

Auto - Sleeper - Pt. 01386-853338
Fax " 858 343

SPENCER

(MAN ENTRANCE P.
PH. 01386-85354)

VOLKSWAGEN

CLUBMAN

February 2001

WELCOME

CONGRATULATIONS ON YOUR PURCHASE OF AN AUTO-SLEEPER, WE ARE CONFIDENT IT WILL GIVE YOU MANY YEARS OF PLEASURE.

THIS HANDBOOK HAS BEEN COMPILED TO ENABLE YOU TO OBTAIN THE MAXIMUM PLEASURE FROM YOUR VEHICLE. IT CONTAINS INSTRUCTIONS FOR THE USE OF THE APPLIANCES INSTALLED IN IT ALONG WITH ADVICE ON SAFETY MATTERS. YOU SHOULD BE FAMILIAR WITH THESE BEFORE USING YOUR AUTO-SLEEPER.

SHOULD YOU EXPERIENCE ANY DIFFICULTIES YOU SHOULD, IN THE FIRST INSTANCE, CONTACT YOUR SUPPLYING DEALER WHO WILL BE PLEASED TO ADVISE.

YOUR AUTO-SLEEPER CONFORMS TO THE CEN STANDARD EN1646 -1/1998 FOR HABITATION REQUIREMENTS RELATING TO HEALTH AND SAFETY.

TO ENABLE ANY QUERIES YOU MAY HAVE TO BE DEALT WITH EFFICIENTLY, ALWAYS QUOTE YOUR VEHICLE'S PRODUCTION NUMBER ON ANY CORRESPONDENCE, THIS CAN BE FOUND IN THE GLOVE COMPARTMENT.

PLEASE READ AND COMPLETE THE WARRANTY REGISTRATION CARD SUPPLIED WITH YOUR VEHICLE; THIS SHOULD BE RETURNED TO THE ADDRESS BELOW, WITHOUT DELAY.

Auto-Sleepers Limited
Orchard Works
Willersey
Broadway
Worcestershire
WR12 7QF

Telephone Number: 01386 853338
Fax Number: 01386 858343
E-mail: after-sales@auto-sleepers.co.uk

LIST OF CONTENTS

Section	Page Numbers	
	From	To
WELCOME		
INTRODUCTION	4	
CHECK LISTS	5	10
ARRANGEMENT OF EQUIPMENT	11	15
CUSHION/BED ASSEMBLY	16	20
APPLIANCES:		
ELECTROLUX RM4213S REFRIGERATOR	21	26
TRUMA E2400 SPACE HEATER	27	29
ZIG X-7 BATTERY CHARGER	30	
SHURFLO WATER PUMP	31	33
THETFORD C2 CASSETTE TOILET	33	36
VOYAGER 2000 HOB/GRILL/OVEN	37	42
OMNIVENT ELECTRIC EXTRACTOR FAN (OPTIONAL)	42	
TRUMA ULTRASTORE WATER HEATER	42	46
RESIDUAL CURRENT DEVICE	46	
SEITZ CASSETTE BLINDS/FLYSCREENS	47	
ELECTRICAL SYSTEM:		
DESCRIPTION	50	52
WIRING DIAGRAMS	53	
WATER SYSTEM:		
DESCRIPTION	54	
DIAGRAMMATIC LAYOUT	55	
GAS SYSTEM:		
DESCRIPTION	56	57
DIAGRAMMATIC LAYOUT	58	59
SAFETY PRECAUTIONS:		
GENERAL	60	
ELECTRICAL SYSTEMS	60	
GAS APPLIANCE & FITTINGS	61	
LPG SAFETY	62	65
VENTILATION	65	
DO'S AND DONT'S	65	
WARNINGS	66	
AIRBAGS	67	
FIRE - SAFETY ADVICE	67	
VENTILATION DIAGRAM	68	
MAINTENANCE AND SERVICING:		
GLASSFIBRE/ACRYLIC WINDOWS	69	
UPHOLSTERY MAINTENANCE	70	
WORK SURFACE/FURNITURE MAINTENANCE	71	
GAS INSTALLATIONS	71	
SEAT RESTRAINTS	72	
WATER SYSTEM	72	
WINTERISATION	73	74
TROUBLESHOOTING:		
12 VOLT	75	76
230 VOLT	77	
LPG	78	
WATER	79	
TECHNICAL DATA:		
BASE VEHICLE DATA	80	
WEIGHTS DIMENSIONS AND CAPACITIES	80	81
WEIGHT DATA	82	
DIMENSIONAL DATA	83	
ANNEX A - USEFUL DATA RECORD		
ANNEX B - AUTO-SLEEPER DEALERS		
ANNEX C - SMMT ANNUAL SAFETY CHECK		
ANNEX D - WARRANTY		

INTRODUCTION

1 VEHICLE TYPE

- 1.1 Auto-Sleeper Clubman GL based on the T4 SWB face-lifted front Chassis Cab built to a "motorhome" specification.

