

Congratulations

We congratulate you on your new motorhome and would like to thank you for choosing a quality product from Dethleffs.

Whether you want to enjoy your holidays on good or bad roads, whether you want to have your "holiday home" out in the country, at the seaside or in the mountains: Your Dethleffs motorhome will always make sure that you can enjoy your holidays because the Dethleffs team has been building caravans for more than seventy years and knows what is important. This experience shows itself in the well thought-out, cosy and yet highly functional equipment as well as in the outstanding driving characteristics.

Each Dethleffs vehicle is manufactured with great care and the quality is closely checked. This ensures that our products have a long service life. In view of these strict requirements, we guarantee top quality of our products and grant you a six year leakage guarantee of the body in accordance with our guarantee conditions (see section 1.2).

This instruction manual deals primarily with the body of your motorhome. It will give you all important information and tips so that you can enjoy all technical advantages of your Dethleffs motorhome to the full. We have also included a chapter on maintenance – and thus on the conservation of value.

In addition, you will find the documents on the base vehicle and the various built-in appliances.

For maintenance work or whenever you need some help, please always get in touch with your authorised specialist workshop. They know your motorhome best of all, and will meet all your requests fast and reliably.

We wish you a lot of fun with your motorhome, a relaxing holiday and safe driving at all times.

Your Dethleffs team

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1.1 Guarantee certificate

Vehicle data
Model:
Car manufacturer/type of engine:
Serial number:
Initial registration:
Purchased from company:
Expiry of the guarantee period:
Key number:
Chassis number:
Customer Address
Surname, Christian name:
Street, No.:
Postal code, town:
Dealer's stamp and signature

We reserve the right to alter the construction, equipment and the scope of delivery. Special equipment is also listed that is not included in the standard scope of delivery. The descriptions and illustrations in this brochure do not relate to a particular version. For all details, only the respective equipment list is valid.

1.2 Guarantee conditions

1. In addition to the legal guarantee and product warranty rights due to the customer, Dethleffs GmbH may also grant a guarantee of six years that the vehicles constructed by the company are sealed in such a manner that moisture cannot penetrate from the outside into the interior of the vehicle. The guarantee obligations do not apply if the leakage is a result of improper handling of the windows, doors and skylights or damage that has not been properly repaired. Damage that is caused by forces of nature (e.g. flooding) is not covered by the guarantee. The guarantee extensions include only the correct repair work. Conversion or diminution as well as travelling expenses or other indirect costs are not covered by the guarantee.
2. When dealing with a case of leakage covered under the conditions of this guarantee, Dethleffs GmbH is obliged to rectify the defective vehicle part concerned by repairing it free of charge or replacing the part, depending on what is necessary to immediately to repair the damage. Defects are to be rectified by Dethleffs GmbH or by an authorised specialist workshop in accordance with the guidelines of Dethleffs GmbH.
3. The prerequisite for this guarantee is that the vehicle must be presented once a year to an authorised specialist workshop for an inspection. The presentation must take place 2 months at the latest after the anniversary of the initial registration (or delivery).
If the inspection is not carried out according to schedule, this will nullify your warranty. It cannot be renewed by carrying out an inspection at a later time. As proof that the inspection has been completed, there are designated coupons in the Dethleffs guarantee booklet where inspection stamps are to be glued and endorsed by a stamp, the date and the signature of a respective Dethleffs dealer.
4. The guarantee begins on the day of the initial registration or delivery of the vehicle to the customer, 1 year at the latest after delivery to the dealer, and is valid while the vehicle is in use, for 6 years at the longest. A change of ownership of the purchased object has no effect on the guarantee obligations. The guarantee expires if the terms outlined in paragraph 3 are not complied with. The performance of guarantee work does not increase the guarantee period.
5. Parts installed to rectify faults are also guaranteed under the terms of the guarantee until the guarantee period expires.
6. If leakage occurs, the owner must notify Dethleffs or a Dethleffs dealer of this in writing within 15 days of its detection. The guarantee certificate and the corresponding guarantee stamps must be included with the notification. If notification of leakage does not occur within the time limit stated, no claims can be made under the terms of the guarantee.
Remedying of leakage will take place after approval has been given by Dethleffs GmbH.
If no agreement is reached about the type, extent and result of the repairs, Dethleffs GmbH or the Dethleffs dealer will consult a neutral expert whose decision is binding for all parties involved.
7. The costs of the inspection are to be paid by the party covered by the guarantee.
8. As far as legally permissible, the court responsible for Isny will be agreed upon as the venue for jurisdiction.

1.3 Inspection records

Delivery

Signature and stamp of the Dethleffs dealer:

1st year

Signature and stamp of the Dethleffs dealer:

Water ingress test

Paste inspection stamp here.

- Water ingress test 1st year
- Water ingress test 1st year
 - No defects found
 - Found defects:

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.

2nd year

Signature and stamp of the Dethleffs dealer:

Water ingress test

Paste inspection stamp here.

- Water ingress test 2nd year
- Water ingress test 2nd year
 - No defects found
 - Found defects:

3rd year

Signature and stamp of the Dethleffs dealer:

Water ingress test

Paste inspection stamp here.

- Water ingress test 3rd year
- Water ingress test 3rd year
 - No defects found
 - Found defects:

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.

4th year

Water ingress test

Signature and stamp of the Dethleffs dealer:

Paste inspection stamp here.

- Water ingress test 4th year
- Water ingress test 4th year
- No defects found
- Found defects:

5th year

Water ingress test

Signature and stamp of the Dethleffs dealer:

Paste inspection stamp here.

- Water ingress test 5th year
- Water ingress test 5th year
- No defects found
- Found defects:

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.

1.4 Inspection plan for annual inspection

Pos.	Component	Activity	Interval
1	Auxiliary support	Lubrication	Annually
2	Joints, hinges	Lubrication	Annually
3	Refrigerator, heater, boiler, cooker, lighting, storage flap and door closures, toilet, seat belts	Function check	Annually
4	Windows, skylights	Function check, water ingress test	Annually
5	Upholstery, curtains, blinds	Visual check	Annually
6	Sealing strips, edges, rubber	Check for damage	Annually
7	Water supply	Water ingress test	Annually
8	Hot-air system	Function check, clean fan wheel as necessary	Annually
9	Underbody protection, floor skirt attachment	Visual check	Annually
10	Electrical system	Function check	Annually
11	Gas system	Official gas inspection	Every two years
12	Connections between the chassis and body	Check	Every two years
13	Underbody	Visual check, repair underbody protection as necessary	Every two years

We reserve the right to modify the inspection plan.

1.5 Inspection plan for water ingress test

Pos.	Component	Activity
1.1	Wheel housing	Visual check
1.2	Rear wall floor plateau connection	Visual check
1.2.1	Side wall in the direction of travel left connection	Visual check
1.2.2	Side wall in the direction of travel right connection	Visual check
1.3	Front wall floor plateau connection	Visual check
1.3.1	Side wall in the direction of travel left connection	Visual check
1.3.2	Side wall in the direction of travel right connection	Visual check
1.4	Side wall floor plateau right connection	Visual check
1.5	Side wall floor plateau left connection	Visual check
1.6	Connection to driver's cabin	Visual check
1.7	Base frame with base frame cut-outs	Visual check
1.8	Check the status of the outer metal sheets	Visual check

Pos.	Component	Activity
1.9	Check the status of the window rubbers, expansion joints, sealing joints	Visual check
2.1	Measure the floor plateau at this connection point with a moisture measuring device, write down the corresponding values with the date of the assessment. Prescribed maximum values – up to 20 % normal. If the values are above 20 % check if it is due to accumulated condensation.	Measuring
2.2	Measure inside the vehicle (walls, window sections, roof, etc.), note changes in the colour of the decor. Prescribed maximum values – up to 20 % normal. If the values are above 20 % check if it is due to accumulated condensation.	Measuring
3.1	Wheel housing	Spray with Dethleffs special weatherproof solution
3.2	Rear wall floor plateau connection	Spray with Dethleffs special weatherproof solution
3.3	Front wall floor plateau connection	Spray with Dethleffs special weatherproof solution
3.4	Side wall floor plateau right connection	Spray with Dethleffs special weatherproof solution
3.5	Side wall floor plateau left connection	Spray with Dethleffs special weatherproof solution

We reserve the right to modify the inspection plan.

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.

With your Dethleffs motorhome you will receive a file with the following vehicle manuals and documents:

Dethleffs documents

- Instruction manual and service book (housing body)
- List of Dethleffs dealers

Additional documents

- Operating and installation instructions of various appliances
- Complete set of documents from the chassis manufacturer
- Test certificate for the gas system in accordance with German regulations

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 guarantee claim is deemed invalid.

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

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

2.1 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.

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

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

The vehicle is designed for the exclusive transport of persons. Luggage and accessories may only be transported up to the maximum permissible gross weight.

Observe the test or inspection periods stipulated in the instruction manual.

2.2 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.
- ▷ Only empty the waste water tank and Thetford cassette at disposal stations, at camping sites or caravan sites, that are especially provided for this purpose. When stopping in towns and communities, observe the instructions at caravan sites or ask where there are disposal stations.
- ▷ On board, collect waste water only in the built-in waste water tank or – if necessary – in other containers designed for that purpose.
- ▷ Empty waste water tank as often as possible, even when it is not completely full (hygiene).
If possible, flush out waste water tank and drainage pipe with fresh water every time it is emptied.
- ▷ Never allow the Thetford cassette to become too full. Empty the Thetford cassette 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 to run more than necessary. When running idle, a cold engine releases more contaminants than usual. The running temperature of the engine is achieved more quickly whilst the vehicle is in motion.



- ▷ Use an environmentally-friendly WC chemical agent for the WC which can also be biologically degraded and only use small doses.
- ▷ When staying in towns and communities for long periods, search for parking areas which are specially reserved for motorhomes. Enquire at the town or community authority about parking spaces.
- ▷ Always leave the parking places in a clean condition.

Chapter overview

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

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

3.1 Fire prevention

3.1.1 Avoidance of fire risks



- ▶ Never leave children in the vehicle unattended.
- ▶ Keep flammable materials clear of heating and cooking appliances.
- ▶ 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.

3.1.2 Fire-fighting



- ▶ Always have a dry powder fire extinguisher in the vehicle (with at least 1 kg capacity). 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.
- ▶ The fire extinguisher is not included in the scope of delivery of the vehicle.

3.1.3 In case of fire



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



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

3.2 General



- ▶ The oxygen in the vehicle interior is used up by breathing or the use of the gas cooker or other appliances. That is why the oxygen needs to be replaced on a constant basis. For this purpose, forced ventilation options (skylights with forced ventilation or mushroom-shaped vents) are fitted to the vehicle. Never cover or block forced ventilations with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves. There is a danger of suffocation due to increased CO₂ levels.
- ▶ Observe the headroom of the conversion door and the driver's door.



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



- ▷ When leaving the vehicle, it is imperative that all doors, external flaps and windows are closed.
- ▷ Carry a hazard warning triangle and a first-aid kit and/or flashing hazard warning light when this is required by law.
- ▷ When selling the vehicle, hand over all instruction manuals for the vehicle and the fitted appliances.

3.3 Road safety



- ▶ Before commencing the journey, carry out a functional check of indicating and lighting equipment, the steering and the brakes.
- ▶ If the vehicle has been stationary for a long period (approx. 10 months) have the braking and gas systems checked by an authorised specialist workshop.
- ▶ Before commencing the journey and after short interruptions of the journey, ensure that the entrance step is completely retracted.
- ▶ Before commencing the journey, remove the television from the support and store it securely.
- ▶ Before commencing the journey, turn the flat screen and the screen holder back to the basic position and slide them in until they lock into place. Close the TV cabinet.
- ▶ During the journey, the seats are only to be occupied by persons (see chapter 5). The authorised number of seats is stipulated in the vehicle documents.



- ▶ In seats which are fitted with seat belts, you have to observe seat belt laws.
- ▶ Fasten your seat belts before the beginning of the journey and keep them fastened during the journey.
- ▶ It is not permitted to stay in the alcove during the journey.
- ▶ Always secure children with the children safety equipment prescribed for the respective height and weight.
- ▶ Factory-set three-point safety belts must be used when attaching child restraint systems.
- ▶ The base vehicle is a commercial vehicle (small truck). Adjust your driving technique accordingly.
- ▶ 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.
- ▶ 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.
- ▶ Do not operate the independent vehicle heater at petrol stations. Danger of explosion!
- ▶ Do not operate the independent vehicle heater in closed spaces. Danger of suffocation!



- ▷ Before commencing the journey, distribute the payload evenly within the vehicle (see chapter 4).
- ▷ When loading the vehicle and when taking a rest from driving, in order to load luggage or food, for example, observe the maximum permissible gross weight and axle loads (refer to vehicle documents).
- ▷ Before commencing the journey, 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, close windows and skylights.
- ▷ Before commencing the journey, close all external flaps and lock them.
- ▷ Before commencing the journey, remove the external supports and retract the corner steadies or steady legs which are fitted to the vehicle.
- ▷ Before commencing the journey, put the antenna in park position.
- ▷ During the initial journey and each time after changing a wheel, re-tighten the wheel bolts/wheel nuts after 50 km (30 miles). Subsequently inspect them at regular intervals in order to ensure that they are firmly seated.
- ▷ Tyres may not be older than 6 years as the material becomes brittle over time (see chapter 14).
- ▷ When using snow chains, the tyres, wheel suspension and steering are subjected to an additional load. When using snow chains, drive slowly (maximum speed 50 km/h) and only on streets which are completely covered with snow. Otherwise the vehicle could be damaged.

3.4 Towing



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

3.5 Gas system

3.5.1 General instructions



- ▶ Close all gas isolator taps and the regulator tap before commencing the journey and when leaving the vehicle.
- ▶ No source of combustion using gas (gas cooker, gas heater, gas boiler, etc.) may be in operation when filling the fuel tank, on ferries or in the garage. Danger of explosion!
- ▶ 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. We recommend having the gas pressure regulator checked no later than every 10 years.
- ▶ 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.
- ▶ Open a skylight 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 gas bottle 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, no snow walls or aprons may be allowed to lie against the vehicle. Keep the intake openings under the floor of the vehicle open and clean.

3.5.2 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 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 only 11 kg or 5 kg gas bottles! Camping gas bottles with built-in check valve (blue bottle with max. 2.5 or 3 kg content) are can be used in exceptional cases with a safety valve.
- ▶ Use the shortest possible tube lengths (120 cm max.) for external gas bottles.
- ▶ If aluminium gas bottles are used, never block the floor ventilation openings below the gas bottles.

3.6 Electrical system



- ▶ Only allow qualified personnel to work on the electrical system.
- ▶ Prior to carrying out work on the electrical system, switch off all devices and lights, disconnect the batteries and disconnect the 240 V power cable from the mains.
- ▶ Only use original fuses with the stipulated values.
- ▶ Only replace defective fuses when the cause of the defect is known and has been remedied.
- ▶ Never bridge or repair fuses.

3.7 Water system



- ▷ If the vehicle is not heated when there is risk of frost, empty the entire water system. Leave the water taps on in central position. Leave all drain cocks open. This will avoid frost damage to appliances and to the vehicle.



- ▷ Water left standing in the water tank or in the water pipes becomes undrinkable after a short period. For this reason, rinse the water pipes and the water tank thoroughly with several litres of fresh water before each use of the vehicle. To do this, open all water taps. After each use of the vehicle completely empty the water tank and the water pipes.

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:

- keys
- registration
- calculating the payload
- correct loading of the motorhome
- towing
- retracting and extending the entrance step
- walking on the PVC-floor covering
- storing the television
- using snow chains

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

4.1 Keys

The following keys are included with the motorhome:

Two keys for

- ignition lock
- driver's and passenger's doors
- fuel tank

Two keys for

- conversion door of the body
- fresh water filler neck
- external flaps

Always deposit a replacement key outside the vehicle. Make a note of the key number. The Dethleffs dealer will be able to offer assistance in case of loss.

4.2 Registration

Your motorhome is a vehicle which must be registered. Observe national regulations on registration.

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

4.3 Payload



- ▶ Overloading the vehicle and wrong tyre pressure can cause tyres to burst. You can lose control of the vehicle.
- ▶ 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 passengers) 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, special equipment, the full water tank and the gas bottles all reduce the payload.
- ▷ Adhere to the axle load stated in the vehicle documents.

On loading, make sure that the payload's centre of gravity is as low as possible (directly above the floor of the vehicle). Otherwise this may affect the driving characteristics of the vehicle.

Maximum permitted payloads

Description	Load (kg)
Overcab bed	200
Bike rack	Triple Quadruple
	50 60
Rear bed	200
Rear garage	200

4.3.1 Terms



- ▷ Technically speaking, the term "mass" has now replaced the term "weight". However, "weight" is still the term more frequent in common use. For better understanding, "mass" is therefore only used in the following sections for fixed formulations.
- ▷ All specifications according to EU norm DIN EN 1646-2.

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.

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
- Driver's weight
- Basic equipment weight

Unladen weight includes lubricants such as oils and coolants which have been filled, the on-board tool set, the spare wheel and a fuel tank which has been filled up to 90 %.

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

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

- Water system filled up to 100 % (water tank and pipes)
- Gas bottles filled up to 100 %
- A full heating system
- A full toilet flushing 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

Water tank with 100 l	100 kg
Gas bottles (2 x 11 kg _{gas} + 2 x 14 kg _{bottle})	+ 50 kg
Boiler with 10 l	+ 10 kg
240 V power cable	+ 4 kg
Installation kit for auxiliary battery	+ 20 kg
Total	= 184 kg

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

Payload

The payload is made up as follows:

- Conventional load
- Additional equipment
- Personal equipment

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

Conventional load

The conventional load is the weight specified by the manufacturer for the passengers.

Conventional load means: 75 kg are calculated for every seat specified by the manufacturer, regardless of how much the passengers actually weigh. The driver's seat is already included as part of the mass in ready-to-drive condition and must **not** be calculated as part of the conventional load.

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



▷ More passengers may travel in the motorhome than specified in the vehicle documents if a seat is available for each person. The maximum permissible gross weight in a laden condition may however not be exceeded. The fluid containers may be emptied or the gas bottles may be removed to avoid exceeding the maximum permissible gross weight.

Additional equipment

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

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

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

Personal equipment

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

- Foodstuffs
- Crockery

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

No matter where kept, personal equipment also includes:

- Animals
- Bikes
- Boats
- Surfboards
- Sports equipment

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

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

Explanation N = maximum number of people including the driver, as stated by the manufacturer
 L = total length of the vehicle in metres

4.3.2 Calculating the 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 passengers) weighed on a public weighbridge before you set out on your journey.

The payload (see section 4.3.1) is the difference in weight between

- 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	3500	
Vehicle mass in a ready-to-drive condition, including basic equipment in accordance with vehicle documents	- 3070	
This results in a permissible payload of	430	
Conventional load e.g.: 3 persons each weighing 75 kg	- 225	
Additional equipment	- 40	
For the personal equipment this results in	= 165	

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 (fuel and fresh water), full gas bottles and complete additional equipment on a public weighbridge, can the actual payload be determined.

To do this, proceed as follows:

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

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

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

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

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

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

4.3.3 Loading the motorhome correctly



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

Large storage spaces, such as the rear garage, also have room for heavy objects (e.g. motorcycle). This might mean that the axle load on the rear axle is exceeded.

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

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

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

Formulas $A \times G : R = \text{weight on the rear axle}$

Weight on the rear axle – $G = \text{weight on the front axle}$

Explanation

A = distance between storage compartment and front axle in cm

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

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



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

Calculating axle loads:

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

How to determine rear axle load and front axle load is described in section 4.3.2.

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

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

Example calculation

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

4.3.4 Roof load



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



- ▷ If the vehicle is equipped with a roof rail, load racks can be mounted on the roof rail for roof loads (e.g. for surfboards, rubber boats or light canoes). Special girder systems are available as accessory. Your Dethleffs dealer will be pleased to advise you.
- ▷ The maximum permissible roof load is 75 kg.
- ▷ The vehicle roof is not suitable for localised load. Before stepping on to the roof, extensively cover the area you will be treading on. Materials with a smooth or soft surface are suitable, for example, a thick polystyrene panel.
- ▷ Secure roof loads with tension belts. Do not use rubber expanders.
- ▷ Observe the overall height of the vehicle when the roof rack is loaded.



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

Rear ladder

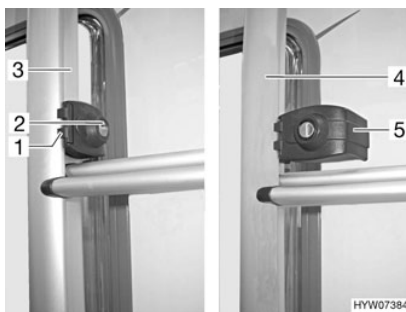


Fig. 1 Rear ladder lock

Folding downwards:

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

Folding upwards:

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

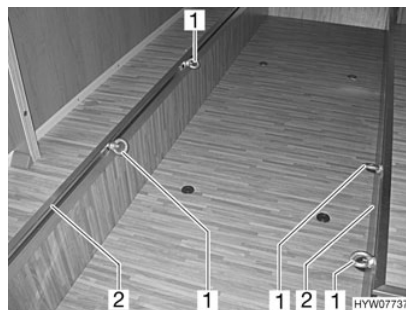
4.3.5 Rear garage



- ▶ Observe the permissible axle loads and maximum permissible gross weight when loading the rear garage.
- ▶ The maximum permissible load of the rear garage is 200 kg. Do not exceed the permissible rear axle load.
- ▶ Observe: If the rear garage or (depending on the model) the rear storage space is **loaded** to its maximum capacity, this will **reduce the load** on the front axle due to the levering action. The driving quality is impaired.



- ▷ Depending on the vehicle equipment, clamping rails with clamping eyelets are mounted in the rear garage or in the rear storage space. Always secure loads onto the clamping eyelets. Always use tightening straps or lashing nets for securing the load, never rubber expanders.
- ▷ When clamping loads, always check that the clamping eyelets are placed tightly in the clamping rails. If the clamping eyelet is not anchored tightly in the clamping rail, the load may slide or loosen during forcible movements of the steering wheel or when braking.
- ▷ Distribute the load evenly. Excessive spot loads can lead to damages of the floor covering.



- 1 Clamping eyelet
- 2 Clamping rail

Fig. 2 Clamping eyelets rear garage

Moving the clamping eyelets:

- Turn the clamping eyelet (Fig. 2,1) half a turn in an anticlockwise direction.
- Push the clamping eyelet into the clamping rail (Fig. 2,2) to the desired position.
- Give clamping eyelet one half turn in a clockwise direction. The clamping eyelet sits tightly in the clamping rail again.
- Check that the clamping eyelet is tight.

4.3.6 Double floor



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



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

4.3.7 Sliding drawer



- ▷ Do not place loads weighing more than 40 kg into the sliding drawer.

4.3.8 Bike rack



- ▶ Observe the permissible axle loads and maximum permissible gross weight when loading the bike rack.
- ▶ Load the bike rack with bicycles only (max. four units).
- ▶ Check the secure attachment of the bicycles on the bike rack after the first 10 km and then at each break in the journey.



- ▷ Driving with a folded out bike rack without bicycles is not permitted.
- ▷ Before every journey, check:
 - Is the bike rack without bicycles folded in correctly?
 - Are the bicycles securely fastened to the bike rack using the bike rack belts?

Loading the bike rack with bicycles

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

Loading the bike rack correctly:

- Fold the bike rack downwards.
- Place the heaviest bicycle directly against the rear wall.
- Place the lightest bicycles in the centre or on the outside of the bike rack.
- Secure the front and rear wheels of each bicycle with the retaining straps on the bike rack.
- In addition, fasten the outermost bicycle on the retaining bracket or retaining arm.

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

4.4 Towing



- ▶ No persons are to be between the motorhome and the trailer during positioning for connecting and detaching.
- ▶ Observe the permissible nose weight and rear axle load of the motorhome. Nose weight and rear axle load must not be exceeded. The values of the nose weight and rear axle load are included in the documents of the motorhome and the caravan coupling.



- ▷ Trailer with an overrun brake: Do not connect or detach trailer with the overrun brake on.
- ▷ Caravan coupling with detachable ball neck: If the ball neck is mounted incorrectly, there is the danger of the trailer breaking away. Observe the instruction manual for the caravan coupling.

