

Dear Customer,

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

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

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

This instruction manual also includes the warranty certificate for your vehicle. You will be receiving the warranty stamp shortly. Please paste this stamp into the field provided. To maintain the **HYMER** weatherproof guarantee against water ingress, your vehicle must be inspected for a fee by an authorised **HYMER** dealer or an authorised specialist workshop once a year. A confirmation stamp will be stuck into this manual for each inspection. We also recommend a general inspection of the conversion at yearly intervals.

In addition to this instruction manual you will also receive the instruction manuals for the various built-in appliances.

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

You will also find **HYMER AG** on the Internet at: <http://www.hymer.com>

Yours, **HYMER AG**

**Please paste the
warranty stamp
in here.**

Confirmation:

I have today received the documents for the annual servicing intervals and the water ingress test for the stated model.

Date:

Selling dealer's signature and stamp

Customer's signature

Water ingress test

For the water ingress test your **HYMER** contract partner checks the complete construction of your vehicle at all composite locations, windows, skylights, service flaps and doors for tightness.

Important

The performance and the exact adherence to the intervals is decisive for the continuation of the 6 year weatherproof guarantee. The water ingress test must be carried out on an annual basis. The interval may be carried out max. six months before or six months after the date on which the test is due. For additional information concerning the 6 year weatherproof guarantee, please refer to the following text. Also your **HYMER** contract partner will be pleased to advise you.

Conditions for the **HYMER** 6 year weatherproof guarantee

The vehicle vendor gives guarantee for the following:

1. Scope of guarantee

Under certain prerequisites, the vendor guarantees that

- the necessary prerequisites according to Point 2 are available
- and the buyer has had all impermeability inspections carried out acc. to Point 3 continuously and on time,

that for the vehicle, for a period of six years, for motorhomes, up to a maximum of 100,000 km, with normal use, no rain water will penetrate the body manufactured by **HYMER AG** through the connections, bored holes, and joints in the floor, wheel housing, side wall, front wall, rear wall and roof, including alcoves.

2. Prerequisites of the guarantee

The guarantee presupposes

- that the vehicle area that is leaking is in the original condition or, if work has been carried out on it, then such jobs have been performed exclusively by the vendor or by an authorised **HYMER AG** dealer or service centre;
- that there was no improper handling or overload;
- that the vehicle was not exposed to environmental pollution which exceeds that which is normal and permissible,
- that the **HYMER AG** care instructions and the operating instructions were adhered to;
- that the purchaser immediately handed over the vehicle for remedy of a detected fault to the vendor or to an authorised **HYMER AG** dealer or service centre.

The individual prerequisites will not be considered if they are not the cause or contributory cause for the leakage. Prerequisite for the enforcement of the guarantee is that the purchaser reported any leakage detected in the vehicle or any evidence of dampness indicating this leakage to the vendor latest 14 days after detection and made available the vehicle for repair, as far as long this was not unreasonable.

3. Annual inspection

The purchaser shall send the vehicle regularly, every year, to the vendor or to an authorised **HYMER AG** dealer or service centre for inspection. **The purchaser shall bear the cost of the inspection.** The first inspection must be conducted within the first year after delivery of the vehicle to the purchaser, however, latest within the first year from the date of initial registration of the vehicle. The subsequent annual inspections must be conducted by the calendar, corresponding to the latest date for the first inspection.

If the inspection is carried out six months after expiry of the period at the latest, then the right to claim under the guarantee remains in force, otherwise it is invalid. The time for the next inspection shall not be postponed by a delayed inspection. The inspections are to be proven by means of the guarantee stamps pasted into the guarantee booklet, with the date, stamp and signature from the workshops.

4. Guarantee period

The guarantee period commences with the delivery of the vehicle to the purchaser, on the date of the initial registration at the latest. It terminates prematurely when the vehicle is written off or its capability of use ceases to exist for other reasons. Work carried out on the vehicle which does not fall under this guarantee do not extend the guarantee period.

5. Guarantees

Any leakage covered by the guarantee will be remedied by the vendor. Should the remedy not succeed and the party covered by the guarantee cannot be reasonably expected to accept additional guarantees provided by the vendor, then the party covered by the guarantee can have the leakage remedied by **HYMER AG**, at the expense of the vendor. No further claims apply.

The vendor is not required to remedy the leakage when the vehicle is written off or its capability of use ceases to exist for other reasons as well as when the costs for the guarantee work exceed the value of the vehicle at that time.

A change of ownership has no effect on this guarantee.

6. Other claims

Claims made by the purchaser especially with respect to any performance, damage claims or warranty and guarantee claims made against the vendor or claims resulting from product liability are not affected by this guarantee. As far as the purchaser's duty of disclosure are required as part of this agreement, they refer exclusively to any claims from this guarantee.

7. Statute of limitations

The claims with respect to the remedying of a leakage falls under the statute of limitations 6 months after discovery of the leakage or dampness indicating this leakage, upon expiry of the guarantee period at the latest.

Inspection

After each service, the inspection plan provides you with supplementary and detailed information concerning the work which has been specifically carried out on your vehicle. You receive the inspection checklist when you collect your vehicle from your **HYMER** contract partner. Should it be determined during an inspection that additional work is necessary, then the carrying out of this work

is dependent on the customer commissioning this to be done. Please also adhere to the service intervals stipulated by the manufacturers of the individual equipment. Information is included in the service documents enclosed.

Important The carrying out of the planned inspections is a prerequisite for any guarantee claims.

Inspection record for a motorhome or caravan**Body inspection 1**

12 months after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

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

Water ingress test 1**Water ingress test:**

Paste in the inspection stamp for the 12 month check here (subject to payment).

Liabie to charges

12 months

Your next water ingress test is due on:

Earliest:

Latest:

Inspection record for a motorhome or caravan**Body inspection 2**

24 months after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

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

Water ingress test 2**Water ingress test:**

Paste in the inspection stamp for the 12 month check here (subject to payment).

Liabie to charges

24 months

Your next water ingress test is due on:

Earliest:

Latest:

Inspection record for a motorhome or caravan

Body inspection 3

36 months after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

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

Water ingress test 3

Water ingress test:

Paste in the inspection stamp for the 12 month check here (subject to payment).

Liabie to charges

36 months

Your next water ingress test is due on:

Earliest:

Latest:

Inspection record for a motorhome or caravan

Body inspection 4

48 months after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

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

Water ingress test 4

Water ingress test:

Paste in the inspection stamp for the 12 month check here (subject to payment).

Liabie to charges

48 months

Your next water ingress test is due on:

Earliest:

Latest:

Inspection record for a motorhome or caravan**Body inspection 5**

60 months after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

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

Water ingress test 5**Water ingress test:**

Paste in the inspection stamp for the 12 month check here (subject to payment).

Liable to charges

60 months

Your next water ingress test is due on:

Earliest:

Latest:

Inspection record for a motorhome or caravan**Body inspection 6**

6 years after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

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

Body inspection 7

7 years after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

Inspection record for a motorhome or caravan

Body inspection 8

8 years after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

Body inspection 9

9 years after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

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

Inspection record for a motorhome or caravan

Body inspection 10

10 years after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

Body inspection 11

11 years after delivery

Date:

Mileage reading:

Dealer's signature and stamp:

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

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Observe the following instructions before first journey of the vehicle:

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

Observe the following instructions before each journey of the vehicle:

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

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

- ▶ **If there is any risk of frost, always heat the vehicle.**
See Heater section.
- ▶ **If the vehicle is not being used when there is risk of frost, empty the entire water system. Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) and drain cocks open. This will avoid frost damage to appliances and to the vehicle.**
See Emptying the water system section.

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

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



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



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



▷ This symbol indicates recommendations or special aspects.



▷ This symbol indicates actions which lead to environmental awareness.

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

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

Special equipment is described when an explanation is required.

Adhere to the instruction manuals which are separately enclosed.



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

▷ All dimensions and weight details are "approximate".

▷ The metric specifications are binding for physical dimensions.

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

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

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



- ▷ The vehicle comes without a wheelbrace and vehicle jack. We suggest you obtain a commercially available wheelbrace before you first use your caravan, in case of an emergency. If no AL-KO vehicle jack (special equipment for AL-KO chassis) is present, obtain a conventional commercial scissor-type jack or an hydraulic vehicle jack, in order to have it ready in the case of mishap or emergency. Our authorised dealers and service centres will be happy to advise you.

1.1 General

The vehicle is constructed in accordance with the latest technology and the recognised safety regulations. Nevertheless, personal injury may result and the vehicle may be damaged if the safety instructions in this instruction manual are not followed.

Only use the vehicle in a technically impeccable condition. Follow the instructions in the instruction manual.

Malfunctions which impair the safety of persons or the vehicle should be immediately remedied by qualified personnel. To avoid further damages, observe the duty to avert, minimise or mitigate loss for the user during faults.

Have the vehicle's braking and gas systems inspected and repaired by an authorised specialist workshop only.

Alterations to the body are only to be carried out with the authorisation of the manufacturer.

Luggage and accessories may only be transported up to the maximum permissible gross weight.

Observe the test and inspection periods stipulated by the manufacturer.

1.2 Environmental tips



- ▷ Be considerate of the environment.
- ▷ Remember that: All kinds of waste water and household waste are not to be disposed of in drains or in the open countryside.
- ▷ On board, collect waste water only in the waste water tank or – if necessary – in other containers designed for that purpose.
- ▷ Only empty the waste water tank and sewage tank at disposal stations, camping sites or caravan sites especially provided for this purpose. When stopping in towns and communities, observe the instructions at caravan sites or ask where there are disposal stations.
- ▷ Empty waste water tank as often as possible, even when it is not completely full (hygiene).
If possible, flush out waste water tank and, if necessary, drainage pipe with fresh water every time it is emptied.
- ▷ Never allow the sewage tank to become too full. Empty the sewage tank frequently, at the latest as soon as the filling level display lights up.
- ▷ Separate household waste according to glass, tin cans, plastic and wet waste also when on a journey. Enquire at the town or community authority about disposal points. Household waste is not to be disposed of in waste paper baskets which are situated at car parks.
- ▷ Empty waste bins as often as possible into the containers provided for this purpose. This helps to avoid unpleasant smells and an accumulation of rubbish on board.



- ▷ When parked, do not allow the engine of the towing vehicle to run more than necessary. When running idle, a cold engine releases more contaminants than usual. The running temperature of the engine is achieved more quickly whilst the vehicle is in motion.
- ▷ Use an environmentally-friendly WC chemical agent for the WC which can also be biologically degraded and only use small doses.
- ▷ When staying in towns and communities for long periods, search for parking areas which are specially reserved for caravans and towing vehicles. Enquire at the town or community authority about parking spaces.
- ▷ Always leave the parking places in a clean condition.

Chapter overview

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

The instructions address the following topics:

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

2.1 Fire prevention

2.1.1 Avoidance of fire risks



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

2.1.2 Fire-fighting



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

2.1.3 In case of fire



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



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

All windows and doors which meet the following requirements are considered as emergency exits:

- Open to the outside or can be shifted in horizontal direction
- Opening angle at least 70°

- Minimum diameter of clearance = 450 mm
- Maximum distance from the vehicle floor = 950 mm

2.2 General



- ▶ The oxygen in the vehicle interior is used up by breathing and the use of gas operated appliances. That is why the oxygen needs to be replaced on a constant basis. For this purpose, forced ventilation options (e.g. skylights with forced ventilation, mushroom-shaped vents or floor vents) are fitted to the vehicle. Never cover or block forced ventilations from the inside or outside with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves. When staying in the vehicle, open the lifting roof. There is a danger of suffocation due to increased CO₂ levels.
- ▶ Observe the headroom of the doors.



- ▷ As far as the appliances (heater, cooker, refrigerator, etc.) are concerned, the instruction manuals are authoritative. It is imperative that they be observed.
- ▷ Fitting accessories or special equipment can alter the dimensions, weight and road behaviour of the vehicle. Some of the parts must be entered in the vehicle papers.
- ▷ Only use wheel rims and tyres which are approved for the vehicle. Information concerning the size of the approved wheel rims and tyres is included in the vehicle documents or can be obtained from authorised dealers and service centres.
- ▷ Firmly apply the handbrake when parking the vehicle.



- ▷ When leaving the vehicle, it is imperative that all doors, external flaps and windows are closed.
- ▷ The vehicle may only be driven by drivers who hold a driving licence which is valid for the respective vehicle class.
- ▷ When selling the vehicle, hand over all instruction manuals for the vehicle and the fitted appliances.

2.3 Road safety



- ▶ Before commencing the journey, carry out a functional check of indicating and lighting equipment and the brakes.
- ▶ If the vehicle has been stationary for a long period (approx. 10 months) have the braking and gas systems checked by an authorised specialist workshop.
- ▶ Before commencing the journey and after short interruptions of the journey, ensure that the entrance step is completely retracted.
- ▶ During the journey, no persons are to travel inside the caravan.
- ▶ When driving through underpasses, tunnels, etc. observe the overall height of the vehicle (refer to the technical data in the vehicle documents).
- ▶ In winter, the roof must be free of snow and ice before commencing the journey.



- ▶ Before commencing the journey, empty the waste water tank.
- ▶ Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.



- ▷ Before commencing the journey, distribute the payload evenly within the vehicle (see chapter 3).
- ▷ When loading the vehicle and when taking a rest from driving, in order to load luggage or food, for example, observe the maximum permissible gross weight and axle loads (refer to vehicle documents).
- ▷ Do not exceed the maximum permissible nose weight on the caravan coupling and do not let the weight fall below the minimum nose value. Load the caravan accordingly.
- ▷ While driving with your caravan, the towing vehicle must be equipped with two external mirrors.
- ▷ Before commencing the journey, ensure that all cupboard doors, the toilet compartment door and all drawers and flaps are secure. Engage the refrigerator door securing device.
- ▷ Before commencing the journey, convert the tables into a bed foundation or fasten them in the holder.
- ▷ Before commencing the journey, close windows and skylights.
- ▷ Before commencing the journey, close and lock the lifting roof.
- ▷ Before commencing the journey, close all external flaps and lock them.
- ▷ Before commencing the journey, remove the external supports and retract the corner steadies or steady legs, which are fitted to the vehicle.
- ▷ Before commencing the journey, crank the jockey wheel up as far as possible.
- ▷ During the initial journey and each time after changing a wheel, re-tighten the wheel bolts/wheel nuts after 50 km (30 miles). Subsequently inspect them at regular intervals in order to ensure that they are firmly seated. See chapter 13 for tightening torque.
- ▷ Tyres may not be older than 6 years as the material becomes brittle over time (see chapter 13).

2.4 Towing



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

2.5 Gas system

2.5.1 General instructions



- ▶ Before commencing the journey, when leaving the vehicle or when gas equipment is not in use, close all gas isolator taps and the main isolator tap on the gas bottle.
- ▶ No appliance operated by a naked flame (e.g. heater or refrigerator) may be in operation when filling the tank, on ferries or in the garage. Danger of explosion!
- ▶ Do not use appliances operated with a naked flame in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- ▶ Only have the gas system maintained, repaired or altered by an authorised specialist workshop.
- ▶ Have the gas system checked by an authorised specialist workshop according to the national regulations before commissioning. This also applies for not registered vehicles. For modifications to the gas system have the gas system immediately checked by an authorised specialist workshop.
- ▶ The gas pressure regulator and exhaust gas pipes must also be inspected. The gas pressure regulator has to be replaced after 10 years at the latest. The vehicle owner is responsible for seeing that this is carried out.
- ▶ In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- ▶ If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.).
- ▶ Open the lifting roof before taking open sources of combustion (gas cooker) into service.
- ▶ Do not use the gas cooker or gas oven for heating purposes.
- ▶ If the vehicle or gas devices are not used, close the regulator tap on the gas bottle.
- ▶ If there are several gas devices, each gas device must have its own gas isolator tap. If individual gas devices are not in use, close the respective gas isolator tap.
- ▶ Ignition safety valves must close within 1 minute after the gas flame has extinguished. A clicking sound is audible. Check function from time to time.
- ▶ The built-in gas devices are exclusively meant for use with propane or butane gas or a mixture of both. The gas pressure regulator as well as all built-in gas devices are designed for a gas pressure of 30 mbar.
- ▶ Propane gas is capable of gasification up to -42 °C, whereas butane gas gasifies at 0 °C. Below these temperatures no gas pressure is available. Butane gas is unsuitable for use in winter.
- ▶ Regularly inspect the gas tube fitted to the gas bottle connection for tightness. The gas tube must not have any tears and must not be porous. Have the gas tube replaced by an authorised specialist workshop no later than ten years after the manufacturing date. The operator of the gas system must see to it that the parts are replaced.



- ▶ Due to its function and construction, the gas bottle compartment is a space which is open to the exterior. Never cover or block up the standard forced ventilations. Otherwise gas that is emitted can not be diverted to the outside.
- ▶ Do not use the gas bottle compartment as storage space as it is not moisture-proof.
- ▶ Secure the gas bottle compartment against unauthorised access. To do this, lock the compartment.
- ▶ The regulator tap on the gas bottle must be accessible.
- ▶ Only connect gas-operated devices (e.g. gas grill) which have been designed for a gas pressure of 30 mbar.
- ▶ The exhaust gas pipe must be fitted tightly to the heating system and to the vent and must be sealed. The exhaust gas pipe must not show any evidence of damage.
- ▶ Exhaust fumes must be able to escape into the atmosphere unhindered and fresh air must be able to enter unhindered. For this reason, keep the exhaust pipe and intake openings clean and unobstructed (e.g. free from snow and ice). For this reason, no snow walls or aprons may lie against the vehicle.

2.5.2 Gas bottles



- ▶ Gas bottles are only to be transported within the designated gas bottle compartment.
- ▶ Place the gas bottles in vertical position in the gas bottle compartment.
- ▶ Fasten the gas bottles so that they are unable to turn or tilt.
- ▶ If the gas bottles are not connected to the gas tube, always place the protective cap on top.
- ▶ Close the regulator tap on the gas bottle before the gas pressure regulator or gas tube are removed from the gas bottle.
- ▶ The gas pressure regulator or the gas tube must only be secured with a suitable gas spanner (Do **not** overtighten).
- ▶ Only use special gas pressure regulators with a safety valve designed for vehicle use. Other gas pressure regulators are not permitted and cannot meet the demanding requirements.
- ▶ Use the gas pressure regulator defroster if the temperature falls below 5 °C.
- ▶ The designated gas bottle compartment will accommodate two gas bottles, i. e. Calor Gas Butane/Propane or Camping Gaz. All gas bottles **must** be fitted with the appropriate regulator.
- ▶ Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- ▶ Never block the floor ventilation openings below the gas bottles.

2.6 Electrical system



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

2.7 Water system



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



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

Chapter overview

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

The instructions address the following topics:

- initial start-up
- connecting and detaching to the towing vehicle
- caravan coupling
- calculating the payload
- correct loading of the caravan

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

3.1 Start-up



- ▷ During the initial journey and each time after changing a wheel, re-tighten the wheel bolts/wheel nuts after 50 km (30 miles). Subsequently inspect them at regular intervals in order to ensure that they are firmly seated. See chapter 13 for tightening torque.



- ▷ Check whether the road light system of the towing vehicle corresponds to that of the caravan (see chapter 8), and whether a nominal voltage of 12 V is provided by the towing vehicle.

The caravan is supplied with a set of keys.

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

Further information in chapter 12.

3.2 Connecting



- ▶ Care is to be taken when connecting and detaching a trailer. Risk of accident and injury!
- ▶ No persons are to be between the towing vehicle and the trailer during positioning for connecting and detaching.
- ▶ Observe the permissible nose weight and rear axle load of the towing vehicle. Nose weight and rear axle load must not be exceeded. The values of the nose weight and rear axle load are included in the documents of the vehicle and the caravan coupling.
- ▶ Ensure that the interior of the coupling is not soiled and that the movable parts of the coupling (not the ball retainer) are lubricated.
- ▶ The tow ball is not to be lubricated when using a stabiliser. The friction pads are pressed against the coupling ball and thereby generate an anti-rolling moment. This anti-rolling effect is only guaranteed when the towing vehicle coupling head is free of lubricant and other residues. When lubricating the stabiliser ensure that no lubricant is on the friction pads.



- ▷ Caravan with an overrun brake: Do not connect or detach caravan with the overrun brake on.
- ▷ Caravan coupling with detachable ball neck: If the ball neck is mounted incorrectly, there is the danger of the trailer breaking away. Observe the instruction manual for the caravan coupling.
- ▷ In order to connect the vehicle, crank the supporting jockey wheel down and set it down on the ground.
- ▷ Do not use the stabilising lever of the stabiliser as a maneuvering aid.



- ▷ Check whether the caravan's connector plug fits into the socket of the towing vehicle. If connector plug and socket do not match, ask your authorised dealers and workshops for adapting options.
- ▷ Further information about the stabiliser can be obtained in the manufacturer's instruction manual.

Connecting:

- Connect the caravan (see section 3.3). The coupling jaw and the ball must interlock and are not to be loosely superposed. The coupling jaw must completely surround the ball.
- Connect the breakaway brake cable with a loop to a suitable anchorage point on the vehicle, do **not** attach to the tow ball. Thereby, observe the cable length: The cable must not trail on the ground or trigger the braking function around corners.
- Crank the jockey wheel up as far as possible. Adjust the running role in parallel to the direction of travel and to the draw box.
- Insert the connector plug of the caravan in the socket of the towing vehicle. Ensure that the hooks of the safety cover engage with the plug. The hooks prevent the plug from becoming loose during the journey.
- Put the connection cable in a loose loop across the drawbar. Make sure that it does not touch the ground.
- Check whether the caravan coupling is mounted correctly on the coupling ball. Pay attention to the safety indicator.
- Check whether corner steadies and jockey wheel are raised.
- Check the caravan lighting system whilst the towing vehicle is connected.

3.3 Caravan couplings



- ▷ Before connecting, ensure that the tow ball of the coupling device is free of dirt and grease.

3.3.1 AK 300/160 caravan coupling

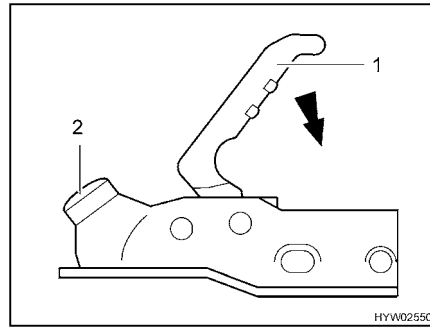


Fig. 1 AK 300/160 caravan coupling

The coupling mechanism has an "Open position". As long as the caravan coupling is not placed on top of the implement coupling, the coupling handle remains open.

Connecting:

- Place the open caravan coupling (Fig. 1) on the towing vehicle caravan ball. The caravan coupling now locks automatically and audibly in place. The handle glides automatically back to its initial position.
- In addition, push the coupling handle (Fig. 1,1) down with your hand (not with your foot). Closing and securing is carried out automatically.
- Conduct a visual inspection: The green cylinder on the safety indicator (Fig. 1,2) must be visible.

3.3.2 AKS 1300 stabiliser

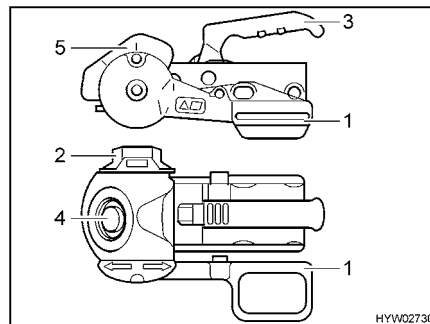


Fig. 2 AKS 1300 stabiliser

Connecting:

- Pull up the stabilising lever (Fig. 2,1) as far as possible.
- Turn the handwheel (Fig. 2,2) in an anticlockwise direction as far as possible in the open position.
- Pull the coupling handle (Fig. 2,3) upwards.
- Place the opened stabiliser on the caravan coupling. The coupling handle must audibly lock back into its initial position.
- In addition, push the coupling handle downwards by hand (not with your foot). Closing and securing is carried out automatically.
- Conduct a visual inspection: The green cylinder on the safety indicator (Fig. 2,4) must be visible.

- Turn handwheel in a clockwise direction until it can be felt and heard that the torque limiting mechanism grates.
- Push the stabilising lever down until the marking on the stabilising lever is aligned with that on the stabilising housing (Fig. 2,5).

3.3.3 WS 3000 D stabiliser

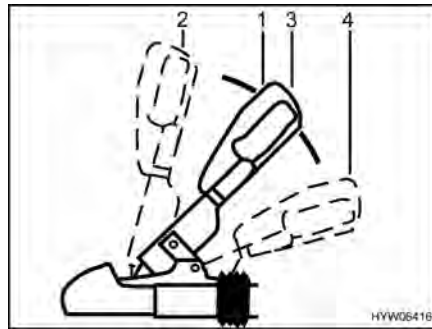


Fig. 3 WS 3000 D stabiliser

- Connecting:*
- Pull the coupling handle (Fig. 3,1) upwards into position "Open" (Fig. 3,2). Stabiliser is open.
 - Set down the open stabiliser on the caravan ball of the towing vehicle and release the coupling handle. The handle glides automatically back to its initial position (Fig. 3,3).
 - In addition, push the coupling handle down with your hand (not with your foot). Closing and securing is carried out automatically.
 - Conduct a visual inspection: The caravan ball must not be visible in the attached state.
 - Activate the stabilising mechanism. To do this, press the coupling handle downwards (Fig. 3,4) from the closed position (Fig. 3,3) to its stop limit.

To deactivate the stabilisation mechanism, e.g. for manoeuvring, pull the coupling handle (Fig. 3,1) slowly upward to the closed position (Fig. 3,3).

3.4 Detaching



- ▶ Care is to be taken when connecting and detaching a trailer. Risk of accident and injury!
- ▶ In addition, observe the safety instructions with respect to connecting included in this instruction manual.

- Detaching:*
- Apply the caravan handbrake.
 - Place the wheel chocks behind both of the wheels.
 - Remove the connector plug of the caravan from the towing vehicle socket and insert it in the holder on the drawbar.
 - Remove the breakaway cable from the towing vehicle.
 - Crank the jockey wheel down until it is set firmly on the ground. Now loosen the caravan coupling.
 - Using the jockey wheel, lift the drawbar until the towing vehicle can be driven away without risk.

3.5 Payload



- ▶ Overloading the vehicle and wrong tyre pressure can cause tyres to burst. You can lose control of the vehicle.
- ▶ Only the maximum permissible gross weight and the mass in a ready-to-drive condition, not the actual weight of the vehicle, is stated in the vehicle documents. For your own safety, we recommend that you have your loaded vehicle (with all luggage and personal objects) weighed on a public weighbridge before you set out on your journey.



