel.
- Replace defective fuses only after the cause of the fault has been identified and rectified.

Power connection

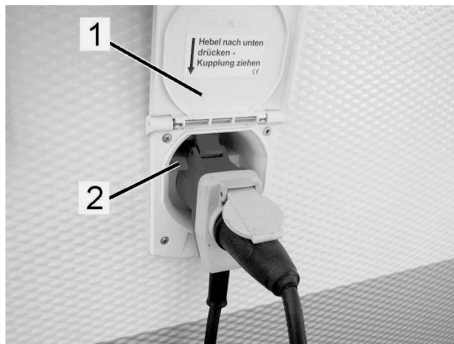


Fig. 35: Power connection

The power connection (Fig. 35) is located under a protective cover (1) at the outside of the caravan.

Connect the CEE cable with the connection plug and secure with the stopping lever.

NOTE



Before travelling to foreign countries, obtain information about the plug and connector systems used at your destination. Suitable adapters are commercially available.

Circuit breakers

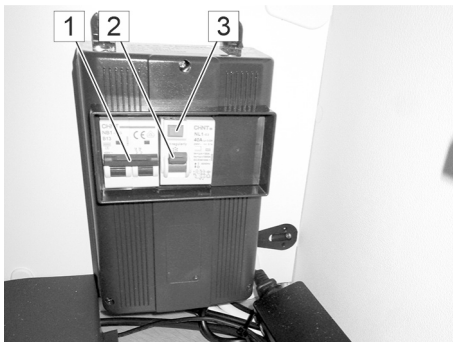


Fig. 36: Circuit breakers

The electric system is secured with miniature circuit breakers and a ELCB. The miniature circuit breakers also serve as main disconnect switches.

- 1 Light circuit
- 2 GFCI
- 3 Test switch for GFCI

The power supply is divided in separate circuits:

Power circuit	Assignment	Nominal current in [A]
Lighting circuit 1	Interior lighting and power outlets	10
Lighting circuit 2	230 V operation	16

- Shut the circuit breaker off if the vehicle is not in use (e.g. during the winter months). This disconnects all devices from the power supply.

Overview

5.4.1.1 Supply battery (optional)

General

You can use either a conventional lead/acid battery or a so-called AGM battery.

The supply battery supplies all activated 12-V consumers when the system is not connected to an external power source. While this is the case, the supply battery is continuously discharging.

To maintain long-term functional operating condition it requires basic maintenance. The charger has been equipped with a battery monitor protecting the supply battery from total discharge during use.

However, irreparable damage can occur if the vehicle is parked for longer periods (e.g. in winter) without manual maintenance. For this reason, you must use the charger to recharge the supply battery at least once a month.

For an unused but not fully discharged supply battery, the charging process will be completed after ten to twelve hours.

AGM battery (optional)

The AGM battery (**a**bsorbent **g**lass **m**at) is a state-of-the-art battery that absorbs the electrolyte in a special fibre-glass matting. It does not have any free (liquid) sulphuric acid and can be operated in any position. The acid cannot escape even if the AGM battery breaks. AGM batteries are ideally suited for the use in mobile homes and caravans.

Benefits:

- Low maintenance (closed system)
- High cycle stability, long service life
- Good total discharge properties
- Low spontaneous discharge, long storage life
- Escape proof, no gas formation, no corrosion, no drip tray
- High shock and vibration resistance
- Small footprint at comparable capacity

It is recommended to charge the AGM battery in the early times once a month for more than 24 hours. At low discharge, this interval can be extended, depending on external temperatures, once per quarter for example.

CAUTION**Damage due to incorrect use!**

An auxiliary battery should only be replaced with one of the same type and specification as the one originally specified by the caravan manufacturer.

NOTE

Only batteries of the same type and same capacity can be connected in parallel.

Overview

Stand-alone package (optional)



Fig. 37: Battery cover with control module for mover (optional)

The stand-alone package comprises a supply battery and a charger located beneath the housing.

The supply battery supplies all 12 V consumers as soon as the 12 V main switch above the entrance door is switched on and the 12 V consumers are activated. Thus, the supply battery is continuously discharging.

Exception: 12 V operation of the refrigerator.

The refrigerator can be in 12 V mode during driving only via the charge cable. During standstill, you can operate the refrigerator only with gas or an external 230 V supply.

The charger recharges the supply battery as soon as you have connected to the 230 V power supply. The 12 V consumers are supplied only via the supply battery. As soon as the supply battery has reached its full capacity, the charger will provide sufficient trickle charge.

Comply with the safety instructions and operating instructions provided in the manufacturer's documentation for operation!

CAUTION



Fire danger due to heat accumulation!

Supply battery and charger become hot during operation and can cause smouldering or fire if heat cannot be discharged properly.

- Never cover the supply battery and the charger.
 - Do not misuse the storage space of the supply battery and the charger as the storage space for other objects.
-

NOTE



- *The charger must only be installed and opened by authorised specialist personnel!*
- *The device must be fully disconnected from the power source before the fuses are replaced!*
- *Fuses must be replaced with fuses of the same fuse class and category!*
- *Prior to replacing a defective fuse, the cause of the fuse having tripped must be eliminated (short-circuit, overload)!*
- *Incorrect polarity of the connected battery or the input voltage can result in a defective control unit.*
- *Insufficient ventilation of the device causes a reduction in the charge current.*
- *The housing surface can become hot during operation!*

Charge status

CAUTION



Explosion hazard due to overcharging!

A defective charger can cause "boiling" of the supply battery and an explosion.

- Switch off the charger immediately if the battery is boiling.
- Have the defective charger repaired by an authorised specialist workshop or replace with a new unit.

Overview

ATTENTION**Material damage due to improper maintenance!**

Improper maintenance of the battery will cause destruction and total failure of the unit!

- Comply with manufacturer instructions.
- Travel only with fully charged battery.
- After every trip, recharge the battery for 12 hours.
- Batteries subject to high ambient temperatures ($\geq 30\text{ }^{\circ}\text{C}$) require more frequent recharging.
- At shut-down times of more than four weeks, disconnect the batteries from the on-board system and recharge on a monthly basis.
- Check the acid condition at least once a year (only in lead-acid battery).

WARNING**Risk of injury due to improper handling of batteries!**

Batteries can release toxic acid, explode and cause severe injury if handled improperly.

- Do not expose batteries to high temperatures. Do not place in the vicinity of sparks, ignition sources, or naked flames. Do not smoke.
 - Do not unclamp the terminals during charging nor move the batteries.
 - Do not touch escaping fluids. In the event of skin contact, wash immediately and thoroughly with water.
 - Eye contact: Rinse out eyes immediately with plenty of water and seek medical attention.
 - Collect escaped fluid with suitable absorbent cloth and dispose of according to applicable environmental regulations. Wear protective gloves!
-

5.4.1.2 Interior lighting

LED battery lights



In the interior, displaceable LED battery lights with magnetic holders are arranged above the sitting area and in the sleeping area, ensuring the spaces are well illuminated.

The lights are switched on, dimmed to three levels of brightness, and switched off by simply touching the rear side.

