

Dear Reader ...

We would like to congratulate you on the purchase of your new motorhome. You have selected a top-quality vehicle which will afford you many years of enjoyment.

To enable you to always use and operate your motorhome properly and easily, your Bürstner dealer will first provide you detailed instructions for all important functions when you take delivery.

This manual, the instruction manuals from the base vehicle manufacturer as well as the instruction manuals from the appliance manufacturer will always be at hand to answer any questions you may have regarding your motorhome.

Before your first journey

Please familiarise yourself with this manual rather than relying on it strictly for reference.

Fill in the warranty cards for the appliances and special equipment in the individual instructions and send these cards to the respective manufacturers. This ensures your warranty claim for each appliance.

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1 1.1 1.2	Introduction 7 General 7 Environmental tips 8
2 2.1 2.1.1 2.1.2 2.1.3 2.2 2.3 2.4 2.5 2.5.1 2.5.2 2.6 2.7	Safety9Fire prevention9Avoidance of fire risks9Fire-fighting9In case of fire.9General10Road safety10Towing.12Gas system12General instructions12Gas bottles13Electrical system14Water system14
3 3.1 3.2	Before the journey 15 Keys 15 Registration 15
3.2 3.3	Registration 15 Payload 16
3.3.1	Terms
3.3.2 3.3.3	Calculating the payload
3.3.4	Roof rail and ladder
005	(special equipment)
3.3.5 3.3.6	Rear garage/rear storage space 22 Bike rack (special equipment) 23
3.3.7	Load rack SAWIKO
3.4	(special equipment)
3.4 3.5	Towing
	(special equipment)
3.6	Electrically operated entrance step
3.7	(partially special equipment) 27 TV unit (special equipment) 29
3.8	Sink and drain basic covers
	(partially special equipment) 29
3.9	Securing add-on parts
3.10 3.11	Snow chains (special equipment) 31 Road safety
5.11	
4	During the journey 35
4.1	Chapter overview
4.2 4.3	Driving the motorhome
4.0	(special equipment)
4.4	Driving speed 36
4.5	Brakes
4.6	Air suspension Goldschmitt
4.7	(special equipment)
4.7.1	General
4.7.2	Fastening the seat belt correctly 38

,

4.8 4.8.1	Child restraint systems
4.9	(special equipment)
	front passenger's seats
4.10	Seat heater (special equipment) 41
4.11	Headrests
4.12	Seating arrangement
4.13	Roman shade in the driver's cabin
4.13.1	Pleated Roman shades 43
4.13.2	Roman shades, Remis
	(partially special equipment)43
4.14	Refuelling44
5	Pitching the motorhome 45
5.1	Chapter overview
5.2	Handbrake
5.3	Entrance step
5.4	Ramps
5.5	Wheel chocks
5.6	Supports
5.6.1	General instructions
5.6.2	Steady legs (SAWIKO)
5.0.2	(special equipment)
5.6.3	Steady legs (AL-KO)
5.0.5	(special equipment)
5.7	230 V connection
5.8	Refrigerator
5.9	Satellite unit (special equipment) 48
5.9.1	Unit with manual satellite selection
5.5.1	(TeleSat)
5.9.2	Equipment with automatic
J.J.Z	antenna alignment (Teleco)
5.9.3	Equipment with automatic
0.0.0	antenna alignment (Oyster) 51
5.10	Awning (special equipment)
0.10	
6	Living
6.1	Central locking system
	(special equipment)
6.2	Conversion door
6.2.1	Conversion door, outside
	(Hartal M1)54
6.2.2	Conversion door, inside
	(Hartal M1)55
6.2.3	Conversion door, outside
	(Hartal Premium)
	(partially special equipment)55
6.2.4	Conversion door, outside
	(Hartal with window)
6 2 5	
6.2.5	Conversion door, inside
0.2.5	Conversion door, inside (Hartal with window)56

Contents



6.2.6	Window of conversion door	
0.2.0		67
0.0.7	(partially special equipment)	. 57
6.2.7	Folding insect screen on the	
	conversion door	
	(partially special equipment)	
6.3	External flaps	
6.3.1	Flap lock with recessed handle	. 58
6.3.2	Garage flap emergency release	. 59
6.3.3	Flap lock with push button	. 59
6.3.4	Service unit flap lock	
6.4	Furniture flaps	
6.4.1	Furniture flaps with push button	
6.4.2	Furniture flaps with handle	. 00
0.4.2	and push button	61
640		. 01
6.4.3	Furniture flaps with handle	C 4
	and unlocking bar.	. 61
6.4.4	Furniture flaps with	
	release handle	
6.5	Floor compartment cover	
6.6	Rotating seats	
6.7	Light switch	. 63
6.7.1	Entrance area	
6.7.2	Interior	
6.7.3	Wardrobe light	
0.1.0	(partially special equipment)	65
6.7.4	Tube lamp in the rear garage	
6.8	Spotlight	
6.9	Holder for flat screen	
6.9.1	Holder on the column	
6.9.2	Holder with jointed arm	
6.9.3	Holder in the TV cabinet	
6.9.4	Holder with release lever	
6.9.5	Holder with pull-out	. 69
6.10	Ventilation	. 69
6.11	Windows	. 70
6.11.1	Hinged window	. 70
6.11.2	Sliding window with pressure lock	
6.11.3	Blind and insect screen	
6.11.4	Roman shade and insect screen	
6.11.5	Roman shades for windscreen,	. / 4
0.11.5	driver's window and front	
		75
6 40	passenger's window	
6.12	Skylights.	
6.12.1	Skylight with snap latch	. //
6.12.2	Heki skylight (mini and midi)	
	(partially special equipment)	. 78
6.12.3	Wind-up skylight	
	(special equipment)	. 79
6.12.4	Omni-Vent skylight with fan	
	(special equipment)	. 80
6.12.5	Skyroof skylight	
	(partially special equipment)	. 81
6.13	Tables	
6.13.1	Fixed table	
6.13.1		
	Suspension table	
6.13.3	Lift-off table	
6.13.4	Lift-off table (variant)	. 87

6.13.5	Lift-off table, movable
	(special equipment)
6.13.6	Coffee table
	(dependent on model)
6.14	Beds
6.14.1	Fixed bed (gas-pressure springs)90
6.14.2	Fixed bed
	(adjustable head section)
6.14.3	Fixed bed, variable-height
	(special equipment)
6.14.4	Bunk bed91
6.14.5	Pull-down bed,
	electrically operated (Ixeo)
6.14.6	Pull-down bed, electrically operated
	(Ixeo Time, Lyseo)
6.14.7	Pull-down bed at the rear,
	electrically operated (Lyseo)
6.15	Converting seating groups
	for sleeping
6.15.1	Conversion of semi-dinette
	into guest bed102
6.15.2	Conversion semi-dinette into
	transverse bed
	(with additional cushion table)103
6.15.3	Conversion L-seating group
	into transverse bed
	(with additional cushion table)104
6.15.4	Conversion L-seating group
	into transverse bed
	(without additional cushion table) 104
6.15.5	Conversion L-seating group
	into transverse bed
	(Ixeo IT 680, Lyseo IT 590)105
6.15.6	Conversion L-seating group
	into transverse bed (Ixeo IT 734) 105
6.15.7	Conversion semi-dinette
	into transverse bed (with additional
0 4 5 0	cushion table and bed widening)106
6.15.8	Conversion L-seating group into
0 4 5 0	transverse bed (Ixeo IT 640) 106
6.15.9	Conversion L-seating group into
0 4 F 4 0	transverse bed (Lyseo IT 586) 107
6.15.10	Lying surface of single beds
0.40	(special equipment)
6.16	Shower connection point
	for external shower
	(special equipment)108
7	Gas system109
r 7.1	
7.1 7.2	General
7.2 7.3	Gas isolator taps
7.3 7.4	External gas connection
1.4	
7.5	(special equipment)113 Gas bottle switching facility
1.5	(special equipment)
7.6	Changing gas bottles



8	Electrical system 119
8.1	General safety instructions 119
8.2	Terms 120
8.3	USB socket
	(partially special equipment) 121
8.4	12 V power supply
8.4.1	Selector switch for radio
	(special equipment)
8.4.2	Starter battery 122
8.4.3	Living area battery
8.5	Transformer/rectifier (EBL 99) 125
8.5.1	Battery cut-off switch
8.5.2	Battery selector switch 126
8.5.3	Battery monitor 127
8.5.4	Charging the battery 127
8.6	Panel LT 96 127
8.6.1	Button for 12 V power supply 128
8.6.2	V/tank gauge for battery voltage
	and water or waste
	water levels
8.6.3	Button for water pump 130
8.6.4	Battery alarm for the
	living area battery 130
8.6.5	12 V indicator lamp 130
8.6.6	230 V indicator lamp 130
8.7	Solar installation
	(special equipment)
8.8	230 V power supply
8.8.1	230 V connection
8.8.2	Connecting the
	230 V power supply
8.9	Fuses
8.9.1	12 V fuses
0.0.1	12 v luses
8.9.2	230 V fuse
8.9.2	230 V fuse 139
8.9.2	230 V fuse
8.9.2 8.10	230 V fuse
8.9.2 8.10 8.11	230 V fuse.139External socket140(special equipment).140Circuit diagrams141
8.9.2 8.10 8.11 8.11.1 8.11.2	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143
8.9.2 8.10 8.11 8.11.1	230 V fuse.139External socket140(special equipment).140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143Appliances145
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1	230 V fuse
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2	230 V fuse. 139 External socket 140 (special equipment). 140 Circuit diagrams 141 Circuit diagrams, interior 141 Circuit diagram, exterior 143 Appliances 145 General 145 Heater and boiler. 146
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1	230 V fuse.139External socket140(special equipment).140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler.146Models with waste gas vent on the
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on the right-hand side of the vehicle146
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1 9.2.2	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on theright-hand side of the vehicle146To heat properly147
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on the146right-hand side of the vehicle146To heat properly147Hot-air heater and boiler with
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1 9.2.2 9.2.3	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on the146right-hand side of the vehicle146To heat properly147Hot-air heater and boiler with147
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1 9.2.2	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on the right-hand side of the vehicle146To heat properly147Hot-air heater and boiler with CP plus digital operating unit147Alde hot water heater and boiler147
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1 9.2.2 9.2.3 9.2.3 9.2.4	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on the right-hand side of the vehicle146To heat properly147Hot-air heater and boiler with CP plus digital operating unit147Alde hot water heater and boiler (special equipment)153
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1 9.2.2 9.2.3 9.2.4 9.2.5	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on the right-hand side of the vehicle146To heat properly147Hot-air heater and boiler with CP plus digital operating unit147Alde hot water heater and boiler (special equipment)153Wall flue160
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1 9.2.2 9.2.3 9.2.3 9.2.4	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on theright-hand side of the vehicle146To heat properly147Hot-air heater and boiler with147CP plus digital operating unit147Alde hot water heater and boiler153Wall flue160Auxiliary heat exchanger
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1 9.2.2 9.2.3 9.2.4 9.2.5 9.2.6	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on the146To heat properly147Hot-air heater and boiler with147CP plus digital operating unit147Alde hot water heater and boiler153Wall flue160Auxiliary heat exchanger160
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1 9.2.2 9.2.3 9.2.4 9.2.5	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on the146right-hand side of the vehicle146To heat properly147Hot-air heater and boiler with147CP plus digital operating unit147Alde hot water heater and boiler153Wall flue160Auxiliary heat exchanger160Electrical floor warming unit160
8.9.2 8.10 8.11 8.11.1 8.11.2 9 9.1 9.2 9.2.1 9.2.2 9.2.3 9.2.4 9.2.5 9.2.6	230 V fuse139External socket140(special equipment)140Circuit diagrams141Circuit diagrams, interior141Circuit diagram, exterior143 Appliances 145General145Heater and boiler146Models with waste gas vent on the146To heat properly147Hot-air heater and boiler with147CP plus digital operating unit147Alde hot water heater and boiler153Wall flue160Auxiliary heat exchanger160

|--|

9.3	Air conditioning unit
9.3.1	(special equipment)
0 2 2	conditioning unit
9.3.2 9.4	Telair
9.4	with mobile terminal
	(special equipment)
9.5	Cooker
9.5.1	Gas cooker
9.5.2	Gas oven (Dometic)
0.0.2	(special equipment)
9.5.3	Microwave oven
	(special equipment)
9.5.4	Extractor hood
	(special equipment)
9.6	Refrigerator
9.6.1	Refrigerator ventilation grill 174
9.6.2	Dometic MES/AES
9.6.3	Thetford N3000
9.6.4	Thetford N97 181
9.6.5	Refrigerator door
	locking mechanism 183
10	Sanitary fittings
-	
10.1 10.2	Water supply, general
10.2	Water system
10.2.1	Water tank188Drinking water filler neck188
10.2.2	Filling the water system
10.2.3	Topping up the water
10.2.4	Closing/opening the overflow
10.2.6	Draining water
10.2.0	(handle with overflow)
10.2.7	Emptying the water system
10.3	Waste water installation
10.3.1	Draining waste water
10.3.2	Heater for waste water tank
	and waste water pipes
	(special equipment)
10.3.3	Warming unit for waste
	water pipes (special equipment) 195
10.4	Toilet compartment 196
10.5	
10.5.1	Toilet
	Preparing toilet
10.5.2	Preparing toilet
10.5.2 10.5.3	Preparing toilet
10.5.2	Preparing toilet
10.5.2 10.5.3 10.5.4	Preparing toilet
10.5.2 10.5.3	Preparing toilet.197Swivel toilet198Toilet with fixed seat199Emptying the sewage tank.200Care201
10.5.2 10.5.3 10.5.4 11 11.1	Preparing toilet. 197 Swivel toilet 198 Toilet with fixed seat 199 Emptying the sewage tank. 200 Care 201 External care 201
10.5.2 10.5.3 10.5.4 11 11.1 11.1.1	Preparing toilet. 197 Swivel toilet 198 Toilet with fixed seat 199 Emptying the sewage tank. 200 Care 201 External care 201 General 201
10.5.2 10.5.3 10.5.4 11 11.1	Preparing toilet. 197 Swivel toilet 198 Toilet with fixed seat 199 Emptying the sewage tank. 200 Care 201 External care 201 General 201 Washing with a 201
10.5.2 10.5.3 10.5.4 11 11.1 11.1.1	Preparing toilet.197Swivel toilet198Toilet with fixed seat199Emptying the sewage tank.200Care201External care201General201Washing with a201high-pressure cleaner201
10.5.2 10.5.3 10.5.4 11 11.1 11.1.1 11.1.1	Preparing toilet. 197 Swivel toilet 198 Toilet with fixed seat 199 Emptying the sewage tank. 200 Care 201 External care 201 General 201 Washing with a 201
10.5.2 10.5.3 10.5.4 11 11.1 11.1.1 11.1.2 11.1.3	Preparing toilet.197Swivel toilet198Toilet with fixed seat199Emptying the sewage tank.200Care201External care201General201Washing with a100high-pressure cleaner201Washing the vehicle202

Contents



$\begin{array}{c} 11.1.6\\ 11.1.7\\ 11.2\\ 11.3\\ 11.3.1\\ 11.3.2\\ 11.3.3\\ 11.3.4\\ 11.4\\ 11.5\\ 11.5.1\\ 11.5.2\\ 11.6\\ 11.6.1\\ 11.6.2\\ 11.6.3\\ 11.7\\ 11.7.1\\ 11.7.2\\ 11.7.3\\ \end{array}$	Entrance step	. 203 . 203 . 205 . 205 . 206 . 206 . 207 . 207 . 207 . 207 . 207 . 207 . 208 . 208 . 208 . 209 . 209 . 209 . 209 . 211
	lay-up over winter	
12 12.1 12.2 12.3 12.4 12.5 12.6 12.6.1 12.6.2 12.6.3 12.7 12.7.1 12.7.2 12.7.3 12.7.4 12.8 12.8.1 12.8.2 12.9 12.10 12.11	Maintenance Inspection work Maintenance work Doors Living area battery Extractor hood Alde hot-water heater. Checking the fluid level Topping up heating fluid. Bleeding the heating system Replacing bulbs, external. Front lights Side lights Types of bulbs for exterior lighting. Replacing bulbs, internal Spotlight (movable) Surface mounted light Spare parts Vehicle identification plate Warning and information stickers	. 213 . 213 . 213 . 214 . 214 . 214 . 215 . 215 . 216 . 216 . 217 . 218 . 218 . 219 . 220 . 220 . 220 . 221 . 222
13 13.1 13.2 13.3 13.4 13.5 13.5.1 13.5.2 13.5.3	Wheels and tyres	. 223 . 223 . 224 . 225 . 225 . 225 . 225 . 225 . 226

18	Inspection plan267
17.6 17.7	safely during travel
17.5	Tips on staying overnight
17.4	Toll regulations in European countries
17.2 17.3	Help on Europe's roads
17.2	
17.1	Traffic rules in foreign countries261
17	Helpful notes
16.2 16.3	Table of linear measures
-	
16 16.1	Technical data
15.1	Weight details for special equipment
15	Special equipment
4 F	
14.11 14.12	Pull-down bed, electrically operated (Ixeo)
14.11	Body
14.10	Water supply
14.9.4	Thetford N 97
14.9.3	Thetford N 3000
14.9.2	Dometic MES/AES
14.9.1	General faults
14.9	Refrigerator
14.8.2	Microwave oven
14.8.1	Gas cooker/gas oven
14.8	Cooker
14.7.2	Telair
14.7.1	Truma
14.7	Air conditioning unit
14.6.2	Alde heater/boiler
	CP plus digital operating unit235
14.6.1	Truma heater/boiler with
14.6	Heater/boiler
14.5	Gas system
14.4	Electrical system
14.3	Satellite unit
14.2	Braking system
	Air suspension (Goldschmitt)
1 4 14.1	
13.7 14	Tyre pressure
13.7	(special equipment)
13.6	Spare wheel support



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.



 $\,\triangleright\,\,$ This symbol indicates recommendations or special aspects.



 \triangleright This symbol indicates actions which lead to environmental awareness.

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

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

Special equipment is described when an explanation is required.

Adhere to the instruction manuals which are separately enclosed.

- \bigcirc
- ▷ The details "right", "left", "front" and "rear" always refer to the vehicle in direction of travel.
- ▷ All dimensions and weight details are "approximate".

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

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

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

1.1 General

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



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

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

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

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

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

Observe the test and inspection periods stipulated by the manufacturer.

1.2 Environmental tips



- ▷ Be considerate of the environment.
- ▷ Remember that: All kinds of waste water and household waste are not to be disposed of in drains or in the open countryside.
- On board, collect waste water only in the waste water tank or if necessary – in other containers designed for that purpose.
- Only empty the waste water tank and toilet cassette or sewage tank at disposal stations at the camping or caravan sites, which are especially provided for this purpose. When stopping in towns and communities, observe the instructions at caravan sites or ask where there are disposal stations.
- ▷ Empty waste water tank as often as possible, even when it is not completely full (hygiene).

If possible, flush out waste water tank and, if necessary, drainage pipe with fresh water every time it is emptied.

- Never allow the toilet cassette or sewage tank to become too full. Empty the toilet cassette or sewage tank frequently, at the latest as soon as the level indicator lights up.
- Separate household waste according to glass, tin cans, plastic and wet waste also when on a journey. Enquire at the town or community authority about disposal points. Household waste is not to be disposed of in waste paper baskets which are situated at car parks.
- Empty waste bins as often as possible into the containers provided for this purpose. This helps to avoid unpleasant smells and an accumulation of rubbish on board.
- When parked, do not allow the engine to run more than necessary. When running idle, a cold engine releases more contaminants than usual. The running temperature of the engine is achieved more quickly whilst the vehicle is in motion.
- ▷ Use an environmentally-friendly WC chemical agent for the WC which can also be biologically degraded and only use small doses.
- When staying in towns and communities for long periods, search for parking areas 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

2.1 Fire prevention

2.1.1 Avoidance of fire risks



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

2.1.2 Fire-fighting



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

2.1.3 In case of fire



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



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



2.2 General



- ► The oxygen in the vehicle interior is used up by breathing and the use of gas operated appliances. That is why the used air must be replaced permanently. For this purpose, forced ventilation systems (e.g. skylights with forced ventilation, mushroom-shaped vents or floor vents) are installed in the vehicle. Never cover or block forced ventilations from the inside or outside with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves. There is a danger of suffocation due to increased CO₂ levels.
- Do not use storage spaces or rear garages as places for people or animals to stay or sleep in. These spaces are not forced-air ventilated. There is a danger of suffocation due to oxygen deprivation or exhaust from the heater.
- ▶ Observe the headroom of the doors.



- As far as the fitted appliances (heater, cooker, refrigerator, etc.) and the base vehicle (engine, brakes, etc.) are concerned, the instruction manuals are authoritative. It is imperative that they be observed.
- Fitting accessories or special equipment can alter the dimensions, weight and road behaviour of the vehicle. Some of the parts must be entered in the vehicle papers.
- Only use wheel rims and tyres which are approved for the vehicle. Information concerning the size of the approved wheel rims and tyres is included in the vehicle documents or can be obtained from authorised dealers and service centres.
- ▷ Firmly apply the handbrake when parking the vehicle.
- 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.
- Always carry the legally prescribed equipment (e.g. first aid kit, warning vest, hazard warning triangle etc.) with you. The regulations of the host country apply when travelling abroad.
- ▷ The vehicle may only be driven by drivers who hold a driving licence which is valid for the respective vehicle class.
- ▷ When selling the vehicle, hand over all instruction manuals for the vehicle and the fitted appliances.

2.3 Road safety



- Before commencing the journey, carry out a functional check of indicating and lighting equipment, the steering and the brakes.
- If the vehicle has been stationary for a long period (approx. 10 months) have the braking and gas systems checked by an authorised specialist workshop.
- Before commencing the journey and after short interruptions of the journey, ensure that the entrance step is completely retracted.
- ▶ Before commencing the journey, secure the pull-down bed.



- Before commencing the journey, open and secure the shades on the windscreen and on the driver's and front passenger's windows.
- ▶ Before commencing the journey, store the television securely.
- Before commencing the journey, place and secure the flat screen and screen support in the initial position. If the screen holder is installed in a TV cabinet: Close TV cabinet.
- Before commencing the journey, take off the loose sink and drain basin covers and store them securely in the kitchen unit or the wardrobe.
- Carefully store all moving parts and all loose objects before starting your journey.
- ▶ Before commencing the journey, fix adjustable tables.
- Before commencing the journey, rotate all swivel seats in the direction of travel and lock in position. During the journey, the swivel seats must remain locked in place in the direction of travel.
- During the journey, persons are only to sit on the permitted seats (see chapter 4). The authorised number of seats is stipulated in the vehicle documents.
- Seat belts must be worn by all passengers.
- Fasten your seat belts before the beginning of the journey and keep them fastened during the journey.
- Always secure children with the children safety equipment prescribed for the respective height and weight.
- Only attach the child restraint system to seats that are specified for this purpose.
- The base vehicle is a commercial vehicle (small truck). Adjust your driving technique accordingly.
- In case of underpasses, tunnels or similar obstacles, note the total height of the vehicle (including the roof load).
- In winter, the roof must be free of snow and ice before commencing the journey.
- Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle (see section 13.7).
- Do not operate the heater at petrol stations. Danger of explosion!
- Do not operate the heater in closed spaces. Danger of suffocation!



- ▷ Before commencing the journey, distribute the payload evenly within the vehicle (see chapter 3).
- When loading the vehicle and 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. See chapter 13 for tightening torque.
- Tyres should not be older than 6 years as the material becomes brittle over time (see chapter 13).
- When using snow chains, the tyres, wheel suspension and steering are subjected to an additional load. When using snow chains, drive slowly (maximum speed 50 km/h) and only on streets which are completely covered with snow. Otherwise the vehicle could be damaged.

2.4 Towing



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

2.5 Gas system

2.5.1 General instructions



- The operator of the gas system is responsible for the performance of recurring inspections and for complying with the maintenance intervals.
- Before commencing the journey, when leaving the vehicle or when gas equipment is not in use, close all gas isolator taps and the main isolator tap on the gas bottle.
- All gas-operated devices (heater, cooker, oven, grill, refrigerator depending on the equipment) must be switched off for refuelling, on ferries or in the garage. Danger of explosion!
- Do not use gas-operated devices in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- Only have the gas system maintained, repaired or altered by an authorised specialist workshop.
- Have the gas system checked by an authorised specialist workshop according to the national regulations before commissioning. This also applies for not registered vehicles. For modifications to the gas system have the gas system immediately checked by an authorised specialist workshop.
- The gas pressure regulator, the gas tubes, and the exhaust gas pipes must also be inspected. The gas pressure regulator and the gas tubes must be replaced observing the nationally defined deadlines (the latest after 10 years). The vehicle owner is responsible for seeing that this is carried out.
- In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.). Check the tightness of gas-conducting parts and lines with leakage search spray. Do not check with an open flame.



- $\underline{\mathbb{N}}$
- Only the stipulated devices may be connected to internal connections. Do not operate any device outside the vehicle if it is connected to an internal connector.
- Before using the cooker make sure that there is sufficient ventilation. Open a window or the skylight.
- Do not use gas-operated cooking and baking facilities for heating purposes.
- If there are several gas devices, each gas device must have its own gas isolator tap. If individual gas devices are not in use, close the respective gas isolator tap.
- Ignition safety valves must close within 1 minute after the gas flame has extinguished. A clicking sound is audible. Check function from time to time.
- The built-in gas devices are exclusively meant for use with propane or butane gas or a mixture of both. The gas pressure regulator as well as all built-in gas devices are designed for a gas pressure of 30 mbar.
- Propane gas is capable of gasification up to -42 °C, whereas butane gas gasifies at 0 °C. Below these temperatures no gas pressure is available. Butane gas is unsuitable for use in winter.
- Due to its function and construction, the gas bottle compartment is a space which is open to the exterior. Never cover or block up the standard forced ventilations. Otherwise gas that is emitted can not be diverted to the outside.
- ▶ The gas bottle compartment must not be used as storage space.
- Secure the gas bottle compartment against unauthorised access. To do this, lock the compartment.
- ▶ The regulator tap on the gas bottle must be accessible.
- Only connect gas-operated devices (e.g. gas grill) which have been designed for a gas pressure of 30 mbar.
- The exhaust gas pipe must be fitted tightly to the heating system and to the vent and must be sealed. The exhaust gas pipe must not show any evidence of damage.
- Exhaust fumes must be able to escape into the atmosphere unhindered and fresh air must be able to enter unhindered. For this reason, keep the exhaust pipe and intake openings clean and unobstructed (e.g. free from snow and ice). For this reason, no snow walls or aprons may lie against the vehicle.

2.5.2 Gas bottles



- Handle full or emptied gas bottles outside the vehicle only with closed regulator tap and attached protective cap.
- Gas bottles are only to be transported within the designated gas bottle compartment.
- Place the gas bottles in vertical position in the gas bottle compartment.
- ▶ Fasten the gas bottles so that they are unable to turn or tilt.
- Connect the gas tube to the gas bottle without tension.
- If the gas bottles are not connected to the gas tube, always place the protective cap on top.





- Close the regulator tap on the gas bottle before the gas pressure regulator or gas tube are removed from the gas bottle.
- Depending on the connection, unscrew the gas tube from the gas bottle and screw it on the gas bottle again by hand or using an suitable special spanner. The screw connection on the gas bottle generally has a lefthand thread. **Do not** tighten too firmly.
- Only use special gas pressure regulators with a safety valve designed for vehicle use. Other gas pressure regulators are not permitted and cannot meet the demanding requirements.
- Use only 11 kg or 5 kg gas bottles. Camping gas bottles with built-in check valve (blue bottle with max. 2.5 or 3 kg content) are can be used in exceptional cases with a safety valve.
- Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- ▶ Never block the floor ventilation openings below the gas bottles.

2.6 Electrical system



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

2.7 Water system



- Water left standing in the water tank or in the water pipes becomes undrinkable after a short period. Therefore, before each use of the vehicle, thoroughly clean the water pipes and the water tank. After each use of the vehicle completely empty the water tank and the water pipes.
- In the case of lay-ups lasting more than a week disinfect the water system before using the vehicle (see chapter 11).



If the vehicle is not used for several days or if it is not heated when there is a risk of frost, empty the entire water system. Make certain that the water pump is switched off on the panel. Otherwise, the water pump will overheat and may get damaged. Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) and all drain cocks open. Frost damage to appliances, frost damage to the vehicle and deposits in watercarrying components can be avoided in this way.



Chapter overview

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

The instructions address the following topics:

- keys
- registration
- calculating the payload
- correct loading of the vehicle and bike rack
- load rack
- towing
- retracting and extending the entrance step
- storing the television
- storing the sink cover
- securing add-on parts
- using snow chains

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

3.1 Keys

The following keys are included with your vehicle:

Two keys for

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

Two keys for

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

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

3.2 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.



3.3 Payload



- Overloading the vehicle and wrong tyre pressure can cause tyres to burst. You can lose control of the vehicle (see section 13.7).
- The maximum permissible gross weight and the weight including special equipment fitted at the factory (actual weight) is shown in the vehicle documents, but not the weight of the loaded vehicle (see section 3.3.1). For your own safety, we recommend that you have your loaded vehicle (with all passengers, luggage and personal objects) weighed on a public weighbridge before you set out on your journey.
- Adapt the speed to the payload. The stopping distance is increased if the payload is high.



- Do not exceed the maximum permissible gross weight (permissible total weight) stated in the vehicle documents and the maximum axle loads as a result of the payload.
- > Built-in accessories and special equipment reduce the payload.
- \triangleright 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.

Description		Load (kg)
Pull-down bed		200
Bunk bed		100
Roof load		90
Rear garage and rear storage space		200
Pull-out in the rear storage space		60
Bike rack, not lowerable	Double/triple	60
Bike rack, lowerable	Double/triple	50
Load rack (SAWIKO)		130

3.3.1 Terms



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

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

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

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

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

Maximum permitted payloads



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

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

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

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

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

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

- A full fresh water system
- A gas bottle filled up to 90 %
- A full heating system
- The power cables for the 230 V power supply
- A full toilet flushing system
- The installation kit for an auxiliary battery if an auxiliary battery can be used

The waste water and sewage tanks are empty.

Example for calculating the basic equipment

Water tank in the ready-to-drive state with 20 I (overflow open)	20 kg
Aluminium gas bottle	+ 11.5 kg
Boiler with 20 I	+ 20 kg
230 V power cable	+ 4 kg
Total	= 55.5 kg

The mass in ready-to-drive condition and the actual weight are shown in the vehicle documents (e.g. 2900/2950 kg).

Payload

- Conventional load
- Additional equipment

The payload is made up as follows:

Personal equipment



The vehicle's payload can be increased by reducing the actual weight. To do this, it is allowed for example to empty the fluid containers or to remove the gas bottles.

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

Conventional load

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

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

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



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

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

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

Personal equipment Personal equipment includes all items in the vehicle that are not included in the 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

3.3.2 Calculating the payload



- The payload calculation at the factory is partly based on all-inclusive weights. For safety reasons, the maximum permissible gross weight in a laden condition must not be exceeded.
- The maximum permissible gross weight and the weight including special equipment fitted at the factory (actual weight) is shown in the vehicle documents, but not the weight of the loaded vehicle (see section 3.3.1). For your own safety, we recommend that you have your loaded vehicle (with all passengers, luggage and personal objects) weighed on a public weighbridge before you set out on your journey.

The payload (see section 3.3.1) is the difference in weight between

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

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

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

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

To do this, proceed as follows:

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

The individual values give the current axle loads. These are important for the correct loading of the vehicle (see section 3.3.3). 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.

Example for calculating the payload



3.3.3 Loading the vehicle correctly

- $\underline{\mathbb{N}}$
- 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 loadcarrying capacity of the tyres (see chapter 13).
- Heavy loads behind the rear axle can reduce the load on the front axle due to the leverage effect (1 - 1/2). This applies especially to long rear extensions, if a motorbike is transported on the rear carrier or if there is a heavy load in the rear storage space. The release of the front axle negatively affects the driving quality, especially for front-driven vehicles.
- Store all objects in such a way that they cannot slip.
- Store heavy objects (awning, tin cans, etc.) close to the axles. Low-lying storage spaces whose doors do not open in the direction of travel are particularly suited for storing heavy objects.
- Stack light objects (laundry) in the roof storage cabinets.
- ▶ Load the bike rack with bicycles only (max. three units).

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

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

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

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

Formulas

A x G : R = weight on the rear axle

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

Explanation

- = distance between storage space and front axle in cm
- weight of the load in the storage space in kg
 wheelbase of the vehicle (distance between axles) in cm



Α

G R

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

Calculating axle loads:

- Multiply the distance between storage space and front axle (A) with the weight of the load in the storage space (G) and divide the result by the wheelbase (R). The result is the weight of the load in the storage space on the rear axle. Make a note of this weight and of the storage space.
 - In a second step, subtract the weight in the storage space (G) from the weight calculated beforehand. If the result is a **positive** value (example 1), this means that the load on the front axle is **reduced** by this value. If the result is a **negative** value (example 2), this means that the load on the front axle is **increased**. Make a note of this value, too.

- Calculate all storage spaces of the vehicle in the same way.
- In a last step, add all weights calculated for the rear axle to the rear axle load and add (or subtract) all weights calculated for the front axle to (from) the front axle load.

How to determine rear axle load and front axle load is described in section 3.3.2.

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), as is the vehicle's steerability. 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		(A1) 450 (cm)	(A2) 250 (cm)
Weight in the storage space	G	x 100 (kg)	x 50 (kg)
Wheelbase of the vehicle	R	÷ 325 (cm)	÷ 325 (cm)
Load on the rear axle (add to the axle load)		138.5 (kg)	38.5 (kg)
Weight in the storage space		- 100 (kg)	- 50 (kg)
Load relief to the front axle (subtract from the axle load)		38.5 (kg)	
Load on the front axle (add to the axle load)			-11.5 (kg)

3.3.4 Roof rail and ladder (special equipment)



- Access the roof only when a roof rail has been fitted. Only climb onto the roof via a ladder.
- 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. The authorised dealer or service centre will be happy to advise you.

- ▷ The maximum permitted roof load is 90 kg.
- 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.





Climbing on to the roof (foldable ladder):

- Open the strap (Fig. 1,1) on the ladder (Fig. 1,3) at the rear of the vehicle.
- Fold out the guard rail (Fig. 1,2).
- Extend the ladder downward.
- Place guard rail with the rubber knobs (Fig. 2,1) up against the back panel of the vehicle.
- Carefully climb the ladder.

Climbing on to the roof (telescopic ladder):

- Carefully place the telescopic ladder (special equipment) against the side of the vehicle.
- Carefully climb the ladder.

3.3.5 Rear garage/rear storage space



- Do not use storage spaces or rear garages as places for people or animals to stay or sleep in. These spaces are not forced-air ventilated. There is a danger of suffocation due to oxygen deprivation or exhaust from the heater.
- Observe the permissible axle loads and maximum permissible gross weight when loading the rear garage/the rear storage space.
- The maximum permitted load of the rear garage/the rear storage space is 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.
- ▷ If there is a pull-out present in the rear storage space: make sure that the pull-out is engaged.
- ▷ Use the supporting system offered by your dealer if two-wheelers are transported in the rear garage.



- Observe the permissible axle loads and maximum permissible gross weight when loading the bike rack.
- A total width of 2.55 m must not be exceeded. Adjust the attachments for the bikes accordingly. The lateral overhang must be marked with a red flag.
- ▶ Load the bike rack with bicycles only (max. three units).
- Fasten bicycles using the straps provided and check to see that they are secure after you have driven a few kilometres.
- Check the secure attachment of the bicycles on the bike rack after the first 10 km and then at each break in the journey.
- ▶ Do not use the bike rack as luggage rack or ladder.



bicycles

- $\,\triangleright\,\,$ The bike rack is only to be used for transporting bicycles.
- \triangleright The gross weight specified by the manufacturer must not be exceeded.
- ▷ The identification plate and rear lights must not be covered.
- > The maximum permissible payload of the bike rack is 60 kg.
- When loading the bike rack, observe the centre of gravity. If the bike rack is only loaded with **one** bicycle, position the bicycle as closely as possible to the vehicle wall.
- > Driving with a folded out bike rack without bicycles is not permitted.
- \triangleright 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?

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

Depending on the model, fold the bike rack down or pull it out.

- Place the heaviest bicycle directly against the rear wall.
- Place the lightest bicycles in the centre or on the outside of the bike rack.
- Secure the front and rear wheels of each bicycle with the retaining straps on the bike rack.
- In addition, fasten the outermost bicycle depending on the model of the bike rack on the retaining clip or the retaining bracket and to the spacer respectively.

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

Loading the bike rack with



Bike rack, lowerable



> Also read the manufacturer's instruction manual.





Fig. 3 Bike rack, folded upwards

Fig. 4 Bike rack, lowered

The bike rack (Fig. 3) permits to easily transport 2 bicycles. Expansion for 3 bicycles is possible. A winding system can be used to lift and lower the bike rack. The winding system brings the bicycles to gripping height within seconds.

- Loading the bicycles:
- Attach the hand crank (Fig. 4,1) to the bike rack and lower the bike rack to gripping height.
- Place the bicycles on top and secure them with quick straps.
- Fasten the bike-block spacer to the frame of the outermost bicycle.
- Use the hand crank to raise the bike rack again.

Bike rack, not lowerable



▷ Also read the manufacturer's instruction manual.