- ▷ Do not exceed the maximum permissible gross weight stated in the vehicle documents by the payload.
- ▷ Built-in accessories and special equipment reduce the payload.
- ▷ Adhere to the axle load stated in the vehicle documents.

Load the caravan so that the drawbar coupling head is not pushed downwards due to the permissible nose weight. Heavy objects should be close to the axles and a weight centre should be in the centre of the vehicle.

When loading the caravan observe:

- The permissible maximum caravan load
- The maximum permissible nose weight (e.g. 50 kg)
- The minimum nose weight in accordance with national regulations

This information is in the towing vehicle instruction manual.

3.5.1 Terms



- ▷ Technically speaking, the term "mass" has now replaced the term "weight". However, "weight" is still the term more frequent in common use. For better understanding, "mass" is therefore only used in the following sections for fixed formulations.
- ▷ All specifications according to EU norm DIN EN 1645-2.

Maximum permissible gross weight in a laden condition

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

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

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

Permitted mass

The permitted mass is the weight specified by the manufacturer for issuing the type approval. The permitted mass must never exceed the maximum permissible gross weight of the loaded vehicle.

Mass in ready-to-drive condition

The mass in ready-to-drive condition is the weight of the ready-to-drive standard vehicle.

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

- Unladen weight (mass of the empty vehicle) with factory-installed standard equipment, including a water system filled to 100 % (water tank and pipes) and gas bottles filled to 100 %
- Basic equipment weight

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

- A full heating system
- The power cables for the 240 V power supply
- The installation kit for an auxiliary battery if an auxiliary battery can be used

The waste water and sewage tanks are empty.

Example for calculating the basic equipment

Boiler with 10 l	+ 10 kg
240 V power cable	+ 4 kg
Installation kit for auxiliary battery	+ 20 kg
Total	= 34 kg

In the vehicle documents, the manufacturer specifies the mass in ready-to-drive conditions.

Payload The payload is made up as follows:

- Additional equipment
- Personal equipment

You will find explanations on the individual components of the payload in the following text.



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

Additional equipment

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

- Stabiliser
- Awning
- Satellite unit
- Hot water supply

Chapter 15 lists the weights of the various items of special equipment; they may also be obtained from the manufacturer.

Personal equipment

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

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

No matter where kept, personal equipment also includes:

- Bikes
- Boats
- Surfboards
- Sports equipment

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

Formula Minimum weight M (kg) = 10 x N + 10 x L + 30

Explanation N = maximum number of beds, as stated by the manufacturer
L = total length of the caravan in metres, not including the drawbar

Example Caravan with 4 beds and a length of 5 m:
Minimum weight M (kg) = 10 x 4_{beds} + 10 x 5_{metres} + 30 = 120 kg

3.5.2 Calculating the payload



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

The payload (see section 3.5.1) is the difference in weight between

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

Example for calculating the payload

	Mass in kg to be calculated	Calculation
Maximum permissible gross weight according to vehicle documents	1350	
Vehicle mass in a ready-to-drive condition, including basic equipment according to vehicle documents	- 1100	
This results in a permissible payload of	250	
Additional equipment	- 40	
For the personal equipment this results in	= 210	

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

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

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

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

3.5.3 Loading the caravan correctly



- ▶ Never exceed the maximum permissible gross weight.
- ▶ Distribute the load evenly on the left and right sides of the vehicle.
- ▶ Store all objects in such a way that they cannot slip.
- ▶ Store heavy objects (awning, tin cans, etc.) close to the axles. Low-lying storage compartments whose doors do not open in the direction of travel are particularly suited for storing heavy objects.
- ▶ Stack light objects (laundry) in the roof storage cabinets.
- ▶ Never concentrate the caravan load at the rear.

The payload arrangement recommended cannot be adhered to consequently as the storage facilities are to be found throughout the complete caravan. Ensure that heavy items are close to the axles and the lower area, i.e. directly above the vehicle floor. Store heavy objects (awning, tin cans, etc.), if possible, in the towing vehicle.

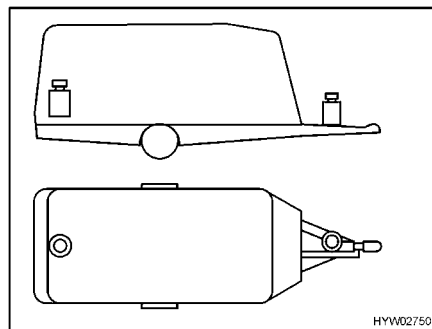


Fig. 4 Incorrect weight distribution

Incorrectly loaded

Loads stored apart from each other (Fig. 4) lead to inclination to skid.

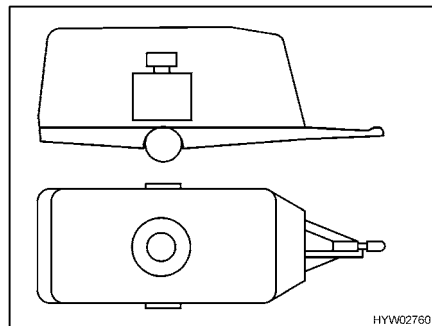


Fig. 5 Correct weight distribution

Correctly loaded

Do not store heavy objects such as awnings, tin cans, etc. in the caravan but rather in the towing vehicle. Secure bicycles on the roof of the towing vehicle. Store all loads close to the axle (Fig. 5).

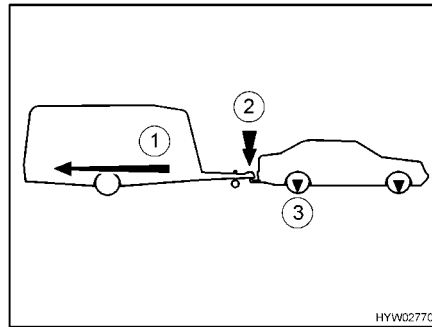
3.5.4 Caravan load, nose weight and axle load



▷ The nose weight of the caravan may not exceed 100 kg.



▷ The information on the towing vehicle documents is important for the selection of the car and caravan.



- 1 Caravan load
- 2 Nose weight
- 3 Axle load

Fig. 6 Caravan load, nose weight and axle load

Caravan load

The caravan load (Fig. 6,1) stipulated in the towing vehicle documents provides information as to the **maximum weight** which the towing vehicle is permitted to tow. The caravan load refers to the **actual** weight of the caravan and **not** to the maximum permissible gross weight of the caravan.

Example

The towing vehicle may tow 1,200 kg. If the caravan has a maximum permissible gross weight of 1,200 kg and in fact weighs 900 kg, it can be loaded with another 300 kg. If however the caravan has a maximum permissible gross weight of 1,400 kg, it may only be loaded to a maximum of 1,200 kg.

Nose weight

The nose weight (Fig. 6,2) specifies how much weight the caravan drawbar can apply to the caravan coupling of the towing vehicle. Information is to be found in description of the caravan couplings and the vehicle documents. Therefore, a caravan coupling with a permissible nose weight of 50 kg may not support a loaded caravan which has a nose weight of 75 kg. Additionally, for the permissible gross weight the nose weight must be taken into consideration. If necessary the payload in the towing vehicle must be reduced by the amount of the nose weight.

The maximum permissible gross weight for the towing vehicle and for the caravan is not to be exceeded.

Only when the nose weight is adapted optimal to the towing vehicle and caravan combination, the towing vehicle and caravan achieves its maximum stability and safety in highway traffic. The optimal nose weight is simultaneously the maximum possible nose weight.

- Please refer to the vehicle documents and the description of the caravan coupling for the maximum permissible nose weight.
- If different values are specified in the vehicle documents and in the description of the caravan coupling: Please select the **lowest** value. This value is the **maximum possible nose weight** for the towing vehicle and caravan.

- Check the nose weight before each journey, e.g. with a nose weighing scales. To obtain a correct value, position the nose weighing scales vertical under the coupling jaw and place the caravan drawbar horizontal.
- The payload in the caravan must be distributed in such a way that the measured nose weight comes as close as possible to the maximum permissible nose weight. The maximum permissible nose weight is not be exceeded.

Axle load The axle load (Fig. 6,3) is also specified in the vehicle documents of the towing vehicle and provides information concerning the permissible maximum load for the front and rear axles. The axle load may not be exceeded by a trailer. The above illustration shows where which forces act on the car and caravan.

3.6 Road safety



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

Before commencing the journey, work through the checklist:

Towing vehicle with caravan


No.	Checks	Checked
1	All vehicle documents are on board	
2	Two external mirrors fitted to towing vehicle	
3	Nose weight has not been exceeded or fallen below the minimum	
4	Tyres in proper condition	
5	Road lighting system working	
6	Overrun brake functions correctly	
7	Brakes react evenly	
8	When braking, the towing vehicle and caravan remain in the lane	
9	Total height determined and noted. Keep the height information close at hand in the towing vehicle	

Housing body, outside

10	Roof free of snow and ice (in winter)	
11	External connections and lines disconnected and stored away	
12	External supports removed	
13	Corner steadies and jockey wheel cranked as high as possible	
14	Wheel chocks removed and stored away	
15	Entrance step retracted	
16	External flaps closed and locked	
17	Conversion door locked	

Housing body, inside

18	Windows and lifting roof closed and locked	
19	Television antenna retracted (if one is built in)	
20	Loose parts stored away or fixed in position	
21	Open storage spaces empty	

No.	Checks	Checked
22	Refrigerator door secured	
23	Refrigerator set to 12 V operation	
24	All drawers and flaps closed	
25	Sliding door, WC door and table secured	
26	Dinette table secured	
Gas system		
27	Gas bottles firmly fixed in the gas bottle compartment so that they are unable to turn	
28	Protective cap set on top of the gas bottle	
29	Regulator tap on the gas bottle and gas isolator taps are closed	
Electrical system		
30	<p>Check the battery voltage of the living area battery (see chapter 8)</p> <p> ▷ Commence journey with fully charged living area battery (Power Pack SE).</p>	
Water system housing body		
31	Water system emptied in case of risk of frost. Watertaps and drain cocks open	

Chapter overview

This chapter contains instructions on how to drive the caravan.

The instructions address the following topics:

- driving speed
- brakes
- driving in reverse

4.1 Driving with the caravan



- ▶ During the journey, no persons are to travel inside the caravan.
- ▶ The caravan constructions were designed for a maximum permissible speed of 100 km/h (60 mph). Therefore never drive faster than 100 km/h (60 mph).
- ▶ Please always observe the speed limits in the individual countries.

The main differences between driving with a caravan and driving without a caravan are the increased vehicle width and length, a decreased acceleration and an increased vehicle stopping distance. Therefore, adapt your driving technique to the altered road behaviour resulting from driving with a caravan.

4.2 Brakes



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

Before each journey

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

- Does the overrun brake function?
- Do the brakes react evenly?
- Do the towing vehicle and the caravan remain in the lane when braking?

4.3 Driving in reverse



- ▷ When driving in reverse, the caravan reacts in exactly the opposite direction to the steering movements of the towing vehicle. If you steer the towing vehicle to the left, the caravan moves to the right.
- ▷ Never back up without a second person to direct you.

As far as all models with an automatic reverse driving mechanism are concerned, the caravan can be reversed without difficulty. In addition to the rolling resistance, residual braking power must be taken into account.

Chapter overview

This chapter contains instructions on how to pitch the vehicle.

The instructions address the following topics:

- handbrake
- wheel chocks
- operation of the supports
- entrance step
- 240 V connection
- refrigerator



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

5.1 Handbrake

Firmly apply the handbrake when parking the vehicle.



- ▷ If there is any risk of frost, release the handbrake every now and then and apply it again. This will prevent it from freezing or rusting. Prior to releasing the handbrake, secure the vehicle so that it cannot roll away.

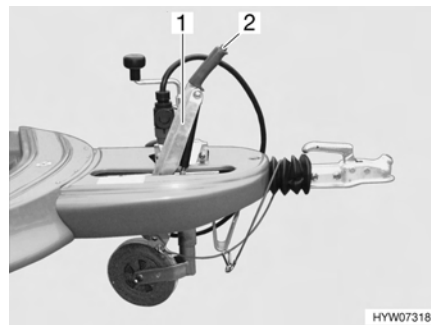


Fig. 7 Handbrake

In order to release it, press the securing button (Fig. 7,2) and lower the handbrake (Fig. 7,1).



- ▷ Prior to releasing the handbrake, lift the handbrake slightly. This enables the securing button which is subjected to spring pressure to be pushed in more lightly.

5.2 Wheel chocks

Use the two wheel chocks even when the upward or downward gradients are of a minimum. The wheel chocks are situated on the underside in the front of the caravan.

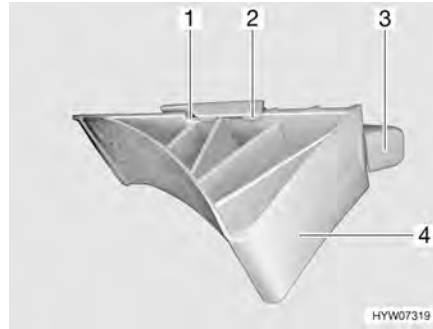


Fig. 8 Wheel chock

- Removal:**
- Press the retaining clip (Fig. 8,3) upwards.
 - Pull the wheel chock (Fig. 8,4) forwards until the recesses of the wheel chock (Fig. 8,1) are aligned with the hooks at the holder (Fig. 8,2).
 - Remove the wheel chock downwards out of the holder.

5.3 Corner steadies



- ▷ Do not use the fitted corner steadies as a vehicle jack. The corner steadies are only for stabilising the pitched vehicle. The vehicle wheels are not to be raised above the ground.
- ▷ When pitching the vehicle, ensure that the corner steadies are evenly loaded.
- ▷ Before driving away, wind up the corner steadies as far as they can go.



- ▷ When the ground is soft, place a pad or block under the supports in order to prevent the vehicle from sinking into the ground.

In order to stabilise the pitched caravan use the corner steadies fitted as standard.

With the assistance of the jockey wheel position the pitched caravan in a horizontal position. For control purposes use a small spirit level.

Crank down the corner steadies after the caravan is in an absolutely horizontal position.

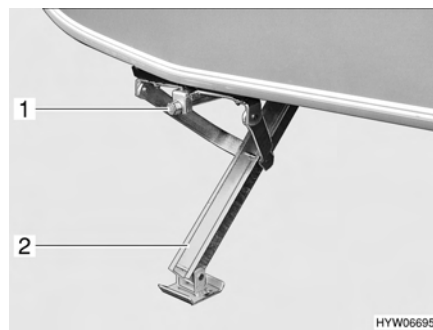


Fig. 9 Corner steady cranked down

- Cranking down:**
- Place the hand crank provided as standard on the hexagonal nut (Fig. 9,1) of the corner steady (Fig. 9,2).
 - Rotate the hand crank in a clockwise direction. The corner steady is swung downwards.

- Cranking upwards:*
- Turn the crank handle in an anticlockwise direction. The corner steady is swung upwards.

5.4 Entrance step



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



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

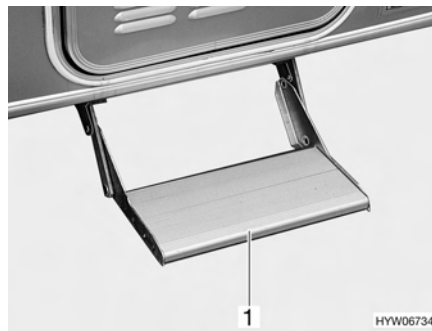


Fig. 10 Entrance step (fitted)

- Pulling out:*
- Grasp the entrance step (Fig. 10,1) from below and pull it out until it locks into place.
- Pushing in:*
- Grasp the entrance step (Fig. 10,1) from below and lift it slightly.
 - Push the entrance step as far as it will go under the base of the vehicle. Make sure that the entrance step locks into place.

5.5 240 V connection

The vehicle can be connected to a 240 V power supply (see chapter 8).

5.6 Refrigerator

The 12 V operation of the refrigerator is only possible when a towing vehicle is connected and the vehicle engine is running. When the vehicle engine is switched off, switch the refrigerator to 240 V operation or gas operation.

Chapter overview

This chapter contains instructions about living in the vehicle.

The instructions address the following topics:

- opening and closing the doors and external flaps
- heating the vehicle
- ventilation of the vehicle
- opening and closing the windows and blinds
- opening and closing the lifting roof
- modifying the table surfaces
- converting tables
- removing tables
- extending the seating groups
- use of the beds

6.1 Conversion door



▶ Only drive with locked doors.



- ▷ Locking the doors can prevent them from opening of their own accord, e.g. during an accident.
- ▷ Locked doors also prevent forced entry, e.g. when waiting at traffic lights.
- ▷ When leaving the vehicle, always lock the doors.

6.1.1 Conversion door, outside

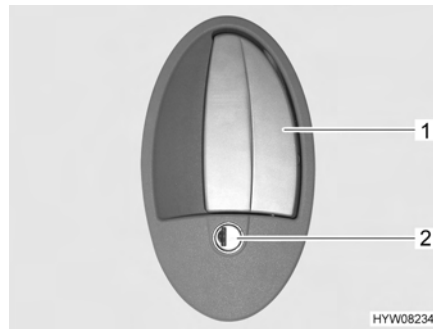


Fig. 11 Door lock, outside

- Opening:**
- Insert the key into locking cylinder (Fig. 11,2) and turn until the door lock is unlatched.
 - Return the key to the central position and remove it.
 - Pull on the handle (Fig. 11,1). The door is open.

- Locking:**
- Insert the key into locking cylinder (Fig. 11,2) and turn until the door lock is engaged.
 - Return the key to the central position and remove it.

6.1.2 Conversion door, inside

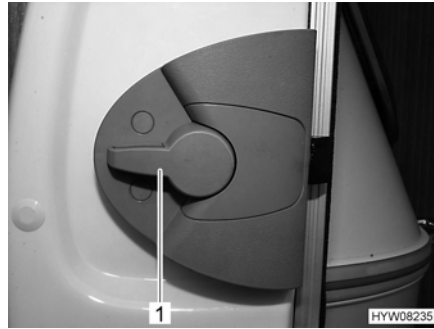


Fig. 12 Door lock, conversion door, inside

- Opening:* ■ Push the handle (Fig. 12,1) down.
- Locking:* ■ Turn the handle (Fig. 12,1) approx. 45° upward and leave it in this position.

6.1.3 Insect screen on the conversion door

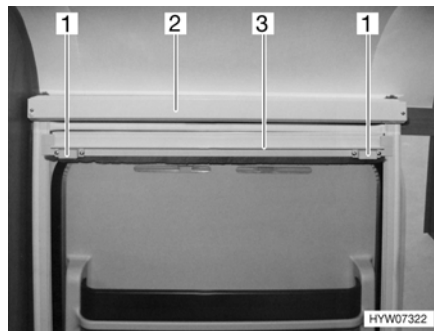


Fig. 13 Insect screen, conversion door

The insect screen of the conversion door is located in the upper blind box (Fig. 13,2).

- Closing:* ■ Pull the insect screen down by the bar (Fig. 13,3) until the magnets (Fig. 13,1) adhere to the metal bar on the floor.
- Opening:* ■ Pull the bar (Fig. 13,3) slightly upward until the magnets are released, then slowly guide the insect screen back into the blind box.

6.2 External flaps



- ▷ Before commencing the journey, close all external flaps and lock them.
- ▷ To open and close the external flap, open or close all locks that are fitted to the external flap.



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

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

6.2.1 Flap lock, elliptical-shaped



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

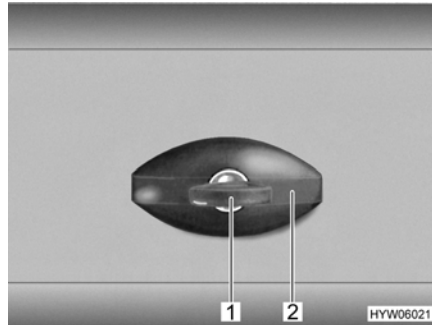
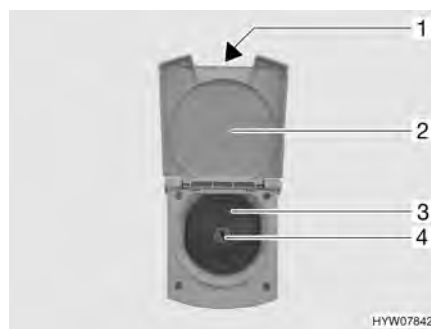


Fig. 14 Flap lock, elliptical-shaped, closed

- Opening:*
- Insert key into locking cylinder (Fig. 14,1) and turn a quarter turn in an anti-clockwise direction. The lock handle (Fig. 14,2) snaps out.
 - Remove the key.
 - Turn lock handle one quarter turn in an anticlockwise direction. The flap lock is open.

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

6.2.2 Flap for the drinking water filler neck



- 1 Recessed grip
- 2 External flap
- 3 Cap for the drinking water filler neck
- 4 Locking cylinder

Fig. 15 Flap and cap for the drinking water filler neck



- ▷ The drinking water filler neck is marked by the symbol .

- Opening:**
- Reach into the recessed grip (Fig. 15,1) on the external flap (Fig. 15,2) and swing the external flap upward (Fig. 15).
 - Insert the key in the locking cylinder (Fig. 15,4) and turn it in an anticlockwise direction.
 - Unscrew the cap (Fig. 15,3).
- Closing:**
- Insert the cap (Fig. 15,3) in the drinking water filler neck.
 - Turn key in a clockwise direction.
 - Remove the key.
 - Swivel the external flap (Fig. 15,2) downwards and press it shut.

6.2.3 Flap for sewage tank

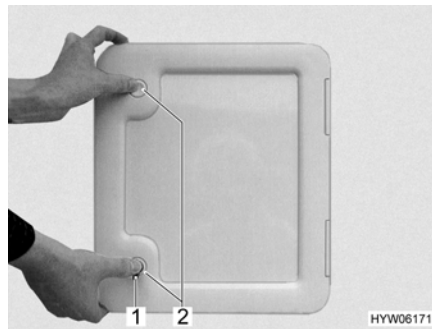


Fig. 16 Flap for sewage tank

- Opening:**
- Insert key into locking cylinder (Fig. 16,1) of the push-button lock and turn a quarter turn.
 - Remove the key.
 - Press both push-button locks (Fig. 16,2) simultaneously with your thumb and open the flap for the sewage tank.
- Closing:**
- Close the flap for the sewage tank and press it shut.
 - Insert key into locking cylinder (Fig. 16,1) and turn a quarter turn.
 - Remove the key.

6.3 Heating



- ▶ During heater operation, the exhaust gas pipe in the wardrobe will get hot. Therefore do not keep any heat-sensitive garments right next to the exhaust gas pipe (see also chapter 9).



- ▶ The operation of the heater is described in chapter 9.

6.4 Ventilation



- ▶ The oxygen in the vehicle interior is used up by breathing and the use of gas operated appliances. That is why the oxygen needs to be replaced on a constant basis. For this purpose, forced ventilation options (e.g. skylights with forced ventilation, mushroom-shaped vents or floor vents) are fitted to the vehicle. Never cover or block forced ventilations from the inside or outside with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves. When staying in the vehicle, open the lifting roof. There is a danger of suffocation due to increased CO₂ levels.
- ▶ The lifting roof is fitted with ventilation zips which can be opened for additional ventilation



- ▷ Although sufficient ventilation is provided, in certain weather conditions, condensation can form on metal objects (e.g. screwed connections in the floor).
- ▷ Additional cold spots can occur at thermal "bridges" (e.g. lifting roof edges, mushroom-shaped vents, skylight edges, sockets, filler necks, flaps, etc.).

Condensation

Ensure that there is a continuous exchange of air by providing frequent and efficient ventilation. This is the only method for ensuring that condensation and resulting mould is not formed during cool weather. During the colder season, a pleasant living climate is created if heating output, air distribution and ventilation are synchronised.

If the vehicle is laid up for a longer period, occasionally ventilate it well, especially in summer as heat accumulation can occur. Do not only air the interior, but also the storage compartments which are accessible from the outside. Air the parking place as well if the vehicle is parked in a closed space (e.g. garage). The occurrence of condensation could lead to the formation of mould.

6.5 Windows



- ▷ The windows are fitted with a blind and an insect screen. After the latch has been released, the blind and insect screen automatically spring back to the initial position by tensile force. In order not to damage the tension mechanics, hold onto the blind or insect screen and allow it to slowly return to the initial position.
- ▷ Before commencing the journey, close the windows.
- ▷ Depending on the weather, close the windows far enough to prevent moisture from entering.
- ▷ To open and close the window, open or close all catch levers which are fitted to the window.



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

6.5.1 Hinged window



- ▷ If windows with automatic hinges are fitted, open the window fully in order to release the lock. If the locking device is not released and the window is closed nevertheless, there is the danger of the window breaking due to the massive counter-pressure.
- ▷ When opening the hinged windows, ensure that there are no torsional forces. Open and close the hinged windows evenly.

Hinged windows with rotary hinges or automatic hinges are installed, depending on the model.

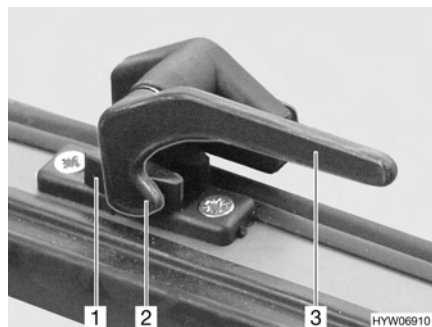


Fig. 17 Catch lever in "closed" position

- Opening:*
- Turn the catch lever (Fig. 17,3) a quarter turn towards the centre of the window.



Fig. 18 Hinged window with rotary hinges, open



Fig. 19 Hinged window with automatic hinges, open

- Opening:*
- Open hinged window half up to the required position. Secure hinged windows with a knurled knob (Fig. 18,1) or allow the automatic hinge (Fig. 19,1) to engage automatically.

The hinged window remains locked in the required position.

- Closing:*
- Turn the knurled knob (Fig. 18,1) or open the hinged window as wide as is necessary to release the lock.
 - Close the hinged window.
 - Turn the catch lever (Fig. 17,3) a quarter turn towards the window frame. The locking catch (Fig. 17,2) is located on the inside of the window catch (Fig. 17,1).