Charging is via a standard USB cable.



Fig. 38: LED battery lights

Overview

Kitchen light

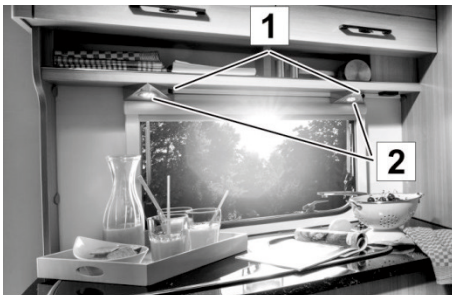


Fig. 39: Kitchen light, example

Spotlights (2) are located beneath the top cabinets in the kitchen area.

The switches (1) are attached directly on the spotlights.

The kitchen lighting system is integrated in light circuits 1 and 2, and can be only operated when these circuits are activated.

Canopy light (optional)



Fig. 40: Canopy light with LEDs

The awning light (optional) lights up the entrance area at night. It can be operated with the remote control unit (optional) or the corresponding button on the entry door.

The awning light must always be operated manually. For safety reasons, it does not switch off automatically and remains in operation until it is switched off.

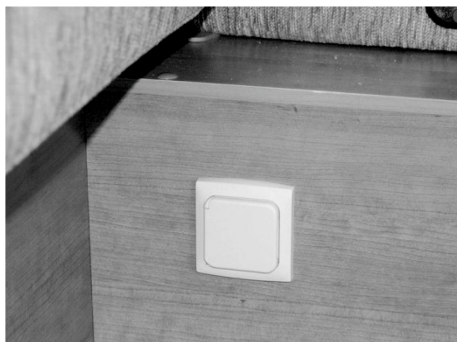
NOTE



The canopy light is not a headlight authorised for traffic and must be switched off before driving!

5.4.1.3 Power outlets

230V outlet



Outlets for the connection of small appliances when an external power supply is connected can be found at various locations in the vehicle interior, depending on the model and selected equipment (the picture shows an outlet in the support of the sitting area).

Fig. 41: 230 V outlet, example

12 V socket (optional)



If a TV wall mounting is fitted, a 12 V socket will also be installed for powering the TV from alternate voltages.

Fig. 42: 12 V socket, example

USB socket (optional)



Depending on the vehicle's equipment level, a USB socket will also be available in the vehicle.

Fig. 43: USB socket, example

Overview

5.4.1.4 System Information Unit (SIU) (optional)

The app must be downloaded before the service functions of the app-controlled service unit can be used.

To do so, please scan the QR code on the inside of the wardrobe door and then follow the further instructions.

As a precaution, a second QR code is located directly on the control unit in the front of the storage compartment.

After downloading the app, two basic functions are available.

- Voltage display
- Levelling aid for assistance in levelling the caravan

The SIU has a range of 10 m.

Dependent on the extent of the optional equipment purchased, other functions may be available.

5.4.2 Fresh water and waste water system

General

The following section provides information on the fixtures for fresh water supply and waste water disposal.

NOTE



Standing water in the fresh water tank or in the water lines becomes unusable even after a short period. Thoroughly purge and rinse with fresh water before using the tank or water pipes after shut-down times. Special cleaning and sterilising agents are commercially available for regular use.

Mixer tap



Fig. 44: Mixer tap

WARNING



Danger of scalding due to hot water!

Hot water can scald hands and other body parts.

- Open the mixer tap in cold-water position and carefully raise the temperature.

1. To obtain water, turn the lever in direction of the cold-water setting (blue mark), lift upward, and slowly shift in direction of the red mark.
2. To close, turn the mixer lever in direction of the blue mark and push downward.

Overview

Waste water

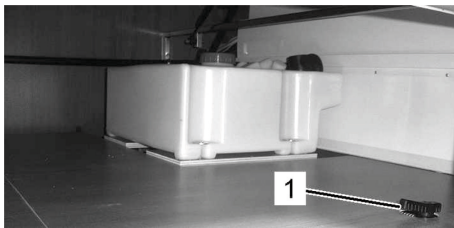


Fig. 45: Waste water tank (optional)

The waste water from sink and washbasin drains into a shared waste water conduit.

Depending on the model and selected equipment, the waste water is either captured in a permanently installed waste water tank (optional), or discharged into the exterior.

In a permanently installed waste water tank (optional), the drain valve (1) is installed in the immediate vicinity of the tank for easy access.

NOTE



Cleaning agents, soaps, wash lotions and cosmetics contaminate the environment and ground water.

- *Never drain waste water in free nature, dispose only at the designated disposal points!*

ATTENTION



Damages after extended stand time or frost!

If the vehicle is not used in winter, the sanitary system may be damaged due to frost.

Extended stand times can cause algae growth in the sanitary system.

- Ensure that the overflow valve is free from contamination and ice formation.
- In the event of frost or extended stand time, completely empty the water tanks, containers, hoses, and conduits. Dry-run the pump for approximately five minutes to avoid frost damage caused by residual water in the pump.

NOTE



Frost damage or contamination caused by algae growth in the water system are not covered by the guarantee!

6 Camping

This section describes the operation and function of the equipment of your caravan. See also the instructions provided in the "Overview" section and those in the operating manuals for the built-in devices.

6.1 Setting up the caravan

6.1.1 Establishing the power connection

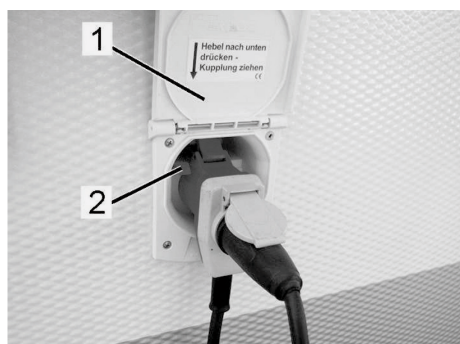


Fig. 46: Power connection

1. Before connecting, check whether the electrical supply mains matches the power specification of the caravan.
2. When using cable drums, completely unroll the power cable to prevent the cable from overheating.
3. Lay the cable so that it does not cause a stumbling hazard; mark the cable routing, if necessary.
4. Lift up the hinged cover (1) of the power supply connection on the side of the vehicle.
5. Push the stopping lever (2) upward and insert the CEE mains plug.
6. Connect the plug connector of the power cable to the external supply station.
7. Turn on the main switch.

6.1.2 Filling the fresh water tank

WARNING



Health hazard due to germs and bacteria in the drinking water!

Contaminated drinking water can cause serious infections.

- Prior to the first use, disinfect the fresh water system of the vehicle, and thoroughly flush with drinking water.
- Transfer water only from supply systems with proven drinking water quality.
- Filling hose and container must be approved for drinking water.

6.1.3 Draining the waste water

NOTE



Cleaning agents, soaps, wash lotions and cosmetics contaminate the environment and ground water.