Fig. 5 Bike rack, not lowerable

The bike rack (Fig. 5,2) permits to easily transport 2 bicycles. Expansion for 3 bicycles is possible.

Loading the bicycles:

- Fold the telescopic swivel clip (Fig. 5,4) down.
- Place the bicycles on top and secure them with quick straps (Fig. 5,3).
- Fasten the spacer (Fig. 5,1) to the frame of the outermost bicycle.



- Do not exceed the rear axle load.
- ► Heavy loads behind the rear axle can reduce the load on the front axle due to the leverage effect (1/2 1/2). 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.
- Always make sure to store the load roadworthy and secure it against falling.
- The load may not jut out beyond the maximum width of the vehicle. The lighting and the official licence plate on the load rack may not be covered by the load.



 $\,\triangleright\,\,$ The load rack and caravan coupling must not be used simultaneously.



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

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





Fig. 6 Load rack

Fig. 7 Attachment to vehicle

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

Scope of delivery

The following parts belong to the scope of delivery:

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



Attachment to vehicle

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

Entry in the vehicle documents

Have your dealer or service centre install the add-on parts. They will also take care of all the formalities for you.

3.4 Towing



- Care is to be taken when connecting and detaching a trailer. Risk of accident and injury!
- No persons are to be between the towing vehicle and the trailer during positioning for connecting and detaching.
- Observe the permissible nose weight and rear axle load of the motorhome. Refer to the vehicle documents for the rear axle load.



- ▷ Trailer with an overrun brake: Do not connect or detach trailer with the overrun brake on.
- Caravan coupling with detachable ball neck: If the ball neck is mounted incorrectly, there is the danger of the trailer breaking away. Observe the instruction manual for the caravan coupling.
- ▷ The tow ball only fits onto the supplied mount. If the tow ball must be replaced, the mount must also be replaced.
- If the vehicle is equipped with air suspension: the distance between the tow ball of the caravan coupling and the road must be 350 to 420 mm in loaded condition.

Depending on the model, different nose weights may apply for the caravan couplings. Refer to the following table for the respective permissible nose weight.

Model	Permissible nose weight
SAWIKO MT019	75 kg
SAWIKO (other)	100 kg
Linnepe	100 kg
AL-KO	80 kg





- When mounting a caravan coupling, see the vehicle documents for information on maximum nose weight and caravan load.
- Retighten the caravan coupling fixing screws after 1000 operating hours.

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



- > If the caravan coupling is retrofitted, this must be entered in the vehicle documents. The required documents are enclosed with the caravan coupling.
- > If the caravan coupling was fitted at the factory, this is entered in the vehicle documents. Always keep the appropriate documents in the vehicle.
- 0 BUE0082 Fig. 8

▷ Also read the manufacturer's instruction manual.



Caravan coupling, rigid

Fig. 9 Caravan coupling, detachable

Entry in the vehicle documents

Have your dealer or service centre install the add-on parts. They will also take care of all the formalities for you.

Electrically operated entrance step (partially special 3.6 equipment)



- ▶ 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 11).







- ▷ The button to operate the entrance step is located on the inside of the vehicle in the area of the conversion door.
- ▷ If the entrance step is not retracted and locked in place correctly, a red indicator lamp lights up on the dashboard when the ignition is switched on.
- \triangleright Follow the warning notice on the entrance step.



Fig. 10 Entrance step





Fig. 11 Warning notice for entrance Fig. 12 Operating button for entrance step

Before stepping on the entrance step, fully extend it (Fig. 11).

- *Extending:* Press the rocker button (Fig. 12,1) down and hold it pressed (at least 3 seconds) until the entrance step has extended completely.
- *Retracting:* Press the rocker button (Fig. 12,1) up until the entrance step has retracted completely.



Fig. 13 Indicator lamp

When the ignition is switched on and the entrance step is extended, an indicator lamp (Fig. 13,1) is illuminated on the dashboard.

3.7 TV unit (special equipment)



- Before commencing the journey, place and secure the flat screen and screen support in the initial position. If the screen holder is installed in a TV cabinet: Close TV cabinet.
- Before commencing the journey, ensure that the antenna is in park position. Danger of accidents! Park position means: The antenna points towards the back, is fully lowered and is locked in this position.
- 0
- ▷ Further information on positioning the flat screen can be obtained from chapter 6.

3.8 Sink and drain basic covers (partially special equipment)



In the event of an accident or emergency braking, the loose sink (Fig. 14,1) and drain basin covers could injure the occupants of the vehicle. Before commencing the journey, take the loose covers off and store them securely in the kitchen unit or wardrobe.



Fig. 14 Sink cover (example)



3.9 Securing add-on parts



▶ In the event of an accident or emergency braking, loose add-on parts could injure the occupants of the vehicle. Before setting off, secure loose add-on parts in the holders provided or stow them in a secure place inside the vehicle.



Unsecured flaps and doors can spring open during the journey and damage parts of the interior. Secure all flaps and doors before setting off.

Add-on parts

Add-on parts include bed widenings, ladders or table extensions.







Fig. 16 Access ladder in the wardrobe

- Securing add-on parts:
- Place the add-on parts (Fig. 15,1 and Fig. 16,1) in the holders provided and secure them with the available means of attachment.
- If no holder is provided for the add-on part, stow the add-on part in a storage space the doors of which cannot be opened in the direction of travel (e.g. wardrobe or rear storage space).
- **Doors and flaps** Doors are, for example, inner doors or partition walls. See section 6.4 for furniture flaps.





Fig. 18 Shower partition

Securing doors:

Secure doors (Fig. 17,1) or partition walls (Fig. 18,1) with the locks or means of securing provided.



Coffee table of the rear seating group

A movable coffee table is installed in the seat box of the rear seating group.



Fig. 19 Bench and coffee table



Fig. 20 Coffee table lock

Securing the coffee table:

- Lower the coffee table.
- Run the coffee table into the seat box.
- Press the push buttons (Fig. 20,1) on the seat box panel. The coffee table is secured.

3.10 Snow chains (special equipment)



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

Only use suitable snow chains:

Tyre size	Snow chain size
215/70 R 15 C	230
225/75 R 16 C	245

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

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



3.11 Road safety



Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle (see section 13.7).

Before commencing the journey, work through the checklist:

	No.	Checks	Checked
Base vehicle	1	All vehicle documents are on board	
		Tyres in proper condition and tyre pressure correct	
	3	Vehicle lighting, brake lights and reversing lights function	
	4	Oil levels for engine, gearbox and power steering controlled	
5 Coolant and fluid for windscreen washers filled up			
	6	Brakes function	
	7	Brakes react evenly	
	8	When braking, the vehicle remains in the lane	
Housing body, outside	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 supports retracted and fixed in place	
	14	Wheel chocks removed and stored away	
	15	Entrance step is stored securely or retracted	
	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	



1	
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1	

	No.	Checks	Checked
Housing body, inside	19	Windows and skylights closed and locked	
	20	Flat screen secured	
	21	Television antenna retracted (if one is built in)	
22		Loose parts and add-on parts stored away or fixed in position	
	23	Open storage spaces empty	
	24	Store sink and drain basin covers securely	
	25	Refrigerator door secured	
	26	Refrigerator set to 12 V operation	
	27	All drawers and flaps closed	
	28	All doors secured	
	29	Pull-down bed secured	
	30	Children's seats mounted to seats with three-point safety belts	
	31	Swivel seat locking device for driver's seat and front passenger's seat locked	
	32	Shades in the driver's cabin opened and secured	
•			
Gas system	33	Gas bottles firmly fixed in the gas bottle compartment so that they are unable to turn	
	34	If the gas bottles are not connected to the gas tube, always place the protective cap on top	
	35	If there is no supplied crash protection unit: Regulator tap on the gas bottle and gas isolator taps are closed	
	20	Obselv the better welters of the starter and living area better.	
Electrical system	36	Check the battery voltage of the starter and living area battery (see chapter 8). 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 8	
		Commence journey with fully charged starter and living area batteries.	

3





4.1 Chapter overview

This chapter contains instructions on how to drive the motorhome.

The instructions address the following topics:

- reversing camera with LCD monitor
- driving speed
- brakes
- air suspension
- seat belts
- child restraint system
- seats and headrests
- seating arrangement
- Roman shades in the driver's cabin
- filling the tank

4.2 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.
- A seat belt is fitted for each seat which is permitted for travel. Please keep your seat belt fastened during the journey.
- Never open your seat belts when travelling.
- Passengers must remain in the seats provided.
- ▶ The doors must remain locked.
- ► Avoid braking with a jerk.
- If a navigation system is used, only change the destination when the vehicle is stationary. Drive to a car park or stop in a safe area when changing the destination.
- Do not play DVDs using the monitor of the navigation system during the journey.
- Always switch off outdoor light/awning light during the journey.



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



- ▷ If an accident occurs as a result of these instructions not being observed, the manufacturer will not be responsible for damages caused.
- ▷ The safety measures stipulated in chapter 2 have to be observed.
- If a reversing camera is installed in the vehicle, the camera is automatically switched on when driving in reverse gear.



4.3 **Reversing camera (special equipment)**



Fig. 21 Reversing camera with infrared illumination



A reversing camera (Fig. 21,1) is installed in the vehicle.

When it is dark, the infrared LEDs of the reversing camera (Fig. 21,1) illuminate the field of view.

The image of the reversing camera is fed into the central multimedia/navigation system and shown on the existent LCD monitor (Fig. 22,1).

If the engine is running or the ignition is switched on, the reversing camera and LCD monitor switch themselves on automatically when you engage reverse.

If the engine is running or the ignition is switched on, the reversing camera and LCD monitor can also be switched on manually via a pushbutton or a switch on the display.

The system can also be switched off via a pushbutton or the "OFF" button on the display.



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

Driving speed



- The vehicle is equipped with a powerful engine. This means there are ► sufficient reserves in difficult traffic situations. This high power enables a high maximum speed and requires above-average driving ability.
- The vehicle provides a large contact surface for wind. A sudden crosswind can be especially dangerous.
- Uneven or one-sided loading affects road performance.
- Driving on unknown streets, you may encounter hazardous road condi-tions and unexpected driving situations. Therefore, in the interest of safety, make sure your driving speed is appropriate to any given driving situation and environment.
- Adhere to the national legal speed limits.


4.5 Brakes



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

Before each journey

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

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

Air suspension Goldschmitt (special equipment)



4.6

Make sure that no persons are staying underneath the vehicle or between the wheels when the vehicle is lowered.



- Do not overload the vehicle (do not exceed the axle load nor the permissible gross weight).
- ▷ Make sure that it is possible to lower the vehicle can be freely even after a longer stationary period.
- Before setting of, check the system pressure at the pressure gauge. The system pressure shall be within a range from 1 to 6 bar. If required, increase the pressure or decrease the pressure.
- ▷ When using snow chains: make sure that there is sufficient free space for the snow chains.

1-circuit system

In addition to the standard equipment of the vehicle with steel springs, two bellows are installed on the rear axle. With that, the vehicle can be lifted several centimetres.



1 On/Off button 2 Bleeding pin

3 Pressure gauge

Fig. 23 Electrical control unit

hand vehicle seat console).

Raising the vehicle:

Lowering the vehicle:



on the electrical control unit.
 Distribute the load evenly on the bellows because otherwise tensions may occur on the body. Tensions may hinder opening and closing the doors and

Release the pressure. In order to do this, press the bleeding pin (Fig. 23,2)

Press On/Off button (Fig. 23,1) on the electrical control unit. Fill the system with an external compressor through a valve (on the left side of the left-

- flaps.
- ▷ Also read the manufacturer's instruction manual.



4.7 Seat belts

4.7.1 General

The vehicle is equipped with seat belts in the living area on the seats for which seat belts are compulsory by law. National regulations apply 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.
- Only use one seat belt for **one** adult person.
- Do not belt in objects together with persons.
- Seat belts are not sufficient for persons who are less than 150 cm tall. In these cases use additional restraining devices. Observe test certificate.
- Only attach the child restraint system to seats that are specified for this purpose.
- ► 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.

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

4.8 Child restraint systems



- When travelling, secure children under 13 years of age that are smaller than 150 cm, with a suitable and officially approved child restraint system.
- Only attach the child restraint system to seats that are specified for this purpose.
- Fasten the childrens' seat belts before commencing the journey and make sure that their seat belts are kept fastened during the journey.
- Use a rear-facing child restraint system ("reboard system") only when the front and side air bags on the passenger side are switched off. Observe the separate operating instructions of the chassis manufacturer and the warning notices in the vehicle. If no rear-facing child restraint system is in use, switch the airbags back on again.







Fig. 24 Child seats on bench

Fig. 25 Child seat on L-shaped bench

The arrow in Fig. 24 and Fig. 25 shows the direction of travel.

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

Child restraint systems are divided into five classes:

Class	Body weight	Approximate age
0	Up to 10 kg	Up to 9 months
0+	Up to 13 kg	Up to 18 months
1	9 kg to 18 kg	9 months to 4 years
П	15 kg to 25 kg	3 years to 7 ½ years
Ш	22 kg to 36 kg	6 years to 12 years

The following table shows, which child restraint systems can be used on which seats.

Seats		Age groups				
		< 10 kg (0-9 months)	< 13 kg (0-24 months)	9-18 kg (9-48 months)	15-36 kg (4-12 years)	
Front passen- ger's seat		х	U ¹⁾	U ¹⁾	U ¹⁾	
Second and third row of seats (bench) Fig. 24		U ²⁾	U	U	U	
Second and third row of seats (L-shaped bench) Fig. 25		U ²⁾³⁾	U ³⁾	U ³⁾	U ³⁾	
Here, the following meanings apply:						
	Suitable for "universal" restraint systems which are authorised for this age group.					
	Suitable for forward-facing "universal" restraint systems which are authorised for this age group.					
X:	Seat is not suitable for children in this age group.					

¹⁾ This only applies without airbag or with deactivated airbag.

- ²⁾ Only possible in the respective seat if the distance between the seat and the table is large enough or if the table has been removed.
- ³⁾ Back cushion on side wall removed.



4.8.1 ISOFIX child safety seat mounting system (special equipment)





If the vehicle is equipped with the ISOFIX child safety seat mounting system, the vehicle seats suitable for it are marked with the ISOFIX symbol. These vehicle seats have retaining brackets (Fig. 26,2) and another anchorage point at the top of the seat backrest (Top Tether) (Fig. 26,1). Use child restraint system suitable for ISOFIX. The child restraint systems possess connectors which are latched to the retaining brackets of the vehicle seat.

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

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

Fastening a child seat

- Push the connectors of the child seat into the ISOFIX anchorage points until they engage audibly.
- By pulling the child seat, check whether both sides have engaged correctly.
- If possible, fasten the child seat at the Top Tether (Fig. 26,1).



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





- Before commencing the journey, rotate all swivel seats in the direction of travel and lock in position.
- The seats must remain fixed in position during the journey and are not to be rotated.



- Before rotating the seats in the pitched vehicle, always apply the handbrake.
- Push the driver's seat into the central position before rotating it. If the driver's seat is in the very back or in the very front, there is a risk of colliding with the handbrake lever or the seating group when rotating the driver's seat.



- The driver's seat and the front passenger's seat are part of the base vehicle. The adjustment of the seats is described in the instruction manual of the base vehicle.
- ▷ The possibilities of seat adjustment differ according to the model and equipment variants.

4.10 Seat heater (special equipment)



 \triangleright The seat heater only works when the ignition is switched on.

Depending on equipment levels, the driver's seat and the front passenger's seat may have a 2-level seat heater.



Fig. 27 Switch for seat heater

Switching on the seat heater:

- Press the switch (Fig. 27,1) at the back on the left side of the seat console.
 - For minimal heating: Press the switch so that it is in the down position.
 - For the highest heat level: Press the switch so that it is in the up position.

The LED (Fig. 27,2) comes on when the seat heater is in use.

Switching off the seat heater:

Set switch (Fig. 27,1) to the middle position. The LED goes out.



4.11 **Headrests**



Fig. 29 Bench headrest, two-part

Before commencing the journey, adjust the headrest (Fig. 28,1 or Fig. 29,1) so that the back of the head is supported at approximately ear height.



Fig. 30 Symbol "Adjust headrests"

Push the headrests upwards or downwards by hand.

4.12 Seating arrangement



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



Fig. 31 Symbol "Do not use seat during the journey"

Seats which may not be used during the journey are equipped with a sticker (Fig. 31).



4.13 Roman shade in the driver's cabin

4.13.1 Pleated Roman shades



When on the move, the Roman shades for the windscreen, driver's window and the front passenger's window respectively must be completely removed.



Fig. 32 Pleated Roman shades

Removing the pleated shade:

- Open the snap fasteners (Fig. 32,1), loosen the magnetic strips and detach the pleated shade from the window (shown here on the passenger window).
- Stow away the pleated shades in the living area.

4.13.2 Roman shades, Remis (partially special equipment)



While travelling, the Roman shades for the windscreen, driver's window and front passenger's window must be open, in a fixed position and secured.



Fig. 33 Roman shade for the windscreen



Fig. 34 Roman shade for driver's and passenger's window

Securing:

- Use the handle (Fig. 33,2) to pull the two halves of the Roman shade for the windscreen outwards as far as they will go. When doing so, move the handle horizontally in the direction of the locking recess.
 - Allow the release handles (Fig. 33,1) to engage.
 - Use handle (Fig. 34,2) to push in the Roman shades for the driver's and passenger's window as far as possible.
 - Allow the release handles (Fig. 34,1) to engage.



4.14 Refuelling



All gas-operated devices must be switched off for refuelling (heater, cooker, oven, grill, refrigerator - depending on the equipment). Danger of explosion!



 $\,\triangleright\,\,$ The fuel filler neck is part of the base vehicle.

 $\,\triangleright\,\,$ The fuel filler neck is labelled with the word "Diesel".

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



5.1 Chapter overview

This chapter contains instructions on how to pitch the vehicle.

The instructions address the following topics:

- handbrake
- entrance step
- ramps
- wheel chocks
- operation of the supports
- 230 V connection
- refrigerator
- satellite unit
- aligning the antenna
- retracting and extending the awning



Pitch the vehicle so that it is as horizontal as possible. Use ramps where necessary. Otherwise, the water from the shower tray will not be able to drain properly.

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

5.2 Handbrake

Firmly apply the handbrake when parking the vehicle.

5.3 Entrance step



In order to exit the vehicle, first fully extend the electrically operated entrance step. Observe the indicator lamp on the dashboard.

5.4 Ramps



Ramps are not included in the scope of delivery. Different models are available from accessory shops.

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

5.5 Wheel chocks

When parking the vehicle on slopes or inclines use the wheel chocks.

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



5.6 Supports

5.6.1 General instructions



- The steady legs must not be used to jack up the vehicle in order to work beneath it, e.g. to change a wheel or carry out maintenance work.
- Whilst the vehicle is in a jacked up position, persons must not lie down under it.



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



- When the ground is soft, place a pad or block under the supports in order to prevent the vehicle from sinking into the ground.
- ▷ Pitch the vehicle so that it is as horizontal as possible. Otherwise, the water from the shower tray will not be able to drain properly.

5.6.2 Steady legs (SAWIKO) (special equipment)



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

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

The length of the steady legs can be adjusted according to the model.



Fig. 35 Steady leg

Extending:

- Place the socket spanner on the hexagon nut (Fig. 35,1) and rotate until the steady leg is in a perpendicular downward position.
 - If the length of the steady leg can be adjusted, remove the splint (Fig. 35,4) out of the support foot extension (Fig. 35,5).
- Pull out the support foot extension until it has reached the required length.
- Insert the splint in the support foot extension.
- Rotate the hexagonal nut until the steady leg rests completely on the ground and the vehicle is in a horizontal position.

Retracting:

- Place the socket spanner on the hexagon nut (Fig. 35,1) and rotate until the steady leg is clear of the ground.
 - If the length of the steady leg can be adjusted, remove the splint (Fig. 35,4) out of the support foot extension (Fig. 35,5).
 - Push in the support foot extension (Fig. 35,5) and insert the splint (Fig. 35,4) in the drilled hole in the support foot extension.
 - Rotate the hexagonal nut (Fig. 35,1) until the steady leg has swung upwards and the guide (Fig. 35,2) has reached the very end of the slot (Fig. 35,3).
- Before commencing the journey, observe the following: Are all steady legs and support foot extensions retracted completely and secured with the splint?

5.6.3 Steady legs (AL-KO) (special equipment)

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

The length of the steady legs can be adjusted according to the model.



Fig. 36 Steady leg

Extending:

- Place the socket spanner on the hexagon nut (Fig. 36,1) and rotate until the steady leg is in a perpendicular downward position.
- Remove the splint (Fig. 36,4) out of the support foot extension (Fig. 36,5).
- Extend the support foot extension until it has reached the required length.
- Insert the splint in the support foot extension.
- Rotate the hexagonal nut until the steady leg rests completely on the ground and the vehicle is in a horizontal position.

Retracting:

- Place the socket spanner on the hexagon nut (Fig. 36,1) and rotate until the steady leg is clear of the ground.
- Remove the splint (Fig. 36,4) out of the support foot extension (Fig. 36,5).
- Push in the support foot extension (Fig. 36,5) and insert the splint (Fig. 36,4) in the drilled hole in the support foot extension.
- Rotate the hexagonal nut (Fig. 36,1) with the socket spanner until the steady leg has swung upwards and the guide disc (Fig. 36,3) has completely retracted into the notch (Fig. 36,2).



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



5.7 230 V connection

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

5.8 Refrigerator



If the refrigerator is set to 12 V operation, it will constantly consume current. Therefore, switch over to gas operation when the vehicle engine is not running, and the vehicle is not connected to the 230 V power supply.

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

5.9 Satellite unit (special equipment)



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



Move the antenna into parking position in the event of strong wind (above 80 km/h).



- $\,\triangleright\,\,$ The vehicle must be still during the satellite search. Do not walk through the vehicle.
- ▷ Satellite reception is only possible, when the antenna is positioned in direct line of sight of the chosen satellite and the view is not blocked in any way.
- ▷ Further information can be obtained in the device manufacturer's instruction manual.



Indicator of the chosen satellite

DOWN button (retract antenna)

POWER operating indicator

Satellite selection button

Display for messages

ON/OFF button

5.9.1 Unit with manual satellite selection (TeleSat)

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

When switching on the unit, the antenna is extended automatically. On the operating panel of the unit, the antenna can be retracted. When starting the vehicle engine, the antenna is retracted automatically.

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The satellite unit is operated via the operating panel.



Fig. 37 Operating panel

Setting up the unit: Press ON/OFF button (Fig. 37,5). All indicator lights on the operating panel light up briefly (self-test). On the display (Fig. 37,3), "ON" appears and the POWER operating indicator (Fig. 37,6) is lit. If the antenna had been retracted, it will now extend to operating position. If the flashing indicator of the chosen satellite (Fig. 37,1) corresponds to the desired satellite, wait a few seconds. The antenna automatically aligns with this satellite. When the unit has found the satellite, the indicator (Fig. 37,1) is lit permanently and the display (Fig. 37,3) displays "SAT". Press the Satellite selection button (Fig. 37,2) repeatedly until the indicator Choosing a satellite: (Fig. 37,1) displays the desired satellite. The antenna automatically aligns with this satellite. When the unit has found the satellite, the indicator (Fig. 37,1) is lit permanently and the display (Fig. 37,3) displays "SAT". Retracting the antenna: ■ Press the DOWN button (Fig. 37,4). "OFF" appears on the display (Fig. 37,3). When the antenna is fully retracted, the "OFF" message disappears. Switching off the unit: Press ON/OFF button (Fig. 37,5). The advance unit is switched off. The

antenna remains in the current position.

49



5.9.2 Equipment with automatic antenna alignment (Teleco)

The satellite unit is equipped with an automatic advance unit. This automatic advance unit ensures that the antenna is aligned precisely.

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

When the desired TV programme is chosen, the corresponding satellite is selected and aimed at automatically.

The satellite unit is operated via remote control. Optionally, a simplified remote control is available.



Fig. 38 Remote control



Fig. 39 Simplified remote control

(optional)

- Television on/off button 1
- AUTO button (advance unit and tele-2 vision on/off)
- 3 INPUT button (selection of the signal source)
- 4 Programme selection buttons

- Television on/off button
- 2 AUTO button (advance unit and television on/off)
- 3 INPUT button (selection of the signal source) 4
- Volume buttons
- Programme selection buttons 5 6
 - Mute button
- Switching on the unit: Press the AUTO button (Fig. 38,2 or Fig. 39,2) for 1 second. Thus, the television and the advance unit are switched on.

If the antenna had been retracted, it will now extend to operating position. The antenna then automatically starts searching for the satellite suitable for the set TV programme.

When the unit finds the satellite, the TV programme appears automatically.

Press the programme selection buttons (Fig. 38,4 or Fig. 39,5) until the Choosing a TV programme: desired TV programme has been selected.

> The antenna automatically searches for the suitable satellite. When the unit finds the satellite, the TV programme appears automatically.

- Choosing the signal source: Press the INPUT button (Fig. 38,3 or Fig. 39,3) repeatedly until the desired signal source has been selected.
 - To return to the satellite channels display, press the INPUT button (Fig. 38,3 or Fig. 39,3) repeatedly until the signal source DVB-S2 has been selected.



5

Switching off the unit:	Press the AUTO button (Fig. 38,2 or Fig. 39,2).			
	The antenna automatically moves into parking position. When reaching the parking position, this is displayed on the screen.			
	The television and advance unit switch off after a few seconds.			
Operating the unit without using the antenna:	Press the Television on/off button (Fig. 38,1 or Fig. 39,1). The advance unit is not switched on, the antenna remains in parking position.			
	Press the INPUT button (Fig. 38,3 or Fig. 39,3) repeatedly until the desired signal source (e.g. DVD) has been selected.			
	Press the Television on/off button (Fig. 38,1 or Fig. 39,1) to switch the tel- evision off.			
5.9.3	Equipment with automatic antenna alignment (Oyster)			
	The satellite unit is equipped with an automatic positioning unit. This automatic positioning unit ensures that the antennas are precisely aligned to the desired satellites.			
	Operation is menu-controlled (TV screen) using the remote control.			
Setting up the unit:	Switch on the television.			
	Use the mains switch to switch on the receiver. When the green LED on the receiver's infra-red receptor lights up, the receiver is ready to operate.			
	Switch on the receiver with the remote control. The satellite antenna repo- sitions itself out of the park position and into search mode.			
	When the system finds the satellite, the selected TV programme appears auto- matically.			
Satellite mouse	Depending on the model, the satellite receiver is equipped with a satellite mouse. The satellite mouse's display (Fig. 40,2) shows the current channel. The two buttons can be used to operate the basic functions of the satellite unit (changing channel, switching on/off).			

Fig. 40 Satellite mouse

Operating the satellite mouse:

- Choosing the previous channel from the list: Press left button (Fig. 40,1).
- Choosing the next channel from the list: Press right button (Fig. 40,3).

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- Switching between radio and TV: Press the buttons (Fig. 40,1 and Fig. 40,3) briefly at the same time.
- Switching the receiver on/off: Press and hold the buttons (Fig. 40,1 and Fig. 40,3) at the same time.



5.10 Awning (special equipment)



- ▷ Retract the awning in strong wind, rain or snow.
- $\,\triangleright\,\,$ In the case of light rain, shorten one of the support legs so that water can run off.
- Only retract the awning when the fabric is dry. When the awning must be retracted while the fabric is still wet: Extend the awning as soon as possible, in order to dry out the fabric.
- \triangleright Before retracting, remove leaves and coarse dirt from the awning.



- $\,\triangleright\,\,$ Only use the awning for protection against the sun.
- > Also read the manufacturer's instruction manual.

Advantages of the awning

The advantages of an awning are:

- The awning provides shade.
- The awning creates a covered vestibule and thus expands the space.
- The vehicle thus becomes more homelike.
- The integrated LED lighting (special equipment) provides additional light.



Fig. 41 Awning

Putting up the awning:

- Use the manual crank to open up the awning (Fig. 41,1).
- Set up the brackets (Fig. 41,2) when the awning is open.



Chapter overview

This chapter contains instructions about living in the vehicle.

The instructions address the following topics:

- opening and closing the doors and flaps
- rotating the seats
- light switches
- adjusting the spotlights
- positioning the television
- ventilation of the vehicle
- opening and closing the windows and blinds
- opening and closing the Roman shades in the driver's cabin
- opening and closing the skylights
- modifying the table surfaces
- converting tables
- use of the beds
- use of the external shower

6.1 Central locking system (special equipment)



- ▷ The central locking mechanism locks the driver's door, the passenger's door and the conversion entrance door.
- ▷ The central locking system has no function, if the battery cut-off switch on the transformer/rectifier is switched off.
- If, after you press the release button, a door is not opened within 40 seconds, the central locking system automatically locks the doors again.



Fig. 42 Remote control for central locking system

Unlocking: Press the button (Fig. 42,1) once briefly. The door locks are unlatched.

Locking:

Press the putton (Fig. 42,2) once briefly. The door locks are locked.



6.2 Conversion door



Only drive with locked doors.



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

6.2.1 Conversion door, outside (Hartal M1)



Fig. 43 Door lock of conversion door, outside

- *Opening:* Insert the key into locking cylinder (Fig. 43,1) and turn until the door lock is unlatched.
 - Return the key to the central position and remove it.
 - Pull on the handle (Fig. 43,2). The door is open.
- Locking: Insert the key into locking cylinder (Fig. 43,1) and turn until the door lock is engaged.
 - Return the key to the central position and remove it.





Opening: ■ Press lever (Fig. 44,2).

Locking: Push the slider (Fig. 44,1) upwards. A red marking is visible.

6.2.3 Conversion door, outside (Hartal Premium) (partially special equipment)



Fig. 45 Door lock of conversion door, outside

- *Opening:* Insert the key into locking cylinder (Fig. 45,1) and turn until the door lock is unlatched.
 - Return the key to the central position and remove it.
 - Pull on the handle (Fig. 45,2). The door is open.
- *Locking:* Insert the key into locking cylinder (Fig. 45,1) and turn until the door lock is engaged.
 - Return the key to the central position and remove it.

6.2.4 Conversion door, outside (Hartal with window)



Fig. 46 Door lock of conversion door, outside

- *Opening:* Insert the key into locking cylinder (Fig. 46,1) and turn until the door lock is unlatched.
 - Return the key to the central position and remove it.
 - Pull on the handle (Fig. 46,2). The door is open.
- Locking: Insert the key into locking cylinder (Fig. 46,1) and turn until the door lock is engaged.
 - Return the key to the central position and remove it.

6.2.5 Conversion door, inside (Hartal with window)



Fig. 47 Door lock of conversion door, inside

- *Opening:* Pull on the handle (Fig. 47,2). The door lock is unlatched or opened.
- Locking: Press the upper part of the handle (Fig. 47,2) in the direction of the recessed handle (Fig. 47,1). The door lock is locked.



6.2.6 Window of conversion door (partially special equipment)

The conversion door window is fitted with a Roman shade.



Fig. 48 Roman shade

Closing: Grip the Roman shade (Fig. 48,2) in the middle of the holding bar (Fig. 48,1), pull it upwards and then release it at the desired height. The Roman shade will stay at this height.

Opening: Grip the Roman shade in the middle of the holding bar and push it down.

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







- Closing:
 - Pull out the insect screen completely by the bar (Fig. 49,1).

Opening:

Push the insect screen into its initial position by the bar (Fig. 49,1).



6.3 External flaps



- \triangleright 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.



 $\,\triangleright\,\,$ When leaving the vehicle, close all external flaps.

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

6.3.1

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.



Locking cylinder
 Lock handle

Fig. 50 Flap lock with recessed handle

- *Opening:* Insert key into locking cylinder (Fig. 50,1) and turn a quarter turn. The flap lock is unlatched.
 - Remove the key.
 - Pull on the lock handle (Fig. 50,2). The external flap is open.

Closing:

- Firmly close the external flap.
- Insert key into locking cylinder and turn a quarter turn. The flap lock is locked.
- Remove the key.



6.3.2 Garage flap emergency release

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

Depending on the flap size the service flap is equipped with one or two lock-



Fig. 51 Garage flap emergency release

Unlocking the garage flap:

- Pull both handles of the emergency release (Fig. 51,2).
- Push the garage flap (Fig. 51,1) outwards.

6.3.3 Flap lock with push button

able push-button locks.



Fig. 52 Service flap push-button lock

Fig. 53 Service flap push-button lock (alternative)

- Opening:
- Insert the key into locking cylinder of the lockable push-button lock (Fig. 52,1 or Fig. 53,1) and turn a quarter turn. The push-button lock is unlatched.
 - Remove the key.
 - If equipped, unlock the second lockable push-button lock as well.
 - Press the two push buttons (Fig. 53,2) of the push-button locks simultaneously with the thumb and open the service flap.

Closing:

- Close the service flap and press it shut. The push-button locks are now engaged but not locked.
- Insert the key into locking cylinder of the lockable push-button lock (Fig. 52,1 or Fig. 53,1) and turn a quarter turn. The push-button lock is locked.
- Remove the key.
- If equipped, lock the second lockable push-button lock as well.



6.3.4 Service unit flap lock



Fig. 54 Flap lock, locked

- Opening: ■ Insert the key into the locking cylinder and turn until the red ring (Fig. 55,1) is visible. The flap lock is unlatched.
 - Remove the key.
 - Turn the handle half a turn in an anticlockwise direction until the red area (Fig. 55,2) is visible. The lock is open.
- Closing: Close flap.
 - Turn the handle half a turn in a clockwise direction until the red area (Fig. 55,2) is no longer visible.
 - Insert the key into the locking cylinder and turn until the red ring (Fig. 55,1) is no longer visible.
 - Remove the key.

6.4 **Furniture flaps**



- ▷ Before commencing the journey, close all furniture flaps and inner doors and lock them.
- ▷ The furniture flaps shown in this section are examples. Depending on the model, the locks and handles on the furniture flaps may differ to those displayed here.

6.4.1 Furniture flaps with push button







Fig. 57 Furniture flap with rectangular push button

- Opening:
- Press inner part of the lock. The push button (Fig. 56 or Fig. 57) jumps out. Hold push button and open furniture flap.



- Press furniture flap shut. Closing:
 - Press push button in until it locks. The furniture flap is closed correctly when the fastener locks into place.

6.4.2 Furniture flaps with handle and push button



Opening:

Opening:

- Fig. 59,2) and hold it down.
- Pull handle until furniture flap is open.
- Press the furniture flap down until you can feel the flap hinge close and Closing: hear the lock snap into place.

6.4.3 Furniture flaps with handle and unlocking bar



- Press the unlocking bar (Fig. 60,1) and hold it down.
 - Pull the handle (Fig. 60,2) until the furniture flap is open.
- Closing: Press the furniture flap down until you can feel the flap hinge close and hear the lock snap into place.



6.4.4 Furniture flaps with release handle



- *Opening:* Pull the release handle (Fig. 61,1) outwards.
 - Pull the release handle until the furniture flap is open.
- *Closing:* Press the furniture flap down until you can feel the flap hinge close and hear the lock snap into place.

6.5 Floor compartment cover



Fig. 62 Floor compartment cover (handle recessed)



Fig. 63 Floor compartment cover (handle swung out)

- Opening:
- Push one side of the grip plate (Fig. 62,1) downwards. The handle (Fig. 63,1) swivels upwards.
 - Remove the cover (Fig. 62,2 or Fig. 63,2) upwards.
- *Closing:* Insert the cover in the frame on the floor.
 - Swivel handle downwards.

6.6 Rotating seats



Before commencing the journey, rotate all swivel seats in the direction of travel and lock in position. During the journey, the swivel seats must remain locked in place in the direction of travel.



Push the driver's seat into the central position before rotating it. If the driver's seat is in the very back or in the very front, there is a risk of colliding with the handbrake lever or the seating group when rotating the driver's seat.



The driver's seat and the front passenger's seat are part of the base vehicle. The adjustment of the seats is described in the instruction manual of the base vehicle.

Rotating:

- Push both armrests at the driver's/front passenger's seat upward.
- Push the driver's seat / front passenger's seat into the central position.

The seats can only be locked in position in the direction of travel.

6.7 Light switch

6.7.1 Entrance area



The light switches shown in this section are examples. Depending on the model, the type and allocation of the light switches may differ to those displayed here.





Fig. 64 Light switch

Fig. 65 Awning light

The entrance area has light switches (Fig. 64,1-3) for the following lamps:

- Entrance lights
- Awning lights
- Living area lights
- Canvas blind lighting (special equipment)



6.7.2 Interior



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



Fig. 66 Spotlight, switch mounted directly on the lamp (example)



Fig. 67 Spotlight, switch mounted directly on the lamp (example)





Fig. 68 Ceiling lamp, separate from the switch (example)

Fig. 69 Switch, separate from the lamp (example)

The light switches in the interior are located either on the lamp itself (Fig. 66,1 or Fig. 67,1) or near the lamp (Fig. 69,1).



6.7.3 Wardrobe light (partially special equipment)

- ▷ The wardrobe light can be removed from its holder (Fig. 70,1) and used as a torch.
- ▷ When the wardrobe door is closed, the wardrobe light switches off automatically.
- A brightness sensor ensures that the wardrobe light comes on only when it is dark. This prevents the wardrobe light from being accidentally switched on during daylight hours, which would waste the batteries.



Fig. 70 Wardrobe light

The On/Off switch (Fig. 70,2) is located directly on the wardrobe light (Fig. 70,3).