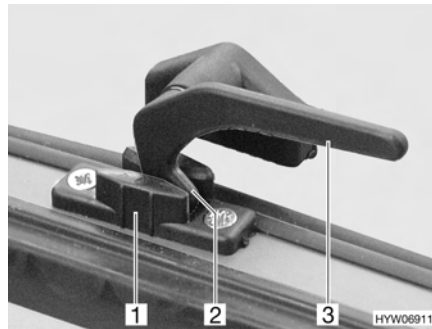


Fig. 20 Catch lever in the "continuous ventilation" position

Continuous ventilation

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

- "Continuous ventilation" (Fig. 20)
- Firmly closed (Fig. 17).

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

- Turn the catch lever (Fig. 20,3) a quarter turn towards the centre of the window.
- Slightly open the hinged window outwards.
- Turn the catch lever a quarter turn towards the window frame. The locking catch (Fig. 20,2) has to be moved into the recess of window catch (Fig. 20,1).

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

If it rains, the "continuous ventilation" hinged window position could lead to splashing water penetrating the living area. Therefore, close the hinged windows completely.

6.5.2 Blind and insect screen



- ▷ Open blinds before commencing the journey. When the blinds are closed, vibrations can damage the spring shaft.



- ▷ Depending on the window size, the blinds are fitted with one or two handles.

The windows are fitted with a blind and an insect screen. The blind and insect screen are adjusted separately.

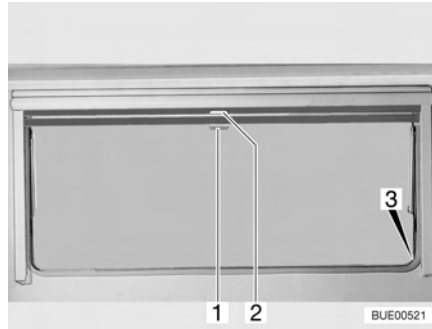


Fig. 21 Hinged window

Blind The blind is located in the upper blind box.

- Closing:**
- Pull blind at the handle (Fig. 21,2) downwards. If the blind is to be completely closed, it is suspended into the locking devices (Fig. 21,3) situated on both sides of the window frame.
- Opening:**
- If the blind is completely closed: Press handle (Fig. 21,2) downwards and, at the same time, tilt it slightly inward. The blind can be taken out of the locking devices situated on both sides of the window frame.
 - If the blind is in an intermediate position: Pull the handle (Fig. 21,2) slightly downwards until the locking device releases.
 - Use handle to return blind slowly to its initial position.

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

- Closing:**
- Pull insect screen at the handle (Fig. 21,1) down and hang it into the locking devices (Fig. 21,3) situated on both sides of the window frame.
- Opening:**
- Press handle (Fig. 21,1) downwards and, at the same time, tilt it slightly inward. The insect screen can be taken out of the locking devices situated on both sides of the window frame.
 - Use handle to return the insect screen slowly to its initial position.



- ▷ If necessary, the tensile force of the spring for the blind and insect screen can be re-adjusted (see chapter 12).

6.6 Lifting roof



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



- ▷ Before closing the lifting roof, always close the ventilation zips.
- ▷ Ensure that the canvas is not trapped between the lifting roof and the vehicle roof.
- ▷ Before commencing the journey, always close the lifting roof.



- ▷ The ventilation zips in the canvas of the lifting roof can be opened for additional ventilation.

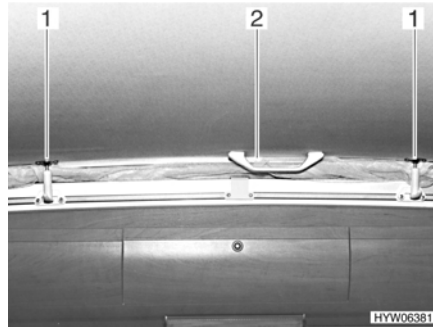


Fig. 22 Lifting roof, closed

Opening:

- Remove all spring clamps (Fig. 22,1) downwards out of the holder.
- Press the lifting roof up (Fig. 22,2) using the handles.



- ▷ When closing the lifting roof always pull downwards at the rear first.

Closing:

- Pull the lifting roof down by the handles (Fig. 22,2) at the rear.
- Pull the canvas inwards.
- Pull the lifting roof down by the handles at the front.
- Pull all spring clamps (Fig. 22,1) down and lock into place.

6.7 Tables

6.7.1 Fixed table for the round seating group

The top of the fixed table of the round seating group can be moved both lengthways and crossways. In addition, the table top can be rotated.

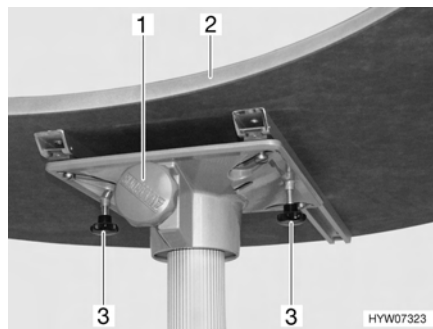


Fig. 23 Fixed table for the round seating group

Rotating table-top:

- Undo the knurled screw (Fig. 23,1).
- Rotate the table-top (Fig. 23,2) into the desired position.
- Retighten the knurled screw.

Moving table-top lengthways or crossways:

- Undo the knurled screw (Fig. 23,1).
- Undo the knurled screws (Fig. 23,3).

- Rotate the table-top (Fig. 23,2) and push table-top on the rails into the desired position.
- Retighten all knurled screws.

6.7.2 Suspension table

The suspension table comes in two different models. In one model, the suspension table's fold-out leg allows it to be used as a bed foundation.

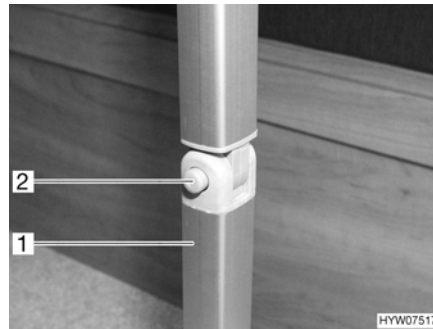


Fig. 24 Suspension table with fold-out leg

Conversion to bed foundation:

- Lift the front of the table-top by approx. 45°.
- Press the release knob (Fig. 24,2) and hold it down.
- Fold the lower part of the table leg (Fig. 24,1) 90° backwards. The release knob jumps out again.
- Remove the table-top from the upper retainer.
- Insert the table-top at an angle of 45° in the lower retainer and place it on the floor with the folded table leg.

In the second model, the suspension table is not used as a bed foundation. The suspension table can then be partially stored in a holder.

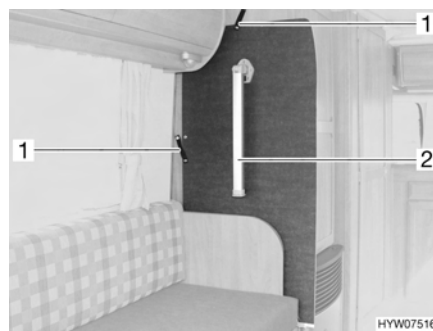


Fig. 25 Suspension table in the holder

Securing the suspension table in the holder:

- Fold out the table leg of the suspension table and remove the table from the retainer (see "Conversion to bed foundation").
- Push the suspension table with the table leg (Fig. 25,2) backwards in the holder between seating group and cabinet (Fig. 25).
- Secure the suspension table with the securing straps (Fig. 25,1).

The height of the table leg is adjustable in all models. The adjustable leg height makes it possible to use the suspension table outside the caravan.

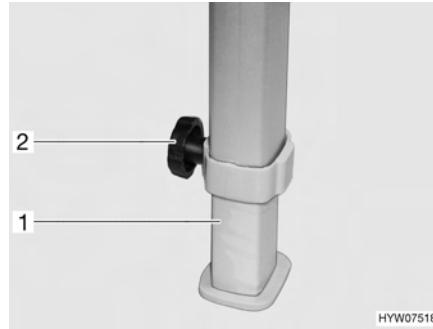


Fig. 26 Height setting suspension table

Adjusting the height of the table leg:

- Insert the table in the upper retainer.
- Undo the knurled screw (Fig. 26,2).
- Raise or lower the table-top until it is level. In the process the table leg extension (Fig. 26,1) slides out or in.
- Hold the table-top level and re-tighten the knurled screw.

6.7.3 Folding table Troll single bed seating group



- ▷ Before commencing the journey, always retract the folding table and store it in the holder provided for this purpose.



Fig. 27 Folding table in the holder

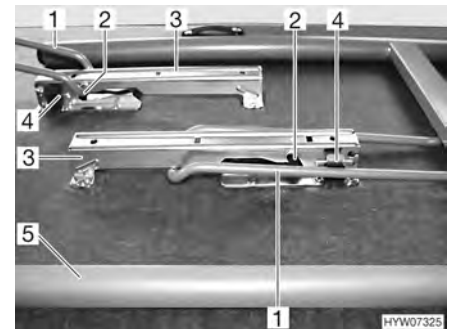


Fig. 28 Folding table, folding mechanism

Putting up:

- Fold the slatted frame in the right bench seat (Fig. 27,1) upwards. The gas-pressure springs hold the slatted frame open.
- Carefully remove the folding table (Fig. 27,3) from the holder (Fig. 27,2).
- Press the slatted frame downwards against the resistance of the gas-pressure spring.
- Place the folding table with the legs upwards onto the seat cushions.
- Fold the legs (Fig. 28,5) one after the other outwards against the resistance of the springs (Fig. 28,4) until the retaining clips (Fig. 28,1) engage in the hooks (Fig. 28,2) of the guides (Fig. 28,3).
- Carefully turn round the folding table and place it between the single beds.

- Removal:*
- Carefully turn the folding table round and place it with the legs upwards onto the seat cushions.
 - Press the retaining clips (Fig. 28,1) on both legs one after the other from the hook (Fig. 28,2) of the guide (Fig. 28,3) and fully retract the leg (Fig. 28,5).
The retaining clip is kept in the closed position by the spring (Fig. 28,4).
 - Fold the slatted frame in the right bench seat (Fig. 27,1) upwards. The gas-pressure springs hold the slatted frame open.
 - Slide the folding table with the legs facing downwards into the holder on the slatted frame (Fig. 27).
 - Press the slatted frame downwards against the resistance of the gas-pressure spring.

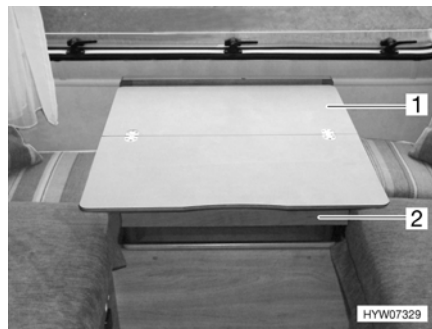


Fig. 29 Folding table, bedside locker

- Extending the table surface:*
- Pull the complete cover plate of the bedside locker (Fig. 29,2) forwards.
 - Fold the upper part of the cover plate (Fig. 29,1) backwards (Fig. 29).

6.8 Extending the Troll single bed seating group

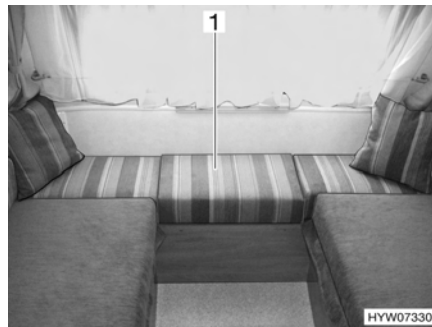


Fig. 30 Seating group after extending

- Place folding table to the side.
- Lift the bedside locker at the front by approx. 45°, remove it out of the mounting rail and place to the side.
- Insert the additional cushion (Fig. 30,1).
- Place the folding table again to its original location.

6.9 Fixed bed (gas-pressure springs)



Fig. 31 Fixed bed

A storage compartment is underneath the bed. Lift up the slatted frame to place items in the storage compartment or to empty it from the inside of the vehicle.

- Opening:*
- Lift the mattress forwards and set it down on the panel.
 - Lift slatted frame. The gas-pressure springs (Fig. 31,1) hold the slatted frame open.
- Closing:*
- Press the slatted frame downwards against the resistance of the gas-pressure springs.
 - If necessary, push the mattress behind the panel.

6.10 Sleeping conversion



- ▷ Depending on the model, the seating group can be different in shape and position to the one shown here.
- ▷ Depending on the model, an enclosed additional cushion must be inserted between the seat cushions.
- ▷ The additional cushion is not standard for all models.

6.10.1 Front seating group

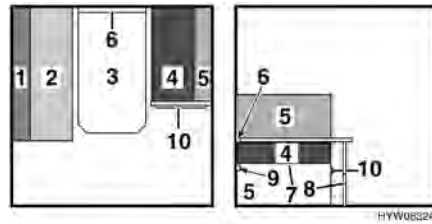


Fig. 32 Prior to conversion

- 1 Back cushion, long
- 2 Seat cushion, long
- 3 Table-top
- 4 Seat cushion, short
- 5 Back cushion, short
- 6 Upper mounting rail
- 7 Bedding box
- 8 Table leg
- 9 Lower mounting rail
- 10 Bedding box extension
- 11 Additional cushion

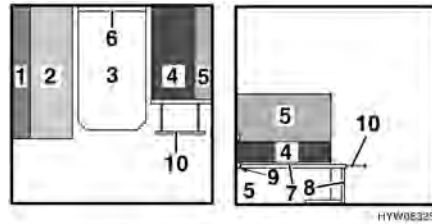


Fig. 33 During conversion

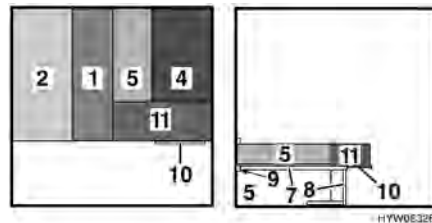
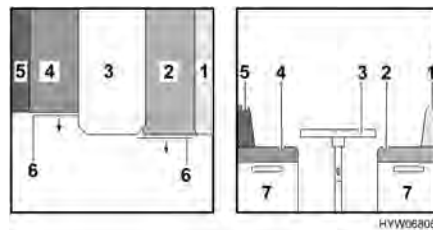


Fig. 34 After conversion

- Place the seat cushions (Fig. 32,2 and 4) in an upright position.
- Slightly raise the front of the table-top (Fig. 32,3).
- Release the locking device fitted to the table leg (Fig. 32,8) and fold the lower half of the table leg backwards by 90°.
- Raise the table-top (Fig. 32,3) by approx. 45°, remove it from the upper mounting rail (Fig. 32,6) and hold it at an angle of 45°.
- Insert the table-top (Fig. 33,3) at an angle of 45° degrees into the lower mounting rail (Fig. 33,9) and place on the ground with the table leg (Fig. 33,8) folded.
- Pull out the bedding box extension (Fig. 33,10).
- Place the back cushions (Fig. 34,1 and 5) between the two seat cushions (Fig. 34,2 and 4). Pay attention to the different lengths.
- Place the additional cushion (Fig. 34,11) ahead of the short back cushion (Fig. 34,5) and the short seat cushion (Fig. 34,4).

6.10.2 Front seating group Troll



- 1 Back cushion
- 2 Seat cushion
- 3 Table-top
- 4 Seat cushion
- 5 Back cushion
- 6 Bedding box extension
- 7 Bedding box
- 8 Additional cushion, short
- 9 Additional cushion, long

Fig. 35 Prior to conversion

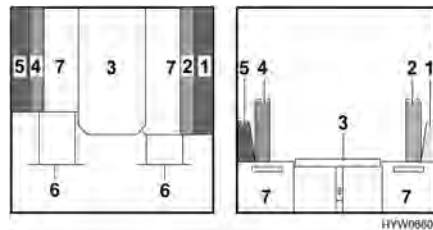


Fig. 36 During conversion

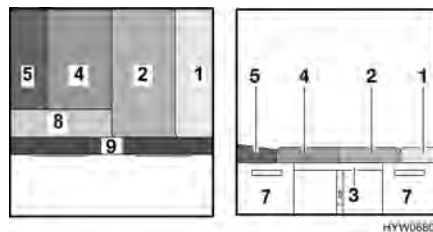


Fig. 37 After conversion

- Slightly lift the front of the table-top (Fig. 35,3).
- Release the locking device fitted to the table leg and fold the lower half of the table leg backwards by 90°.
- Lift the table-top by approx. 45°, remove it out of the mounting rail and place to the side.
- Lay the two seat cushions in position (Fig. 35,2 and Fig. 35,4).
- Place table-top into the lower holders.
- Pull out the bedding box extension (Fig. 36,6).
- Place both seat cushions (Fig. 37,2 and 4) in the centre.
- Insert the back cushions (Fig. 37,1 and 5) between the seat cushions and the wall.
- Place the additional cushions (Fig. 37,8 and 9) on the bedding box extension.

6.10.3 Seating group with two single beds

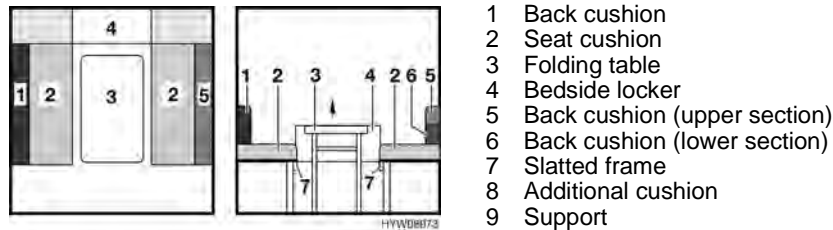


Fig. 38 Prior to conversion

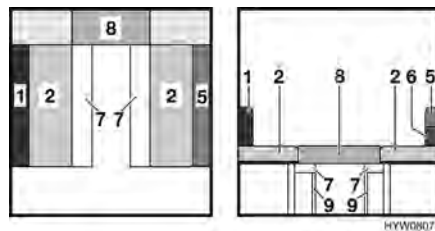


Fig. 39 During conversion

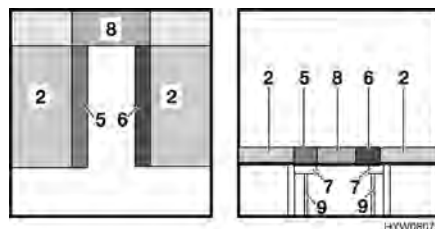


Fig. 40 After conversion into single beds

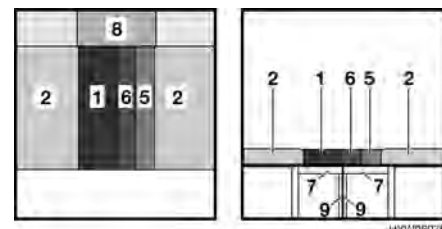


Fig. 41 After conversion into one large bed

- Fold up the folding table (Fig. 38,3) and store in the provided holder (see section 6.7).
- Remove the bedside locker (Fig. 38,4) and place it to the side (see section 6.8).

Conversion into two single beds:

- Insert the additional cushion (Fig. 39,8).
- Pull the slatted frames (Fig. 39,7) out a bit.
- Fold out the four supports (Fig. 39,9).
- Remove the back cushion (Fig. 39,1) and lay it aside.
- On the second back cushion separate the upper section (Fig. 39,5) from the lower section (Fig. 39,6).
- Lay a section of the back cushion (Fig. 40,5 and 6) onto each slatted frame (Fig. 40,7).
- Slightly lift the slatted frames and push in or pull out until the back cushion sections are completely lying on top.

Conversion into one large bed:

- Insert the additional cushion (Fig. 41,8).
- Pull the slatted frames (Fig. 41,7) out completely.
- Fold out the four supports (Fig. 41,9).
- Place the back cushions (Fig. 41,1, 5 and 6) on the slatted frame.

6.10.4 Seating group with bed 1400 x 1900

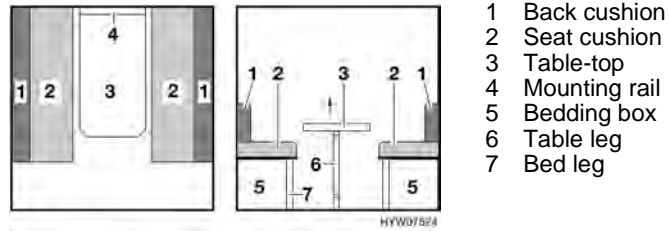


Fig. 42 Prior to conversion

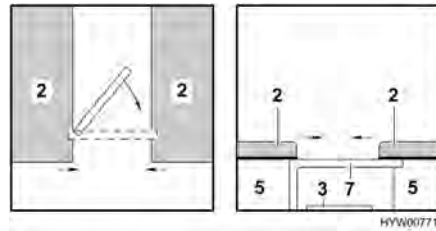


Fig. 43 During conversion

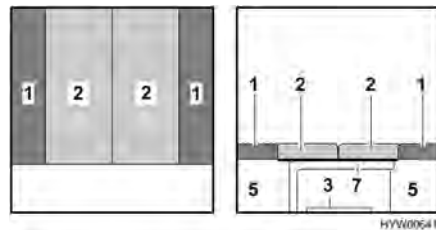


Fig. 44 After conversion

- Slightly lift the front of the table-top (Fig. 42,3).
- Loosen the table leg (Fig. 42,6) out of the locking device and fold it against the bottom of the table.
- Lift the table-top by approx. 45°, remove it out of the mounting rail (Fig. 42,4) and place it to the side or push it into the holder. The table is not required for the sleeping conversion.
- Release bed leg (Fig. 43,7) and turn it a quarter turn.
- Ensure that the bed leg is correctly placed on the bedding box (Fig. 43,5) opposite.
- Lightly lift up the two seat cushions (Fig. 43,2) and pull them to the middle.
- Insert the back cushions (Fig. 44,1) between the seat cushions (Fig. 44,2) and the exterior wall.
- Push the table-top (Fig. 44,3) under the bed.

6.10.5 Rear seating group

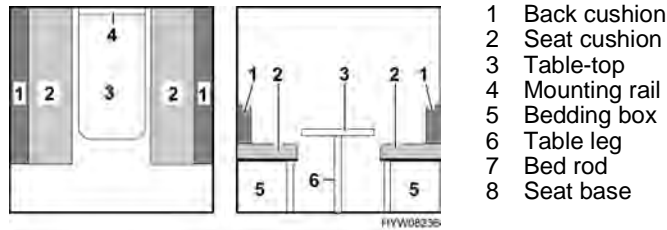


Fig. 45 Prior to conversion

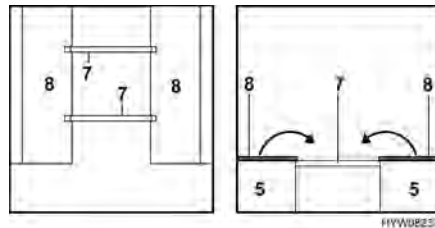


Fig. 46 During conversion

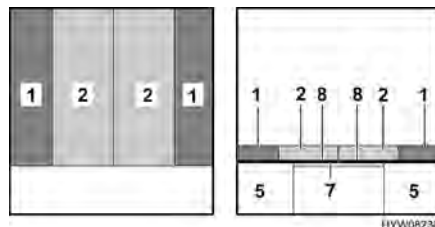


Fig. 47 After conversion

- Slightly raise the front of the table-top (Fig. 45,3).
- Loosen the table leg (Fig. 45,6) out of the locking device and fold it against the bottom of the table.
- Lift the table-top by approx. 45°, remove it out of the mounting rail (Fig. 45,4) and lay it aside. The table is not required for the sleeping conversion.
- Remove both seat cushions (Fig. 45,2) and lay them aside.
- Remove both back cushions (Fig. 45,1) and lay them aside.
- Remove the bed rods (Fig. 46,7) from the holder on the bedding box (Fig. 46,5).
- Fold up the seat bases (Fig. 46,8) and locate the bed rods (Fig. 46,7) in the grooves horizontally between the two bedding boxes.
- Fold both seat bases back down.
- Fold down the upper section of the seat base (Fig. 46,8) towards the centre of the vehicle on both sides and rest them on the bed rods.
- Place the seat cushions (Fig. 47,2) in the centre.
- Insert the back cushions (Fig. 47,1) between the seat cushions (Fig. 47,2) and the exterior wall.

Chapter overview

This chapter contains instructions regarding the gas system of the vehicle. The instructions address the following topics:

- safety
- changing the gas bottles
- gas isolator taps
- external gas connection
- automatic switching facility

The operation of the gas operation appliances of the vehicle is described in chapter 9.

7.1 General



- ▶ Before commencing the journey, when leaving the vehicle or when gas equipment is not in use, close all gas isolator taps and the main isolator tap on the gas bottle.
- ▶ No appliance operated by a naked flame (e.g. heater or refrigerator) may be in operation when filling the tank, on ferries or in the garage. Danger of explosion!
- ▶ Do not use appliances operated with a naked flame in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- ▶ Only have the gas system maintained, repaired or altered by an authorised specialist workshop.
- ▶ Have the gas system checked by an authorised specialist workshop according to the national regulations before commissioning. This also applies for not registered vehicles. For modifications to the gas system have the gas system immediately checked by an authorised specialist workshop.
- ▶ The gas pressure regulator and exhaust gas pipes must also be inspected. The gas pressure regulator has to be replaced after 10 years at the latest. The vehicle owner is responsible for seeing that this is carried out.
- ▶ In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- ▶ If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.).
- ▶ Open the lifting roof before taking open sources of combustion (gas cooker) into service.
- ▶ Do not use the gas cooker or gas oven for heating purposes.
- ▶ If the vehicle or gas devices are not used, close the regulator tap on the gas bottle.
- ▶ If there are several gas devices, each gas device must have its own gas isolator tap. If individual gas devices are not in use, close the respective gas isolator tap.
- ▶ Ignition safety valves must close within 1 minute after the gas flame has extinguished. A clicking sound is audible. Check function from time to time.



- ▶ The built-in gas devices are exclusively meant for use with propane or butane gas or a mixture of both. The gas pressure regulator as well as all built-in gas devices are designed for a gas pressure of 30 mbar.
- ▶ Propane gas is capable of gasification up to -42 °C, whereas butane gas gasifies at 0 °C. Below these temperatures no gas pressure is available. Butane gas is unsuitable for use in winter.
- ▶ Regularly inspect the gas tube fitted to the gas bottle connection for tightness. The gas tube must not have any tears and must not be porous. Have the gas tube replaced by an authorised specialist workshop no later than ten years after the manufacturing date. The operator of the gas system must see to it that the parts are replaced.
- ▶ Due to its function and construction, the gas bottle compartment is a space which is open to the exterior. Never cover or block up the standard forced ventilations. Otherwise gas that is emitted can not be diverted to the outside.
- ▶ Do not use the gas bottle compartment as storage space as it is not moisture-proof.
- ▶ Secure the gas bottle compartment against unauthorised access. To do this, lock the compartment.
- ▶ The regulator tap on the gas bottle must be accessible.
- ▶ Only connect gas-operated devices (e.g. gas grill) which have been designed for a gas pressure of 30 mbar.
- ▶ The exhaust gas pipe must be fitted tightly to the heating system and to the vent and must be sealed. The exhaust gas pipe must not show any evidence of damage.
- ▶ Exhaust fumes must be able to escape into the atmosphere unhindered and fresh air must be able to enter unhindered. For this reason, keep the exhaust pipe and intake openings clean and unobstructed (e.g. free from snow and ice). For this reason, no snow walls or aprons may lie against the vehicle.