- *Never drain waste water in free nature, dispose only at the designated disposal points!*
- *Ensure that the collection container does not overflow, regularly empty at the disposal point.*

Drain via the discharge pipe

1. Place collection containers (e.g. water bucket) directly under the drain pipe under the floor of the vehicle.
2. Allow the waste water from the kitchen sink, shower, and wash basin to drain into the collection container.
3. If the camping place is equipped with a waste water system, you can extend the drain pipe using a suitable waste water hose, and directly route the waste water into the designated sewage system.

Draining via the waste water tank (optional)

- Available if this special option was selected.



Fig. 47: Wheeled waste water tank

1. Detach the wheeled waste water tank from its bracket in the gas bottle locker and open the cover.
2. Place the wheeled waste water tank with the intake port under the drain pipe for the waste water to flow from the caravan into the tank.
3. Regularly empty the waste water tank at an approved disposal point before it may overflow.
4. After use and before continuing your trip, insert the waste water tank in its bracket in the gas bottle locker and fasten.

6.1.4 Changing the smoke detector battery

The smoke detector is fitted with a 9 V block battery. To maintain the function of the smoke detector, the block battery must be replaced regularly, at the latest when the battery indicator signal sounds.

- Comply with the safety and operating instructions in the operating manual provided by the manufacturer!

1. Carefully rotate the housing of the smoke detector counter-clockwise (15° approximately) until it can be taken from the bracket.



Fig. 48: Removing the housing

2. Remove the spent block battery and disconnect it from the contact strip.
3. Connect the new block battery with the contact strip. The contact strip must engage on the poles of the block battery.
4. Insert the connected new battery in the battery compartment of the smoke detector.

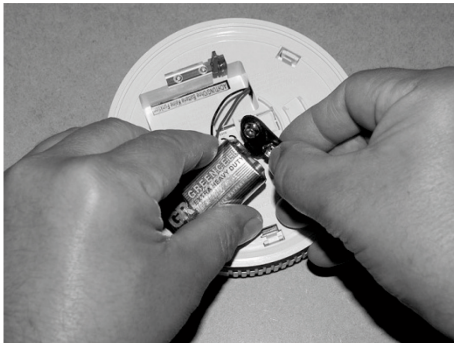


Fig. 49: Replacing the block battery

5. place the smoke detector's housing with the notch (1) at the mark (2) and strongly press onto the bracket.
6. Carefully rotate the housing clockwise (15° approximately) until it latches in the bracket.

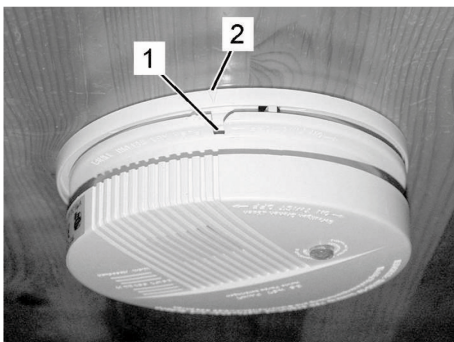


Fig. 50: Replacing the housing

6.2 Airing

General

Regular and planned airing creates a pleasant atmosphere and prevents condensation formation and heat accumulation.

Use the hinged windows, sliding windows and skylights to air the motor caravan superstructure.

The caravan features forced ventilation openings to ensure continuous airing.

ATTENTION



Damage due to inadequate ventilation!

Inadequate ventilation causes a lack of oxygen and worsens the room climate. Heat accumulation and water condensation cause damage to the interior furnishings.

- Never cover the louvres for forced ventilation.
Always ensure adequate airing of the vehicle.

Hinged window



Fig. 51: Hinged window

Intensive airing

1. Turn the rotating knob upward by approximately 90°.
2. Swing the window outward and latch in the desired position or fasten with the locking mechanism.
3. To close the hinged window, swing further upward or undo the locking mechanism.
4. Swing the hinged window backward, close it and lock with sash fastener.

Sliding windows



Fig. 52: Sliding windows

Opening sliding windows

- To open, press the inner slide handle to the side and hold; at the same time slide the moveable part of the window to the side.
- To close, push the moveable window part back into position. When closing, always ensure that the slide handle again engages.

Combination blind



Fig. 53: Combination blind

The hinged windows are fitted combination blinds consisting of a fly screen and a blackout blind. Both blind components are hung from the window top.

For both blinds:

- To close, use the handle to pull the fly screen fully downward and slightly push against the window until the lower strip latches.
- To open, push the handle downward and slightly pull toward yourself until the lower strip detaches. Due to the tension, the blind automatically rolls up – hold the handle during this action.

The blackout blind can be lowered in three different heights. It latches in one of three possible positions in the lateral guide rails.

ATTENTION



Damage to the blinds if they fly up!

To avoid damage to the blind, ensure that the blind CANNOT fly up.

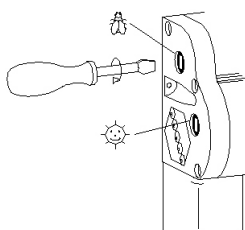
NOTE



Do not keep the blind closed during driving and over a longer period of time (several weeks).

Over time, the springs would suffer if the blinds are permanently lowered.

Re-tensioning the blinds



Use a screwdriver to re-tension the blind springs.

- Insert the screwdriver and turn once or twice clockwise.
- Check the tension and repeat the process, if required. Ensure that you don't over-tension the springs.

Blind care

As a rule, never use aggressive cleaning agents (solvents or abrasives). Use a damp cloth and soapy water to clean the blinds and frame parts. Use a soft brush and/or damp cloth to clean the fly screen.

Fly screen door (optional)



Fig. 54: Fly screen door

The entrance door can be fitted with an optional fly screen door (optional).

1. To open the screen door, push the handle into the desired position.
2. To close the screen door, push the handle back.

Skylight

Depending on the caravan model, the skylights installed in the roof differ in design and operation.



Fig. 55: Prop-up skylight

Opening the prop-up skylight

1. Grasp both handles to push the internal locking levers.
2. Grasp both handles and push the skylight upward.

Closing the prop-up skylight

1. Grasp both handles to push the internal locking levers.
2. Grasp both handles and pull the skylight downward.



Fig. 56: Operating the Skylight
400x400 mm /
VisionStar 700x500 mm

Opening the skylight

1. With the VisionStar, pull and/or turn the handle down so that the skylight unlocks.
2. Push the pulled down handle forwards so that the skylight lifts up.
3. Latch the clip in the desired position.

Closing the skylight:

- Move the handle back from the latched position into the initial position.

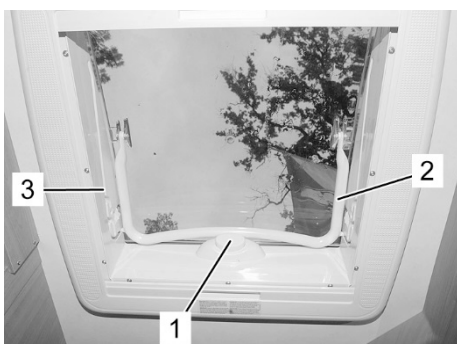


Fig. 57: Operating the Midi Heki / Mini Heki plus

Opening the skylight

1. Press the safety button (1) of the skylight.
2. Move the clip (2) in the guide groove (3) backward.
3. Latch the clip in the desired position.