6.7.4 Tube lamp in the rear garage



Fig. 71 Tube lamp in the rear garage

Move your hand over the sensor (Fig. 71,1) on the lamp to switch it on and off.



6.8 Spotlight



- Bulbs and light fittings can be extremely hot.
- Allow the light bulbs and lamp holders to cool down before touching them.
- If the light is switched on or still hot, there must always be a safety distance of at least 30 cm between stores or curtains and flammable objects. Fire hazard!

The spotlight can be rotated, moved or detached.



Fig. 72 Spotlight

Rotating: Grasp the housing (Fig. 72,2) and turn it.

The housing can be turned in different directions:

- To the left and to the right
- Up and down
- *Shifting:* Grip holder (Fig. 72,1) and turn by approx. 45°.
 - Push spotlight along the rail system to desired position.
- Removal:
- Grip holder (Fig. 72,1) and turn by approx. 90°.
- Remove spotlight from rail.

The spotlight can be installed in any position into the rails.



6.9 Holder for flat screen



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

6.9.1 Holder on the column

The holder for the flat screen is attached to a column.



Fig. 73 Holder on the column

- Positioning:
- Push the release lever (Fig. 73,2) to the side and turn the holder (Fig. 73,3) with the flat screen to the desired position.
- Press flat screen slightly upward and swivel it to the desired position. Three different inclination angles may be used.
- Storing away:
- Turn flat screen back until the holder (Fig. 73,3) engages in the lock (Fig. 73,1).

6.9.2 Holder with jointed arm

The flat screen is fastened to a jointed arm.



Fig. 74 Holder with jointed arm

Positioning:

- Pull the release knob (Fig. 74,2). The jointed arm (Fig. 74,1) is unlocked.
 - Swivel flat screen into the desired position.
 - Take hold of the flat screen at the top and bottom edge with both hands and set the desired angle of inclination.
- Storing away: Turn the flat screen back into the original position until you hear the holder (Fig. 74,3) engage in the lock.



6.9.3 Holder in the TV cabinet

The flat screen is attached to a console in the TV cabinet.



Fig. 75 Holder in the TV cabinet

Positioning:

- Push the unlocking bar (Fig. 75,1) in.
- Pull out the extension (Fig. 75,2) as far as possible.
- Swivel flat screen into the desired position.

Storing away:

- Swing back flat screen into its original position.
- Push in the extension (Fig. 75,2) until the unlocking bar (Fig. 75,1) engages.

6.9.4 Holder with release lever

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



Fig. 76 Holder with release lever

- *Positioning:* Push the release lever (Fig. 76,2) to the side and turn the holder (Fig. 76,1) with the flat screen to the desired position.
 - Press flat screen slightly upward and swivel it to the desired position. Three different inclination angles may be used.
- Storing away: Turn flat screen back until the holder (Fig. 76,1) engages in the lock.



6.9.5 Holder with pull-out

The flat screen is fastened to a pull-out.



Fig. 77 Holder with pull-out

Positioning:

- Pull the pull-out downwards by the handle (Fig. 77,1).
- Swivel the flat screen into the desired position.

Storing away:

- Swing the flat screen back into its original position.
- Push the pull-out with the flat screen upwards until it engages audibly.

6.10 Ventilation



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



- 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. mushroomshaped vents, skylight edges, sockets, filler necks, flaps, etc.).

Condensation Ensure that there is a continuous exchange of air by providing frequent and efficient ventilation. This is the only method for ensuring that condensation and resulting mould is not formed during cool weather. During the colder season, a pleasant living climate is created if heating output, air distribution and ventilation are synchronised. To avoid draft close the air outlet nozzles on the dashboard and set the air distribution of the base vehicle to air circulation.

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



6.11 Windows



The windows are fitted with a blind or Roman shade and with an insect screen or folding insect screen. After the latch has been released, the blind and insect screen automatically spring back to the initial position by tensile force. In order not to damage the tension mechanics, hold onto the blind or insect screen and allow it to slowly return to the initial position. The Roman shade and folding insect screen are made of thin woven fabric. In order not to damage the Roman shade or the insect screen, grasp the respective handle and carefully return it to the initial position.

- ▷ Do not keep blinds closed over a longer period of time as that can cause increased material wear.
- If the blind or the Roman shade is completely closed, exposure to direct sunlight can cause heat to accumulate between the blind/the Roman shade and the window. The window could be damaged.
 Therefore, if the shade is installed in the bottom blind box, close the shade only 2/3 when sunlight is intense. This allows the heat to escape between the window and the shade.
 If the shade is installed in the top blind box, close the shade fully and open it regularly.

Also move the window into the "continuous ventilation" position.

- ▷ Before commencing the journey, close the windows.
- ▷ Depending on the weather, close the windows far enough to prevent moisture from entering.
- ▷ To open and close the window, open or close all catch levers which are fitted to the window.



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

6.11.1 Hinged window



If windows with automatic hinges are fitted, open the window fully in order to release the lock. If the locking device is not released and the window is closed nevertheless, there is the danger of the window breaking due to the massive counter-pressure.

- When opening the hinged windows, ensure that there are no torsional forces. Open and close the hinged windows evenly.
- ▷ If the catch lever is equipped with a safety knob, press the safety knob when operating the catch lever.





"closed" position



Fig. 79 Catch lever in "closed" position

Opening:

Press and hold the security button (Fig. 78,1), if present.

Turn the catch lever (Fig. 78,2 or Fig. 79,3) a quarter turn towards the centre of the window.





Fig. 80 Hinged window with rotary hinge

Fig. 81 Hinged window with automatic hinge

Hinged window with rotary hinge: Open the hinged window until the required position has been reached and use knurled knob (Fig. 80,1) to secure in position.

Hinged window with automatic hinge: Open the hinged window to the desired latched position. The automatic hinge (Fig. 81,1) locks in place automatically.

The hinged window remains locked in the required position.

- Closing: Hinged window with rotary hinge: Turn knurled knob (Fig. 80,1) until the latch is released.
 Hinged window with automatic hinge: Open the hinged window as wide as is necessary to release the lock.
 - Close the hinged window.
 - Press and hold the security button (Fig. 78,1), if present.
 - Turn the catch lever (Fig. 78,2 or Fig. 79,3) a quarter turn towards the window frame. The locking catch (Fig. 78,3 or Fig. 79,2) on the catch lever is entirely on the inner side of the window catch (Fig. 78,4 or Fig. 79,1).







Fig. 82 Catch lever with safety knob in "continuous ventilation" position

Fig. 83 Catch lever in "continuous ventilation" position

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

- "Continuous ventilation" (Fig. 82 and Fig. 83)
- "Firmly closed" (Fig. 78 and Fig. 79)

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

- Press and hold the security button (Fig. 82,1), if present.
- Turn the catch lever (Fig. 82,2 or Fig. 83,3) a quarter turn towards the centre of the window.
- Slightly open the hinged window outwards.
- Return the catch lever to its initial position. Move the locking catch (Fig. 82,3 or Fig. 83,2) on the catch lever into the recess of the window catch (Fig. 82,4 or Fig. 83,1).
- Press and hold the security button (Fig. 82,1), if present.
- Make certain that the safety knob is not pushed in but rather that it secures the catch lever.

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

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




Sliding window with pressure lock



Fig. 84 Sliding window, locked

EUE01956 Fig. 85 Sliding window, unlocked

Opening:

6.11.2

- Push the latch (Fig. 84,1) downwards.
- Open the window to the desired position.
- *Closing:* Close the window as far as it can go.
 - Push the latch (Fig. 85,1) upwards.

6.11.3 Blind and insect screen

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



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

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



Fig. 86 Hinged window

Blind The blind is located in the upper blind box.

Closing:

Pull blind at the handle (Fig. 86,2) downwards. If the blind is to be completely closed, it is suspended into the locking devices (Fig. 86,3) situated on both sides of the window frame.



- *Opening:* If the blind is completely closed: Press handle (Fig. 86,2) downwards and, at the same time, tilt it slightly inward. The blind can be taken out of the locking devices situated on both sides of the window frame.
 - If the blind is in an intermediate position: Pull the handle (Fig. 86,2) slightly downwards until the locking device releases.
 - Use handle to return blind slowly to its initial position.
- Insect screen The insect screen is located in the upper blind box.
 - *Closing:* Pull insect screen at the handle (Fig. 86,1) down and hang it into the locking devices (Fig. 86,3) situated on both sides of the window frame.
 - *Opening:* Press handle (Fig. 86,1) downwards and, at the same time, tilt it slightly inward. The insect screen can be taken out of the locking devices situated on both sides of the window frame.
 - Use handle to return the insect screen slowly to its initial position.

6.11.4 Roman shade and insect screen

The windows are fitted with a Roman shade and an insect screen. The insect screen can only be moved together with the Roman shade.



Fig. 87 Hinged window

- **Roman shade** The Roman shade is located in the bottom blind box.
 - *Closing:* Grip the Roman shade in the centre of the holding bar (Fig. 87,3), pull it from the bottom to the top and then release it at the desired height. The Roman shade will stay at this height.
 - *Opening:* Grip the Roman shade in the centre of the holding bar and push it down.
- **Insect screen** The insect screen is located in the upper blind box.
 - *Closing:* Pull the insect screen down using the holding bar (Fig. 87,2), until it touches the holding bar of the Roman shade (Fig. 87,3).
 - Clip the catch (Fig. 87,1) on the insect screen into the handle of the Roman shade.
 - *Opening:* **•** Push the catch (Fig. 87,1) on the insect screen inwards.
 - Move the insect screen back slowly on the holding bar (Fig. 87,2).



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

Depending on the model, the driver's cabin is shaded either with pleated shades or with Remis Roman shades (special equipment).

Pleated shades

The pleated shades are standard equipment on the vehicle.





Fig. 89 Fixing of pleated shades

Fig. 88 Pleated shades on passenger window

The pleated shades (Fig. 88,2) are fixed with snap fasteners (Fig. 88,1 and Fig. 89,1).

The Roman shades are fixed with magnetic strips and are permanently fitted to the vehicle inside the frame.

Proceed as described below to open or close permanently installed Roman shades.

Windscreen

Remis Roman shades

(special equipment)



Fig. 90 Roman shade for the windscreen

Shading:

- Press the release handles (Fig. 90,1) and hold them down.
- Use the handle (Fig. 90,2) to pull the Roman shade for the windscreen towards the centre of the window.
- Close the second Roman shade for the windscreen in the same way. A magnetic catch holds both parts of the Roman shade together in the centre.

Opening the Roman shade:

- Press the release handles (Fig. 90,1) and hold them down.
- Use the handle (Fig. 90,2) to pull the two halves of the Roman shade for the windscreen outwards as far as they will go. As you do so, lift the handle up as high as the locking recess.
- Let go of the release handles (Fig. 90,1) and let them engage.



Driver's window and front passenger's window



Fig. 91 Roman shade for driver's and passenger's window

- Shading:
- Press the release handles (Fig. 91,1) and hold them down.
 - Using the handle (Fig. 91,2), draw the Roman shades for the driver's and passenger's window to the other side of the window and secure them to the magnetic strips.
- Opening the Roman shade:
- Press the release handles (Fig. 91,1) and hold them down.
- Use handle (Fig. 91,2) to push in the Roman shades for the driver's and passenger's window as far as possible.
- Let go of the release handles (Fig. 91,1) and let them engage.

6.12 Skylights

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



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



- The skylights are fitted with a blind or Roman shade and with an insect screen or folding insect screen. After the latch has been released, the blind and insect screen automatically spring back to the initial position by tensile force. In order not to damage the tension mechanics, hold onto the blind or insect screen and allow it to slowly return to the initial position. The Roman shade and folding insect screen are made of thin woven fabric. In order not to damage the insect screen, grasp the respective handle and carefully return it to the initial position.
- ▷ Do not keep blinds closed over a longer period of time as that can cause increased material wear.
- ▷ If the blind or the Roman shade is completely closed, exposure to direct sunlight can cause heat to accumulate between the blind/the Roman shade and the skylight. The skylight could be damaged. For that reason, close the blind/Roman shade only 2/3 of the way in direct sunlight. Open the skylight slightly or move it to ventilation position.
- ▷ Depending on the weather, close the skylights far enough to prevent moisture from entering.
- \triangleright Do not climb on the skylights.





- \triangleright Before commencing the journey, close the skylights.
- Before commencing the journey, check that the skylights are closed and locked.



 $\,\triangleright\,\,$ When leaving the vehicle, always close the skylights.

6.12.1 Skylight with snap latch





Fig. 92 Skylight with snap latch

Fig. 93 Handles with snap latches

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

Opening:

- Use handle (Fig. 92,1) to swing down the insect screen (Fig. 92,2).
- Push the snap latch (Fig. 93,1) towards the inside of the skylight (Fig. 93,3). At the same time use the handle (Fig. 93,2) to press the skylight upwards.
- Swing insect screen upwards until it latches in place.

Closing:

- Use handle (Fig. 92,1) to swing down the insect screen (Fig. 92,2).
- Using both handles (Fig. 93,2), pull down the skylight (Fig. 93,3) with force until the two snap latches (Fig. 93,1) lock into place.
- Swing insect screen upwards until it latches in place.



Fig. 94 Blind

Blind

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

Closing:

- Use handle (Fig. 92,1) to swing down the insect screen (Fig. 92,2).
 - Using the handle (Fig. 94,1), pull out the blind (Fig. 94,2) and hook the retainer (Fig. 94,3) into the hook (Fig. 94,4) on the insect screen.
 - Swing insect screen upwards until it latches in place.



- *Opening:* Use handle (Fig. 92,1) to swing down the insect screen (Fig. 92,2).
 - Release the retainer (Fig. 94,3) from the hook (Fig. 94,4) and, using the handle (Fig. 94,1), slowly return the blind (Fig. 94,2).
 - Swing insect screen upwards until it latches in place.

6.12.2 Heki skylight (mini and midi) (partially special equipment)





Fig. 95 Safety knob on the Heki skylight

Fig. 96 Heki skylight, guide

The Heki skylight is opened on one side only.

- *Opening:* Press the safety knob (Fig. 95,2) and pull the bar (Fig. 95,1) down with both hands.
 - Pull the bar (Fig. 96,1) in the guides (Fig. 96,2) to the rearmost position (Fig. 96,3).
- Closing:
- Use both hands to push the bar (Fig. 96,1) slightly upwards.
 - Push the bar back in the guides.
 - Push the bar upwards with both hands until it is above the safety knob (Fig. 95,2).





Fig. 97 Heki skylight in ventilation position

Fig. 98 Ventilation position locking mechanism

Ventilation position

The Heki skylight can be put in two ventilation positions: Bad weather position (Fig. 97,1) and central position (Fig. 97,2). Depending on the model, the skylight can be locked in the central position with both left and right latches (Fig. 98,1) on the skylight frame.

Press the safety knob (Fig. 95,2) and pull the bar (Fig. 95,1) down with both hands.



- Pull the bar in the guides (Fig. 96,2) to the desired position.
- Push the bar slightly upwards and into the selected guide (Fig. 97,1 or 2) and lock if necessary.

Roman shade To close and open the Roman shade:

- *Closing:* Pull out Roman shade at the handle and release in the required position. The Roman shade will stay in that position.
- *Opening:* Slowly push the Roman shade at the handle to its initial position.

Insect screen To close and open the insect screen:

- *Closing:* Pull the insect screen by the handle to the opposite handle of the Roman shade.
- *Opening:* Press the rear part of the handle of the insect screen. The latch is released.
 - Use handle to return the insect screen slowly to its initial position.

6.12.3 Wind-up skylight (special equipment)



Fig. 99 Wind-up skylight

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

Opening: Rotate the hand crank (Fig. 99,2) until a resistance can be felt. Closing: Rotate the hand crank until the wind-up skylight is closed. The wind-up skylight can be locked after rotating two or three more times. Check the locking mechanism. To do so, press your hand against the acrylic glass. Roman shade The Roman shade can be closed in any position, as desired. If the Roman shade is locked with the insect screen, the insect screen is also moved along on closing the Roman shade. ■ Pull the handle of the Roman shade (Fig. 99,3) and release in the desired Closing: position. The Roman shade will stay in that position. Opening: Slowly push the Roman shade at the handle to its initial position.



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

- *Closing:* Pull insect screen at the handle (Fig. 99,1) to the opposite handle of the Roman shade (Fig. 99,3) and allow to engage.
- *Opening:* Press the handle of the insect screen (Fig. 99,1) at the back upwards and detach the insect screen from the Roman shade (Fig. 99,3).
 - Slowly push insect screen at the handle to its initial position.

Omni-Vent skylight with fan (special equipment)

6.12.4

- 0
- To save the battery, after one hour the fan automatically switches from level 6 down to level 1.

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





Fig. 100 Omni-Vent skylight

Fig. 101 Control panel for fan

- *Opening:* Turn the knob (Fig. 100,1) until the desired opening angle is reached.
- *Closing:* **I** Turn the knob (Fig. 100,1) until the skylight is fully closed.

Insect screen To close and open the insect screen:

- *Closing:* Using the handle (Fig. 100,4) pull the insect screen across to the other side of the frame.
- *Opening:* Press the handle of the insect screen together. The latch is released.
 - Use handle to return the insect screen slowly to its initial position.
 - Shade To close and open the shade:
- *Closing:* Press together the handle (Fig. 100,5) of the shade.
 - Pull out the shade to the desired position and release. The shade will stay in that position.
- *Opening:* Press together the handle of the shade.
 - Slowly return the shade to its initial position.



Fan	If the skylight is open, the interior can be vented and aerated with the 6-speed fan (Fig. 100,3). The fan is operated via the operating panel (Fig. 100,2).
Switching on:	Press the On/Off button (Fig. 101,2). The fan runs in comfort mode (venting at slowest fan speed).
Venting:	To increase the fan speed: Press the Vent button (Fig. 101,1). The fan speed in the venting direction increases by one level. LEDs (Fig. 101,4) show the operating levels.
	To lower the fan speed: Press the Aerate button (Fig. 101,3). The fan speed decreases by one level.
Aerating:	To increase the fan speed: Press the Aerate button (Fig. 101,3). The fan speed in the aerating direction increases by one step. LEDs (Fig. 101,4) show the operating levels.
	To lower the fan speed: Press the Vent button (Fig. 101,1). The fan speed decreases by one level.
Boost function:	Press and hold the Aerate button for approx. 3 seconds. The fan switches to the maximum aeration level and then, after approximately 5 minutes, automatically switches back to the previously selected level.
	Press and hold the Vent button for approx. 3 seconds. The fan switches to the maximum venting level and then, after approximately 5 minutes, auto- matically switches back to the previously selected level.

Switching off:

Press the On/Off button (Fig. 101,2). The fan stops, the LEDs go out.

6.12.5

.5 Skyroof skylight (partially special equipment)



- ▷ When opening the skylight, ensure that there are no torsional forces. Open and close the skylight evenly.
- ▷ If the catch lever is equipped with a safety knob, press the safety knob when operating the catch lever.



Fig. 102 Catch lever with safety knob in "closed" position



Fig. 103 Catch lever in "closed" position

Opening:

- Press and hold the security button (Fig. 102,1), if present.
- Turn all catch levers (Fig. 102,2 or Fig. 103,3) a quarter turn towards the centre of the skylight.
- Press and hold the security button, if present.



- Fig. 104 Skylight with rotary hinges, open
- Open the skylight until the required position has been reached and use knurled knob (Fig. 104,1) to secure in position.

The skylight remains locked in the desired position.

Closing:

- Turn knurled knob (Fig. 104,1) until the latch is released.
- Close the skylight.
- Press and hold the security button (Fig. 102,1), if present.
- Turn all catch levers (Fig. 102,2 or Fig. 103,3) a quarter turn towards the frame. The locking catch (Fig. 102,3 or Fig. 103,2) is located on the inside of the skylight lock (Fig. 102,4 or Fig. 103,1).
- Press and hold the security button, if present.



Fig. 105 Catch lever with safety knob in "continuous ventilation" position



Fig. 106 Catch lever in "continuous vntilation" position

Continuous ventilation With the catch levers, the skylight can be placed in 2 different positions:

- "Continuous ventilation" (Fig. 105 and Fig. 106)
- "Firmly closed" (Fig. 102 and Fig. 103)

To place the skylight into the "continuous ventilation" position:

- Press and hold the security button (Fig. 105,1), if present.
- Turn all catch levers (Fig. 105,2 or Fig. 106,3) a quarter turn towards the centre of the skylight.
- Slightly push the skylight outwards.
- Return all catch levers to their initial position. The locking catch (Fig. 105,3 or Fig. 106,2) has to be moved into the recess of the skylight lock (Fig. 105,4 or Fig. 106,1).
- Press and hold the security button, if present.

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

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



 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.



Fig. 107 Skyroof skylight

Roman shade The Roman shade is fitted in the frame, at the bottom.

- *Closing:* Hold the Roman shade in the centre of the bottom rod and carefully draw it upwards.
 - Release the Roman shade at the desired position. The Roman shade will stay in that position.
- *Opening:* Carefully return the bottom rod of the Roman shade downwards to the limit stop on the frame.
- **Insect screen** The insect screen is fitted in the frame, at the top.
 - *Closing:* Hold the insect screen in the centre of the bottom rod and carefully pull it down.
 - Continuous adjustment of the insect screen may be made by moving the bottom rod.
 - *Opening:* Carefully return the bottom rod of the insect screen upwards to the limit stop on the frame.

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6.13 **Tables**

Depending on the model and equipment, various types of tables may be installed. The tables' features differ in the following ways:

	Table leg	Table top	Conversion to bed foun- dation	
Fixed table	Screwed into the floor	Moveable	Not possible	
Suspension table	Changeable	Extendible	Hang the table top from the	
	Foldable		top into the bottom mount- ing rail	
	Divisible		• Fold in the table leg	
			• Change the table leg	
			• Divide the table leg	
Lift-off table	Lifting mechanism	Moveable	Lower the table	



> Depending on the model, the tables can be adjusted in one or more of the aforementioned ways.

The tables' main operation is described below. The type and position of the operating controls may vary slightly.

6.13.1 **Fixed table**

The table leg is screwed into the floor. Table leg The fixed table cannot be used as a bed foundation.

Adjusting the table top Depending on the model, the table top can be moved or expanded.



Fig. 108 Unlocking of the table top



Fig. 109 Swing-out table extension

Moving the table top:

- Fold lever (Fig. 108,1) downward.
- Move the table top to the desired position.
- Fold the lever back upwards.
- Expanding the table: ■ Pull the knob (Fig. 109,3) of the lock down and swing out the table extension (Fig. 109,2).
- Swing the table extension (Fig. 109,2) under the table top (Fig. 109,1) until Reducing the table size: the lock latches in place audibly.

6.13.2

Table leg

Table top

Fig. 110 Swing-out table extension

Expanding the table:

sion (Fig. 110,2).

Swing the table extension (Fig. 110,2) under the table top (Fig. 110,1) until

Reducing the table size:

Fig. 111 Lock

Conversion to bed foundation:

- Lift the front of the table top by approx. 45°.
- Depending on the model, shorten the table leg to the conversion level.
- Release the lock (Fig. 111,1) on the table top.
- Take the table top out of the upper retainer.
- Hook the table top at a 45° angle to the supports into the lower retainer and place on the floor with the shortened table leg.
- Lock the table top.

Depending on the model, the table top can be extended. 2

Suspension table

Normal table height

■ Pull the knob (Fig. 110,3) of the lock down and swing out the table exten-





the lock latches in place audibly.



The table leg can be set up at two different heights:

• Replacing the long table leg with a short one

Folding in one part of the table leg Removing one part of the table leg

Decreased table height (when converting to a bed foundation)

To lower the table, there are the following possibilities (depending on model):

6.13.3 Lift-off table

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

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



Fig. 112 Adjustment of lift-off table

Moving in a lengthways direction:

- Fold lever (Fig. 112,1) downward.
- *direction:* Move the table top to the desired position.
 - Fold the lever back upwards.

Moving in a crossways direction:



- Fold lever (Fig. 112,1) downward.
- Move the table top to the desired position.
- Fold the lever back upwards.
- ▷ Before lowering the table top, remove the cushions from the benches or adjust the table top depending on the installation dimensions.
- Conversion to bed foundation:
- Swivel the lever (Fig. 112,2) underneath the table top by 180° in a clockwise direction. The lifting mechanism in the table leg is unlocked.
- Push the table top downwards as far as possible and hold it in that position. Press on the centre of the table top.
- Swivel back the lever by 180° in an anticlockwise direction. The table top remains in the lowest position.

Moving the table top upwards:

- Swivel the lever (Fig. 112,2) underneath the table top by 180° in a clockwise direction. The table top moves automatically upwards to the limit stop.
- Swivel back the lever by 180° in an anticlockwise direction. The table top remains in the uppermost position.



6.13.4 Lift-off table (variant)

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

Adjusting the table top

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



Fig. 113 Adjustment of lift-off table

Moving the table top:

Conversion to bed foundation:

Moving the table top upwards:

- Fold down the catch lever (Fig. 113,2).
- Move the table top to the desired position.
- Fold the catch lever up.
- Press up the lever (Fig. 113,1) under the table top. The lifting mechanism in the table leg is unlocked.
- Push the table top downwards as far as possible and hold it in that position. Press on the centre of the table top.
- Release the lever. The table top remains in the lowest position.
- Press up the lever (Fig. 113,1) under the table top. The table top moves upwards to the limit stop.
- Release the lever. The table top remains in the uppermost position.



6.13.5 Lift-off table, movable (special equipment)

Table legThe table can be moved. The table can be lowered to the bed foundation by
means of a lifting mechanism.

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



Fig. 114 Adjustment of lift-off table

- Moving in a lengthways direction:
- Fold down the catch lever (Fig. 114,2).
- Move the table top to the desired position.
 - Fold the catch lever up.

Moving in a crossways direction:

- Fold lever (Fig. 114,2) downward.
- Move the table top to the desired position.
- Fold the lever back upwards.

The table top can be swivelled upwards for better access to the driver's cabin.

- *Swivelling the table top upwards:* Pull the knob (Fig. 114,1) of the lock forward and swivel the table top upwards.
- Folding the table top down:
 - Conversion to bed foundation:
- Swivel the lever (Fig. 114,3) underneath the table top by 180° in a clockwise direction. The lifting mechanism in the table leg is unlocked.
 Push the table top downwards as far as possible and hold it in that position.

Swivel the table top downwards until the catch lock engages audibly.

- Push the table top downwards as far as possible and hold it in that position. Press on the centre of the table top.
- Swivel back the lever by 180° in an anticlockwise direction. The table top remains in the lowest position.
- Moving the table top upwards:
 - Swivel the lever (Fig. 114,3) underneath the table top by 180° in a clock-wise direction. The table top moves automatically upwards to the limit stop.
 - Swivel back the lever by 180° in an anticlockwise direction. The table top remains in the uppermost position.





Fig. 115 Table leg, movable

The table can be moved horizontally.

Moving the table: • Move the table to the desired position.

6.13.6 Coffee table (dependent on model)

The coffee table can be lowered. The coffee table can be stored in the seat box.





Fig. 116 Coffee table, stored

Fig. 117 Coffee table, extended

- Press the push buttons (Fig. 116,1) on the seat box panel. The push buttons jump out.
- Pull the coffee table out.
- Turn the catch lever (Fig. 117,1) 90° downwards.
- Move the table top to the desired position.
- Turn the catch lever upwards again.

Storing the coffee table:

Extending the coffee table:

Adjusting the table height:

- Turn the catch lever 90° downwards and lower the coffee table.
- Run the coffee table into the seat box.
- Press the push buttons (Fig. 116,1) in until they engage.

6.14 Beds

6.14.1 Fixed bed (gas-pressure springs)





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

Opening:

- Lift the mattress forwards.
- Lift slatted frame. The gas-pressure springs (Fig. 118,1) hold the slatted frame open.
- *Closing:* Press the slatted frame downwards against the resistance of the gas-pressure springs.

6.14.2 Fixed bed (adjustable head section)



Do not let the slatted frame fall down when closing the bed!



Fig. 119 Adjustable head section

Depending on the configuration, the head section of the slatted frame can be adjusted in several stages.

Raising the head section: Raise the head section (Fig. 119,2) of the slatted frame to the desired position. The support (Fig. 119,1) locks automatically into place.

The head section remains locked in the required position.

Lowering the head section: Raise the head section (Fig. 119,2) of the slatted frame until the lock is released.

■ Guide the head section downwards slowly.



6.14.3 Fixed bed, variable-height (special equipment)



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

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



Fig. 120 Crank in the rear garage

- Attach the crank (Fig. 120,2) onto the journal (Fig. 120,1).
- To lift the bed: Turn the crank clockwise.
 To lower the bed: Turn the crank anticlockwise.
- Remove crank and store it.

6.14.4 Bunk bed



- Only use the upper bunk bed if the safety guard is fitted.
- The maximum permitted bunk bed load is 100 kg.
- ▶ The upper bunk bed must not be used by children under 6 years of age.
- Never allow small children to remain in the bunk 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 bunk bed.
- ▶ Use separate children's beds or travel cots suitable for children.

Depending on the model, the vehicle is fitted with a bunk bed. The bunk bed can be used immediately, without additional conversion.

Always use the access ladder provided to climb up to the top bed.

6.14.5 Pull-down bed, electrically operated (lxeo)



- The maximum permitted pull-down bed load is 200 kg.
- Do not reach into the area between the bed and the side wall when lowering or raising. Danger of bruises!
- Do not lower or lift the bed when there are people using the pull-down bed.
- Only lower the bed if the lowering area is clear.





- Only lower the pull-down bed so far that it does not lie on any obstacles such as headrests, cushions or anything similar. If possible, remove such obstacles before lowering.
- Do not allow children to play with the pull-down bed.
- Store the key for the control unit such that children have no access to it.
- Only use the pull-down bed if the safety plates are inserted.
- Use separate children's beds or travel cots suitable for children.
- Never allow small children to remain in the pull-down bed without supervision.
- But in particular with regard to small children less than 6 years of age, users should ensure that they cannot fall out of the pull-down bed.



▷ Before starting a journey, the pull-down bed must be in the top end position. Do not stow any bulky items or bedding on the pull-down bed so that the pull-down bed can move to the top end position.



- Key switch UP button
- 2 3 Alarm LED
- 4 Programme LED
- 5 REŠET button (without function)
- 6 UP LED
- DOWN LED
- 8 DOWN button

Fig. 121 Control unit

Control unit The pull-down bed is raised or lowered using the buttons (Fig. 121,2 and 8) on the control unit (Fig. 121). The control unit is protected against unauthorized use with the key switch (Fig. 121,1).

4 fixed positions of the pull-down bed are programmed at the factory:

Position 1: Top end position. The bed is in the ready-to-drive state.

Position 2: The bed moves down approx. 20 cm and lifts the head section.

Position 3: Top sleeping position. In this position you can use both the pulldown bed and the seating group under the pull-down bed to sleep on. This position is adjusted to the ladder for climbing into the pull-down bed.

Position 4: Bottom sleeping position (bottom end position). The bed is lying on the seat cushions and on the table.

- Lowering the pull-down bed: Removing any obstacles in the area into which the pull-down bed extends: Push the seats forwards and rotate; remove or fold cushions if necessary.
 - Switch off the lamps underneath the pull-down bed.
 - Turn the key in the key switch (Fig. 121,1) through 90° clockwise. The control unit (Fig. 121) is activated. Both indicator lamps (Fig. 121,6 and 7) light up in green.
 - Press the arrow key (Fig. 121,8) and keep it pressed until the bed reaches the next programmed position below. The green indicator lamp (Fig. 121,7) is on while the bed is moving.

- If necessary, press the arrow key (Fig. 121,8) again to reach the next position.
- Repeat the procedure until the desired position is reached.
- Ensure that the pull-down bed is not resting on obstacles such as headrests, cushions or similar.



To prevent accidental incorrect operation, the key can be removed from the key switch (Fig. 121,1). This necessitates the key being turned anticlockwise.

Lifting the pull-down bed:

- Switch off the reading lamps in the pull-down bed.
- Turn the key in the key switch (Fig. 121,1) through 90° clockwise. The control unit (Fig. 121) is activated. Both indicator lamps (Fig. 121,6 and 7) light up in green.
- Press the arrow key (Fig. 121,2) and keep it pressed until the bed reaches the next programmed position above. The green indicator lamp (Fig. 121,6) is on while the bed is moving.
- If necessary, press the arrow key (Fig. 121,2) again to reach the next position.
- Repeat the procedure until the desired position is reached.
- Ensure that there are no objects stuck between the roof and the pull-down bed.





Fig. 122 Pull-down bed with safety plates

Safety plates

Inserting the safety plates:

The safety plates are only required in the top sleeping position. The safety plates are located underneath the mattress in the pull-down bed. Remove the safety plates before using the pull-down bed but do not insert them until persons are already in the pull-down bed.

- Bring out the safety plates under the mattress and place them on the pulldown bed.
- Climb into the pull-down bed via the access ladder.
- Insert the safety plates (Fig. 122,1) between the mattress and the bed surround (Fig. 122,3).



▷ Before the pull-down bed is pushed up: Remove the safety plates again and place them under the mattress.



- Access ladder If the pull-down bed is in the top sleeping position, only access the pull-down bed using the access ladder provided.
 - Attaching: Hook both bows of the access ladder (Fig. 122,2) into the bed surround (Fig. 122,3).
 - Storing away: Release the access ladder (Fig. 122,2) from the bed surround (Fig. 122,3).
 - Store the access ladder securely.
- **Emergency operation** If it is no longer possible to move the pull-down bed with the arrow keys (Fig. 121,2 and 8), first of all check the fuse Reserve 3 on the transformer/rectifier (see section 8.9.1). If the fuse is okay and it is still not possible to move the pull-down bed, the pull-down bed can be operated manually.



Fig. 123 Crank for emergency operation

- Remove the mattress from the pull-down bed.
- Insert the crank (Fig. 123,2) provided or an Allen wrench into the accommodation (Fig. 123,1) on the motor. The holder is in the cut-out in the surround at the top left of the pull-down bed.
- Turn crank or Allen wrench manually until the pull-down bed has reached the upper parking position.



 \triangleright For instructions on troubleshooting, see section 14.12.

6.14.6 Pull-down bed, electrically operated (Ixeo Time, Lyseo)



- ► The maximum permitted pull-down bed load is 200 kg.
- Do not reach into the area between the bed and the side wall when lowering or raising. Danger of bruises!
- Do not lower or lift the bed when there are people using the pull-down bed.
- Only lower the bed if the lowering area is clear.
- Only lower the pull-down bed so far that it does not lie on any obstacles such as headrests, cushions or anything similar. If possible, remove such obstacles before lowering.
- ▶ Do not allow children to play with the pull-down bed.



- Store the key for the control unit such that children have no access to it.
 - Only use the pull-down bed, if the safety net is set up.
 - ▶ Use separate children's beds or travel cots suitable for children.
 - Never allow small children to remain in the pull-down bed without supervision.
 - But in particular with regard to small children less than 6 years of age, users should ensure that they cannot fall out of the pull-down bed.



Fig. 124 Control unit

Control unit The pull-down bed is raised or lowered using the buttons (Fig. 124,1 and 4) on the control unit (Fig. 124,3). The control unit is protected against unauthorized use with the key switch (Fig. 124,2).

The pull-down bed's height may be adjusted steplessly.

- Removing any obstacles in the area into which the pull-down bed extends: Push the seats forwards and rotate; remove or fold cushions if necessary.
- Switch off the lamps underneath the pull-down bed.
- Turn the key in the key switch (Fig. 124,2) through 90° clockwise. The control unit (Fig. 124,3) is activated.
- Press the arrow key (Fig. 124,4) and keep it pressed until the pull-down bed has moved down into the desired position.
- Ensure that the pull-down bed is not resting on obstacles such as headrests, cushions or similar.

Lifting the pull-down bed:

Lowering the pull-down bed:

- Switch off the reading lamps in the pull-down bed.
- Press the arrow key (Fig. 124,1) and keep it pressed until the pull-down bed has moved down into the final upper position.
- Ensure that there are no objects stuck between the roof and the pull-down bed.









Fig. 125 Pull-down bed complete with applied safety net

Fig. 126 Pull-down bed, completely lowered (dependent on model)

Safety net The three safety nets (Fig. 125,2) with their retaining belts are located underneath the mattress in the pull-down bed. Only use the safety nets if persons are already in the pull-down bed.



- If the pull-down bed is lowered below 1 m (Fig. 126), it will not be possible to set up the safety nets.
- Setting up:
- Attach retaining belts (Fig. 125,1) to the hooks on the ceiling.

Access ladder

If the pull-down bed is raised over 1 m, only access the pull-down bed using the access ladder provided.

Attaching:

 Hook both bows (Fig. 125,4) of the access ladder (Fig. 125,5) into the holders (Fig. 125,3).

- Storing away:
- Release the access ladder (Fig. 125,5) from the holders (Fig. 125,3).
- Store the access ladder securely.
- **Emergency operation** If it is no longer possible to move the pull-down bed with the arrow keys (Fig. 124, 1 and 4), first of all check the fuse in the front wall-mounted cupboard on the left-hand side of the vehicle or at Reserve 3 on the transformer/rectifier (see section 8.9.1). If the fuse is okay and it is still not possible to move the pull-down bed, the pull-down bed can be operated manually.





Fig. 128 Access to drive (alternative)

If present, remove the cover from the access opening (Fig. 127,1 or Fig. 128,1).

dy in the pull-down bed. pull-down bed is lowered below 1 m up the safety nets.