7.2 Gas bottles



- ▶ Gas bottles are only to be transported within the designated gas bottle compartment.
- ▶ Place the gas bottles in vertical position in the gas bottle compartment.
- ▶ Fasten the gas bottles so that they are unable to turn or tilt.
- ▶ If the gas bottles are not connected to the gas tube, always place the protective cap on top.
- ▶ Close the regulator tap on the gas bottle before the gas pressure regulator or gas tube are removed from the gas bottle.
- ▶ The gas pressure regulator or the gas tube must only be secured with a suitable gas spanner (Do **not** overtighten).
- ▶ Only use special gas pressure regulators with a safety valve designed for vehicle use. Other gas pressure regulators are not permitted and cannot meet the demanding requirements.
- ▶ Use the gas pressure regulator defroster if the temperature falls below 5 °C.



- ▶ The designated gas bottle compartment will accommodate two gas bottles, i. e. Calor Gas Butane/Propane or Camping Gaz. All gas bottles **must** be fitted with the appropriate regulator.
- ▶ Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- ▶ Never block the floor ventilation openings below the gas bottles.



- ▷ For gas-operated units the gas pressure must be reduced to 30 mbar.
- ▷ Connect gas pressure regulator complete with safety valve directly to bottle valve.

The gas pressure regulator reduces the gas pressure in the gas bottle down to the operating pressure of the gas devices.

- ▷ For filling and connecting the gas bottles in Europe the accessories shops have corresponding Euro filling sets and Euro bottle sets.
- ▷ Information available at the dealers or service centre.

7.3 Changing gas bottles



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

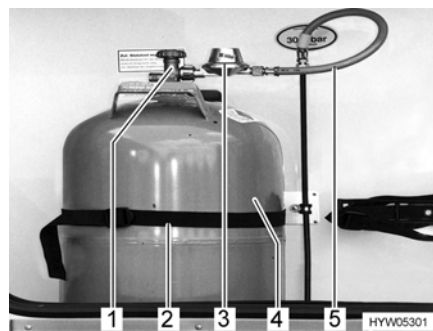
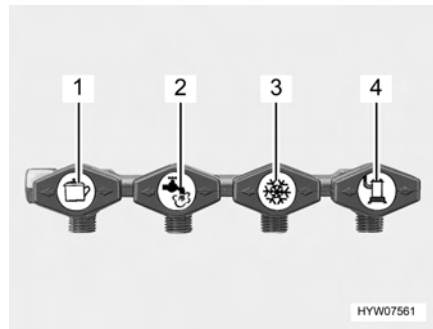


Fig. 48 Gas bottle compartment

- Open external gas bottle compartment (see chapter 6).
- Close the regulator tap (Fig. 48,1) on the gas bottle (Fig. 48,4). Pay attention to the direction of the arrow.
- Unscrew the gas pressure regulator (Fig. 48,3) along with the gas tube (Fig. 48,5) from the gas bottle with a suitable gas spanner.
- Release the fixing belts (Fig. 48,2) and take out the gas bottle.
- Place a filled gas bottle in the gas bottle compartment.
- Fix gas bottle in place with the fixing belts.
- Screw the gas pressure regulator with gas tube on the gas bottle and secure with a suitable gas spanner (Do **not** overtighten).

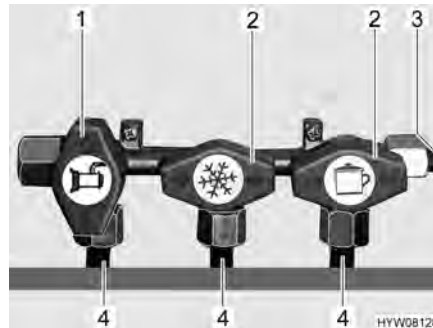
7.4 Gas isolator taps



- 1 Cooker
- 2 Boiler
- 3 Refrigerator
- 4 Heater

Fig. 49 Symbols for the gas isolator taps

A gas isolator tap (Fig. 49) for every gas device is built into the caravan. The gas isolator taps can be found under the cooker.



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

Fig. 50 Gas isolator taps position

- Opening:**
- Position the gas isolator tap of the corresponding appliance parallel (Fig. 50,1) to the pipe (Fig. 50,4) leading to the gas appliance.
- Closing:**
- Position the gas isolator tap of the corresponding appliance transverse (Fig. 50,2) to the pipe (Fig. 50,4) leading to the gas appliance.

7.5 External gas connection



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

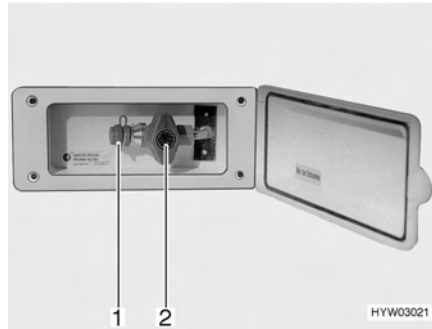


Fig. 51 External gas connection, gas isolator tap closed

The external gas connection (Fig. 51) is located at the rear or to the left or right of the vehicle depending on the model.

- Connect the external gas device to the connection point (Fig. 51,1).
- Open the gas isolator tap (Fig. 51,2).

7.6 DuoControl switching facility



▶ Do not use the switching facility in closed spaces.



▷ Also read the manufacturer's instruction manual.

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

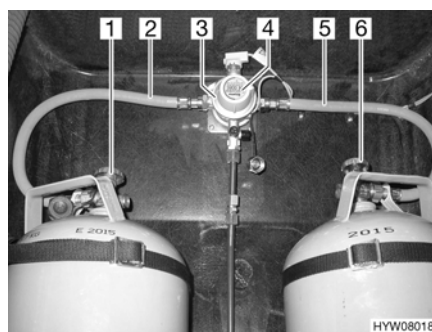


Fig. 52 DuoControl switching facility

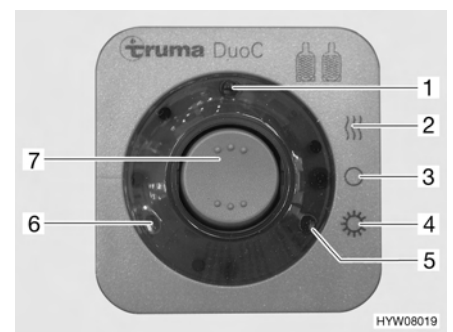


Fig. 53 Operating unit

Construction of the unit

The DuoControl switching facility consists of a reversing valve (Fig. 52,3) and an operating unit (Fig. 53). The reversing valve is installed between the gas tubes (Fig. 52,2 and 5). The knob (Fig. 52,4) on the reversing valve is used to select which of the gas bottles is to be used as a primary bottle and which is to be used as a reserve bottle.

The reversing valve is equipped with the regulator defroster Eis-Ex. This prevents damage to the gas system during the winter months.

Only the electrical functions can be switched at the operating unit (Fig. 53). The regulator taps on the gas bottles (Fig. 52,1 and 6) must be opened manually.

The reversing valve provides a constant gas pressure, regardless of which gas bottle is being drawn upon. The two indicator lamps on the operating unit indicate the level of the primary bottle. When the green indicator lamp (Fig. 53,6) illuminates, the primary bottle is full. When the red indicator lamp (Fig. 53,5) illuminates, the primary bottle is empty. In this case, the reserve bottle is used for the gas supply.

Operating modes The DuoControl switching facility has two operating modes:

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

Putting into operation:

- Open the regulator taps on the gas bottles (Fig. 52,1 and 6).
- Use the knob (Fig. 52,4) on the reversing valve (Fig. 52,3) to select the gas bottle which is to be the primary source of gas (primary bottle). Always turn the knob as far as it will go.
- Switch on the DuoControl switching facility at the operating unit (Fig. 53). To do so, set the rocker switch (Fig. 53,7) to winter operation "On and heating" (Fig. 53,2) or to summer operation "On" (Fig. 53,4). The reversing valve is now deaerated. The yellow indicator lamp (Fig. 53,1) illuminates if the winter operation has been selected and the regulator defroster is activated.

Switching off:

- Set the rocker switch (Fig. 53,7) to "O" (Fig. 53,3). The yellow indicator lamp (Fig. 53,1) goes out.
- Close the regulator taps on the gas bottles (Fig. 52,1 and 6).

Remote display

The indicator lamps on the operating unit (Fig. 53,5 and 6) indicate in the vehicle interior whether the primary bottle is ready for operation.

Changing gas bottles

If the green indicator lamp (Fig. 53,6) stops illuminating during operation and the red indicator lamp (Fig. 53,5) illuminates, the gas bottle selected as primary bottle is empty and needs to be changed. The reserve bottle continues supplying the gas appliances with gas.



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

Changing gas bottles:

- Close the regulator tap on the empty gas bottle.
- Unscrew the gas tube of the gas bottle.
- Connect the full gas bottle to the gas tube.
- Open the regulator tap on the gas bottle.
- Set the knob on the reversing valve with a half-turn, so that the newly replaced gas bottle will serve as a reserve bottle.

Chapter overview

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

The instructions address the following topics:

- safety
- explanations of terms relating to the battery
- 12 V power supply
- living area battery
- power supply unit
- 240 V power supply
- connection to the 240 V power supply
- fuse rating
- sockets
- towing vehicle connection
- electrical wiring

The operation of the electrical appliances of the housing body is described in chapter 9.

8.1 General safety instructions



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

The vehicle is a safe place during a storm (Faraday cage). However, to protect the electrical devices, disconnect the 240 V connection and retract the antennae as a precaution.

8.2 Terms

Off-load voltage

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



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

Closed circuit current

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

Total discharge

Total discharge of the battery is imminent, if a battery is completely discharged by an active appliance and by closed circuit current and the off-load voltage falls below 12 V.



- ▷ Total discharge damages the battery.

Capacity

Capacity refers to the amount of electricity which can be stored in a battery. The capacity of a battery is given in ampere hours (Ah). The so-called K20 value is normally used.

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

For example, if a battery can dispense 4 amps for 20 hours, then it has a capacity of $4 \text{ A} \times 20 \text{ h} = 80 \text{ Ah}$.

If more current flows, the capacity of the battery reduces proportionately.

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



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

8.3 12 V power supply



- ▷ If you use the battery of the towing vehicle to provide power for the caravan, bear in mind that the battery capacity is restricted. If you place too great a burden on the battery, this may lead to starting difficulties.
- ▷ Always disconnect the electrical connection between the towing vehicle and the caravan before the caravan is connected to the local power supply. In order to carry this out, disconnect the plug from towing vehicle socket.
- ▷ Always disconnect the electrical connection between the towing vehicle and the caravan before the living area battery is charged by means of a charger.

When the caravan is not connected to the 240 V power supply, 12 V power supply is performed either by the starter battery of the connected towing vehicle or by the living area battery (Power Pack SE).

The starter battery has a limited power supply only. For this reason, the electrical appliances should not be operated for a long time without using the 240 V power supply when the engine of the towing vehicle is switched off.

If the caravan is electrically connected to the towing vehicle and the vehicle engine is running, the living area battery is charged by the vehicle generator.

The 12 V power supply can be cut off with the 12 V main switch on the panel.

8.3.1 Living area battery (Power Pack SE)



- ▷ The dryfill battery must not be opened.
- ▷ Use only the built-in power supply unit to load the living area battery.
- ▷ Prior to commencing a journey ensure the living area battery is fully charged. For this reason charge the living area battery for at least 20 hours before commencing the journey.
- ▷ During the trip, use every opportunity to charge the living area battery.
- ▷ Charge the living area battery for at least 20 hours after the journey.
- ▷ Charge the battery for at least 20 hours before laying up.
- ▷ For long periods of inactivity (4 weeks or more), either disconnect the living area battery or recharge it regularly.
- ▷ When the living area battery is changed, only use batteries of the same type.



- ▷ Before disconnecting or connecting the terminals of the living area battery, switch off the engine of the towing vehicle as well as the 240 V and 12 V power supplies and all appliances. Danger of short circuit!
- ▷ If the living area battery is disconnected and the caravan and towing vehicle are connected electrically, do not apply the ignition. There is a danger of short circuit from exposed cable ends.



- ▷ The battery is maintenance-free. Maintenance-free means:
It is not necessary to check the acid level.
It is not necessary to lubricate the battery poles.
It is not necessary to refill the distilled water.
Even a maintenance-free battery must be charged regularly.

When the vehicle is not connected to the 240 V power supply or the 240 V power supply is switched off, the living area battery supplies the living area with 12 V DC. The living area battery has a limited power supply only. For this reason, electrical appliances such as the radio and the lights should not be operated for a long time without using the 240 V power supply.

Discharging

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



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

Low temperatures outside reduce the capacity available.

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

An older battery no longer has the complete capacity available.

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

In order to prevent fast discharge of the living area battery, the refrigerator is operated on 12 V power supply only when the engine is running and when there is an electrical connection between the towing vehicle and caravan.

Charging

Only use the power supply unit to charge the living area battery. Therefore, connect the vehicle to a 240 V power supply system as often as possible.



- ▷ Charge the battery for at least 48 hours after a total discharge.
- ▷ At temperatures below 0 °C, a dryfill battery consumes less power. At approx. -15 °C, there will be no more power. The living area battery can no longer be charged.

The living area battery is recharged by the alternator of the towing vehicle if the caravan is connected electrically to the towing vehicle and the towing vehicle's engine is running.



- ▷ Further information can be obtained in the separate documentation for the living area battery.

8.3.2 Energy balance of the living area battery

The living area battery has a limited power supply only. For this reason, the electrical appliances should not be operated without a 240 V power supply for a longer period of time.

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



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

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

Example: In the morning, three spotlights with 10 watts [W] each are lit in the bathroom for 30 minutes.

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

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

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

Example: 30 [W] : 12 [V] = 2.5 [A]
2.5 [A] x 0.5 [h] = 1.25 [Ah]

The table for a whole day could look like this:

**Balance of energy
consumption
(example)**

Appliance	Power consumption [W]	Current [A]	Operating time [h]	Capacity [Ah]
Bathroom lighting	30	2.5	0.5	1.25
Submerged pump	42	3.5	0.1	0.35
Heater	12	1.5	3.0	4.50
Television	36	3.0	2.5	7.50
Satellite unit	36	3.0	2.5	7.50
Kitchen lighting	21	1.8	2.0	3.50
Refrigerator	2	0.2	24.0	4.00
Living area lamps	20	1.6	1.5	2.50
Average daily requirement				31.10

■ Calculate the maximum effective energy with the following formula or determine it with a special indicator unit:

Current capacity [Ah] : Deep discharge protection = Maximum effective energy [Ah]

Example: 80 Ah : 1.3 (gel battery) = 61.5 Ah

■ Calculate the maximum operating time in accordance with the following formula:

Max. effective energy [Ah] : Daily requirement [Ah] = Max. operating time (in days)

Example: $61.5 \text{ [Ah]} : 31.1 \text{ [Ah]} = 2$
 The current battery capacity would be sufficient for two days if the daily requirement remains the same.

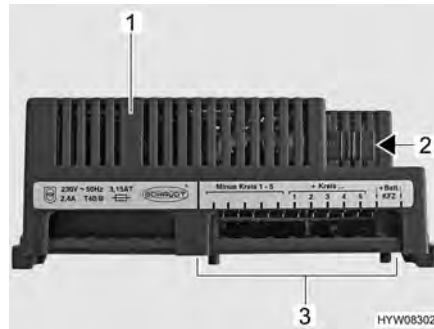
Solar cells The independent time period can be extended with use of the solar cells.
 Two solar cells of 50 W produce the following gain:

- Summer: Approx. 34 Ah/day (independent operation reached)
- Winter: Approx. 8-9 Ah/day (in order to prolong independent operation, another living area battery must be installed)

8.4 Power supply unit CSV 300



▷ Do not cover the ventilation slots on the power supply unit. Danger of overheating.



- 1 Power supply unit
- 2 Flat fuses
- 3 Connections: Consumer circuits 1 to 5 and towing vehicle

Fig. 54 Power supply unit CSV 300

Functions The power supply unit distributes the current to the 12 V circuits and secures them.

If the vehicle is **not** connected to the 240 V supply, the requisite power supply is provided by the battery of the towing vehicle, as long as contact 9 "constant positive" is connected to the towing vehicle socket (see connection diagram at the end of this chapter). The 12 V living area lamps and the 12 V plug sockets can be used, with the exception of the TV output plug socket.

Devices with a maximum of 10 A can be connected to the sockets.

If the vehicle is connected to the 240 V power supply, the power supply unit switches the power supply in the living area automatically from the towing vehicle battery to mains operation. The internal power pack in the power supply unit provides 12 V plug sockets and 12 V appliances with power.



▷ The power supply unit is not used to charge the starter battery of the towing vehicle.

Position The power supply unit (Fig. 54) is installed in the wardrobe.

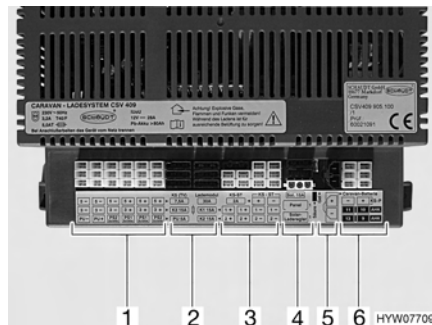


▷ Further information can be obtained in the manufacturer's instruction manual.

8.5 Power supply unit CSV 409 (Power Pack SE)



- ▷ Do not cover the ventilation slots on the power supply unit. Danger of overheating.



- 1 Connections: Consumer circuit 3 and 5 (awning light, TV), water pump
- 2 Fuses (see table in section 8.8)
- 3 Connections: Consumer circuits 1 and 2
- 4 Connections: Solar charge regulator, panel
- 5 Connection: Living area battery
- 6 Connections: Towing vehicle, refrigerator load circuit

Fig. 55 Power supply unit CSV 409

Functions The power supply unit performs the following tasks:

- The power supply unit charges the living area battery.
- The power supply unit distributes the current to the 12 V circuits and secures them. Devices with a maximum of 10 A can be connected to the sockets.
- The power supply unit provides connections for a solar charge regulator as well as other control and monitoring functions.
- The power supply unit separates the starter battery of the towing vehicle electrically from the living area battery of the caravan if there is an electric connection between the towing vehicle and the caravan and if the vehicle engine and the ignition are turned off. In this way the 12 V appliances of the caravan cannot discharge the starter battery of the towing vehicle.

The power in the power supply unit (> 28 A) is divided into charging current and current to the appliances. The charging current is always just the portion that is not being used by any appliances. If the current to the appliances exceeds the current available, then the living area battery is discharged.

Position The power supply unit is installed in the wardrobe.



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

8.5.1 Battery selector switch



- ▶ If the battery selector switch is set incorrectly, there is the danger of the formation of detonating (oxy-hydrogen gas). Danger of explosion!



- ▷ Incorrect setting of the battery selector switch damages the living area battery.
- ▷ The factory settings of the battery selector switch must not be changed.

8.5.2 Charging the battery

During mobile operation, the alternator of the towing vehicle charges the living area battery. If the engine and the ignition of the towing vehicle are cut off, then the power supply unit disconnects the starter battery electrically from the living area battery so that it is not possible to discharge the starter battery of the towing vehicle by using 12 V living area appliances.

When the vehicle is connected to the 240 V power supply, the living area battery is charged by the power supply unit.



- ▷ The power supply unit is not used to charge the starter battery of the towing vehicle.

8.6 On/Off switch (Power Pack SE)

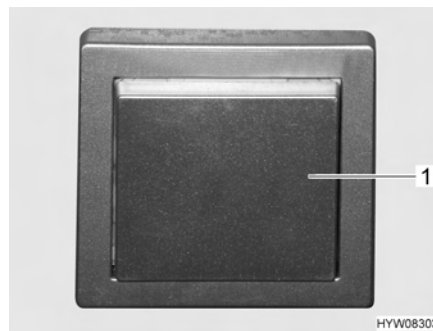


Fig. 56 On/Off switch

The On/Off switch (Fig. 56,1) switches the 12 V power supply to the living area on and off.

Position The on/off switch is located in the entrance area.



- ▷ When leaving the vehicle, switch off the On/Off switch. This prevents any unnecessary discharge of the living area battery.

8.7 240 V power supply



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

The 240 V power supply provides electricity for:

- sockets with earth contact for appliances with maximum 16 A
- refrigerator
- 12 V living area power supply

The electrical appliances which have been connected to the 12 V power supply system of the living area are supplied with power from the living area battery (Power Pack SE) or the power supply unit.

Connect the vehicle to an external 240 V power supply system as often as possible. The power supply unit automatically charges the living area battery (Power Pack SE).

8.7.1 240 V connection

Requirements concerning the 240 V connection

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

8.7.2 Connecting the 240 V power supply



- ▶ The external 240 V power supply must be protected by fuse with a fault current protection switch (FI-switches, 30 mA).
- ▶ To prevent overheating, the cable must be fully uncoiled from the cable reel.
- ▶ In case of doubt or if the 240 V supply is not available or is faulty, contact the operator of the power supply device.



- ▷ The 240 V connection in the vehicle is equipped with a fault current protection switch (FI-switch).
- ▷ For the connection points on camp sites (camping distributors) fault current protection switches (FI-switches, 30 mA) are obligatory.

The vehicle can be connected to an external 240 V power supply.

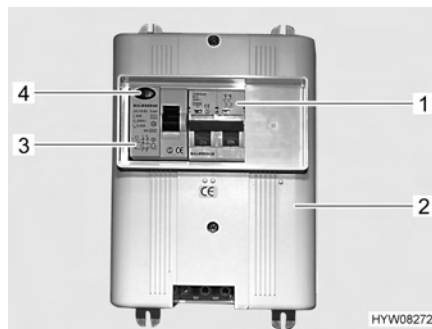


Fig. 57 240 V fuse box with safety cut-out and FI-switch



Fig. 58 240 V connection on vehicle

Connecting the vehicle:

- Check whether the power supply device is suitable regarding connection, voltage, frequency and current.
- Check whether the cables and connections are suitable.
- Check the plug connectors and cables for visible damage.
- Switch off the safety cut-out (Fig. 57,1) in the fuse box (Fig. 57,2).
- Open the cover of the 240 V connection on the vehicle (Fig. 58) and insert the plug connector. Ensure that the detent of the spring-mounted pivoting cover is engaged in position.
- Plug the connector of the connecting cable into the socket of the power supply device. Ensure that the detent of the spring-mounted pivoting cover is engaged in position.
- Switch on the safety cut-out in the fuse box.

Checking fault current protection switch:

- When the vehicle is connected to the 240 V supply, press the check button (Fig. 57,4) of the fault current protection switch (FI switch) (Fig. 57,3) in the fuse box (Fig. 57,2). The fault current protection switch must trip.
- Switch the fault current protection switch back on again.

Unplugging the connection:

- Switch off the safety cut-out (Fig. 57,1) in the fuse box (Fig. 57,2).
- Loosen the detent on the power supply device and unplug the connection cable from the socket.
- Loosen the detent on the vehicle, unplug the plug connector and close the cover of the 240 V connection.

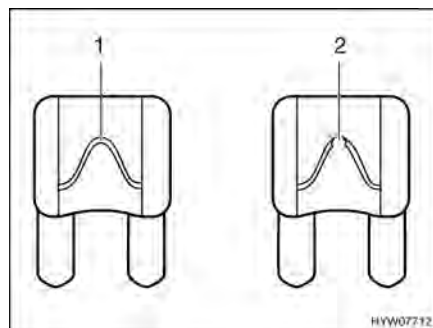
8.8 Fuses



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

8.8.1 12 V fuses

The appliances connected to the 12 V power supply in the living area are fused individually. The fuses are accessible at different positions in the vehicle. Exception: The refrigerator is supplied with energy by the towing vehicle via clamp 15 and consequently also is secured there (trailer socket contact 10).



- 1 Unbroken fuse element
- 2 Broken fuse element

Fig. 59 12 V fuse

An intact 12 V fuse can be detected by the unbroken fuse element (Fig. 59,1). If the fuse element is broken (Fig. 59,2), change the fuse.

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

Fuses on the power supply unit CSV 300

No.	Function	Colour	Current
1	Awning light 12 V	Light brown	5 A
2	Water pump bar and toilet, fan heating	Brown	7.5 A ¹⁾
3	Light 12 V bar, front seating group, toilet; socket 12 V bar	Red	10 A
4	Light 12 V rear seating group; sockets 12 V cabinet, bar, rear seating group	Red	10 A
5	Refrigerator 12 V	Blue	15 A

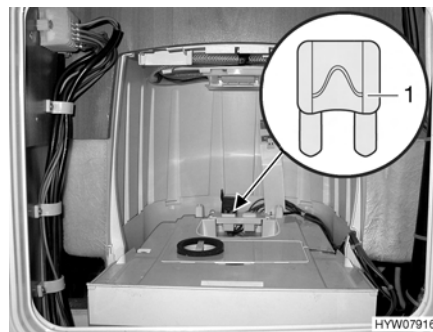
¹⁾ Triton, Troll: 10 A

Fuses on the power supply unit CSV 409 (Power Pack SE)

Function	Value/colour
Circuit 5 (TV, awning light)	7.5 A brown
Circuit 3	15 A blue
Water pump	5 A light brown
Internal charger	30 A yellow
Circuit 1	15 A blue
Circuit 2	15 A blue
Refrigerator control	2 A grey
Solar	15 A blue

Fuse for the Thetford toilet (swivel toilet)

The fuse is located in the locker wall of the sewage tank.



1 Flat fuse 3 A/purple

Fig. 60 Fuse for the Thetford toilet

Changing:

- Open the flap for the sewage tank on the outside of the vehicle.
- Completely remove the sewage tank.
- Replace fuse (Fig. 60,1).

240 V fuse



- ▷ Check the fault current protection switch for each connection to the 240 V power supply, at least once every 6 months.