4.5 Entrance step



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



- ▷ Take note of the different step heights and make certain that the ground is firm and even when exiting.
- ▷ Do not grease or lubricate the pivot bearing and joints of the entrance step (see chapter 12).



- ▷ The switch to operate the entrance step is located on the inside of the vehicle in the area of the conversion door.
- ▷ If the entrance step has not been properly retracted and locked into place, a warning tone is heard when the ignition is switched on.
- ▷ Follow the warning notice on the entrance step.

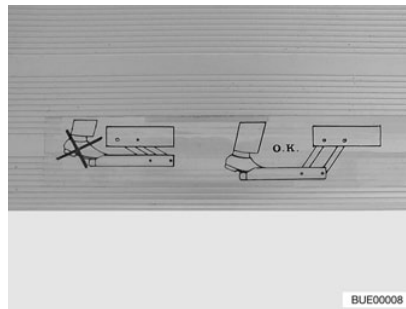


Fig. 3 Warning notice for entrance step

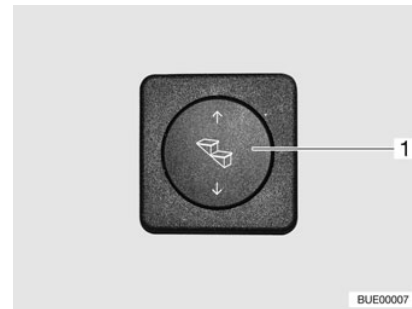


Fig. 4 Operating switch entrance step

Before stepping on the entrance step, fully extend it (Fig. 3).

- Extending:*
- Press the rocker switch (Fig. 4,1) down until the entrance step has extended completely.
- Retracting:*
- Press the rocker switch (Fig. 4,1) up until the entrance step has retracted completely.

The entrance step can also be retracted and extended with the remote control.

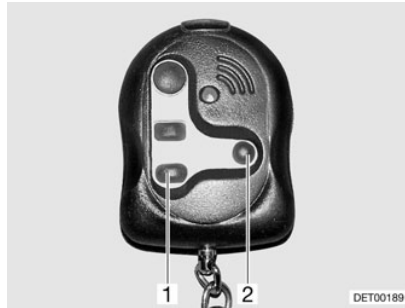


Fig. 5 Remote control for entrance step

Extending: ■ Press the switch (Fig. 5,1) until the entrance step has extended completely.

Retracting: ■ Press the switch (Fig. 5,2) until the entrance step has retracted completely.

4.6 PVC-floor covering



▷ Shoes with pointed heels can leave permanent impressions in the PVC-floor covering. Never wear shoes with pointed heels in the vehicle.

4.7 Television



- ▶ Before commencing the journey, remove the television from the support and store it securely.
- ▶ Before commencing the journey, turn the flat screen and the screen holder back to the basic position and slide them in until they lock into place. Close the TV cabinet.
- ▶ Before commencing the journey, ensure that the antenna is in park position. Danger of accidents!



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

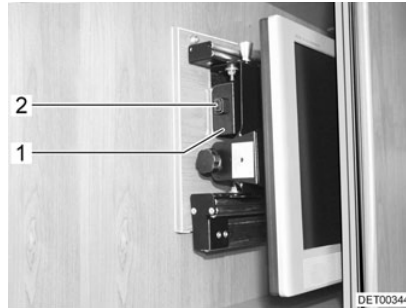


Fig. 6 Television (flat screen)

Storing the television in the TV cabinet:

- Rotate the television to its initial position (Fig. 6) and lock it into place.
- Use handle (Fig. 6,1) to push the holder for the flat screen backwards. The latch (Fig. 6,2) will engage.
- Close TV cabinet.

4.8 Snow chains



- ▷ Only mount snow chains if there is a clearance of at least 50 mm between the tyres and the vehicle body.
- ▷ When using snow chains, the tyres, wheel suspension and steering are subjected to an additional load. When using snow chains, drive slowly (maximum speed 50 km/h) and only on streets which are completely covered with snow. Otherwise the vehicle could be damaged.
- ▷ Observe the fitting instructions issued by the manufacturer of the snow chains.
- ▷ Only use snow chains approved by IVECO.
- ▷ Do not fit snow chains on alloy wheel rims.



- ▷ If the drive axle of the vehicle has twin tyres (2 tyres next to each other), mount the the snow chains to the outer tyres.
- ▷ The snow chains are available at your IVECO dealer.

The use of snow chains is subject to the legal regulations of the individual countries.

- Always mount snow chains to the drive wheels.
- After a few metres, check the tension of the snow chains.

4.9 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:

Base vehicle

No.	Checks	Checked
1	All vehicle documents are on board	
2	Tyres in proper condition	
3	Vehicle lighting, brake lights and reversing lights function	

No.	Checks	Checked
4	Oil levels for engine, gearbox and power steering controlled	
5	Coolant and fluid for windscreen washers filled up	
6	Brakes function	
7	Brakes react evenly	
8	When braking, the vehicle remains in the lane	

Housing body, outside

9	Awning completely retracted	
10	Roof free of snow and ice (in winter)	
11	External connections and lines disconnected and stored away	
12	External supports removed	
13	Fitted steady legs retracted and fixed in place	
14	Wheel chocks removed and stored away	
15	Entrance step retracted (observe warning tone)	
16	External flaps closed and locked	
17	Conversion door locked	
18	Overall height of the vehicle including roof rack when loaded measured and noted. Keep the height information close at hand in the driver's cabin	


Housing body, inside

19	Windows and skylights closed and locked	
20	Television secured in the TV cabinet or removed from the support and stored securely	
21	Television antenna retracted (if one is built in)	
22	Loose parts stored away or fixed in position	
23	Open storage spaces empty	
24	Refrigerator door secured	
25	All drawers and flaps closed	
26	Living area doors and sliding doors secured	
27	Children's seats mounted to seats with three-point safety belts	
28	Shades in the driver's cabin opened and secured	

Gas system

29	Gas bottles firmly fixed in the gas bottle compartment so that they are unable to turn	
30	Protective cap set on top of the gas bottle	
31	Regulator tap on the gas bottle and gas isolator taps are closed	

Electrical system

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

This chapter contains instructions on how to drive the motorhome.

The instructions address the following topics:

- driving speed
- brakes
- seat belts
- seats and headrests
- seating arrangement
- filling the tank

5.1 Driving the motorhome



- ▶ The base vehicle is a commercial vehicle (small truck). Adjust your driving technique accordingly.
- ▶ Before commencing the journey and after short interruptions of the journey, ensure that the entrance step is completely retracted.
- ▶ During the journey, seat belts should always be worn at the seats that have seat belts mounted.
- ▶ Never open your seat belts when travelling.
- ▶ Passengers must remain in the seats provided.
- ▶ The doors must remain locked.
- ▶ Avoid braking with a jerk.
- ▶ If a navigation system is used, only change the destination when the vehicle is stationary. Drive to a car park or stop in a safe area when changing the destination.
- ▶ Do not play DVDs using the monitor of the navigation system during the journey.



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



- ▷ If an accident occurs as a result of these instructions not being observed, Dethleffs will not be held responsible for damages caused.
- ▷ The safety measures stipulated in chapter 3 have to be observed.

5.2 Driving speed



- ▶ The vehicle is equipped with a powerful engine. This means there are sufficient reserves in difficult traffic situations. This high power enables a high maximum speed and requires above-average driving ability.
- ▶ The vehicle provides a large contact surface for wind. A sudden cross-wind can be especially dangerous.
- ▶ Uneven or one-sided loading affects road performance.



- ▶ Driving on unknown streets, you may encounter hazardous road conditions and unexpected driving situations. Therefore, in the interest of safety, make sure your driving speed is appropriate to any given driving situation and environment.
- ▶ Adhere to the national legal speed limits.

5.3 Brakes



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



- ▷ Avoid block brakings. Block braking gives the tyres "brake plates" of varying strength. This reduces driving comfort. It might even make the tyres unserviceable.

Before each journey

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

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

5.4 Seat belts

Depending on the model, the vehicle is equipped with automatic three-point safety and/or lap belts in the living area. National regulations apply seat-belt fastening.



- ▶ Fasten your seat belts before the beginning of the journey and keep them fastened during the journey.
- ▶ Do not damage or trap belts. Have damaged seat belts changed by an authorised specialist workshop.
- ▶ Do not alter the belt fixing devices, automatic seat belt winders and the belt clips.
- ▶ Inspect the screwed connections of the seat belts from time to time in order to ensure that they are correctly seated.
- ▶ Only use one seat belt for **one** adult person.
- ▶ Do not belt in objects together with persons.
- ▶ Seat belts are not sufficient for persons who are less than 150 cm tall. In these cases use additional restraining devices. Observe test certificate.
- ▶ Factory-set three-point safety belts must be used when attaching child restraint systems.
- ▶ After an accident, replace the seat belts.
- ▶ During the journey, do not tilt the backrest too far backwards. Otherwise the functionality of the seat belt is no longer guaranteed.

5.4.1 Fastening the seat belt correctly



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

The seat belt is fastened correctly when a fist can be passed between the body and the seat belt.

5.5 Headrests

Before commencing the journey, adjust the headrests so that the back of the head is supported at approximately ear height.

5.6 Seating arrangement



- ▶ During the journey, persons are only to be in the prescribed seats. The authorised number of seats is stipulated in the vehicle documents.
- ▶ In seats which are fitted with seat belts, you have to observe seat belt laws.



Fig. 7 "Seat" symbol

Seats which may be used during travel are equipped with a sticker (Fig. 7).

5.7 Filling up with diesel



- ▶ No source of combustion using gas (gas cooker, gas heater, gas boiler, etc.) may be in operation when filling the fuel tank, on ferries or in the garage. Danger of explosion!

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

Chapter overview

This chapter contains instructions on how to pitch the motorhome.

The instructions address the following topics:

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



- ▷ 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 (see also section 12.5).

6.1 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.

6.2 Wheel chocks

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

6.3 Supports

6.3.1 General instructions



- ▷ Do not use the fitted supports as a vehicle jack. They supports are only for stabilising the parked vehicle to prevent the rear axle from bottoming out.
- ▷ When pitching the vehicle, ensure that the supports are evenly loaded.
- ▷ Before driving away, wind up the supports as far as they can go, fully retract and secure them.



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

6.3.2 Steady legs



- ▷ Make sure that all steady legs are retracted completely and that the guide disc for each steady leg has been completely retracted into the notch.

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

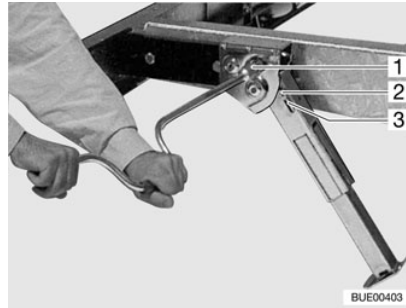


Fig. 8 Steady leg

- Extending:*
- Place the socket spanner on the hexagon nut (Fig. 8,1) and rotate. The steady leg swings downward and is automatically extended.
 - Rotate the hexagonal nut until the steady leg rests completely on the ground and the motorhome is in a horizontal position.
- Retracting:*
- Place the socket spanner on the hexagon nut (Fig. 8,1) and rotate until the steady leg is clear of the ground.
 - Rotate the hexagonal nut with the socket spanner until the steady leg has swung upwards and the guide disc (Fig. 8,3) has completely retracted into the notch (Fig. 8,2).

6.4 Entrance step

In order to exit the vehicle, first fully extend the entrance step.

6.5 240 V connection

The vehicle can be connected to a 240 V power supply (see chapter 9).

Chapter overview

This chapter contains instructions about living in the motorhome.

The instructions address the following topics:

- opening and closing the doors, the external flaps and the driver's cabin partition
- light switches
- remote control for lighting and entrance step
- ventilation of the vehicle
- opening and closing the windows and blinds
- opening and closing the skylights
- modifying the table surfaces
- converting tables
- pulling out the television console
- use of the beds

7.1 Doors



- ▶ Only drive with locked doors.



- ▷ Locking the doors can prevent them from opening of their own accord, e.g. during an accident.
- ▷ Locked doors also prevent forced entry, e.g. when waiting at traffic lights. However, in an emergency, locked doors make it more difficult for helpers to enter the vehicle.
- ▷ When leaving the vehicle, always lock the doors.

7.1.1 Conversion door, outside



Fig. 9 Door lock of conversion door, outside

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

7.1.2 Conversion door, inside

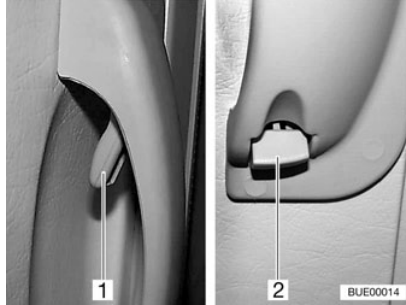


Fig. 10 Door lock of conversion door, inside, open

Opening: ■ Push the handle (Fig. 10,1).

Locking: ■ Push the lever (Fig. 10,2) down.

7.1.3 Window conversion door

The conversion door window is fitted with an insect screen and blind.

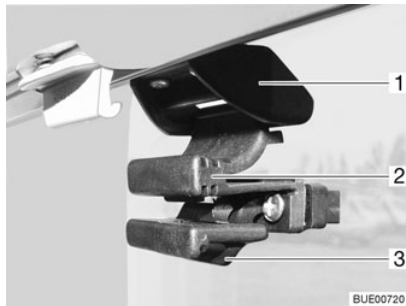


Fig. 11 Window in the conversion door

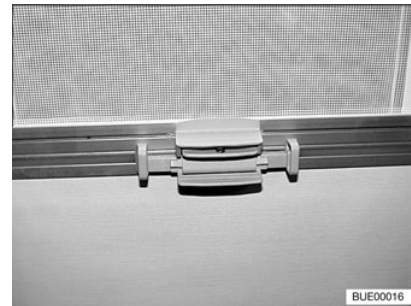


Fig. 12 Blind

Opening the window: ■ Press the retainer (Fig. 11,3) back.

■ Press the handle (Fig. 11,2) together and push the window down.

Closing the window: ■ Push the window up until the handle (Fig. 11,2) engages in the lock (Fig. 11,1).

Closing the blind: ■ Grasp the bottom rod of the insect screen and guide it to the bottom rod of the blind.

■ Lock catch in place.

■ Continuous adjustment of the blinds may be made by moving the bottom rods.

Opening the blind: ■ Hold the bottom rod of the insect screen and activate the catch.

■ Return the bottom rod of the insect screen to the limit stop on the screen.

7.2 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.

7.2.1 Flap lock with recessed handle



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



Fig. 13 Flap lock with recessed handle



Fig. 14 External flap, open

Opening:

- Insert key into locking cylinder (Fig. 13,1) and turn a quarter turn. The flap lock is unlatched.
- Remove the key.
- Pull on the lock handle (Fig. 13,2). The external flap is open.
- Swivel the external flap upwards and hold it.
- Pull out the lever (Fig. 14,2) and turn it upwards a quarter turn.
- Lean the external flap (Fig. 14,1) against the lever.

Closing:

- Hold the external flap (Fig. 14,1).
- Turn the lever (Fig. 14,2) down a quarter turn and push it in.
- Firmly close the external flap.
- Insert key into locking cylinder and turn a quarter turn. The flap lock is locked.
- Remove the key.

7.2.2 Sliding drawer



- ▷ Do not place loads weighing more than 40 kg into the sliding drawer.
- ▷ Always fasten the boxes with the tension belts before commencing the journey.

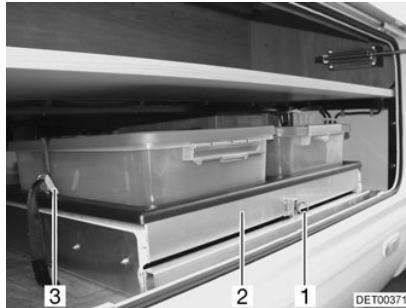


Fig. 15 Sliding drawer

- Opening:*
- Open the external flap as described above.
 - Pull the safeguard (Fig. 15,1) upwards.
 - Pull out the sliding drawer (Fig. 15,2).
 - Loosen the tension belts (Fig. 15,3).

7.3 Driver's cabin partition



- ▷ Only drive with the door secured.



Fig. 16 Driver's cabin partition

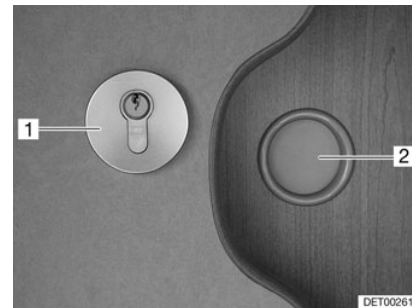


Fig. 17 Driver's cabin lock

Lock on the living area side

To close and open the driver's cabin partition:

- Closing:*
- Release and close door (Fig. 16,1).
 - Turn the handle (Fig. 16,2) in an anticlockwise direction until the door is locked.
- Opening:*
- Turn the handle (Fig. 16,2) in a clockwise direction until the door is unlocked.
 - Open the door (Fig. 16,1) and secure it.

Lock on the driver's cabin side

To close and open the driver's cabin partition:

- Closing:*
- Release the door (Fig. 16,1) and close it with the handle (Fig. 17,2).
 - Insert the key into locking cylinder (Fig. 17,1) and turn in a clockwise direction until the door is locked.

- Opening:
- Insert key into locking cylinder and turn it in an anticlockwise direction.
 - Open the door and secure it.

7.4 Light switch



- ▷ The light switches have different layouts according to the model. The light switches are located either directly on the corresponding lamp or next to the lamp, e.g. in the vicinity of the seating group.

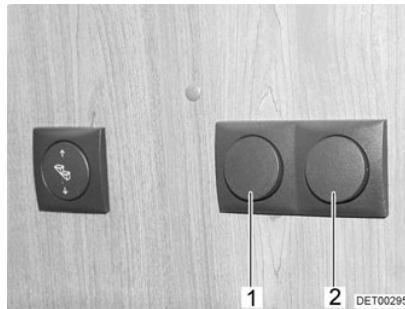


Fig. 18 Light switch, entrance area

The bottom of the entrance area has light switches for the following lamps:

- Awning light (Fig. 18,1)
- Seating group lighting (Fig. 18,2)

7.5 Remote control for awning light, canopy light and entrance step



Fig. 19 Remote control

The remote control has the following functions:

- Switching the awning light on and off (Fig. 19,1)
- Switching the canopy light on and off (Fig. 19,2)
- Extending the entrance step
- Retracting the entrance step

7.6 Ventilation



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



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

Condensation

Ensure that there is a continuous exchange of air by providing frequent and efficient ventilation. This is the only method for ensuring that condensation is not formed during cool weather. During the colder season, a pleasant living climate is created if heating output, air distribution and ventilation are synchronized. To avoid draft close the air outlet nozzles on the dashboard and set the air distribution of the base vehicle to air circulation. If the vehicle is laid up for a longer period, occasionally ventilate it well, especially in summer as heat accumulation can occur.

7.7 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.
- ▷ Do not keep blinds closed over a longer period of time as that can cause increased material wear.
- ▷ If the blind is completely closed, exposure to direct sunlight can cause heat to accumulate between the blind and the glass window. The window could be damaged. For that reason, close the blind only 2/3 of the way in direct sunlight.
- ▷ 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 hinged window, open or close all catch levers which are fitted to the hinged window.



- ▷ When leaving the vehicle, always close the windows.
- ▷ In extreme weather conditions or if the temperature fluctuates strongly, a light condensation film can form on the double-glazed acrylic glass. The glass is designed in such a way that condensation can evaporate when the external temperature increases. There is no danger of the double-glazed acrylic glass being damaged by condensation.

7.7.1 Hinged window with rotary hinges



- ▷ Open the window completely, to release the lock. If the locking device is not released and the window is closed nevertheless, there is the danger of the window breaking due to the massive counter-pressure.
- ▷ When opening the hinged windows, ensure that there are no torsional forces. Open and close the hinged windows evenly.
- ▷ If the catch lever is equipped with a safety knob, press the safety knob when operating the catch lever.

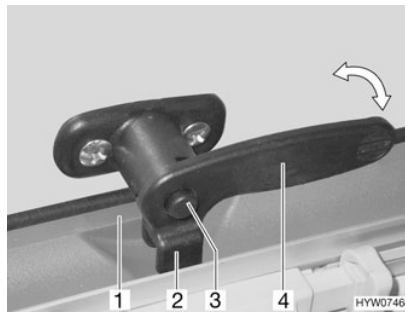


Fig. 20 Catch lever with safety knob in "closed" position

Opening:

- Press the safety knob (Fig. 20,3) and keep it pressed.
- Turn the catch lever (Fig. 20,4) a quarter turn towards the centre of the window.
- Open the hinged window until the required locking position is reached; the telescopic rod automatically locks in place.

The hinged window remains locked in the required position.

Closing:

- Open the hinged window as wide as is necessary to release the lock.
- Close the hinged window.
- Press the safety knob (Fig. 20,3) and keep it pressed.
- Turn the catch lever (Fig. 20,4) a quarter turn towards the window frame. The fork (Fig. 20,2) on the catch lever is entirely on the inner side of the window catch (Fig. 20,1).

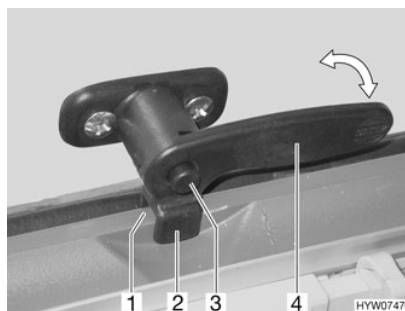


Fig. 21 Catch lever with safety knob in "continuous ventilation" position

Continuous ventilation

With the catch lever, the hinged window can be placed in 2 positions:

- "continuous ventilation" (Fig. 21)
- firmly closed

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

- Press the safety knob (Fig. 21,3) and keep it pressed.
- Turn the catch lever (Fig. 21,4) a quarter turn towards the centre of the window.
- Lightly open the hinged window outwards.
- Turn the catch lever (Fig. 21,4) a quarter turn towards the window frame. Move the fork (Fig. 21,2) on the catch lever into the window catch (Fig. 21,1).
- Release the safety knob (Fig. 21,3).
- Make certain that the safety knob is not pushed in but rather that it secures the catch lever.

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

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

7.7.2 Sliding window without lock

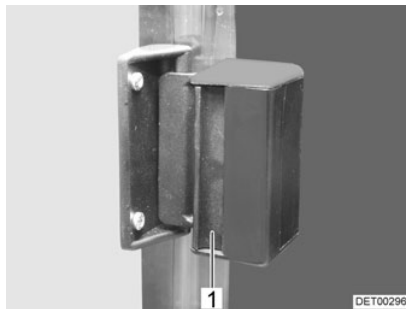


Fig. 22 Sliding window

- Opening:*
- Press handle (Fig. 22,1) and push or pull it forward or backward at the same time.
 - Open window half up to the required position.
- Closing:*
- Close the window as far as possible and let the handle lock in place.

7.7.3 Blind and insect screen

The windows in the motorhome are fitted with a blind and an insect screen. The blind and insect screen can be adjusted separately.

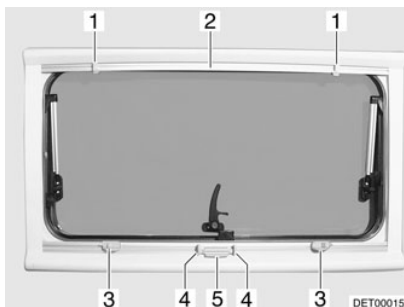


Fig. 23 Hinged window

Blind The blind is located in the bottom blind box.

- Closing:**
- Press handle (Fig. 23,4) and draw the blind (Fig. 23,5) from the bottom to the top up to the desired height.
 - Release handle. The blind locks into the nearest locking position.

- Opening:**
- Clench the handle (Fig. 23,4). The latch is released.
 - Slowly guide blind (Fig. 23,5) back.

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

- Closing:**
- Pull the insect screen (Fig. 23,2) down until it touches the blind (Fig. 23,5) and the closure latch (Fig. 23,1) engages in the locking device (Fig. 23,3).

- Opening:**
- Release both locks (Fig. 23,3) simultaneously.
 - Slowly return insect screen into its initial position.