Fig. 129 Access to drive (Lyseo)

Fig. 130 Mechanical operation, drive

- If the holder (Fig. 129,1) for the drive is installed in the wall-mounted cupboard: open the wall-mounted cupboard.
- Remove mattress from pull-down bed and reduce the load of the storage cupboards to a minimum.
- Insert the crank (Fig. 130,1) provided or an Allen wrench into the accommodation on the motor (Fig. 130,2 or Fig. 129,1).
- Turn crank or Allen wrench manually until the pull-down bed has reached the upper parking position.

6.14.7 Pull-down bed at the rear, electrically operated (Lyseo)



- The maximum permitted pull-down bed load is 200 kg.
- Do not reach into the area between the bed and the side wall when lowering or raising. Danger of bruises!
- Do not lower or lift the bed when there are people using the pull-down bed.
- Only lower the bed if the lowering area is clear.
- Only lower the pull-down bed so far that it does not lie on any obstacles such as headrests, cushions or anything similar. If possible, remove such obstacles before lowering.
- ▶ Do not allow children to play with the pull-down bed.
- Store the key for the control unit such that children have no access to it.
- Use separate children's beds or travel cots suitable for children.
- Never allow small children to remain in the pull-down bed without supervision.
- But in particular with regard to small children less than 6 years of age, users should ensure that they cannot fall out of the pull-down bed.





Fig. 131 Control unit

Control unit The pull-down bed is raised or lowered using the buttons (Fig. 131,1 and 4) on the control unit (Fig. 131,3). The control unit is protected against unauthorized use with the key switch (Fig. 131,2).



Fig. 132 Storage compartment and removed back cushion



Fig. 133 Pull-down bed at the rear, lowered

- Lowering the pull-down bed: Remove back cushion (Fig. 132,1) of the rear seating group.
 - Remove any other obstacles in the area into which the pull-down bed extends, e.g. bring the television into driving position.
 - Switch off the lamps underneath the pull-down bed.
 - Turn the key in the key switch (Fig. 131,2) through 90° clockwise. The control unit (Fig. 131,3) is activated.
 - Press the arrow key (Fig. 131,4) and keep it pressed until the pull-down bed has moved down into the desired position.
 - Make sure that the pull-down bed is not resting on obstacles such as cushions or similar.

Lifting the pull-down bed: Switch off the reading lamps in the pull-down bed.

- Press the arrow key (Fig. 131,1) and keep it pressed until the pull-down bed has moved down into the final upper position.
- Ensure that there are no objects stuck between the roof and the pull-down bed.

Access assistance The storage compartment (Fig. 132,2) can be used as an access assistance.



Emergency operation

If it is no longer possible to move the pull-down bed with the arrow keys (Fig. 131,1 and 4), first of all check the fuse in the rear wall-mounted cupboard (Fig. 134,1) (see section 8.9.1). If the fuse is okay and it is still not possible to move the pull-down bed, the pull-down bed can be operated manually.





Fig. 135 Access to drive

- Remove mattress from pull-down bed and reduce the load of the storage cupboards to a minimum.
- Insert the crank provided or an Allen wrench into the accommodation on the motor (Fig. 135,1).
- Turn crank or Allen wrench manually until the pull-down bed has reached the upper parking position.

6.15 Converting seating groups for sleeping

The seating groups installed in the vehicles can be divided into two categories:

- Individual benches which can be converted into the guest bed including the driver's seat.
- Seating groups with a lateral individual seat or lateral bench seat, which can be converted into a transverse bed.

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



▷ The ground plans for the individual models are shown in chapter 16.

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Model	Seating group	Table type	Bed	Section	
Nexxo tin	Nexxo time Edition 30				
T 569	Individual bench	Suspension table with rotating platform	Guest bed	6.15.1	
T 660 dinette	Individual bench with lateral seat	Suspension table with rotating platform	Transverse bed	6.15.2	
T 690 dinette	Individual bench	Suspension table with rotating platform	Guest bed	6.15.1	



Model	Seating group	Table type	Bed	Section	
Ixeo time	Edition 30				
IT 586	L-seating group with lateral bench	Lift-off table	Transverse bed	6.15.4	
IT 590	L-seating group with lateral bench	Lift-off table	Transverse bed	6.15.4	
IT 710 dinette	Individual bench with lateral seat	Suspension table with rotating platform	Transverse bed	6.15.2	
IT 710 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3	
IT 726 dinette	Individual bench with lateral seat	Suspension table with rotating platform	Transverse bed	6.15.2	
IT 726 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3	
IT 734 dinette	Individual bench with lateral seat	Suspension table with rotating platform	Transverse bed	6.15.2	
IT 734 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3	
Nexxo					
T 690 dinette	Individual bench with lateral seat	Suspension table with rotating platform	Transverse bed	6.15.2	
T 690 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3	
T 720 dinette	Individual bench with lateral seat	Suspension table with rotating platform	Transverse bed	6.15.2	
T 720 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3	
T 728 dinette	Individual bench with lateral seat	Suspension table with rotating platform	Transverse bed	6.15.2	
T 728 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3	
T 729 dinette	Individual bench with lateral seat	Suspension table with rotating platform	Transverse bed	6.15.2	
T 729 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3	
T 740 dinette	Individual bench with lateral seat	Suspension table with rotating platform	Transverse bed	6.15.2	
T 740 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3	
Travel Va	Travel Van				
Т 590	Individual bench	Suspension table with rotating platform	Guest bed	6.15.1	
T 620 Edition 30	Individual bench	Suspension table with rotating platform	Guest bed	6.15.1	
Т 690	Individual bench	Suspension table with rotating platform	Guest bed	6.15.1	



Model	Seating group	Table type	Bed	Section
lxeo				
IT 640	L-seating group with lateral bench	Lift-off table	Transverse bed	6.15.8
IT 680	L-seating group with lateral bench	Lift-off table	Transverse bed	6.15.5
IT 728	L-seating group with lateral bench	Lift-off table	Transverse bed	6.15.4
IT 734	L-seating group with lateral bench	Lift-off table	Transverse bed	6.15.6
Lyseo T				
IT 586	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.9
IT 590	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.5
T 690 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.7
T 690 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3
IT 690 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.7
IT 690 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3
T 700 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.7
T 700 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3
IT 700 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.7
IT 700 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3
T 710 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.2
T 710 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3
IT 710 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.2
IT 710 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3
T 728 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.7
T 728 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3
IT 728 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.7
IT 728 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3



Model	Seating group	Table type	Bed	Section
T 734 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.2
T 734 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3
IT 734 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.2
IT 734 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3
T 744 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.7
T 744 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3
IT 744 dinette	Individual bench with lateral seat	Suspension table	Transverse bed	6.15.7
IT 744 L-SG	L-seating group with lateral seat	Lift-off table	Transverse bed	6.15.3



▷ The following representations are partly valid for different vehicles. Therefore, the length, width and form of individual cushions may differ from the ones shown here.

6.15.1 Conversion of semi-dinette into guest bed





Fig. 136 Prior to conversion

- Fig. 137 After conversion
- Rotate the driver's seat towards the table.
- Push driver's seat fully forward (away from the table).
- Convert the suspension table into a bed foundation (see section 6.13).
- Remove the back cushion of the bench and lay it aside.
- Place the rectangular additional cushion on the table (in front of the seat cushion of the bench, see Fig. 137). When doing so, the cutout in the additional cushion is located on the frontal supporting wall.
- Push the driver's seat towards the table until a closed lying surface is created.



6.15.2 Conversion semi-dinette into transverse bed (with additional cushion table)





Fig. 138 Prior to conversion

Fig. 139 After conversion

- Convert the suspension table into a bed foundation (see section 6.13).
- Remove the back cushion of the bench and lay it aside.
- Push the cover of the lateral seat/lateral bench towards the centre of the vehicle as far as it will go.
- Place the bed widening onto the cover of the lateral seat/lateral bench and the table and secure it with elastic buffers.
- Place the rectangular additional cushion on the table (in front of the seat cushion of the bench). When doing so, the cutout in the additional cushion is located on the frontal supporting wall.
- Place the back cushion of the lateral seat/lateral bench on the table (between the seat cushion of the lateral seat/lateral bench and the additional cushion, see Fig. 139).
- Fully unfold the support underneath the additional cushion with reinforcement plate.
- Hook the hooks on the additional cushion with reinforcement plate into the holders on the bench seat and place the support on the floor.



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



Fig. 140 Prior to conversion

Fig. 141 After conversion

- Convert the lift-off table to a bed foundation (see section 6.13).
- Lay aside the back cushions of the benches.
- Push the cover of the lateral seat/lateral bench towards the centre of the vehicle as far as it will go.
- Place the bed widening onto the cover of the lateral seat/lateral bench and the table and secure it with elastic buffers.
- Place the rectangular additional cushion on the table (between the seat cushions of the benches, see Fig. 141).
- Fully unfold the support underneath the additional cushion with reinforcement plate.
- Hook the hooks on the additional cushion with reinforcement plate into the holders on the bench seat and place the support on the floor.

6.15.4 Conversion L-seating group into transverse bed (without additional cushion table)



Fig. 142 Prior to conversion



Fig. 143 After conversion

- Convert the lift-off table to a bed foundation (see section 6.13).
- Push the cover of the lateral bench towards the centre of the vehicle as far as it will go.
- Place the back cushion of the bench longitudinally on the table.
- Place the back cushion of the lateral bench longitudinally on the table (see Fig. 143).



- Fully unfold the support underneath the additional cushion with reinforcement plate.
- Hook the hooks on the additional cushion with reinforcement plate into the holders on the bench seat and place the support on the floor.

6.15.5 Conversion L-seating group into transverse bed (Ixeo IT 680, Lyseo IT 590)





Fig. 145 After conversion

- Convert the lift-off table to a bed foundation (see section 6.13).
- Place the back cushion of the bench horizontally onto the table (see Fig. 145).
- Place the back cushion of the side bench of the L-seating group horizontally onto the table.
- Fully unfold the support underneath the additional cushion with reinforcement plate.
- Hook the hooks on the additional cushion with reinforcement plate into the holders on the bench seat and place the support on the floor.

6.15.6 Conversion L-seating group into transverse bed (Ixeo IT 734)



Fig. 146 Prior to conversion



Fig. 147 After conversion

- Convert the lift-off table to a bed foundation (see section 6.13).
- Push the cover of the lateral bench towards the centre of the vehicle as far as it will go.
- Place the additional cushion horizontally onto the table (see Fig. 147).
- Place the back cushion of the individual bench horizontally onto the table.



- Fully unfold the support underneath the additional cushion with reinforcement plate.
- Hook the hooks on the additional cushion with reinforcement plate into the holders on the bench seat and place the support on the floor.

6.15.7 Conversion semi-dinette into transverse bed (with additional cushion table and bed widening)





Fig. 148 Prior to conversion

Fig. 149 After conversion

- Convert the suspension table into a bed foundation (see section 6.13).
- Remove the back cushion of the bench and lay it aside.
- Push the cover of the lateral seat towards the centre of the vehicle as far as it will go.
- Place the back cushion of the lateral seat on the table.
- Place the rectangular additional cushion on the table (between the seat cushion and the back cushion of the lateral seat, see Fig. 149).
- Fully unfold the support underneath the additional cushion with reinforcement plate.
- Hook the hooks on the additional cushion with reinforcement plate into the holders on the bench and place the support on the floor.

6.15.8 Conversion L-seating group into transverse bed (Ixeo IT 640)



Fig. 150 Prior to conversion



Fig. 151 After conversion

- Convert the lift-off table to a bed foundation (see section 6.13).
- Lay aside the back cushions of the benches.
- Push the cover of the lateral seat/lateral bench towards the centre of the vehicle as far as it will go.
- Place the rectangular additional cushion on the table (between the seat cushions of the benches, see Fig. 151).



6.15.9 Conversion L-seating group into transverse bed (Lyseo IT 586)





Fig. 152 Prior to conversion

Fig. 153 After conversion

- Convert the lift-off table to a bed foundation (see section 6.13).
- Push the cover of the lateral bench towards the centre of the vehicle as far as it will go.
- Place the back cushion of the lateral bench of the L-seating group longitudinally onto the table (see Fig. 153).
- Place the additional cushion longitudinally on the table, between the seat cushion of the lateral bench seat and the back cushion.
- Fully unfold the support underneath the additional cushion with reinforcement plate.
- Hook the hooks on the additional cushion with reinforcement plate into the holders on the bench seat and place the support on the floor.

6.15.10 Lying surface of single beds (special equipment)

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

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





Fig. 154 Additional cushion

Fig. 155 Additional cushion holder

- Take the additional cushion out of the cabinet.
- Hook the additional cushion (Fig. 154,1) with the holders (Fig. 155,1) into the panels of the single beds so that a closed lying surface is created.



6.16 Shower connection point for external shower (special equipment)



Only use the external shower if there is a gap of at least 1.20 m between the shower and the nearest electrical device or connection. Risk of electric shock!



 $\,\triangleright\,\,$ If decommissioned for a longer time or if there is a risk of frost, drain the water system.



Fig. 156 External shower connection point

Connecting an external shower:

Using the shower:

- Unlock and open the cover (Fig. 156,4).Attach hose of the external shower to the quick closure (Fig. 156,3).
- Switch on the water pump using the switch (Fig. 156,2).
- Adjust the water temperature with the rotary knob (Fig. 156,1) as desired.
- Switch off the water pump using the switch (Fig. 156,2).
- Shutting off the shower connection point:
- Switch off the water pump using the switch (Fig. 156,2).
- Disconnect the hose from the quick closure. The quick closure is equipped with a check value to prevent any further water from escaping.
- Close the cover (Fig. 156,4) and lock with key.
- *Emptying:* Attach hose of external shower to quick closure. The check valve is opened and the connections can run dry.
 - Turn knob (Fig. 156,1) to the centre position.
 - Empty the water system (see section 10.2.7).
Chapter overview

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

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

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

7.1 General



- The operator of the gas system is responsible for the performance of recurring inspections and for complying with the maintenance intervals.
- Before commencing the journey, when leaving the vehicle or when gas equipment is not in use, close all gas isolator taps and the main isolator tap on the gas bottle.
- All gas-operated devices (heater, cooker, oven, grill, refrigerator depending on the equipment) must be switched off for refuelling, on ferries or in the garage. Danger of explosion!
- Do not use gas-operated devices in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- Only have the gas system maintained, repaired or altered by an authorised specialist workshop.
- Have the gas system checked by an authorised specialist workshop according to the national regulations before commissioning. This also applies for not registered vehicles. For modifications to the gas system have the gas system immediately checked by an authorised specialist workshop.
- The gas pressure regulator, the gas tubes, and the exhaust gas pipes must also be inspected. The gas pressure regulator and the gas tubes must be replaced observing the nationally defined deadlines (the latest after 10 years). The vehicle owner is responsible for seeing that this is carried out.
- In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.). Check the tightness of gas-conducting parts and lines with leakage search spray. Do not check with an open flame.
- Only the stipulated devices may be connected to internal connections. Do not operate any device outside the vehicle if it is connected to an internal connector.
- Before using the cooker make sure that there is sufficient ventilation. Open a window or the skylight.
- Do not use gas-operated cooking and baking facilities for heating purposes.





- If there are several gas devices, each gas device must have its own gas isolator tap. If individual gas devices are not in use, close the respective gas isolator tap.
- Ignition safety valves must close within 1 minute after the gas flame has extinguished. A clicking sound is audible. Check function from time to time.
- The built-in gas devices are exclusively meant for use with propane or butane gas or a mixture of both. The gas pressure regulator as well as all built-in gas devices are designed for a gas pressure of 30 mbar.
- Propane gas is capable of gasification up to -42 °C, whereas butane gas gasifies at 0 °C. Below these temperatures no gas pressure is available. Butane gas is unsuitable for use in winter.
- Due to its function and construction, the gas bottle compartment is a space which is open to the exterior. Never cover or block up the standard forced ventilations. Otherwise gas that is emitted can not be diverted to the outside.
- ▶ The gas bottle compartment must not be used as storage space.
- Secure the gas bottle compartment against unauthorised access. To do this, lock the compartment.
- ▶ The regulator tap on the gas bottle must be accessible.
- Only connect gas-operated devices (e.g. gas grill) which have been designed for a gas pressure of 30 mbar.
- The exhaust gas pipe must be fitted tightly to the heating system and to the vent and must be sealed. The exhaust gas pipe must not show any evidence of damage.
- Exhaust fumes must be able to escape into the atmosphere unhindered and fresh air must be able to enter unhindered. For this reason, keep the exhaust pipe and intake openings clean and unobstructed (e.g. free from snow and ice). For this reason, no snow walls or aprons may lie against the vehicle.



7.2 Gas bottles



- Handle full or emptied gas bottles outside the vehicle only with closed regulator tap and attached protective cap.
- Gas bottles are only to be transported within the designated gas bottle compartment.
- ▶ Place the gas bottles in vertical position in the gas bottle compartment.
- ▶ Fasten the gas bottles so that they are unable to turn or tilt.
- Connect the gas tube to the gas bottle without tension.
- If the gas bottles are not connected to the gas tube, always place the protective cap on top.
- Close the regulator tap on the gas bottle before the gas pressure regulator or gas tube are removed from the gas bottle.
- Depending on the connection, unscrew the gas tube from the gas bottle and screw it on the gas bottle again by hand or using an suitable special spanner. The screw connection on the gas bottle generally has a lefthand thread. **Do not** tighten too firmly.
- Only use special gas pressure regulators with a safety valve designed for vehicle use. Other gas pressure regulators are not permitted and cannot meet the demanding requirements.
- Use only 11 kg or 5 kg gas bottles. Camping gas bottles with built-in check valve (blue bottle with max. 2.5 or 3 kg content) are can be used in exceptional cases with a safety valve.
- Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- Never block the floor ventilation openings below the gas bottles.



With some models, the gas bottle compartment is located right next to the conversion door. With these models, only open the gas bottle compartment when the conversion door is closed. Danger from damages.



- ▷ The screw connections on the gas bottles generally have a left-hand thread.
- \triangleright For gas-operated units the gas pressure must be reduced to 30 mbar.
- ▷ Information available at the dealers or service centre.
- \triangleright For information on the gas supply in Europe see chapter 17.

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

The gas pressure regulator is permanently installed in the gas bottle compartment. The gas bottle is connected to the gas pressure regulator via a highpressure gas hose.

The high-pressure gas hoses and their connections are different in the various countries. The accessories shop offers the respective country-specific models and adapters.



7.3 Gas isolator taps



Fig. 157 Possible symbols for the gas isolator taps

A gas isolator tap (Fig. 157) for every gas device is built into the vehicle.

The gas isolator taps are located in the vehicle at different positions, and can also be fitted separately. Generally, you will have access to the gas isolator taps in the kitchen unit opening a door or a drawer.



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

- *Opening:* Position the gas isolator tap of the corresponding gas device parallel (Fig. 158,1) to the pipe (Fig. 158,3) leading to the device.
- *Closing:* Position the gas isolator tap of the corresponding gas device transverse to the pipe leading to the gas device.



7.4 External gas connection (special equipment)

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



Fig. 159 External gas connection, gas isolator tap closed

The external gas connection (Fig. 159) is located on the right-hand side of the vehicle.

- Connect the external gas device to the connection point (Fig. 159,1).
- Open the gas isolator tap (Fig. 159,2).



7.5 Gas bottle switching facility (special equipment)



If the vehicle is equipped with a gas bottle switching facility without Crash Protection Unit (CPU), it is not permitted to operate gas devices during the journey. Close the regulator taps on the gas bottles and the gas isolator taps before setting off.



- ▷ When the vehicle is equipped with the crash protection unit the living area heater may be operated during the journey.
- The gas bottle switching facility and the hose lines shall be changed at the latest 10 years after manufacturing date. The operator is responsible for this.

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

Facility without Crash Protection Unit (CPU)

The gas bottle switching facility consists of a combined gas pressure regulator with reversing valve and indicator (Fig. 160,3). The gas bottle switching facility is installed between the two gas tubes (Fig. 160,1).



Fig. 160 Gas bottle switching facility

- 1 Gas tube
- 2 Knob for manual switching of the gas bottles
- 3 Gas pressure regulator with reversing valve and indicator
- 4 Regulator tap on the gas bottle



Facility with Crash Protection Unit (CPU)

The gas bottle switching facility consists of a combined gas pressure regulator with reversing valve and indicator (Fig. 161,4), and an electrovalve

(Fig. 161,2). The electrovalve blocks the gas supply to the vehicle in the event of a full braking, an accident, or an unusually great inclined position. The gas bottle switching facility is installed between the two gas tubes (Fig. 161,1) with hose break guards (Fig. 161,5).



Fig. 161 Gas bottle switching facility with CPU

- 1 Gas tube
- 2 Electrovalve (CPU)
- 3 Knob for manual switching of the gas bottles
- 4 Gas pressure regulator with reversing valve and indicator
- 5 Hose break guard
- 6 Regulator tap on the gas bottle
- **Function** The gas bottle switching facility ensures a constant gas pressure, regardless of which gas bottle is being drawn upon. The display in the reversing valve shows the filling level of the primary bottle. The gas supply comes from the primary bottle when the display is green. When the display is red the primary bottle is empty. In this case, the reserve bottle is used for the gas supply.

Use the knob (Fig. 160,2 or Fig. 161,3) on the gas bottle switching facility to select which of the gas bottles is to be used as a primary bottle and which is to be used as a reserve bottle.



Operating unit Depending on the equipment, the gas bottle switching facility is additionally equipped with an electrical operating unit (with or without remote display).



Fig. 162 Operating unit



Fig. 163 Operating unit with remote display

Only the electrical functions can be switched at the operating unit (Fig. 162). The regulator taps on the gas bottles (Fig. 160,4 or Fig. 161,6) must be opened and closed manually.

- **Without remote display** The indicator lamp on the operating unit shows the condition of the gas system. The system is okay when the indicator lamp (Fig. 162,1) lights up green. When the indicator lamp lights up or flashes red a fault has occurred. The gas supply is interrupted.
 - **With remote display** The indicator lamp on the operating unit (Fig. 162,1) shows the condition of the gas system:

Indicator lamp	Signification
Off	System switched off, gas supply switched off
Green	System switched on, gas supply switched on
Red	Gas supply switched off, triggered by sloping position or excessive acceleration, e.g. in the event of an accident
Yellow	System switched on, gas supply switched on, primary bottle empty
Flashes yellow	Self-check, for approx. 2 seconds, after switching on
Flashes red once	Valve not connected to control unit or internal error
Flashes red twice	Overvoltage determined, gas supply interrupted
Flashes red three times	Undervoltage determined, gas supply interrupted



Putting into operation:	 Open the regulator taps of the gas bottles (Fig. 160,4 or Fig. 161,6).
	Press the hose break guards (Fig. 161,5) successively for 10 seconds.
	Use the knob (Fig. 160,2 or Fig. 161,3) on the switching facility to select the gas bottle which is to be the primary source of gas (primary bottle). Always turn the knob as far as it will go.
	Switch on the switching facility on the operating unit. For this, set the rocker switch (Fig. 162,2 or Fig. 163,2) to "ON". The reversing valve is now deaerated. The indicator lamp (Fig. 162,1 or Fig. 163,1) flashes yellow (system test) and lights up green.
Switching off:	 Set the rocker switch (Fig. 162,2 or Fig. 163,2) to "OFF". The indicator lamp (Fig. 162,1 or Fig. 163,1) goes out.
	 Close the regulator taps of the gas bottles (Fig. 160,4 or Fig. 161,6).
$\underline{\wedge}$	 When changing gas bottles, do not smoke or create any open fire. Depending on the connection, unscrew the gas tube from the gas bottle and screw it on the gas bottle again by hand or using an suitable special spanner. The screw connection on the gas bottle generally has a left-hand thread. Do not tighten too firmly.
Changing gas bottles:	Change the position of the knob of the switching facility. The display is green again. Should the display stay red the reserve bottle is also empty and has to be changed as well.
	 Close regulator tap on the empty gas bottle.
	Unscrew the gas tube of the gas bottle.
	Attach the protective cap to the gas bottle.

- Release the fixing belts and remove the gas bottle.
- Place a new gas bottle in the gas bottle compartment.
- Fix gas bottle in place with the fixing belts.
- Remove the protective cap from the gas bottle.
- Connect the full gas bottle to the gas tube.
- Open the regulator tap on the gas bottle.
- Press the hose break guard for 10 seconds.
- Turn the knob on the reversing valve to the changed bottle. Open the release button when the display is green.
- Set the knob on the reversing valve with a half-turn, so that the newly replaced gas bottle will serve as a reserve bottle.

T-Modell - 16/17 - Ausgabe 09/16 - 2763618 - BUE-0029-17EN



7.6 Changing gas bottles

- \land
- When changing gas bottles, do not smoke or create any open fire.
- Depending on the connection, unscrew the gas tube from the gas bottle and screw it on the gas bottle again by hand or using an suitable special spanner. The screw connection on the gas bottle generally has a lefthand thread. **Do not** tighten too firmly.
- When you have changed the gas bottle, check whether gas escapes at the connection points and unions. Use a leakage search spray to spray the relevant connection point or union. These agents are available at the accessories shop.



Fig. 164 Gas bottle compartment

- Open the external flap for the gas bottle compartment (see chapter 6).
- Close the regulator tap (Fig. 164,1) on the gas bottle (Fig. 164,2). Pay attention to the direction of the arrow.
- Unscrew the gas tube (Fig. 164,3) from the gas bottle.
- Attach the protective cap to the gas bottle.
- Release the fixing belts and remove the gas bottle.
- Place a filled gas bottle in the gas bottle compartment.
- Fix gas bottle in place with the fixing belts.
- Remove the protective cap from the gas bottle.
- Screw the gas tube onto the gas bottle.
- Close the external flap for the gas bottle compartment.



Chapter overview

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

The instructions address the following topics:

- safety
- explanations of terms relating to the battery
- USB socket
- 12 V power supply
- the radio selector switch
- starter battery
- living area battery
- transformer/rectifier
- panel
- solar installation
- 230 V power supply
- connection to the 230 V power supply
- fuse rating
- external socket
- electrical wiring

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

8.1 General safety instructions



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

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



After the vehicle is started, delays to the output or forwarding of electrical impulses are possible.

The control unit of the basic vehicle does not release the D+ signal until the engine has reached full performance. In the event of a cold start in winter, this can take up to 15 seconds.

For this reason, output of warning signals (such as "entrance step extended") may sometimes be delayed.

The automatic retraction of a SAT antenna can also be delayed.

▷ During a storm, to protect the electrical devices disconnect the 230 V connection and retract the antennae.



8.2 Terms

Off-load voltage

0

Closed circuit current

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

The off-load voltage is the voltage of the battery in idle condition, i.e. no current

The battery must remain idle for a while before measuring. After charging the last time, or after the last current has been drained by appliances, wait

approximately 2 hours before measuring the off-load voltage.

Total discharge

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



> Total discharge damages the battery.

is consumed and the battery is not being charged.

Capacity Capacity refers to the amount of electricity which can be stored in a battery.

The capacity of a battery is given in ampere hours (Ah). The so-called K20 value is normally used.

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

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

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

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



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



8.3 USB socket (partially special equipment)



The vehicle is equipped with a charging station with USB socket in the front part of the living area.

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



Fig. 165 USB socket

8.4 12 V power supply



Only connect devices with a maximum of 10 A to the sockets (Fig. 166,1) of the 12 V power supply.



Fig. 166 12 V/10 A socket



8.4.1 Selector switch for radio (special equipment)



- > Depending on the equipment level, a radio with integrated navigation device or a multimedia station will be present, referred to below simply as a "radio".
- > The radio selector switch is installed in vehicles with Pioneer LCD display.



Fig. 167 Selector switch for operating behaviour

off with the ignition.

- Switching the radio on and off with the ignition:
- Operating the radio from the living area battery:
- Set the selector switch to the "1" position. The radio will be powered at all times from the living area battery.

Set the selector switch to the "0" position. The radio will be switched on and

8.4.2 Starter battery

The starter battery serves for starting the engine and supplies the electrical appliances of the base vehicle with voltage. See the instruction manual of the base vehicle for the position of the starter battery.



▷ The radio device in the driver's cabin is connected to the living area battery.

Discharging

This section contains information regarding the discharge of the starter battery.



- ▷ Total discharge damages the battery.
- > Once a battery with acid is discharged, it can freeze in temperatures of below zero. This damages the battery.
- ▷ Recharge battery in good time.

The starter battery will be totally discharged via a closed circuit current (inactive appliances). Inactive appliances are optional devices such as a radio, alarm system, navigation system or a central locking system. Inactive appliances discharge the starter battery when the vehicle engine is switched off.

Low temperatures outside reduce the capacity available.

Charging

This section contains information regarding the charging of the 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 event of contact, rinse immediately with plenty of water (skin, eyes, clothes, objects) and seek medical attention if necessary.
- In the case of charging with an external charger there is danger of explosion. Sparks can be caused by attaching the battery terminals. Only charge the battery in a well ventilated area and away from naked flames or possible sources of sparks. Batteries can develop and release gases when they are charged.



- \triangleright Before a temporary lay-up, charge the battery fully.
- Do not connect the battery cables to the wrong poles (red cable -> positive pole, black cable -> negative pole).
- ▷ If the starter battery or living area battery are disconnected, do not apply the ignition. There is a danger of short circuit from exposed cable ends.
- Before disconnecting or connecting the terminals of the battery, switch off the vehicle engine as well as the 230 V and 12 V power supplies and all appliances. Danger of short circuit!
- $\,\triangleright\,\,$ Observe the instruction manuals for the base vehicle and the charger.

The starter battery can only be fully charged with an external charger. When the vehicle is connected to the 230 V power supply, the transformer/rectifier charges the starter battery with a float charge only. Even in mobile operation, the vehicle engine alternator has a limited capability of completely charging the starter battery.

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

- Turn off the vehicle engine.
- Switch off the 12 V power supply on the panel. The indicator lamps or the displays on the panel go out.
- Switch off all gas appliances, all gas isolator taps and close the regulator tap on the gas bottle.
- Disconnect the starter battery from the vehicle (e.g. remove the battery terminals). There is a danger of short circuit when disconnecting the battery poles. For this reason, first disconnect the negative terminal on the starter battery and then the positive.
- Check that the external charger is turned off.
- Connect the external charger to the starter battery. Pay attention to the polarity: First connect the positive terminal "+" to the positive terminal of the starter battery, then connect the negative terminal "-" to the negative pole of the starter 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 charger in reverse order (the negative terminal first).
- Connect the battery terminals again (first the positive terminal).



8.4.3 Living area battery



> Use only the built-in transformer/rectifier to load the living area battery.

- \triangleright After the trip, charge the living area battery fully.
- ▷ Before a temporary lay-up, charge the battery fully.
- ▷ When the living area battery is changed, only use batteries of the same type and the same capacity.
- If there are several living area batteries, always change all the batteries together. The batteries must **always** be the same age and have the same capacity.
- When changing the living area battery, use only batteries which meet the minimum capacity of the charger. Observe the separate instruction manual for the charger. Lower-capacity batteries will generate a great deal of heat when they are charged. Danger of explosion!
- If the living area battery is replaced and the charging unit does not provide at least 10 % of the rating of a new battery, install an auxiliary charging unit. Example: With a battery capacity of 80 Ah, the charging unit must supply at least 8 A charging current.
- Before disconnecting or connecting the terminals of the battery, switch off the vehicle engine as well as the 230 V and 12 V power supplies and all appliances. Danger of short circuit!
- ▷ If the starter battery or living area battery are disconnected, do not apply the ignition. There is a danger of short circuit from exposed cable ends.



- ▷ If possible, begin the trip with a fully charged living area battery. Therefore, charge the living area battery before starting the trip.
- During the trip, use every available opportunity to charge the living area battery.
- ▷ The radio device in the driver's cabin is connected to the living area battery.

When the vehicle is not connected to the 230 V power supply or the 230 V power supply is switched off, the living area battery supplies the living area with 12 V DC. The living area battery has a limited power supply only. For this reason, electrical appliances such as the radio and the lights should not be operated for a long time without using the 230 V power supply.

Position See chapter 16.

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.

Even a fully charged living area battery can, after an extended period, be fully discharged via a closed-circuit current (inactive appliances).

Low temperatures outside reduce the capacity available.

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

An older battery no longer has the complete capacity available.

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

Charging The living area battery is charged via the transformer/rectifier. If the vehicle engine is not running and the vehicle is connected to an external 230 V power supply, the living area battery will be charged via the external 230 V power supply.

> When the vehicle engine is running, a relay in the transformer/rectifier connects the living area battery and the starter battery and charges them via the vehicle generator.

 \triangleright Charge the battery for at least 48 hours after a total discharge.



8.5

Transformer/rectifier (EBL 99)



> Do not cover the ventilation slots. Danger of overheating!



- \triangleright Depending on the model, not all slots for the fuses are occupied.
- $\,\triangleright\,\,$ If there are several living area batteries, use an auxiliary charging unit.
- Further information can be obtained in the manufacturer's instruction manual.



Fig. 168 Transformer/rectifier (EBL 99)

- 1 Main supply socket 230 V~
- 2 Block 1: Refrigerator output (D+, heating cartridge)
- 3 Block 2: Refrigerator output from starter battery, alternator D+
- 4 Block 4: Heating output, basic light (lighting in the entrance area), entrance step
- 5 Block 3: Panel outlet
- 6 Block 5: Reserve output 2, reserve 3, reserve 4, appliances with constant positive (e.g. satellite unit, defroster)
- 7 Block 6: Solar charge regulator input (if fitted)
- 8 Block 7: Auxiliary charging unit input, fuel cell
- 9 Block 8: Consumer circuit output 1, consumer circuit 2, TV, water pump, reserve 1, reserve 5, reserve 6
- 10 Battery selector switch ("Blei-Säure/Blei-Gel" (lead acid/dryfill))
- 11 Fuses
- 12 Battery cut-off switch ("Batterie Ein/Aus" (battery On/Off))



Functions The transformer/rectifier has the following functions:

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

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

The power in the transformer/rectifier (> 18 A) is divided into charging current and current to the appliances. The charging current is always just the portion that is not being used by any appliances. If the current to the appliances exceeds the current available, then the living area battery is discharged.

Position See chapter 16.

8.5.1 Battery cut-off switch

The battery cut-off switch switches off **all** the appliances in the living area, even inactive ones. Even appliances such as the entrance step, basic lighting or the refrigerator will stop working. This prevents the living area battery from slowly discharging if the vehicle is not used for a longer period of time (e.g. temporary lay-up).

If the vehicle is connected to the 230 V power supply, the batteries can then be charged from the transformer/rectifier, even if the battery cut-off switch is switched off.

This also applies for charging via a solar installation or fuel cell.

8.5.2 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.
- \triangleright The factory settings of the battery selector switch must not be changed.



8.5.3 Battery monitor



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

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

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

Measures:

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

8.5.4 Charging the battery

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

If the vehicle is connected to the 230 V power supply, the living area battery and the starter battery are automatically charged by the charger module on the transformer/rectifier. The starter battery is only charged with a float charge. The charging current is adapted to suit the charging condition of the battery. This ensures that it is not possible to overload the battery.

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



Fig. 169 Panel LT 96

Panel LT 96

- 1 12 V indicator lamp
- 2 Button for reading the battery voltage of the living area battery
- 3 230 V indicator lamp
- 4 Button for reading the filling level in the water tank
- 5 Indicator lamp water pump6 Button for water pump (On/Off)
- Button for reading the filling level in the waste water tank
- 8 V/tank gauge
- 9 "ALARM" warning light for the living area battery
- 10 Button for reading the battery voltage of the starter battery
- 11 Button for 12 V power supply (On/Off)

8.6



8.6.1 Button for 12 V power supply

The button (Fig. 169,11) switches the panel and the 12 V power supply to the living area on and off.

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

- Switching on: Press the button (Fig. 169,11): The 12 V living area power supply is switched on. The indicator lamp (Fig. 169,1) lights up.
- *Switching off:* Press the button (Fig. 169,11): The 12 V living area power supply is switched off. The indicator lamp (Fig. 169,1) goes out.



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

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

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

With the V/tank gauge (Fig. 169,8), note the left scale. The gauge automatically lights up as soon as a button is pressed.

- *Displays:* Press the button (Fig. 169,10): The battery voltage of the starter battery is displayed.
 - Press the button (Fig. 169,2): The battery voltage of the living area battery is displayed.



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

Battery voltage (values during operation)	Mobile operation (vehicle moving, no 230 V connec- tion)	Battery opera- tion (vehicle station- ary, no 230 V connection)	Power operation (vehicle station- ary, 230 V con- nection)
11 V or less	12 V power supply overload	If appliances are switched off: Battery flat If appliances are switched on: Battery overload	12 V power supply overload
	The battery is not charged by the alternator, the alternator's regula- tor is defective		The battery is not charged by the transformer/rectifi- er, the transform- er/rectifier is defective
11.5 V up to 13.0 V	to to 12 V power supply overload ¹⁾ The battery is not charged by the alternator, the alternator's regulator is defective ¹⁾	Normal range	12 V power sup- ply overload ¹⁾
			The battery is not charged by the transformer/rectifi- er, the transform- er/rectifier is defective
Over 13.5 V	Battery being charged	Occurs only briefly after charging	Battery being charged

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

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



 \triangleright Total discharge causes irreparable damage to the battery.