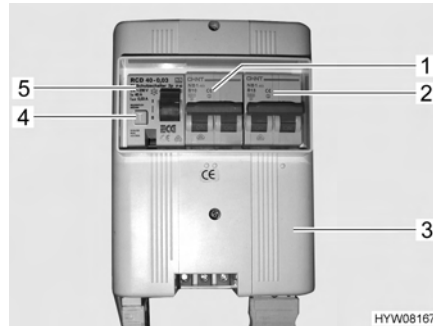


Fig. 61 240 V fuse box with safety cut-out and RCD

A fault current protection switch (RCD) (Fig. 61,5) in the fuse box (Fig. 61,3) protects the complete vehicle from fault current (0.03 A).

The downstream safety cut-out (10 A) (Fig. 61,1) secures the 240 V sockets, the power supply unit, the auxiliary charging unit and the refrigerator.

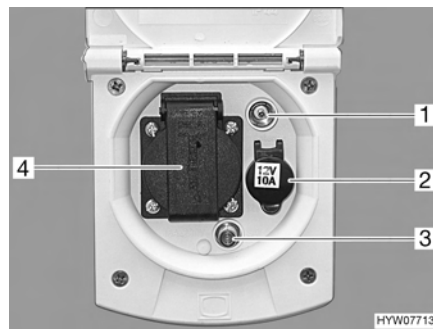
For vehicles with special equipment, e.g. air conditioning unit, an additional safety cut-out (16 A) (Fig. 61,2) secures the device.

The fuse box is installed close to the 240 V connection.

Checking fault current protection switch:

- When the vehicle is connected to the 240 V power supply, press the test button (Fig. 61,4). The fault current protection switch (RCD) must be activated.

8.9 External socket



- 1 TV socket
- 2 12 V socket
- 3 SAT socket
- 4 240 V socket

Fig. 62 External socket

The 240 V socket and the 12 V socket can be used to power electrical devices in the awning.

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

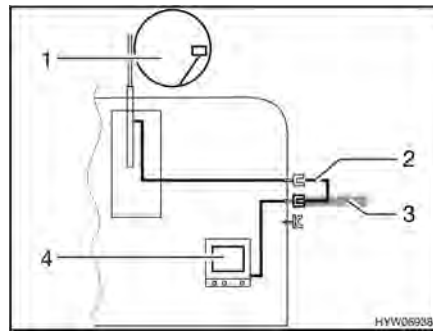


Fig. 63 TV inside the vehicle

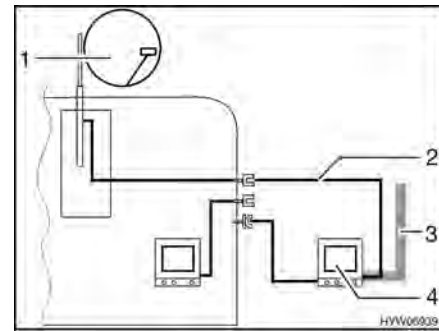


Fig. 64 TV in the awning

- TV inside the vehicle (Fig. 63,4): Connection to roof antenna (Fig. 63,1) with connection cable (Fig. 63,2)
- TV inside the vehicle (Fig. 63,4): Connection to external antenna (Fig. 63,3)
- TV inside the awning (Fig. 64,4): Connection to roof antenna (Fig. 64,1) with connection cable (Fig. 64,2)
- TV inside the awning (Fig. 64,4): Connection to external antenna (Fig. 64,3)

8.10 Connection to the towing vehicle

8.10.1 Thirteen-pin plug connection diagram



- ▷ Note the colours of the connecting cable of the socket which is fitted to the towing vehicle. This makes any new connection which may be necessary easier.
- ▷ To connect the thirteen-pin plug to a seven-pin socket, use a commercially available adaptor.

Fig. 65 shows the following plugs:

- Plug side of the "Jaeger" socket system (left illustration)
- Plug side of the "Multikon" socket system (right illustration)

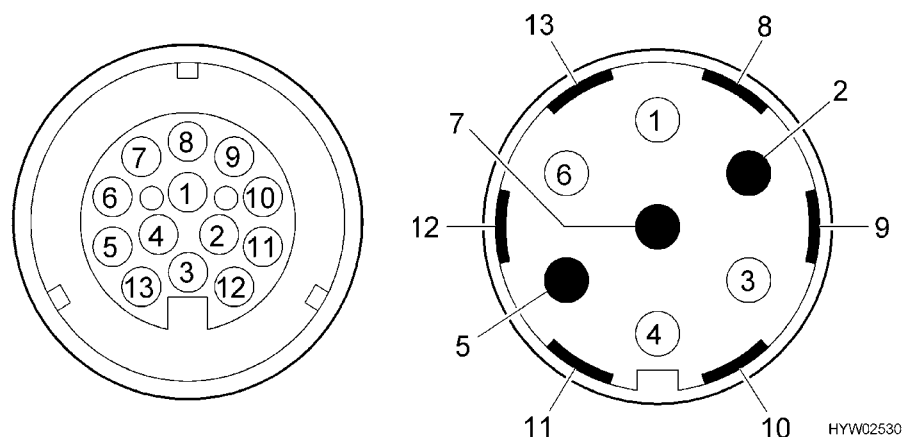


Fig. 65 Contact diagram of the thirteen-pin plug

Connection diagram

Contact number	DIN-specification	Function	Cable colour	Cross section of the wire
1	L	Left direction indicator	Yellow	1.5 mm ²
2	54 G	Fog tail light	Blue	1.5 mm ²
3 ¹⁾	31	Earth (contacts 1, 2, 4 - 8)	White	2.5 mm ²
4	R	Right direction indicator	Green	1.5 mm ²
5	58 R	Right tail light, side marker light, clearance light, marker light, licence plate light	Brown	1.5 mm ²
6	54	Brake lights	Red	1.5 mm ²
7	58 L	Left tail light, side marker light, clearance light, marker light, licence plate light	Black	1.5 mm ²
8		Reverse lamp and/or reverse equipment for overrun brake	Pink	1.5 mm ²
9		Power supply (constant positive)	Orange	2.5 mm ²
10		Power supply; controlled by the refrigerator ignition switch	Grey	2.5 mm ²
11 ¹⁾		Earth (contact 10)	White black	2.5 mm ²
12		Not assigned	–	–
13 ¹⁾		Earth (contact 9)	White red	2.5 mm ²

¹⁾ These earth cables may not be connected to electrical conductors on the trailer side.

8.10.2 Towing vehicle installation (Power Pack SE)



- ▷ The towing vehicle must be retrofitted with the corresponding cable cross sections and a relay for the power supply (controlled using the ignition) (see Fig. 66).
- ▷ If the cable cross sections stipulated below are not adhered to, then it is possible that a correct charging of the living area battery during the journey is not possible.

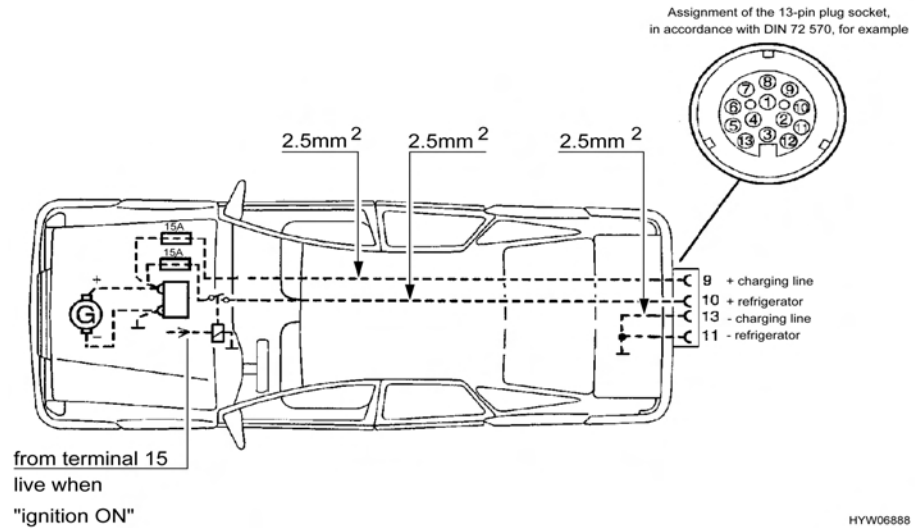
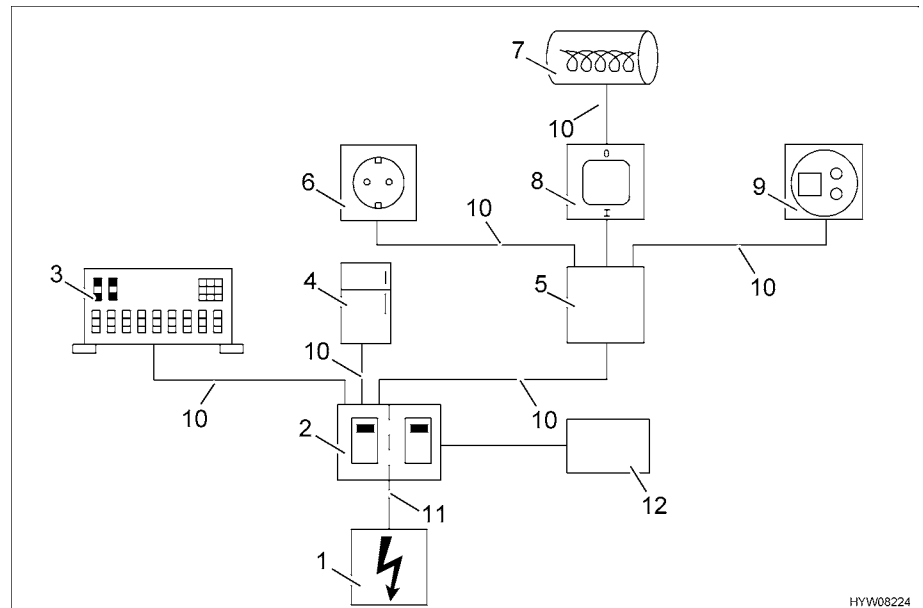


Fig. 66 Towing vehicle installation diagram (Power Pack SE)

8.11 Circuit diagrams

8.11.1 Block diagram 240 V



HYW08224

Fig. 67 240 V circuit diagram

- 1 240 V connection
- 2 240 V fuse box
- 3 Power supply unit
- 4 Refrigerator
- 5 Junction box
- 6 Sockets
- 7 Trumatherm
- 8 Switch for Trumatherm
- 9 External socket
- 10 H05VV-FG1,5²bu/bn/gnye
- 11 H05VV-F-3G2,5²bu/bn/gnye
- 12 Optional device

Fig. 67 shows a schematic diagram of the 240 V network.

8.11.2 Block diagram 12 V

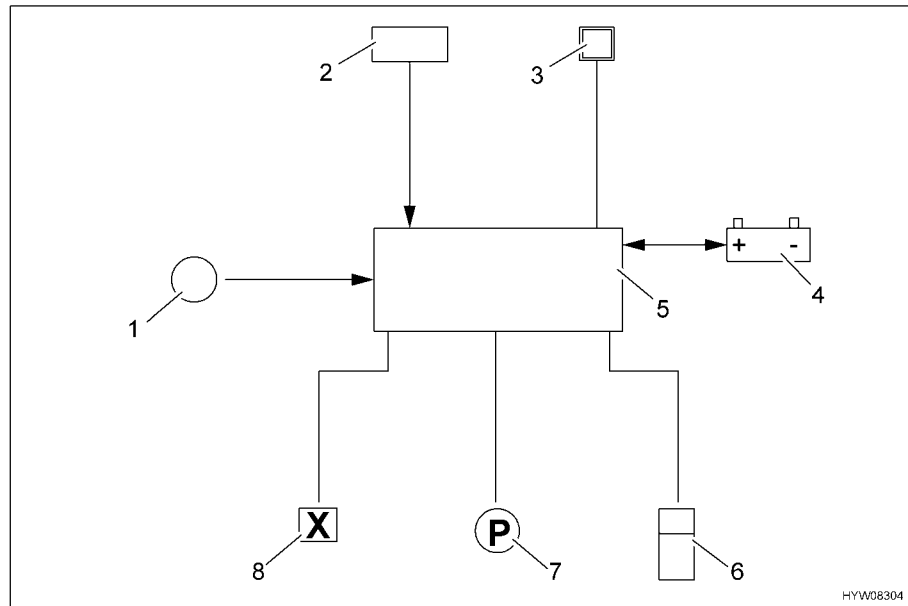


Fig. 68 12 V circuit diagram

- 1 Caravan coupling (contact 9, 10, 11 and 13)
- 2 240 V automatic circuit breaker
- 3 On/Off switch
- 4 Living area battery
- 5 Power supply unit
- 6 Refrigerator
- 7 Water pump
- 8 Circuit 1 to 3

Fig. 68 shows a schematic diagram of the 12 V network.

Chapter overview

This chapter contains instructions regarding the appliances of the vehicle. The instructions refer exclusively to the operation of the appliances. Further information about the appliances can be found in the instruction manuals for the appliances, included separately with the vehicle.

The instructions address the following topics:

- heater
- boiler
- gas cooker
- refrigerator

9.1 General



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

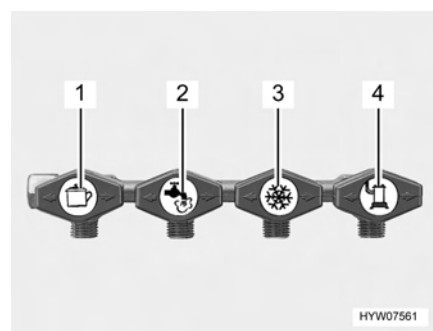


- ▷ Further information can be obtained in the instruction manual for the respective appliance.

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

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

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



- 1 Cooker
- 2 Boiler
- 3 Refrigerator
- 4 Heater

Fig. 69 Symbols for the gas isolator taps

9.2 Heater



- ▶ In winter, check that the waste gas vent on the vehicle roof is free of snow and ice before using the heater.
- ▶ Never let gas escape unburned due to danger of explosion.



- ▶ When filling the fuel tank of the towing vehicle, on ferries or in the garage, never run the heater in gas operation. Danger of explosion!
- ▶ Never operate the heater in gas operation in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- ▶ If the circulation fan does not activate automatically, switch the circulation fan on from heating level 3 to 4. There is danger of overheating for the heater!
- ▶ Do not damage the exhaust gas pipe.
- ▶ The waste gas vent may neither be closed nor blocked.
- ▶ When camping in winter, the Truma waste gas vent extension should be used to prevent snow from choking the waste gas vent.
- ▶ Do not use the space behind the heater as a storage compartment.

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

9.2.1 To heat properly

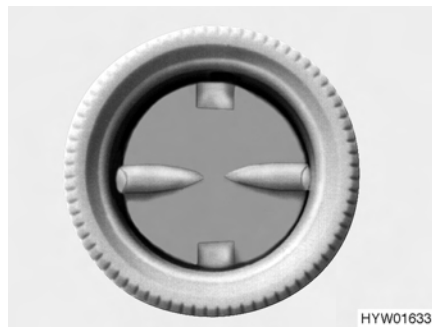


Fig. 70 Air outlet nozzle

Hot air distribution

Several air outlet nozzles (Fig. 70) are built into the vehicle. Pipes conduct the warm air to the air outlet nozzles. Turn the air outlet nozzles in a suitable position so the air can escape as required.

Adjusting the air outlet nozzles

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

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

9.2.2 Heater S 3002



- ▶ In case of problems wait for two minutes before trying again.



Fig. 71 Heater control knob

Switching on:

- Open the regulator tap on the gas bottle and the gas isolator tap "Heater".
- Turn control knob on the heater to the required position and press it firmly. The automatic ignition produces ignition sparks. A clicking noise can be heard.
- Keep the control knob pressed until the flame burns. The burning of the flame can be checked in the inspection window in the heater cover.
- Hold the control knob down for a further 10 seconds, until the ignition fuse starts up.



- ▷ The automatic ignition sparks until the gas ignites. If there is no gas, it will continue to spark until the battery in the automatic ignition is empty. When the heater is not required, set the control knob to "0" to avoid the battery in the automatic ignition running flat.
- ▷ If the clicking noise cannot be heard at all or only in intervals of several seconds during ignition: Change the battery in the automatic ignition.
- ▷ Insert a new batteries before the start of every heating season.

Switching off:

- Turn the control knob on the heater to "0". The automatic ignition is switched off simultaneously.
- Close the gas isolator tap "Heater" and the regulator tap on the gas bottle.



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

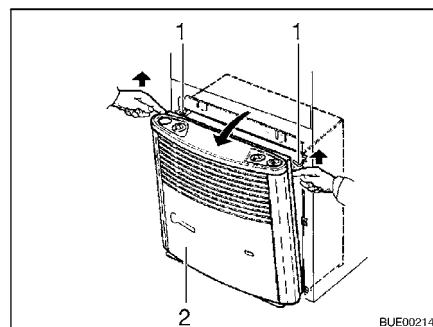


Fig. 72 Removing heater cover

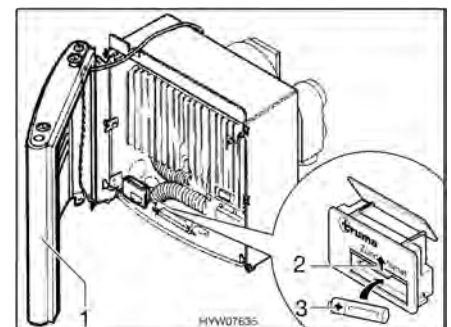


Fig. 73 Heater opened

Changing the battery on the automatic ignition:

- Make certain that the heater is switched off.
- Remove heater cover (Fig. 72,2). Pull the heater cover upwards and forwards, press up the retaining springs (Fig. 72,1) to the side and tip the cover forwards.

- Turn the cover (Fig. 73,1) to the side, so that the connecting cables for the hot-air fan as well as the ignition control lamp do not need to be disconnected.
- Push battery chamber cover on the automatic ignition (Fig. 73,2) upward.
- Remove the old battery out of the battery chamber of the automatic ignition.
- Insert a new battery (Fig. 73,3) of the same type, correctly aligned (+/-), into the battery chamber of the automatic ignition. Only use temperature resistant (+70 °C) and leak-proof Mignon batteries.
- Push battery chamber cover on the automatic ignition upward.
- Press the stop lever to the right, until the lock engages audibly.

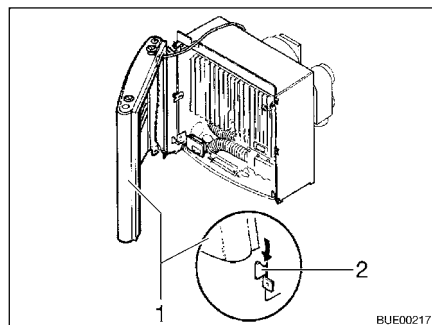


Fig. 74 Heater cover, retaining clips

- Mount the heater cover. To do this, place the cover (Fig. 74,1) on the lower retaining clips (Fig. 74,2).
- Insert the operating rod from underneath into the grip socket and allow the cover to catch in place above.

9.2.3 Circulation fan

The circulation fan together with the hot-air heater ensures a better distribution of hot air throughout the caravan.

Depending on the equipment, a circulation fan is installed in the vehicle either for 240 V or 12 V line voltage.



Fig. 75 Operating switch for circulation fan (240 V)

Switching circulation fan (240 V) on:

- Turn the rotary switch (Fig. 75,1) to "●".
- Turn the knob (Fig. 75,2) to the required position of the circulation fan.

Switching circulation fan (240 V) off:

- Turn the rotary switch (Fig. 75,1) to "○".



Fig. 76 Operating switch for circulation fan (12 V)

Switching circulation fan (12 V) on:

- Set rotary switch (Fig. 76,1) to "man" (manual control) or "auto" (automatic operation).
- Turn the knob (Fig. 76,2) to set (manual control) or limit (automatic operation) the power of the circulation fan.

Switching circulation fan (12 V) off:

- Turn the rotary switch (Fig. 76,1) to "0".



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

9.2.4 Ultraheat additional electric heater

The Ultraheat additional electric heater is built-in to the hot-air heater. Therefore there are three heating options:

- Only the hot-air heater
- Hot-air heater and electric heater
- Only the electric heater

The vehicle can be heated more quickly with the additional electric heater.



- ▷ The additional electric heater only operates if the vehicle is connected to the 240 V power supply.
- ▷ If the heater is operated by electricity and gas simultaneously, the additional electric heater switches off to prevent possible overheating by the stronger gas burner.



- 1 Rotary switch
- 2 Off
- 3 Temperature control knob

Fig. 77 Operating unit for Ultraheat additional electric heater

- Switching on:*
- Connect the vehicle to the 240 V power supply (see section 8.7).
 - Turn the rotary switch (Fig. 77,1) to the desired output level (500, 1000 or 2000 W).
 - Turn temperature control knob (Fig. 77,3) to the desired output level.

- Switching off:*
- Turn the rotary switch (Fig. 77,1) to "O" (Fig. 77,2).

9.3 Boiler



- ▶ Never let gas escape unburned due to danger of explosion.
- ▶ When filling the fuel tank of the towing vehicle, on ferries or in the garage, never run the boiler in gas operation. Danger of explosion!
- ▶ Never operate the boiler in gas operation in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- ▶ The water in the boiler can be heated up to 65 °C. Risk of scalding!



- ▷ **HYMER** recommends that water from the boiler is not used as drinking water.

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



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

9.3.2 Truma boiler



- ▶ Remove cap from waste gas vent before using the Truma boiler.



- ▷ Never use boiler when empty.
- ▷ If the boiler is not being used, empty it if there is any risk of frost.
- ▷ Switch on the boiler and empty it if the vehicle is not used.
- ▷ Only operate the boiler with the maximum temperature setting if you require a large quantity of warm water. This protects the boiler against the build-up of limescale.

Depending on the model, the vehicle is fitted with a boiler.

Operating modes

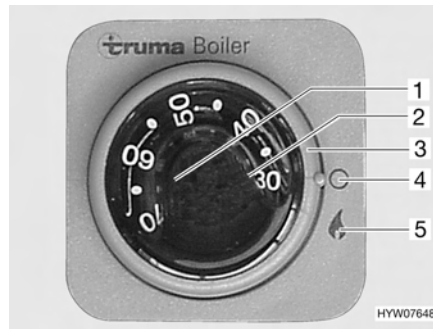
The boiler has three operating modes:

- Gas operation
- 240 V electrical operation
- Combined operation

The operating mode is set with the operating controls.

The regulation of the water temperature in the boiler is only possible with gas operation.

Gas operation The boiler is operated exclusively with gas.



- 1 Temperature control knob
- 2 Red indicator lamp "Fault"
- 3 Rotary switch
- 4 Off
- 5 On

Fig. 78 Operating unit for Truma boiler (gas operation)

- Switching on:*
- Remove cap from waste gas vent.
 - Open the regulator tap on the gas bottle and the gas isolator tap "Boiler".
 - Set the rotary switch (Fig. 78,3) to "▲" (Fig. 78,5). The green "Operation" indicator lamp illuminates the knob (Fig. 78,1).
 - Adjust the knob (Fig. 78,1) to the required water temperature.

The red indicator lamp (Fig. 78,2) illuminates when there is a fault (see chapter 14).

- Switching off:*
- Set the rotary switch (Fig. 78,3) on the operating unit (Fig. 78) to "○" (Fig. 78,4).
 - Close the gas isolator tap "Boiler" and the regulator tap on the gas bottle.
 - Place cap on waste gas vent.

The red indicator lamp (Fig. 78,2) illuminates when there is a fault (see chapter 14).

240 V electrical operation

The boiler is operated exclusively with electricity.



- ▷ 240 V electrical operation is only possible when the vehicle is connected to the 240 V power supply.



Fig. 79 Flip switch for Truma boiler (240 V electrical operation)

- Switching on:*
- Connect the vehicle to the external 240 V power supply and switch on the 240 V automatic circuit breaker.
 - Set flip switch (Fig. 79,1) to on. The indicator lamp on the switch is illuminated. The water in the boiler is heated up to 65 °C.

- Switching off:*
- Set the flip switch (Fig. 79,1) to "O". The indicator lamp on the switch goes off.

Combined operation

The water is heated more quickly in the boiler if gas operation and 240 V electrical operation are switched on simultaneously.



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

Filling/emptying the boiler

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

Depending on the model, the vehicle is fitted with one or several boiler drain cocks. The drain cocks can have different designs (rocking lever or twist cap).

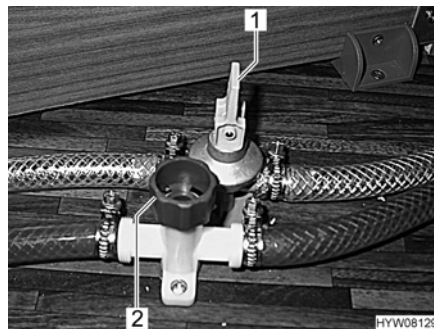


Fig. 80 Drain cocks

Filling the boiler with water:

- Close all boiler drain cocks. To do this, position the rocking lever (Fig. 80,1) horizontally or turn the cap (Fig. 80,2) in a clockwise direction.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it. This is the only way to ensure that the boiler is full of water.
- Close all water taps.

Emptying the boiler:

- Set the rotary switch (Fig. 78,3) on the operating unit (Fig. 78) to "O" (Fig. 78,4) or the flip switch (Fig. 79,1) to "O".
- Turn knob (Fig. 78,1) anticlockwise until it can go no further.
- Open all boiler drain cocks. To do this, position the rocking lever (Fig. 80,1) vertically or turn the cap (Fig. 80,2) in an anticlockwise direction.
- Check whether the water has been drained completely from the boiler (approx. 12.5 litres).

9.3.3 Hot water source



- ▷ Never use the hot water source without water inside it.
- ▷ If the hot water source is not being used, empty it if there is any risk of frost.
- ▷ Switch off the hot water source and empty it if the vehicle is not used.
- ▷ Do not fit a check valve in the cold water pipe between the hot water source and the water pump.
- ▷ Use a pressure reducer when connecting to a central water supply or with strong pumps. The hot water source is designed only for pressures of up to 1.2 bar. In addition, insert a safety/drainage valve in to the cold water pipe.



▷ Do not use the water from the hot water source as drinking water.



Fig. 81 Operating switch for hot water source

The hot water source can either be operated using the 240 V power supply (electrical mode of operation), with the hot air of the heater system or both types of energy. The hot water source heats approx. 5 l water to a temperature of approx. 65 °C.

The electrical mode of operation is activated using the operating switch (Fig. 81). The indicator lamp (Fig. 81,1) on the switch must illuminate.