Closing the skylight:

- Move the clip from the latching position back to its original position until the safety button (1) locks the skylight.

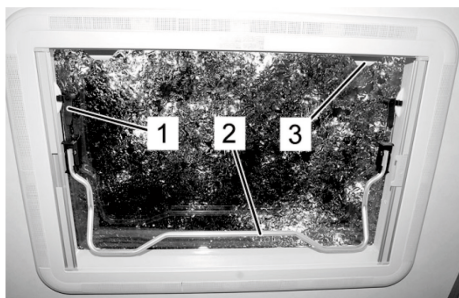


Fig. 58: Operating the Heki 2 lift skylight

Operate the lift skylight (optional)

1. Push the safety button on both knobs (1, left and right) and rotate the knobs approximately 90°.
2. Pull the clip (2) with a slight jerk from its bracket and swing downward.
3. Prop the skylight open with the clip. Swing the clip all the way down.
4. Place the clip onto the bracket (3) and secure.

6.3 Sitting and sleeping**6.3.1 Converting the sitting area**

The layout of the sitting area depends on the selected model. By lowering the table, you can create additional sleeping spaces.



Fig. 59: Table, rectangular

Lowering a table with support leg

1. Push the sliding bush (1) upward and fold the lower part of the table leg (2).
2. Tilt the table top upward and lift from the wall rail (3).
3. In tilted position, hang the table top in the lower wall rail (4).
4. Tilt the table top forward until the folded leg is securely placed on the floor.

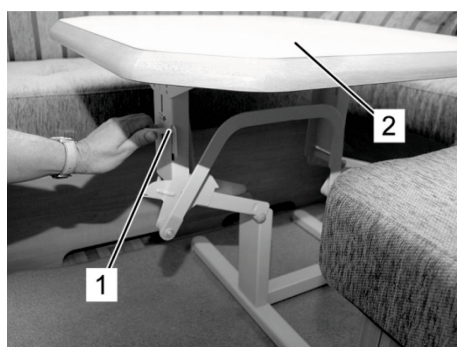
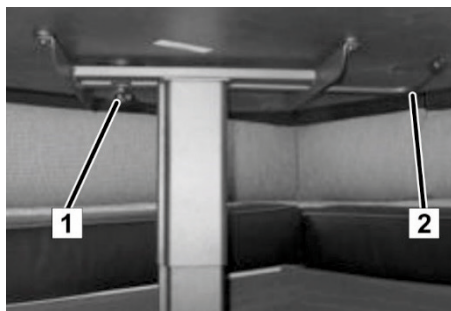


Fig. 60: Table with table lift frame

Lowering a table with lift frame

1. Turn handle (1) counter-clockwise and hold to unlock the folding mechanism.
2. Push the table top (2) downward.
3. After latching the lower position, release the handle (1).

"Ilse-Lift" lifting frame (optional)



Functions:

Lowerable single leg table foot

Rotating table plate



Raising the table

- Swivel operating lever (2) through 180 degrees.
The table automatically raises to its normal position.
Once the desired height of the tabletop is reached, lock the operating lever again



Rotating the tabletop

- After loosening the knurled screw (1) the tabletop can be rotated and aligned.
(Only if the lifting table is extended)
The knurled screw must be tightened again after aligning the tabletop.

Fig. 61: "Ilse-Lift" lifting frame

Lowering the table

- Before lowering the table, swivel it back into the home position. After swivelling, re-tighten the knurled screw.
Then activate the operating lever (2) to lower the table.
- Swivel the operating lever (2) through 180 degrees and simultaneously push the tabletop downward.
Once the desired height of the tabletop is reached, lock the operating lever again.

Camping

6.3.2 Setting up the lighting

Depending on the selected model and equipment, the living and sleeping areas are fitted with various lamps.

6.4 Kitchen area

Minimum and maximum pot sizes

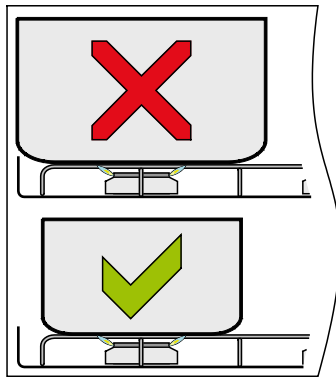


Fig. 62: Pot sizes

CAUTION



Risk of fire due to oversized pots!

Using oversized pots can cause overheating and thus a heightened risk of fire.

- Place the pots and pans centred above the burner.
- Used pots and pans must not be larger than the pan stand on top of the burner.
- The operating manual of the device manufacturer provides information about the permissible pot sizes.

7 Maintenance

7.1 Exterior cleaning

NOTE



Acrylic glass window panes are very sensitive and require special care.

Only clean wet with a clean sponge or soft cloth.

Avoid using chemical cleaning agents, glass cleaner and other aggressive cleaners.

Use special acrylic glass cleaner for stubborn stains.

1. Prior to cleaning the vehicle, close all doors, windows, and skylights.
2. Apply a weak water jet to the entire caravan at an approved vehicle washing facility.
3. Wash the vehicle with a soft sponge and mild shampoo solution and rinse with water.
4. Dry the caravan (e.g. with a chamois); remove, in particular, moisture on lamp holders, window frames, etc.
5. Treat the surfaces with a suitable preserving agent.

NOTE



Because GFRP surfaces age faster than coated surfaces, they may become dull and attract moss and algae growth. For this reason, GFRP surfaces must be polished and sealed with wax at least once year to be protected against UV light and ageing. Suitable polishes and sealants are available from specialist distributors for camping and water sports products.

6. Plastic parts such as bumpers and skirting panels should be cleaned with off-the-shelf, non-aggressive plastic cleaning agents.
7. Apply a rubber care agent (talcum for example) to rubber door and window elements.
8. Grease door hinges, stabilisers and joints as needed.

Maintenance

7.2 Interior cleaning

1. Use standard, non-aggressive household cleaning and care products for the interior and floor.
2. Wipe off furniture surfaces with a damp cloth, use furniture polish if necessary.
3. Vacuum off the upholstery or clean it carefully with a mild foam cleaner. Do not wash.
4. Thoroughly rinse and disinfect the fresh water tank and fresh water lines, empty and clean the waste water tank.
5. Use designated non-abrasive steel cleaners to clean the sink and hob to avoid scratching.
6. Use designated plastic cleaning and care products to clean plastic parts such as shower and washbasin.
7. No aggressive cleaning agents containing solvents or alcoholic substances should be used to clean the 3D thick edges in the furnished area.

7.3 Pop-up roof (optional)

Care tips for the hinged pop-up roof

- Treat the roof bellows with an off-the-shelf impregnating agent each year before the start of the season.
- Thoroughly vent the roof bellows several times a year, to prevent stagnant moisture and musty odour.
- Do not fold the pop-up roof in damp or wet condition immediately after rainfall, for example.
- Rub a suitable separating agent (e.g. talcum) into the sealing rubber on the roof shell before winter, so that the sealing rubber does not freeze to the vehicle body in freezing temperatures.
- Treat the roof shell with GRP polish.
- Check the strap bands of the roof locking mechanism for faultless condition and function before each trip. Replace torn belt straps before starting the trip.
- Prior to longer periods of non-use, remove the bed pad from the hinged pop-up roof to avoid stagnant moisture and rotting.