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

Danger of total discharge (battery alarm)



Volume of water/waste water

The V/tank gauge is for the indication of the quantity of water or waste water. With the V/tank gauge (Fig. 169,8), note the right scale. The gauge automatically lights up as soon as a button is pressed.

Press the button (Fig. 169.4): The volume of water is displayed.

Displays:



Press the button (Fig. 169,7): The volume of waste water is displayed.
 Only read the tank levels briefly. Keeping the reading option on for a long time can damage the transducers.

8.6.3 Button for water pump

- *Switching on:* Press the button (Fig. 169,6): The water supply is ON. The water pump indicator lamp (Fig. 169,5) lights up.
- *Switching off:* Press the button (Fig. 169,6): The water supply is OFF. The water pump indicator lamp (Fig. 169,5) goes out.

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

A

Level indicator

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

8.6.4 Battery alarm for the living area battery

The red "ALARM" warning light (Fig. 169,9) flashes as soon as the voltage of the living area battery falls below 11 V (measured under operation) and there is a risk of a total discharge.



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

8.6.5 12 V indicator lamp

The 12 V indicator lamp (Fig. 169,1) lights up when the 12 V main button (Fig. 169,11) is switched on.

8.6.6 230 V indicator lamp

The 230 V indicator lamp (Fig. 169,3) illuminates whenever line voltage is available at the transformer/rectifier input.



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



8.7 Solar installation (special equipment)

▷ Protect the solar collectors (solar module) against mechanical overload.



- 0
- ▷ The solar installation supplies the most current under optimal sunlight conditions.
- ▷ Provide the solar collectors (solar module) open access to sunlight.
- $\,\triangleright\,\,$ Sunlight is greater in the open air than under trees and bridges.
- ▷ Tarpaulins block out sunlight.
- ▷ Always keep collector surfaces free of contamination.
- > Also read the manufacturer's instruction manual.

The solar installation provides an environmentally compatible power supply independent of the mains. It converts energy from sunlight into electric current. The solar installation supplies additional current for the battery and appliances.

The solar charge regulator has an integrated overload protection as well as deep discharge protection.



Fig. 170 Status indicator, solar charge regulator

Four LEDs (Fig. 170,3) show the current operating state. Another LED (Fig. 170,1) shows whether output voltage is present.

LED	Status	Signification
Operating state LEDs (Fig. 170,3)	Flashing cyclically	Battery being charged
	Lit up	Battery is fully charged
LED 25 % (Fig. 170,2)	Flashing	Battery is fully discharged
Output voltage LED (Fig. 170,1)	Lit up	Output voltage present
	Not lit up	Output voltage not present



8.8 230 V power supply



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

The 230 V power supply provides electricity for:

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

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

Connect the vehicle to an external 230 V power supply system as often as possible. The charger module in the transformer/rectifier automatically charges the living area battery. In addition to this, the starter battery is charged with a float charge of approx. 2 A.

Depending on the equipment, the air conditioning unit and other optional devices are fuse-protected by their own safety cut-out (16 A).

8.8.1 230 V connection



Overvoltage can damage connected devices. Overvoltage can be caused by lightning, irregular voltage sources (e.g. petrol-operated generators) or power connections on ferries for example.

Requirements concerning the 230 V connection

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

8.8.2 Connecting the 230 V power supply



- The external 230 V power supply must be protected by fuse with a fault current protection switch (FI-switch, 30 mA).
- To prevent overheating, the cable must be fully uncoiled from the cable reel.
- In case of doubt or if the 230 V supply is not available or is faulty, contact the operator of the power supply device.



- ▷ The 230 V connection in the vehicle is equipped with a combined fault current protection switch with safety cut-out.
- Depending on the equipment, an additional safety cut-out is installed in the fuse box.
- ▷ For the connection points on camp sites (camping distributors) fault current protection switches (FI-switches, 30 mA) are obligatory.

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The vehicle can be connected to an external 230 V power supply.



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



Connecting the vehicle:

Check whether the power supply device is suitable regarding connection, voltage, frequency and current.

- Check whether the cables and connections are suitable.
- Check the plug connectors and cables for visible damage.
- Switch off the safety cut-out (Fig. 171,2 and 4) in the fuse box (Fig. 171,3).



Fig. 172 230 V connection on vehicle

- Open the seal (Fig. 172,2) of the cable feedthrough.
- Guide the cable through the cable feedthrough into the vehicle.
- Plug the plug connector into the 230 V connection (Fig. 172,1) of the vehicle.
- Close the service flap.
- Plug the connector of the connecting cable into the socket of the power supply device. Ensure that the detent of the spring-mounted pivoting cover is engaged in position.
- Switch on the safety cut-out in the fuse box.

Checking the fault current protection switch:
 When the vehicle is connected to the 230 V supply, press the test button (Fig. 171,1) of the combined fault current protection switch / safety cut-out (Fig. 171,4) in the fuse box (Fig. 171,3). The fault current protection switch must trip.

Switch the fault current protection switch back on again.

Switch off the safety cut-outs (Fig. 171,2 and 4) in the fuse box (Fig. 171,3).

- Loosen the detent on the power supply device and unplug the connection cable from the socket.
- Open the service flap.

Unplugging the connection:



- Unplug the plug connector from the connection (Fig. 172,1) of the vehicle and remove the connecting cable.
- Press the seal (Fig. 172,2) of the cable feedthrough into the recess of the service flap gasket.
- Close the service flap.

8.9 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.
- Only replace faulty fuses with a new fuse with the same rating.

8.9.1 12 V fuses

The appliances connected to the 12 V power supply in the living area are fused individually. The fuses can be accessed in the driver's cabin, on the batteries, on or next to the transformer/rectifier and on the appliances.



Unbroken fuse element
 Broken fuse element

Fig. 173 12 V fuse

An intact 12 V fuse can be detected by the unbroken fuse element (Fig. 173,1). If the fuse element is broken (Fig. 173,2), 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.

1

Fuses on the starter battery The fuses are installed in the vicinity of the starter battery. The starter battery is on the floor between the seats in the driver's cabin and can be accessed under a cover.



Fig. 174 Fuses on the starter battery

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

Jumbo flat fuse 50 A/red

Flat fuse 2 A/grey

battery)

(for the transformer/rectifier)

(for battery sensor, living area



Fuses on the living area battery

The fuses are fitted next to the living area battery.



Fig. 175 Fuses on the living area battery

Fuses on the relay box AD01

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

1

2

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

FuNo	Function	Value/colour
B2	Cl. 15 (ignition on)	15 A blue
B3	Cl. 30 (constant positive)	15 A blue
B5	Signal D+	Internal Polyswitch (2 A)
B6	Reserve	15 A blue
B7	Front side marker lights (white/red)	5 A light brown

Fuses on the transformer/rectifier (EBL 99)

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



Fuse for the Thetford toilet (swivel toilet)



1 Flat fuse 3 A/purple

1 Flat fuse 3 A/purple

Fig. 176 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. 176,1).

Fuse for the Thetford toilet (fixed seat) The fuse is located in the locker wall of the Thetford cassette.

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



Fig. 177 Fuse for the Thetford toilet

Changing:

- Open the flap for the Thetford cassette on the outside of the vehicle.
- Remove the Thetford cassette and swing out the flap in the housing panel.
- Replace fuse (Fig. 177,1).



Fuses for the heater for waste water pipes

The fuses are located on the regulator (Fig. 178,1).



Fig. 178 Heater regulation for waste water pipes

- Changing:
- Fuse for the pull-down bed (Ixeo)

Fuses for the pull-down bed (Ixeo time)

Switch the heater off.

Replace fuse (Fig. 178,2).

The pull-down bed is protected by the fuse Reserve 3 on the transformer/rectifier.

The fuses for the pull-down bed are located on the motor control at the belt drive.

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



Flat fuse 2 A/grey
 Flat fuse 20 A/yellow

Fig. 179 Fuses for the pull-down bed

The belt drive (and therefore also the fuses) is installed in a wall-mounted cupboard. Depending on the model, access to the belt drive is also possible from the inside, or through a window from the outside.







Fig. 180 Flap on the wall-mounted cupboard

Cover on the wall-mounted Fig. 181 cupboard

- Changing fuses from the inside (IT 710 - IT 734):
- Open the flap on the left wall-mounted cupboard under the pull-down bed.
- Remove the board (Fig. 180,2) under the access opening (Fig. 180,1) for the crank.
- Replace fuse.
- Secure the board and close the flap.

Changing fuses from the Lower the pull-down bed with the crank to window height (for emergency outside (IT 586, IT 590): operation, see 6.14.6).

- Open the window next to the seating group.
- Remove the cover (Fig. 181,1).
- Replace fuse.
- Close the cover.
- Lift the pull-down bed to the parked position.

Fuse for the pull-down bed (Lyseo)

The fuse for the front pull-down bed is installed in the front wall-mounted cupboard on the left-hand side of the vehicle.

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



Fig. 182 Front pull-down bed fuse

If there is a pull-down bed present in the rear, the fuse is installed in the rear wall-mounted cupboard on the left-hand side of the vehicle.

1 Fuse 20 A/yellow

Fuse 2 A/grey

1





Fig. 183 Rear pull-down bed fuse

8.9.2 230 V fuse



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



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





See chapter 16.

A combined fault current protection switch / safety cut-out (Fig. 184,4) in the fuse box (Fig. 184,3) protects the complete vehicle from fault current (0.03 A).

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

For vehicles with special equipment, (e.g. air conditioning unit), the appliance is protected by an additional safety cut-out (10 A) (Fig. 184,2).

Position

Checking the fault current protection switch:

When the vehicle is connected to the 230 V power supply, press the test button (Fig. 184,1). The fault current protection switch must trip.



8.10 External socket (special equipment)



TV socket 12 V socket SAT socket

1 2

3 SAT socket 4 230 V socket

Fig. 185 External socket

The 230 V socket and the 12 V socket can be used to power electrical devices in the awning.

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





Fig. 186 TV inside the vehicle

Fig. 187 TV in the awning

- TV inside the vehicle (Fig. 186,4): Connection to roof antenna (Fig. 186,1) with connection cable (Fig. 186,2)
- TV inside the vehicle (Fig. 186,4): Connection to external antenna (Fig. 186,3)
- TV inside the awning (Fig. 187,4): Connection to roof antenna (Fig. 187,1) with connection cable (Fig. 187,2)
- TV inside the awning (Fig. 187,4): Connection to external antenna (Fig. 187,3)



8.11 Circuit diagrams

8.11.1 Circuit diagrams, interior



Fig. 188 Circuit diagram, interior (EBL 99)

8





Fig. 189 Connection diagram, panel (LT 96)

Α	2 x AMP flat pins 4.8 x 0.8
1	Pump
2	+ 12 V
в	Lumberg MSFQ 5-pin
1	Full
2	3/4
3	1/2
4	1/4
5	Base waste water tank
С	Lumberg MSFQ 6-pin
1	Full
2	3/4
3	1/2
4	1/4
5	Base water tank
6	n. c.
D	Lumberg MSFQ 9-pin
1	12 V indicator
2	12 V main button off
3	12 V main button on
4	Plus Starter battery 12 V
5	Plus Living area battery sensor
6	Negative Living area battery sensor
7	230 V indicator
8	n. c.
9	n. c.



8.11.2 Circuit diagram, exterior

Fiat



Fig. 190 Circuit diagram, exterior

	Bürstner colours	Connection
Left side	Grey	Left direction indicator
	Blue	Fog tail light
	White	Earth return
	Green	Back-up light
	Red	Brake light
	Black	Left rear light
Right side	Grey	Right direction indicator
	Blue	Fog tail light
	White	Earth return
	Green	Back-up light
	Red	Brake light
	Black	Right rear light

8




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

9.1 General



- The heat exchanger of the Truma hot-air heater has to be replaced after 30 years. 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, air conditioning unit, boiler, cooker and refrigerator are fitted depending on the model of the vehicle.

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

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



Fig. 191 Symbols for the gas isolator taps

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



9.2 Heater and boiler

The heater can both heat up the vehicle interior (heating the room air) and heat up the domestic water (boiler function). The following instructions are also valid if the heater is only used as boiler.



- Never let gas escape unburned due to danger of explosion.
- Never run the heater in gas operation when refuelling, on ferries or in the garage. Danger of explosion!
- Never operate the heater in gas operation in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- The waste gas vent may neither be closed nor blocked.
- Do not use the space behind the heater as a storage compartment.
- ▶ The water in the boiler can be heated up to 65 °C. Risk of scalding!



- \triangleright Never use boiler when empty.
- \triangleright If the boiler is not being used, empty it if there is any risk of frost.
- Only operate the boiler with the maximum temperature setting if you require a large quantity of warm water. This protects the boiler against the build-up of limescale.
- The circulation fan is automatically switched on when the hot-air heater is activated, and it stays on. This puts an immense strain on the living area battery, if the vehicle is not connected to an external 230 V power supply. Take into consideration that the living area battery only has limited reserves of energy.



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

Initial start-up

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

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



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



9.2.2 To heat properly



Fig. 192 Air outlet nozzle of the hot-air heater

Hot air distribution Several air outlet nozzles (Fig. 192) are built into the vehicle. Pipes conduct the warm air to the air outlet nozzles. Turn the air outlet nozzles in a suitable position so the air can escape as required. To avoid draft close the air outlet nozzles on the dashboard and set the air distribution of the base vehicle to air circulation.

Adjusting the air outlet nozzles

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

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

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



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



Depending on the equipment, the heater can be operated from a mobile terminal (e.g. smartphone, tablet PC) via an app (see section 9.4). The Truma app can be loaded for common mobile terminals via the respective app stores.



Operating unit	The operating unit is divided into two sections:
----------------	--

- Display
- Operating buttons



Display
 Rotary push button
 Back button

Fig. 193 Operating unit

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

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

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

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

Operating buttons	The operating buttons have the following functions:
-------------------	---

Button	Button operation	Function
Rotary push	Turn to the right	Menu is run through from left to right
button (Fig. 193,2)		Values are increased
	Turn to the left	Menu is run through from right to left
		Values are decreased
	Press briefly	Selected value is saved
		Menu item is selected for changing values (selected menu item flashes)
	Press (3 seconds)	Switch on or switch off
Back button (Fig. 193,3)	Press	Return from a menu item without saving values

Appliances

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

Fig. 194 Operating unit with displays

The display is divided into four sections:

Display

- Status line (Fig. 194,2)
- Upper menu line (Fig. 194.3)
- Display area (Fig. 194,8)
- Lower menu line (Fig. 194,5)

Switching operating unit on/ off:

Carrying out settings:

- Both menu lines (Fig. 194,3 and Fig. 194,5) are displayed. The first symbol flashes.
- ▷ Switching the operating mode on/off means switching between stand-by and setting mode. In stand-by mode, the display alternates between the room temperature and the time that have been set.

Press and hold the rotary push button (Fig. 194,6) for approx. 3 seconds.

- Turn rotary push button (Fig. 194,6) until the required menu symbol flashes.
- Press rotary push button.

2

3

6

7

Turn rotary push button until the required value is displayed.

Δ

õ

5

5 HYW08666

Press rotary push button to save the value set. If you do not wish to change the value originally set: Press back button (Fig. 194,7).

1

2

3

4 Fan

5

6

7

8

9

Heater

Timer

Hot water

Operating mode

Warning symbol

Lighting (not used here)

Service menu Setting the time



Fig. 195 Display

al

STAR

END

SET

()

- Switching on the heater:
- Open the regulator tap on the gas bottle and the gas isolator tap "Heater/ boiler".
- Turn rotary push button (Fig. 194,6) until the heater menu symbol (Fig. 195,1) flashes.
- Press rotary push button.
- Turn rotary push button until required value is displayed.
- Press rotary push button to save the value set. The symbol in the status line (Fig. 194,2) flashes until the room temperature set is reached. If you do not wish to change the value originally set: Press back button (Fig. 194,7).









Switching off the heater:



button to save.The required room temperature can also be changed in stand-by mode by

Turn temperature value back until OFF is displayed. Press rotary push

- Switching on hot water production:
- Open the regulator tap on the gas bottle and the gas isolator tap "Heater/ boiler".
- Turn rotary push button (Fig. 194,6) until the hot water menu symbol (Fig. 195,2) flashes.
- Press rotary push button.

save.

turning the rotary push button.

- Turn rotary push button until the required value is displayed:
 - OFF: Hot water production is switched off.
 - 40°: Hot water is heated to 40 °C.
 - 60°: Hot water is heated to 60 °C.
 - BOOST: Fast heating of hot water (boiler priority) for max. 40 minutes. The water temperature is then held at a higher level for two reheating cycles (approximately 62 °C).
- Press rotary push button to save the value set. The symbol in the status line (Fig. 194,2) flashes until the hot water temperature set is reached. If you do not wish to change the value originally set: Press back button (Fig. 194,7).
- Switching off hot water production:

Safety/drainage valve

The boiler is equipped with a safety/drainage valve (Fig. 196). The safety/ drainage valve prevents water in the boiler from freezing, when there is frost and the heater is not switched on.

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



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



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





Fig. 196 Safety/drainage valve of the boiler

Position See chapter 16.

Filling/emptying the boiler

Filling the boiler with water:

Selecting operating mode:

Switch on the 12 V power supply on the panel.

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

- Close the safety/drainage valve. Turn the knob (Fig. 196,1) perpendicular to the safety/drainage valve and push the push button (Fig. 196,2) in.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the water taps open until the water flowing out of the water taps has no bubbles in it. This is the only way to ensure that the boiler is full of water.
- Close all water taps.
- *Emptying the boiler:* Switch off hot water production.
 - Open the safety/drainage valve. To do this turn the knob (Fig. 196,1) parallel to the safety/drainage valve. The push button (Fig. 196,2) jumps out. The boiler is drained to the outside by the safety/drainage valve.
 - Check whether the water has been drained completely from the boiler (approx. 10 litres).
 - Turn rotary push button (Fig. 194,6) until the menu symbol operating mode (Fig. 195,3) flashes.
 - Press rotary push button.
 - Turn rotary push button until the desired operating mode is displayed:
 - 📲 🖞 Gas operation
 - $\bigcap_{i=1}^{n}$ Electrical operation (900 W)
 - ¹/₄ Electrical operation (1800 W)
 - **Gas and electrical operation (900 W)**
 - **Gas and electrical operation (1800 W)**
 - Press the rotary push button to save the set operating mode. To revert to the original setting: Press back button (Fig. 194,7).





- 230 V electrical operation is only possible when the vehicle is connected to the 230 V power supply.
- Select the output level for 230 V electrical operation so that it corresponds to the fuse protection of the 230 V connection (900 W for 3.9 A fuse, 1800 W for 7.8 A fuse).

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

- Setting the fan: Turn rotary push button (Fig. 194,6) until the fan menu symbol (Fig. 195,4) flashes.
 - Press rotary push button.
 - Turn rotary push button until the required value is displayed:
 - OFF: Fan is switched off.
 - VENT: Air circulation
 - ECO: Low fan setting
 - HIGH: High fan setting
 - BOOST: Fast room heating. Boost is available if the current room temperature is at least 10 °C below the selected room temperature.
 - Press rotary push button to save the value set. If you do not wish to change the value originally set: Press back button (Fig. 194,7).
- Setting the timer: Turn rotary push button (Fig. 194,6) until the timer menu symbol (Fig. 195,9) flashes.
 - Press rotary push button. The start time is displayed and the hour display flashes.
 - Turn rotary push button until the hour of the selected start time is displayed.
 - Press rotary push button. The minute display flashes.
 - Turn rotary push button until the minute of the selected start time is displayed.
 - Press rotary push button.
 - Proceed in the same way to set the switch-off time, the required room temperature, the hot water setting and the fan setting.
 - Press rotary push button. The timer is activated. The timer symbol (Fig. 195,9) flashes when the timer is programmed and active.



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

Fault display

The warning symbol (Fig. 195,7) flashes in the event of a warning. The heater continues to operate. In the event of only a temporary fault, the warning symbol goes out automatically.

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



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



9.2.4 Alde hot water heater and boiler (special equipment)

- > Never run hot-water heater without heating fluid. Observe notes in chapter 12.
- ▷ Never drill holes in the floor. This might damage the hot-water pipes.



- \triangleright The circulating pump must always be turned on when the hot-water heater is in operation.
- ▷ We recommend to bleed the heating system after the initial heater operation and to check the glycol content. Observe notes in chapter 12.
- \triangleright When the heater is turned on, it starts with the last settings used.
- > Depending on the equipment, there is an underfloor heater in the driver's cabin.
- > For further information, see the separate manufacturer's instruction manual and observe the maintenance instructions found in chapter 12.

The hot-water heater is installed at the bottom of the wardrobe or under the beds.

Operating unit

The operating unit is divided into two sections:

- Display (touch screen)
- Operating buttons



- Display (touch screen) "Menu" button "On/Off" button 1
- 2 3

Fig. 197 Operating unit for hot-water heater



- > When no button is pressed, the operating unit automatically switches to home position after two minutes.
- ▷ Changes to the settings are saved automatically after 10 seconds.

Operating buttons

The operating buttons have the following functions:

Pos. in Fig. 197	Button	Function
2	MENU	Open adjustment menu
3	\bigcirc	Activate heating

Display

The display (Fig. 197,1) is designed as a touch screen. Touching the symbols calls up the relevant function.





Fig. 198 Start screen

Start screen The Start screen appears on the display after the heater is switched on. The Start screen contains the following information:

Symbol	Signification
Θ	This symbol appears when the circulating pump is activated
Ó	This symbol appears when a switching facility for gas cylinders is activated
-	This symbol appears when a voltage of 230 V is present at the heater
	The internal temperature is displayed next to this symbol
	The external temperature is displayed next to this symbol if an external sensor is fitted

Adjustment menu The "MENU" button calls up the adjustment menu. The meanings of the individual symbols are described in the following table.



Fig. 199 Adjustment menu

The values can be increased or reduced via the "+" or "-" symbols.

Symbol	Signification
	Setting the desired temperature (from +5 °C to +30 °C)
	Setting the water temperature in the boiler
4	Setting the heat output in electrical operation
6	Heater button in gas operation On/Off

	Symbol	Signification	
		Tool menu button	
	AC	AC button for switching on the automatic air conditioning (only visible when the Truma Aventa air conditioning system is installed)	
	А	Button for activated functions	
Tool menus	The arrow symbol	er functions can be called up and adjusted via the tool menus. ols are used to change between the menus. The meanings of mbols are described in the manufacturer's instruction manual.	
Selecting the operating	The hot-water he	eater can be operated with the following energy sources:	
mode	 Gas operatio 230 V electric Gas and 230 		
	The operating m	ode is selected from the operating unit.	
Selecting gas operation:	 Press "		
	Press " " " " " b switched off.	utton again. The button lights up blue. The gas operation is	
Selecting 230 V electrical operation:	 Press the "+" is reached. 	button next to the " \checkmark " symbol until the desired heat output	
•	Select the output level during 230 V electrical operation in such a way that it corresponds to the 230 V connection protection:		
	Level 1 (1 kW) at 6 A		
	Level 2 (2 kW		
	Level 3 (3 kV	/) at 16 A	
Selecting gas and 230 V electrical operation:	 Select gas op 	peration and 230 V electrical operation on the operating unit.	
$\textcircled{\textbf{0}}$	nected to the operates in 2	0 V electrical operation is selected and if the vehicle is con- 230 V power supply, then the hot-water heater at first only 30 V electric operation. Only if the heat output is insufficient operation also automatically switch on.	
	- ·	ation is only possible when the regulator tap on the gas bottle solator tap are opened.	
	230 V electric the 230 V por	al operation is only possible when the vehicle is connected to wer supply.	
	When the heater	r is turned on, it starts with the last set operating mode.	
Switching on the heater:	■ Press "()" b starts automa	utton. The Start screen appears in the display. The heater atically.	
Switching off the heater:	■ Press "()" b	utton. The heater is turned off.	

stner



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. 200 Speed reduction

The rotational speed of the circulating pump can be set with the control knob (Fig. 200,2). At a lower rotary speed, the operating sounds of the pump are quieter.

The control knob is located on the circulating pump (Fig. 200,1).

- Setting the output: Turn the control knob (Fig. 200,2) in an anticlockwise direction. The output is reduced.
 - Rotate the control knob in a clockwise direction. The output is increased.
 - **3-way valve** For models with a rear bed, a 3-way valve is connected to the hot water heater circulation. The 3-way valve is installed in the rear garage. The 3-way valve can be accessed via an external flap.



Fig. 201 3-way valve

- Opening the heat circulation in the rear area:
- Locking the heat circulation in the rear area:
- Set the lever (Fig. 201,2) of the 3-way valve (Fig. 201,1) parallel to the straight flow direction (Fig. 201).
- Set the lever (Fig. 201,2) of the 3-way valve (Fig. 201,1) transverse to the straight flow direction.

Alde heat exchanger (special equipment)



- ▷ The heat exchanger only works when the vehicle engine is running.
- ▷ If the heat exchanger is not being used (as in the summer), the heat exchanger on the stopcock should be shut off.

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

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

Heat output is set with the living area's heating regulator.

The heat exchanger stopcock is located directly on the exchanger.

- *Turning on the vehicle* Make sure the heat exchanger stopcock is open. *heating by heat exchanger:*
 - Press the "⁽⁾" button (Fig. 197,3) on the operating unit (Fig. 197). The Start screen appears in the display. That turns on the heating control system and makes the circulating pump run.
 - Press "MENU" button (Fig. 197,2).
 - Turn off gas operation or 230 V electrical operation (if turned on).
 - Set the desired room temperature. To do that, press the "+" or "-" button next to the "⁽¹⁾/⁽¹⁾ symbol.
- Turning off the vehicle heating by heat exchanger:
 - Press the "()" button (Fig. 197,3) on the operating unit (Fig. 197).



Fig. 202 Alde heat exchanger

Turning on: Set stopcock handle (Fig. 202,1) parallel to the pipe.

Turning off:

Set stopcock handle (Fig. 202,1) at a right angle to the pipe. ■

Position The heat exchanger is installed in the rear bench seat of the central seating group.



Alde auxiliary circulating pump (special equipment)



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



Fig. 203 Auxiliary circulating pump

The auxiliary circulating pump (Fig. 203,1) can be used to heat the vehicle engine when parked.

The auxiliary circulating pump is connected to the vehicle engine's cooling circuit and thus functions as an engine heater.



Fig. 204 Operating switch for auxiliary circulating pump

The auxiliary circulating pump switch (Fig. 204) is located next to the hot-water heater operating unit. The yellow indicator lamp illuminates when the pump is operated.



Filling/emptying the boiler



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

 $\,\triangleright\,\,$ Depending on the model, the vehicle is fitted with one or two drain cocks.



Fig. 205 Drain cock

Filling the boiler with water:

- Close the drain cock(s). Position the rocking lever (Fig. 205,1) 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 the boiler.Open all water taps and set to the central position.
- Open drain cock(s) (Fig. 205). To do so, set the rocking lever (Fig. 205,1) in a vertical position. The boiler is drained to the outside.
- Check whether the water has been drained completely from the boiler (approx. 10 litres).



Position of the drain cock(s)

See chapter 16.



9.2.5 Wall flue

Fresh air and exhaust gases of the heater system are conducted in a twochamber wall flue.



- $\,\triangleright\,\,$ Park the vehicle such that the wall flue gets enough fresh air.
- \triangleright The wall flue must be free at all times. Do not cover the wall flue.
- \triangleright When camping in winter, maintain wall flue free of snow and ice.
- Check the wall flue periodically depending on the weather (snow, leaf fall, dirt, etc.). If necessary, clean the wall flue.
- \triangleright When washing the vehicle do not aim the water jet directly at the wall flue.
- ▷ When disregarding this, the flawless operation of the heater can not be guaranteed.





Fig. 207 Wall flue of the hot-air heater

Fig. 206 Wall flue of the hot-water heater

The wall flue is mounted on the left side wall.

9.2.6 Auxiliary heat exchanger (partially special equipment)



- ▷ The fan on the auxiliary heat exchanger can be used for ventilation.
- ▷ The heat output is continuously adjusted.

The auxiliary heat exchanger is built into the bench seat.

The auxiliary heat exchanger may be used to provide the vehicle's living area with additional heat during the journey.

The auxiliary heat exchanger is integrated into the heat circulation of the base vehicle and is therefore only in operation when the vehicle engine is running.





Fig. 208 Operating controls for auxiliary heat exchanger

- Switching on:
- Push the sliding regulator (Fig. 208,1) of the flow control downward to the desired position. The water circulation is open.
- Turn the fan switch (Fig. 208,2) for the circulation fan in a clockwise direction.

Switching off:

- Turn the fan switch (Fig. 208,2) to "_O".
- Push the sliding regulator (Fig. 208,1) of the flow control upward as far as it goes.

9.2.7 Electrical floor warming unit (special equipment)



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



 \triangleright Do not cover the transformer. Danger of overheating!



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







Fig. 209 Transformer for electrical floor warming unit



The transformer (Fig. 209,1) for the electrical floor warming unit is installed either in the bench seat or in the bedding box, depending on the model.

Switching on:

- Connect the vehicle to the 230 V power supply (see chapter 8).
 - Press the rocker switch (Fig. 210,2). The indicator lamp (Fig. 210,1) on the switch is illuminated.
- *Switching off:* Press the rocker switch (Fig. 210,2). The indicator lamp (Fig. 210,1) on the switch goes off.

After switching off, the floor remains warm for a while, due to residual heat. If the transformer is overloaded, the overload protection is actuated. The pin (Fig. 209,2) jumps out.

Switching on overload protection: Press the pin (Fig. 209,2) on the overload protection when the transformer is cooled.

9.3 Air conditioning unit (special equipment)

9.3.1 Truma Aventa air conditioning unit



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



- $\,\triangleright\,\,$ The air conditioning unit only runs if the vehicle is connected to a 230 V power supply.
- The external 230 V power supply must be protected by a fuse of at least 6 A. It is otherwise not possible to operate the air conditioning unit properly.
- Heating at external temperatures below 4 °C is not possible, as the heating output then falls sharply. The unit switches to defrosting for a short time at temperatures between 4 °C and 7 °C. Unrestricted heating operation is possible at external temperatures above 7 °C.
- > Always point the remote control at the infrared receiver when using it.



|--|

Depending on the equipment, the air conditioning unit can be operated from a mobile terminal (e.g. smartphone, tablet PC) via an app (see section 9.4). The Truma app can be loaded for common mobile terminals via the respective app stores.

▷ Also read the manufacturer's instruction manual.

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

Operating modes

- Automatic
- Cooling
- Heater
- Air circulation

Remote control

All functions of the air-conditioning system can be operated via the remote control.



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

Fig. 211 Remote control

Automatic modeIn automatic mode the desired temperature merely has to be set.Depending on the room temperature, the air-conditioning system automati-
cally selects cooling or heating mode and the fan setting.

Switching on:

- 0
- Press the On/Off button (Fig. 211,2). The last settings selected are accepted.
- The circulation fan runs after switching on. The compressor switches itself on after no more than 3 minutes. The blue LED (cooling) or the yellow LED (heating) flashes.
- Use the "+" and "-" buttons (Fig. 211,3) to set the desired temperature.

Switching off:

Press the On/Off button (Fig. 211,2). The lighting can continue to be operated.



Air distribution right/left

Air distribution front/rear

2 3

Δ

on/off

Air distribution ceiling/floor

IR receiver, function display, manual



HYW08547

Fig. 212 Function display and air distribution

Operation and display on the unit

Switching on/off manually:

Function display

Certain functions can be operated directly on the device.

- Air distribution adjustment: Set the small adjustment wheel and sliding regulator for stepless air distribution as desired.
 - Press the micro button (e.g. with a ballpoint pen if the remote control is not in reach).

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

- Manual mode In the manual mode, the cooling, heater, and air circulation can be set separately on the remote control.
- Switching on the cooling:
- Press the On/Off button (Fig. 211,2).
- Press the mode selection button (Fig. 211,6) until the cooling symbol appears in the display (Fig. 211,1).
- Use the "+" and "-" buttons (Fig. 211,3) to set the desired temperature.
- Use the """ selection button (Fig. 211,5) to set the desired fan level.

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

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

Switching on the heater: Press the On/Off button (Fig. 211,2).

- Press the mode selection button (Fig. 211,6) until the heating symbol appears in the display (Fig. 211,1).
- Use the "+" and "-" buttons (Fig. 211,3) to set the desired temperature.
- Use the """ selection button (Fig. 211,5) to set the desired fan level.

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

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

Switching on air circulation:

- Press the On/Off button (Fig. 211,2).
- Press the mode selection button (Fig. 211,6) until the air circulation symbol appears in the display (Fig. 211,1).
- Use the "+" and "-" buttons (Fig. 211,3) to set the desired temperature.
- Use the "" selection button (Fig. 211,5) to set the desired fan level.

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

8 7 6 2 5 3 4 HYW01983

Fig. 213 Remote control with setting buttons

- 1 Buttons for setting the time and the timer 2
- Send button (repeat data transfer)
- Micro button "RESET" (resetting to 3 the factory setting)
- 4 Setup button for start-up
- Light button (for operating the 5 lighting)
- Soft-start button (for quiet cooling 6 operation)
- 7 Time button (for setting the time)
- 8 "TIMER" buttons for switching time preselection on/off
- Activating soft-start: Press the soft-start button (Fig. 213,6). The fan then runs at low speed in cooling mode, which makes it especially quiet. Press the time button (Fig. 213,7). Setting the time: Set the hours and minutes with the buttons (Fig. 213,1). Switching on the timer: Press the On/Off button (Fig. 211,2). Set the desired mode and temperature. Programming the switching Press "ON" button (Fig. 213,8). on time: Press the buttons for setting the time (Fig. 213,1) until the desired time span until switch-on is reached. Press "ON" button (Fig. 213,8). Press "OFF" button (Fig. 213,8). Programming the switch-off time: Press the buttons for setting the time (Fig. 213,1) until the desired time span until switch-off is reached. Press "OFF" button (Fig. 213,8). ■ Press the "ON" or "OFF" button (Fig. 213,8) again. Deactivating the timer: The integrated timer enables the switch-on/switch-off time for the air-conditioning system to be set between 15 minutes and 24 hours in advance (calculated from the current time). Press the light button (Fig. 213,5). The light is switched on at the last set Switching on the lighting: dimming level.



- Dimming the lighting:
- Press the light button (Fig. 213,5) and keep it pressed until the desired brightness is reached.
- Switching off the lighting:



 \triangleright The Setup button (Fig. 213,4) is used to connect the remote control with the air conditioning unit during first set-up.

9.3.2 Telair



- > Always wait at least 2 minutes between switching off and switching on again. Otherwise the compressor will be damaged.
- ▷ If the unit is operating, always open at least one ventilation flap.



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

1

2

▷ Also read the manufacturer's instruction manual.



Press the light button (Fig. 213,5).

Fig. 214 Remote control

2 3 28 °C Run Power BUE00931

- Symbol for cooling 3 Symbol for heater
- 4 Temperature (set) display

Symbol for automatic

- Fan speed display 5
- 6 Temperature increase button
- "ON/OFF" button 7
- Temperature reduction button 8 Ventilation speed button 9
- 10 "Mode" button
- Display 11
- Mains connection indicator lamp 1
- Temperature (current) display 2
- 3 Mode indicator lamp Green: Cooling Red: Heater

Fig. 215 Display on the diffusor

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

Operating modes

- Automatic Cooling
- Heater

Switching on:

Press the "ON/OFF" button (Fig. 214,7).

- Press the "Mode" button (Fig. 214,10) as often as required until the required operating mode (Fig. 214,1, 2 or 3) is indicated on the display. The corresponding indicator lamp on the diffusor display (Fig. 215,3) lights up.
- Use the temperature increase button (Fig. 214.6) or temperature reduction button (Fig. 214,8) to set the required temperature.
- Use the ventilation speed button (Fig. 214,9) to select the required ventilation level.

Switching off:



▷ If the air conditioning unit has run in heating mode, the blower will run on for some minutes in order to dissipate the heat completely.

Controlling Truma appliances with mobile terminal 9.4 (special equipment)

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

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

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

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



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



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

Fig. 216 Truma iNet-Box

Setting up the Bluetooth connection:

- Install Truma app on the mobile terminal.
- Switch on the 12 V power supply of the vehicle on the panel.
- Switch on Bluetooth on the mobile terminal.

Setting up the mobile

communication connection:



- Start Truma app and select the menu items "SETTINGS Setup Truma iNet-Box – Configure Bluetooth". The individual steps are described in detail in the Truma app.
- Press the BLUETOOTH button (Fig. 216,1) on the iNet-Box for 1 second. The Truma iNet-Box will be visible in the mobile terminal for approx.
 2 minutes (name: "Truma iNet-Box"). During this period, the blue BLUE-TOOTH LED (Fig. 216,7) will be flashing.
- Confirm the connection to "Truma iNet Box" in the Bluetooth settings of the mobile terminal. The communication is established as soon as the blue LED on the Truma iNet-Box is permanently lit.
- Set up the Bluetooth connection as described above.
- After setting up Bluetooth, press the "Next" button.
- Carefully insert the mini SIM card with own telephone number and sufficient credit into the slot (Fig. 216,2) of the Truma iNet-Box as shown until it engages. The red GSM LED (Fig. 216,5) must be flashing continuously. If the red LED goes out after 20 seconds: check mini SIM card.
- Enter PIN and telephone number of the mini SIM card in the iNet-Box, as well as a freely eligible name in the respective fields of the setup wizard.
- Press the "Ready" button.