During hot air operation, the water in the hot water source is heated up by the heater and the circulating air.

Depending on the model, the vehicle is fitted with one or several hot water source drain cocks.

- Switching on:*
- Connect the vehicle to the external 240 V power supply and switch on the 240 V automatic circuit breaker.
 - Switch on the operating switch (Fig. 81). Indicator lamp (Fig. 81,1) on the switch is illuminated. The water in the hot water source is heated up to 65 °C.

- Switching off:*
- Switch off the operating switch (Fig. 81). Indicator lamp (Fig. 81,1) on the switch goes off.

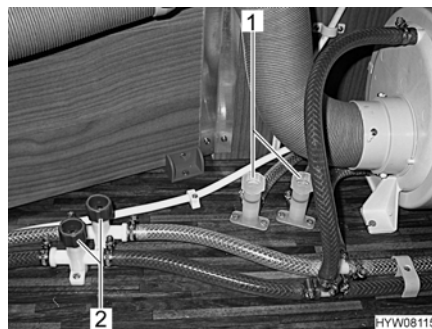


Fig. 82 Drain cocks for hot water source

Filling the hot water source with water:

- Connect the vehicle to the external 240 V power supply and switch on the 240 V automatic circuit breaker.
- Switch off the operating switch (Fig. 81). Indicator lamp (Fig. 81,1) in the switch is not on.

- Close all drain cocks. To do this, close the caps (Fig. 82,1 and 2) by turning them in a clockwise direction.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it. This is the only way to ensure that the hot water source is full of water.
- Close all water taps.

Emptying the hot water source:

- Switch off the 240 V power supply on the 240 V automatic circuit breaker.
- Open the stopper of the water tank.
- Open all water taps and set to the central position.
- Hang the shower handset up in the shower position.
- Hold the water pump up until the water pipes are completely empty.
- Open all drain cocks. To do this turn the caps (Fig. 82,1 and 2) in an anti-clockwise direction.
- Check whether the water is completely drained from the hot water source.



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

9.4 Cooker



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

9.4.1 Gas cooker



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



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



- ▷ Only use pots and pans whose diameter is appropriate for the gas cooker burners.
- ▷ When the flame goes out, the thermocouple automatically cuts the gas supply.
- ▷ For models without Power Pack SE, the burners can only be lit using the rocker switch when the vehicle is connected to the 240 V power supply. If the vehicle is not connected to the 240 V power supply, light the burner using a gas lighter, a match or a cigarette lighter.
- ▷ Further information can be obtained in the manufacturer's instruction manual.

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

The gas cooker is equipped with electronic ignition.

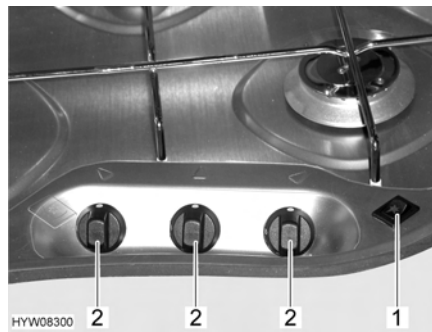


Fig. 83 Operating controls for gas cooker

Switching on:

- Open the regulator tap on the gas bottle and the gas isolator tap "Cooker".
- Open the gas cooker lid.
- If there is a flame protection, fold the flame protection out and lock it into position.
- Turn the control knob (Fig. 83,2) on the burner you wish to use to the ignition position (large flame).
- Press the control knob down and hold it.
- Press the rocker switch (Fig. 83,1). Ignition sparks are generated at the burner.
- Once the flame is burning, the control knob must be held down for 10 to 15 seconds, until the thermocouple automatically keeps the gas supply open.
- Release the control knob and turn to the desired setting.
- If ignition is unsuccessful, repeat the entire procedure.

Switching off:

- Turn the control knob to the 0-position. The flame fades.
- Close the gas isolator tap "Cooker" and the regulator tap on the gas bottle.

9.5 Refrigerator

During the journey, only operate the refrigerator via the 12 V power supply. At high ambient temperatures the refrigerator is unable to reach its full cooling power. At high external temperatures, the full cooling power of the cooling unit is only guaranteed if the refrigerator is ventilated sufficiently. In order to achieve a better ventilation the refrigerator ventilation grill can be removed.



- ▷ When leaving the vehicle, always mount the refrigerator ventilation grill. Otherwise water can enter during rain.
- ▷ The cooling power of the refrigerator depends on the vehicle setup. The cooling power can decrease if the vehicle is inclined by 5° or more. Therefore, always park the vehicle on level ground.
- ▷ Absorption refrigerators operate at normal room temperature (approx. 21 °C) within the specified temperature range. At significantly higher ambient temperatures (> 30 °C), the cooling power is reduced. This is because the "evaporating temperature" of the refrigerant is lower in absorption refrigerators than it is in compressor refrigerators.

9.5.1 Refrigerator ventilation grill

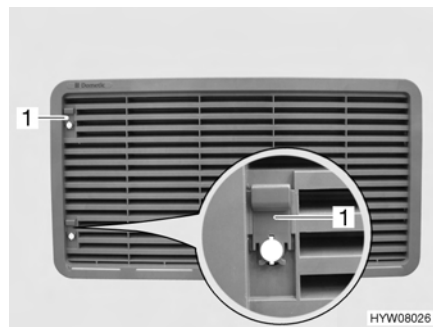


Fig. 84 Refrigerator ventilation grill (with sliding trap)

- Removal:*
- Push sliding trap (Fig. 84,1) upward.
 - Remove refrigerator ventilation grill.

9.5.2 Operation (Dometic)

Operating modes The refrigerator has 3 operating modes:

- Gas operation
- 240 V operation
- 12 V operation

The operating mode is set with the operating controls on the refrigerator panel. Infinitely variable regulation of the cooling power is only possible with gas operation and when the refrigerator is operated with 240 V. It is not possible with 12 V operation.

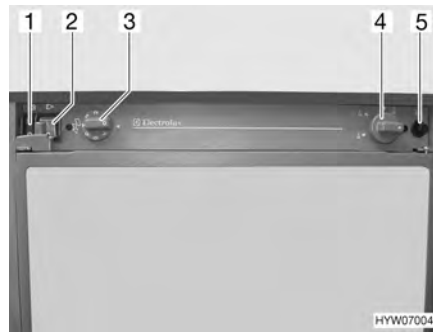


- ▷ Select only one energy source.
- ▷ Even when the 12 V power supply is switched off, a small electrical power flows which puts an extra load on the living area battery. Always switch off the refrigerator for a temporary lay-up.

Gas operation



- ▶ Never let gas escape unburned due to danger of explosion.
- ▶ It is not permitted to operate the refrigerator with car gas.



- 1 Energy selector switch 12 V
- 2 Energy selector switch 240 V
- 3 Temperature setting control knob, 240 V operation
- 4 Temperature setting control knob, gas operation
- 5 Gas ignition button

Fig. 85 Operating controls for refrigerator

- Switching on:*
- Open the regulator tap on the gas bottle and the gas isolator tap "Refrigerator".
 - Set 12 V switch "⊕" (Fig. 85,1) to "0".
 - Set 240 V switch "⚡" (Fig. 85,2) to "0".
 - Press the control knob (Fig. 85,4) to large flame "🔥" and hold it down. Wait until gas gets into the burner.
 - Press the gas ignition switch (Fig. 85,5) repeatedly until the flame appears in the inspection glass (bottom left in the refrigerator).
 - Keep control knob (Fig. 85,4) pressed for another 10 to 15 seconds, then release.
 - Check in the inspection glass (bottom left-hand side in the refrigerator) whether the flame is visible.
 - If ignition is unsuccessful, repeat the entire procedure.

After the refrigerator has been in operation with maximum gas supply for 24 hours the gas supply can be reduced if the cooling power is sufficient.

- Switching off:*
- Set control knob (Fig. 85,4) to "0".
 - Close the gas isolator tap "Refrigerator" and the regulator tap on the gas bottle.

Electrical operation



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

The refrigerator can be operated with the following voltages:

- 240 V AC
- 12 V DC

- Switching the 240 V operation on:*
- Set 12 V switch "⊕" (Fig. 85,1) to "0".
 - Set 240 V switch "⚡" (Fig. 85,2) to "I".
 - Use control knob "🔥" (Fig. 85,3) to adjust refrigerating temperature.

- Switching the 240 V operation off:*
- Turn the control knob to the 0 position and switch off the 240 V switch. Refrigerator is switched off.

- Switching the 12 V operation on:*
- Set 240 V switch "⚡" (Fig. 85,2) to "0".
 - Set 12 V switch "⊕" (Fig. 85,1) to "I".

Switching the 12 V operation off:

- Switch off the 12 V switch. Refrigerator is switched off.

When operated with 12 V, the refrigerator draws power from the starter battery of the towing vehicle. Therefore, 12 V operation of the refrigerator is only possible if the alternator signal D+ is present. During prolonged driving breaks, always change over to gas operation.

The thermostat is not activated during 12 V operation. The refrigerator operates continuously.



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

9.5.3 Refrigerator door locking mechanism



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



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

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

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

Dometic

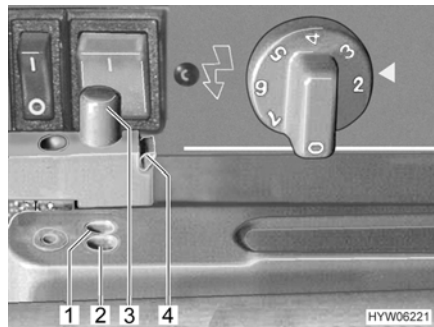


Fig. 86 Lock on refrigerator door (Dometic)

- Opening:*
- Push the green retainer lock (Fig. 86,4) to the side to release the locking device. The bolt (Fig. 86,3) will trip.
 - Open the refrigerator door by the recessed grip or by the curved handle.

- Closing:*
- Fully close the refrigerator door.
 - Press the bolt (Fig. 86,3) down, so that it engages in the outer drilled hole (Fig. 86,2).

- Locking in the ventilation position:*
- Slightly open the freezer compartment and the refrigerator door.
 - Press the bolt (Fig. 86,3) down, so that it engages in the inner drilled hole (Fig. 86,1). The refrigerator door will then stay slightly open.

Chapter overview

This chapter contains instructions regarding the sanitary fittings of the vehicle. The instructions address the following topics:

- water canister or water tank
- waste water tank
- complete water system
- toilet

10.1 Water supply, general



- ▶ Fill water canister or water tank from supply systems that have been verified to provide drinking water quality.
- ▶ Only use such hoses or containers when filling that have been approved for use with drinking water.
- ▶ Thoroughly rinse filling hose or container with drinking water before use (2 to 3 times capacity).
- ▶ Empty filling hose or container completely after use and close openings of the filling hose or container.
- ▶ Water left standing in the water canister, in the water tank or in the water pipes becomes undrinkable after a short period. Therefore, before each use of the vehicle, thoroughly clean the water pipes and the water canister or the water tank. After each use of the vehicle completely empty the water canister or the water tank and the water pipes.
- ▶ In the case of lay-ups lasting more than a week disinfect the water system before using the vehicle.



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

The vehicle is equipped with a water canister or a built-in water tank. An electric water pump pumps the water to the individual water taps. Opening a water tap automatically switches on the water pump and pumps water to the tap.

A canister or a waste water tank collects the waste water.



- ▷ Before using the water fittings: Connect the 240 V power supply and switch on the 240 V automatic circuit breaker, or connect the caravans electrics to the towing vehicle. Otherwise the water pump will not work. (This only applies to caravans that are not equipped with a separate battery.)
- ▷ When the water canister or the water tank is re-filled, an air bubble may form at the bottom of the pump. This air bubble will prevent water from being drawn in. Shake the water pump up and down energetically in the water.

10.2 Water tank

The water tank is built into the seating group.

10.2.1 Drinking water filler neck with flap

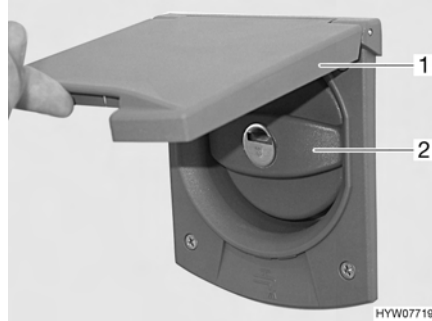



Fig. 87 Cap for the drinking water filler neck

The drinking water filler neck is on the right or left side of the vehicle, depending on the model.

The flap for the drinking water filler neck is marked by the symbol .

- Opening:*
- Move external flap (Fig. 87,1) upwards (see chapter 6).
 - Remove cap (Fig. 87,2) (see chapter 6).
 - Fill the water tank with drinking water. Use a water hose, a water canister with a funnel or similar for filling.

- Closing:*
- Place the cap onto the drinking water filler neck and seal it (see chapter 6).
 - Check that the cap sits firmly on the drinking water filler neck.
 - Close the external flap (see chapter 6).

10.2.2 Filling with water



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

- Open drinking water filler neck.
- Fill the water tank with drinking water. Use a water hose, a water canister with a funnel or similar for filling.
- Close drinking water filler neck.

10.2.3 Draining water (stopper)

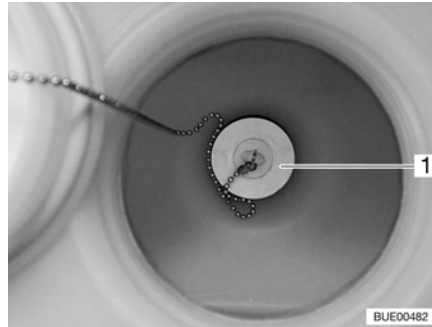


Fig. 88 Water tank

- Unscrew the cap on the water tank.
- Remove the stopper (Fig. 88,1) from the drainage opening. The water will drain.
- Screw the cap back on the water tank.

10.3 Waste water tank



▶ Before commencing the journey, empty the waste water tank.



- ▷ If there is any risk of frost, empty the waste water tank.
- ▷ Never pour boiling water directly into the sink outlet. Boiling water could cause deformation and leaks in the waste water pipe system.



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

The waste water tank is fixed.

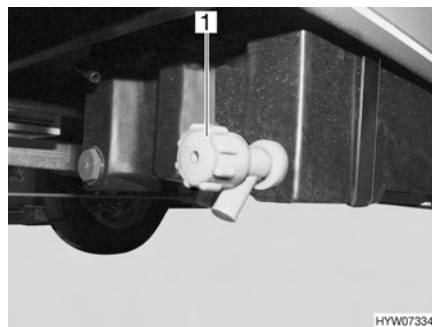


Fig. 89 Drain cock for waste water tank

Emptying:

- Turn the cap (Fig. 89,1) of the drain cock in an anticlockwise direction.
- Completely empty waste water tank.
- Turn the cap (Fig. 89,1) in a clockwise direction. The drain cock is closed.

10.4 Filling the water system



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



- ▷ The water pump will overheat without water and can get damaged. Never operate water pump when the water canister or the water tank is empty.

Models with water canister

With models with water canister, fill the water system as follows:

- Position the vehicle horizontally.
- Clean or disinfect water system.
- Loosen retaining straps at the water canister.
- Unscrew the cap of the water canister.
- Remove water pump and water hose from the water canister.
- Replenish drinking water.
- Place water pump in the water canister and close the cap tightly.
- Secure water canister with retaining strap.
- Connect the 240 V power supply and switch on the 240 V automatic circuit breaker.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it. This is the only way to ensure that the boiler is full of water.
- Set all water taps to "Cold" and leave them open. This will fill the cold water pipes with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it.
- Close all water taps.

Models with water tank

With models with water tank, fill the water system as follows:

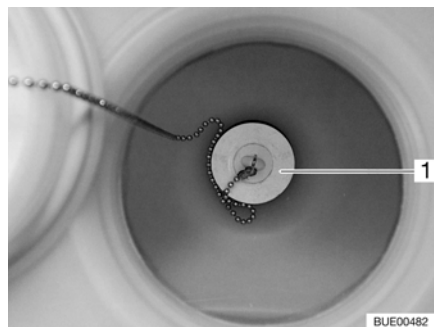


Fig. 90 Water tank, stopper

- Position the vehicle horizontally.
- Connect the 240 V power supply and switch on the 240 V automatic circuit breaker. If the vehicle is equipped with a self-sufficiency package with battery, it is not necessary to connect it to a 240 V power supply.
- Close drain cocks for the boiler or hot water source and cold water source.

- Close all water taps.
- Unscrew the cap on the water tank.
- Put the stopper (Fig. 90,1) in the drainage opening.
- Screw the cap back on the water tank.
- Open the drinking water filler neck on the outside of the vehicle.
- Fill the water tank with drinking water. Use a water hose, a water canister with a funnel or similar for filling.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it. This is the only way to ensure that the boiler is full of water.
- Set all water taps to "Cold" and leave them open. This will fill the cold water pipes with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it.
- Close all water taps.
- Close the drinking water filler neck.
- Check that the cap on the water tank is not leaking.

10.5 Emptying the water system



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



- ▷ Take note of the environmental tip in this chapter.

Models with water canister

To empty and ventilate the water system, proceed as follows. This prevents frost damage and deposits:

- Position the vehicle horizontally.
- Switch off the 240 V power supply on the 240 V automatic circuit breaker.
- Loosen retaining straps at the water canister.
- Unscrew the cap of the water canister.
- Remove water pump and water hose from the water canister.
- Empty the water canister.
- Open all water taps and set to the central position.
- Hold the water pump up until the water pipes are completely empty.
- Blow out the remaining water in the water pipes (max. 0.5 bar). To do this, remove the water pipe from the water pump and blow into the water pipe.
- Clean water canister.
- Empty Thetford cassette. Take note of the environmental tips in this chapter.
- After emptying, leave all water taps on in the central position.

- Models with water tank** To empty and ventilate the water system, proceed as follows. This prevents frost damage and deposits:
- Position the vehicle horizontally.
 - Switch off the 240 V power supply on the 240 V automatic circuit breaker.
 - Switch off the boiler or hot water source. The indicator lamp "Operation" will go off.
 - Open all drain cocks.
 - Unscrew the cap of the water tank.
 - Remove water pump and water hose from the water tank.
 - Take out the stopper of the water tank.
 - Open all water taps and set to the central position.
 - Hang the shower handset up in the shower position.
 - Hold the water pump up until the water pipes are completely empty.
 - Check whether the water tank is completely empty.
 - Blow out the remaining water in the water pipes (max. 0.5 bar). To do this, remove the water pipe from the water pump and blow into the water pipe.
 - Empty the waste water tank. Take note of the environmental tips in this chapter.
 - Empty the sewage tank. Take note of the environmental tips in this chapter.
 - Clean the water tank and then rinse it out thoroughly.
 - Let the water system dry for as long as possible.
 - After emptying, leave all water taps on in the central position.
 - Leave all drain cocks open.

10.6 Toilet



- ▷ If there is any risk of frost and the vehicle is not heated, empty the sewage tank.
- ▷ Do not sit on the lid of the toilet. The lid is not designed to bear the weight of a person and could break.
- ▷ Use a suitable chemical for this toilet. The ventilation will merely remove the odour but not germs and gases. Germs and gases will have a detrimental effect on the sealing rubbers.



- ▷ The lid of the Thetford toilet can be removed upwards.
- ▷ Further information can be obtained in the manufacturer's instruction manual.



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

10.6.1 Swivel toilet

The toilet is flushed with water from its own water canister. The toilet bowl can be moved into the optimal position.

Water canister The water canister is located behind a panel in the washroom.



Fig. 91 Panel for water canister



Fig. 92 Water canister for toilet

Filling the water canister:

- Hold the panel (Fig. 91,1) behind the toilet and detach it from its holders (Fig. 92,1) by pulling it towards the centre of the vehicle.
- Release the retaining strap (Fig. 92,4) on the water canister (Fig. 92,3).
- Remove water pump with water hose (Fig. 92,2) from the water canister.
- Fill the water canister with fresh water.
- Place water pump in the water canister.
- Secure water canister with retaining strap.
- Push the panel (Fig. 91,1) back into its holders.

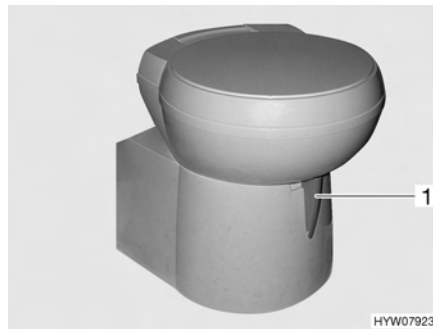


Fig. 93 Thetford toilet bowl, swivelling

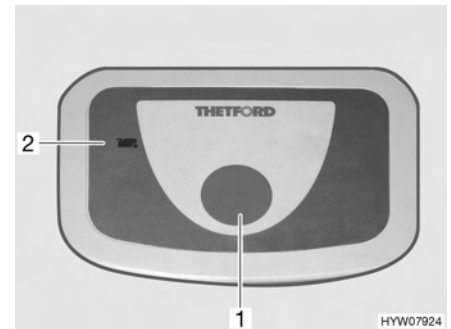


Fig. 94 Flush button/indicator lamp Thetford toilet

Flushing:

- Before flushing open the sliding trap of the Thetford toilet. To do this, push the slide lever (Fig. 93,1) in an anticlockwise direction.
- For flushing, press the blue flush button (Fig. 94,1).
- After flushing close the sliding trap. To do this push the slide lever in a clockwise direction.

The indicator lamp (Fig. 94,2) goes on whenever the sewage tank has to be emptied.

Emptying the water canister:

- Switch off the 240 V power supply on the 240 V automatic circuit breaker.
- Detach the panel (Fig. 91,1).
- Release the retaining strap (Fig. 92,4) on the water canister (Fig. 92,3).
- Remove the water pump and water hose (Fig. 92,2) from the water canister.
- Empty the water canister.
- Clean water canister.
- Place water pump in the water canister.

- Secure water canister with retaining strap.
- Push the panel back into its holders.

Sewage tank The sewage tank can only be taken out if the sliding trap is closed.

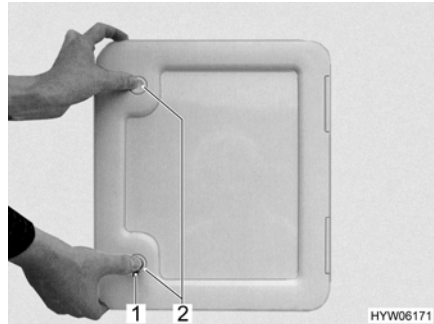


Fig. 95 Flap for sewage tank



Fig. 96 Sewage tank

Emptying the sewage tank:

- Push the slide lever (Fig. 93,1) in a clockwise direction. The sliding trap is closed.
 - Open the flap for the sewage tank on the outside of the vehicle. Insert the key into the locking cylinder of the push-button lock (Fig. 95,1) and turn a quarter turn in a clockwise direction.
 - Remove the key.
 - Press both push-button locks (Fig. 95,2) simultaneously with your thumb and open the flap for the sewage tank.
 - Pull the retaining clip (Fig. 96,1) upwards and pull out the sewage tank (Fig. 96,2).
 - Completely empty the sewage tank at disposal stations that are especially provided for this purpose.
- ▷ Press the aeration knob on the toilet cassette with your thumb to empty it completely.



10.6.2 Winter operation



- ▷ Do not use antifreeze. Antifreeze can damage the toilet.

If the toilet, the water tank and the sewage tank are in a frost-protected part of the vehicle, the toilet can also be used in the winter.

If the toilet, the water tank and the sewage tank are not in a frost-protected part of the vehicle, empty the water tank, the sewage tank and the water pipes if there is a risk of frost. This prevents frost damage.

Chapter overview

This chapter contains instructions regarding the care of the vehicle.

The instructions address the following topics:

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

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

The checklist address the following topics:

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

11.1 External care

11.1.1 General

Standard external care consists of regular washing. The use and the environmental conditions will determine how often the vehicle needs to be washed. Wash the vehicle more frequently in areas which are exposed to heavy air pollution or heavy traffic or roads treated with de-icing salts. If the vehicle is exposed to salty and humid air (coastal areas, humid climates), wash the vehicle more frequently.

Do not park under trees if at all possible. The resin-like discharge which many trees secrete, give the paintwork a matt look and can promote the onset of corrosion.

Wash off bird droppings straight away and thoroughly, as the acid it contains is extremely corrosive.

11.1.2 Washing with a high-pressure cleaner



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

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

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

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

11.1.3 Washing the vehicle



- ▷ Never clean the vehicle in the car wash. Water can enter the refrigerator grills, the waste gas vents, the ventilation of the extractor hoods or the forced ventilations. The vehicle could be damaged.
- Wash the vehicle only on a washing site intended for this purpose. Avoid full sunshine. Observe environmental measures.
- Only clean external applications and synthetic parts with plenty of warm water, dish washing liquid and soft cloth.
- Wash down the vehicle with plenty of water, a clean sponge or a soft brush. In the case of stubborn dirt add dish washing liquid to the water.
- Painted exterior walls may also be cleaned with a caravan cleaner.
- Treat rubber seals of doors and storage flaps with talc.
- Treat locking cylinder of doors and storage flaps with graphite dust.

11.1.4 Windows of acrylic glass



Acrylic glass windows are delicate and require very careful handling.

- ▷ Never rub acrylic glass windows dry as dust particles might damage the surface!
- ▷ Only clean acrylic glass windows with plenty of warm water, some dish washing liquid and a soft cloth.
- ▷ Never use glass cleaning agents with chemical, abrasive or alcohol-containing additives. Premature brittleness of the panes and associated cracks may result from their use.
- ▷ Avoid contact of cleansing agents used for the body (e.g. tar- or silicone-removing agents) with acrylic glass.
- ▷ Do not clean vehicle in car wash.
- ▷ Do not attach stickers to the acrylic glass windows.
- ▷ Having cleaned the vehicle rinse acrylic glass with sufficient clear water.
- ▷ Apply talcum powder to rubber seals.



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

11.1.5 Hot galvanized chassis

Salt deposits damage the hot galvanized chassis and can cause white rust.

But so-called white rust represent no defects. It is only a visual damage.

The most frequent causes for white rust are:

- Abrasives and de-icing salts (e.g. when driving during winter months)
- Condensation (e.g. by covering the vehicle with plastic foils or awning)
- Humidity (e.g. by parking the vehicle in high grass, in puddles or sludge)
- Cleaning agents (e.g. by cleaning with aggressive cleaning agents)
- Snow (e.g. by standing too long in snow)
- Defective ventilation (e.g. by covering with aprons in the floor area)

To avoid formation of white rust or to remove any existing white rust, we recommend the following method:

- After driving in winter, rinse out the hot galvanized surfaces with clean water.
- If hot galvanized parts are affected by white rust, clean with a zinc cleaner (e.g. Poligrat).