7.4 Measures during lay-up

- Take the following measures.
- Supplemental tasks for winter care are indicated by the letter **W**.
- Amend this list to meet your specific requirements.

Component	Activity	
Chassis		
	Park the caravan where it is safe and secure it from rolling off. Do not engage the parking brake.	
	Thoroughly clean under-body, repair rust and paint damage.	
	Check the air in the tyres, inflate to specified pressure.	
	If possible, jack up the vehicle, otherwise move the vehicle every 4 weeks to prevent pressure marks on tyres and wheel bearings.	
Motor home body		
Exterior	Free the entire vehicle, particularly the roof, from deposits such as branches, leaves, snow and ice.	
	Thoroughly clean the superstructure, repair rust and paint damage.	
	Clean and lubricate the hinges on doors and hatches.	W
	Treat locks with graphite dust.	W
	Rub talcum into the sealing rubber.	W
Interior	If possible, remove the upholstery from the caravan and store it in a dry location; if this is not possible, put it in a vertical position for better ventilation.	W
	Remove clothing, objects of daily use, cosmetics, canned goods and perishable goods from closets, storage areas and compartments.	
	Clean all closets, storage areas, and compartments with a damp cloth.	
	Set up air de-humidifiers.	W
	Repeatedly and thoroughly ventilate the interior.	W

Maintenance

Component	Activity	
Electrical system	Check the supply battery (optional), fill, recharge if necessary.	
	Remove the supply battery (optional) and store it in a frost-free location.	W
	Spray contact spray into the contacts of the plug connector for connection to the towing vehicle.	
Water system	Empty the fresh water tank, open the tank locking mechanism.	
	Drain the hot and cold water system, open all water cocks to middle position and leave them open.	
	Blow out any water remaining in the water lines with compressed air (oil-free, max. 0.5 bar).	
	Empty the siphons in the kitchen area.	W
	Empty and clean the waste water tank.	

8 Maintenance and inspection

General

Maintenance includes inspection, servicing and repair.

Service tasks described in the sections below are required for optimal and trouble-free vehicle operation.

- In the event that increased wear is detected for specific components in the context of regular inspections, shorten the required service intervals based on the actual wear indications!

In addition to this operating manual, the operating manuals supplied for the built-in devices also apply. The instructions contained therein - particularly the safety instructions cited in these manuals - must be complied with!

If you have questions concerning service work and intervals: Contact the manufacturer (service address → page 2).

WARNING



Danger of accident and injury due to improper maintenance!

Improper maintenance or repair can cause serious accidents or injuries.

- Only have repairs to the vehicle or chassis and electrical system performed by authorised specialists.

8.1 Maintenance schedule

Interval	Component	Action required
Weekly	Supply battery (optional)	Check charge status
Monthly	Main switch (FI)	Function check
	Tyres	Check the tyres: Condition, tread depth, fill pressure
	Fresh water tank and fresh water system	Clean and disinfect
	Coupling: Check the wear indicator of the stabilising device	. If the wear limit has been reached, replace the friction elements of the stabilising device.
semi-annually	Doors, service hatches, storage compartments	Clean and grease joints, hinges
	Hinged windows, sliding windows, skylights	Check for leaks Clean and grease joints and hinges
	Support elements	Clean and grease joints and threaded rods
annually	Electrical system	Function check
	Fresh water and waste water system	Function check, leak test
	Door illumination	Function check
	Seals on the doors, storage and service hatches, windows, skylights, and safety straps	Function check
	Sealing strips, sealing edges, sealing rubber	Check for damage
	Support wheel spindle	Grease
	Lubricating nipple on the overrun brake device	Grease
	Thrust rod of the overrun brake device	Grease (below the rubber sleeve)
	Parking brake lever	Oil
	Under-body protection	Check
every 10 years	Smoke detector	Replace

8.2 Inspection schedule

Interval	Component	Action required	✓
annually	Superstructure	Tightness test (annual inspection by authorised specialist workshop pursuant to the 5-year guarantee for tightness)	
every 2 years	Overall vehicle	General vehicle inspection	

8.3 Wheels and tyres

General

WARNING



Danger to life due to incorrect tyre pressure!

Incorrect tyre pressure causes excessive wear and tear and damages the tyre which ultimately could burst.

- Prior to every trip or in two-week intervals, check the tyre pressure in cold tyres.

- The vehicle is fitted with tubeless tyres. Never install tubes in these tyres.
- When using aluminium rims, you cannot use snow chains.
- In the event of a flat tyre, move the rig to the right (continent) or left (UK) side of the road. Secure the rig with a warning triangle. Activate the hazard warning lights.
- Due to the design, vehicles with tandem axle may exhibit higher tyre wear.
- Tyres must not be older than six years as the material starts to break down. The four-digit DOT at the tyre side indicates the date of manufacture. The first two digits identify the week, the latter two the year of manufacture.
- Regularly (every fortnight) inspect the tyres for even tread abrasion, tread depth, and outer damages.
- Comply with the legal minimum tread depth.
- Always use tyres of the same model, same manufacturer and same type (summer or winter tyres).
- After having installed new tyres, use only moderate speeds for approx. 100 km in order for them to develop optimum grip properties.

Maintenance and inspection

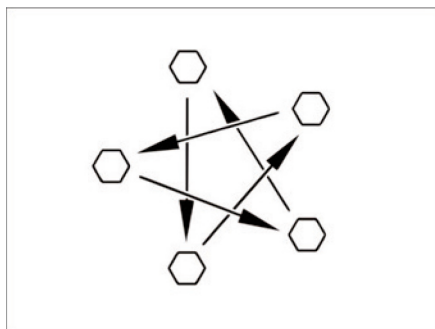


Fig. 63: Always tighten tyre nuts and bolts crosswise

- Regularly check tyre bolts and nuts for proper seating. Re-tighten the nuts or bolts of a replacement after 50 km driving (crosswise sequence, see Fig. 63).

See section "Tightening torques" for the correct tightening torque.

- If you use new or repainted rims, re-tighten the tyre nuts or bolts again after 1000 to 5000 km.
- If the vehicle is not used for extended times, prevent pressure marks at tyres and wheel bearings. Jack up the vehicle to remove stress on the tyres, or move the vehicle every four weeks to change the wheel position.

Tyre selection

WARNING



Danger to life due to incorrect tyre selection!

Incorrect tyre selection causes may damage the tyres during driving, and they may burst.

- Use only tyres that are approved for your vehicle.

- Using tyres not approved for the specific vehicle will cancel the operating licence and ultimately the insurance coverage. Consult your authorised distributor or service point.

The tyre sizes approved for your vehicle are shown in the vehicle documents or can be requested from your authorised distributor or service point. Every tyre must fit the vehicle at which it is to be used. This applies to external dimensions (diameter and radius) indicated by the standardised size designation. But the tyres must also meet the requirements of the respective vehicle regarding weight and speed.