7.8 Skylights

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



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



- ▷ The skylights are fitted with a Roman shade and an insect screen. After the latch has been released, the insect screen automatically springs back to the initial position by tensile force. In order not to damage the tension mechanics, hold onto the insect screen and allow it to slowly return to the initial position.
- ▷ If the Roman shade is completely closed, heat can accumulate between the Roman shade and the glass windows when exposed to direct sunlight. The skylight could be damaged. For that reason, close the Roman shade only 2/3 of the way in direct sunlight. Open the skylight slightly or move it to ventilation position.
- ▷ Depending on the weather, close the skylights far enough to prevent moisture from entering.
- ▷ Do not climb on the skylights.
- ▷ Before commencing the journey, close the skylights.



- ▷ Before commencing the journey, check that the skylights are closed and locked.
- ▷ Apply talc to the rubber seals of the skylights at least once a year.



- ▷ When leaving the vehicle, always close the skylights.

7.8.1 Hinged skylight

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

An extension hook is included as standard equipment.

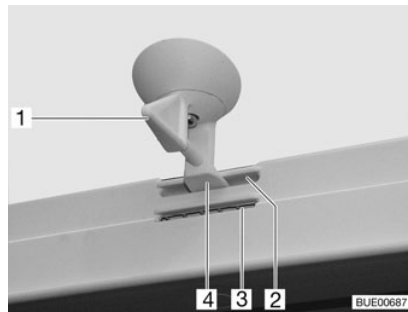


Fig. 24 Hinged skylight, lock

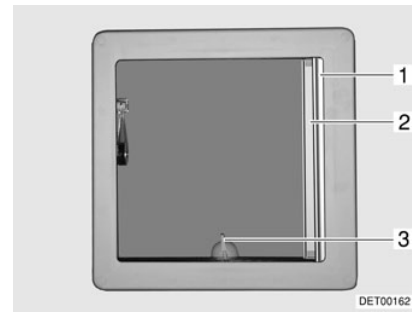


Fig. 25 Hinged skylight

- Opening:*
- In order to do this, turn lever (Fig. 24,1 or Fig. 25,3) a quarter turn in an anti-clockwise direction.
 - Grip lever and push hinged skylight upwards.

- Closing:*
- Grip lever and pull hinged skylight downwards.
 - Turn the lever one quarter turn. The latch (Fig. 24,4) must slide into the lower aperture (Fig. 24,3).

- Locking in the ventilation position:*
- Grip lever and pull hinged skylight downwards.
 - Turn the lever one quarter turn. The latch (Fig. 24,4) must slide into the upper aperture (Fig. 24,2).



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

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

- Closing:*
- Pull out Roman shade (Fig. 25,1) and release in the required position. The Roman shade will stay in that position.

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

Insect screen To close and open the insect screen:

- Closing:*
- Pull insect screen (Fig. 25,2) out until it engages with the latch on the opposite side.

- Opening:*
- Slightly push up insect screen along the strip. The latch is released.
 - Slowly return insect screen into its initial position.

7.8.2 Wind-up skylight



Fig. 26 Wind-up skylight

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

- Opening:*
- Rotate the hand crank (Fig. 26,2) until a resistance can be felt (max. opening angle 70°).

- Closing:*
- Rotate the hand crank until the wind-up skylight is closed. The wind-up skylight can be locked after rotating two or three more times.
 - Check the locking mechanism. To do so, press your hand against the acrylic glass.

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

- Closing:*
- Pull the handle of the Roman shade (Fig. 26,3) and release in the desired position. The Roman shade will stay in that position.

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

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

- Closing:*
- Pull insect screen at the handle (Fig. 26,1) to the opposite handle of the Roman shade (Fig. 26,3) and allow to engage.

- Opening:*
- Press the handle of the insect screen (Fig. 26,1) at the back upwards and detach the insect screen from the Roman shade (Fig. 26,3).
 - Use handle to return the insect screen slowly to its initial position.

7.9 Tables

7.9.1 Suspension table with folding table-top extension

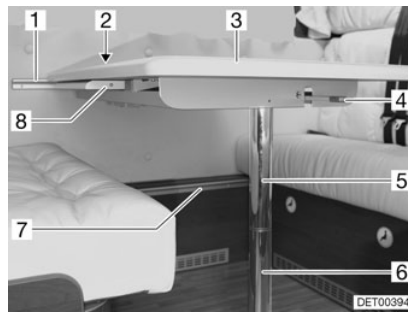


Fig. 27 Extend suspension table

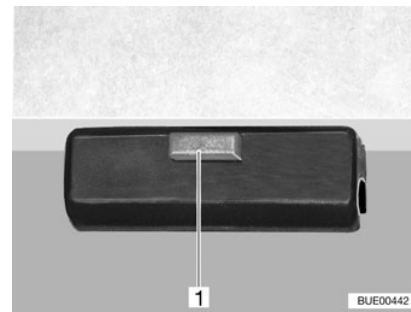


Fig. 28 Suspension table with fold-out leg

The table surface of the suspension table size can be enlarged by folding out a table element.

Extending:

- Release the locking lever (Fig. 27,4) underneath the table-top.
- Slightly lift the front of the table-top (Fig. 27,3) and pull it to the middle of the vehicle as far as it will go.
- The inserted table-top extension (Fig. 27,8) pivots upwards.
- Push the table-tops together until the catch audibly locks into place.

Reducing size:

- Release the locking lever (Fig. 27,4) underneath the table-top.
- Slightly lift the front of the table-top and pull out.
- The table-top extension pivots downwards.
- Lift up the front of the table-top slightly and push it all the way in.

The suspension table may also be used as a bed foundation.

Conversion to bed foundation:

- Lift the front of the table-top by approx. 45°.
- Pull out the lower part of the support leg (Fig. 27,6) down and lay aside.
- Press the release knob (Fig. 28,1) on the lock (Fig. 27,2)
- Detach the suspension table from the upper attachment rail (Fig. 27,1).
- Hook the suspension table into the lower attachment rail (Fig. 28,7) and set it down onto the floor with the upper part of the support leg (Fig. 28,5).

7.9.2 Fixed table

The top of the fixed table can be moved both lengthways and crossways.

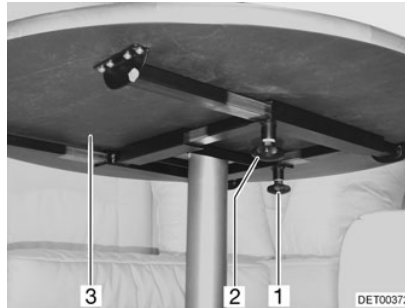


Fig. 29 Fixed table

Moving in a lengthways direction:

- Undo the knurled screw (Fig. 29,2).
- Move the table-top (Fig. 29,3) to the desired position.
- Retighten the knurled screw.

Moving in a crossways direction:

- Undo the knurled screw (Fig. 29,1).
- Move the table-top (Fig. 29,3) to the desired position.
- Retighten the knurled screw.

The fixed table cannot be used as a bed foundation.

7.10 Television



- ▶ Before commencing the journey, remove the television from the support and store it securely.
- ▶ Before commencing the journey, turn the flat screen and the screen holder back to the basic position and slide them in until they lock into place. Close the TV cabinet.
- ▶ Before commencing the journey, ensure that the antenna is in park position. Danger of accidents!

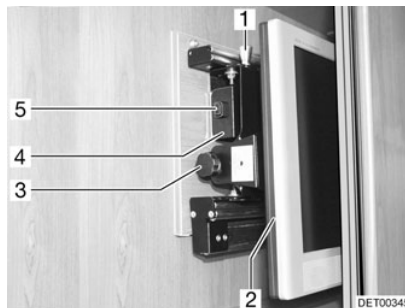


Fig. 30 TV cabinet

Pulling the television console forward:

- Press the release knob (Fig. 30,5) and pull the holder for the flat screen forward as far as possible by the handle (Fig. 30,4).

Swivelling the television console:

- Pull the release knob (Fig. 30,1) and swivel the television (Fig. 30,2) to the desired position.
- Undo the knurled screw (Fig. 30,3).
- Set the desired angle for the television and re-tighten the knurled screw.

7.11 Extending the seating group

7.11.1 Extending the central seating group

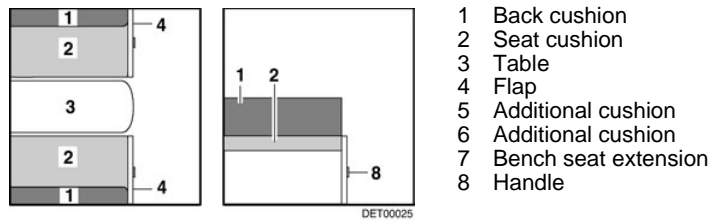


Fig. 31 Before extending

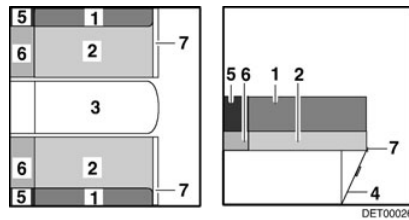


Fig. 32 After extending

- Extend the table (Fig. 31,3) (see section 7.9).
- Pull on the handle (Fig. 31,8) and open the flap (Fig. 31,4).
- Fold up bench seat extension (Fig. 32,7) and wedge together with the flap (Fig. 32,4).
- Place the back cushions (Fig. 32,1) and the seat cushions (Fig. 32,2) on the bench seat extension.
- Insert the additional cushions (Fig. 32,6) between the seat cushions and the exterior wall.
- Insert the additional cushions (Fig. 32,5) between the back cushions and the exterior wall.

7.11.2 Extending the central seating group with divan

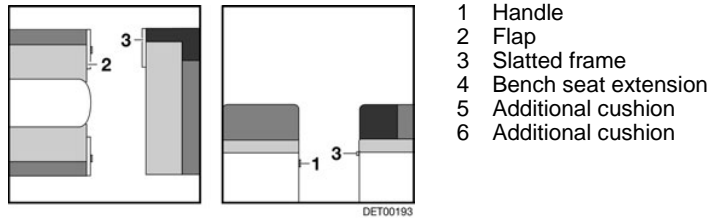


Fig. 33 Prior to conversion

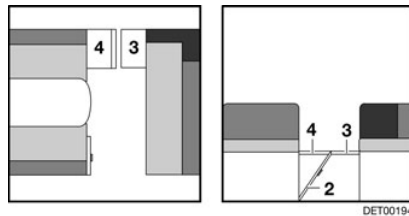


Fig. 34 During conversion

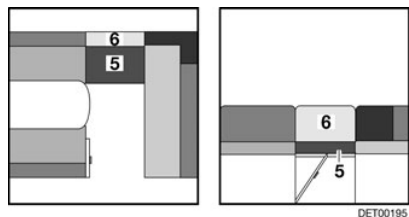


Fig. 35 After conversion

- Close driver's cabin partition (see section 7.3).
- Pull on the handle (Fig. 33,1) and open the flap (Fig. 33,2).
- Fold up bench seat extension (Fig. 34,4) and wedge together with the flap (Fig. 34,2).
- Pull out the slatted frame (Fig. 34,3).
- Place the additional cushion (Fig. 35,5) on the slatted frame and the bench seat extension.
- Place the additional cushion (Fig. 35,6) on the additional cushion (Fig. 35,5).

7.12 Beds

7.12.1 Overcab bed



- ▶ Only use the overcab bed, if the safety net is set up.
- ▶ Never allow small children to remain in the overcab bed without supervision.
- ▶ But in particular with regard to small children less than 6 years of age, users should ensure that they cannot fall out of the overcab bed.
- ▶ Use separate children's beds or travel cots suitable for children.



- ▷ Do not load the overcab bed without mattress. The plastic mould part can break!

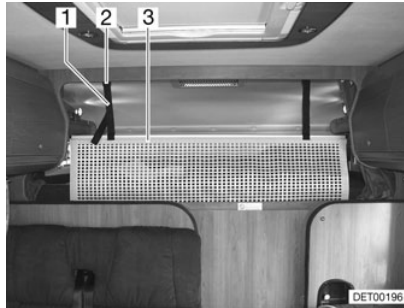


Fig. 36 Overcab bed

Access ladder Always use the access ladder provided as standard to access the overcab bed.

Safety net The safety net (Fig. 36,3) is stored as standard between the mattress and slatted frame. Only use the safety net if persons are already in the alcove.

Setting up:

- Fasten the retaining straps (Fig. 36,1) to the holders on the ceiling (Fig. 36,2).

Folding mechanism The overcab bed can be folded up. This simplifies passage from driver's cabin to living area.



Fig. 37 Overcab bed, folded upwards

Folding upwards:

- Open driver's cabin partition (see section 7.3).
- Lift the mattress forwards and set it down on the panel.
- Fold the front of the overcab bed (Fig. 37,1) upwards. The overcab bed is kept in the upper position by gas-pressure springs.

Folding downwards:

- Pull overcab bed downwards.
- If necessary, push the mattress behind the panel.

7.13 Converting seating groups for sleeping

7.13.1 Central seating group

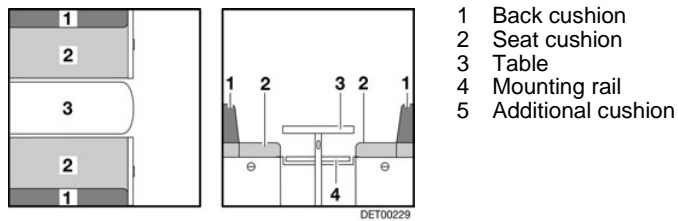


Fig. 38 Prior to conversion

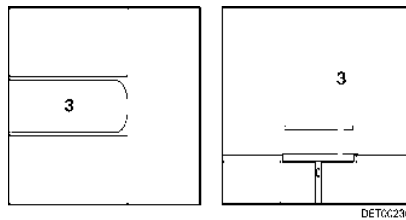


Fig. 39 During conversion

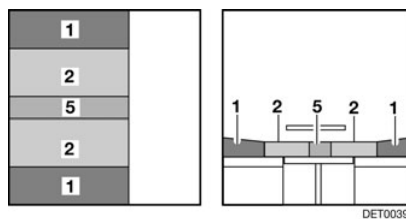


Fig. 40 After conversion

- Convert the table (Fig. 38,3) to a bed foundation (see section 7.9).
- Attach the table to the lower mounting rail (Fig. 38,4).
- Remove the seat and back cushions.
- Fold up the lower part of one of the seat cushions (Fig. 40,2) and place the seat cushion against the wall.
- Place the second seat cushion next to the first seat cushion.
- Insert the back cushions (Fig. 40,1) between the seat cushions and the wall.
- Insert the additional cushion (Fig. 40,5) between the back cushions and the wall.

7.13.2 Central seating group with extension

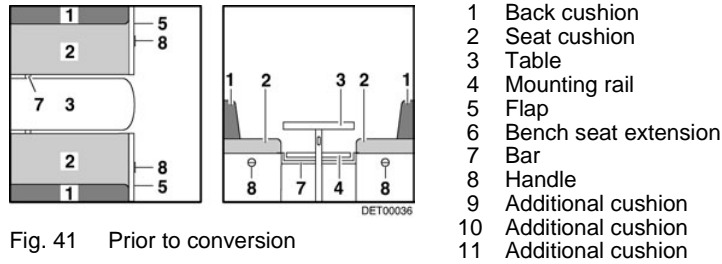


Fig. 41 Prior to conversion

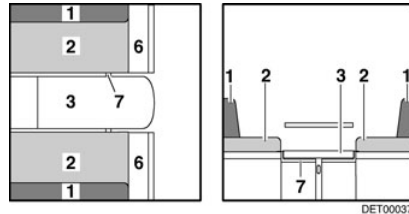


Fig. 42 During conversion

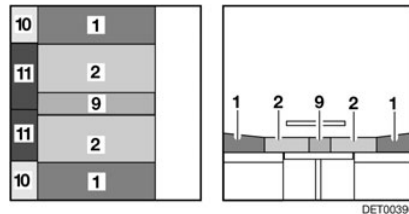


Fig. 43 After conversion

- Extend the table (Fig. 41,3) and convert it into a bed foundation (see section 7.9).
- Insert the bar (Fig. 41,7) or pull it inwards. The bar is correctly positioned if it supports the table-top about 15 - 20 cm behind the table leg.
- Attach the table to the lower mounting rail (Fig. 41,4).
- Pull on the handle (Fig. 41,8) and open the flap (Fig. 41,5).
- Fold up the bench seat extension (Fig. 42,6) and wedge it with the flap.
- Pull the seat cushions (Fig. 43,2) forwards onto the table.
- Insert the back cushions (Fig. 43,1) between the seat cushions and the wall.
- Place the additional cushion (Fig. 43,9) between the seat cushions.
- Insert the additional cushions (Fig. 43,10) between the cushions and the wall.
- Insert the additional cushions (Fig. 43,11) between the cushions and the wall.

7.13.3 Central seating group with divan

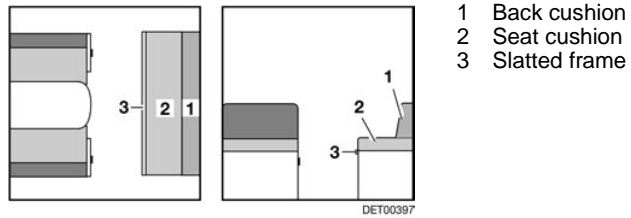


Fig. 44 Prior to conversion

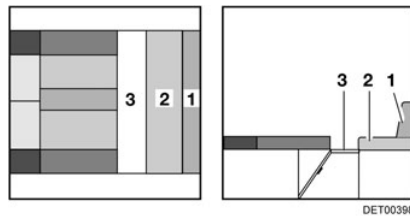


Fig. 45 During conversion

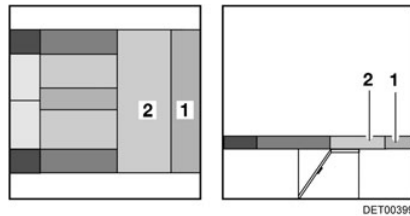


Fig. 46 After conversion

- Convert the central seating group for sleeping (see section 7.13.2).
- Pull out the slatted frame (Fig. 45,3).
- Pull the seat cushion (Fig. 46,2) to the central seating group.
- Insert the back cushion (Fig. 46,1) between the seat cushion and the exterior wall.

Chapter overview

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

The instructions address the following topics:

- safety
- gas consumption
- 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 10.

8.1 General



- ▶ Close all gas isolator taps and the regulator tap before commencing the journey and when leaving the vehicle.
- ▶ No source of combustion using gas (gas cooker, gas heater, gas boiler, etc.) may be in operation when filling the fuel tank, on ferries or in the garage. Danger of explosion!
- ▶ 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. We recommend having the gas pressure regulator checked no later than every 10 years.
- ▶ 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.
- ▶ Open a skylight 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 gas bottle 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, no snow walls or aprons may be allowed to lie against the vehicle. Keep the intake openings under the floor of the vehicle open and clean.

8.2 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 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 only 11 kg or 5 kg gas bottles! Camping gas bottles with built-in check valve (blue bottle with max. 2.5 or 3 kg content) are can be used in exceptional cases with a safety valve.



- ▶ Use the shortest possible tube lengths (120 cm max.) for external gas bottles.
- ▶ If aluminium gas bottles are used, 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.
- ▷ If 2 gas bottles are used at the same time: Connect a gas pressure regulator fitted with an automatic switchover device.
- ▷ Information available at the Dethleffs service centre.
- ▷ For filling and connecting the gas bottles in Europe, camping supply stores have corresponding adapter sets.
- ▷ For information on the gas supply in Europe see chapter 17.

8.3 Gas consumption



- ▷ The data about gas consumption of the individual gas devices is standard average values.

Appliances	Gas consumption in grams/hour
Cooker, per cooker	Approx. 140 - 165 g/h
Refrigerator	Approx. 18 g/h

8.4 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 cleaning agents are available at the Dethleffs accessories shop.



Fig. 47 Gas bottle compartment

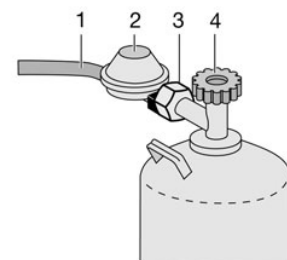
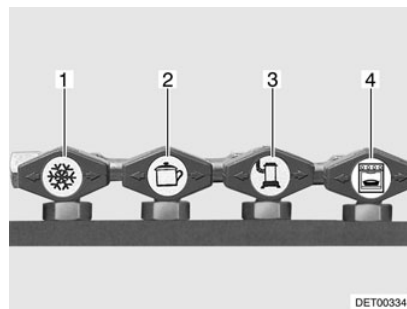


Fig. 48 Gas bottle connection

- Open external gas bottle compartment (see section 7.2).
- Fold guard plate (Fig. 47,3) down.
- Set handle (Fig. 47,2) into a horizontal position.

- Pull out the slide (Fig. 47,1) as far as possible.
- Close the regulator tap (Fig. 48,4) on the gas bottle. Pay attention to the direction of the arrow.
- Unscrew the gas pressure regulator (Fig. 48,2) from the gas bottle at the hexagon nut (Fig. 48,3).
- Remove the gas pressure regulator and the gas tube (Fig. 48,1) from the gas bottle.
- Release the fixing belts and remove the gas bottle.
- Place a filled gas bottle in the gas bottle compartment.
- Fix gas bottle in place with the fixing belts.
- Position the gas pressure regulator (Fig. 48,2) and the gas tube (Fig. 48,1) on the gas bottle and screw in tightly to the gas bottle at the hexagonal nut (Fig. 48,3).
- Push in the slide (Fig. 47,1) as far as possible, and set the handle (Fig. 47,2) in a vertical position.
- Fold guard plate (Fig. 47,3) up.
- Close the external flap (see section 7.2).

8.5 Gas isolator taps



- 1 Refrigerator
- 2 Cooker
- 3 Heater/boiler
- 4 Oven

Fig. 49 Symbols for the gas isolator taps

A gas isolator tap (Fig. 49) for every gas device is built into the vehicle. The gas isolator taps can be found on the front of the cooker.

8.6 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.

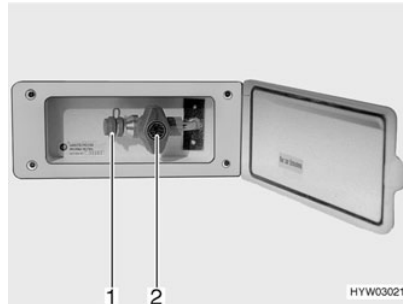


Fig. 50 External gas connection, gas isolator tap closed

The external gas connection (Fig. 50) is located on the left-hand side of the vehicle.

- Connect the external gas device to the connection point (Fig. 50,1).
- Open the gas isolator tap (Fig. 50,2).

8.7 Duomatic switching facility



- ▶ Do not use the switching facility in closed spaces.



- ▷ Also read the manufacturer's instruction manual.

The Duomatic is an automatic switching facility with a remote display for a two-bottle gas system. The Duomatic 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 Duomatic switching facility is suitable for all commercial gas bottles from 3 kg to 33 kg.

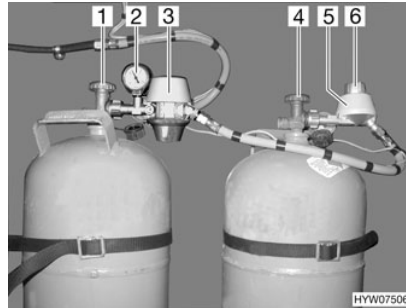


Fig. 51 Duomatic switching facility

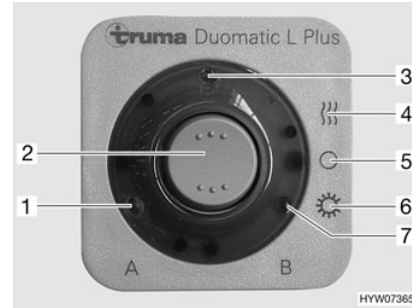


Fig. 52 Operating unit

Construction of the unit

The Duomatic switching facility consists of a central regulator (Fig. 51,3) and a switching regulator (Fig. 51,5). The knob (Fig. 51,6) on the switching regulator 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.

Both regulators are equipped with a pressure controller and the regulator defroster Eis-Ex. This prevents damage to the gas system during the winter months.

The manometer (Fig. 51,2) on the central regulator indicates the pressure in the gas bottle, not the filling level of the gas bottle. The manometer can be used to test the impermeability of the gas bottle.