11.1.6 Add-on parts made of glass-fibre reinforced plastic (GRP)



- ▷ Avoid contact between polish and window rubber and piping.
- ▷ The glass-fibre reinforced plastic (GRP) may not become too hot. Therefore when polishing with a polishing machine, keep the machine in constant motion.

GRP add-on parts can turn yellow or become weather-worn due to insufficient care for the vehicle or ageing of the material.

GRP add-on parts should therefore undergo regular follow-up treatment. This way, these parts will not turn yellow and the sealing of the surface remains intact.

Follow-up treatment of GRP add-on parts:

- Wash the vehicle and allow to dry as described above. Check if the GRP add-on parts are clean and dry.
- Apply the polisher with a soft cloth evenly on the surface of the GRP add-on part.
- Wait until a light grey film forms.
- Wipe the GRP add-on part with a dry, soft cloth. Move the cloth in circles over the surface of the GRP add-on part.

We recommend using a polishing machine for this work.



- ▷ Paint protection has to be used to preserve the polish. Please read the instructions of the paint protection for details on how to apply it.

11.1.7 Underbody

The underbody of the vehicle is partly coated with an age-resistant underbody protection. Should the underbody protection be damaged, repair immediately. Do not treat areas coated with underbody protection with spray oil.



- ▷ Only use products approved by the manufacturer. Our authorised dealers and service centres will be happy to advise you.

11.1.8 Waste water tank

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

Cleaning:

- Empty the waste water tank.
- Open the cleaning opening on the waste water tank.
- Thoroughly rinse out the waste water tank with fresh water.

11.1.9 Entrance step

If the entrance step is lubricated, coarse particles of dirt can settle on the lubricant during the journey and cause damage to the operating mechanism of the entrance step. Therefore, do not lubricate the moving parts of the entrance step.

11.2 Interior care



- ▷ If possible, treat stains immediately.
- ▷ Acrylic glass windows are delicate and require very careful handling (see section 11.1.4).
- ▷ Synthetic parts in the toilet and living area are very delicate and should be treated with care. Do not use solvents, alcohol-containing cleansers or scourers. This procedure will help you to avoid brittleness and formation of cracks.
- ▷ Hair colourants, nail varnish, cigarette ash and similar substances may cause permanent stains or discolouration. For this reason, you should prevent these substances from getting onto plastic parts. If they do get onto plastic parts, you should remove these substances immediately.
- ▷ Do not pour any corrosive agents into the drain holes. Never pour boiling water directly into the drain holes. Corrosive agents and boiling water cause damage to drainage pipes and siphon traps.
- ▷ Do not use vinegar based products to clean the toilet and water system, or for decalcification of the water system. Vinegar-based products may cause damage to seals or parts of the installation. Use standard decalcifying products for decalcification.
- ▷ Save water. Mop up all remaining water.



- ▷ For information about the use of maintenance products, our representatives and service centres will be glad to advise.
- Surface and knobs of furniture, lamps and synthetic parts in the toilet and living area should be cleaned with water and a wool cloth. A mild cleanser may be added to the water. If required, use furniture polish for the painted surfaces.
- Curtains and net curtains should be dry cleaned.
- Vacuum clean the carpet, if necessary clean with carpet shampoo.
- Clean PVC-floor covering with a mild, soapy cleanser for PVC floors. Do not place carpet on wet PVC-floor covering. The carpet and the PVC-floor covering may stick together.
- Never clean the sink or the gas cooker with a scourer. Avoid anything which may cause scratching or grooves.
- Clean the burners on the gas cooker using a damp cloth only. Prevent any water from penetrating the burner cover. Water may damage the burners.
- Brush insect screen with a soft brush or vacuum with the brush attachment of the vacuum cleaner. Remove stubborn dirt with warm water (approx. 30 °C).

- Brush blinds with a soft brush or vacuum with the brush attachment of the vacuum cleaner. Grease or stubborn dirt may be removed with a mild soap at 30 °C (curd soap).
- Wipe the canvas of the lifting roof only with a damp, soft cloth so as not to alter the impregnation.

11.3 Cushions

The care and cleaning instructions below are for assistance only. They are not a guarantee of successful cleaning. These instructions cannot form the basis for any warranty claims.



- ▷ If possible, treat stains immediately.
- ▷ Never use household cleaners to remove marks (e.g. detergents).
- ▷ Before treating marks, test the cleaning on a hidden part of the upholstery covers. This will show you whether the cleaning will damage the materials or dyes.
- ▷ Always only dab moist or greasy marks, never rub them. It is most effective to gently press an absorbent cloth or a sponge onto the mark.
- ▷ Do not wash upholstery.
- ▷ When cleaning leather covers, make sure that the leather is not soaked through and that no water seeps through the seams of the leather covers.



- ▷ Treat the mark from the outside working inwards. This prevents the mark from spreading.
- ▷ In the case of both solid or softer contamination, first remove the coarse parts. Next, carefully scrape off the mark with a blunt knife or spatula.
- ▷ If the mark has already dried in, carefully brush off the coarse parts. Next, dab off the mark with a damp cloth or sponge.
- ▷ The upholstery will fade over time, if it is exposed to sunlight. If the temperature within the vehicle rises rapidly as well, the colour will change at an accelerated rate.
Therefore, we recommend to close the shades on the windows when there is strong sunlight. Ensure that heat does not build up when you close the blind.

**Grease, oil, wine, milk,
non-alcoholic beverages**

Use only ordinary water-based cleaning agents. Alternatively, mix 2 table-spoons of ammoniac with 1 litre of water. Gently dab the mark with a cloth moistened with this solution. Turn the cloth frequently so that the mark only comes into contact with a clean part of the cloth.

Urine, sweat

Use only ordinary water-based cleaning agents. Alternatively, mix 2 table-spoons of ammoniac with 1 litre of water. Gently dab the mark with a cloth moistened with this solution. Turn the cloth frequently so that the mark only comes into contact with a clean part of the cloth.

Chocolate, coffee

Dab with lukewarm water.

Fruits

Dab with cold water.

Wax, candle

Carefully scrape off the wax with a blunt knife or spatula. Cover the mark with several layers of waterleaf paper and iron.

- Blood** Mix 2 tablespoons of salt and 1 litre of water. Moisten the mark and dab with a dry cloth. Dab stubborn marks with ammonia solution.
- Ballpen, ink** Gently dab the mark with a cloth moistened with cleaner's naphtha. Turn the cloth frequently so that the mark only comes into contact with a clean part of the cloth.
- Mud** Carefully remove as much mud as possible with a blunt knife or a spatula. Allow the mud to dry and then remove it with a vacuum cleaner. For stubborn marks, use only ordinary water-based cleaning agents. Alternatively, mix 2 tablespoons of ammonia solution with 1 litre of water. Gently dab the mark with a cloth moistened with this solution. Turn the cloth frequently so that the mark only comes into contact with a clean part of the cloth.
- Pencil** Use only mild, water-free and clean textile cleaning agents. Moisten a cloth with the agent. Gently dab the mark with a cloth moistened with this solution. Turn the cloth frequently so that the mark only comes into contact with a clean part of the cloth.
- Vomit** Carefully clean up the vomit and wash it out with cold water. Use only ordinary water-based cleaning agents. Alternatively, mix 2 tablespoons of ammoniac with 1 litre of water. Gently dab the mark with a cloth moistened with this solution. Turn the cloth frequently so that the mark only comes into contact with a clean part of the cloth.

11.4 Water system

11.4.1 Cleaning the water canister or the water tank

- Empty the water canister or water tank and close the drainage opening of the water tank.
- Remove the cap of the water canister or the water tank.
- Fill water canister or water tank with water and some washing-up liquid (do not use any scourers).
- Using a trade standard brush for washing dishes, scrub the water canister or the water tank until there is no longer any visible deposit.
- Scrub also the pump housing.
- Rinse water canister or water tank with copious amounts of drinking water.

11.4.2 Cleaning the water pipes



- ▷ Only use suitable cleaning agents as sold by the specialist trade.



- ▷ Collect any emerging mixture of water and cleaning agent for correct disposal.

- Empty the water system.
- Close all drain holes and drain cocks.
- Fill mixture of water and cleaning agent into the water canister or water tank. Observe the manufacturer's instructions regarding the mixing ratio.

- Open the drain cocks one by one.
- Leave the drain cocks open until the mixture of water and cleaning agent has reached the respective drain.
- Close the drain cocks.
- Set all the water taps to "Hot" and open them.
- Leave the water taps open until the mixture of water and cleaning agent has reached the drain.
- Set all water taps to "Cold" and open them.
- Leave the water taps open until the mixture of water and cleaning agent has reached the drain.
- Close all water taps.
- Flush the toilet several times.
- Allow the cleaning agent to act in accordance with the manufacturer's instructions.
- Empty the water system. Collect the mixture of water and cleaning agent for correct disposal.
- For rinsing fill the entire water system with drinking water and empty again several times over.

11.4.3 Disinfecting the water system



- ▷ Only use suitable disinfectants as sold by the specialist trade.



- ▷ Collect any emerging mixture of water and disinfectant for correct disposal.

- Empty the water system.
- Close all drain holes and drain cocks.
- Fill mixture of water and disinfectant into the water canister or water tank. Observe the manufacturer's instructions regarding the mixing ratio.
- Open the drain cocks one by one.
- Leave the drain cocks open until the mixture of water and disinfectant has reached the respective drain.
- Close the drain cocks.
- Set all the water taps to "Hot" and open them.
- Leave the water taps open until the mixture of water and disinfectant has reached the drain.
- Set all water taps to "Cold" and open them.
- Leave the water taps open until the mixture of water and disinfectant has reached the drain.
- Close all water taps.
- Flush the toilet several times.
- Allow the disinfectant to act in accordance with the manufacturer's instructions.

- Empty the water system. Collect the mixture of water and disinfectant for correct disposal.
- For rinsing fill the entire water system with drinking water and empty again several times over.

11.5 Winter care

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



- ▷ If there is any risk of frost, always run heater at a minimum of 15 °C. Switch the circulation fan (if there is one) to automatic. In the case of extreme external temperatures, the furniture flaps and doors should be left slightly open. The inflowing warm air can help prevent the freezing of water pipes, for example, and counteract the formation of condensation in the storage spaces.
- ▷ If there is any risk of frost, cover the outside surface of the windows with winter insulation mats.
- ▷ Keep the waste gas vent, skylights with forced ventilation and mushroom-shaped vents free of snow. For a roof vent, use a vent extension which is at least 10 cm (4 inch) long.

11.6 Lay-up

11.6.1 Temporary lay-up



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





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

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

To keep damages from animals to a minimum or to avoid them altogether, regularly check the vehicle for damage or animal traces. This is especially important approx. 24 hours after parking the car in storage.

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

Before laying up the vehicle, go through the following checklist:

	Activities	Done
Chassis	Lubricate the moving parts of the caravan coupling  ► Do not lubricate the friction pads on the stabiliser!	
	Jack up caravan with suitable support so that the wheels do not bear any load, or move caravan every four weeks. This prevents any pressure points from occurring on tyres and wheel bearings  ▷ Never use the fitted corner steadies as a car jack but only external support.	
	Protect the tyres from direct exposure to the sun. Danger of formation of cracks!	
	Inflate tyres up to the recommended maximum pressure	
	Always provide for sufficient ventilation in the underbody area  ▷ Humidity or lack of oxygen e.g. by covering with plastic film may cause optical irregularities to the underbody.	
Body	All vents should be sealed with the appropriate caps and all other openings (apart from forced ventilations) should also be sealed. This prevents animals (e.g. mice) from gaining entry	
	Air the interior, all storage compartments accessible from the outside, and the parking space (e.g. garage) every 3 weeks in order to prevent the occurrence of condensation and resulting mould formation	
Interior	Place upholstery in an upright position for ventilation, and cover	
	Clean refrigerator	
	Allow refrigerator and freezer compartment doors to remain slightly open	
	Search for traces of animals that have gained entry	
	Disconnect the flat screen from the mains and, if necessary, remove it from the vehicle	
Gas system	Close regulator tap on the gas bottle	
	Close all gas isolator taps	
	Always remove gas bottles from the gas bottle compartment, even if they are empty	
Electrical system	Fully charge the living area battery (if there is one)  ▷ Charge the battery for at least 20 hours before laying up.	
	Spray the contacts on the thirteen-pin connector with contact spray	
	Disconnect the living area battery from the 12 V power supply	
Water system	Empty the entire water system. Blow out the residual water from the water pipes (0.5 bar max.). Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) and all drain cocks open. Observe the notes in chapter 10	

11.6.2 Winter lay-up


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

	Activities	Done
Chassis	Clean body and underbody thoroughly and spray with hot wax or protect with varnish	
	Rectify damage to the paintwork	
Body	Clean vehicle from outside thoroughly	
	Keep the forced ventilation open	
	Clean and grease installed supports	
	Clean and grease all door and flap hinges	
	Brush oil or glycerine on all locking mechanisms	
	Rub all rubber seals with talc	
	Use graphite dust to treat locking cylinders	
Interior	Position de-humidifiers	
	Remove upholstery from the vehicle and store in a dry place	
	Air the interior every 3 weeks	
	Empty all cabinets and storage compartments, open flaps, doors and drawers	
	Thoroughly clean the interior	
	If there is a risk of frost, do not leave the flat screen in the vehicle	
Electrical system	Remove living area battery (if there is one) and store in a place protected from frost (see chapter 8)	
Water system	Clean the water system using a cleaning agent from a specialised store	
Complete vehicle	Clean the awning area and store in a dry place Arrange the tarpaulins in such a way that the ventilation openings are not covered, or use porous tarpaulins	

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

Go through the following checklist before start-up:

	Activities	Done
Chassis	Check the tyre pressure on all tyres	
	Check the tyre pressure of the spare wheel	
Body	Clean the pivot bearing of the entrance step	
	Check the functioning of the fitted supports	
	Check that the doors and windows are working properly	
	Check the function of the lifting roof	

	Activities	Done
	Check that all the external locks are working, such as the storage flaps, the filler neck and the conversion door Remove the cover from the waste gas vent of the heater (if there is one) Remove the winter cover from the refrigerator grills (if there is one)	
Gas system	Put the gas bottles in the gas bottle compartment, tie down and connect to the gas pressure regulator	
Electrical system	Connect to 240 V power supply using the external socket Fully charge the living area battery (if there is one)  ▷ Charge the battery for at least 20 hours after lay-up. Connect the living area battery (if there is one) with the 12 V power supply (see chapter 8) Check that the electrical system are working, e.g. interior light, socket and all installed electrical appliances	
Water system	Disinfect water pipes and water canister or water tank Check the functionality of the operating lever for the waste water tank Close all drain cocks and water taps Check the water taps, drain cocks and water distributors for leaks	
Appliances	Check the function of the refrigerator Check the function of the heater/boiler Check the function of the gas cooker	

Chapter overview

This chapter contains instructions about inspection and maintenance work concerning the vehicle.

The maintenance instructions address the following topics:

- stabilisers
- replacing light bulbs
- adjusting the tension of the springs on the blinds
- spare parts

At the end of the chapter you will find the **HYMER** service numbers and important instructions on how to obtain spare parts.

12.1 Inspection work

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

This inspection work must be carried out by qualified personnel.

Special technical knowledge, which cannot be taught within the framework of this instruction manual, is required for these tasks. Personnel with this technical knowledge are available for assistance at all authorised dealers and service centres. Their experience and regular technical instruction by the factory as well as equipment and tools guarantee expert and up-to-date inspection of the vehicle.

The service centre in charge will confirm the work performed.



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

12.2 Maintenance work

As with every machine, this vehicle requires maintenance. The extent and frequency of the maintenance work required depend on conditions of operation and use. More difficult operating conditions make it necessary to service the vehicle more often.

Have the appliances serviced at the intervals specified in the corresponding instruction manuals.

12.3 Stabilisers

12.3.1 General

Clean the stabiliser and the coupling head regularly. Use either thinners or white spirit. When lubricating the stabiliser ensure that no lubricant is on the friction pads.

12.3.2 AKS 1300

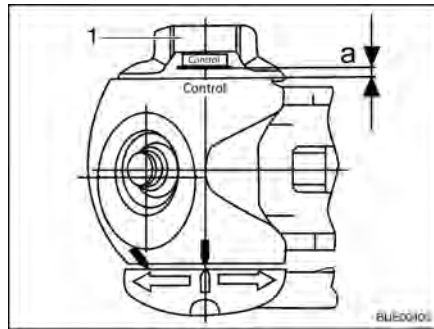


Fig. 97 Friction control

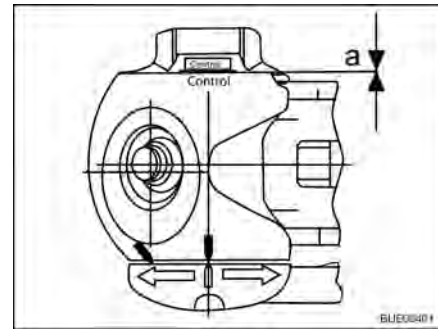


Fig. 98 Friction control

Checking the stabilising device (on the side of the friction pads)

Prerequisite: Connection to AKS 1300, ball diameter 50 mm

- Turn the handwheel (Fig. 97,1), until it can be heard and felt that the torque limiting mechanism grates. Direction of rotation: In a clockwise direction.
- Check distance a:
 - Distance $a > 0$ (Fig. 97): Wear within the permissible range.
 - Distance $a = 0$ (Fig. 98): Check and, if necessary, replace the friction pads.



▷ Resetting the friction pads is not required.

12.3.3 WS 3000 D

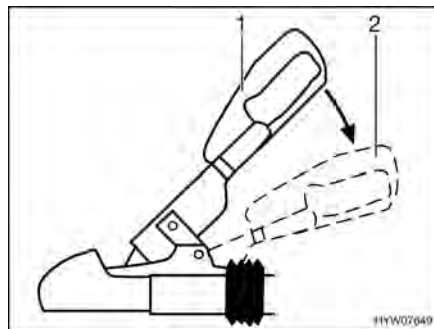


Fig. 99 Stabilising handle

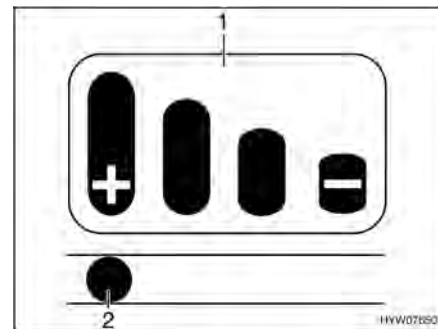


Fig. 100 Wear indicator

Checking the stabilising device (on the side of the friction pads)

Prerequisite: Connection to WS 3000, ball diameter 50 mm

- Activate the stabilising mechanism. To do this, press the coupling handle downwards (Fig. 99,2) from the closed position (Fig. 99,1) to its stop limit.

A wear indicator (Fig. 100) with a bar diagram (Fig. 100,1) is attached on the coupling handle.

- When the pin (Fig. 100,2) is in the longitudinal hole at the marking with the "+", the friction pads are still in good condition.
- When the pin is at both centre markings, the friction pads are slightly worn.
- When the pin is at the marking with the "-", the friction pads are worn and must be replaced.



▷ It is not possible to reset the friction pads.

12.4 Replacing bulbs, external



- ▶ Bulbs and light fittings can be extremely hot. Therefore, allow lights to cool down before changing bulbs.
- ▶ Store bulbs in a safe place inaccessible to children.
- ▶ Do not use any bulb that has been dropped or which shows scratches in its glass. The bulb might burst.



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

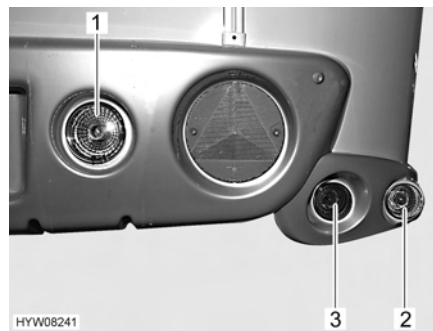


Fig. 101 Rear lights

The bulbs of the reverse light (right) (Fig. 101,1) and the fog tail light (left) are replaced in the same way.



Fig. 102 Reverse light fitted

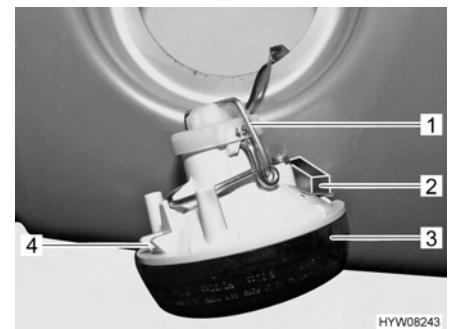


Fig. 103 Reverse light removed

- Press the lamp (Fig. 102,1) downwards against the resistance of the spring (Fig. 103,2) and simultaneously pull the upper edge backwards.
- Remove housing (Fig. 103,3).
- Fold the clip (Fig. 103,1).
- Remove bulb.
- Insert new bulb and secure with clip.
- Insert the housing with the holding lugs (Fig. 103,4) into the upper edge of the lamp surround.

- Press the housing in against the resistance of the spring (Fig. 103,2).
- Ensure it is securely in position.

The bulbs of the direction indicator (Fig. 101,2) and the rear light/brake light (Fig. 101,3) are replaced in the same way.

Bulbs are replaced from the rear.

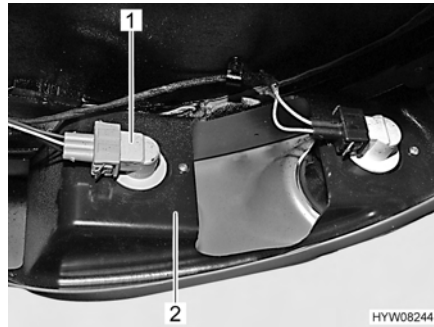


Fig. 104 Rear light/brake light

- Put your hand behind the lamp surround (Fig. 104,2).
- Give the lamp holder (Fig. 104,1) with the bulb a quarter turn and remove it.
- Remove bulb.
- Put in a new bulb.
- Reassemble the lamp in the reverse order.

12.5 Replacing bulbs



- ▶ Bulbs and light fittings can be extremely hot. Therefore, allow lights to cool down before changing bulbs.
- ▶ Shut off the power supply on the safety cut-out in the 240 V fuse box before changing bulbs.
- ▶ Store bulbs in a safe place inaccessible to children.
- ▶ Do not use any bulb that has been dropped or which shows scratches in its glass. The bulb might burst.
- ▶ Lights can get very hot. When the light is switched on, there must always be a safety distance of 30 cm between light and flammable objects. Fire hazard!
- ▶ Do not replace the LEDs in lamps with standard light bulbs. Risk of fire due to intense heat build up.



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

12.5.1 Halogen spotlight

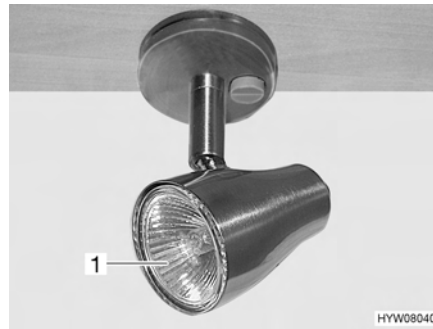


Fig. 105 Halogen spotlight

Halogen bulb 12 V/10 W

- Changing bulbs:*
- Pull the halogen bulb (Fig. 105,1) forward out of the socket.
 - Put in a new halogen bulb.

12.5.2 Surface-mounted halogen light



Fig. 106 Surface-mounted halogen light

Halogen bulb 12 V/10 W

- Changing bulbs:*
- Turn the rotating ring (Fig. 106,1) anticlockwise and remove.
 - Remove halogen bulb (Fig. 106,2).
 - Put in a new halogen bulb.
 - Reassemble the lamp in the reverse order.

12.5.3 Surface-mounted halogen light (swivelling)



Fig. 107 Surface-mounted halogen light (swivelling)

Halogen bulb 12 V/20 W

- Changing bulbs:*
- Using a suitable tool, lever out the rotating ring (Fig. 107,2) from the housing (Fig. 107,1).
 - Remove halogen bulb.
 - Put in a new halogen bulb.
 - Reassemble the lamp in the reverse order.

12.5.4 Awning light

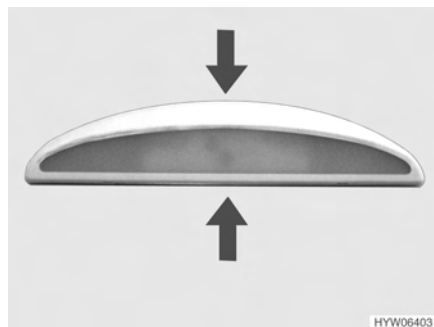


Fig. 108 Awning light

Halogen bulb 12 V/5 W

- Changing bulbs:*
- Press the housing gently together (Fig. 108) and pull it out towards you.
 - Remove halogen bulb.
 - Put in a new halogen bulb.
 - Hook at the upper edge of the housing must engage with the recess of the holder.
 - Press down housing.

12.6 Adjusting the springs of the blind and the insect screen



▷ The spring adjustment screw cannot be turned back.

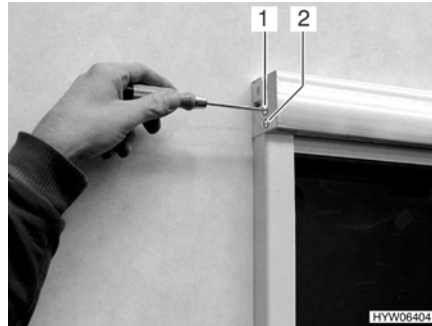


Fig. 109 Re-tensioning the spring tension

Depending on the model, the tensile force of the spring for the blind or the insect screen can be adjusted if necessary. Two adjustment screws for the blind (Fig. 109,1) and the insect screen (Fig. 109,2) are at the left side of the window frame.

Retensioning:

- With a flat head screwdriver, turn the adjustment screw in a clockwise direction to the engagement position.
- Check the tensile force of the spring.
- If necessary, turn the adjustment screw in a clockwise direction to the following engagement position.