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

Operating Truma appliances via Truma app:



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

Position

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

9.5 Cooker



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

9.5.1 Gas cooker



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



- Do not place hot objects such as cooking pans on the sink cover. The plastic can become deformed.
- \triangleright Do not use the glass gas cooker lid as a hob.
- \triangleright 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.
- \triangleright 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 in the device manufacturer's instruction manual.

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

The operating controls for the gas cooker are located directly at the gas cooker.

Electronic ignition

The gas cooker is equipped with a lighting knob.





Fig. 217 Operating controls for gas cooker

Fig. 218 Operating controls for gas cooker (alternative)

Switching on:

- Open the regulator tap on the gas bottle and the gas isolator tap "Cooker".
- Open the gas cooker lid.
- Press the control knob (Fig. 217,1 or Fig. 218,2) of the desired burner and turn it to the ignition position (large flame).
- Press the control knob down and hold it.



- Press the rocker switch (Fig. 217,2 or Fig. 218,1). Ignition sparks are generated at the burner.
- Once the flame is burning, the control knob must be held down for 10 to 15 seconds, until the thermocouple automatically keeps the gas supply open.
- Release the control knob and turn to the desired setting.
- If ignition is unsuccessful, repeat the entire procedure.

Switching off: **I** Turn the control knob to the 0-position. The flame fades.

Close the gas isolator tap "Cooker" and the regulator tap on the gas bottle.

9.5.2 Gas oven (Dometic) (special equipment)



- ► Keep the ventilation openings on the gas oven open at all times.
- There must be no flammable or highly inflammable objects such as dishcloths, clothes, etc. near the gas oven when it is being lit or during operation. Fire hazard!
- ► If ignition has not taken place, repeat the entire procedure. If necessary, check if there is gas and/or current in the gas oven.
- If the gas oven still does not work, close the gas isolator tap and notify your service centre.
- If the burner flame is accidentally extinguished, turn the control knob to "O" and leave the burner off for at least 1 minute. Then ignite it again.
- Parts of the gas oven become very hot during operation. Never touch hot parts with bare hands.
- Place the meals, wire rack and drip pan into the gas oven so that they do not come into contact with the flame.
- Only ignite the oven and grill when the oven door is open.
- ► Always leave the oven door half open when grilling.
- Do not use the grill for longer than 25 minutes.



- ▷ There are two different versions of the gas oven, depending on the model. Although their appearance is not identical, operation is the same for both.
- $\,\triangleright\,$ Depending on the model the gas oven may come equipped with a grill.
- 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.
- \triangleright A safety switch prevents ignition when the oven door is closed.
- ▷ If the ignition procedure fails repeatedly, turn the control knob to "o". Wait at least 1 minute and then ignite the gas oven manually. If necessary, check if there is gas and/or current in the gas oven. If the gas oven still does not work, close the gas isolator tap and notify your service centre.
- ▷ Further information can be obtained in the manufacturer's instruction manual.



The gas oven is equipped with electronic ignition.





Fig. 219 Gas oven (Dometic TecTower)

Fig. 220 Gas oven (Dometic)

The meaning of the symbols on the control knobs (Fig. 219,1 and Fig. 220,1) of the two gas ovens is identical:

- 🔥 and 555 stand for the oven
- and where stand for the grill.

Switching on the oven:

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

Switching on the grill:

- Open the regulator tap on the gas bottle and the gas isolator tap "Oven".
- Open the oven door to at least the first locking position (approx. 45°).
- Press and hold control knob and turn it clockwise to the grill symbol. Keep control knob pressed for a further 5-10 seconds. Ignition will take place automatically.
- Release control knob.
- \triangleright Do not close the oven door when grilling.



Switching off:

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



9.5.3 Microwave oven (special equipment)



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



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



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



Fig. 221 Operating controls for microwave oven

- Switching on:
- Press the key (Fig. 221,3) to open the door and place food into the cooking area.
 - Close the door. A clicking noise can be heard when it engages.
 - Select the output on the control knob (Fig. 221,1).
 - Select the cooking time with the control knob (Fig. 221,2). Cooking begins.

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

Switching off: Press the key (Fig. 221,3) to open the door and take out the food.



9.5.4 Extractor hood (special equipment)

Depending on the equipment, the cooker is equipped with an extractor hood (vented **or** recirculating).





Fig. 222 Vented extractor hood

Fig. 223 Recirculating extractor hood

 Vented extractor hood
 The kitchen fumes are aspirated above the cooker, cleaned with the aid of a metal grease filter, and blown directly to the outside.

 To switch on the extractor hood, press the flip switch (Fig. 222,2).
 Use the flip switch (Fig. 222,1) to switch on the two lights in the extractor hood.

 Recirculating extractor hood
 The kitchen fumes are aspirated above the cooker, cleaned with the aid of a metal grease filter and an active carbon filter. The cleaned air is then conducted back into the interior of the vehicle.

 To switch on the extractor hood, press the flip switch (Fig. 223,1).
 Image: Further information can be obtained in the manufacturer's instruction manual.

9.6 Refrigerator

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



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



9.6.1 Refrigerator ventilation grill

At high external temperatures, the full cooling power of the cooling unit is only guaranteed if the refrigerator is ventilated sufficiently. In order to achieve a better ventilation the refrigerator ventilation grill can be removed.





Fig. 224 Refrigerator ventilation grill (with sliding trap)



- *Removing:* Depending on the design, push the sliding trap (Fig. 224,1) upwards or turn the screw (Fig. 225,1) a quarter turn using a coin.
 - Remove refrigerator ventilation grill.





Fig. 226 Refrigerator ventilation grill (Thetford large)

Fig. 227 Refrigerator ventilation grill (Thetford small)

- Removing:
- Move the locking device (Fig. 226,1 or Fig. 227,1) to the middle.
 Remove refrigerator ventilation grill.



Fig. 228 Winter cover

Winter cover If the refrigerator is to be operated at low external temperatures, the manufacturer recommends the use of a winter cover (Fig. 228) for the refrigerator ventilation grills.



The table below shows the temperature ranges in which the winter cover or the insulated winter cover may be used.

Temperature	Cover
Below 10 °C	Winter cover (for refrigerators with capacity below 130 litres: fit only on the lower ventilation grill)
Below -5 °C	Insulated winter cover (fit only on the lower ventilation grill)

If the temperatures are higher than the indicated values, it is absolutely necessary to remove the winter cover. Otherwise the vehicle could be damaged.

Mounting:

- Open both locks (Fig. 228) (groove in horizontal position).
 - Put winter cover in front of the ventilation grill.
 - Lock the locks with a small coin (groove in vertical position).

Removing:

- Open both locks (Fig. 228) (groove in horizontal position).
 Remove winter cover from ventilation grill.
- $\,\triangleright\,\,$ The winter cover may remain mounted during the journey.

9.6.2 Dometic MES/AES

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

Version MES Manual power selection, automatic ignition

Version AES Automatic and manual power selection, automatic ignition

The refrigerator has 3 operating modes:

Operating modes

- 230 V operation
- 12 V operation
- Gas operation



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

230 V operation

The refrigerator is operated via an external power supply.

The refrigerator is operated via the vehicle battery.

12 V operation



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





Gas operation



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

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

Change-over between energy sources

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

Stop to fill tank



Open flames are prohibited at petrol stations.

If the refrigerator was manually set for gas operation during the journey: switch off the refrigerator in the petrol station area or change over to 12 V operation.

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

Ignition fuse When selecting gas operation the ignition fuse is opened automatically so gas can get into the burner. At the same time the electronic ignition is activated. If the gas flame is extinguished, e.g. by blast of wind, the ignition is activated immediately and re-ignites the gas. If there is a fault in gas operation, the illuminated buttons for Gas (Fig. 229,3) and Fault (Fig. 229,9) flash and an alarm sounds for 20 seconds.

Operation



Fig. 229 Dometic refrigerator with LED operating panel

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

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0	If the refrigerator shall be operated with gas: Open the regulator tap on the gas bottle and the gas isolator tap "Refrigerator".
Switching on:	Press and hold the On/Off button (Fig. 229,1) for about 2 seconds. The refrigerator switches on and the previously set operating mode is displayed.
Selecting operating mode:	Press the illuminated button for the desired operating mode (Fig. 229,2 - 4) or the automatic mode "AES" (Fig. 229,5) (only in the case of AES version).
	In the case of the AES version, the automatic energy selection is carried out in the following order as a function of the availability of the energy sources:
	 12 V solar (special equipment) 230 V AC 12 V DC Gas
Setting the refrigerating temperature:	 Use the cooling level button (Fig. 229,7) to set the refrigerating tempera- ture. The cooling level indicator (Fig. 229,8) shows the selected thermostat setting.
Switching off:	Press and hold the On/Off button (Fig. 229,1) for about 2 seconds.
	 If the refrigerator had been operated with gas: Close the gas isolator tap "Refrigerator" and the regulator tap on the gas bottle.
Refrigerating temperature control	When turned on the first time the refrigerator automatically selects the middle thermostat position. This position can be adjusted manually using the cooling level button (Fig. 229,7). It takes a few hours till the refrigerator reaches its normal operating temperature. When changing over to another operating mode, the thermostat setting is kept.
Frame heater (depending on the model)	High external temperatures and high humidity can cause drops of water to form on the metal frame of the freezer compartment. To prevent any possible corrosion, the freezer compartment is equipped with a frame heater.
	▷ When the frame heater is turned on, it uses about 4 Watts, including in gas operation. To avoid running down the living area battery, in gas mode refrain from running the frame heater in continuous operation or turn the frame heater off entirely.
	The following options are available for operating times of the frame heater:
	 2 hours 5 hours Continuous operation (switched on for 30 minutes, then for 5 minutes on and 5 minutes off in alternating intervals)
Setting operating time:	Switch on the frame heater for a 2 hour period: Push the frame heater illuminated button (Fig. 229,6) once. One bar is lit on the cooling level indicator (Fig. 229,8).
	Switch on the frame heater for a 5 hour period: Push the frame heater illuminated button (Fig. 229,6) twice. Two bars are lit on the cooling level indicator (Fig. 229,8).
	Setting frame heater for continuous operation: Push the frame heater illuminated button (Fig. 229,6) three times. Three bars are lit on the cooling level indicator (Fig. 229,8).



The cooling level indicator (Fig. 229,8) shows the operating time of the frame heater for several seconds.

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

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

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

> In the event of a fault, the illuminated Fault button (Fig. 229,9) will flash. Also, either one of the illuminated buttons for operating mode or the temperature level indicator will flash. In addition, a warning signal will sound. For instructions on the display of errors and troubleshooting, see chapter 14.



- ▷ After eliminating a fault of the gas operation, press the illuminated Reset button (Fig. 229,9).
- \triangleright Further information can be obtained from the separate instruction manual "Refrigerator".

9.6.3 Thetford N3000

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

Version	with	manual
pov	ver s	election

Manual power selection, automatic ignition

Version with automatic power selection

Operating modes

The refrigerator has 3 operating modes:

Automatic and manual power selection, automatic ignition

- 230 V operation
- 12 V operation
- Gas operation



> The refrigerator always requires a 12 V control voltage, regardless of which type of energy it is using. The control voltage is present as soon as the transformer/rectifier is switched on. Therefore the closed circuit current always flows even if the refrigerator is switched off. Always switch off the transformer/rectifier for a temporary lay-up.

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

230 V operation

The refrigerator is operated via an external power supply.

The refrigerator is operated via the vehicle battery.

12 V operation

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



Gas operation



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

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

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

Stop to fill tank



Open flames are prohibited at petrol stations.

If the refrigerator was manually set for gas operation during the journey: switch off the refrigerator in the petrol station area or change over to 12 V operation.

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

Ignition fuse When selecting gas operation the ignition fuse is opened automatically so gas can get into the burner. At the same time the electronic ignition is activated. If the gas flame is extinguished, e.g. by blast of wind, the ignition is activated immediately and re-ignites the gas.

Operation



Fig. 230 Thetford N3000 refrigerator with LED operating panel

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



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

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Switching on:	Press and hold the On/Off button (Fig. 230,1) for 1 second. The button lights up green. To save energy, after approximately 10 seconds the display is dimmed.
	 Press confirmation button (Fig. 230,3). The operating mode previously selected is displayed.
Selecting operating mode:	 Press and hold the confirmation button (Fig. 230,3) for about 2 seconds. The operating mode symbols flash.
	 Manual power selection: use the arrow keys (Fig. 230,2) to select the desired energy source.
	Automatic power selection (only version with automatic power selection): use the arrow keys (Fig. 230,2) to select the operating mode "A".
	 Confirm your selection with the confirmation button (Fig. 230,3).
	In the case of the version with automatic power selection, the power selection is carried out in the following order as a function of the availability of the energy sources:
	 230 V AC 12 V DC Gas
Setting the refrigerating temperature:	 Press and hold the confirmation button (Fig. 230,3) for about 2 seconds. The operating mode symbols flash.
	 Press confirmation button (Fig. 230,3) again. The cooling level indicator (Fig. 230,5) flashes.
	 To change the setting, press the arrow keys (Fig. 230,2) until the desired setting is displayed.
	 Confirm your selection with the confirmation button (Fig. 230,3).
Switching off:	 Press and hold the On/Off button (Fig. 230,1) for about 2 seconds. All lights go out. Refrigerator is switched off.
	If the refrigerator had been operated with gas: Close the gas isolator tap "Refrigerator" and the regulator tap on the gas bottle.
Refrigerating temperature control	After switching it on, the refrigerator automatically selects the previously selected thermostat position. This position can be adjusted manually by using the arrow keys (Fig. 230,2). It takes a few hours till the refrigerator reaches its normal operating temperature. When changing over to another operating mode, the thermostat setting is kept.
Additional functions	Flashing lamps on the operating unit indicate a fault. For instructions on troubleshooting, see chapter 14.
\bigcirc	Further information can be obtained from the separate instruction manual "Refrigerator".


9.6.4 Thetford N97

The refrigerator is equipped with a SES (Smart Energy System). It possesses an automatic and a manual power selection system, and an automatic ignition.

Operating modes

• 230 V operation

The refrigerator has 3 operating modes:

• 12 V operation

ified technician.

Gas operation



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

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

230 V operation

12 V operation

The refrigerator is operated via the vehicle battery.

The refrigerator is operated via an external power supply.

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

Gas operation

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

- 0
- Change-over between energy sources

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

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

Stop to fill tank



► Open flames are prohibited at petrol stations.

If the refrigerator was manually set for gas operation during the journey: switch off the refrigerator in the petrol station area or change over to 12 V operation.

If the refrigerator was operated in the automatic mode during the journey and the stop for filling the tank takes longer than 15 minutes: switch off the refrigerator. Otherwise, the automatic power selection system will automatically change over to gas operation 15 minutes after stopping the vehicle engine.

Ignition fuse When selecting gas operation the ignition fuse is opened automatically so gas can get into the burner. At the same time the electronic ignition is activated. If the gas flame is extinguished, e.g. by blast of wind, the ignition is activated immediately and re-ignites the gas.



Operation



- 1 Operating mode button
- 2 Display
- 3 Operating indicator (blue LED)
- 4 On/Off button
- 5 Cooling level button

Fig. 231 Thetford N97 refrigerator



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

Switching on:

- Press the On/Off button (Fig. 231,4). The operating indicator (Fig. 231,3) lights up in blue. The refrigerator is switched on, the LCD display shows the last settings selected. The display lighting goes out after 10 seconds.
- Selecting the energy source:
- Manual power selection: use the Operating mode button (Fig. 231,1) to select the desired energy source. The LCD display shows the selected operating mode. The display goes out after 10 seconds.
- Automatic power selection: use the Operating mode button (Fig. 231,1) to select the AUTO function. The LCD display shows the AUTO function and the current operating mode. The display lighting goes out after 10 seconds.

The automatic power selection is carried out in the following order as a function of the availability of the energy sources:

- 230 V AC
- 12 V DC
- Gas
- Setting the refrigerating temperature: Set the desired cooling level by pressing the Cooling level button (Fig. 231,5). The LCD display shows the selected cooling power. The display lighting goes out after 10 seconds.
 - Switching off:
- Press the On/Off button (Fig. 231,4).
 - If the refrigerator had been operated with gas: Close the gas isolator tap "Refrigerator" and the main tap on the gas bottle.

Additional functions

If there is a fault present, the operating indicator (Fig. 231,3) next to the On/Off button (Fig. 231,4) will flash. In addition, an error code appears on the display (Fig. 231,2). For instructions on troubleshooting, see chapter 14.



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



9.6.5 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 8 series





Fig. 232 Release button of the refrigerator door (Dometic 8 series)

Fig. 233 Lock hook fixture

Opening: Press the release button (Fig. 232,1) and open the refrigerator door.

Closing:

Close the refrigerator door. The lock hook engages audibly.

When the vehicle has been positioned, the lock hook can be fixed. The refrigerator door can now be opened without having to press the release button.

Fixing the lock hook: Press the fixture (Fig. 233,1) upwards. The lock hook (Fig. 233,2) is pressed upwards and has no function.

Unlocking the lock hook:

Push the lock hook (Fig. 233,2) down. The lock hook functions again.







Fig. 234 Locking device in normal position

Fig. 235 Locking device in ventilation position

Locking in the ventilation position:

- Open the refrigerator door.
- Press down the unlocking device (Fig. 234,2).
- Push locking device (Fig. 234,1) forwards (Fig. 235).

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

Dometic 9 series The refrigerator is opened and closed with the handle (Fig. 236,1) on the door.



Fig. 236 Refrigerator door handle

Ventilation position

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



Fig. 237 Locking device in normal position

Open the refrigerator door.



Fig. 238 Locking device in ventilation position

Locking:

Swing the bracket (Fig. 237,1) to the front (Fig. 238).

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



- **Thetford** The refrigerator is opened and closed with the handle on the door.
- *Opening:* Press the handle to the side, keep it pressed and open the refrigerator door.
- Closing:
 - Close the refrigerator door. The lock hook engages audibly.

Ventilation position

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





Fig. 239 Locking device in normal position

Fig. 240 Locking device in ventilation position

Locking:

- Open the refrigerator door.
- Swing the bracket (Fig. 239,1) to the front (Fig. 240).

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





Chapter overview

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

- complete water system
- water tank
- drinking water filler neck
- waste water installation
- waste water tank heater
- heater for the waste water pipes
- toilet compartment
- toilet

10.1 Water supply, general



- Fill water tank from supply systems that have been verified to provide drinking water quality.
- Only use such hoses or containers when filling that have been approved for use with drinking water.
- Thoroughly rinse filling hose or container with drinking water before use (2 to 3 times capacity).
- Empty filling hose or container completely after use and close openings of the filling hose or container.
- Water left standing in the water tank or in the water pipes becomes undrinkable after a short period. Therefore, before each use of the vehicle, thoroughly clean the water pipes and the water tank. After each use of the vehicle completely empty the water tank and the water pipes.
- In the case of lay-ups lasting more than a week disinfect the water system before using the vehicle (see chapter 11).



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

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

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



- Before the water fittings can be used, the 12 V power supply and water pump on the panel must be turned on. Otherwise the water pump will not work.
- When the water tank is re-filled, an air bubble may form at the bottom of the pump. This air bubble will prevent water from being drawn in. Shake the water pump up and down energetically in the water.



10.2 Water system

10.2.1 Water tank



The water tank has a capacity of 110 litres (Travel Van) or 120 litres. In the ready-to-drive state however, the volume has been limited to 20 I (overflow installed) for payload reasons. The panel has not been adjusted to this volume. The level indicator on the panel shows the actual amount of water in the tank.

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

10.2.2 Drinking water filler neck



Fig. 241 Cap for drinking water filler neck (central supply unit)

The central supply unit is installed behind the external flap on the vehicle's left side.

The drinking water filler neck is indicated by the symbol "

10.2.3 Filling the water system



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



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



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

Fig. 243 Drain cock (with twist cap)



Fig. 242 Drain cock (with rocking lever)

- Position the vehicle horizontally.
- Switch on 12 V power supply on the panel.
- If necessary, switch on the water pump on the panel.
- Clean or disinfect water system.
- Close all drain cocks. To do this, position the drain cock's rocking lever (Fig. 242,1) horizontally or turn the drain cock's cap (Fig. 243,1) in a clockwise direction.



Fig. 244 Safety/drainage valve (Truma)

Close the safety/drainage valve (Truma). Turn the knob (Fig. 244,1) perpendicular to the safety/drainage valve and push the push button (Fig. 244,2) in.

If the temperature is below 6 °C, the safety/drainage valve cannot be closed. Therefore switch on the living area heater and wait until the temperature of the safety/drainage valve exceeds 6 °C.

- Close the drainage opening of the water tank.
- Close all water taps.
- Open the drinking water filler neck on the outside of the vehicle.





Fig. 245 Filling aid

- Plug the filling aid (Fig. 245,1) onto the drinking water filler neck.
- Fill the water tank with drinking water. Use a water hose, a water canister with a funnel or similar for filling.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the water taps open until the water flowing out of the water taps has no bubbles in it. This is the only way to ensure that the boiler is full of water.
- Set all water taps to "Cold" and leave them open. The cold water pipes will be filled with water
- Keep the water taps open until the water flowing out of the water taps has no bubbles in it.
- Close all water taps.
- Close drinking water filler neck.
- Check that the cap on the water tank is not leaking.

Position of the drain cocks and safety/ drainage valve

See chapter 16.

10.2.4 Topping up the water



- When filling the water tank, observe the maximum permissible gross weight of the vehicle. Luggage must be reduced accordingly when the water tank is full.
- Open drinking water filler neck.
- Fill the water tank with drinking water. Use a water hose, a water canister with a funnel or similar for filling.
- Close drinking water filler neck.



10.2.5 Closing/opening the overflow



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



Fig. 246 Water tank (central supply unit)

Closing:

- Turn the handle (Fig. 246,1) on the water tank in a clockwise direction as far as it will go.
 - Fill the water tank with drinking water.
- Opening:
- Turn the handle (Fig. 246,1) on the water tank in an anticlockwise direction as far as it will go. Excess water will drain away leaving 20 litres in the tank.

10.2.6 Draining water (handle with overflow)



Fig. 247 Water tank (central supply unit)

Turn the handle (Fig. 247,1) on the water tank in an anticlockwise direction as far as possible beyond the resistance to fully open the drainage opening.



10.2.7 Emptying the water system



- ▷ If the vehicle is not used for several days or if it is not heated when there is a risk of frost, empty the entire water system. Make certain that the water pump is switched off on the panel. Otherwise, the water pump will overheat and may get damaged. Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) and all drain cocks open. Frost damage to appliances, frost damage to the vehicle and deposits in watercarrying components can be avoided in this way.
- ▷ If the water pump can be turned off from the panel, always turn off the water pump from the panel before you empty the water system. Otherwise the water pump runs until it overheats or the battery is empty.



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

> Depending on the model, the Alde system (heater/boiler) has one or two



drain cocks for emptying.



Fig. 248 Drain cock (with rocking lever)

Fig. 249 Drain cock (with twist cap)

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

- Position the vehicle horizontally.
- Switch off water pump on panel.
- Switch off the 12 V power supply on the panel.
- Shut off the boiler (see section 9.2).
- Open all drain cocks. To do this, position the drain cock's rocking lever (Fig. 248,1) vertically or turn the drain cock's cap (Fig. 249,1) in an anticlockwise direction.





Fig. 250 Safety/drainage valve (Truma)

- Open the safety/drainage valve (Truma). To do this turn the knob (Fig. 250,1) parallel to the safety/drainage valve. The push button (Fig. 250,2) jumps out.
- Open the water tank drain.
- Open all water taps and set to the central position.
- Hang the shower handset up in the shower position.
- Check whether the water tank is completely empty.
- Blow out the remaining water in the water pipes (max. 0.5 bar). To do this, remove the pipe from the water pump and blow into the pipe.
- Empty the waste water tank. Take note of the environmental tips in this chapter.
- Empty toilet cassette or sewage tank. Take note of the environmental tips in this chapter.
- Clean the water tank and then rinse it out thoroughly.
- Let the water system dry for as long as possible.
- After emptying, leave all water taps on in the central position.
- Leave all drain cocks open.

Position of the drain cocks and safety/ drainage valve See chapter 16.



10.3 Waste water installation



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



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

10.3.1 Draining waste water



▷ 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.



 $\,\triangleright\,\,$ If possible, place the vehicle in inclined position to drain the waste water.





Fig. 251 Drain cock symbol

Fig. 252 Drain cock

The waste water tank is in a central position underneath the vehicle. Waste water from the kitchen and washing unit flows through plastic pipes into the waste water tank.

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

The position of the drain cock is identified by a symbol (Fig. 251). The waste water tank holds 90 litres.

- *Emptying:* Park the vehicle such that the drainage opening is positioned above the disposal facility.
 - Turn the handle (Fig. 252,1) of the drain cock in flow direction.
 - Completely empty waste water tank.
 - Turn the drain cock handle perpendicular to the flow direction.



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

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

When the heater is turned on, temperature sensors monitor the surface temperature of the waste water tank and ambient temperature of the waste water pipes. If the temperature falls below 5 °C, the heating elements are switched on and the waste water tank and waste water pipes are heated. If the temperature rises above a certain level, the heating elements are switched off again. The waste water pipes are at 7 °C, the waste water tank at 30 °C.





Fig. 253 Control unit

Fig. 254 Switch indicator lamps

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The control unit (Fig. 253) is fitted in the wardrobe or in a bench seat. The control lamps on the control unit have the following meanings:

- Indicator lamp (Fig. 253,2) lights up in green: Regulator in operation.
- Indicator lamp (Fig. 253,1) lights up in red: Waste water tank is heated.
- Indicator lamp (Fig. 253,3) lights up in red: Waste water pipes are heated.

The on/off switch (Fig. 254) is installed at the front of the bench or bed. Press the switch up to switch on, press it down to switch off.

10.3.3 Warming unit for waste water pipes (special equipment)



 \triangleright Always only press the test button briefly.



The warming unit only functions when the vehicle is connected to a 230 V power supply.

In order to prevent waste water pipes from freezing, the waste water pipes can be electrically warmed.

When the warming unit is turned on, the temperature of the waste water pipes is monitored by temperature sensors. If the temperature falls below 5 °C, the heating elements are switched on and the waste water pipes are warmed. If the temperature rises above 7 °C, the heating elements are switched off again.





Fig. 255 Transformer with control unit

The 230 V AC/12 V DC transformer (Fig. 255,2) is installed in the wardrobe or in the storage area beneath the seating group, depending on the model.

The control unit is integrated in the transformer housing. The control lamps have the following meanings:

- Indicator lamp (Fig. 255,5) lights up in green: Regulator in operation.
- Indicator lamps (Fig. 255,4 and 6) light up in red: Waste water pipes are warmed.

A test button (Fig. 255,3) is integrated in the housing with which the control unit can be operated for a short time. By pressing the test button, the function of the warming unit can be tested, even if the ambient temperature is above 5 °C.

- Switching on: Connect the vehicle to a 230 V power supply (see section 8.8.1).
 - Turn switch (Fig. 255,1) on the transformer (Fig. 255,2) to "ON".
 - g off: Turn switch (Fig. 255,1) on the transformer (Fig. 255,2) to "OFF".

10.4 Toilet compartment



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



- ▷ For ventilation purposes during or after a shower, and for drying wet clothing, close the toilet compartment door and open the window or the toilet compartment skylight. This improves the air circulation.
- ▷ Close the shower curtain completely when showering, so that no water is able to enter the area between the wash room wall and the shower tray.
- ▷ After taking a shower, rinse soap residue from the shower tray, otherwise cracks can appear in the shower tray over time.
- > After using the shower, wipe it dry to prevent moisture from collecting.
- ▷ Further information about cleaning the toilet compartment can be found in the section 11.2.

Switching off:



10.5 Toilet



▷ If there is any risk of frost and the vehicle is not heated, empty the sewage tank (cassette).

- ▷ Do not sit on the lid of the toilet. The lid is not designed to bear the weight of a person and could break.
- Use a suitable chemical for this toilet. The ventilation will merely remove the odour but not germs and gases. Germs and gases will have a detrimental effect on the sealing rubbers.
- ▷ Never put the sanitary liquid directly in the toilet bowl.



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



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

The flushing of the toilet is fed directly from the water system of the vehicle.



Preparing toilet

- 0
- The sewage tank (cassette) can only be taken out if the sliding trap is closed.





Fig. 256 Flap for sewage tank

Fig. 257 Sewage tank (example)

- Open the flap for the sewage tank on the outside of the vehicle. Insert the key into the locking cylinder of the push-button lock (Fig. 256,1) and turn a quarter turn.
- Remove the key.
- Press both push-button locks (Fig. 256,2) simultaneously with your thumb and open the flap.
- Pull up the retaining clip (Fig. 257,1) and lift the sewage tank (Fig. 257,2) straight up as far as it will go.
- Tilt the sewage tank slightly and remove fully.





Fig. 258 Turning drainage neck



- Put the sewage tank down vertically.
- Turn the drainage neck upwards (Fig. 258).
- Remove the cap of the drainage neck.
- Fill the stated amount of sanitary liquid into the sewage tank (Fig. 259).
- Then add enough water so that the bottom of the sewage tank is completely covered.
- Close drainage neck with the cap.
- Return the drainage neck to its original position.
- Push the sewage tank back to its original position without applying any force.
- Ensure that the sewage tank is secured by the retaining clip.
- Lock the flap for the sewage tank.

10.5.2 Swivel toilet

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





Fig. 261 Thetford toilet bowl, swivelling (alternative)

The operating unit is located close to the toilet bowl.





Fig. 262 Flush button/indicator lamp Thetford toilet



Fig. 263 Flush button/indicator lamp Thetford toilet (alternative)

Flushing:

- Before flushing open the sliding trap of the Thetford toilet. To do this, push the slide lever (Fig. 260,1 or Fig. 261,1) in an anticlockwise direction.
 - For flushing, press the blue flush button (Fig. 262,1 or Fig. 263,1).
 - After flushing close the sliding trap. To do this push the slide lever in a clockwise direction.

The indicator lamp (Fig. 262,2 or Fig. 263,2) lights up whenever the sewage tank has to be emptied.

10.5.3 Toilet with fixed seat

The flushing of the toilet is fed from the water system of the vehicle.



Fig. 264 Thetford toilet



Fig. 265 Flush button/indicator lamp Thetford toilet

Flushing:

- Before flushing open the sliding trap of the Thetford toilet. To do this, turn the slide lever (Fig. 264,1) in an anticlockwise direction.
 - For flushing, press the blue flush button (Fig. 265,1).
 - After flushing close the sliding trap. To do this turn the slide lever (Fig. 264,1) in a clockwise direction.

The indicator lamp (Fig. 265,2) lights up whenever the sewage tank has to be emptied.



10.5.4 Emptying the sewage tank



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





Fig. 266 Flap for the sewage tank

Fig. 267 Sewage tank (example)

- Slide the slide lever on the toilet bowl in a clockwise direction. The sliding trap is closed.
- Open the flap for the sewage tank on the outside of the vehicle. Insert the key into the locking cylinder of the push-button lock (Fig. 266,1) and turn a quarter turn in a clockwise direction.
- Remove the key.
- Press both push-button locks (Fig. 266,2) simultaneously with your thumb and open the flap for the sewage tank.
- Pull the retaining clip (Fig. 267,1) upwards and pull out the sewage tank (Fig. 267,2).
- Completely empty the sewage tank at disposal stations that are especially provided for this purpose.



▷ Actuate the aeration knob on the sewage tank with your thumb to empty it completely.



Chapter overview

This chapter contains instructions regarding the care of the vehicle.

The instructions address the following topics:

- exterior of the vehicle
- interior
- water system
- extractor hood
- air conditioning unit
- winter operation

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

The checklist address the following topics:

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

11.1 External care

11.1.1 General

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

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

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

11.1.2 Washing with a high-pressure cleaner



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

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

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

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



11.1.3 Washing the vehicle



- Never clean the vehicle in the car wash. Water can penetrate the refrigerator grills, the waste gas vent or the forced ventilations. The vehicle could be damaged.
- Wash the vehicle only on a washing site intended for this purpose. Avoid full sunshine. Observe environmental measures.
- Only clean external applications and synthetic parts with plenty of warm water, dish washing liquid and soft cloth.
- Wash down the vehicle with plenty of water, a clean sponge or a soft brush. In the case of stubborn dirt add dish washing liquid to the water.
- Painted exterior walls may also be cleaned with a caravan cleaner.
- Add-on parts made of glass-fibre reinforced plastic (GRP) require a regular follow-up treatment with a polisher. This way these parts will not turn yellow and the sealing of the surface remains intact.
- Rub a conventional rubber care product onto the rubber seals on doors and storage flaps.
- Treat locking cylinder of doors and storage flaps with graphite dust.

11.1.4 Windows of acrylic glass

Acrylic glass windows are delicate and require very careful handling.



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



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



11.1.5 Underbody

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



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

11.1.6 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.

11.1.7 Air suspension (Goldschmitt)

- Check periodically whether you can see cracks or brittleness on the bellows.
- Conserve all metal parts of the air suspension system with a protective wax once a year.
- Remove coarse dirt on the bellows manually with a cloth. Approved cleaning agents are e.g. mild soaps, methanol, ethanol and isopropyl alcohol. Cleaning agents such as organic solvents, open flames, scouring agents, and high-pressure cleaners are not permitted.

11.2 Interior care



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



▷ For information about the use of maintenance products, our representatives and service centres will be glad to advise.



- Surface and knobs of furniture, lamps and synthetic parts in the toilet and living area should be cleaned with water and a wool cloth. A mild cleanser may be added to the water. If required, use furniture polish for the painted surfaces.
- Clean upholstery with dry foam specially manufactured for the use on upholstery or with the foam of a mild detergent. Do not wash upholstery. Always have it cleaned. Protect upholstery from direct sunlight so that it does not loose its colour.
- Leather covers should be cleaned with a cotton cloth and a mild soap (curd soap). Make sure that the leather is not soaked through and that no water seeps through the seams of the leather covers.
- Wash panel curtains and gathered blinds. When washing observe washing instructions on the product. The sticks may be removed for washing.
- Vacuum clean the carpet, if necessary clean with carpet shampoo.
- Clean PVC-floor covering with a mild, soapy cleanser for PVC floors. Do not place carpet on wet PVC-floor covering. The carpet and the PVC-floor covering may stick together.
- Clean the sink cover manually using water and washing-up liquid. Do not clean the sink cover in the dishwasher.
- Never clean the sink or the gas cooker with a scourer. Avoid anything which may cause scratching or grooves.
- Clean the burners on the gas cooker using a damp cloth only. Prevent any water from penetrating the burner covers. Water may damage the burners on the gas cooker.
- Brush insect screens on doors, windows and skylights with a soft brush or vacuum with the brush attachment of the vacuum cleaner.
- Brush blinds with a soft brush or vacuum with the brush attachment of the vacuum cleaner. Grease or stubborn dirt may be removed with a mild soap at 30 °C (curd soap).
- Brush Roman shades with a soft brush or vacuum with the brush attachment of the vacuum cleaner. Grease or stubborn dirt may be removed with a mild soap at 30 °C (curd soap).
- Unrolled seat belts can be cleaned with warm soapsuds. The seat belt must be completely dry before being rolled up.



11.3 Water system

11.3.1 Cleaning the waste water tank

Clean the waste water tank after every use.



Fig. 268 Cleaning opening of the waste water tank

- Empty the waste water tank.
- Open the cleaning opening (Fig. 268,1) on the waste water tank and the drain cock.
- Thoroughly rinse out the waste water tank with fresh water.
- If possible, clean waste water sensors through the cleaning opening by hand.

11.3.2 Cleaning the water tank

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



▷ If, due to the design of the water tank, it is not possible to clean the water tank mechanically: Use a suitable chemical cleaning agent.

The authorised dealers would be happy to assist you in choosing a suitable cleaning agent.

Follow the cleaning agent manufacturer's instructions.



11.3.3 Cleaning the water pipes



- ▷ Only use suitable cleaning agents as sold by the specialist trade.
- ▷ The cleaning agent must meet national regulations and be approved (if required).

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

11.3.4 Disinfecting the water system



- > Only use suitable disinfectants as sold by the specialist trade.
- The disinfectant must meet national regulations and be approved (if required).



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

When disinfecting the water system, proceed the same way as when cleaning the water pipes (see section 11.3.3). Simply use disinfectant instead of cleaning agent.



11.4 Extractor hood

A metal grease filter is installed in the extractor hood which must be cleaned 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 metal grease filter:

- Wash the metal grease filter with warm water and some washing-up liquid.
- Leave the metal grease filter to air dry.

In the recirculating extractor hood, there is an active carbon filter installed additionally. Replace the active carbon filter if necessary (see section 12.5).

11.5 Air conditioning unit

11.5.1 Truma



- Do not clean the air conditioning unit with a high-pressure cleaner. Water entering can damage the air conditioning unit.
- ▷ Do not clean vehicle in car wash.
- Do not use any sharp or hard objects when cleaning. Otherwise the air conditioning unit could be damaged.
- Use only water and a gentle cleaning agent to clean the air conditioning unit.
- Wipe the air conditioning unit housing and the air outlet occasionally with a damp cloth.
- Clean the remote control occasionally with a slightly damp cloth. Clean the display with a spectacles cleaning cloth.
- Remove leaves and other dirt from the ventilation openings on the air conditioning unit regularly.
- Check the condensation drain holes regularly to ascertain whether the condensation can run off freely.
- Clean the filters on both sides of the air discharge unit regularly.
- ▷ Further information can be obtained in the manufacturer's instruction manual.