Only the electrical functions can be switched at the operating unit (Fig. 52). The regulator taps on the gas bottles (Fig. 51,1 and 4) must be opened manually.

The central regulator provides a constant gas pressure, regardless of which gas bottle is being drawn upon. The two indicator lamps on the operating unit show which gas bottle can be used to provide gas. When both indicator lamps are illuminated, the position of the knob on the switching regulator indicates which gas bottle is currently being drawn upon.



- ▷ When operating with only one gas bottle (e.g. during the summer) connect the central regulator to this bottle. Position the knob on the switching regulator in the red area.

Operating modes

The Duomatic 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. 51,1 and 4).
- Use the knob (Fig. 51,6) on the switching regulator (Fig. 51,5) 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. When the knob is in the red area, the gas is taken primarily from the gas bottle with the central regulator (Fig. 51,3). When the knob is in the green area, the gas is taken primarily from the gas bottle with the switching regulator (Fig. 51,5).
- Switch on the Duomatic switching facility at the operating unit (Fig. 52). To do so, set the rocker switch (Fig. 52,2) to winter operation "On and heating" (Fig. 52,4) or to summer operation "On" (Fig. 52,6). Both gas pressure regulators are now ventilated. The operating indicator (Fig. 52,3) lights up.

- Switching off:*
- Set the rocker switch (Fig. 52,2) to "O" (Fig. 52,5). The operating indicator (Fig. 52,3) goes out.
 - Close the regulator taps on the gas bottles (Fig. 51,1 and 4).

Remote display

The indicator lamps on the operating unit (Fig. 52) indicate in the vehicle interior whether the gas bottles are ready for operation.

- Indicator lamp "A" (Fig. 52,1): Gas bottle on the central regulator
- Indicator lamp "B" (Fig. 52,7): Gas bottle on the switching regulator

Changing gas bottles

If an indicator lamp goes out during operation, this signifies that the corresponding gas bottle is empty and must be replaced. The reserve bottle continues supplying the gas appliances with gas.



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



- ▷ Always mount the regulator in such a way that the protective cap faces upwards.

Changing gas bottles:

- Close the regulator tap on the empty gas bottle.
- Unscrew the regulator of the gas bottle.
- Connect the full gas bottle to the regulator.
- Open the regulator tap on the gas bottle.
- Set the knob on the switching regulator 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 motorhome.

The instructions address the following topics:

- safety
- explanations of terms relating to the battery
- 12 V power supply
- living area battery
- loading the batteries
- transformer/rectifier
- panel
- 240 V power supply
- connection to the 240 V power supply
- fuse rating

The operation of the electrical appliances of the housing body is described in chapter 10.

9.1 General safety instructions



- ▶ Only allow qualified personnel to work on the electrical system.
- ▶ All electronic devices (e.g. mobile telephones, radios, televisions or DVD players) which have been retrofitted to the vehicle and are operated during the journey must have certain features: These are the CE certification, the EMC inspection (electromagnetic compatibility) and the "E1" inspection.

Only in this way can the functional reliability of the vehicle be ensured. Otherwise the airbag may be triggered or interference to the on-board electronics may result.

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.

9.2 Terms

Off-load voltage

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

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 12 V power supply 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.



- ▷ 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). If a battery possesses a capacity of 80 Ah, then the battery can dispense a current of 1 A for 80 hours or a current of 2 A for 40 hours.

External influences such as temperature may alter the storage capacity of the battery.

9.3 12 V power supply



- ▷ To disconnect **all** electrical 12 V appliances from the power supply, set the battery cut-off switch on the transformer/rectifier to "battery off".

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.

When the vehicle engine is running, the vehicle alternator recharges the living area battery and the starter battery.

The 12 V power supply can be cut off with the 12 V main switch on the panel. Depending on the model, the heater, basic light/entrance step and reserve 4 or only the electrical entrance step remain on standby. The refrigerator is then only operated with 12 V if the vehicle engine is running. This helps to prevent the living area battery from being run down too quickly.

9.3.1 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.
- ▷ Use the charger module provided on the transformer/rectifier to charge the living area battery. When charging externally, use a regulated charger that is suitable for the battery type (a lead acid or dryfill battery) and the capacity of the living area battery.
- ▷ For long periods of inactivity (4 weeks or more), either switch off the living area battery using the battery cut-off switch on the transformer/rectifier, or recharge it regularly.
- ▷ When the living area battery is changed, only use batteries of the same type. A dryfill battery may only be replaced by a dryfill battery.
- ▷ Before disconnecting or connecting the terminals of the battery, switch off the vehicle engine as well as the 240 V and 12 V power supplies and all appliances. Danger of short circuit!
- ▷ If the starter battery or living area battery are disconnected, do not apply the ignition. Danger of short circuit!
- ▷ Take note of the battery manufacturer's users and maintenance instructions.
- ▷ Appliances with a maximum of 10 A can be connected to the sockets of the 12 V power supply system.



- ▷ The dryfill 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 dryfill battery must be charged regularly.

Position

The living area battery is installed in the double floor and can be accessed via the external flap on the right next to the conversion door.

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.

The self-discharge rate of the battery is 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.

During periods of low external temperatures, the battery will lose part of its capacity.

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.



- ▷ Appliances such as the safety/drainage valve, charger, solar charge regulator and panel consume approx. 20 mA to 65 mA of electricity from the battery capacity, even when the 12 V main switch is turned off. Therefore, you switch the battery cut-off switch on the transformer/rectifier to "Batterie Aus" (battery OFF) when the vehicle is not used for a long period of time.

9.4 Charging the living area battery and starter battery



- ▶ The acid in the battery is poisonous and corrosive. Any contact with the skin or the eyes is to be avoided.
- ▶ In the case of charging with an external charger there is danger of explosion. Only charge the battery in a well ventilated area and away from naked flames or possible sources of sparks.
- ▶ Always remove the living area battery or the starter battery from the vehicle when charging them using an external charger.



- ▷ Do not connect the battery cables to the wrong poles.
- ▷ If the starter battery or living area battery are disconnected, do not apply the ignition. Danger of short circuit!
- ▷ Before disconnecting or connecting the terminals of the battery, switch off the vehicle engine as well as the 240 V and 12 V power supplies and all appliances. Danger of short circuit!
- ▷ Before charging a dryfill battery, check whether the external charger is approved for dryfill batteries.
- ▷ Observe the instruction manuals for the base vehicle and the charger.
- ▷ Irreparable damage to the living area battery will result if it is overcharged.

The starter battery can only be fully charged with an external charger. If a 240 V power supply is used, the transformer/rectifier charges the starter battery with a float charge only. Even in mobile operation, the vehicle engine alternator is not capable of completely charging the starter battery.

9.4.1 Charging using a 240 V power supply

If the vehicle is connected to the 240 V power supply, the living area battery and the starter battery are automatically charged by the charger module on the transformer/rectifier. The starter battery is charged with a float charge of 2 A. The charging current is adapted to suit the charging condition of the battery. This ensures that it is not possible to overload the battery.

To make use of the maximum output from the charger module on the transformer/rectifier, switch off all electrical appliances during charging.

9.4.2 Charging using the vehicle engine

When the vehicle engine is running, the vehicle alternator recharges the living area battery and the starter battery. When the vehicle engine is switched off, the batteries are automatically disconnected from one another by a relay in the transformer/rectifier. This prevents the starter battery from being run down by electrical appliances in the living area. The starting capability of the vehicle is thus preserved. The charging condition of the living area battery or the starter battery can be read on the panel.

9.4.3 Charging with an external charger

When charging the living area battery and the starter battery with an external charger, proceed as follows:

- Turn off the vehicle engine.
- Switch off 12 V main switch on the panel. The indicator lamp will go off.
- On the transformer/rectifier, move the battery cut-off switch to the position "Batterie Aus" (battery OFF).
- Disconnect the mains plug from the transformer/rectifier.
- Switch off all gas appliances, all gas isolator taps and close the regulator tap on the gas bottle.
- There is a danger of short circuit when disconnecting the battery poles. For this reason, first disconnect the negative terminal on the living area battery or the starter battery and then the positive.
- Remove the living area battery or the starter battery from the vehicle.
- Check that the external charger is turned off.
- Connect the external charger to the living area battery or the starter battery. Pay attention to the polarity: First connect the positive terminal "+" to the positive pole of the battery, then connect the negative terminal "-" to the negative pole of the battery.
- Switch on the external charger.
- See the instructions for use of the connected charger for information concerning charge period required for the battery.
- See the specifications on the battery for information concerning its strength.
- Disconnect the external charger in reverse order.

9.5 Auxiliary charging unit



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



- 1 Mains switch (on rear side of unit)
- 2 Battery selector switch (lead acid/dry-fill option)
- 3 Fuse

Fig. 53 Auxiliary charging unit

The auxiliary charging unit (Fig. 53) supports the transformer/rectifier's charging performance. Therefore, do not switch off the auxiliary charging unit.

Position The auxiliary charging unit is fitted next to the transformer/rectifier.

9.6 Transformer/rectifier (EBL 220)



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



- ▷ Further information can be obtained from the separate instruction manual "Transformer/rectifier".

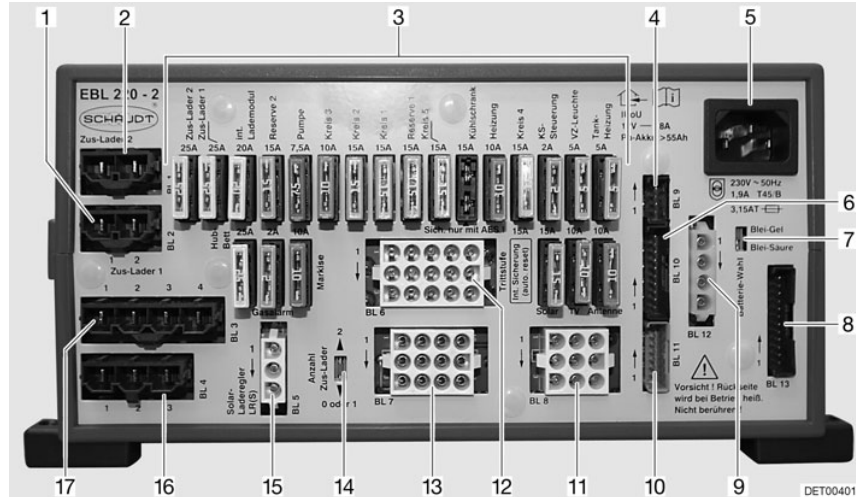


Fig. 54 Transformer/rectifier (EBL 220)

- 1 Connections BL 2 - auxiliary charging unit 1
- 2 Connections BL 1 - auxiliary charging unit 2
- 3 Flat fuses
- 4 Connections BL 9 - solar charge regulator
- 5 Mains connection 230 V
- 6 Connections BL 10 - panel
- 7 Battery selector switch, lead acid/dryfill option
- 8 Connections BL 13 - panel
- 9 Connections BL 12 - sensor for living area battery D+
- 10 Connections BL 11 - panel
- 11 Connections BL 8 - entrance step, TV, antenna
- 12 Connections BL 6 - heater, water pump, spare
- 13 Connections BL 7 - awning, tank heater, awning light
- 14 Selector switch for the number of auxiliary charging units
- 15 Connections BL 5 - solar charge regulator
- 16 Connections BL 4 - refrigerator from starter battery
- 17 Connections BL 3 - refrigerator

Functions The transformer/rectifier has the following functions:

- The transformer/rectifier charges the living area battery. The transformer/rectifier charges the starter battery with a float charge only.
- The transformer/rectifier monitors the voltage in the living area battery.
- The transformer/rectifier distributes the current to the 12 V circuits and secures them.
- The transformer/rectifier contains connections for a solar charge regulator and an auxiliary charging unit as well as other control and monitoring functions.
- When the engine is turned off, the transformer/rectifier separates the starter battery electrically from the living area battery. This prevents the 12 V living area appliances from discharging the starter battery.

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

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

Position The transformer/rectifier (Fig. 54) is installed in the double floor. It can be accessed via floor flap in the entrance area.

9.6.1 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.

The battery selector switch is used to set the charger module in the transformer/rectifier to the type of living area battery installed in the vehicle ("lead acid" or "dryfill" battery).

9.6.2 Battery monitor



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

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

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

A refrigerator with automatic power selection system switches to gas operation.

Measures:

- Switch off all electrical appliances that are not absolutely essential at the corresponding switch.
- If necessary, use the 12 V main switch to switch the 12 V power supply back on for a short while. This is only possible, however, when the battery voltage is above 11 V. If the voltage is below this level, the 12 V power supply cannot be switched on again until the living area battery has been recharged.

9.6.3 Charging the battery

When the vehicle engine is running, the vehicle alternator recharges the living area battery and the starter battery. When the vehicle engine is switched off, the batteries are automatically disconnected from one another by a relay in the transformer/rectifier. This prevents the starter battery from being run down by electrical appliances in the living area. The starting capability of the vehicle is thus preserved. The charging condition of the living area battery or the starter battery can be read on the panel.

If the vehicle is connected to the 240 V power supply, the living area battery and the starter battery are automatically charged by the charger module on the transformer/rectifier. The starter battery is charged with a float charge of 2 A. The charging current is adapted to suit the charging condition of the battery. This ensures that it is not possible to overload the battery.

To make use of the maximum output from the charger module on the transformer/rectifier, switch off all electrical appliances during charging.

9.7 Panel (DT 220)



Fig. 55 Panel (DT 220)

- 1 Key basic menu
- 2 Key battery menu
- 3 Key setting menu
- 4 Key for switching to the next value or for increasing a selected value
- 5 Key for switching back to the last value or for decreasing a selected value
- 6 Key for confirming settings or for changing over
- 7 LCD display
- 8 Key, 12 V main switch
- 9 Key tank menu

9.7.1 12 V main switch

The 12 V main switch (Fig. 55,8) switches the panel and the 12 V power supply of the living area on and off.

Depending on the model, the following components remain ready for operation:

- Safety/drainage valve
- Heater
- Entrance step
- Spare 4
- Waste water tank heater
- Awning light
- Awning
- Antenna
- Refrigerator with automatic power selection

Switching on: ■ Press the "12 V" key (Fig. 55,8): The 12 V living area power supply is switched on. The LCD display (Fig. 55,7) shows the basic menu and is lit up for 20 seconds. Additionally, in the event of an alarm, the relevant alarm display appears.

Switching off: ■ Press the "12 V" key (Fig. 55,8): The LCD display (Fig. 55,7) lights up.
 ■ Press the "12 V" key (Fig. 55,8) again: The 12 V living area power supply is switched off. To confirm the entry, "12 V OFF" appears in the LCD display.



- ▷ When leaving the vehicle, switch off the 12 V main switch. This prevents any unnecessary discharge of the living area battery.
- ▷ Appliances such as the safety/drainage valve, charger, solar charge regulator and panel consume approx. 20 mA to 65 mA of electricity from the battery capacity, even when the 12 V main switch is turned off. Therefore, you switch the battery cut-off switch on the transformer/rectifier to "Batterie Aus" (battery OFF) when the vehicle is not used for a long period of time.
- ▷ If the battery cut-off switch was turned off, turn it back on and press the 12 V main switch longer than 5 seconds and reset the date and time.

9.7.2 LCD display

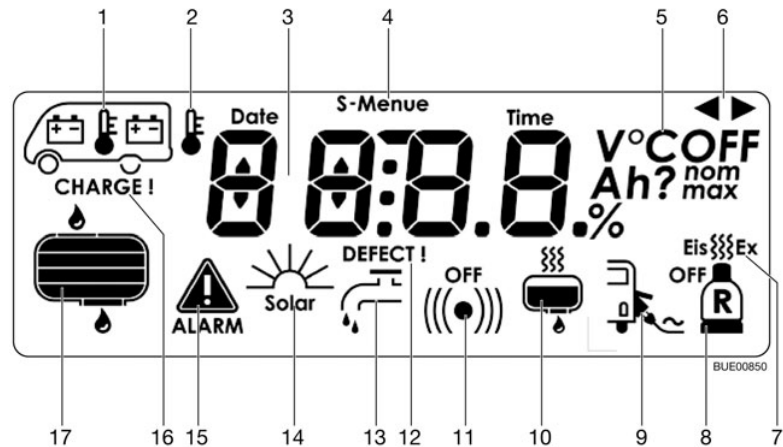


Fig. 56 Symbol representation in the LCD display

- 1 Starter battery/living area battery/internal temperature
- 2 External temperature
- 3 Main display
- 4 Information line
- 5 Unit field
- 6 Arrows
- 7 Defroster (optional)
- 8 Reserve bottle in operation (optional)
- 9 240 V power supply is connected
- 10 Tank heater (optional)
- 11 Optical display for buzzer (warning that buzzer is switched off)
- 12 Display for defects to battery, tank level sensors or temperature sensors
- 13 Water pump
- 14 Solar charge (optional)
- 15 Battery alarm or tank alarm
- 16 Command to charge the battery
- 17 Water tank/waste water tank level



- ▷ The arrow in the LCD display indicates that the selected menu consists of several menu pages. When the used menu-keys are pressed repeatedly, the next menu-page appears.
- ▷ 20 seconds after the last key has been pressed the basic menu always appears unlit.

9.7.3 Basic menu

The basic menu always appears after switching on the 12 V main switch. When keys are pressed the LCD display is lit automatically.

Calling menu:

- Press the basic menu key (Fig. 55,1): The time and possibly other symbols are displayed. The symbols contain the following information:
 - Defroster (Fig. 56,7) switched on or off (optional).
 - Switching facility for two gas bottles (Fig. 56,8) (optional): The gas bottle symbol appears when one of the two gas bottles is empty. If the second bottle is also empty, the symbol flashes and ("ALARM") (Fig. 56,15) appears in the basic menu.
 - Net control (Fig. 56,9): The symbol appears if the vehicle is connected to the 240 V power supply.

- Heater for waste water tank (Fig. 56,10) (optional): The symbol appears if the heater for the waste water tank is switched on.
- Water pump (Fig. 56,13): The symbol appears if the water pump is switched on.

- Press the basic menu key repeatedly or the "+" key (Fig. 55,4) to call up the following information in succession:

- Internal temperature in °C
- External temperature in °C
- Date (day, month)



- ▷ The temperature menu appears and the "?" flashes if the temperature sensors are defective or if the temperature measured lies outside of the measuring range of -40 °C to +60 °C.

Various settings can be made in the basic menu.

Setting the date and time:

- Press the basic menu key (Fig. 55,1).
- Press the settings menu key (Fig. 55,3) for more than 3 seconds.
- Afterwards, press the settings menu key repeatedly until the hours display starts flashing.
- Use the "+" and "-" keys (Fig. 55,4 and 5) to change the flashing number and the "OK" key (Fig. 55,6) to confirm.

Set the minutes and the date in the same way.

Switching defroster on and off:

- Press the basic menu key (Fig. 55,1).
- Press the settings menu key (Fig. 55,3) for more than 3 seconds.
- Switch on ("ON") or switch off ("OFF") the defroster with the "+" and "-" keys (Fig. 55,4 and 5) or switch to automatic mode ("AUTO") and confirm with the "OK" key (Fig. 55,6).



- ▷ In automatic mode, the defroster is switched on if the external temperature is less than 7.5 °C and switched off again if the external temperature is more than 7.5 °C.
- ▷ If the defroster is switched "ON", this corresponds to the "On and heating" operating mode. The defroster then heats permanently.

Displaying the software version:

- Press the basic menu key (Fig. 55,1): The time and possibly other symbols are displayed.
- Press the settings menu key (Fig. 55,3) for more than 3 seconds.
- Afterwards, press the settings menu key repeatedly until a letter appears at the start of the LCD display. The software version is displayed.



- ▷ The software version can be displayed, but not adjusted.

9.7.4 Battery menu

When keys are pressed the LCD display is lit automatically.

Calling menu:

- Press the battery menu key (Fig. 55,2): The remaining effective capacity of the living area battery (Ah or %) is displayed.
- Press the battery menu key repeatedly or the "+" key (Fig. 55,4) to call up the following information in succession:

- Charging current for the living area battery (A)
- Voltage of the living area battery (V)
- Voltage of the starter battery (V)
- Charging current of a solar installation for the living area battery
- Charging current of a solar installation for the starter battery



- ▷ The functions for a solar installation are only present if the vehicle is equipped for it.
- ▷ To change from the Ah display to the % display: Press "OK" key (Fig. 55,6).

The tables below will help you correctly interpret the battery voltage display on the panel.

Danger of total discharge

Battery voltage	Description
10.4 or less	The battery monitor immediately cuts off all power to the appliances (except for the safety/drainage valve)
11 V or more	12 V power supply can be switched off with the main switch
10.5 V to 12 V	Battery alarm is triggered if the voltage falls below 12 V The battery capacity will be set to "zero" if the voltage remains under 10.5 - 12 V for more than 1 minute ¹⁾ The system will be turned off if the voltage remains under 10.5 - 12 V ¹⁾ for more than 5 minutes
12 V to 13.2 V	Battery in idle condition
More than 13.2 V	Battery being charged: Main charge
13.8 V constant	Trickle charge voltage
14.3 V	Final charge voltage (full charge) 1 h with lead acid battery 8 h with dryfill battery

¹⁾ Depending on the current drain

Values for off-load voltage	Charging condition of the battery
Less than 12 V	Totally discharged
12.2 V	25 %
12.3 V	50 %
More than 12.8 V	Full



- ▷ Total discharge causes irreparable damage to the battery.

9.7.5 Battery alarm for the living area battery

The basic menu appears and the symbols (Fig. 56,1, 15 and 16) flash as soon as the voltage of the living area battery falls below 12 V (measured under operation) and there is the threat of a total discharge. Additionally, the voltage indicator flashes in the battery menu.



- ▷ Total discharge damages the battery.



- ▷ If the battery voltage falls below 10.5 V, the battery monitor in the transformer/rectifier switches off all of the 12 V appliances, excluding the safety/drainage valve.

- Measures:*
- When the battery alarm comes on, switch off the appliances and completely charge the living area battery, either by mobile operation or by connection to a 240 V power supply.

9.7.6 Battery capacity alarm for the living area battery

The basic menu appears and the symbol (Fig. 56,1) flashes. The Ah-data and the "CHARGE!" command are also displayed in the battery menu.

9.7.7 Battery defect message for living area battery

The basic menu appears and the symbol (Fig. 56,1) flashes. The "DEFECT!" display is also displayed in the battery menu.

9.7.8 Tank menu

When keys are pressed the LCD display is lit automatically.

- Calling menu:*
- Press the tank menu key (Fig. 55,9): The level of the water tank is displayed.
 - Press the tank menu key repeatedly or the "+" key (Fig. 55,4) to call up the following information in succession:
 - Filling level of the waste water tank
 - Filling level of an addition tank (optional)

Various settings can be made in the tank menu.

- Switching the water pump on and off:*
- Press the tank menu key (Fig. 55,9).
 - Press the "OK" key (Fig. 55,6) as long as the LCD display is lit.
 - Switch the water pump on or off by pressing the "OK" key again.

- Switching the waste water tank heater on and off:*
- Press the tank menu key (Fig. 55,9).
 - Press the tank menu key again as long as the LCD display is lit.
 - Press the "OK" key (Fig. 55,6) as long as the LCD display is lit.
 - Switch the tank heater on or off by pressing the "OK" key again.

9.7.9 Tank alarm



- ▷ The tank alarm can be switched off, for example, if the water tank is constantly empty from using a direct water supply.

The basic menu appears and the symbols (Fig. 56,15 and 17) flash when the water tank is empty or the waste water tank is full. Additionally, the corresponding percentage indicator flashes in the tank menu.

Fill the water tank or empty the waste water tank in the event of tank alarm (see chapter 11).

When keys are pressed the LCD display is lit automatically.

*Activating or deactivating
the tank alarm:*

- Press the tank menu key (Fig. 55,9).
- Press the settings menu key (Fig. 55,3) for more than 3 seconds. The tank settings menu is displayed.
- Switch on ("ON") or switch off ("OFF") the tank alarm with the "+" and "-" keys (Fig. 55,4 and 5) and confirm with the "OK" key (Fig. 55,6).



- ▷ When the tank sensors are defective, the tank menu appears and "?" flashes.
- ▷ Further information can be obtained from the separate "Control panel" instruction manual.