12.7 Spare parts



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

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

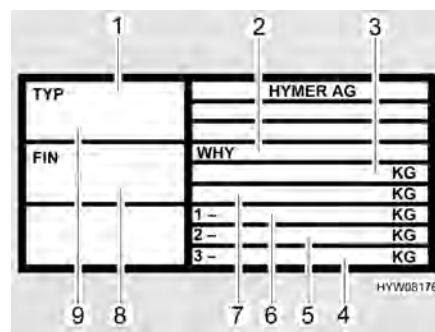
Here are some suggestions of important spare parts:

- Fuses
- Bulbs
- Water pump (submerged pump)

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

The vehicle described in this instruction manual is built and equipped to factory standards. Special equipment is offered depending on its purpose or use. When fitting special equipment check if such equipment has to be entered in the vehicle documents. Observe the max. permissible gross weight. The authorised dealer or service centre will be happy to advise you.

12.8 Vehicle identification plate



- 1 Type
- 2 Manufacturer's code and chassis number
- 3 Maximum permissible gross weight of the vehicle
- 4 Free
- 5 Free
- 6 Permissible axle load
- 7 Free
- 8 Chassis number
- 9 Serial number

Fig. 110 Vehicle identification plate

The vehicle identification plate (Fig. 110) with the serial number can be found on the right-hand side wall in the front lower area, and the chassis number on the right-hand crosshead of the drawbar.

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

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



- ▷ Always include the **serial number** with all inquiries for the customer service office.

12.9 Warning and information stickers

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



- ▷ Replacement stickers can be obtained from an authorised dealer or a service centre.

12.10 Dealers

Contact your authorised dealer or service centre whenever spare parts are needed for the vehicle.

You can find the addresses and telephone numbers of the authorised dealers and service centres:

- In the brochure "**HYMER** dealers", which is included separately with the vehicle
- In the Internet at <http://www.hymer.com>

12.11 Replacement key

To order replacement keys make a note of the following:

Locks for:	To order keys you need:	Obtainable at:	Telephone information:
Body	Serial number, chassis number, second key or key number	Dealers	–

Chapter overview

This chapter contains instructions regarding the tyres of the vehicle. The instructions address the following topics:

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

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

13.1 General




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



- ▷ Only check the tyre pressure on cold tyres.
- ▷ Tubeless tyres have been installed on the vehicle. Never install tubes in these tyres.



- ▷ In the case of a puncture, pull over to the side of the road. Make vehicle and caravan safe with a hazard warning triangle. Switch on the warning lights.
- ▷ Tyres must not be older than 6 years as the material will become brittle over time. The four-digit DOT number on the tyre flank indicates the date of manufacture. The first two digits designate the week, the last two digits the year of manufacture.

Example:  Week 05, year of manufacture 2011.

Observe:

- Check the tyres regularly (every 2 weeks) for equal tread wear, tread depth and external damage.
- Replace tyres at the latest, when the minimum depth of tread stipulated by law is reached.
- Always use tyres of the same model, same brand and same style (summer and winter tyres).
- Only use tyres approved for the wheel rim type fitted. The permitted rim and tyre sizes are quoted in the vehicle documents and the authorised dealer or service centre will always be glad to give you advice.
- Run-in new tyres for approx. 100 km (60 miles) at low speed since only then do they reach full strength.

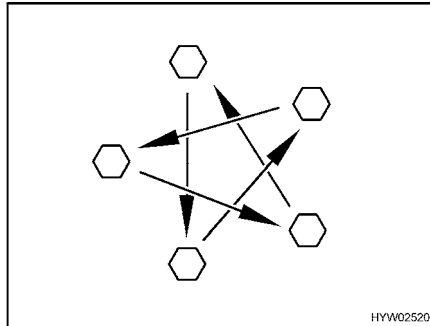


Fig. 111 Tighten the wheel nuts or wheel bolts cross-wise

- Check regularly that the wheel nuts or wheel bolts are firmly seated. Retighten the wheel nuts or wheel bolts of a changed wheel cross-wise (Fig. 111) after 50 km (30 miles). See section 13.5.2 for tightening torque.
- When using new or newly painted rims, re-tighten the wheel nuts or wheel bolts once again after approx. 1,000 to 5,000 km (600 miles to 3,000 miles).
- For lay-ups or long periods of inactivity, keep the tyres and tyre bearings free from pressure points:
Jack up the vehicle so that the wheels do not bear any load, or move the vehicle every 4 weeks in such a way that the position of the wheels is changed.

13.2 Tyre selection



- ▶ A wrong tyre can damage the tyres during the journey and even cause it to burst.



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

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

Weight refers to the maximum permissible axle load which can be distributed on two tyres. The maximum load-carrying capacity of a tyre is indicated by its load index (= LI, load index code).

The maximum permissible speed for a tyre (with full load-carrying capacity) is indicated by the speed index (= SI). Together, load index and speed index form the operating code of a tyre. This is an official component of the complete, standardised dimensions description which appears on every tyre. The information on the tyres must correspond to the specifications which appear in the vehicle papers.

13.3 Tyre specifications

**215/70 R 15C 109/107 Q
(example)**

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

13.4 Handling of tyres

- Drive over kerbs at an obtuse angle. Otherwise the flanks of the tyres may get pinched. Driving over a kerb at a sharp angle can damage the tyre and result in it getting ruptured.
- Drive over high manhole covers at a slow speed. Otherwise the tyres may get pinched. Driving over a high manhole cover at high speed can damage the tyre and result in it getting ruptured.
- Check the shock absorbers regularly. Driving with poor shock absorbers significantly increases wear.
- Avoid block brakings. Block braking gives the tyres "brake plates" of varying strength. This reduces driving comfort. It might even make the tyres unserviceable.
- Do not clean the tyres with a high-pressure cleaner. The tyres can suffer serious damage within just a few seconds and rupture as a result.

13.5 Changing wheels

13.5.1 General instructions

The spare wheel is located underneath the vehicle at the rear or behind a cover at the rear. Use a commercial scissor-type jack to change the wheel.



- ▶ The vehicle must be on level, firm ground, secure from slipping.
- ▶ Before jacking up the vehicle firmly apply the handbrake.
- ▶ Prevent the vehicle from rolling away by blocking the opposite wheel with the wheel chocks.
- ▶ Under no circumstances jack the vehicle with the fitted supports.
- ▶ Position the vehicle jack underneath the axle, not under any circumstances on the bodywork.
- ▶ Never overload the vehicle jack. The maximum permissible load is specified on the vehicle jack's identification plate.
- ▶ Use the vehicle jack only for lifting the vehicle briefly while changing the tyre.
- ▶ Whilst the vehicle is in a jacked up position, persons must not lie down under it.

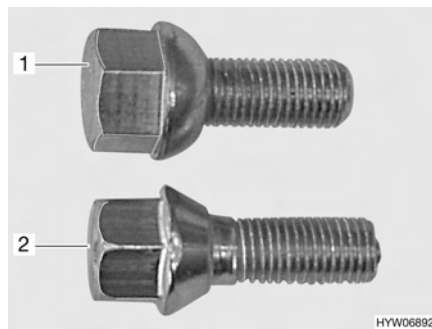


- ▷ Do not damage the thread of the thread bolt or wheel nut when changing the wheel.
- ▷ Tighten the wheel nuts or wheel bolts cross-wise (Fig. 111).
- ▷ When changing wheels (e.g. alloy wheel rims or wheels with winter tyres), use the correct wheel bolts of the correct length and shape. Otherwise the wheels may not be securely fixed or the braking system may not work correctly.
- ▷ The use of wheel rims or tyres that are not approved for the vehicle can make it less than fully roadworthy; such wheel rims or tyres must be separately inspected and approved by an accredited test centre.



- ▷ Protect the vehicle according to the national regulations, e.g. with a hazard warning triangle.
- ▷ Before changing the wheel, check the wheel rim and tyre size, the max. tyre load and the speed index on the tyres. Only use the wheel rim and tyre sizes stated in the vehicle documents.
- ▷ When alloy wheel rims are mounted, the wheel nuts or wheel bolts for the spare wheel (steel wheel rim) are located in the drawer in the kitchen unit.

13.5.2 Tightening torque



- 1 Wheel bolt steel wheel rim
- 2 Wheel bolt alloy wheel rim

Fig. 112 Wheel bolts

Wheel rim	Tightening torque
Steel wheel rim	100 Nm (74 ft/lbs)
Alloy wheel rim	120 Nm (89 ft/lbs)

13.5.3 Changing the wheel



- ▶ The footplate of the vehicle jack must be levelly positioned on the ground.
- ▶ Do not tilt the vehicle jack.
- ▶ If alloy wheel rims are mounted and a steel spare wheel is mounted after a puncture: Do not drive any further than necessary (car dealer, car workshop, tyre dealer). Only drive at a suitable speed. The different wheels affect driving handling.



- ▷ The wheel you have replaced should be repaired immediately.
- ▷ Take note of the general instructions in this chapter.



Fig. 113 Securing support wheel



Fig. 114 Securing vehicle

Preparing the connected caravan:

- Loosen the stabilising device in caravan couplings with stabilising devices. Otherwise the friction pads will be highly loaded.
- Pull the handbrake of the towing vehicle and go to first gear or reverse gear.

Preparing the disconnected caravan:

- Park the vehicle on as even and stable a surface as possible.
- Apply the handbrake.
- Place the support wheel diagonal to the direction of travel and secure with suitable tools (Fig. 113).



Fig. 115 Commercial vehicle jack

Changing the wheel:

- Place chocks or other appropriate objects beneath the opposite wheel of the vehicle to secure it (Fig. 114).
- Remove the spare wheel from the spare wheel support.
- If the ground is soft, place a stable support such as a wooden board beneath the vehicle jack.
- Position the commercial scissor-type jack (Fig. 115) or hydraulic vehicle jack on the frame or on the axle.
- Turn the wheel bolts several times to loosen them, but do not remove them!
- Lift the vehicle until the wheel has been lifted 2 to 3 cm above the ground.
- Remove the wheel bolts and take off the wheel.
- Place the spare wheel on the wheel hub and adjust.
- Screw in the wheel bolts and slightly tighten them cross-wise.
- Crank down the vehicle jack and remove it.
- Using the wheelbrace, tighten the wheel bolts evenly. The target value of the tightening torque of the wheel bolts is 100 Nm (74 ft/lbs) for steel wheel rims or 120 Nm (89 ft/lbs) for alloy wheel rims.

13.5.4 Changing a wheel at alloy wheel rims



- ▶ The resting surfaces of the wheels on the brake drums must be clean and free of burrs.
- ▶ Only use fastening parts provided for to loosen the wheels lightly and ensure that they rest correctly and move freely, subsequently tighten the wheel bolts cross-wise with a suitable wrench.
- ▶ Many axles do not have a centring aid, flange or bolts. It must be ensured that the wheel bolts are equally centered above the bolt circle (no jamming).
- ▶ Alloy wheel rims and steel wheel rims require different wheel bolts. When alloy wheel rims are mounted, the spare wheel (steel wheel rim) is accompanied by suitable wheel bolts.

To release and fix the secured alloy wheel rim use the suitable spanner for removal of the wheel hub cap and the anti-theft locking nut.

Releasing the secure alloy wheel rim:

- Remove wheel hub cap from the alloy wheel rim.
- Place the anti-theft locking nut on the anti-theft locking screw and unscrew and remove with a commercial hexagon spanner.
- Unscrew and remove the remaining wheel bolts with the hexagon spanner.

Fixing and securing the alloy wheel rim:

- Place alloy wheel rim on the brake drum. Make sure that the bored holes are exactly above the threaded bores of the brake drum.
- Wind in wheel bolts with a commercial hexagon spanner into the threaded bores of the brake drum.
- Place anti-theft locking nut on the anti-theft locking screw and wind in with a hexagon spanner into the threaded bores of the brake drum.
- Tighten the wheel bolts and the anti-theft locking screw cross-wise.
- Remove anti-theft locking nut from the anti-theft locking screw.
- Press wheel hub cap onto the alloy wheel rim.

13.6 Spare wheel under the floor plate



Fig. 116 Spare wheel underneath the vehicle

The spare wheel is stored in a basket underneath the vehicle near the rear of the vehicle.

- Remove the cotter pin (Fig. 116,2) from the retaining bolt of the basket (Fig. 116,3).
 - Hold the basket with the tyre and remove the retainer (Fig. 116,1) from the retaining bolt.
 - Gradually lower the basket with the spare wheel, until the basket is on the ground.
 - Pull the spare wheel out of the basket.
- ▷ Every time the basket is closed, ensure that the basket is correctly secured with the cotter pin.



13.7 Tyre pressure



- ▶ Tyres overheat if the tyre pressure is too low. This can cause serious tyre damage.
- ▶ Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.
- ▶ Use only valves that are approved for the specified tyre pressure.



- ▷ Only check the tyre pressure on cold tyres.

The payload and the durability of tyres is directly dependent on the tyre pressure. Air is a volatile medium. It is unavoidable that it will escape from tyres. As a rule of thumb it can be assumed that a filled tyre loses pressure at a rate of 0.1 bar every two months. To prevent the tyres becoming damaged or burst, check the tyre pressure regularly.



- ▷ The information on pressure levels is valid for cold tyres and loaded vehicles.
- ▷ Pressure in hot tyres must be 0.3 bar higher than in cold tyres. Recheck the pressure when the tyres are cold.
- ▷ Tyre pressures in bar.
- ▷ The tyre pressure tolerance is +/- 0.05 bar.

Tyres	Maximum permissible gross weight mono axle (kg)	Maximum permissible gross weight tandem axle (kg)	Tyre pressure (bar)
155/80 R 13 79	Up to 700		3.00
165/80 R 13 83	Up to 700		2.50
	800		2.75
	900		3.00

Tyres	Maximum permissible gross weight mono axle (kg)	Maximum permissible gross weight tandem axle (kg)	Tyre pressure (bar)
185 R 14 C 102	Up to 1,100		3.75
	1,200		3.75
	1,300		4.00
	1,400		4.00
	1,500		4.25
	1,600	2,800	4.50
185/60 R 15 C 94	Up to 1,200	2,200	4.00
	1,300	2,500	4.25
	1,350		4.25
185/70 R 13 86	Up to 700		2.50
	800		2.70
	900	1,800	3.00
	1,000	2,000	3.00
185/70 R 14 88	Up to 900	1,800	2.60
	1,000	2,000	2.80
195 R 14 C 106	Up to 1,100		3.25
	1,200		3.25
	1,300		3.50
	1,400		3.50
	1,500		3.75
	1,600	2,800	4.00
	1,700		4.50
	1,800	3,500	4.50
195/65 R 14 89	Up to 1,000	2,000	3.00
	1,100	2,200	3.00
195/70 R 14 91	Up to 1,000	2,000	2.50
	1,100	2,200	2.70
195/70 R 14 XL 95	Up to 1,100	2,000	2.90
	1,200	2,200	3.10
	1,350		3.40
195/70 R 14 XL 96	Up to 900	1,800	2.70
	1,000	2,000	2.90
	1,100	2,200	2.90
	1,200		3.10
	1,300	2,500	3.30
	1,400	2,800	3.40

Tyres	Maximum permissible gross weight mono axle (kg)	Maximum permissible gross weight tandem axle (kg)	Tyre pressure (bar)
195/70 R 15 C 104	Up to 1,100		3.25
	1,200		3.25
	1,300		3.50
	1,400		3.75
	1,500	2,800	4.00
	1,600		4.25
	1,700		4.50
205 R 14 C 109	Up to 1,600		4.00
	1,700		4.25
	1,800	3,500	4.25
	1,900		4.50
215 R 14 C 112	2,000		4.25
215/55 R 16 XL 97	Up to 1,100		2.70
	1,200		2.70
	1,300		3.00
	1,400		3.00
215/70 R 15 C 109	Up to 1,100		3.00
	1,200		3.25
	1,300		3.50
	1,400		3.50
	1,500		4.00
	1,600	2,800	4.25
	1,700		4.50
	1,800	3,500	4.50
	1,900		4.50

Max. permissible speed = 100 km/h (60 mph).

Please always observe the speed limits in the individual countries.

The vehicles are constantly brought up to the newest technical standards. It is possible that new tyre sizes are not yet included in this table. If this is the case, any dealer or service centre will be happy to provide the newest values.

Chapter overview

This chapter contains instructions about possible faults in your vehicle. The faults are listed with their possible causes and corresponding remedies. The instructions address the following topics:

- chassis
- braking system
- electrical system
- gas system
- gas cooker
- heater
- boiler
- hot water source
- refrigerator
- water supply
- body

The specified faults can be remedied with relative ease and without a great deal of specialised knowledge. In the event that the remedies detailed in this instruction manual should not be successful, an authorised specialist workshop must find and eliminate the cause of the fault.

14.1 Chassis

Fault	Cause	Remedy
Coupling does not lock in place after being placed on top	Ball larger than Ø 50 mm	Remove dirt Contact customer service
	The coupling interiors are soiled and no longer work automatically	Clean well and lubricate (not stabiliser)
Caravan cannot be detached	Ball worn	Position the caravan and towing vehicle in the same direction and detach. Immediately replace the worn ball

14.2 Braking system



- ▶ Have defects on the braking system immediately remedied by an authorised specialist workshop.
- ▶ Follow maintenance or manufacturer specifications.

14.3 Electrical system




▷ When the living area battery is changed, only use batteries of the same type.



▷ See chapter 8 for changing the fuses.

Fault	Cause	Remedy
Road light system does no longer work correctly	Bulb is defective	Unscrew cover of the relevant light, replace bulb. Note volts and watts specifications
	Contacts on the plug and/or in the socket have oxidised and/or are contaminated	Clean contacts and spray with contact spray
	Short circuit caused by water in the plug and/or socket	Open plug and/or socket, dry out, and spray with contact spray
	Cable interruption on the plug and/or socket	Open plug and/or socket, re-connect cable (see connection diagram in chapter 8)
Road light system does not match the towing vehicle light system	Contact connections within the plug have been reversed	Check contact allocation and wiring on the plug/connector of the caravan
Interior lighting does no longer work correctly	Bulb is defective	Replace bulb. Note volts and watts specifications
	Fuse on the 240 V fuse box is defective	Replace fuse on the 240 V fuse box
	Fuse on the power supply unit is defective	Replace the fuse on the power supply unit
12 V interior lighting does not work	240 V automatic circuit breaker is switched off	Switch on the 240 V automatic circuit breaker
	Thermal cut-out in the power supply unit has triggered	Wait until the thermal cut-out switches back on
	Fuse on the power supply unit is defective	Replace fuse
	12 V power supply switched off (Power Pack SE)	Switch 12 V power supply on
	Power supply unit is defective	Contact customer service
	240 V interior lighting does not work	240 V automatic circuit breaker is switched off
Thermal cut-out has triggered		Wait until the thermal cut-out switches back on
No 240 V power supply despite connection	240 V automatic circuit breaker has triggered	Switch on the 240 V automatic circuit breaker

Fault	Cause	Remedy
No voltage from the living area battery (Power Pack SE)	Living area battery is discharged	Charge living area battery immediately  ▷ Total discharge damages the battery.
		If the vehicle is to be laid up for a long period, fully charge the living area battery beforehand
		Discharging is caused by inactive appliances (see chapter 8)

14.4 Gas system



- ▶ In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- ▶ If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.).
- ▶ Have the defective gas system repaired by an authorised specialist workshop.

Fault	Cause	Remedy
No gas	Gas bottle is empty	Change gas bottle
	Gas isolator tap closed	Open the gas isolator tap
	Regulator tap on the gas bottle is closed	Open regulator tap on the gas bottle
	External temperature is too low (-42 °C for propane gas, 0 °C for butane gas)	Wait for higher external temperatures
	Built-in appliance is defective	Contact customer service

14.5 Gas cooker

Fault	Cause	Remedy
Ignition fuse does not operate (flame does not burn after the control knobs are released)	Heat-up time is too short	Keep control knob pressed for approx. 15 to 20 seconds after ignition
	Ignition fuse is defective	Contact customer service
Flame extinguishes when being reduced to its minimum setting	Thermocouple sensor is incorrectly set	Correctly reset thermocouple sensor (do not bend). The sensor tip should protrude by 5 mm beyond the burner. The sensor neck should not be more than 3 mm away from the burner ring; if necessary, contact customer service

14.6 Heater, boiler and hot water source

In the event of a defect contact the nearest customer service workshop of the relevant appliance manufacturer. The list of addresses is enclosed with the accompanying appliance documentation. Only authorised qualified personnel may repair the appliance.

14.6.1 Truma hot-air heater

Fault	Cause	Remedy
For heater with automatic ignition: Heater does not ignite	Battery on the automatic ignition empty	Changing the battery on the automatic ignition

14.6.2 Truma boiler

Gas operation

Fault	Cause	Remedy
Red indicator lamp "Fault" illuminates	Air in the gas pipe	Switch off and on again. After two futile ignition attempts, wait for 10 minutes before trying again
	Lack of gas	Open regulator tap and gas isolator tap
		Connect a full gas bottle
	Defect of a safety element	Contact customer service
Green indicator lamp behind knob is not lit	Fuse is defective	Replace fuse
	Fuse in the electronic control unit has been triggered	Contact customer service
Red and green indicator lamps are not lit	Fuse is defective	Replace the fuse on the power supply unit

Electrical operation

Fault	Cause	Remedy
Boiler is connected to power supply but is not heated	Operating switch is switched off	Switch on the operating switch, the indicator lamp on the switch must light up
	Operating switch defective	Contact customer service
	240 V automatic circuit breaker is switched off	Switch on the 240 V automatic circuit breaker
	240 V power supply disconnected	Connect 240 V power supply
	Overtemperature fuse has triggered	Switch off boiler and switch on after approx. 5 minutes
	Heating coil of the boiler is defective	Contact customer service

14.6.3 Truma hot water source

Fault	Cause	Remedy
The hot water source is connected to power supply but does not heat	Operating switch is switched off	Switch on operating switch; the red indicator lamp must be lit
	Operating switch defective	Contact customer service
	240 V automatic circuit breaker is switched off	Switch on the 240 V automatic circuit breaker
	240 V power supply disconnected	Connect 240 V power supply
	Fuse is defective	Replace fuse
	Heating coil in the hot water source is defective	Contact customer service

14.7 Refrigerator

In the event of a defect contact the nearest customer service workshop of the relevant appliance manufacturer. The list of addresses is enclosed with the accompanying appliance documentation. Only authorised qualified personnel may repair the appliance.


Fault	Cause	Remedy
Refrigerator does not switch on when operating in 240 V mode	No 240 V power supply	Connect 240 V power supply
	240 V automatic circuit breaker has triggered	Switch on the 240 V automatic circuit breaker
	240 V operating voltage too low	Have the 240 V power supply checked by an authorised specialist workshop
	Fuse on the power supply unit is defective	Replace fuse
Refrigerator does not switch on when operating in 12 V mode	Contacts on the plug and/or in the socket have oxidised and/or are contaminated	Clean contacts and spray with contact spray
	Short circuit caused by water in the plug and/or socket	Open plug and/or socket, dry out, and spray with contact spray
	Cable interruption on the plug and/or socket	Open plug and/or socket, re-connect cable
Refrigerator does not switch on when operating in gas mode	Lack of gas	Open regulator tap and gas isolator tap
		Connect a full gas bottle
	Air in the gas pipe	Repeat ignition 3 or 4 times
	Cobwebs or burnt residue in the burning chamber	Remove the ventilation grill on the outside of the vehicle and clean the burning chamber

14.8 Water supply

Fault	Cause	Remedy
Leakage water inside the vehicle	A leak has occurred	Identify leak, re-connect water pipes
No water	Water canister or water tank empty	Replenish drinking water
	Drain cock not closed	Close drain cock
	12 V power supply switched off	Switch 12 V power supply on
	Fuse of the water pump is defective	Replace fuse
	Water pump defective	Exchange water pump (have it exchanged)
	Water pipe snapped off	Straighten water pipe or replace
	Power supply unit is defective	Contact customer service
Toilet has no flush water	Water tank of toilet is empty	Top up with fresh water
	Fuse for toilet is defective	Replace fuse
Waste water tank cannot be emptied	Drain cock is clogged	Open the cleaning cap on the waste water tank and drain the waste water. Rinse the waste water tank well
Water drains from the shower tray slowly or does not drain at all	The vehicle is not in a horizontal position	Position the vehicle horizontally
Milkieness of the water	Tank filled with dirty water	Clean water canister or water tank mechanically and chemically; then disinfect and rinse copiously with drinking water
	Residues in the water canister or water tank or water system	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water

Fault	Cause	Remedy
Any change in the taste or odour of the water	Tank filled with dirty water	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water
	Fuel filled into the water tank by mistake	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water. If not successful: Contact a specialist workshop
	Microbiological deposits in the water system	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water
Deposits in the water canister, water tank and/or water-carrying components	Water excessively long in the water canister, water tank and water-carrying components	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water

14.9 Body

Fault	Cause	Remedy
Flap hinges/door hinges are difficult to operate	Flap/door hinges are not sufficiently lubricated	Lubricate flap hinges/door hinges with acid-free and resin-free grease
Hinges/joints in the bathroom unit/toilet compartment are difficult to operate/make a grating noise	Hinges/joints are not sufficiently lubricated	Lubricate hinges/joints with solvent-free and acid-free grease  ▷ Spray cans often contain solvents
Storage compartment hinges are difficult to operate/make a grating noise	Storage compartment hinges are not sufficiently lubricated	Lubricate storage compartment hinges with acid-free and resin-free grease
Lifting roof is difficult to operate	Spring or lifting scissors are defective	Insert new spring or lifting scissors



▷ The authorised dealers and service centres are available for any spare parts requirement.

15.1 Weight details for special equipment

Weight details for **HYMER** special equipment are listed in the table below. If these objects are either carried in or on the vehicle and are not part of the standard equipment, they must be taken into consideration when calculating the payload.

All weight details are approximate.

Observe the max. permissible gross weight.

Item designation	Surplus weight (kg)
Waste water tank 40 litres	7
Airmix	1
Load	10
External flap, storage compartment	1
Power Pack SE	30
Floor carpet	8
Ultraheat additional electric heater	2
Spare wheel support, underfloor	20
Interior sprung mattress for front seating group	5
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16.1 Technical data



- ▷ Only the details provided in the actual vehicle documentation shall be binding with regard to the technical data.
- ▷ The measurements as well as the net weight of the vehicle may change when mounting accessories or special equipment. Differences due to manufacturing tolerances (+/- 5 %) are possible and admissible.

Further information can be found in the manual of the base vehicle. The technical data are not a component of the instruction manual.

The technical data can be obtained from the manufacturer's documentation. Alternatively, the authorised dealer or service centre will also be happy to advise you.

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