The weight is governed by the maximum permissible axle load to be distributed over two tyres (do not load one-sided). The maximum bearing capacity of a tyre is specified by its load index (= LI load bearing capacity identifier).

The permissible top speed for a tyre (at full load capacity) is specified by its speed rating (= GSY, speed code). Load index and speed rating together form the operational tyre code. It is an official component of the complete and standardised dimension identifier to be found on the tyre itself. The data on the tyre must match those in the vehicle documentation.

Tyre codes

Example: 215/70 R 15C 109/107 Q

Code	Explanation
215	Tyre width in mm
70	Tyre height to width ratio in percent
R	Tyre design (R = radial)
15	Rim diameter in inches
C	Commercial (transporter)
109	Lead bearing code, single tyre
107	Load bearing code, twin tyre
Q	Permissible speed symbol (Q = 100 mph/160 km/h)

Treating tyres properly

- Drive over curbs at an obtuse angle. The tyres may possibly be jammed at the flank. Driving over curbs at an acute angle may cause damage to the tyre and subsequently bursting.
- Drive slowly over elevated manhole covers. The tyres may possibly be jammed. Fast driving over elevated manhole covers may cause damage to the tyre and subsequently bursting.
- Have the shock absorbers inspected regularly. Driving with poor shock absorbers causes significantly higher wear and tear.
- Avoid wheel locking when braking. This can cause the tyres to become more or less brake plates and reduces driving comfort. It can also cause the tyres to become unusable.
- Never clean tyres with a high-pressure washer. They can be damaged within just a few seconds and may subsequently burst.

8.3.1 Changing wheels

General

The spare wheel (optional) is stored in the draw-bar box. Use an off-the-shelf scissor jack to change wheels.

WARNING



Danger to life due to rolling or falling of the vehicle!

Severe injuries can be the result if the vehicle rolls or falls when a wheel is changed.

- The vehicle must stand on level, solid, and non-slipping ground.
- Fully engage the parking brake prior to lifting the vehicle.
- Use wheel chocks on the opposite vehicle side to secure it against rolling.
- Never lift the vehicle with the supports installed.
- Never place the jack at the superstructure, but only under the axle.
- Never overload the jack. The maximum permissible load is shown on the jack's nameplate.
- Use the jack only for a short-time lifting of the vehicle for the purpose of changing the tyre.
- Never lay under the lifted vehicle.
- If you have installed aluminium rims and have to use a steel spare wheel: Do not drive longer than necessary to reach the next distributor, workshop or tyre dealer. Adjust your driving speed. The different wheel will adversely affect the driving behaviour.

Maintenance and inspection

- Do not damage the thread of the gudgeon when changing wheels.
- Always tighten tyre nuts and bolts crosswise.
- If you switch to different rims (e.g. aluminium rims or winter tyres), use the corresponding wheel bolts with correct length and head shape. The proper seating of the wheels and the functioning of the brake system depend on this.
- Rims and tyres not approved for the vehicles can adversely affect its roadworthiness.
- Secure a stranded vehicle according to the national regulations, e.g., warning triangle, flares, etc.
- Prior to changing the wheel, check the rim size and tyre size, the tyre load bearing capacity and the speed index shown on the tyre. Use only rim and tyre sizes specified in the vehicle documentation.

Tightening torque

Rim	Tightening torque [Nm]
Steel rim	90
Aluminium rim	120

Preparation



Fig. 64: Securing the support wheel



Fig. 65: Securing the vehicle

Preparing the coupled caravan

- In caravan couplings with a stabilisation device, loosen the stabilisation device. The friction linings will be overstressed otherwise.
- Engage the parking brake of the towing vehicle and shift to first gear.

Preparing the uncoupled caravan

- Park the vehicle on as level and firm a ground as possible.
- Engage the parking brake
- turn the support wheel diagonally to the driving direction and secure with suitable means (Fig. 64).

Jack

Risk of injury when changing a wheel.

Always ensure that:

- The jack base must securely rest on the ground.
- Do not tilt the jack.
- Always insert the profile of the AL-KO lift jack (optional) to the stop in the retaining pocket.



Fig. 66: Off-the-shelf jack

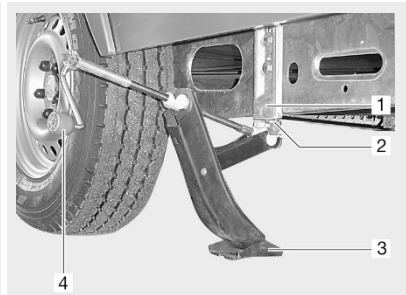


Fig. 67: AL-KO lift jack

Procedure

1. To secure the vehicle, use wheel chocks or similar object on the opposite wheel (Fig. 65).
2. Remove the spare wheel (optional) from its bracket.
3. In the case of soft ground, place a stable base (e.g., wooden board) under the jack.
4. Position the jack.
 - a Off-the-shelf jacks:
Position the scissor jack (Fig. 66) or hydraulic jack at the frame or the axle.
 - b AL-KO automotive jack (optional):
Insert the profile (Fig. 67, Pos 2) of the AL-KO lift jack to the stop in the retaining pocket (Fig. 67, Pos 1). Hold the jack with one hand, and turn the crank (Fig. 67, Pos 4) clockwise until the base plate (Fig. 67, Pos 3) touches the ground and stands evenly.
5. Use a ratchet wrench to loosen the wheel bolts, but do not remove them!
6. Lift the vehicle until the wheel is two to three cm (just over one inch) above ground.
7. Remove the wheel bolts and take off the wheel.
8. Place the spare wheel (optional) on the hub and align.
9. Insert the wheel bolts and lightly tighten crosswise.
10. Crank down and remove the jack.
11. Use the ratchet wrench to evenly tighten the wheel bolts.

Changing a wheel with an aluminium rim

- The bearing surfaces of the wheel on the brake drums must be clean and free of burrs.
- Lightly tighten the wheel, using only the supplied fastening means, and check for proper bearing and operating clearance. Use a torque wrench to crosswise tighten the wheel bolts.
- Various axle designs do not have a centring aid, collar or bolts. Ensure that the wheel bolts are evenly centred across the bore circle (no canting).