9.8 240 V power supply



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

The 240 V power supply provides electricity for:

- sockets with earth contact for appliances with maximum 16 A
- refrigerator
- transformer/rectifier
- air conditioning unit

The electrical appliances connected to the 12 V power supply of the living area are supplied with voltage by the living area battery.

Connect the vehicle to an external 240 V power supply system as often as possible. The charger module in the transformer/rectifier automatically charges the living area battery. In addition to this, the starter battery is charged with a float charge of 2 A.

The air conditioning unit and other optional devices are fuse-protected by their own two-pole automatic circuit breaker (16 A).

9.8.1 240 V connection



- ▶ The external 240 V power supply must be protected by fuse with a fault current protection switch (FI-switches, 30 mA).



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

The vehicle can be connected to an external 240 V power supply. The cable may have a length of maximum 25 m.

9.8.2 Power cable for external 240 V connection



- ▶ Completely unwind the cable on cable drums to prevent overheating.

Power cable

- Three-core (3 x 2.5 mm²) flexible rubber sheathed cable
- Maximum 25 m in length
- 1 plug with earth contact
- 1 socket with earth contact (plug-in devices according to EN 60309)

Connection possibilities

In order to be prepared for all connection possibilities, Dethleffs recommends the following combinations:

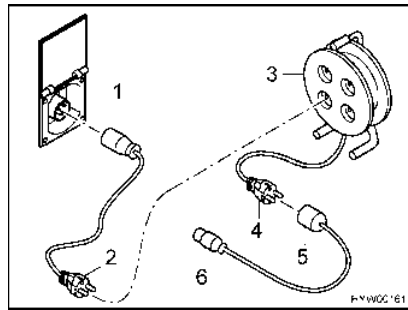


Fig. 57 Connection possibilities 240 V connection

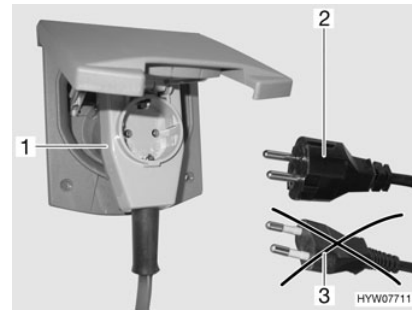


Fig. 58 Connecting an angled connector with socket

- Adapter cable:
CEE 17 socket with earth contact (Fig. 57,1) – plug with earth contact (Fig. 57,2)
- Cable reel:
Socket with earth contact (Fig. 57,3) – plug with earth contact (Fig. 57,4)
- Adapter cable:
CEE 17 socket with earth contact (Fig. 57,5) – plug with earth contact (Fig. 57,6)



- ▶ When using a CEE 17 angled connector with rear socket (Fig. 58,1) only use a rubberised and sealed IP 44 socket with earth contact (Fig. 58,2). Do not use sockets without earth contact (Fig. 58,3). Danger of electrocution!

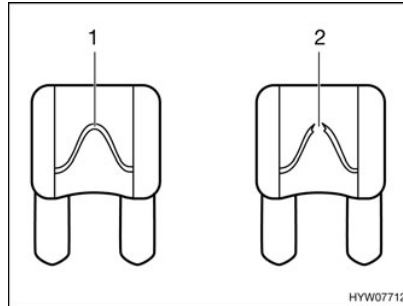
9.9 Fuses



- ▶ 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.

9.9.1 12 V fuses

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



- 1 Unbroken fuse element
- 2 Broken fuse element

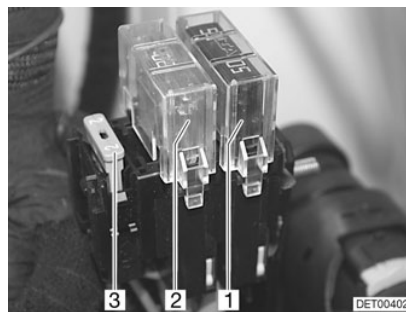
Fig. 59 12 V fuse

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 starter battery

The fuses are fitted in the engine compartment above the starter battery.



- 1 Jumbo flat fuse 50 A/red (for the transformer/rectifier)
- 2 Jumbo flat fuse 20 A/yellow (for refrigerator and charging line)
- 3 Flat fuse 2 A/grey (for alternator D+)

Fig. 60 Fuses on the starter battery

Fuses on the living area battery

The fuses are fitted next to the living area battery.

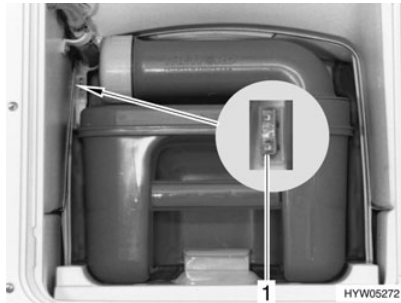


- 1 Jumbo flat fuse 20 A/yellow (for the optional device)
- 2 Jumbo flat fuse 40 A/orange (for the transformer/rectifier)
- 3 Flat fuse 2 A/grey (for battery charger sensor)

Fig. 61 Fuses on the living area battery

**Thetford toilet fuse
 (swivel toilet)**

The fuse is located on the left-hand locker wall of the Thetford cassette.

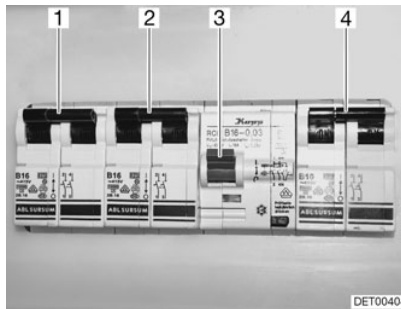


1 Flat fuse 3 A/purple

Fig. 62 Fuse for the Thetford toilet

Changing:

- Open the flap for the Thetford cassette on the outside of the vehicle.
- Pull out the Thetford cassette completely.
- Replace fuse (Fig. 62,1).

9.9.2 240 V fuse


- 1 Automatic circuit breaker for the air conditioning unit
- 2 Automatic circuit breaker for the optional device
- 3 Fault current protection switch
- 4 Automatic circuit breaker 240 V connection

Fig. 63 240 V automatic circuit breakers

The 240 V connection is protected by a two-pole automatic circuit breaker (Fig. 63,4) (10 A).

Position

The automatic circuit breakers are installed in the rear garage.

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
- gas oven
- microwave oven
- extractor hood
- refrigerator
- air conditioning unit

10.1 General



- ▷ The heat exchanger of the Alde hot-water heater has to be replaced after 10 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, refrigerator and air conditioning unit are fitted depending on the model of the vehicle.

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

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

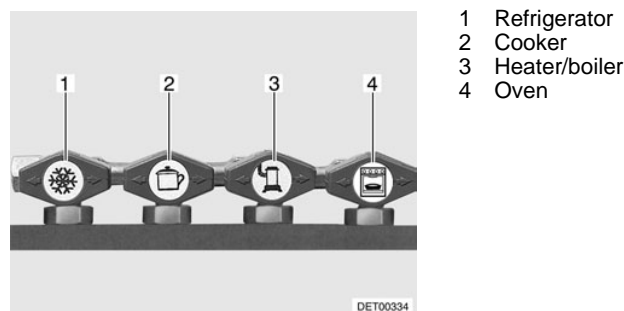


Fig. 64 Symbols for the gas isolator taps

10.2 Alde hot-water heater



- ▶ Never let gas escape unburned due to danger of explosion.
- ▶ When filling the fuel tank, on ferries or in the garage, never run the heater in gas operation. Danger of explosion!



- ▷ Never run hot-water heater without heating fluid. Observe notes in chapter 13.
- ▷ Never drill holes in the floor. This might damage the hot-water pipes.
- ▷ Do not use the space above and behind the heater as a storage compartment.



- ▷ Dethleffs recommends to bleed the heating system after the initial heater operation and to check the glycol content. Observe notes in chapter 13.
- ▷ For further information, see the separate instruction manual "Alde Compact" and observe the maintenance instructions found in chapter 13.
- ▷ For further information about the use of the boiler see section "Boiler".

Initial start-up

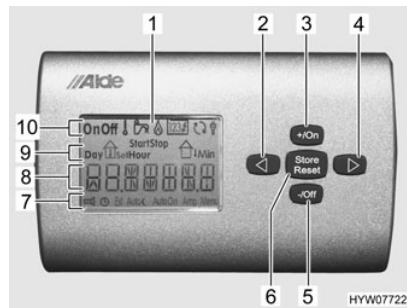
When lighting the heater for the first time a small amount of smoke and odour will occur. Immediately set the operating switch of the heater to its highest position. Open doors and windows and ventilate well. Smoke and odour will disappear by themselves after a while.

The hot-water heater has been fitted below in the wardrobe.

Operating unit

The operating unit is divided into two sections:

- Display (Fig. 65,1)
- Control buttons



- 1 LCD display
- 2 "Back" button
- 3 "Activate/Increase" button
- 4 "Forward" button
- 5 "Switch off/Decrease" button
- 6 "System reset" button
- 7 Lower menu line
- 8 Information line
- 9 Status line
- 10 Upper menu line

Fig. 65 Operating unit for hot-water heater



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

Control buttons

The control buttons have the following functions:

No. in Fig. 65	Button	Function
4	▷	Starting operation and selecting a symbol
3	+/On	Activating the selected menu or increasing the displayed value
5	-/Off	Deactivating the selected menu or decreasing the displayed value
2	◁	Ending operation
6	Store Reset	Resetting the system to home position or saving the set time

LCD display

The LCD displays are divided into four sections:

- Upper menu line (Fig. 65,10)
- Status line (Fig. 65,9)
- Information line (Fig. 65,8)
- Lower menu line (Fig. 65,7)

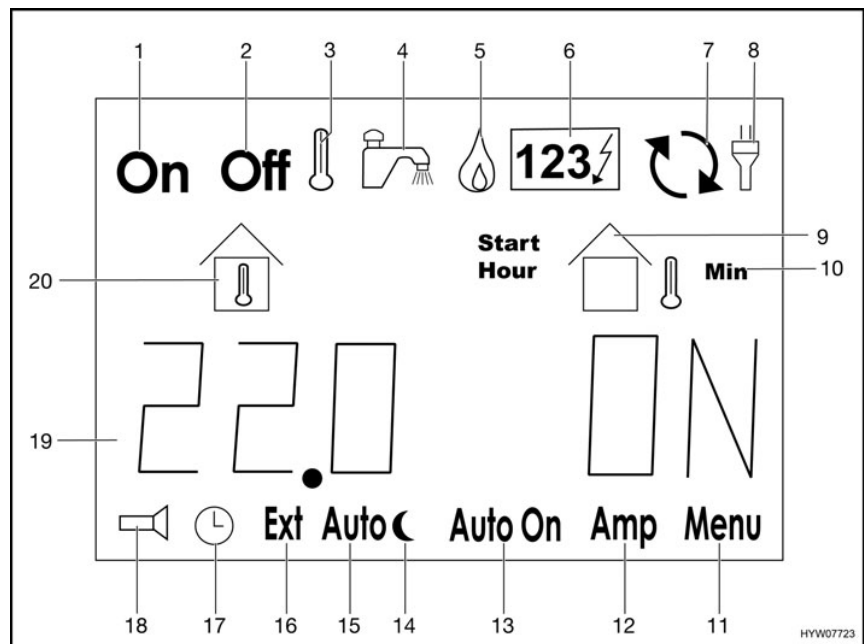






Fig. 66 LCD displays

Upper menu line

No. in Fig. 66	Symbol	Signification
1	On	The heater is activated
2	Off	The heater is switched off
3	⌋	Selection: Setting the desired temperature
4	⌋	Selection: Temporarily increasing (approx. 30 min) the water temperature in the boiler from 50 °C to 65 °C
5	🔥	Selection: Heating with gas
6	123⚡	Selection: Heating with current The number in the symbol specifies the selected heating level

No. in Fig. 66	Symbol	Signification
7		Circulating pump is activated
8		240 V power supply is connected





Status line

20		Internal temperature display
9		External temperature display (only when an external temperature sensor is installed)
10	e.g. Hour	Day, hour and minute display when setting the time

Information line

Details about temperatures, times and operating states or even error messages are displayed as text in the Information line (Fig. 66,19).

Lower menu line

No. in Fig. 66	Symbol	Signification
11	Menu	Selection: Calling various functions such as pump operation or button sounds
12	Amp	Not assigned
13	Auto On	Selection: Starting the heater automatically
14		Selection: Setting the night temperature
15	Auto 	Selection: Starting the night temperature control automatically
16	Ext	Selection: Starting the heater via remote control (only when a remote control is installed)
17		Setting the time
18		Activating the lower menu line


Selecting the operating mode

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


- Gas operation
- 240 V electrical operation
- Gas and 240 V electrical operation

The operating mode is selected from the operating unit.

Selecting gas operation:

- Press the ">" button (Fig. 65,4) until the "

Selecting 240 V electrical operation:

- Press the ">" button (Fig. 65,4) until the "



- ▷ Select the output level during 240 V electrical operation in such a way that it corresponds to the 240 V connection protection:

- Level 1 (1050 W) at 6 A
- Level 2 (2100 W) at 10 A
- Level 3 (3150 W) at 16 A

Selecting gas and 240 V electrical operation:



- Select gas operation and 240 V electrical operation on the operating unit.
- ▷ If gas and 240 V electrical operation is selected and if the vehicle is connected to the 240 V power supply, then the hot-water heater at first only operates in 240 V electric operation. Only if the heat output is insufficient does the gas operation also automatically switch on.
- ▷ The gas operation is only possible when the regulator tap on the gas bottle and the "Heater/boiler" gas isolator tap are opened.
- ▷ 240 V electrical operation is only possible when the vehicle is connected to the 240 V power supply.

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

Switching on the heater:

- Press the "▷" button (Fig. 65,4). The "Off" symbol (Fig. 66,2) flashes.
- Press the "+/On" button (Fig. 65,3). The "On" symbol (Fig. 66,1) flashes. The heater starts automatically.
- Press the "◁" button (Fig. 65,2). The operation ends, the display moves to home position and the "On" symbol lights up.

Switching the heater off:

- Press the "▷" button (Fig. 65,4). The "On" symbol (Fig. 66,1) flashes.
- Press the "-/Off" button (Fig. 65,5). The "Off" symbol (Fig. 66,2) flashes. The heater is turned off.
- Press the "◁" button (Fig. 65,2). The operation ends, the display moves to home position and the "Off" symbol lights up.

10.2.1 Setting the rotational speed of the circulating pump



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

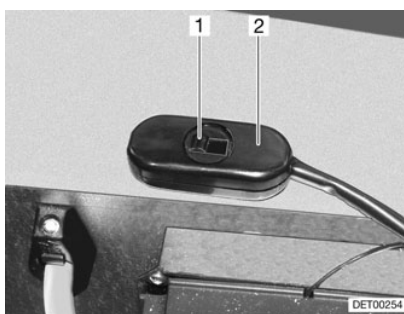


Fig. 67 Rotational speed reduction switch

The rotational speed of the circulating pump can be set with the sliding switch (Fig. 67,2). At a lower rotary speed, the operating sounds of the pump are quieter.

The sliding regulator is located in the hot-water heater area.

Setting the output:

- Push sliding trap (Fig. 67,1) towards the right. The output is reduced.
- Push sliding trap towards the left. The output is increased.

10.2.2 Heat exchangers



- ▷ The heat exchanger only works when the vehicle engine is running.
- ▷ The power of the heat exchanger alone is not sufficient to heat the living area.

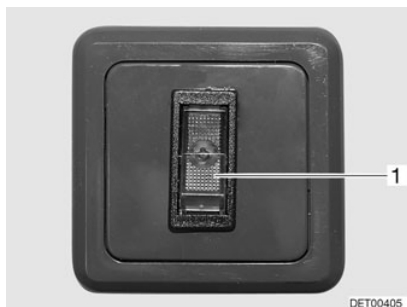


Fig. 68 Switch for heat exchanger

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

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

The switch for the heat exchanger is at the driver's cabin partition behind the front passenger's seat.

- Switching on:*
- Press upper part of the rocker switch (Fig. 68,1). The heat exchanger is switched on.
- Switching off:*
- Press lower part of the rocker switch (Fig. 68,1). The heat exchanger is switched off.

10.3 Independent vehicle heater



- ▶ Do not operate the independent vehicle heater in closed spaces. Danger of suffocation!
- ▶ Do not operate the independent vehicle heater at petrol stations. Danger of explosion!

The inside and the engine can be heated with the independent vehicle heater. The heating of the engine can be switched off.

The independent vehicle heater can be turned on and off manually or with a timer. The time for the heating to start can be exactly preselected from 1 minute to 24 hours. It is possible to program three switching on times, of which only one can be activated. The maximum permitted operation time is 60 minutes.

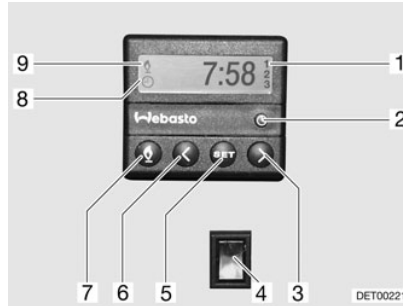


Fig. 69 Operating unit for independent vehicle heater

- Switching on manually:*
- Press the button (Fig. 69,7). The heating mode is displayed by the symbol (Fig. 69,9).
- Switching off manually:*
- Press the button (Fig. 69,7). The symbol (Fig. 69,9) goes off.
- Switching on the engine heating:*
- Press switch (Fig. 69,4) down. Engine is preheated.
- Switching off the engine heating:*
- Press switch (Fig. 69,4) up. Engine stays cold.
- Setting the time:*
- Press the button (Fig. 69,2). The time setting is displayed by the symbol (Fig. 69,8).
 - Set the time with the buttons (Fig. 69,3 and 6).
- Programming heating start:*
- Press the button (Fig. 69,5).
 - Set the switching on time within ten seconds, with the buttons (Fig. 69,3 and 6).
- Selecting programmed switching on time:*
- Keep pressing button (Fig. 69,5) until the selected programme number (Fig. 69,1) appears in the display.

10.4 Alde boiler



- ▶ Never let gas escape unburned due to danger of explosion.
- ▶ When filling the fuel tank, on ferries or in the garage, never run the boiler in gas operation. Danger of explosion!



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

10.4.1 Switching the boiler on/off

The boiler is integrated in the hot-water heater. A separate operation is not possible. For operating the hot-water heater, see section 10.2.

10.4.2 Filling/emptying the boiler

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



Fig. 70 Drain cock

Filling the boiler with water:

- Close drain cock. Position the rocking lever (Fig. 70,1) horizontally.
- Switch on 12 V power supply on the panel.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the 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:

- Switch off boiler.
- Open all water taps and set to the central position.
- Open drain cocks (Fig. 70). To do so, set the rocking lever (Fig. 70,1) in a vertical position. The boiler is drained to the outside using the drain cock.
- Check whether the water has been drained completely from the boiler (approx. 12.5 litres).



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

10.5 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 the skylight.
- ▶ Do not use gas cooker or gas oven for heating.
- ▶ Always protect your hands with cooking gloves or potholders when handling hot pots, pans and similar items. There is a risk of injury.

10.5.1 Gas cooker



- ▶ During activation and operation of the gas cooker, no flammable objects or highly inflammable objects such as dishcloths, napkins etc. must be near the gas cooker. Fire hazard!
- ▶ The process of ignition must be visible from above and must not be covered by cooking pans placed on the cooker.
- ▶ 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.
- ▷ Further information can be obtained from the separate instruction manual "Gas cooker".

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



Fig. 71 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.
- Turn the control knob (Fig. 71,1) to "Large flame" or "Small flame".
- Press the control knob down and hold it.
- Press the rocker switch (Fig. 71,2) until there is a flame.
- 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.

Switching off:

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

10.5.2 Gas oven



- ▶ Keep the ventilation openings on the gas oven open at all times.
- ▶ There must be no flammable objects near the gas oven when it is being lit.
- ▶ The oven flap must remain open when it is being lit.
- ▶ If ignition has not taken place, repeat the entire procedure. If necessary, check if there is gas and/or current in the gas oven.
- ▶ If the gas oven still does not work, close the gas isolator tap and notify your service centre.
- ▶ If the burner flame is accidentally extinguished, turn the control knob to "O" and leave the burner off for at least 1 minute. Then ignite it again.
- ▶ When grilling, pull out the heat guard and leave the flap fully open.



- ▷ Before using the gas oven for the first time run it for 30 minutes at maximum temperature without any contents.
- ▷ When the flame goes out, the thermocouple automatically cuts the gas supply.
- ▷ Further information can be obtained from the separate instruction manual "Gas oven".



Fig. 72 Gas oven

- Switching on:*
- Open the regulator tap on the gas bottle and the gas isolator tap "Oven".
 - Fully open the oven flap (Fig. 72,3).
 - Lightly press control knob (Fig. 72,2) and set to "🔥" (oven) or "🔥 GRILL" (grill).
 - Press the control knob (Fig. 72,2) and hold it down for 5 to 10 seconds. Gas will stream into the burner.
 - Press the lighting switch (Fig. 72,1) repeatedly until there is a flame.
 - 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.

- Switching off:*
- Turn control knob (Fig. 72,2) to "O". The flame fades.
 - Close the gas isolator tap "Oven" and the regulator tap on the gas bottle.

10.5.3 Microwave oven



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



- ▷ Operate the microwave oven only with the rotary plate and the rotary cross in place.
- ▷ Use only crockery suitable for microwave use.



- ▷ The microwave oven only functions with correct 240 V power supply. In the case of fluctuations of the voltage or of voltage below 230 V, the microwave oven switches itself off completely. Therefore, do not switch on additional 240 V appliances when the microwave oven is in operation. Particularly in southern countries it happens that the line voltage is described as having 230 V but it really does not amount to this value. So it may happen that the microwave oven cannot be operated in these countries.
- ▷ Further information can be obtained from the separate instruction manual "Microwave oven".



Fig. 73 Operating controls for microwave oven

Switching on:

- Open the door and place foodstuffs into the cooking area.
- Close the door. A clicking noise can be heard when it engages.
- Select the output on the control knob (Fig. 73,1).
- Select the cooking time with the control knob (Fig. 73,2). Cooking begins.

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

Switching off:

- Open the door and remove foodstuffs.

10.5.4 Extractor hood

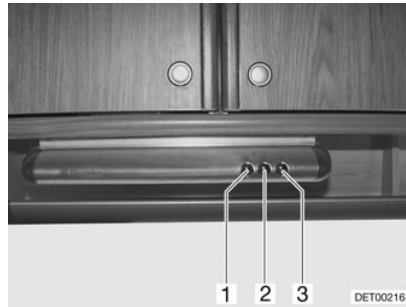


Fig. 74 Extractor hood

The cooking area is equipped with an extractor hood. The two-level fan blows the cooking steam directly outside.

- Press switch (Fig. 74,2) to switch the extractor hood on and off. The switch (Fig. 74,3) can be used to change the fan output.
- Use the switch (Fig. 74,1) to turn the cooker lamp on and off.

10.6 Refrigerator

During the journey, only operate the refrigerator via the 12 V power supply. At high ambient temperatures the refrigerator is unable to reach its full cooling power. 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.

10.6.1 Refrigerator ventilation grill



Fig. 75 Refrigerator ventilation grill (Dometic large)

- Removal:*
- Turn screw (Fig. 75,1) one quarter turn using a coin.
 - Remove refrigerator ventilation grill.

10.6.2 Operation (Dometic 7 series with automatic power selection and frame heater)

Operating modes

The refrigerator is equipped with an automatic system to select the type of power (AES). The AES automatically selects the optimal energy source and regulates the refrigerator operation. Manual intervention to select the type of power is possible but not required.

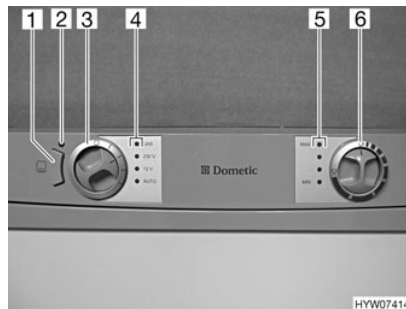
The AES selects from the following types of power:

- Solar installation 12 V
- 240 V AC
- 12 V DC
- Gas

Choosing the available energy source highest on the list.



- ▷ 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.