11.5.2 Telair

Every now and then clean the filter and the ventilation grilles on the outside of the housing. How often cleaning is necessary depends on how often the air conditioning unit is used. Do not wait to clean the filter and the ventilation grill until the performance of the air conditioning unit has noticeably decreased.



- Only use mild cleaning solutions to clean the filter, never use benzene or solvents.
- Cleaning the filter:
- Allow the filter to dry thoroughly before reassembly.

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

Cleaning the ventilation grill:

Use a brush to remove coarse dirt or deposits from the external ventilation grilles. If a cleaning solution is used, ensure that no water ingresses into the inside of the housing.

11.6 Winter care

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



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

11.6.1 Preparations

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

11.6.2 Winter operation

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

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





It is only possible to guarantee unrestricted operation during winter for models without double floor in connection with the "winter package" from the original equipment.

11.6.3 At the end of the winter season

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

11.7 Lay-up

11.7.1 Temporary lay-up



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

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

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





	Activities	Done
Body	All vents should be sealed with the appropriate caps and all other openings (apart from forced ventilations) should also be sealed. This prevents animals (e.g. mice) from gaining entry	
	Air the interior, all storage spaces accessible from the outside, and the parking space (e.g. garage) every 3 weeks in order to prevent the occurrence of condensation and resulting mould formation	
Interior	Place upholstery in an upright position for ventilation, and cover	
interior	Clean refrigerator	
	Allow refrigerator and freezer compartment doors to remain slightly open	
	Search for traces of animals that have gained entry	
	Disconnect the flat screen from the mains and, if necessary, remove it from the vehicle	
0	Olass regulater for an the rest heftig	
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	
	\land Charge the battery for at least 20 hours before laying up.	
	Disconnect the living area battery from the 12 V power supply. To do this, switch off the battery cut-off switch on the transformer/rectifier (see chapter 8)	
Water system	Empty the entire water system. Blow out the residual water from the water pipes (0.5 bar max.). Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) and all drain cocks open. Observe the notes in chapter 10	



11.7.2 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	
	Fill in washer fluid with frost protection	
Body	Clean vehicle from outside thoroughly	
-	Keep the forced ventilation open	
	Clean and grease installed supports	
	Clean and grease all door and flap hinges	
	Brush oil or glycerine on all locking mechanisms	
	Treat all rubber seals with a conventional rubber care product	
	Use graphite dust to treat locking cylinders	
Interior	Set up the de-humidifier (granulate)	
	Remove cushions and mattresses from the vehicle and store them in a dry place	
	Air the interior every 3 weeks	
	Empty all cabinets and storage compartments, open flaps, doors and drawers	
	Thoroughly clean the interior	
	If there is a risk of frost, do not leave the flat screen in the vehicle	
Electrical system	Remove the starter battery and the living area battery and store them in a place protected from frost (see chapter 8) or connect the vehicle to a 230 V supply	
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	



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

Go through the following checklist before start-up:

	Activities	Done
Base vehicle	Check the tyre pressure on all tyres	
	Check the tyre pressure of the spare wheel	
Deska	Clean the nivet begins of the entroped star	
Body	Clean the pivot bearing of the entrance step	
	Check the functioning of the fitted supports	
	Check that the doors, windows and skylights are working properly	
	Check that all the external locks are working, such as the storage flaps, the filler neck and the conversion door	
	Remove the cover from the waste gas vent of the heater (if there is one)	
	Remove the winter cover from the refrigerator grills (if there is one)	
Gas system	Put the gas bottles in the gas bottle compartment, tie down and con- nect to the gas pressure regulator	
Electrical system	Connect to 230 V power supply using the external socket	
	Fully charge living area and starter battery	
	\land Charge the battery for at least 20 hours after lay-up.	
	Connect the living area battery with the 12 V power supply. To do this, switch on the battery cut-off switch on the transformer/rectifier (see chapter 8)	
	Check that the electrical system are working, e.g. interior light, socket and all installed electrical appliances	
Water system	Disinfect water pipes and water tank	
	Check the functionality of the operating lever for the waste water tank	
	Close safety/drainage valve (if there is one), drain cocks and water taps	
	Check water system for leaks	
		1
Appliances	Check the function of the appliances	



Chapter overview

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

The maintenance instructions address the following topics:

- doors
- living area battery
- Alde hot-water heater
- replacing light bulbs

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

12.1 Inspection work

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

This inspection work must be carried out by qualified personnel.

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

Have the "First Programmed Inspection" carried out at one of our service centres 12 months after initial registration.

Further inspections should be carried out once a year.

The service centre in charge will confirm the work performed.

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



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

12.2 Maintenance work

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

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

12.3 Doors

To maintain gliding capability between springs and hinges, grease the conversion door hinges occasionally.



▷ We recommend either Molykote PG 65 or Vaseline as lubricants.



12.4 Living area battery



- ▷ When replacing the battery, only use the same type of battery (same capacity and voltage, cycle stability).
- Never use conventional car batteries (starter batteries). A lead acid battery must not be replaced by a dryfill battery.
- \triangleright Do not use so-called improvers.

Observe the following to extend battery life:

- Keep the battery surface clean and dry.
- Protect the battery poles and the terminals from corrosion.
- Check the charging condition periodically or use a charge conservation device.
- Always keep stored batteries in charged condition and in a cool place.

12.5 Extractor hood

The active carbon filter in the recirculating extractor hood must be replaced with a conventional active carbon filter if necessary.

- Remove the metal grease filter and clean if necessary.
- Remove the active carbon filter.
- Shake the new active carbon filter if necessary, such that the carbon granules are evenly distributed.
- Insert a new active carbon filter.
- Insert the metal grease filter.

12.6 Alde hot-water heater

 $\,\triangleright\,\,$ Check the level of the heating fluid regularly on the compensator reservoir.



- During or after the first operating hours of the hot-water heater, the filling level may fall below the minimum mark. If this is the case, top up the heating fluid.
- ▷ We recommend to bleed the heating system after the initial heater operation and to check the glycol content.
- Have heating fluid changed by an authorised dealer or a service centre at intervals of approximately two years as corrosion-protection wears off after some time.
- Top up heating system with a water-glycol 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 in the manufacturer's instruction manual.



12.6.1 Checking the fluid level



Fig. 269 Compensator reservoir with panel



Fig. 270 Compensator reservoir without panel

- Switch off the hot-water heater and allow it to cool down.
- Check if the fluid level is between the marks "MIN" (Fig. 269,3 or Fig. 270,3) and "MAX" (Fig. 269,2 or Fig. 270,2) on the compensator reservoir (Fig. 269 or Fig. 270).

12.6.2 Topping up heating fluid

- Position the vehicle horizontally. This prevents the formation of bubbles.
- Switch off the hot-water heater and allow it to cool down.
- If necessary, unscrew or remove the panel (depending on the model).
- Open the rotary lid (Fig. 269,1 or Fig. 270,1) on the compensator reservoir.
- Remove cover.
- Check anti-freeze with an anti-freeze hydrometer. The frost protection content must be 40 % or correspond to a frost protection of -25 °C.
- Fill water frost protection mixture slowly into the compensator reservoir.



 $\triangleright~$ The optimum fluid level is reached when the fluid in the compensator reservoir is 1 cm above the "MIN" mark when it is cooled down.



12.6.3 Bleeding the heating system



Fig. 271 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. 271,1) 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.

12.7 Replacing bulbs, external



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



- \triangleright A new bulb should not be touched with the fingers. Use a cloth when installing the new bulb.
- Use only bulbs of the same type and with the correct wattage (see section 12.7.4 "Types of bulbs for exterior lighting").
- \triangleright If LEDs in lights are defect, contact an authorised dealer or service centre.


Types of bulbs Different types of bulbs are used in the vehicle. Below, we have described how to change the different types of bulbs.



Fig. 272 Types of bulbs

Pos. in Fig. 272	Fixture type/bulb type	Changing
1	Plug-in fixture	To remove, pull out the bulb
		To mount, push the bulb into the socket with gentle pressure
2	Bayonet socket	To remove, press the bulb down and turn in an anticlockwise direction
		To insert, place the bulb in the socket and turn in a clockwise direction
3	Cylindrical bulbs	To remove and to insert, carefully bend the contacts of the lamp holder outwards
4	Halogen bulb	To remove, release retaining springs
		After inserting, hook the retaining springs again

12.7.1 Front lights

The lamps for low beam, main beam and parking light as well as for the direction indicator are part of the basic vehicle. Replacement of light bulbs is described in the instruction manual of the base vehicle.



12.7.2 **Rear lights**



- Housing screws Rear light
- 1 2
- 3 Brake light
- 4 Direction indicator
- 5 Reverse light
- Fog tail light 6

Fig. 273 Rear lights

- Undo the five housing screws (Fig. 273,1).
- Remove housing.
- Remove bulb.
- Put in a new bulb.
- Reassemble the lamp in the reverse order.

12.7.3 Side lights



Fig. 274 Side lights

Side marker light The side marker light (Fig. 274,1) is located at the top of the side wall area at the back of the vehicle.

Marker lights The marker lights (Fig. 274,3) are fitted in the lower part of the vehicle.

Awning light The awning light (Fig. 274,2) is located above the conversion door.



▷ The lights have LEDs. To change the LEDs, contact an authorised dealer or a service centre.



	Exterior lighting	Type of bulb
Rear	Brake light	Ba15s 12 V 21 W
	Rear light	Ba15s 12 V 5 W
	Direction indicator	Ba15s 12 V 21 W orange
	Fog tail light	Ba15s 12 V 21 W
	Licence plate light	Soffitte 12 V 5 W
	Reverse light	Ba15s 12 V 21 W
	Third brake light	LED
Side	Side marker light	LED

12.7.4 Types of bulbs for exterior lighting

Side

Side marker light	LED
Awning light	LED
Marker light	LED

12.8 Replacing bulbs, internal

- Bulbs and light fittings can be extremely hot. Therefore, allow lights to cool down before changing bulbs.
- Shut off the power supply on the safety cut-out in the 230 V fuse box before changing bulbs.
- Store bulbs in a safe place inaccessible to children. ►
- ► Do not use any bulb that has been dropped or which shows scratches in its glass. The bulb might burst.
- Halogen lamps can get very hot. When the light is switched on, there must always be a safety distance of 30 cm between light and flammable objects. Fire hazard!
- ► Do not replace the LEDs in lights with standard light bulbs. Risk of fire due to intense heat build up.



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



12.8.1 Spotlight (movable)



Fig. 275 Spotlight (movable)

LED 12 V/max. 10 W

Changing bulbs:

- Turn the spotlight (Fig. 275,1) by 90° and remove from rail.
- Remove LED (Fig. 275,2) with a suction cup.
- Press a new LED into the holder.
- Insert spotlight into the rail.

12.8.2 Surface mounted light



Fig. 276 Surface mounted light

12 V/16 W halogen bulb

Changing bulbs:

- Carefully push the transparent cover (Fig. 276,1) together from both sides, pull it lightly from the switch and pull it off forwards.
 - Remove halogen bulb.
 - Put in a new halogen bulb.
 - Reassemble the lamp in the reverse order.



12.9 Spare parts



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

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

Here are some suggestions of important spare parts:

- Fuses
- V-belt
- Windscreen blades
- Bulbs
- Water pump (submerged pump)

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

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



12.10 Vehicle identification plate



1 Chassis number



The vehicle identification plate (Fig. 277) with the chassis number is attached in the interior, in the entrance area or on the frame of the right hand driver's cabin door.

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 chassis number with all inquiries for the customer service office.

12.11 Warning and information stickers

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



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



Chapter overview

This chapter contains instructions regarding the tyres of the vehicle.

The instructions address the following topics:

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

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

13.1 General



Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle (see section 13.7).



- ▷ Check the tyre pressure on cold tyres. Do not reduce the higher tyre pressure when the tyres are warm.
- $\,\triangleright\,$ Tubeless tyres have been installed on the vehicle. Never install tubes in these tyres.
- \triangleright Read the instruction manual for the base vehicle.



- Depending on the base vehicle and model the vehicles are only equipped with tyre repair kit as standard.
- ▷ 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 on vehicles with tandem axles may wear faster.
- Tyres should not be older than 6 years because the material will become brittle over time. Have the tyres inspected after 6 years. The four-digit DOT number on the tyre flank indicates the date of manufacture. The first two digits designate the week, the last two digits the year of manufacture.

Example: (4116) Week 41, year of manufacture 2016.

Observe:

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





Fig. 278 Tighten the wheel nuts or wheel bolts cross-wise

- Check regularly that the wheel nuts or wheel bolts are firmly seated. Retighten the wheel nuts or wheel bolts of a changed wheel cross-wise (Fig. 278) after 50 km (30 miles).
 See section 13.5.2 for tightening torque.
- When using new or newly painted rims, re-tighten the wheel nuts or wheel bolts once again after approx. 1,000 to 5,000 km (600 miles to 3,000 miles).
- For lay-ups or long periods of inactivity of the vehicle, keep the tyres and tyre bearings free from pressure points: Jack up the vehicle so that the wheels do not bear any load, or move the vehicle every 4 weeks in such a way that the position of the wheels is changed.

13.2 Tyre selection



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



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

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

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

The 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.



215/70 R 15C 109/107 Q

(example)

13.3 Tyre specifications

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

13.4 Handling of tyres

- Drive over kerbs at an obtuse angle. Otherwise the flanks of the tyres may get pinched. Driving over a kerb at a sharp angle can damage the tyre and result in it getting ruptured.
- Drive over high manhole covers at a slow speed. Otherwise the tyres may get pinched. Driving over a high manhole cover at high speed can damage the tyre and result in it getting ruptured.
- Check the shock absorbers regularly. Driving with poor shock absorbers significantly increases wear.
- 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.
- 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.
- Drive in such a way as to protect your tyres. Avoid braking sharply, revving up too strongly and long journeys on poor roads.

13.5 Changing wheels

13.5.1 General instructions



- ▶ The vehicle must be on level, firm ground, secure from slipping.
- Go into first gear. In the case of automatic transmission, change gear to "P" position.
- ▶ Before jacking up the vehicle firmly apply the handbrake.
- Prevent the vehicle from rolling away by blocking the opposite wheel with the wheel chocks.
- ▶ Under no circumstances jack the vehicle with the fitted supports.
- ▶ If a trailer is connected: Detach the trailer before lifting the vehicle.
- Position the vehicle jack underneath the axle, not under any circumstances on the bodywork.
- Never overload the vehicle jack. The maximum permissible load is specified on the vehicle jack's identification plate.
- Use the vehicle jack only for lifting the vehicle briefly while changing the tyre.





- No persons may be in the vehicle while it is is raised.
- Do not start the motor while the vehicle is jacked up.
- Whilst the vehicle is in a jacked up position, persons must not lie down under it.



- Do not damage the thread of the thread bolt or wheel bolt when changing the wheel.
- \triangleright Tighten the wheel nuts or wheel bolts cross-wise (Fig. 278).
- When changing wheels (e.g. alloy wheel rims or wheels with winter tyres), use the correct wheel bolts of the correct length and shape. Otherwise the wheels may not be securely fixed or the braking system may not work correctly.
- The use of wheel rims or tyres that are not approved for the vehicle can make it less than fully roadworthy; such wheel rims or tyres must be separately inspected and approved by an accredited test centre.
- \triangleright Do not replace wheels cross-wise.



Steel wheel rims

- ▷ 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.

13.5.2 Tightening torque

Depending on the wheel rim type and the wheel manufacturer, the wheels must be tightened with different tightening torques.

Description	Tightening torque
15"	160 Nm
16" Fiat X250 Light	160 Nm
16" Fiat X250 Heavy	180 Nm



Fig. 279 Steel wheel rim (standard)



13



Alloy	wheel	rims
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Description	Tightening torque
15" Tomason TN3F-6515	180 Nm
16" Tomason TN3F-6516	180 Nm
15" Irmscher IC-Line	180 Nm
16" Irmscher IC-Line	180 Nm
16" Fiat X250 Light	160 Nm
16" Fiat X250 Heavy	180 Nm



Fig. 280 Tomason



Fig. 282 Fiat Light



Fig. 281 Irmscher IC-Line



Fig. 283 Fiat Heavy



13.5.3 Changing a wheel



- The footplate of the vehicle jack must be levely positioned on the ground.
- Do not tilt the vehicle jack.



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



Fig. 284 Securing vehicle

- Park the vehicle on as even and stable a surface as possible.
- Switch off the engine and safeguard the area.
- Engage first gear or reverse gear.
- Apply the handbrake.
- Place wheel chocks or other appropriate objects beneath the opposite wheel of the vehicle to secure it (Fig. 284).
- Remove the spare wheel from the spare wheel support.
- If the ground is soft, place a stable support such as a wooden board beneath the vehicle jack.
- Apply the vehicle jack to the designated mounting points (refer to the instruction manual for the base vehicle).
- Turn the wheel bolts several times to loosen them, but do not remove them.
- Lift the vehicle until the wheel has been lifted 2 to 3 cm above the ground.
- Remove the wheel bolts and take off the wheel.
- Place the spare wheel on the wheel hub and adjust.
- Screw in the wheel bolts and slightly tighten them cross-wise.
- Crank down the vehicle jack and remove it.
- Using the wheelbrace, tighten the wheel bolts evenly (see section 13.5.2 for tightening torque).
- Have the tightening torque checked by an authorised specialist workshop.



13.6 Spare wheel support (special equipment)

The spare wheel support is built into the rear garage.



Fig. 285 Spare wheel support in the rear garage

Removing the spare wheel:

- Open external flap of the rear garage.
- Loosen and remove both fixing screws (Fig. 285,2) with the on-board tool set.
- Remove the spare wheel (Fig. 285,1) from the support (Fig. 285,3).

13.7 Tyre pressure



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



Check the tyre pressure on cold tyres. Do not reduce the higher tyre pressure when the tyres are warm.

The payload and the durability of tyres is directly dependent on the tyre pressure. Air is a volatile medium. It is unavoidable that it will escape from tyres.

As a rule of thumb it can be assumed that a filled tyre loses pressure at a rate of 0.1 bar every two months. To prevent the tyres becoming damaged or burst, check the tyre pressure regularly.

The contact surface of the tyre changes, depending on the tyre pressure.



1 Correct tyre pressure

- 2 Tyre pressure too low
- 3 Tyre pressure too high

Fig. 286 Contact surface of the tyre





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

Types	Tyre size	Front air pressure in bar	Rear air pressure in bar
All types	215/70 R 15 C (109/107) Q	4.1	4.5
All types with motorhome tyres	215/70 R 15 CP (109/107) Q	5.0	5.5
All types with winter tyres (M+S)	215/70 R 15 C (109/107) Q or 215/70 R 15 CP (109/107) Q	4.3	4.75
All types	225/70 R 15 C (109/107) Q	4.1	4.5
All types with motorhome tyres	225/70 R 15 CP (109/107) Q	5.0	5.5
All types with winter tyres (M+S)	225/70 R 15 C (109/107) Q or 225/70 R 15 CP (109/107) Q	4.3	4.75
All types	225/75 R 16 C (116/114) Q	4.5	5.0
All types with motorhome tyres	225/75 R 16 CP (116/114) Q	5.5	5.5
All types with winter tyres (M+S)	225/75 R 16 C (116/114) Q or 225/75 R 16 CP (116/114) Q	5.2	5.2
All types	225/75 R 16 C (116/114) Q (tandem axle)	4.5	3.8
All types with motorhome tyres	225/75 R 16 CP (116/114) Q (tandem axle)	5.5	3.8
All types with winter tyres (M+S)	225/75 R 16 C (116/114) Q (tandem axle) or 225/75 R 16 CP (116/114) Q (tandem axle)	5.2	3.8

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

- air suspension
- braking system
- satellite unit
- electrical system
- gas system
- heater
- boiler
- air conditioning unit
- gas cooker
- gas oven
- microwave oven
- refrigerator
- water supply
- body
- electrical pull-down bed

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 work-shop must find and eliminate the cause of the fault.

14.1 Air suspension (Goldschmitt)

Fault	Cause	Remedy
Lifting the vehicle does not work	Damaged bellow	Contact customer service; onward journey possible to a limited extent at 60 km/h

14.2 Braking system



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



14.3 Satellite unit

Fault	Cause	Remedy
No signal during search for satellites	No satellite found	Make sure that, towards the south, there are no obstacles in front of the satellite unit
		Make sure that the loca- tion is within the recep- tion range of the satellite
		Make sure that the connecting cable of the signal converter (LNB) is fastened correctly on the antenna
		Make sure that all cables on the advance unit are connected correctly
Black screen	Receiver or TV set are not switched on	Switch the receiver and the TV set on
	The selected satellite is not sending effectively	Make sure that the correct satellite has been selected
The satellite unit cannot be switched on	The vehicle engine is running	Switch the vehicle engine of
	Remote control battery is empty	Change the battery
	Fuse on the supply cable is damaged	Replace fuse

Further faults can occur, which are shown by an error code on the display of the operating panel. For information on this, see the manufacturer's indications.

14.4 Electrical system



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



 \triangleright See chapter 8 for changing the fuses.

Fault	Cause	Remedy
Road light system does no longer work correctly	Bulb is defective	Replace bulb. Note volts and watts specifications
Interior lighting does no longer work correctly	Bulb is defective	Replace bulb. Note volts and watts specifications
	Plug connector or cable defective	Contact customer service
	Fuse on the transformer/ rectifier is defective	Replace fuse on the transformer/rectifier

14

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Fault	Cause	Remedy
The electrically operated entrance step cannot be moved in or out	Fuse on the transformer/ rectifier is defective	Replace fuse on the transformer/rectifier
230 V indicator lamp does not light up, although 230 V mains power supply is connected	The mains connection is de-energised	Check mains connection (e.g. campsite)
No 230 V power supply despite connection	230 V automatic circuit breaker has triggered	Switch on the 230 V automatic circuit breaker
Starter or living area battery is not charged when operated in 230 V	Jumbo flat fuse (50 A) on the starter or living area battery is defective	Replace jumbo flat fuse (50 A) on the starter or living area battery
mode	Charger module in the transformer/rectifier is defective	Contact customer service
Living area battery is not charged during vehicle	Fuse on terminal D+ of the alternator is defective	Replace fuse
operation	Disconnector relay in the transformer/rectifier is defective	Contact customer service
Living area battery overloaded ("hot")	Battery selection switch set wrongly	Move position of battery selection switch
	Defective load sensor or relay	Contact customer service
12 V power supply does not work	12 V power supply is switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
	Living area battery is discharged	Charge the living area battery
	Jumbo flat fuse (50 A) on the living area battery is defective	Replace jumbo flat fuse (50 A) on the living area battery
	Disconnector relay in the transformer/rectifier is defective	Contact customer service
12 V power supply does not work in 230 V	12 V power supply is switched off	Switch 12 V power supply on
operation	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
	230 V automatic circuit breaker has triggered	Contact customer service
	Jumbo flat fuse (50 A) on the living area battery is defective	Replace jumbo flat fuse (50 A) on the living area battery



Fault	Cause	Remedy
Starter battery is discharged in 12 V operation	Disconnector relay in the transformer/rectifier is defective	Contact customer service
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
No voltage is supplied by the living area battery	Living area battery is discharged	Charge living area battery immediately
		➢ Total discharge damages the battery.
		If the vehicle is to be laid up for a long period, fully charge the living area battery beforehand
		Discharging is caused by inactive appliances (see chapter 8)
12 V indicator lamp does not light up	12 V power supply is switched off	Switch 12 V power supply on
	Battery cut-off switch on the transformer/rectifier is switched off	Set battery cut-off switch to on
	Starter or living area battery is not charged	Charge the starter or living area battery
	Disconnector 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
Extractor hood does not work	230 V automatic circuit breaker is switched off	Switch on the 230 V automatic circuit breaker
	Fuse (15 A) at the transformer/rectifier is defective	Replace fuse (15 A)
	Extractor hood is defective	Contact customer service



14.5 Gas system



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

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

14.6 Heater/boiler

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

14.6.1 Truma heater/boiler with CP plus digital operating unit

Fault	Cause	Remedy
Heater does not ignite	Temperature sensor on operating unit or remote sensor defective	Pull out plug on operating unit. The heater then works without thermostat. Contact the customer service as soon as possible
No display on the operating unit	Fuse on the transformer/ rectifier is defective	Replace fuse on the transformer/rectifier
	Fuse in the electronic control unit has been triggered	Contact customer service
	Living area battery defective	Charge or replace the living area battery (or have it charged or replaced)
Fault with error code is displayed	See table "Fault search instruction"	See table "Fault search instruction"



Fault	Cause	Remedy
Boiler empties, safety/ drainage valve has opened	Internal temperature below 8 °C	Heat inside
Safety/drainage valve cannot be closed	Temperature at safety/ drainage valve below 8 °C	Heat inside
Fan wheel runs noisily or not steadily	Fan wheel is soiled	Contact Truma service department

Fault search	
instruction	

Error code	Cause	Rectification
# 17	Summer operation with empty water container	Switch off the device and allow it to cool down. Fill the boiler with water
	Warm air louvres blocked	Check outlet openings
	Air circulation suction system blocked	Remove blocking of air circulation suction system
# 18	Gas pressure regulator iced up	Use regulator heater (defroster if available)
	Proportion of butane gas in gas bottle too high	Use propane gas (butane gas is unsuitable for heating especially for temperatures under 10 °C)
# 21	Room temperature sensor or cable defective	Contact customer service
# 24	Risk of undervoltage Battery voltage too low < 10.4 V	Charge the battery
# 29	Short circuit in heating element for frost control	Remove plug of heating ele- ment on electronic control unit. Replace heating element
# 41	Electronics blocked	Contact customer service
# 42	Safety switch has triggered	(Not used here)
# 43	Overvoltage > 16.4 V	Check battery voltage and voltage sources (e.g. charging unit)
# 44	Undervoltage Battery voltage too low < 10.0 V	Charge battery. Replace outdated battery if required
# 45	No 230 V power supply	Check external mains connection
	230 V automatic circuit breaker has triggered	Switch on the 230 V automatic circuit breaker
	Overheating protection has triggered	Reset overheating protection. Allow heater to cool, remove connection cover and press reset button
#112, #202, #121, #211	Lack of gas	Open regulator tap and gas isolator tap
		Connect a full gas bottle

Error code	Cause	Rectification
#122, #212	Combustion air inlet or exhaust gas outlet closed	Check openings for dirt (slush, ice, leaves etc.) and clean if necessary
#255	No connection between heater and operating unit	Contact customer service
	Cable defective	Contact customer service

14.6.2 Alde heater/boiler



 \triangleright If a fault occurs in the system, the cause is shown on the display.

Fault	Cause	Remedy
Heater does not ignite with gas operation	Lack of gas	Open regulator tap and gas isolator tap
		Connect a full gas bottle
Heater does not ignite	Battery voltage too low	Charge battery. If the battery voltage rises above 11 V, the heater is switched on automati- cally
Heater does not ignite at 230 V electrical operation	No 230 V power supply	Switch on the 230 V automatic circuit breaker
		Connect the 230 V power supply
Heater switches off	Overheating	Allow the heater to cool. To reset the display, interrupt the 12 V power supply to the heater and switch it back on again
Heater running, but no heat at the convectors	Circulating pump does not work	Switch on room thermostat
		Contact customer service
Heater and circulating pump running, but no heat at the convectors	Air in the heating system	Bleed hot-water heater

14



14.7 Air conditioning unit

14.7.1 Truma

Fault	Cause	Remedy
Air conditioning unit does not start up	No 230 V power supply	Connect the vehicle to the local power supply
	230 V automatic circuit breaker has triggered	Switch on the 230 V automatic circuit breaker
Remote control is not working	Remote control batteries empty	Change remote control batteries
Air conditioning unit does not respond to remote control commands	Obstacle between remote control and IR receiver	Remove obstacle
Air conditioning unit does not cool	Temperature has been set incorrectly	Adjust the temperature
	Thermostat defective	Contact customer service
	Defrosting process is running (external temperature between 4 °C and 7 °C)	Wait until defrosting process is finished
Air conditioning unit does not warm up	External temperature below 4 °C	Heating mode not possible
	Temperature has been set incorrectly	Adjust the temperature
	Thermostat defective	Contact customer service
	Filter dirty	Change filter
	Air passages are soiled/ obstructed	Clean/clear air passages
	Defrosting process is running (external temperature between 4 °C and 7 °C)	Wait until defrosting process is finished
Water is entering the vehicle	Drainage holes for con- densation are clogged	Clean air conditioning unit
	Seal is defective	Contact customer service
	Inclined position	Do not drive on gradients or inclines greater than 8 %
No more air circulation	Air filter clogged	Clean air filter
	Fan wheel defective	Contact customer service



14.7.2 Telair

Fault	Cause	Remedy
Air conditioning unit does not start up	No 230 V power supply	Connect 230 V power supply
	230 V automatic circuit breaker has triggered	Switch on the 230 V automatic circuit breaker
	Remote control batteries empty	Change batteries (2 x AAA)
Air conditioning unit does not cool	Room temperature is lower than the preset temperature	Reset temperature
Air conditioning unit does not heat	Room temperature is higher than the preset temperature	Reset temperature
Insufficient ventilation rating	Ventilation flaps closed	Open at least one ventilation flap
	Filter dirty	Clean the filter
Water is entering the vehicle	Drainage holes for con- densation are clogged	Clean air conditioning unit

14.8 Cooker

14.8.1 Gas cooker/gas oven

Fault	Cause	Remedy
Ignition fuse does not operate (flame does not burn after the control	Heat-up time is too short	Keep control knob pressed for approx. 15 to 20 seconds after ignition
knobs are released)	Ignition fuse is defective	Contact customer service
Flame extinguishes when being reduced to its minimum setting	Thermocouple sensor is incorrectly set	Correctly reset thermo- couple 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 cstomer service



14.8.2 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	Fuse is defective	Replace fuse
cut in	Door of the microwave oven is not properly closed	Remove foreign bodies stuck in the door of the microwave oven and close door properly

14.9 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.

14.9.1 General faults

Fault	Cause	Remedy
The desired refrigerating temperature is not achieved	Incorrect setting	Set the temperature with the temperature controller
	Too much fresh food put into it	Set the temperature with the temperature controller
	Ventilation is not sufficient	Check if ventilation grills are covered; remove covers if necessary
		Remove ventilation grills and clean the space be- hind them (of leaves etc.)
	Ambient temperature is too high	Remove the ventilation grills periodically
	Too much ice on the cooling fins	Check refrigerator door for correct closing
		Defrost the refrigerator
	Refrigerator is inclined	Position the vehicle horizontally



14.9.2 Dometic MES/AES



In the event of a fault, the illuminated Fault button will flash. Also, either one of the illuminated buttons for operating mode or the cooling level indicator will flash. In addition, a warning signal will sound.

Fault	Cause	Remedy
LED "	No 230 V power supply	Connect the 230 V power supply
	230 V automatic circuit breaker has triggered	Switch on the 230 V automatic circuit breaker
	230 V operating voltage too low	Have the 230 V power supply checked by an authorised specialist workshop
LED " <u>+ -</u> " flashes	Fuse on the transformer/ rectifier is defective	Replace fuse on the transformer/rectifier
	Disconnector relay in the transformer/rectifier is defective	Contact customer service
	12 V operating voltage too low	Have the 12 V power supply checked by an authorised specialist workshop
	No D+ signal	Contact customer service
LED " Ilashes 1)	Lack of gas	Open regulator tap and gas isolator tap
		Connect a full gas bottle
	Cobwebs or burnt residue in the burning chamber	Remove the ventilation grill on the outside of the vehicle and clean the burning chamber
LEDs for display of the temperature range flash	Temperature sensor defective	Contact customer service
LED " and LEDs for display of the tempera- ture range flash	230 V heater element defective	Contact customer service
LED "+	12 V heater element defective	Contact customer service
LED " and LEDs for display of the tempera- ture range flash	Faulty burner or power unit	Contact customer service

 $^{1)}\,$ After fixing the issue, press the illuminated button for "Fault"/"Reset".



14.9.3 Thetford N 3000

For certain faults, indicators also flash on the operating panel.

Fault	Cause	Remedy
LEDs for types of energy and display of the	Refrigerator does not work	Switch refrigerator off and on again
temperature range flash		Check availability of an energy source
LED " et and LEDs for display of the tempera-	No 230 V power supply	Connect the 230 V power supply
ture range flash	230 V automatic circuit breaker has triggered	Switch on the 230 V automatic circuit breaker
	230 V operating voltage too low	Have the 230 V power supply checked by an authorised specialist workshop
LED "+" and LEDs for display of the tempera-	Fuse on the transformer/ rectifier is defective	Replace fuse on the transformer/rectifier
ture range flash	Disconnector relay in the transformer/rectifier is defective	Contact customer service
	12 V operating voltage too low	Have the 12 V power supply checked by an authorised specialist workshop
	No D+ signal	Contact customer service
LED " " " and LEDs for display of the tempera- ture range flash	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

14.9.4 Thetford N 97

Any faults are shown with an error code on the LCD display. See the manufacturer's instruction manual for the meaning of individual fault codes.

4



14.10 Water supply

Fault	Cause	Remedy
Leakage water inside the vehicle	A leak has occurred	Identify leak, re-connect water pipes
No water	Water tank is empty	Replenish drinking water
	Drain cock not closed	Close drain cock
	12 V power supply is switched off	Switch 12 V power supply on
	Fuse of the water pump is defective	Replace fuse on the transformer/rectifier
	Water pump defective	Exchange water pump (have it exchanged)
	Water pipe snapped off	Straighten water pipe or replace
	Transformer/rectifier defective	Contact customer service
	Water pump switched off on panel	Switch water pump on
Toilet has no flush water	Water tank is empty	Replenish drinking water
	Fuse for toilet is defective	Replace fuse
Display for water and waste water indicates a wrong value	Measuring probe in the waste water or water tank is soiled	Clean water/waste water tank
	Measuring probe is defective	Replace measuring probe
Waste water tank cannot be emptied	Drain cock is clogged	Open the cleaning cap on the waste water tank and drain the waste water. Rinse the waste water tank well
Drain on the single lever mixer tap is clogged	Perlator calcified	De-calcify or replace perlator
Water jets on the shower nozzle clogged	Water jets calcified	De-calcify shower nozzle or rub off nozzle burling
Water drains from the shower tray slowly or does not drain at all	The vehicle is not in a horizontal position	Position the vehicle horizontally
Milkiness of the water	Tank filled with dirty water	Clean water tank mechanically and chemi- cally; then disinfect and rinse copiously with drinking water
	Residues in the water tank or water system	Clean water system mechanically and chemi- cally; then disinfect and rinse copiously with drinking water



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

14.11 Body

Fault	Cause	Remedy
Flap hinges/door hinges are difficult to operate	Flap/door hinges are not (sufficiently) lubricated	Lubricate flap hinges/ door hinges with acid-free and resin-free grease
Hinges/joints in the bath- room unit/toilet compart- ment are difficult to operate/make a grating noise	Hinges/joints are not (sufficiently) lubricated	Lubricate hinges/joints with solvent-free and acid-free grease
Storage compartment hinges are difficult to operate/make a grating noise	Storage compartment hinges are not (sufficiently) lubricated	Lubricate storage com- partment hinges with acid-free and resin-free grease
Wind-up skylight is difficult to operate	Threaded spindle not lubricated	Lubricate threaded spindle
	Threaded spindle defective	Have threaded spindle replaced

Fault	Cause	Remedy
Electric pull-down bed does not move	Fuse on the transformer/ rectifier or on the pull- down bed drive motor faulty	Replace fuse
	Living area battery is empty or the transformer/ rectifier has switched off due to insufficient voltage	Charge the living area battery
	Drive is defective	In an emergency, the pull-down bed can be moved manually; after- wards, contact customer service



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

Pull-down bed, electrically operated (Ixeo) 14.12



- Key switch UP button
- 1 2 3 4 5
- Alarm LED
- Programme LED RESET button (without function)
- UP LED
- 6 7 DOWN LED
- DOWN button 8

Fig. 287 Control unit

Fault	Cause	Remedy
All LEDs flash every 0.25 seconds. Pull-down bed does not move	Undervoltage, battery voltage too low	Charge the living area battery
No LED lights up. Pull- down bed does not move	No current at control unit	Check fuse Reserve 3 on the transformer/rectifier. Bring the pull-down bed into the top end position using the crank; then, contact customer service
The pull-down bed moves downwards with UP button and upwards with DOWN button	Operating error: the pull- down bed was lowered as far as it went and the DOWN button was actuated further. The belt wound up the wrong way	Contact customer service
The pull-down bed is not level	The belt is misaligned	Contact customer service

14



Fault	Cause	Remedy
Alarm LED and Pro- gramme LED flash simul- taneously every 0.5 seconds	System fault	The pull-down bed must be newly programmed. Contact customer service
Alarm LED flashes every 0.5 seconds and Programme LED is lit permanently	System fault	Bring the pull-down bed into the top end position; then, contact customer service
Programme LED is lit permanently	System fault	Bring the pull-down bed into the top end position; then, contact customer service
Alarm LED flashes once in a second. The pull- down bed is in the top end position	System fault	Contact customer service
Alarm LED flashes every 0.25 seconds.The pull- down bed only moves 10 cm upwards or down- wards and, then, stops. After a short waiting period, it moves another 10 cm when you try again	System fault	Contact customer service
The pull-down bed cannot be moved neither upwards nor down- wards. (UP LED and DOWN LED may be lit)	System fault	Bring the pull-down bed into the top end position using the crank; then, contact customer service



15.1 Weight details for special equipment



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

Weight details for factory-provided 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.