2 BODY TYPE

- 2.1 Coachbuilt, monocoque glassfibre construction.

3 Climatic Conditions

- 3.1 The Clubman is designed for use in temperate climates, and is certified Grade 2 in accordance with EN 1646-1: 1998. Grade 2 indicates that the heating system will raise the interior temperature from 0°C to 20°C within two hours.

4 HISTORICAL

- 4.1 The Volkswagen Clubman was launched at the 1991 Earls Court Caravan and Camping Exhibition. It has been subsequently restyled and updated.

5 HANDBOOK

- 5.1 Please ensure that you are fully conversant with the contents of this handbook before using your Auto-Sleeper. Any queries should be addressed to your supplying dealer.

5.2 Appliance Instructions

- 5.2.1 The appliance instructions in this handbook have been extracted from those supplied by the appliance manufacturers.

6 BASE VEHICLE

- 6.1 For all automotive matters you should refer to the base vehicle instruction manual. Any queries should, in the first instance, be addressed to your local Volkswagen commercial dealer. The Auto-Sleeper conversion does not affect the tyre pressures in any way since the conversion is built within the design envelope of the base vehicle. When referring to your base vehicle instruction book for tyre pressures, ensure that you refer to the appropriate chassis type.

CHECK LISTS

1 BEFORE YOU LEAVE

- 1.1 Listed below are actions it is recommended you take before driving your motorhome.

2 GAS

- 2.1 Ensure all appliances are turned off and the gas is turned off at the cylinder.
- 2.2 Ensure that there is sufficient gas to meet your needs.

3 ELECTRICAL

- 3.1 Ensure that your mains hook-up cable is disconnected and safely stowed on board.
- 3.2 Ensure that you have previously tested your RCD's/MCB's for operation.
- 3.3 If necessary, charge the conversion battery.
- 3.4 Ensure all mains and 12 volt appliances are switched off.
- 3.5 Ensure the refrigerator electronic ignition is switched off.

4 WATER

- 4.1 Ensure, if required, that your fresh water tank is full and your waste tank is empty.

5 PAYLOAD

- 5.1 Ensure that your vehicle's Maximum Technically Permissible Laden Mass (MTPLM) is not exceeded - be aware that it is an offence to exceed the MTPLM. You should now refer to Section 11 - Weights - containing the Weight Data for your vehicle.

6 SAFETY

- 6.1 Ensure that all interior and exterior equipment is safely stowed and secured.

7 GENERAL

- 7.1 Referring to your base vehicle manual, check all fluid levels including automotive fuel and tyre pressures. Remember to check that your spare tyre is of the recommended pressure.
- 7.2 Ensure that, on models fitted with an elevating roof, the roof is securely locked down with, when fitted, the exterior catches applied.

8 WHILST DRIVING

Whilst the vehicle is being driven ensure that:

- 8.1 Seat belts are worn by both the passenger and driver - this is a legal requirement.
- 8.2 Heavy loads are not stored in top cupboards or in areas from which they may become detached.

- 8.3 Table/s are stowed in the correct position and table legs secured in their retaining clips.
- 8.4 Furniture lids are lowered, cupboards and flaps are closed and secured.
- 8.5 The refrigerator door is closed and secured by its travelling catch.
- 8.6 The retractable rear step if fitted, is folded away or, if a separate step is supplied, it is safely stowed in the vehicle.
- 8.7 Roof ventilators are closed and locked in the down position.
- 8.8 The bathroom is not used whilst the vehicle is in motion. (Note: Refers only to models fitted with shower or toilet compartment.)
- 8.9 Top hinged windows are closed, and securely fastened.
- 8.10 Children do not roam around the vehicle; they may fall and injure themselves.

9 WHEN YOU GET THERE

9.1 Connection Of Services

9.1.1 230 Volt - Electrical Mains Hook-Up.