- 1 Frame heater (FH) button
- 2 Indicator lamp
- 3 Energy selector switch
- 4 Indicator lamps
- 5 Indicator lamps
- 6 Control knob for setting the temperature

Fig. 76 Operating controls for the refrigerator (Dometic 7 series with AES and FH)

240 V operation

If the 240 V power supply is connected, this energy source is selected as the first priority by the AES.

12 V operation

12 V operation is only selected by the AES if the vehicle's engine is running and the alternator supplies sufficient 12 V operating power.

Gas operation



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



- ▷ Open the regulator tap on the gas bottle and the gas isolator tap "Refrigerator".

If the 240 V power supply is **not** connected and the vehicle's engine is **not running** the AES selects the gas supply. When selecting gas operation the ignition fuse is opened automatically so gas can get into the burner. At the same time the electronic ignition is activated. If the gas flame is extinguished, e.g. by blast of wind, the ignition is activated immediately and re-ignites the gas. When the gas operation is faulty, the "GAS" indicator lamp (Fig. 76,4) flashes red.

Change-over between energy sources



- ▶ Open flames are prohibited at petrol stations. If the stop takes longer than 15 minutes, the refrigerator has to be turned off at the energy selector switch.

When changing over between the different power sources there are forced delays built in the AES. This means, that after a change-over to a new energy source the refrigerator can not be operated immediately. When changing over from 12 V operation to gas operation, a 15-minute delay is built in the AES. This prevents a change-over to gas operation when the vehicle is stopped briefly and the engine is switched off (e.g. stop to fill tank).

Refrigerating temperature control

When turned on the first time the refrigerator automatically selects the middle thermostat position. This position can be adjusted manually by using the control knob (Fig. 76,6). The indicator lamps (Fig. 76,5) show the selected thermostat position. The refrigerating temperature for the three types of energy is set with the control knob. It takes a few hours till the refrigerator reaches its normal operating temperature. When changing over the operating mode the thermostat setting will be maintained. The refrigerating temperature is retained regardless of the type of power being used.

Frame heater (FH)



- ▷ If the frame heater is switched on, it will always consume current. Therefore, switch off the frame heater if the vehicle engine is off and the vehicle is not connected to the 240 V power supply.

High external temperatures and high humidity can cause drops of water to form on the metal frame of the freezer compartment. This is why the refrigerator is equipped with a frame heater for the freezer compartment. If the temperature and humidity are high, switch on the frame heater by pressing the button (Fig. 76,1). This prevents corrosion. If the frame heater is switched on, the indicator lamp (Fig. 76,2) will be lit.

Manual operation

Switching on:

- Open the regulator tap on the gas bottle and the gas isolator tap "Refrigerator".
- Select the energy type with the energy selector switch (Fig. 76,3). The respective indicator lamp (Fig. 76,4) lights up green.
- Adjust refrigerating temperature with the control knob (Fig. 76,6). The indicator lamps (Fig. 76,5) show the selected thermostat position.

When the gas operation is faulty, the "GAS" indicator lamp (Fig. 76,4) flashes red.



- ▷ If the refrigerator is manually set to "12 V", it will constantly consume current. Therefore, switch over to gas operation when the vehicle engine is **not** running, and the vehicle is **not** connected to the 240 V power supply.

Switching off:

- Turn the energy selector switch (Fig. 76,3) to "O". No indicator lamp (Fig. 76,4) is lit.
- Close the gas isolator tap "Refrigerator" and the regulator tap on the gas bottle.



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

10.6.3 Refrigerator door locking mechanism

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



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



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

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

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

Dometic 7 series with separate freezer compartment

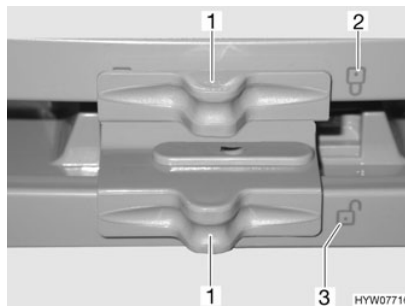


Fig. 77 Locking of the refrigerator door/freezer compartment door (Dometic 7 series with separate freezer compartment)

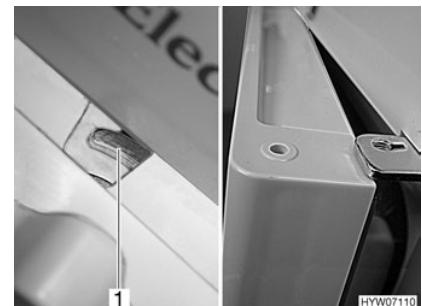


Fig. 78 Refrigerator door/freezer compartment door in ventilation position (Dometic 7 series with separate freezer compartment)

Opening:

- Push the lock (Fig. 77,1) to the side, so that the open lock "G" (Fig. 77,3) is completely visible.
- Use recessed grip to open refrigerator door/freezer compartment door.

Closing:

- Fully close the refrigerator door/freezer compartment door.
- Push the lock (Fig. 77,1) to the side, so that the closed lock "U" (Fig. 77,2) is completely visible.

Locking in the ventilation position:

- Slightly open refrigerator door/freezer compartment door.
- Push the lock completely to the right. The door latch (Fig. 78,1) keeps the refrigerator door/freezer compartment door in a fixed position. The refrigerator door/freezer compartment door will then stay slightly open (Fig. 78).

10.7 Air conditioning unit



- ▷ The air conditioning unit only runs if the vehicle is connected to a 240 V power supply.
- ▷ The external 240 V power supply must be protected by a fuse of at least 3 A. It is otherwise not possible to operate the air conditioning unit properly.

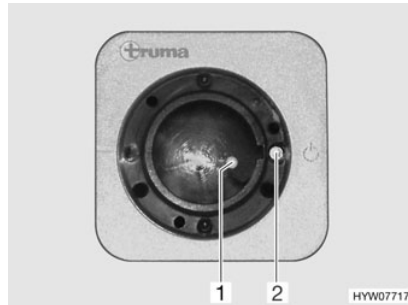


Fig. 79 Receiver

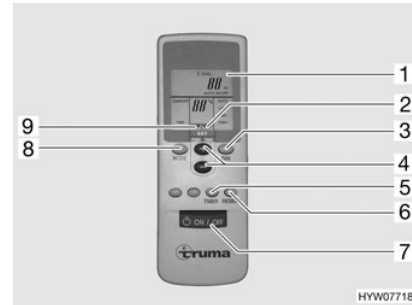


Fig. 80 Remote control

The air conditioning unit is installed in the rear garage on the right behind a flap. The remote control (Fig. 80) for the air conditioning unit and the receiver (Fig. 79) is in the kitchen area.

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

Switching on:

- Connect the vehicle to the 240 V power supply. The air conditioning unit is ready to operate.
- Switch on the remote control with the switch (Fig. 80,7). The green indicator lamp (Fig. 79,1) indicates cooling mode.
- Set the desired operating mode with the key (Fig. 80,8).
 - "FAN": Only ventilation without cooling.
 - "COMFORT": Cooling. The fan output and the room temperature can be set separately. The green indicator lamp in the receiver indicates the compressor is in operation and therefore cooling mode.
- Set the desired fan output and room temperature with the keys (Fig. 80,3 and 4) if necessary. The arrow (Fig. 80,9) indicates the selected setting mode.

If the temperature set on the remote control is reached, the green indicator lamp goes out, the compressor is switched off and the circulation fan continues to run.



- ▷ An additional key switch (Fig. 79,2) is on the receiver, which can be used to switch the air conditioning unit off or on without remote control. If the air conditioning unit is switched on by means of this key switch, the operating mode set last on the remote control is automatically selected.

Switching off:

- To switch off, press the key (Fig. 80,7) on the remote control again.



- ▷ Condensation accumulates on the vaporiser in cooling mode. To counteract any formation of germs, operate the air conditioning unit about 5 to 10 minutes in the "FAN" and "HIGH" positions to dry the vaporiser.

Timer

The air conditioning unit can be switched on or off automatically from the current time up to 15 hours in advance with the integrated timer. Pre-programming up to a certain time is not possible.

- To program, switch on the air conditioning unit with the key (Fig. 80,7) on the remote control.
- Set the desired operating mode and room temperature with the keys (Fig. 80,8, 3 and 4).
- Use the key (Fig. 80,5) to select the desired function (Fig. 80,1):
 - "ON": Switching on
 - "OFF": Switching off
- Use the keys (Fig. 80,4) to select the desired switching time (1 to 15 hours). The arrow (Fig. 80,2) flashes and indicates the setting mode.
- If "ON" (switch on) was selected, the air conditioning unit must be switched off again with the remote control after the setting process. The indicator lamp in the receiver flashes and confirms the programming.
- The indicator lamp in the receiver flashes and confirms the programming if "OFF" (switch off) was selected. Do **not switch off** the air conditioning unit with the remote control.



- ▷ To go easy on the batteries in the remote control, the infrared transmitter can be covered by hand and the remote control then switched off after the "OFF" programming. In this way no signal is transferred to the receiver and the programming is retained.
- ▷ The key (Fig. 80,6) is used to send the settings of the remote control repeatedly to the receiver.
- ▷ Further information can be obtained in the manufacturer's instruction manual.

Chapter overview

This chapter contains instructions regarding the sanitary fittings of the motorhome.

The instructions address the following topics:

- water tank
- waste water tank
- complete water system
- toilet compartment
- toilet

11.1 Water supply, general



- ▷ Fill the water tank with fresh water only.
- ▷ If the vehicle is not heated when there is risk of frost, empty the entire water system. Leave the water taps on in central position. Leave all drain cocks open. This will avoid frost damage to appliances and to the vehicle.
- ▷ The water pump will overheat without water and can get damaged. Never operate water pump when the water tank is empty.
- ▷ Clean the water tank thoroughly before use.

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

The waste water tank collects the waste water. The water level in the water and waste water tanks can be checked on the panel.



- ▷ Before using the water fittings, the 12 V power supply on the panel must be switched on. Otherwise the water pump will not work.
- ▷ Water left standing in the water tank or in the water pipes becomes undrinkable after a short period. For this reason, rinse the water pipes and the water tank thoroughly with several litres of fresh water before each use of the vehicle. To do this, open all water taps. After each use of the vehicle completely empty the water tank and the water pipes.

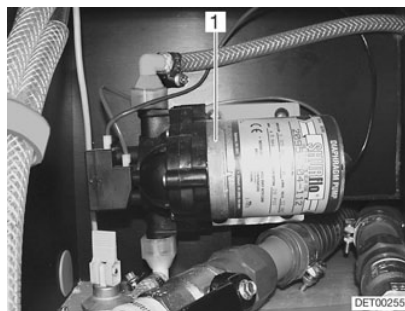


Fig. 81 Water pump

Position of the water pump

The water pump (Fig. 81) is mounted on the outside of the water tank.

11.2 Water tank

11.2.1 Fresh water filler neck with lid

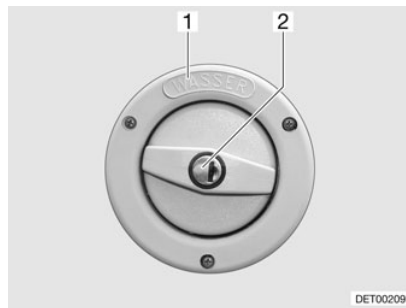


Fig. 82 Cap for the fresh water filler neck

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

The fresh water filler neck is labelled with the word "WASSER" (water) (Fig. 82,1). The cap is opened or closed using the key for the external flap locks.

- Opening:*
- Insert key into locking cylinder (Fig. 82,2) and turn a quarter turn in an anti-clockwise direction.
 - Remove cap.
 - Fill the water tank with fresh water.

- Closing:*
- Place the cap on the fresh water filler neck.
 - Turn key one quarter turn in a clockwise direction.
 - Remove the key.
 - Check that the cap sits firmly on the fresh water filler neck.

11.2.2 Water drainage

A hose line can be connected to the water drain neck (Fig. 84,1).

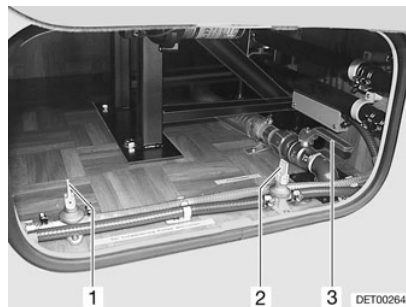


Fig. 83 Drain cocks

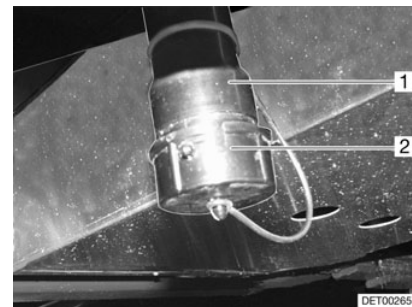


Fig. 84 Water drain neck

The drain cock (Fig. 83,3) is fixed in the double floor, on the left side of the vehicle. The drain cock is labelled by the word "Wasser" (water).

11.2.3 Filling with water

To fill the water tank with fresh water, proceed as follows:

- Open the fresh water filler neck (Fig. 82).
- Fill the water tank with fresh water. Use a water hose, a water canister with a funnel or similar for filling.
- Close the fresh water filler neck.

11.2.4 Draining water

- Unlock and remove the cap (Fig. 84,2) from the water drain neck (Fig. 84,1) by turning it a quarter turn in a clockwise direction.
- Open the external flap (see section 7.2).
- Mount suitable hose to the water drain neck (Fig. 84,1) or place appropriate container under the water drain neck.
- Open drain cock. The water will drain.
- Close drain cock.
- Close the external flap.
- Replace the cap and lock it by turning it a quarter turn in an anticlockwise direction.

11.3 Waste water tank



- ▷ In case of frost add so much anti-freeze (such as kitchen salt) to the waste water tank so that the waste water cannot freeze.
- ▷ If the living area heater is out of order, the waste water tank no longer is sufficiently protected against frost.
- ▷ 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.

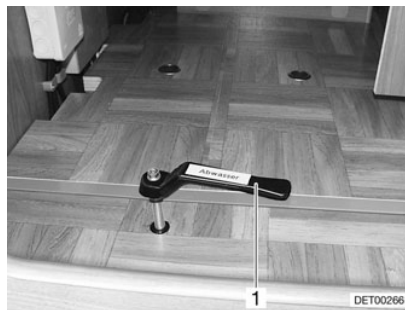


Fig. 85 Waste water tap

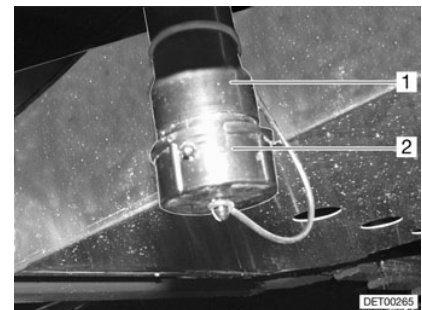


Fig. 86 Waste water drain neck

The waste water tap (Fig. 85,1) is fitted in the double floor, on the left side of the vehicle. The waste water tap can be accessed via the rear garage. The waste water tap is labelled with the word "Abwasser" (waste water). A hose line can be connected to the drain neck (Fig. 86,1).

- Emptying:*
- Unlock and remove the cap (Fig. 86,2) from the waste water drain neck (Fig. 86,1) by turning it a quarter turn in a clockwise direction.
 - Open the external flap (see section 7.2).
 - Mount suitable hose to the waste water drain neck or place appropriate container under the waste water drain neck.
 - Open the waste water tap (Fig. 85,1). The waste water will run out.
 - Close the waste water tap.
 - Close the external flap.
 - Replace the cap and lock it by turning it a quarter turn in an anticlockwise direction.

11.3.1 Odour seal

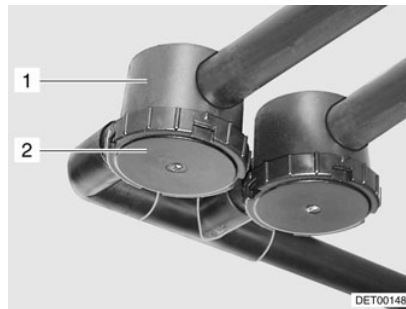


Fig. 87 Odour seal

In order to prevent odours occurring in the waste water system, the vehicle - depending on the model - has been equipped with odour seals (Fig. 87,1). The odour seals are installed in the waste water pipes.

Clean the odour seals every two years at the latest. To do so, unscrew and remove the bottom cover (Fig. 87,2).

11.4 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 tank is empty.



- ▷ The water quantity can be monitored on the panel while the water tank is filled.

- Position the vehicle horizontally.
- Switch on 12 V power supply on the panel.
- Switch on water pump on panel.
- Close all drain cocks.
- Close all water taps.

- Fill the water tank with fresh 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.

11.5 Emptying the water system



- ▷ If the vehicle is not heated when there is risk of frost, empty the entire water system. Leave the water taps on in central position. Leave all drain cocks open. This will avoid frost damage to appliances and to the vehicle.
- ▷ Always switch off the water pump on the panel when emptying the water system. Otherwise the water pump runs until it overheats or the battery is empty.

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

- Position the vehicle horizontally.
- Switch off water pump on panel.
- Switch off the 12 V power supply on the panel.
- Shut off the boiler (see section 10.4).
- Open all drain cocks.
- Unscrew the cap of the water tank.
- Remove the cap from the waste water drain neck and open the drain cock.
- Open all water taps and set to the central position.
- Hang the shower handset up in the shower position.
- Check whether the water tank is completely empty.
- Empty the waste water tank. Take note of the environmental tips in this chapter.
- Empty Thetford cassette. 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.

11.6 Toilet compartment



- ▷ Do not transport any loads in the shower tray. The shower tray or other items of equipment in the toilet compartment can be damaged.



- ▷ For ventilation purposes during or after a shower, and for drying wet clothing, close the washroom door and open the washroom skylight. This improves the air circulation.
- ▷ Close the shower curtain completely when showering, so that no water is able to enter the area between the wash room wall and the shower tray.
- ▷ After taking a shower, rinse soap residue from the shower tray, otherwise cracks can appear in the shower tray over time.
- ▷ After using the shower, wipe it dry to prevent moisture from collecting.

11.7 Toilet



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



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



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

11.7.1 Swivel toilet

The flushing of the Thetford toilet is fed directly from the water system of the vehicle. The toilet bowl can be moved into the optimal position.



Fig. 88 Thetford toilet bowl, swivelling

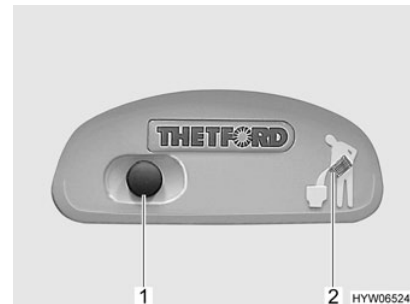


Fig. 89 Flush button/indicator lamp Thetford toilet

Flushing:

- Before flushing open the sliding trap of the Thetford toilet. To do this, push the slide lever (Fig. 88,1) in an anticlockwise direction.
- For flushing, press the blue flush button (Fig. 89,1).
- After flushing close the sliding trap. To do this push the slide lever in a clockwise direction.

The indicator lamp (Fig. 89,2) goes on whenever the Thetford cassette has to be emptied.

- Emptying:*
- Turn the slide lever (Fig. 88,1) in a clockwise direction. The sliding trap is closed. To empty, the sliding trap in the Thetford toilet **must** be closed.
 - Remove the Thetford cassette and empty it as described in sections 11.7.2 and 11.7.3.

11.7.2 Removing the Thetford cassette



- ▷ The Thetford cassette can only be taken out if the sliding trap is closed.



Fig. 90 Thetford cassette

- Open the flap for the Thetford cassette on the outside of the vehicle.
- Pull the retaining clip (Fig. 90,1) upwards and pull out the Thetford cassette (Fig. 90,2).

11.7.3 Emptying the Thetford cassette

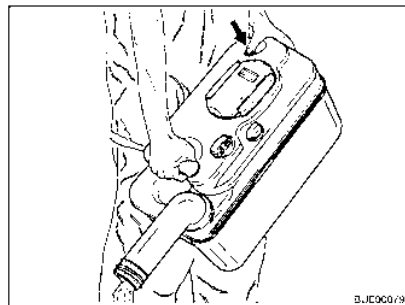


Fig. 91 Emptying the Thetford cassette

- Take the Thetford cassette to a disposal point especially provided for this purpose. As you do this, point the drainage neck upwards.
- Turn the drainage neck upwards.
- Remove the cap of the drainage neck.
- Point the Thetford cassette with the drainage neck downwards.
- Activate the aeration knob with your thumb. The Thetford cassette empties.
- Close the drainage neck with the cap.
- Return the drainage neck to its original position.
- Push the Thetford cassette back to its original position.
- Ensure that the Thetford cassette is secured by the retaining clip.
- Lock the flap for the Thetford cassette.



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

Chapter overview

This chapter contains instructions regarding the care of the vehicle.

The instructions address the following topics:

- exterior of the vehicle
- interior
- extractor hood
- 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

12.1 External care

12.1.1 Washing with a high-pressure cleaner



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

Before cleaning the vehicle with a high-pressure cleaner, observe the operating 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 refrigerator ventilation grill or the skylights. The vehicle may be damaged or water may enter the interior.

12.1.2 Washing the motorhome



- ▷ 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 motorhome only on a washing site intended for this purpose. Avoid full sunshine. Observe environmental measures.
- Only clean external applications and synthetic parts with plenty of warm water, dish washing liquid and soft cloth.
- Wash down the vehicle with plenty of water, a clean sponge or a soft brush. In the case of stubborn dirt add dish washing liquid to the water.
- Painted exterior walls may also be cleaned with a caravan cleaner.
- Add-on parts made of glass-fibre reinforced plastic (GRP) require a regular follow-up treatment with a polisher. This way these parts will not turn yellow and the sealing of the surface remains intact.

- Treat rubber seals of doors and storage flaps with talc.
- Treat locking cylinder of doors and storage flaps with graphite dust.

12.1.3 Windows of acrylic glass

Acrylic glass windows are delicate and require very careful handling.



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



- ▷ 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 cleaning agents are available at the Dethleffs accessories shop.

12.1.4 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 Dethleffs. Your Dethleffs dealer will be pleased to advise you.

12.1.5 Waste water tank

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

Cleaning:

- Empty the waste water tank.
- Thoroughly rinse out the waste water tank with fresh water.
- If possible, clean waste water sensors through the cleaning opening by hand.

12.1.6 Entrance step

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

12.2 Interior care



- ▷ If possible, treat stains immediately.
- ▷ Acrylic glass windows are delicate and require very careful handling (see section 12.1.3).
- ▷ 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 containing sand. This procedure will help you to avoid brittleness and formation of cracks.
- ▷ 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 for cleaning the Thetford toilet and the water system and for decalcifying 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.
- ▷ Vacuum off carpets and cushions with a suitable brush attachment.



- ▷ For information about the use of maintenance products, our representatives and service centres will be glad to advise.
- Surface and knobs of furniture, lamps and synthetic parts in the toilet and living area should be cleaned with water and a wool cloth. A mild cleanser may be added to the water. If required, use furniture polish for the painted surfaces.
 - Clean upholstery with dry foam specially manufactured for the use on upholstery or with the foam of a mild detergent. Do not wash upholstery. Protect upholstery from direct sunlight so that it does not lose its colour.
 - Clean the imitation leather coverings by wiping them off in circular motion with a soft cloth or sponge and a mixture of lukewarm water and mild lather. Treat stubborn stains with a soft brush. For very hard-to-remove stains, use a mixture of alcohol and water mixed in a 1:1 ratio. Afterwards, wipe it off with soap water. Do not use any products that contain solvents or abrasives.
 - Wipe off Teflon coverings with an absorbent cloth or sponge and use a mild household detergent.
Never rub wet or oily stains. Instead, dab them with an absorbent cloth. Work from the outside to the inside to prevent spreading the stain. When treating solid or dried stains, always try to scrape them off with a dull knife or scraper or remove them off with a soft brush. Afterwards, dab off any residue with a moist cloth.
 - Curtains and net curtains should be dry cleaned.
 - Vacuum clean the carpet, if necessary clean with carpet shampoo.
 - Clean PVC-floor covering with special cleansing agents. 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 gas cooker only with a moist cloth. Prevent any water from penetrating the gas cooker. Water may damage the gas cooker.