The table shows an extract from the list of possible special equipment and the surplus weight in each case.

Item designation	Surplus weight (kg)
Electric waste water tank drain valve	1
Waste water pipes insulated and heated	2
Waste water tank and drainage isolated and heated	6
Airbag (front passenger)	3
Caravan coupling	50
Single-section conversion door with window and insect screen (Premium)	4
External shower	1
External mirrors, electric	2
Automatic transmission	17
Car radio and CD	1–2
Heki skylight midi	5
Omni-Vent skylight	4
Skyroof skylight	13
Skyroof skylight XL	13
Skyroof skylight Premium XL	14
Roof rail	5
Extractor hood	4
Electric entrance step	11
Electrical stability program (ESP)	1
Spare wheel 15" with support	22
Spare wheel 16" with support	22
External gas connection	1
Bike rack for 2 bicycles	9



Item designation	Surplus weight (kg)
Bike rack for 2 bicycles, lowerable	18
Bike rack for 3 bicycles	11
Bike rack for 3 bicycles, lowerable	19
Roman shade, driver's cabin	15
CPU remote display	1
Floor warming unit	8
Gas oven/grill	17
Gas bottle (11 kg) made of aluminium	11
Gas alarm system	1
Holder for flat screen	1
Rear garage door, left	8
Truma Combi 4 E heater	5
Truma Combi 6 E heater	5
Insect screen, door (full height)	4
Driver's cabin air conditioning unit	19
Air conditioning unit (Telair)	34
Air conditioning unit (Truma)	33
Fuel tank 120 I	28
Refrigerator (Tec-Tower)	3
Air suspension (Goldschmitt)	13
Awning 300 cm	24
Awning 350 cm	27
Awning 400 cm	30
Awning 450 cm	33
Microwave oven	13
Minisafe	5
Central seating group, convertible into bed	8
Motorcycle rack	75
Motorcycle rack in the rear garage	15
Pioneer multimedia system, incl. reversing camera	5
Fog light	2
Pilot seats, cushions covering as in living area	3
Radio preparation	1
Room partition	1
Reversing camera	2
Satellite unit (Teleco) + TV	17
Satellite unit (Oyster) + TV	18–20
Solar installation 1 x 100 W	12
Solar installation 2 x 100 W	20



Item designation	Surplus weight (kg)
Front steadies	11
Rear steadies	6
Bedspread	2
Telescopic ladder	10
Tempomat	1
Carpet in driver's cabin	3
Carpet in living area and driver's cabin	14
Door sill	3
TV-Move	2
Switching facility, gas	2
Vario seat	15
Preparation, second TV location	2–4
Winter insulation mat, outside	7
Conversion door central locking mechanism	1
Auxiliary battery	26

Engine variants

The vehicle mass in a ready-to-drive state relates to the base vehicle. If a more powerful engine is fitted, the mass increases in a ready-to-drive state.

Engine variant	Surplus weight (kg)
2.3 Mjet	15
3.0 Mjet	50
2.3 Mjet Maxi	55
3.0 Mjet Maxi	90

Equipment packages

The equipment packages depend on the model. To calculate the additional weight, add the additional weights of the individual special equipment per package.





16.1 View of ground plans

Explanations

- (1) 230 V fuse
- (2) Transformer/rectifier with 12 V fuses
- (3) Living area battery with main fuse
- (4) Water pump mounted in the tank area
- (5) Drain cock, waste water tank
- (6) Safety/drainage valve
- (7) Boiler/heater
- (8) Water drain cock yellow
- (9) Water tank
- (10) Alde hot-water heater
- (11) Alde compensator reservoir
- (12) Alde auxiliary heat exchanger
- * Access via service flap
- ** Beneath the vehicle

Specifications without guarantee



Fig. 288 Ground plan T 569 Nexxo Time



Fig. 289 Ground plan IT 586 Lyseo





Fig. 290 Ground plan IT 586 Ixeo Time



Fig. 291 Ground plan IT 590 Lyseo



Fig. 292 Ground plan IT 590 Ixeo Time



Fig. 293 Ground plan T 590 G Travel Van




Fig. 294 Ground plan T 620 G Travel Van















Fig. 298 Ground plan T/IT 690 Lyseo



Fig. 299 Ground plan T 690 G Nexxo



Fig. 300 Ground plan T 690 G Travel Van



Fig. 301 Ground plan T 690 G Nexxo Time













Fig. 304 Ground plan IT 710 G Ixeo Time











Fig. 307 Ground plan T/IT 728 Lyseo



Fig. 308 Ground plan IT 728 Ixeo















Fig. 312 Ground plan IT 734 Ixeo, IT 734 H Ixeo



Fig. 313 Ground plan IT 734 Ixeo Time









Fig. 315 Ground plan T 740 Nexxo



Fig. 316 Ground plan T/IT 744 Lyseo

16



16.2 Table of linear measures

Туре	Wheelbase in cm	Length in cm	Width in cm	Height in cm
Lyseo T				
IT 586	380.0	599	230	295
IT 590	380.0	599	230	295
T/IT 690	403.5	699	230	295
T/IT 700	403.5	699	230	295
T/IT 710 G	403.5	710	230	295
T/IT 728 G	430.5	749	230	295
T/IT 734	430.5	749	230	295
T/IT 744	430.5	749	230	295
Nexxo Time				
T 569	345.0	589	230	275
Т 660	380.0	679	230	275
T 690 G	380.0	699	230	275
Nexxo				
T 690 G	380.0	699	230	275
T 720	403.5	739	230	275
T 728 G	430.0	749	230	275
Т 729	403.5	739	230	275
Т 740	430.0	749	230	275
Travel/Van				
T 590 G	345.0	599	218	285
T 620 G	345.0	660	220	275
T 690 G	380.0	699	218	285
Ixeo Time				
IT 586	380.0	599	230	275
IT 590	380.0	599	230	280
IT 710 G	403.5	699	230	280
IT 726 G	403.5	714	230	280
IT 734	403.5	739	230	275
lxeo				
IT 640	380.0	649	230	298
IT 680	403.5	699	230	275
IT 728 G	430.0	749	230	275
IT 734	430.0	749	230	275

16



16.3 Power supply

Mains connection Protection class I	230 V (± 10 %),
	47 - 63 Hz
Mains power rating	400 VA
Appropriate batteries 6-cell lead acid and acid gel batteries fr 55 Ah	
Charging characteristics IUoU	
Final charge voltage	14.3 V
Charging current 18 A throughout en supply voltage rangelectronically restrict	ge,
Trickle charge voltage Automatic switching	g 13.8 V
Repeated charging cycle (switchover to "Main charging")At < approx. 13.8 V voltage (with appro 5 seconds delay)	
Reflux (without mains and with connected battery)After approx. 3 min "Mains Off"	nutes < 0.3 mA
Guard circuits Short-circuit protec provided by built-in (FKS)	
Safety fuse, 3.15 A power input	∖T at
Overtemperature p	protection
Charging current distribu- tion at mains connectionStarter battery float with max. 2 A	t charge max. 2 A
Living area battery with max. 18 A	charge max. 18 A
Charging current distribu- tion during the journey starter and living an batteries by means alternator	rea
Parallel battery swi via disconnector re	
Maximum permitter nator charging curr the living area batter (see block diagram	rent to ery: 50 A
Battery monitor Disconnection	10.5 V ± 0.1 V
Battery monitor Minimum voltage for connection	or 11.0 V ± 0.1 V



Chapter overview

This chapter contains helpful tips for the journey.

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 the journey.

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.
- Depending on the country, different rules and regulations apply (e.g. different warning signs for rear carriers, obligation to carry breathalyzer kits, spare bulbs, high-visibility vests, size of reserve canister). The driver of the vehicle must familiarise him or herself with these rules before every journey.
- ▷ Up-to-date information can generally be found on the web pages of the national automobile associations.

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

- Carry your insurance certificate with you.
- Always register accidents with the police.
- Never sign documents that you have not read and understood completely.

17.2 Help on Europe's roads



- Before commencing the trip, gather information on national phone numbers for rescue and police. In many countries the central emergency phone number 112 (without area code) applies.
- ▷ As far as possible, draw up a list with the important phone numbers in the travelled countries and keep the table in the vehicle.

Motoring clubs at home or in the travelled country are happy to help.



17.3 Gas supply in European countries



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

General tips Always observe the following instructions:

- Only go on vacation with completely filled gas bottles.
- Use all of the gas bottles' capacity.
- Take along adapter sets (available in camping supply stores) for filling gas bottles in foreign countries and for connecting the gas pressure regulator to foreign gas bottles.
- During the cold time of the year observe filling with propane gas component (butane does not gas below 0 °C).
- Use blue bottles from the firm Campingaz (distributed world-wide). Only use gas bottles with safety valves.
- When bottles from other countries are used, check the gas bottle compartments to see if the gas bottles fit into them. Gas bottles from other countries do not always display the same size as your own gas bottles.
- The web site www.mylpg.eu provides an overview of gas suppliers in Europe.

17.4 Toll regulations in European countries

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

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

Contact your automobile club or the Internet for further information.



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



17.5 Tips on staying overnight safely during travel

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

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

- 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.

17.6 Tips for winter campers

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

- Reserve your parking place in good time. Good winter camping sites are often booked up early.
- Do not start your trip without winter tyres.
- Bring snow chains.
- Choose your parking place with care. Observe the ground beneath you. Snow and ice may melt.
- When the vehicle has been positioned, release the handbrake to prevent freezing.
- No snow walls should be allowed to cover the built-in forced ventilation.
- Keep the built-in forced ventilation free from snow and ice.
- Make sure the air circulation is good. Good air circulation prevents moisture from collecting and makes it easier to heat the living area.
- Cover the single-paned driver's cabin window with insulation mats to avoid thermal bridges.
- Follow the instructions in the section "Gas supply in European countries".
- Use a two-bottle system with automatic controller for the gas system, so that the supply does not run out during the night.
- Only operate the gas system using propane gas.
- Do not use the space behind the heater as a storage space.
- Never operate catalytic ovens or infra-red gas radiators in the interior of the vehicle, since they consume oxygen for burning.
- Lay the 230 V power cable in such a way that the cable cannot be frozen or be damaged (e.g. during snow removal).
- When it is snowing heavily, clear the roof of the vehicle of snow regularly. A few centimetres of powdery snow serves as insulation, but wet snow quickly becomes a heavy burden.
- Before embarking on the return journey, remove all the snow from the roof to avoid impeding vehicles behind you with a "snow flag".



17.7 Travel checklists

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



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

	\checkmark	Object	\checkmark	Object	\checkmark	Object
Kitchen area		Wiping cloth		Cleansing agent (detergent)		Salad servers
		Silverware		Dishcloths		Chopping board
		Turnspit		Glasses		Brush to wash the dishes
		Can opener		Set of knifes and forks for grilling		Cloth to wash the dishes
		Ice cube tray		Corkscrew		Matches
		Lighter		Kitchen paper		Thermos jug
		Bottle opener		Garbage bags		Pots
		Air-tight storage boxes		Frying pans		
		Crockery		Stirring spoons		
		-		0 11 11		T 11 4
Bathroom/sanitary items		Towels		Sanitary items Toilet brush		Toilet paper
		Hygiene products		rollet brush		Toothbrush glass
Living area		Dustbin		Deck of cards		Rucksack
		Road atlas		Broom		Sleeping bags
		Road atlas Bath towels		Broom Dust pan		Sleeping bags Pencils and paper
		Bath towels		Dust pan		Pencils and paper
		Bath towels Bath shoes		Dust pan Candles		Pencils and paper Shoes
		Bath towels Bath shoes Batteries		Dust pan Candles Coat-hangers		Pencils and paper Shoes Shoe polish
		Bath towels Bath shoes Batteries Bed linen		Dust pan Candles Coat-hangers Clothes brush		Pencils and paper Shoes Shoe polish Sports equipment
		Bath towels Bath shoes Batteries Bed linen Laundry bag		Dust pan Candles Coat-hangers Clothes brush Pillow		Pencils and paper Shoes Shoe polish Sports equipment Vacuum cleaner
		Bath towels Bath shoes Batteries Bed linen Laundry bag Books Camping guide/ parking space di-		Dust pan Candles Coat-hangers Clothes brush Pillow Map		Pencils and paper Shoes Shoe polish Sports equipment Vacuum cleaner Flash light
		Bath towels Bath shoes Batteries Bed linen Laundry bag Books Camping guide/ parking space di- rectory		Dust pan Candles Coat-hangers Clothes brush Pillow Map Medicine		Pencils and paper Shoes Shoe polish Sports equipment Vacuum cleaner Flash light Pocket knife
		Bath towels Bath shoes Batteries Bed linen Laundry bag Books Camping guide/ parking space di- rectory Binoculars		Dust pan Candles Coat-hangers Clothes brush Pillow Map Medicine		Pencils and paper Shoes Shoe polish Sports equipment Vacuum cleaner Flash light Pocket knife
		Bath towels Bath shoes Batteries Bed linen Laundry bag Books Camping guide/ parking space di- rectory Binoculars Fire extinguisher		Dust pan Candles Coat-hangers Clothes brush Pillow Map Medicine Mobile phone Sewing kit		Pencils and paper Shoes Shoe polish Sports equipment Vacuum cleaner Flash light Pocket knife Table cloth Drinking bottle



17

	\checkmark	Object	\checkmark	Object	\checkmark	Object
Vehicle/tools		Waste water container		Gas tube		Snow chains (winter)
		Adapter socket		Fabric tape		Screwdriver
		CEE adapter		Watering can for drinking water		Current-measuring instrument
		Wire		Cable reel		Step
		Spare wheel		V-belt		Wheel chocks
		Spare lamps		Glue		First-aid kit
		Spare fuses		Universal pliers		Vehicle jack
		Replacement water pump		Compressor		Hazard warning triangle
		Hammer		Loops		Warning sign
		Flat wrench		Tube adapter		Warning vest(s)
		Gas filling adapter		Hose clips		Flashing hazard warning light
Outside		Stay rope		Camping table		Lock
Outside		Bellows		Luggage racks		String
		Camping chairs		Grill		Tent pegs/
				Gim		tightening ropes
Documents		List of addresses		Registration book		Passport
		Registration confirmation(s)		Driving licence		Writ of protection
		Allergy certificate		Vaccination certificate		Insurance documents
		Instruction manuals		Credit card		Vignette/toll card
		Instruction leaflets for medicines		Identity card		Visa





18

Pos.	Component	Activity	Interval
1	Auxiliary support	Lubrication	Annually
2	Tyres and wheel rims	Air pressure check (see section 13.7). Visual check for damage	Annually
3	Outside lighting	Function check	Annually
4	Joints, hinges	Lubrication	Annually
5	Refrigerator, heater, boiler, cooker, lighting, flap and door closures, toilet, seat belts	Function check	Annually
6	Windows, skylights	Function check, water Annua ingress test	
7	Cushions, curtains, blinds	Visual check	Annually
8	Sealing strips, edges, rubber	Check for damage	Annually
9	Water supply	Water ingress test	Annually
10	Hot-air system	Function check, clean fan wheel as necessary	Annually
11	Underbody protection, floor skirt attachment	Visual check	Annually
12	Pull-down bed suspension	Function check	Annually
13	Electrical system	Function check Ann	
14	Air suspension (special equipment)	Conservation	Annually
15	Gas system	Official gas inspection Every	
16	Connections between the chassis and body	Check	Every two years
17	Underbody	Visual check, repair underbody protection as necessary	Every two years



Delivery	Pos. 1-14
Stamp	of the Bürstner dealer
Date	Signature

1st year	Pos. 1-14	2nd year	Pos. 1-17
Stamp of t	the Bürstner dealer	Stamp of	the Bürstner dealer
Date	Signature	Date	Signature

3rd year	Pos. 1-14	4th year	Pos. 1-17
Stamp o	of the Bürstner dealer	- Stamp o	f the Bürstner dealer
Date	Signature	Date	Signature

5th year	Pos. 1-14	6th year	Pos. 1-17
Stamp	of the Bürstner dealer	- Stamp o	f the Bürstner dealer
Date	Signature	Date	Signature

7th year	Pos. 1-14	8th year	Pos. 1-17
Stamp of th	e Bürstner dealer	Stamp o	f the Bürstner dealer
Date	Signature	Date	Signature



12 V fuses
For Thetford toilet 136
Heater for waste water pipes
On the living area battery
On the relay box AD01 135
On the starter battery 134
On the transformer/rectifier
12 V indicator lamp 130
12 V main switch 128
12 V power supply 121
Switching on 128
Troubleshooting 233
230 V connection
Troubleshooting 233
230 V fuse 139
Position
230 V fuse box 139
230 V indicator lamp 130
230 V power supply 132
3-way valve 156

Α

Accessories, fitting 10
Actual weight 16
Additional equipment 18
Add-on parts see special equipment 10
Add-on parts, securing
Adjustable head section, fixed bed
Air conditioning unit (Telair)
Care 208
Filter, cleaning 208
Operating modes 166
Switching off 167
Switching on 167
Troubleshooting 239
Ventilation grill, cleaning
Air conditioning unit (Truma) 162
Air circulation 165
Air distribution 164
Automatic mode 163
Care 207
Cooling 164
Filter, cleaning 207
Heater 164
Lighting 165
Operating modes 163
Remote control 163
Soft-start 165
Switching off 163

Switching on 163
Timer
Troubleshooting
Air outlet nozzles, adjustment
Air suspension (Goldschmitt)
Maintenance
Antenna alignment
Automatic
Appliances
Manuals
Warranty cards1
Automatic power selection
(AES)
Auxiliary heat exchanger
Switching off 161
Switching on 161
Awning

В

Basic equipment17
Battery alarm
Battery cut-off switch
Battery monitor
Battery see starter battery
or living area battery 122, 124
Battery selector switch 126
Battery voltage, displaying 128
Bed widening
Securing
Single beds 107
Beds
Before the journey 15
Bike rack
Bicycles, loading24
Load
Lowerable
Not lowerable 24
Travelling with a loaded bike rack
Blind, cleaning
Blind, skylight with snap latch
Closing
Opening
Blind, window
Closing
Opening74
Boiler
Boiler (Alde)
Emptying159
Troubleshooting 237
Water, filling with 159



Boiler (Truma)
Emptying151
Position
Safety/drainage valve
Troubleshooting
Water, filling with
Brakes
Check
Braking system, troubleshooting
Breakdown services in Europe
Bulbs, changing
Exterior lighting
Interior lighting
Rear lights
Side lights
Spotlight
Surface mounted light
Types of external bulbs
Bunk bed
Butane gas

С

Cable reel	. 132
Camping gas bottles, use	, 111
Camping in winter	. 263
Capacity of the battery	. 120
Caravan coupling	27
Tow ball	26
With detachable ball neck	26
Care	. 201
Air conditioning unit (Telair)	. 208
Air conditioning unit (Truma)	. 207
Blind	. 204
Carpet	. 204
Curtains	. 204
Entrance step	. 203
External care	. 201
Extractor hood	. 207
Furniture surfaces	. 204
Gas cooker	. 204
High-pressure cleaner, washing with	. 201
Hot-water heater	. 214
In the winter	. 208
Insect screen	. 204
Interior care	. 203
Lamps	. 204
Leather covers	. 204
Net curtains	. 204
PVC-floor covering	. 204

Roman shade204
Seat belt
Sink
Synthetic parts, interior
Temporary lay-up
Underbody
Upholstery
Washing
Waste water tank
Water pipes
Water system
Water tank
Windows
Winter lay-up
Carpet, cleaning
Central locking system
Locking
Remote control
Unlocking
Changing wheels
Tightening torque
Charging condition, displaying
Living area battery
Starter battery
Chassis number
Checklist Before the journey
For the journey264
For the journey264 Initial start-up after temporary lay-up212
For the journey264 Initial start-up after temporary lay-up212 Road safety
For the journey264 Initial start-up after temporary lay-up212 Road safety
For the journey



Condensation 69
On the double acrylic glass pane
On the screwed connections
in the floor 69
Condensation water see condensation 70
Connecting cable see
230 V power supply 132
Connection diagram, panel (LT 96) 141
Conventional load 17
Conversion door 54, 57
Roman shade, closing
Roman shade, opening
Conversion door, inside
Locking 55, 56
Opening 55, 56
Conversion door, outside
Locking 54, 55, 56
Opening 54, 55, 56
Conversion to bed foundation
(lift-off table)
Conversion to bed foundation
(suspension table) 85
Converting seating group into bed
Cooker
Troubleshooting 239
Cooker see gas cooker or gas oven 169
Curtains, cleaning 204

D

Danger of suffocation 10, 69
Dimensions see table of linear measures 259
Direction indicator
Displays
Battery voltage 128
Waste water tank level
Water tank level
Disposal
Household waste 8
Sewage 8
Waste water 8
Door lock 54, 55, 56
Doors
Conversion door 54
Lock
Maintenance work 213
Troubleshooting 244
Doors, securing
Drain cock, waste water tank 194
Position
Drain cocks, position 159, 251

Index

Drinking water filler neck 1	88
Driver's seat	41
Driving speed	36
Driving the motorhome	35
During the journey	35

Ε

Electrical system
-
230 V connection, troubleshooting 233
Entrance step, troubleshooting
Explanation of terms
Lighting, troubleshooting
Safety instructions14
Troubleshooting 232
Emergency release
Entrance step
Care
Electrically operated
Extending
Indicator lamp
Retracting
Troubleshooting
Environmental tips
Exterior lighting
Bulbs, changing
Checking
Troubleshooting
External care
External connection see 230 V connection 48
External flaps
Flap lock
External gas connection
External shower
Connection
Emptying
External socket
Extractor hood
Active carbon filter, replacing
Care
Metal grease filter, cleaning
ivicial grease liller, ciedilling

F

Fault current protection switch	32
Check	39
Filling level of the waste water tank,	
displaying	30
Filling level of the water tank, displaying 13	30
Filling the tank	14





On the starter battery	134
On the transformer/rectifier EBL 99	135
Fuses see 12 V fuses and 230 V fuse $$.	134

G

Garage flap
Gas bottle compartment
Gas bottles
Changing118
Safety instructions
Gas connection, external113
Gas cooker
Cleaning
Switching off170
Switching on169
Troubleshooting
Gas isolator taps112
Symbols
Gas odour 12, 109, 235
Gas oven
Switching off171
Switching on
Troubleshooting
Gas pressure regulator,
screw connections111
Gas supply in European countries
Gas system
Defect 12, 109, 235
General instructions
No gas
Safety instructions
Switching automatics
Troubleshooting
General instructions
Ground plans
Guest bed

Η

Handbrake45
Applying10
Handling of tyres
Headrests
Heat exchanger
Switching off161
Switching on161
Heat exchanger (Alde)
Position
Turning off
Turning on



Heat exchangers, heater, replacement 145
Heater
Air outlet nozzles, adjustment
Circulation fan 146
Heat circulation, regulating
Heat exchangers, replacement
Hot air distribution
Initial start-up 146
Troubleshooting
Heater for the waste water tank
and waste water pipes 195
Heater for waste water pipes, fuses
Heki skylight
Closing
Insect screen
Opening
Roman shade
Ventilation position
Help on Europe's roads
High rate of gas consumption 12, 109, 235
High-pressure cleaner, washing with 201 Hinged window
Blind
Closing
Continuous ventilation
Insect screen
Opening
Roman shade
Hot air distribution
Hot-air heater
Circulation fan
Operating unit
Position
Troubleshooting
Hot-water heater
230 V electrical operation, selecting 155
3-way valve
Adjustment menu
Auxiliary circulating pump 158
Care
Fluid level, checking
Gas and 230 V electrical operation,
selecting
Gas operation, selecting
Heat exchanger
Heater, switching off
Heater, switching on
Heating fluid, topping up 215

Heating system, bleeding 216
Maintenance work
Operating modes 155
Operating unit
Rotational speed, circulating pump 156
Safety instructions
Start screen
Tool menus
Troubleshooting

I

Indicator lamp, 12 V power supply 130
Indicator lamp, 230 V power supply 130
Indicator lamp, entrance step 28
Indicator lamp, toilet 199
Information stickers
Inner door, troubleshooting
Insect screen door
Closing
Opening
Insect screen Omni-Vent skylight
Closing
Opening
Insect screen, cleaning
Insect screen, Heki skylight
Closing
Opening
Insect screen, Skyroof skylight
Closing
Opening83
Insect screen, windows
Closing
Opening74
Insect screen, wind-up skylight
Closing
Opening
Inspection plan
Inspection work
Inspections
Interior care
Interior lighting
Bulbs, changing219
Troubleshooting232
ISOFIX child safety seat mounting system 40

Κ

Keys .															•															15	5
--------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----	---



L

Ladder, rear	21
Lamps	219
Cleaning	204
Lay-up	
Temporary	209
Winter lay-up	211
Leakage water inside the vehicle	243
Leather covers, cleaning	204
Lift-off table	
Conversion to bed foundation	
Moving	
Moving in a crossways direction	
Moving in a lengthways direction	-
	· ·
Table top, moving	· ·
Table top, moving upwards	
Table top, swivelling downwards	
Table top, swivelling upwards	00
Living area	64
Toilet compartment	
Lighting	
Front	217
Lamps, cleaning	
Rear	
Side	
Troubleshooting	
Living area battery	
Battery alarm	
Charging	
Fuses	
Position	
Troubleshooting	
Voltage, displaying	
Load	
Bike rack	
Rear garage	
Rear storage space	
Roof rack	
Load rack	
Load rack for roof loads	21
Load see also payload	20

Lock
Conversion door 54, 55, 56
External flap
Furniture flap60
Low beam
L-seating group, sleeping conversion $\ldots \ldots 105$

Μ

Main beam
Maintenance
Maintenance work
Air conditioning unit (Telair)
Air conditioning unit (Truma)
Doors
Extractor hood214
Hot-water heater
Living area battery214
Marker light
Mass in ready-to-drive condition
Maximum permissible gross weight16, 19
Mechanical steady legs
Extending46, 47
Length, adjustment
Retracting47
Microwave oven
Switching off172
Switching on172
Troubleshooting240
Monitor, reversing camera

Ν

Net curtains,	cleaning	 							.204
Nose weight		 							26

0

Off-load voltage120
Omni-Vent skylight80
Aerating81
Boost function81
Closing
Fan, switching off81
Opening
Venting
Operating modes, air conditioning unit
(Telair)166
Operating modes, air conditioning unit
(Truma)163
Operating modes, boiler (Alde)155
Operating modes, hot-water heater155



Operating modes, refrigerator (Dometic)	175
Operating modes, refrigerator	
(Thetford) 178, 7	181
Operating unit, hot-air heater	148
Oven see gas cooker or gas oven	170
Overloading	20

Ρ

Panel (LT 96) 127
12 V indicator lamp 130
12 V main switch 128
230 V indicator lamp 130
Battery voltage, displaying
Button for water pump 130
Connection diagram 141
Filling level of the waste water tank,
displaying 130
Filling level of the water tank,
displaying 130
Panel see also displays 127
Parking light 217
Payload 16
Calculation 19
Composition 17
Example calculation
Payload see also load 16
Permissible gross weight see
maximum permissible gross weight 16
Personal equipment 18
Pilot seat see driver's seat and f
ront passenger's seat 41
Pleated Roman shades 43
Power supply
Propane gas 13, 110
Pull-down bed,
electrically operated
Access ladder
Checking fuse / emergency operation 245
Emergency operation
Lifting
Lowering
Retaining belts, tightening
Safety plates, inserting
PVC-floor covering, cleaning 204

R

Radio 122	2
Ramps 45	5
Rear axle load 26	5

Rear garage	22
Rear ladder	21
Rear storage space	22
Refrigerator	
Change-over between	
energy sources	181
Door lock	
Faults	
Frame heater 1	
Operating modes	
Switching on	
Troubleshooting	
Ventilation grill, removal	
Refrigerator door	
Closing	185
Locking in the	
ventilation position	185
Opening	
Refrigerator door locking mechanism	
Closing	183
Locking in the ventilation position	
Opening	
Refrigerator ventilation grill, removal	
Registration	
Remote control, central locking system	
Reversing camera	
Risk of frost damage 14, 187, 1	
Road safety	
Checklist	
Notes for	
Roman shade, cleaning	204
Roman shade, driver's window	
Closing	
Opening	76
Roman shade, front passenger's window	70
Closing	
Opening	76
Roman shade, Heki skylight	70
Closing	
Opening	79
Roman shade, Skyroof skylight	00
Closing	
Opening	83
Roman shade, window of conversion door	F 7
Closing	
Opening	5/
Roman shade, windows	71
Closing	
Opening	74





Roman shade, windscreen
Closing
Opening
Roman shade, wind-up skylight
Closing
Opening
Roman shades, Remis43
Roof load
Roof rack, load
Roof rail
Roof, climbing

S

Cofety out out	100
Safety cut-out	
Safety instructions	
Changing wheels	
Cooker	
Electrical system	
Fire prevention	
Gas bottles	
Gas system	
Heater	
Road safety	
Towing	
Water system	
Safety knob, hinged window	
Safety net, pull-down bed	
Safety plates, pull-down bed	93
Safety switch (FI)	
Safety/drainage valve boiler	150
Position	. 151, 251
Sanitary fittings	187
SAT socket	140
Satellite mouse	51
Satellite unit	48, 51
Satellite mouse	51
Troubleshooting	232
With automatic antenna alignment	50, 51
With manual satellite selection	49
Seat belts	38
Cleaning	204
Fastening correctly	
Seat heater	
Seating arrangement	
Seats, rotating	63
Selector switch for radio	122
Semi-dinette, sleeping conversion	102
Serial number	
Setting up the bed	99

Sewage tank	
Emptying	.200
Removing	.200
Retaining clip	.200
Shade, Omni-Vent skylight	
Closing	80
Opening	
Shower	
Shower connection point, external shower	
Side marker light	
Single beds, lying surface	
Sink, cleaning	.204
Skylight with snap latch	
Blind	77
Closing	77
Opening	77
Skylights	
Troubleshooting	
Skyroof skylight	
Closing	
Continuous ventilation	
Opening	
Roman shade	83
Sleeping conversion	
L-seating group 105, 106,	
L-seating group 105, 106, Semi-dinette	
L-seating group 105, 106, Semi-dinette Sleeping conversion,	.102
L-seating group 105, 106, Semi-dinette Sleeping conversion, lying surface single beds	.102 .107
L-seating group 105, 106, Semi-dinette Sleeping conversion,	.102 .107
L-seating group 105, 106, Semi-dinette Sleeping conversion, lying surface single beds	.102 .107 73
L-seating group 105, 106, Semi-dinette Sleeping conversion, lying surface single beds Sliding window	.102 .107 73 73
L-seating group	.102 .107 73 73 73
L-seating group 105, 106, Semi-dinette Sleeping conversion, lying surface single beds Sliding window Closing	.102 .107 73 73 73
L-seating group	.102 .107 73 73 73 31
L-seating group	.102 .107 73 73 73 31 .140
L-seating group	.102 .107 73 73 73 31 .140 .140
L-seating group	.102 .107 73 73 73 31 .140 .140 .140
L-seating group	.102 .107 73 73 31 .140 .140 .140 .121
L-seating group	.102 .107 73 73 31 .140 .140 .140 .141 .121
L-seating group	.102 .107 73 73 73 31 .140 .140 .140 .121 .131
L-seating group	.102 .107 73 73 73 31 .140 .140 .121 .131 .131 .131
L-seating group	.102 .107 73 73 31 .140 .140 .140 .121 .131 .131 .221 .229
L-seating group	.102 .107 73 73 31 .140 .140 .140 .121 .131 .221 .229 .229
L-seating group	.102 .107 73 73 31 .140 .140 .140 .121 .131 .221 .229 .229
L-seating group	.102 .107 73 73 31 .140 .140 .140 .121 .131 .221 .229 .229 .247
L-seating group	.102 .107 73 73 31 .140 .140 .140 .141 .131 .221 .229 .229 .247 7
L-seating group	.102 .107 .73 .73 .73 .31 .140 .140 .140 .140 .121 .131 .221 .229 .229 .247 7
L-seating group	.102 .107 .73 .73 .73 .140 .140 .140 .140 .121 .131 .229 .229 .229 .229 .247 7 7



Spotlight 66, 220
Removing 66
Shifting 66
Turning
Starter battery 122
Charging 123
Discharging 122
Fuses
Instructions 122
Troubleshooting 233
Voltage, displaying 128
Start-up
After temporary lay-up 212
After winter lay-up 212
Staying overnight, during travel 263
Steady legs 46, 47
Extending 46, 47
Length, adjustment
Retracting 47
Supports see steady legs 46, 47
Surface mounted light 220
Suspension table
Conversion to bed foundation
Extending 85
Reducing size 85
Table leg 85
Table top 85
Switching automatics, gas system 114
Symbols
For instructions 7
Gas isolator taps 112, 145
Synthetic parts in the toilet
and living areas, cleaning 204

Т

Table of linear measures 259
Tables
Tank lid see fuel filler neck
Technical data
Dimensions 259
Power supply
Television
Thetford toilet
Flushing
Indicator lamp 199
Tightening torque, wheels 226
Tips 261

Toilet
Flushing 199
Fuse
Indicator lamp 199
Preparing
Troubleshooting
Toilet compartment
Light switch64
Ventilation
Toll regulations in European countries
Total discharge
Towing
General instructions
Safety instructions
Traffic rules in foreign countries
Transformer/rectifier (EBL 99)
Circuit diagram
Functions
Position
Transformer/rectifier, position
Travel checklists
Travel cots suitable for children91, 92, 95, 97
Troubleshooting
12 V power supply
230 V connection
Air conditioning unit (Telair)
Air conditioning unit (Telair) 239 Air conditioning unit (Truma) 238
Air conditioning unit (Telair)
Air conditioning unit (Telair)
Air conditioning unit (Telair) 239 Air conditioning unit (Truma) 238 Battery 233 Body 244 Boiler (Alde) 237
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234Furniture flaps244
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234Furniture flaps244Gas cooker239
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234Furniture flaps244Gas cooker239Gas oven239
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234Furniture flaps244Gas cooker239Gas oven239Gas system239Stream </td
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234Furniture flaps244Gas cooker239Gas system235Heater (Alde)235
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234Furniture flaps244Gas cooker239Gas system239Heater (Alde)237Heater (Truma)235
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234Furniture flaps244Gas cooker239Gas oven239Heater (Alde)237Heater (Truma)235Hot-air heater235
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234Furniture flaps244Gas cooker239Gas oven239Gas system235Heater (Alde)237Heater (Truma)235Hot-air heater235Hot-water heater235Hot-water heater235
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234Furniture flaps244Gas cooker239Gas oven239Gas system235Heater (Alde)237Hot-air heater235Hot-water heater235Inner door244
Air conditioning unit (Telair) 239 Air conditioning unit (Truma) 238 Battery 233 Body 244 Boiler (Alde) 237 Boiler (Truma) 235 Braking system 231 Cooker 239 Electrical system 231 Cooker 239 Electrical system 232 Entrance step 233 Extractor hood 234 Furniture flaps 244 Gas cooker 239 Gas oven 239 Heater (Alde) 237 Hot-air heater 235 Hot-air heater 235 Hot-water heater 235 Hot-water heater 237 Inner door 244 Lighting 232
Air conditioning unit (Telair)239Air conditioning unit (Truma)238Battery233Body244Boiler (Alde)237Boiler (Truma)235Braking system231Cooker239Electrical system232Entrance step233Extractor hood234Furniture flaps244Gas cooker239Gas oven239Gas system235Heater (Alde)237Hot-air heater235Hot-water heater235Inner door244

Pull-down bed,	
electrically operated (Ixeo)	245
Refrigerator	240
Satellite unit	232
Starter battery	233
Toilet	243
Water supply	243
Truma appliances remote control	
Bluetooth	167
Mobile communication network	167
Tube lamp in the rear garage	. 65
TV socket	140
Tyre change see changing wheels	225
Tyre specifications	225
Tyres	223
Excessive wear	229
General instructions	223
Handling	225
Identification	225
Load-carrying capacity	226
Tyre pressure	
Tyre selection	

U

Underbody, maintenance
Unladen weight
Upholstery, cleaning 204
USB socket

V

Vehicle identification plate	222
Vehicle lighting see exterior lighting	216
Vehicle, washing	202
Ventilation	. 69
Toilet compartment	196
Volume of waste water, displaying	130
Volume of water, displaying	130

W

Wardrobe light
Warranty cards
Washing with a high-pressure cleaner 201
Waste gas vent on the right hand
side of the vehicle
Waste water tank
Care
Cleaning

Cleaning opening	194
Emptying	194
Filling level, displaying	130
Heater	195
Troubleshooting	243
Water pipes, cleaning	206
Water pump	37, 188
Button	
Position	251
Water supply	
General	187
Troubleshooting	243
Water system	188
Care	205
Cleaning	205
Disinfecting	
Drinking water filler neck	
Emptying	
Filling	
Safety instructions	
Water tank	
Cleaning	
Filling level, displaying	
Overflow	
Position	
Water, draining	
Water, refilling	
Weight details for special equipment	
Wheel chocks	
Wheel rim size	
Wheel rim type	
Wheels	223
Roman shade, closing	57
Roman shade, opening	
Windows	
Blind	
Insect screen	
	· ·
Roman shade	
Shade	
Windows, cleaning	
Wind-up skylight	
Closing	
Opening	
Roman shade	
Troubleshooting	
Winter care	
Winter operation	209

ner