8.3.2 Tyre pressure table

Tyre type	Technically permissible total weight [kg] for vehicles with		Tyre pressure [bar]
	Single axle	Tandem axle	
185/70 R14 LI88	≤ 900	1800	2.60
	1000	2000	2.80
	1100	2200	2.80
185 R14C LI102	≤ 1100		3.30
	1200		3.30
	1300		3.50
	1400		3.80
	1500		4.25
	1600	2800	4.50
195/65 R14 LI89	≤ 1000	2000	2.50
	1100	2200	3.00
195/65 R15 LI91	≤ 1000	2000	2.50
	1100	2200	2.70
195/65 R15XL LI95	≤ 1100	2000	2.50
	1200	2200	2.80
	1300	2500	3.10
195/70 R14 LI91	≤ 1000	2000	2.50
	1100	2200	2.70
195/70 R14XL LI95	≤ 1100	2000	2.50
	1200	2200	2.80
	1300	2500	3.10

Maintenance and inspection

Tyre type	Technically permissible total weight [kg] for vehicles with		Tyre pressure [bar]
	Single axle	Tandem axle	
195/70 R14XL LI96	≤ 900	1800	2.50
	1000	2000	2.50
	1100	2200	2.50
	1200		2.70
	1300	2500	3.00
195 R14C LI106	≤ 1100		3.00
	1200		3.00
	1300		3.20
	1400		3.40
	1500		3.75
	1600	2800	4.00
	1700		4.50
	1800	3500	4.50
205/70 R15C LI106	≤ 1100	2000	3.00
	1200	2200	3.00
	1300	2500	3.20
	1400		3.50
	1500		3.80
	1600	2800	4.00
	1700		4.20
	1800	3500	4.50

Maintenance and inspection

Tyre type	Technically permissible total weight [kg] for vehicles with		Tyre pressure [bar]
	Single axle	Tandem axle	
205 R14C LI109	≤ 1600		3.70
	1700		4.00
	1800	3500	4.25
	1900		4.50
215/55 R16XL LI97	≤ 1100		2.70
	1200		2.70
	1300		3.00
	1400		3.00
215 R14C LI112	≤ 1600		3.30
	1700		3.50
	1800	3500	3.80
	1900		4.00
	2000		4.30
225/70 R15C LI112	≤ 1100	2000	3.00
	1200	2200	3.00
	1300	2500	3.00
	1400		3.00
	1500		3.00
	1600	2800	3.50
	1700		3.50
	1800	3500	3.70
	1900		4.00
	2000		4.30

Maintenance and inspection

Tyre type	Technically permissible total weight [kg] for vehicles with		Tyre pressure [bar]
	Single axle	Tandem axle	
215/55 R17XL LI98	≤ 1400		3.20
215/60 R17C LI109	≤ 1700		4.00
	1800		4.50
	1900		4.50
	2000		4.75

9 Malfunctions

General

This chapter provides information about troubleshooting. Malfunctions for which causes and remedies are not explained here must be corrected by an authorised workshop.

Additional information concerning malfunctions is also provided in the operating manuals for the built-in devices. If the malfunction correction measures described in those manuals are not successful, then contact an authorised workshop.

WARNING



Danger of accident and injury due to improper maintenance!

Improper maintenance or repair can cause serious accidents or injuries.

- Only have repairs to the vehicle or chassis and electrical system performed by authorised specialists.

9.1 Caravan body

Malfunction	Cause	Remedy
Exterior:		
Hinges on the outside door, storage and service hatches do not move easily	Insufficient hinge lubrication	Lubricate hinges with acid-free and resin-free grease
Interior:		
Hinges and joints in the bathroom, the storage compartments and cupboard do not move easily	Insufficient hinge/joint lubrication	Lubricate hinges and joints with acid-free and resin-free grease

Malfunctions

9.2 Electrical system

DANGER



Life-threatening danger due to electric shock!

Touching live components can cause serious or fatal injury.

- Prior to any work, switch off the electrical system and disconnect from the mains supply.
- Switch off the ELCB.

9.2.1 Malfunctions in standard equipment

Malfunction	Cause	Remedy
No 230 V mains power, although system is connected	Power cable is not connected	Connect the power cable.
	230 V miniature circuit breaker in the caravan has tripped	Determine the defect and correct it; if necessary go to a workshop, then switch on the 230 V circuit breaker
	The 230 V fuse of the camp site has tripped	Have the 230 V at the camp site checked and switched on by the facility attendant.
12 V power supply does not work during 230 V operation	MCB is not switched on	Activate the MCB
	Automatic 230 V circuit breaker has tripped	Have the electrical system checked by a specialised workshop.
Lighting system does not function or does not function completely	Lighting fixture is defective	Replace the lighting fixture, comply with voltage and watt specifications
	The fuse for the lighting circuit is defective	Identify the defect and correct it; if necessary, visit a workshop, then replace the fuse

9.2.2 Changing light bulbs

DANGER



Life-threatening danger due to electric shock!

Danger of electric shock potentially resulting in serious or fatal injury when working on electrical equipment.

- Any repair tasks on the electrical system must be performed by qualified personnel.
- Replace defective fuses only after the cause of the fault has been identified and rectified.

Light bulb change

Changing light bulbs is simple. Depending on the model:

1. Carefully open and remove the housing.
 2. Unscrew the dead bulb from the socket and replace with a new bulb.
 3. Carefully place and close the housing.
- If there are defects in the lighting fixtures that you cannot correct yourself, visit a customer service facility!

Replacing LEDs



Fig. 68: Replacing LEDs

1. Carefully open and remove the housing.
 2. Remove dead LED from the socket.
 3. If necessary, shorten the contact of the new LED to a length of 10 to 15 mm and insert.
 4. Carefully place and close the housing.
- If there are defects in the lighting fixtures that you cannot correct yourself, visit a customer service facility!

ATTENTION



Risk of fire due to incorrect light bulbs!

Using halogen bulbs may overheat the lap fixture and cause a fire.

- Replace LEDs only with LEDs of the same type.

Malfunctions

9.3 Fresh water and waste water system

Fault	Cause	Remedy
Water leaks in the vehicle	Fresh water system or waste water system leaks	Identify leak points, repair the leaks
No fresh water	Freshwater tank empty	Fill the fresh water tank
	Water pump fuse is defective	Identify the defect and correct it; if necessary, visit a workshop, then replace the fuse
	Water pump filter clogged	Clean or replace filter
	Water pump is defective	Replace the water pump
	12 V supply defective	Contact a specialist workshop
Turbidity, changes in taste and/or smell of the fresh water Deposits in the fresh water tank or in the lines	Tank has been filled with contaminated water	Clean the water system mechanically and chemically; disinfect the water system and flush thoroughly with drinking water
	Residues in the tank or fresh water system	
	Microbiological deposits in the fresh water system	
	Untreated fresh water has been in the system too long	

10 Tightness guarantee

10.1 Guarantee certificate

The guarantee certificate for your vehicle was given to you by your authorised distributor when the vehicle was transferred to you. This guarantee is only valid if it has been signed by the buyer and the authorised distributor.

- Keep the guarantee certificate in a safe place!