- Brush insect screens with a soft brush or vacuum with the brush attachment of the vacuum cleaner.
- Brush Roman shades with a soft brush or vacuum with the brush attachment of the vacuum cleaner. Grease or stubborn dirt may be removed with a mild soap at 30 °C (curd soap).
- Unrolled seat belts can be cleaned with warm soapsuds. The seat belt must be completely dry before being rolled up.
- Clean water tank with water and dish washing liquid and rinse subsequently with plenty of fresh water.

12.3 Extractor hood

Clean the extractor hood filter occasionally. How often cleaning is necessary depends on how often the extractor hood is used. Do not wait to clean the filter until the performance of the extractor hood has noticeably decreased.

Cleaning the filter:

- Wash the filter with warm water and some washing-up liquid.

12.4 Winter care

De-icing salt damages the underbody and the parts open to water spray. Dethleffs recommends to 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. 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 windscreen with winter insulation mats.

12.4.1 Preparations

- Check the motorhome for paint and rust damage. Repair damage as necessary.
- Make certain that water cannot penetrate the automatic floor ventilation system and the heater.
- Use a wax-based rust inhibitor to protect the metal parts of the underbody.
- Use appropriate protection for external painted surfaces.

12.4.2 Winter operation

During winter operation, condensation develops when the motorhome is occupied under low-temperature conditions. To ensure good interior air quality and avoid vehicle damage from condensation, sufficient ventilation is essential.

- When heating the vehicle, the heater should be at the highest setting and roof storage cabinets, curtains and blinds should be opened. This ensures optimal ventilation.
- In the morning, lift up all cushions, air out storage boxes and dry any damp areas.



▷ If condensation has still developed, just wipe it off.

12.4.3 At the end of the winter season

- Thoroughly clean the underbody of the vehicle and the engine. When this is done, corrosion-inducing anti-freeze agents (salts, alkaline residues) are removed.
- Clean the exterior and use regular car wax to protect metal surfaces.

12.5 Lay-up

12.5.1 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 a Dethleffs dealer. 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:

Base vehicle

Activities	Done
Completely fill fuel tank. This prevents corrosion damage within the fuel tank system	
Jack up vehicle so that the wheels do not bear any load, or move vehicle every 4 weeks. This prevents any pressure points from occurring on tyres and wheel bearings	
Protect the tyres from direct exposure to the sun. Danger of formation of cracks!	
Inflate tyres up to the recommended maximum pressure	
Always provide for sufficient ventilation in the underbody area	
▷ Humidity or lack of oxygen e.g. by covering with plastic film may cause optical irregularities to the underbody.	

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	
--	--

	Activities	Done
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	
Gas system	Close regulator tap on the gas bottle	
	Close all gas isolator taps	
	Always remove gas bottles from the gas bottle compartment, even if they are empty	
Electrical system	Fully charge living area and starter battery  ▷ Charge the battery for at least 20 hours before laying up.	
Water system	Empty the entire water system. Blow out the residual water from the water pipes (0.5 bar max.). Leave the water taps on in central position. Leave all drain cocks open. Observe notes in chapter 11	
	Switch off battery cut-off switch on the transformer/rectifier. Otherwise the battery will become discharged too quickly	

12.5.2 Winter lay-up


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

	Activities	Done
Base vehicle	Clean body and underbody thoroughly and spray with hot wax or protect with varnish	
	Fill fuel tank with winter diesel	
	Check antifreeze in the cooling water	
	Rectify damage to the paintwork	
Body	Keep the forced ventilation open	
	Clean and lubricate the mounted steady legs	
	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	

	Activities	Done
Electrical system	Remove starter and living area batteries and store in a place protected from frost (see chapter 9)	
Water system	Clean the water system using a cleaning agent from a specialised store	
Complete vehicle	Arrange the tarpaulins in such a way that the ventilation openings are not covered, or use porous tarpaulins	

12.5.3 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
Base vehicle	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 steady legs Check that the windows and skylights are working properly Check that all the external locks are working, such as the external 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 living area and starter battery  ▷ Charge the batteries for at least 20 hours after lay-up. Switch on the battery cut-off switch on the transformer/rectifier (see chapter 9) Check that the electrical system are working, e.g. interior light, socket and all installed electrical appliances	
Water system	Use several litres of fresh water to rinse out water pipes and water tank. To this end, open all water taps 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

Activities	Done
Check the function of the refrigerator	
Check the function of the heater/boiler	
Check the function of the gas cooker	
Check the function of the air conditioning unit	

Chapter overview

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

The maintenance instructions address the following topics:

- heater
- independent vehicle heater
- air conditioning unit
- replacing bulbs and fluorescent tubes
- spare parts

At the end of the chapter you will find important instructions on how to obtain spare parts.

13.1 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 possessing this technical knowledge are available for assistance at all Dethleffs 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.

In the inspection record of this instruction manual, the Dethleffs service centre will confirm any work carried out.

Have chassis inspections confirmed in the chassis manufacturer's customer service booklet.



- ▷ Note the inspections listed in the inspection record and have them carried out at the specified intervals. The value of the vehicle is thus preserved.
- ▷ The inspection record also serves as valid proof in the case of damage and claims under the guarantee.

13.2 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 base vehicle and the appliances serviced at the intervals specified in the corresponding instruction manuals.

13.3 Alde hot-water heater



- ▷ Check the level of the heating fluid regularly on the compensator reservoir. The compensator reservoir can be found in the wardrobe.
- ▷ During or after the first operating hours of the hot-water heater, the filling level may fall below the minimum mark. If this is the case, top up the heating fluid.
- ▷ Dethleffs recommends to bleed the heating system after the initial heater operation and to check the glycol content.



- ▷ Have heating fluid changed by Dethleffs dealer at intervals of approximately two years as corrosion-protection wears off after some time.
- ▷ Top up heating system with a water frost protection mixture (60 : 40) only. This mixture offers frost protection up to approx. -25 °C. When topping up hot-water heaters that are connected to the engine's cooling circuit, please observe the instructions in the instruction manuals of the manufacturers.



- ▷ Further information can be obtained from the separate instruction manual "Alde Compact" heater.

13.3.1 Checking the fluid level



Fig. 92 Compensator reservoir hot-water heater

- Switch off the hot-water heater and allow it to cool down.
- Check if the fluid level is between the marks "MIN" (Fig. 92,3) and "MAX" (Fig. 92,2) on the compensator reservoir (Fig. 92).

13.3.2 Topping up heating fluid

- Position the vehicle horizontally. This prevents the formation of bubbles.
- Switch off the hot-water heater and allow it to cool down.
- Remove panel.
- Open the rotary lid (Fig. 92,1) on the compensator reservoir.
- Slowly remove cover with circulating pump upwards.
- Check anti-freeze with an anti-freeze hydrometer. The frost protection content must be 40 % or correspond to a frost protection of -25 °C.
- Fill water frost protection mixture slowly into the compensator reservoir.



- ▷ The optimum fluid level is reached when the fluid in the compensator reservoir is 1 cm above the "MIN" mark (Fig. 92,3).

13.3.3 Bleeding the heating system

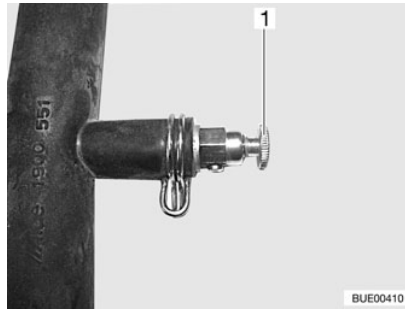


Fig. 93 Bleeding valve of hot-water heater

The bleeding valves are built in nearby the radiators.

- Switch off the hot-water heater and allow it to cool down.
- Open bleeding valve (Fig. 93,1) and leave open until no more air escapes.
- Close bleeding valve.
- Repeat this procedure at all bleeding valves.
- Check to see if the hot-water heater warms up.

13.4 Independent vehicle heater

Use the independent vehicle heater for 10 minutes at least once a month with a cold engine and smallest fan settings.

Before the heating season starts, have the independent vehicle heater checked by an authorised specialist workshop.

13.5 Air conditioning unit (Truma)



- ▷ Never operate the air conditioning unit without a lint filter. Without a lint filter, the vaporiser becomes dirty and the capacity of the air conditioning unit is consequently impaired.
- ▷ Condensation can enter the vehicle if the condensation drain is clogged up. Keep the condensation drain free from dirt, leaves and similar.

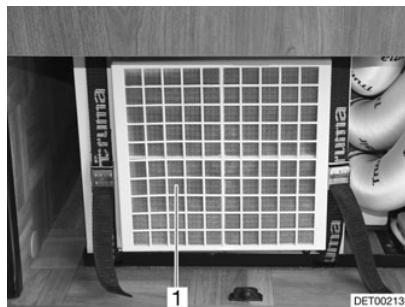


Fig. 94 Air conditioning unit (Truma)

The air conditioning unit is installed in the double floor on the right side of the vehicle. The lint filter can be accessed via a flap in the rear garage.

A lint filter (Fig. 94,1) for the air circulation suction system is at the front of the air conditioning unit. The lint filter must be cleaned at regular intervals, at least twice a year however, and replaced if necessary.

The condensation drain is under the floor of the vehicle. Keep the drain hose free from dirt, leaves or similar to allow the condensation to be drained.

13.6 Replacing bulbs and fluorescent tubes



- ▶ 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.
- ▶ 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!



- ▷ 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.

13.6.1 Halogen spotlight (movable)

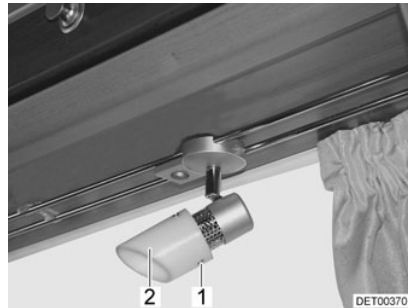


Fig. 95 Halogen spotlight (movable)

Changing bulbs:

- Loosen the fixing screws (Fig. 95,1).
- Carefully remove the lamp chalice (Fig. 95,2) from the holder.
- Remove halogen bulb.
- Put in a new halogen bulb.
- Reassemble the lamp in the reverse order.

13.6.2 Room lamp

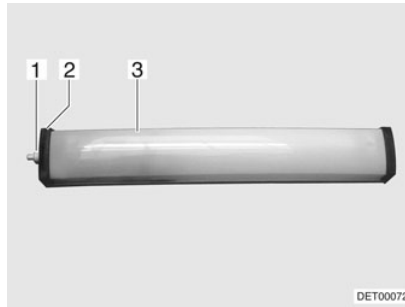


Fig. 96 Room lamp

Changing bulbs:

- Unscrew the cap (Fig. 96,1).
- Remove cover (Fig. 96,2).
- Press the light covering (Fig. 96,3) lightly together and remove it.
- Remove the fluorescent tube.
- Insert a new fluorescent tube.
- Reassemble the lamp in the reverse order.

13.6.3 Recessed halogen light (swivelling)

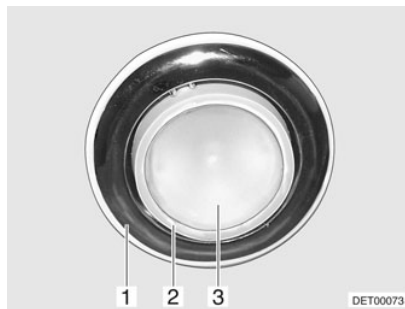


Fig. 97 Recessed halogen light (swivelling)

Changing bulbs:

- Use a suitable tool (e.g. a screwdriver) to lever out and remove the lamp (Fig. 97,1).
- Take the spotlight (Fig. 97,2) out of the lamp.
- Remove cover (Fig. 97,3).
- Remove halogen bulb.
- Put in a new halogen bulb.
- Reassemble the lamp in the reverse order.

13.6.4 Recessed halogen light (flat)



Fig. 98 Recessed halogen light (flat)

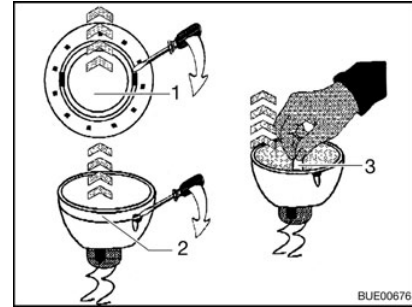


Fig. 99 Changing the halogen bulb

The recessed halogen light (Fig. 98,1) is installed flush with the panel.

Changing bulbs:

- Use a screwdriver to remove the inner cover ring (Fig. 99,1) from the housing.
- Use a screwdriver to remove the cover ring with the glass (Fig. 99,2) from the lower section of the recessed halogen light.
- Remove halogen bulb (Fig. 99,3).
- Put in a new halogen bulb.
- Reassemble the lamp in the reverse order.

13.6.5 Wardrobe light

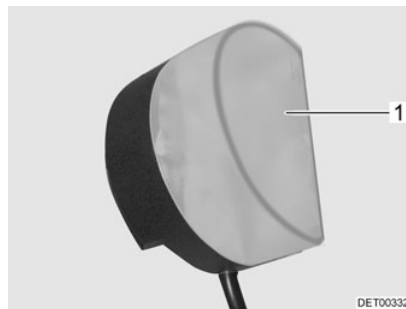


Fig. 100 Wardrobe light

Changing bulbs:

- Press the light covering (Fig. 100,1) lightly together and remove it.
- Remove halogen bulb.
- Put in a new halogen bulb.
- Reassemble the lamp in the reverse order.

13.7 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 Dethleffs have been specially developed and supplied for your vehicle. These products are available at your Dethleffs dealer. The Dethleffs dealer is informed about admissible technical details and carries out the required work correctly.



- ▶ The use of accessories, parts and fittings not supplied by Dethleffs 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 Dethleffs. 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. Our Dethleffs dealers and service centres are available for any spare parts requirement.

Here are some suggestions of important spare parts:

- Fuses
- V-belt
- Windscreen blades
- Bulbs

When ordering spare parts please indicate the serial number and the vehicle type to the Dethleffs dealer.

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

13.8 Vehicle identification plate

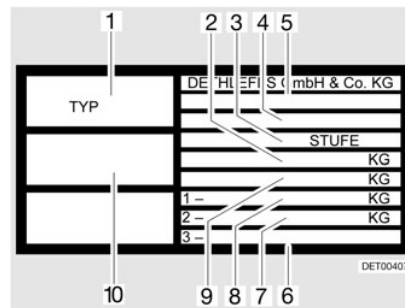


Fig. 101 Vehicle identification plate

- 1 Type
- 2 Maximum permissible gross weight of the vehicle with trailer
- 3 Manufacturer of the unit (add-on unit)
- 4 Manufacturer's code and chassis number
- 5 EG type approval number
- 6 Permissible rear axle load (for tandem axle)
- 7 Permissible axle load rear
- 8 Permissible axle load front
- 9 Maximum permissible gross weight of the vehicle
- 10 Serial number

The vehicle identification plate (Fig. 101) with the serial number is mounted in the entrance area.

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

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



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

13.9 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 a Dethleffs dealer.

Chapter overview

This chapter contains instructions about the tyres of the motorhome.

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.

14.1 General



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



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



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

Example: **1506** Week 15, year of manufacture 2006.

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 approved wheel rim and tyre sizes are listed in the vehicle documents; your Dethleffs dealer or the dealer for the base vehicle will be pleased to advise you.
- Run-in new tyres for approx. 100 km (60 miles) at low speed since only then do they reach full strength.

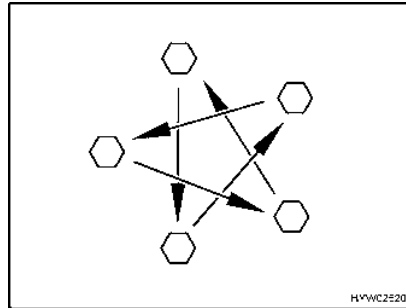


Fig. 102 Tighten the wheel nuts or wheel bolts cross-wise

- Check regularly that the wheel nuts or wheel bolts are firmly seated. Re-tighten the wheel nuts or wheel bolts of a changed wheel cross-wise (Fig. 102) after 50 km (30 miles).
- 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.

14.2 Tyre selection



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



- ▷ If tyres that are not approved for the vehicle are used, then the type approval for the vehicle and subsequently the insurance coverage can lapse. Your Dethleffs dealer will be pleased to advise you.

The tyre sizes approved for the vehicle are given in the vehicle documents or can be got from the Dethleffs dealers. 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 axle geometry of a vehicle, such as wheel camber and track, is also important for tyre selection. The maximum permissible speed for a tyre (with full load-carrying capacity) is indicated by the speed index (= SI). Together, load index and speed index form the operating code of a tyre. This is an official component of the complete, standardised dimensions description which appears on every tyre. The information on the tyres must correspond to the specifications which appear in the vehicle papers.

14.3 Tyre specifications

215/70 R 15C 109/107 Q

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

14.4 Handling of tyres

- Drive over kerbs at an obtuse angle. Otherwise the flanks of the tyres may get pinched. Driving over a kerb at a sharp angle can damage the tyre and result in it getting ruptured.
- Drive over high manhole covers at a slow speed. Otherwise the tyres may get pinched. Driving over a high manhole cover at high speed can damage the tyre and result in it getting ruptured.
- Check the shock absorbers regularly. Driving with poor shock absorbers significantly increases wear.
- If the tread wear is uneven, have the toe-in and the wheel camber checked. Driving with an incorrectly set toe-in or a one-sided wheel camber leads to a significant increase in 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.

14.5 Changing wheels



- ▶ The vehicle must be on level, firm ground, secure from slipping.
- ▶ Go into first gear. In the case of automatic transmission, change gear to "P" position.
- ▶ Before jacking up the vehicle, firmly apply the handbrake (only when changing wheels at the front axle).
- ▶ Prevent the vehicle from rolling away with the wheel chocks.
- ▶ Under no circumstances jack the vehicle with the fitted supports.
- ▶ If a trailer is connected: Detach the trailer before lifting the vehicle.
- ▶ Under no circumstances position the vehicle jack 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.



- ▶ Do not start the motor while the vehicle is jacked up.
- ▶ Whilst the vehicle is in a jacked up position, persons should not lie down under it.



- ▷ Do not damage the thread of the thread bolts when changing the wheel.
- ▷ Tighten the wheel nuts or wheel bolts cross-wise (Fig. 102).
- ▷ When changing wheels (e.g. alloy wheel rims or wheels with winter tyres), use the correct wheel bolts of the correct length and shape. The firm seating of the wheels and the function of the braking system depend on this.
- ▷ Wheel rims and tyres not permitted for use with the vehicle by Dethleffs can jeopardize road safety.
- ▷ Do not replace wheels cross-wise.



- ▷ Protect the vehicle according to the national regulations, e.g. with a hazard warning triangle.
- ▷ Before changing the wheel, check the wheel rim and tyre size, the max. tyre load and the speed index on the tyres. Only use the wheel rim and tyre sizes stated in the vehicle documents.
- ▷ Further information can be found in the instruction manual of the base vehicle.

14.6 Spare wheel support



- ▶ Due to its weight and fitted position, the spare wheel can be raised or lowered by a very strong person only. Always get a second person to assist.

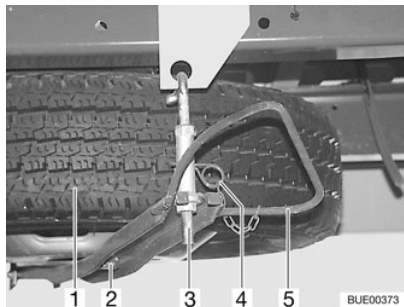


Fig. 103 Spare wheel support (Iveco)

Removing the spare wheel:

- Pull out splint (Fig. 103,4).
- Press the clip (Fig. 103,5) against the spare wheel and unhook the holder (Fig. 103,3).
- Move the clip down.
- Undo nut (Fig. 103,2) and remove the spare wheel (Fig. 103,1).

14.7 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.
- ▷ The kg values refer to the actual axle load.
- ▷ Tyre pressures in bar.
- ▷ Over 4.75 bar requires a metal valve.
- ▷ The tyre pressure tolerance is +/- 0.05 bar.

Tyre pressure	225/75 R 16 C 118/116 Q		225/75 R 16 C 121/120 Q	
	Front (kg)	Rear (kg)	Front (kg)	Rear (kg)
3.0	1680	3190	–	–
3.25	1790	3400	–	–
3.5	1900	3610	–	–
3.75	2010	3820	2060	3970
4.0	2120	4020	2160	4180
4.25	2220	4220	2270	4390
4.5	2330	4410	2380	4600
4.75	2430	4610	2480	4800
5.0	2530	4800	2590	5000
5.25	2640	5000	2690	5200
5.5	–	–	2790	5400
5.75	–	–	2900	5600

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, the Dethleffs dealer 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:

- braking system
- electrical system
- gas system
- gas cooker
- gas oven
- heater
- boiler
- 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.

15.1 Braking system



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

15.2 Electrical system




- ▶ When the living area battery is changed, only use batteries of the same type. A dryfill battery may only be replaced by a dryfill battery.



- ▶ See chapter 9 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
	Fuse on the transformer/rectifier is defective	Replace fuse on the transformer/rectifier
The electrically operated entrance step cannot be moved in or out	Fuse on the transformer/rectifier is defective	Replace fuse on the transformer/rectifier
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
Starter or living area battery is not charged when operated in 240 V mode	Jumbo flat fuse (50 A) in the starter or living area battery is defective	Replace jumbo flat fuse (50 A) in the starter or living area battery
	Charger module in the transformer/rectifier is defective	Contact customer service
Living area battery is not charged during vehicle operation	Fuse on terminal D+ of the alternator is defective	Replace fuse
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
12 V indicator lamp does not light up	12 V power supply switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
	Starter or living area battery is not charged	Charge the starter or living area battery
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
	Flat fuse (2 A) in the living area battery is defective	Replace flat fuse (2 A) in the living area battery
12 V power supply does not work	12 V power supply switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
	The living area battery is discharged	Charge the living area battery
	Jumbo flat fuse (40 A) in the living area battery is defective	Replace jumbo flat fuse (40 A) in the living area battery
	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
12 V power supply does not work in 240 V operation	12 V power supply switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
	Charger module in the transformer/rectifier is defective	Contact customer service
	240 V automatic circuit breaker has triggered	Contact customer service
	Jumbo flat fuse (40 A) in the living area battery is defective	Replace jumbo flat fuse (40 A) in the living area battery

Fault	Cause	Remedy
Starter battery is discharged in 12 V operation	Disconnecter relay in the transformer/rectifier is defective	Contact customer service
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
No voltage is supplied by the living area battery	The living area battery is discharged	Charge living area battery immediately  ▷ Total discharge damages the battery. If the vehicle is to be laid up for a long period, fully charge the living area battery beforehand Discharging is caused by inactive appliances (see chapter 9)
	Air conditioning unit cannot be switched on or off	240 V automatic circuit breaker has triggered
	Remote control battery is empty	Change remote control battery

15.3 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

15.4 Cooker

15.4.1 Gas cooker/gas oven

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

15.4.2 Microwave oven



- ▶ Only qualified personnel may repair the microwave oven. Improper repairs can cause major risks to the user.