10.2 Guarantee conditions and terms

1. LMC guarantees tightness for the duration of 6 six years for models manufactured in or after 2014, and 12 years for models with the Long Life Technology (LLT series from year of manufacture 2015) special option - but maximal up to 120.000 km in total - undertaking that the manufactured vehicle is sealed in a manner that no moisture will penetrate the interior at usual stresses. The buyer is incumbent to provide evidence for a leak at the vehicle. The buyer has no claims arising from this guarantee if the leaks can be traced to improper handling of the vehicle or improperly repaired damages to the same. Moreover, damage that is caused by natural forces (e.g. flood or hail) is excluded.
2. If a leak occurs, LMC shall be obligated within the framework of these guarantee conditions to repair the vehicle parts in question through no-charge repair or replacement of parts, depending on the steps necessary to immediately eliminate the damage. Defects shall be repaired by LMC or by an authorised LMC workshop in accordance with the guidelines specified by LMC. A claim for damage compensation or for elimination of damages arising as a consequence of the first defect does not exist, except in the event that the damage can be traced to gross negligence or wrongful intent by LMC.
3. The guarantee shall be in effect at the date of initial registration or transfer of the vehicle to the buyer, but at the latest one year following the delivery of the vehicle to the dealership. It shall be in force for the duration of the usability of the vehicle, but at the most for six years for models manufactured in or after 2014, and 12 years for models with the Long Life Technology (LLT series from year of manufacture 2015) special option, but maximal up to 120.000 km in total. If the object of purchase changes hands, the guarantee obligations shall remain unaffected. The guarantee expires if the annual inspections specified in item 4 are not performed. The performance of guarantee work does not extend the duration of the guarantee itself.

Tightness guarantee

4. Prerequisite for this guarantee is that the vehicle be annually inspected for leaks by an authorised LMC dealer. The inspection must be performed between the 11th and 13th month after the anniversary of the initial registration (or transfer). The buyer can claim compensation under this guarantee only if he is able to provide evidence of proper performance of the annual inspection by an authorised LMC dealer. The inspection certificate completed by the authorised LMC dealer confirmed with an authorisation by LMC (inspection mark number) must be provided.
5. The owner must report the occurrence of leaks or moisture indicating potential leaks in writing to LMC or an authorised LCM dealer within 15 days. The guarantee certificate must be attached to this report.
6. No claim arising from this guarantee shall be accepted if the leak is not reported in a timely manner as indicated above. Claims for compensation under this guarantee shall not be accepted if damages to the vehicle shell detected during the inspections are not remedied immediately by the buyer.
7. Type and scope of the elimination of leaks are determined solely by LMC or the authorised LMC dealer.
8. Tightness inspections are subject to a charge. The costs for the inspection are borne by the customer.
9. No claims against LMC arise from the guarantee or liability for material defects in the case of natural wear and damages arising from improper handling or impermissible modifications of the vehicle.
Guarantee claims and material defect liability claims are also excluded if damage occurs to the vehicle that can be attributed to parts and accessories not authorised by LMC or that are due to non-compliance with the repair and maintenance guidelines specified by the manufacturer.
10. To the extent legally permissible, Sassenberg shall be agreed as the place of jurisdiction.

10.3 Inspection schedule and inspection certificates

Verification

NOTE



The annual tightness tests are prerequisite for the tightness guarantee for the caravan body.

Verification of inspection must be completed by your authorised dealer after every executed test; it must be entered in the On-line system and printed for you.

10.3.1 Overview of the extent of the leak inspections

Visual inspections - interior	✓
Entry section	
Front wall including connections on the floor plate and side walls	
Rear wall including connections on the floor plate and side walls	
Left side wall including connections on the floor plate and side walls	
Right side wall including connections on the floor plate and side walls	
Wheel housings left and right	
Roof cut-outs	
Visual inspections of the motor home's outside	✓
Exterior sheet metal	
Edge seals	
Under-body	
Damages to the exterior shell	

Measurements

Measured values up to 20 % are considered normal. For measured values greater than 20 %, check whether condensation has accumulated.

Measurement	Measured value
Floor measurements on the connecting points of the front/rear/side	
Measurements in the interior: walls, window apertures, roof hatch, cable conduit, etc.	

Spray with special sealant

Sealed points/edges	✓
Wheel housing	
Cut-out edges in the floor plates	
Butt joints	
Installation openings in the under-body	

Appendix

11 Appendix

Interior and exterior material care

Exterior cleaner	Material	Properties	Suitable	Unsuitable
Cleaning the paint surface	Polyester paint	Water-resistant, hard, scratch-sensitive, UV-sensitive	Cleaner for exterior painted surfaces	Acetone, solvent, thinners, scouring agents
Cleaning of acrylic glass panes	Acrylic glass	Scratch-sensitive, soft	Acrylic glass cleaner	Acetone, solvent, thinners, scouring agents, window cleaner, alcoholic cleaners
Cleaning of GFRP formed parts (gelcoat)	Coloured polyester resin or epoxy resin	Water-resistant, soft, scratch-sensitive, UV-sensitive	Cleaners/polishes for GFRP	Acetone, solvent, thinners, scouring agents
Cleaning of the aluminium-framed doors and flaps	Anodised or painted aluminium	Scratch-sensitive, soft	Mild cleaner for exterior painted surfaces	Aggressive cleaners for outdoor use with pH values > 9
Cleaning of plastic parts	ABS with PMMA (acrylic)	Scratch-sensitive, soft	Mild cleaner for exterior plastics	Aggressive cleaners for outdoor use with pH values > 9 acetone, solvent, thinners, scouring agents, window cleaner, alcoholic cleaners
Care of rubber seals	EPDM	Scratch-sensitive, soft	Mild cleaner for exterior use	Aggressive cleaners for outdoor use with pH values > 9 acetone, solvent, thinners, scouring agents, window cleaner, alcoholic cleaners

Interior cleaner	Material	Properties	Suitable	Unsuitable
Floor cover	PVC, vinyl	Soft, abrasion resistant	Mild cleaner for plastics	Aggressive cleaners for toilets or tiles with pH values > 9 acetone, solvent, thinners, scouring agents, window cleaner, alcoholic cleaners, floor wax
Cleaners for shower trays, splash guards	Polystyrene	Scratch-sensitive, soft	Mild cleaner for plastics	Aggressive cleaners for toilets or tiles with pH values > 9 acetone, solvent, thinners, scouring agents, window cleaner, alcoholic cleaners
Toilet	Polypropylene	Robust, scratch-resistant	Cleaners recommended by the toilet manufacturer, see operating manual	Aggressive cleaners for toilets or tiles with pH values > 9 acetone, solvent, thinners, scouring agents, window cleaner, alcoholic cleaners
Sink/cooker	Anodised steel sheet, stainless steel sheet	Strong, abrasion-resistant, scratch-sensitive, stainless	Dishwasher detergent, vinegar-based cleaner	Acetone, solvent, thinners, window cleaner, alcoholic cleaners
Kitchen worktops, tabletops	High density melamine-faced compressed boards (Resopal-HPL)	Robust, scratch-resistant, temperature-resistant, dirt-resistant	Dishwasher detergent, vinegar-based cleaner	Acetone, solvent, thinners, scouring agents

Appendix

Interior cleaner	Material	Properties	Suitable	Unsuitable
Furniture	Coated plywood, possibly real wood	Soft, not abrasion- resistant, scratch- sensitive	Damp cloth with water or a mild detergent	Acetone, solvent, thinners, scouring agents, window cleaner, alcoholic cleaners
Upholstery fabrics	Velours, microfibres, woven fabrics	Sensitive, depending on the type of fabric	Damp cloth with water or a mild detergent, brush	Acetone, solvent, thinners, scouring agents, window cleaner, alcoholic cleaners

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