Fault	Cause	Remedy
Microwave oven does not cut in	Fuse is defective	Replace fuse
	Door of the microwave oven is not properly closed	Remove foreign bodies stuck in the door of the microwave oven and close door properly

15.5 Heater/boiler

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

Fault	Cause	Remedy
Red indicator lamp "Fault" illuminates	Air in the gas pipe system	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
Red "Fault" indicator lamp is not on	Fuse is defective	Replace fuse on the transformer/rectifier

15.6 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
Indicator lamps "230 V", "12 V" or "AUTO" are not lit green	Refrigerator is turned off	Switch on the refrigerator with energy selector switch
	No electrical operating voltage	Connect 240 V power supply
		Let the vehicle engine run
		Switch on or replace the fuse
Refrigerator does not switch to 12 V mode during the journey	Operating voltage of alternator is not present/ too low	Contact a specialist workshop
Refrigerator does not switch on in gas operation, "GAS" indicator lamp is not lit yellow	Lack of gas	Open regulator tap and gas isolator tap
		Connect a full gas bottle
	Cobwebs or burnt residue in the burning chamber	Remove the ventilation grill on the outside of the vehicle and clean the burning chamber
"GAS" indicator lamp flashes yellow, no gas	Air in the gas pipe	Switch off the refrigerator with energy selector switch
		Open regulator tap on the gas bottle and the gas isolator tap of the refrigerator
		Switch on the refrigerator with energy selector switch. After 10 seconds, the AES will attempt another ignition
		If the "GAS" indicator lamp flashes yellow again after approx. 30 seconds, the failure has not been remedied yet
		Repeat this process two to three times for ventilation. If the refrigerator cannot be operated, contact customer services

15.7 Water supply

Fault	Cause	Remedy
Leakage water inside the vehicle	A leak has occurred	Identify leak, re-connect water pipes
No water	Water tank is empty	Top up with fresh water
	Drain cock not closed	Close drain cock
	12 V power supply switched off	Switch 12 V power supply on
	Fuse of the pressurised water pump is defective	Replace fuse on the transformer/rectifier
	Pressurised water pump defective	Replace the pressurised water pump (or have it replaced)
	Water pipe snapped off	Straighten water pipe or replace
	Transformer/rectifier defective	Contact customer service
	Pressurised water pump switched off on control panel	Switch on pressurised water pump
Toilet has no flush water	Water tank is empty	Top up with fresh water
	Fuse for Thetford cassette is defective	Replace fuse
Display for water and waste water indicates a wrong value	Measuring probe in the waste water or water tank is soiled	Clean water/waste water tank
	Measuring probe is defective	Replace measuring probe
Waste water tank cannot be emptied	Drain cock is clogged	Open the cleaning cap on the waste water tank and drain the waste water. Rinse the waste water tank well
Drain on the one-hand lever mixer is clogged	Perlator calcified	Unclip the perlator, de-calcify in vinegar water (only for products made from metal)
Water jets on the shower nozzle clogged	Water jets calcified	De-calcify shower nozzle in vinegar water (only for products made from metal) or rub off soft nozzle burling
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

15.8 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
Heki skylight difficult to operate	Threaded spindle not lubricated	Lubricate threaded spindle
	Threaded spindle defective	Have threaded spindle replaced



- ▷ Our Dethleffs dealers and service centres are available for any spare parts requirement.

16.1 Weight details for special equipment



- ▶ The use of accessories, parts and fittings not supplied by Dethleffs may cause damage to the vehicle and jeopardize road safety. Even if an expert's report, a general type approval or a design certification exists, there is no guarantee for the proper quality of the product.
- ▶ Every alteration of the original condition of the vehicle can alter road behaviour and jeopardize road safety.
- ▶ No liability can be assumed for damage caused by products which have not been released by Dethleffs. This also applies to impermissible alterations to the vehicle.

Weight details for Dethleffs 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)
Caravan coupling	26
External shower	1
Car radio and CD	2
Oven	14
Battery 220 Ah "Gel" battery	25
Roof rack with aluminium ladder	17
"Pillow fight" decoration package	1
Duomatic switching facility	1
Bike rack for 3 bicycles	9
Bike rack for 4 bicycles	10
Flat screen	5
External gas socket	1
Heki 3 in the rear	22
Insulation mat for driver's cabin window	1
Pneumatic spring	30
Awning	75
Microwave oven	15
Navigation system	2
Reversing camera	3
Satellite unit	19-24
Safety kit	15
Solar installation	15
Rear supports (2 pcs.)	6

Item designation	Surplus weight (kg)
Hazard warning triangle and first-aid kit	2
Winter covering for the refrigerator grating	1
Additional heater, driver's cabin (independent vehicle heater)	25

Chapter overview

This chapter contains helpful tips on how to travel with the motorhome. The instructions address the following topics:

- road assistance in European countries
- traffic rules in European countries
- gas supply in European countries
- toll regulations in European countries
- safe ways to spend the night during travel
- camping in winter

At the end of the chapter there is a checklist containing the most important equipment for your trip with the motorhome.

17.1 Traffic rules in foreign countries



- ▷ The vehicle driver is required to inform himself as to the traffic rules of the countries in which he plans to travel before beginning the trip. Contact your automobile club or embassy for further information.
- ▷ In some European countries, warning vests must be worn when exiting the vehicle outside of towns in the case of vehicle failures or accidents.

Information about traffic regulations is especially important as state law applies in case of damage. For your own safety, always observe the following rules when travelling abroad:

- Take the green insurance card with you.
- Always register accidents with the police.
- Never sign documents that you have not read and understood completely.

17.2 Help on Europe's roads

Country	+ Emergency services ★ Police	☎ Breakdown service
Belgium	+ 112 ★ 112	☎ TCB Brussels 0 70 34 47 77
Bulgaria	+ 150 ★ 166	☎ UAB (02) 9 80 33 08/146 ¹⁾
Denmark	+ 112 free of charge ★ 112 free of charge	☎ Falck 79 42 42 42
Germany	+ 112 ★ 110	☎ ADAC 22 22 22 ¹⁾
Estonia	+ 112 ★ 110/112 ¹⁾	☎ EESTI 6 97 91 88/18 88 ¹⁾
Finland	+ 112 ★ 112	☎ Helsinki (09) 77 47 64 00
France	+ 15/112 ¹⁾ ★ 17/112 ¹⁾	☎ –

Country	+ Emergency services ★ Police	☎ Breakdown service
Greece	+ 112 ★ 171/112 ¹⁾	☎ ELPA 104 00
Great Britain	+ 112 ★ 112	☎ AA (08 00) 0 28 90 18/ (08 00) 82 82 82 ¹⁾
Ireland	+ 999/112 ¹⁾ ★ 999/112 ¹⁾	☎ AA Dublin 18 00 66 77 88
Iceland	+ 112 ★ 112	☎ F.I.B 5 11 21 12
Italy	+ 118 ★ 112	☎ ACI 803 116/8 00 11 68 00 ¹⁾
Croatia	+ 94/112 ¹⁾ ★ 92/112 ¹⁾	☎ HAK 9 87/ 0 19 87 ¹⁾
Latvia	+ 03/112 ¹⁾ ★ 02/112 ¹⁾	☎ LAMB 8 00 00 00
Lithuania	+ 03/112 ¹⁾ ★ 02/112 ¹⁾	☎ LAS 8 80 00 00 00/18 88 ¹⁾
Luxembourg	+ 112 ★ 113/112 ¹⁾	☎ ACL 2 60 00
Macedonia	+ 194 ★ 192	☎ AMSM 196
Netherlands	+ 112 ★ 112	☎ ANWB 08 00 08 88
Norway	+ 113 ★ 112	☎ NAF 81 00 05 05
Austria	+ 144/112 ¹⁾ ★ 133/112 ¹⁾	☎ ÖAMTC 120
Poland	+ 999 ★ 997/112 ¹⁾	☎ PZM 022 5 32 84 33
Portugal	+ 112 ★ 112	☎ ACP Lissab. (21) 9 42 91 03 ACP Porto (22) 8 34 00 01
Romania	+ 961/112 ¹⁾ ★ 955/112 ¹⁾	☎ ACR (021) 2 22 22 22/ (021) 2 22 15 53 ¹⁾
Russia	+ 03 ★ 02	☎ RAS (4 95) 7 47 66 66
Sweden	+ 112 ★ 112	☎ M 0 20 91 29 12
Switzerland	+ 144 ★ 117/112 ¹⁾	☎ TCS 1 40/03 18 50 53 11 ¹⁾
Serbia and Montenegro	+ 94 ★ 92	☎ AMS SCG 9 87 (064) 987 ¹⁾

Country	+ Emergency services ★ Police	☎ Breakdown service
Slovakia	+ 155/112 ¹⁾ ★ 158/112 ¹⁾	☎ ASA 1 81 24
Slovenia	+ 112 ★ 113	☎ AMZS (1) 9 87/ (003861) 5 30 53 53 ¹⁾
Spain	+ 061 ★ 112	☎ RACE 9 15 94 93 47
Czech Republic	+ 155/112 ¹⁾ ★ 158/112 ¹⁾	☎ UAMK CR 12 30
Turkey	+ 112 ★ 155/112 ¹⁾	☎ –
Ukraine	+ 03 ★ 02	☎ 112 UA (8-032) 2 97 81 12
Hungary	+ 104/112 ¹⁾ ★ 107/112 ¹⁾	☎ MAK 1 88/(06-1) 13 45 17 55 ¹⁾
Cyprus	+ 199/112 ¹⁾ ★ 199/112 ¹⁾	☎ AA 02 22 31 31 31

¹⁾ In the mobile communication network

Date 05/2006

Specifications without guarantee

17.3 Speed limits and permissible dimensions



► Please always observe the speed limits in the individual countries.

For information, the speed limits (in km/h) and permissible dimensions (in m) of the countries visited most:

Country	Max. dimensions in meters		Gross weight	In built-up areas	Outside built-up areas	Motorway
	Width	Lgth.				
Belgium	2.55	12	Up to 7.5 t	50	90/120 ¹⁾	120
			Over 7.5 t	50	60/90 ¹⁾	90
Bulgaria	2.60	12	Up to 3.5 t	50	90	130
			Over 3.5 t	50	70	100
Denmark	2.55	12	Up to 3.5 t	50	80	130
			Over 3.5 t	50	70	80

Country	Max. dimensions in meters		Gross weight	In built-up areas	Outside built-up areas	Motorway
	Width	Lgth.				
Germany	2.55	12	Up to 3.5 t	50	100	130 ³⁾
			3,5 t up to 7.5 t	50	80	100
			Over 7.5 t ²⁾	50	80	80
Estonia	2.50	12	Up to 3.5 t	50	90	110
			Over 3.5 t	50	70	90
Finland	2.60	12		50	80 ⁴⁾	80 ⁴⁾
France	2.55	12	Up to 3.5 t	50	90 ^{5)/}	130 ⁵⁾
			Over 3.5 t	50	110 ^{1) 5)} 80 ^{5)/} 100 ^{1) 5)}	110 ⁵⁾
Greece	2.50	12		50	90/110 ¹⁾	120
Great Britain	2.55	12		48	112 ¹⁾	112
Ireland	2.55	12		50	80/100 ¹⁾	120
Iceland	2.55	12		50	90 ⁶⁾	–
Italy	2.50	12	Up to 3.5 t	50	90/110 ^{1) 7)}	130 ^{7)/} 150 ^{12) 8)}
			Over 3.5 t	50	80	100
Croatia	2.55	12		50	90/110 ¹⁾	130
Latvia	2.50	12	Up to 2.8 t	50	90	110
			Over 2.8 t	50	90	90
Lithuania	2.50	12	Up to 3.5 t	50	90	110
			Over 3.5 t	50	70	110
Luxembourg	2.55	12	Up to 3.5 t	50	90 ^{9) 7)}	130 ^{9) 7)}
			Over 3.5 t	50	75 ⁷⁾	90 ⁷⁾
Macedonia	2.50	12		50/60	80	80
Netherlands	2.55 ¹⁰⁾	12	Up to 3.5 t	50	80/100 ¹⁾	120
			Over 3.5 t	50	80	80
Norway	2.55	12.40	Up to 3.5 t	50	80/90 ¹⁾	90
			Over 3.5 t	50	80	80
Austria	2.55	12	Up to 3.5 t	50	100	130 ¹¹⁾
			Over 3.5 t	50	70	80
Poland	2.50	12	Up to 3.5 t	50/ 60	90/100 ¹⁾	130
			Over 3.5 t	50/ 60	70/80 ¹⁾	80

Country	Max. dimensions in meters		Gross weight	In built-up areas	Outside built-up areas	Motorway
	Width	Lgth.				
Portugal	2.50	12	Up to 3.5 t	50	90/100 ¹²⁾	120 ¹³⁾
			Over 3.5 t	50	80/90 ¹²⁾	110 ¹³⁾
Romania	2.50	12	Up to 3.5 t	50	80	100
			Over 3.5 t	50	70	90
Russia	2.50	12	Up to 3.5 t	50	90 ¹⁴⁾	110 ¹⁴⁾
			Over 3.5 t	50	70	90 ¹⁴⁾
Sweden	2.60	24 ¹⁵⁾	Up to 3.5 t	50	70-110 ^{1) 12)}	110
			Over 3.5 t	50	80/90 ¹⁾	90
Switzerland	2.55	12	Up to 3.5 t	50	80/100 ¹⁾	120
			Over 3.5 t ¹⁶⁾	50	80/100 ¹⁾	100
Serbia and Montenegro	2.50	12	Up to 3.5 t	60	80/100 ¹⁾	100
			Over 3.5 t	60	80	80
Slovakia	2.50	12	Up to 3.5 t	60	90	130
			Over 3.5 t	60	80	80
Slovenia	2.55	12	Up to 3.5 t	50	80/100 ¹⁾	100
			Over 3.5 t	50	80	80
Spain	2.55	12		50	70/80 ¹²⁾	90
Czech Republic	2.50	12	Up to 3.5 t	50	90	130
			Over 3.5 t	50	80	80
Turkey	2.50	10		50	80	90
Ukraine	2.50	12		60	90 ¹⁴⁾	110 ¹⁴⁾
Hungary	2.50	12	Up to 2.5 t	50	90/100 ¹⁾	130
			Over 2.5 t	50	70	80
Cyprus	2.55	12		50	80	100

- 1) On expressways, on roads with more than one lane in each direction
- 2) Vehicles over 7.5 tons max. permissible weight require a tachograph
- 3) Recommended speed: 130 km/h
- 4) Since 1995, for the first time, vehicles up to an unladen weight of 1875 kg can drive max. 100 km/h
- 5) On wet roads, reduce speed by 10 km/h, on motorways by 20 km/h
- 6) On unmade roads (gravel): 80 km/h
- 7) In wet conditions, reduce speed by 20 km/h
- 8) In wet conditions generally 110 km/h
- 9) Drivers who don't have their driver's licence for the full year, must not drive faster than max. 75 km/h when out of town or 90 km/h on motorways
- 10) On main roads 2.55 m, on roads marked "B" 2.20 m
- 11) Between 10 p.m. and 5 a.m. the speed limit on all motorways, with the exception of A1 (Salzburg-Vienna) and A2 (Salzburg-Villach), A8 (Innkreis motorway) and A9 (Pyhrn motorway): 110 km/h

- ¹²⁾ According to traffic signs
- ¹³⁾ Drivers who have had their driver's licence for less than one year must not drive faster than 90 km/h. Corresponding stickers (available from ACP offices) must be affixed in a clearly visible position on the rear of the vehicle
- ¹⁴⁾ Drivers who have had their driver's licence for less than two years must not drive faster than 70 km/h
- ¹⁵⁾ Swedish campsites often require the motorhome to have a closed waste water system
- ¹⁶⁾ A heavy goods vehicle supplement must be paid on all roads for all vehicles exceeding 3.5 tons max. permissible weight

Date 05/2006

Source: ADAC

Specifications without guarantee

17.4 Driving with low beam in European countries

The following is a list of the European countries in which driving with low beam is required even during the day.

Country	Conditions
Denmark	All year; on all roads
Estonia	All year; on all roads
Finland	All year; on all roads
Iceland	All year; on all roads
Italy	All year; only outside of towns
Croatia	All year; on all roads
Latvia	All year; on all roads
Lithuania	From November 1 to March 1; on all roads
Macedonia	All year; on all roads
Norway	All year; on all roads
Austria	All year; on all roads
Poland	From October 1 to March 1; on all roads
Portugal	From October 1 to March 1; on all roads
Romania	All year; on all roads
Sweden	All year; on all roads
Switzerland	All year; on all roads
Slovakia	From October 15 to March 15; on all roads
Slovenia	All year; on all roads
Czech Republic	From October 27 to the last Sunday in March; on all roads
Hungary	All year; on all roads

Specifications without guarantee

17.5 Sleeping in the motorhome away from camping areas

Country	Sleeping on roads and fields		Sleeping on privately owned lands		Comments
	Yes	No	Yes	No	
Belgium		X	X		On highway rest areas max. 24 hours permitted
Bulgaria		X		X	
Denmark	X		X		On streets and squares only up to 11 hours with a parking disc
Germany	X		X		Staying overnight for one night to restore driving ability is permitted. There may be regional and local limitations
Finland	X			X	Possible with the permission of the land owner
France	X		X		Permission from the local authorities or the owner of the land is required. Parking and staying overnight on free areas is prohibited
Greece		X		X	Staying overnight for one night at designated areas on the national route Patras-Athens-Thessaloniki is permitted
Great Britain		X		X	
Ireland		X		X	
Italy	X		X		Staying overnight for one night at car parks and service stations is allowed. Observe the local regulations. Parking and staying overnight on free areas is prohibited
Croatia		X		X	
Luxembourg		X		X	
Macedonia		X		X	
Netherlands		X	X		Overnight stays on streets and squares is allowed in some boroughs
Norway	X		X		Officially prohibited on rest areas and cultivated grounds. Travelling on dirt roads is prohibited
Austria	X		X		Staying overnight for one night to restore driving ability is permitted, but not in nature reserves. Observe regional and local restrictions. Generally forbidden in Tyrol
Poland		X	X		Requires property owner's permission

Country	Sleeping on roads and fields		Sleeping on privately owned lands		Comments
	Yes	No	Yes	No	
Portugal		X		X	Staying overnight for one night on motorway service stations and car parks under 10 hours are tolerated
Romania		X		X	
Russia		X		X	
Sweden	X		X		Not on agriculture areas or in the vicinity of houses. Driving on open fields is prohibited
Switzerland		X	X		One overnight stay at highway rest areas and in some cantons is tolerated
Serbia and Montenegro		X		X	
Slovakia	X		X		Overnight stays on private land are only allowed if a toilet is present
Slovenia		X		X	
Spain	X		X		Some regional prohibitions apply, especially on beaches
Czech Republic	X		X		Overnight stays on private land are only allowed if a toilet is present
Turkey	X		X		
Ukraine		X		X	
Hungary		X	X		Staying overnight on privately owned land is permitted only with police certification

Specifications without guarantee

17.6 Gas supply in European countries



- ▷ In Europe, there are several different connection systems for gas bottles. It is not always possible to fill or exchange your gas bottles in a foreign country. Get information about the connection system in the country you are travelling to before embarking on your journey, e.g. at a motoring club or in the trade press.

General tips

Always observe the following instructions:

- Only go on vacation with completely filled gas bottles.
- Use all of the gas bottles' capacity.
- Take along adapter sets (available in camping supply stores) for filling gas bottles in foreign countries and for connecting the gas pressure regulator to foreign gas bottles.
- During the cold time of the year observe filling with propane gas component (butane does not gas below 0 °C).

- Use blue bottles from the firm Campingaz (distributed world-wide). Only use gas bottles with safety valves.
- When bottles from other countries are used, check the gas bottle compartments to see if the gas bottles fit into them. Gas bottles from other countries do not always display the same size as your own gas bottles.

17.7 Toll regulations in European countries

Many European countries have introduced a mandatory toll system. The toll regulations and how they are collected vary greatly from country to country. Nevertheless, ignorance is no excuse. Penalties can be quite severe.

As is the case with traffic regulations, the vehicle driver is required to be familiar with the toll formalities before starting out on a trip. For example, in Austria the vignette does not meet the toll requirements for motorhomes that weigh more than 3.5 t. There, a so-called "Go-Box" must be obtained and charged.

Contact your automobile club or the Internet for further information.



- ▷ Windscreens with solar filters can affect the functioning of automatic toll collection systems (e.g. Go Box). This must be taken into account when acquiring the appropriate device (e.g. Split Go Box).

17.8 Tips on staying overnight safely during travel

Prudent behaviour is the most important protective measure for insuring a safe night in the motorhome.

The risk of thievery is reduced to a minimum when the following basic rules are observed:

- Before commencing the journey, close and lock all windows, doors and skylights.
- During high season do not spend the night at highway rest stops or parking areas located along typical vacation routes.
- Several vehicles on one site at the same time do not necessarily decrease the chances of thievery occurring. Consult your own feelings about the parking site.
- Even if it is just for one night, go to a camping site.
- When parking on open space keep emergency routes clear. The way to the driver's seat should be clear. The ignition key should always be within reach.
- Only take with you those valuables which are absolutely necessary for the journey. If possible, store valuables in a small safe and not in the immediate vicinity of windows or doors.
- Always lock up the vehicle.

17.9 Tips for winter campers

The following tips will help make your winter camping experience as agreeable as possible.

- Reserve your parking place in good time. Good winter camping sites are often booked up early.
- Do not start your trip without winter tyres.
- Bring snow chains.
- Choose your parking place with care. Observe the ground beneath you. Snow and ice may melt.

- When the vehicle has been positioned, release the handbrake to prevent freezing.
- No snow walls should be allowed to cover the built-in forced ventilation.
- Keep the built-in forced ventilation free from snow and ice.
- Make sure the air circulation is good. Good air circulation prevents moisture from collecting and makes it easier to heat the living area.
- Cover the single-paned driver's cabin window with insulation mats to avoid thermal bridges.
- Follow the instructions in the section "Gas supply in European countries".
- Use a two-bottle system with automatic controller for the gas system, so that the supply does not run out during the night.
- Only operate the gas system using propane gas.
- Do not use the space behind the heater as a storage compartment.
- Never operate catalytic ovens or infra-red gas radiators in the interior of the vehicle, since they consume oxygen for burning.
- Lay the 240 V power cable in such a way that the cable cannot be frozen or be damaged (e.g. during snow removal).
- When it is snowing heavily, clear the roof of the vehicle of snow regularly. A few centimetres of powdery snow serves as insulation, but wet snow quickly becomes a heavy burden.
- Before embarking on the return journey, remove all the snow from the roof to avoid impeding vehicles behind you with a "snow flag".

17.10 Travel checklists

The following checklists will help that nothing important is left at home although not everything on the checklists might be necessary.



- ▷ Do not leave checking of documents (e.g. vehicle papers and information) as well as checking the condition of the vehicle until just before commencing the trip. Planning and checking documents well in advance will save unnecessary trouble.

Kitchen area

✓	Object	✓	Object	✓	Object
	Wiping cloth		Cleansing agent (detergent)		Salad servers
	Mug		Dishcloths		Chopping board
	Turnspit		Set of knives and forks for grilling		Bowls
	Can opener		Coffeepot		Brush to wash the dishes
	Egg-cup		Corkscrew		Cloth to wash the dishes
	Ice cube tray		Kitchen paper		Matches
	Lighter		Spoons		Cups
	Bottle opener		Knives		Plates
	Air-tight storage boxes		Garbage bags		Thermos jug
	Breakfast plate		Frying pans		Pots
	Forks		Stirring spoons		Glasses

Bathroom/sanitary items

	Towels		Toilet brush		Toothbrush glass
	Sanitary items		Toilet paper		

Living area

✓	Object	✓	Object	✓	Object
	Dustbin		Insect lamp		Rain clothes
	Road atlas		Insect repellent		First aid kit
	Bath towels		Deck of cards		Travel guides/parking guide
	Bath shoes		Broom		Rucksack
	Batteries		Candles		Sleeping bags
	Bed sheets		Dust pan		Pencils and paper
	Bed linen		Coat-hangers		Shoes
	Laundry bag		Clothes brush		Shoe polish
	Books		Pillow		Vacuum cleaner
	Camping guide		Map		Flash light
	Spare bulbs		Medicine		Pocket knife
	Water bottle		Music cassettes		Table cloth
	Binoculars		Neck-supporting pillow		Clothes pins
	Fire extinguisher		Sewing kit		Clothesline
	Gas bottle		Radio		

Vehicle/tools

	Waste water container		Fabric tape		Screwdriver
	Adapter socket		Watering can for fresh water		Current-measuring instrument
	CEE adapter		Cable reel		Step
	Wire		V-belt		Wheel chocks
	Spare wheel		Glue		First-aid kit
	Spare lamps		Universal pliers		Vehicle jack
	Spare fuses		Compressor		Hazard warning triangle
	Replacement water pump		Luster terminals		Warning sign
	Hammer		Loops		Warning vest
	Flat wrench		Tube adapter		Flashing hazard warning light
	Gas filling adapter		Hose clips		
	Gas tube		Snow chains (winter)		

Outside

	Stay rope		Camping table		Lock
	Bellows		Luggage racks		String
	Camping chairs		Grill		Tent pegs/tightening ropes

Documents

✓	Object	✓	Object	✓	Object
	List of addresses		Registration book		Identity card
	Registration confirmation(s)		Driving licence		Passport
	Allergy certificate		Green insurance card		Writ of protection
	Instruction manuals		Vaccination certificate		Vignette/toll card
	Instruction leaflets for medicines		Credit card		Visa

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