Before connecting to the mains, check that the vehicle RCD is switched "OFF". Uncoil the cable to prevent overheating and connect to the vehicle end first then the side outlet. The following should then be carried out:

- i. Switch the main isolator switch of the RCD "ON".
- ii. Press the test button (located adjacent to RCD switch). This should cause the main switch to trip.
- iii. Return main switch to "ON" position.
- iv. Switch the 10 amp MCB (MCB1) to the "UP" position, ("ON"). This circuit controls the 230 volt socket outlets.
- v. Switch the second 10 amp MCB (MCB2) - (if fitted) - to the "UP" position, ("ON"). This circuit controls the 230 volt supply to the Fanmaster.
- vi. Switch the 6 amp MCB (MCB3) to the "UP" position, ("ON"). This circuit controls the 230 volt circuit to the refrigerator, wall lamp, water heater, and the battery charger.
- vii. MCB's are numbered as follows:
MCB 1 - 10 amps. 230 volt socket outlets.
MCB 2 - 10 amps*. Fanmaster (if fitted).
MCB 3 - 6 amps. Refrigerator, battery charger, water heater, and wall light.

* only fitted to coachbuilt models when Fanmaster is fitted.

9.2 12 Volt Appliances

9.2.1 General

Please be aware that the 12 volt appliances, except the refrigerator, will not operate whilst the ignition is switched on and the vehicle engine running. The 12 volt supply is controlled by the master switch on the electrical control panel.

9.2.2 Gas Appliances

The cylinder valve also acts as the main isolation valve for the gas system and should always be turned off when the vehicle is in motion. When the gas appliances are required turn on the cylinder valve and all the individual appliance isolation valves.

The isolator tap is in the "ON" position when the knob runs "along" the pipework.

Instructions for operation for all gas operated appliances will be found in Section 4.

9.2.3 Water System

- i. The water pump is controlled by the master switch in the electrical control panel. When the water system is not required, the pump should be switched off. If the pump is not switched off the system will remain pressurised and the pump will cycle periodically to maintain that pressure.
- ii. The fresh water tank is filled through the lockable cap on the exterior of the vehicle.

9.3 The Country And Coastal Codes

Upon arrival at your destination you should be aware of the Country Code relating to motorhome owners. This is entitled the '**MOTOR CARAVANNERS' CODE**'

9.3.1 Code Of Conduct - Camp Sites

- i. *Arrivals* Report to reception immediately on arrival.
- ii. *Vehicle Movement* Keep to roadways unless otherwise directed.
Adhere to speed limits. Note that these are generally 10 m.p.h. (Remember that the stopping distance on grass is considerably greater than on tarmac).
Only a person in possession of a current driving license may drive on the site.
Park correctly as advised on your pitch. Where possible leave 20 ft of free space around your vehicle.
- iii. *Use of Site Appliances* Use the electrical mains hook-up in the correct manner and with caution.
Ensure that all fresh water taps/connections are turned off after use.
Have care and consideration when using all facilities (toilets and showers etc.) and leave them clean and tidy. Young children should be escorted.
- iv. *Waste Disposal* If the vehicle is not fitted with a waste water tank, a suitable receptacle should be placed below all waste water outlet pipes. Do not let these containers overflow.
Dispose of all waste water where instructed.
To avoid possible damage to sewage purification works, only approved chemical fluids must be used. Under no circumstances may coal tar, phenol or caustic-based fluids be used.
Disposable napkins and similar bulky items must not be put into chemical closet emptying points but should be wrapped in a polythene bag and placed in the container provided.
Put all litter in containers marked for the purpose.

- v. *Noise* Do not make excessive noise.
Children should be restrained from making excessive noise.
Flying kites and model aircraft and the use of items like catapults or air-guns as well as ball games should not be permitted among, or close to, motorhomes.
Musical instruments, record players, radios and televisions should not be used to the inconvenience of other people on site.
Open and close doors quietly.
Power generators must be adequately silenced and used with consideration.
- vi. *Dogs and Pets* All dogs and other pets should be kept under control.
Unless permission has been granted, no animal should be allowed loose on the site and leads must not exceed 10 ft.
No animal should be allowed in the shower/toilet blocks.
Do not let dogs foul the site.
- vii. *Fire Precautions* Adhere to and make note of all fire precautions concerning the whereabouts of the fire points.
Although not compulsory, it is recommended that a dry powder fire extinguisher is carried. It should comply with BS 5423 and be marked BSI or FOC approved. It is important to check at regular intervals that the extinguisher is working as is required by types meeting BS 5423.
Careful thought is necessary for the positioning of the extinguisher, which should be near the door but not too close to the cooking equipment where sudden flames could make it unreachable. In the kitchen area, a fire blanket is a worthwhile precaution.
Unless permission has been granted, barbecues should not be used. When permission has been given consideration should be given to the annoyance that can be caused to other users of the site.
Open fires are not allowed.
- viii. *Awnings & Tents* Awnings and tents should only be used when permission has been obtained.
When on grass and staying for more than a few days, the ground sheet and/or side flaps of awnings should be periodically raised in order to avoid damage to the ground.
- ix. *Departure* Leave the pitch clean and tidy.
On leaving, check out with the reception paying the required dues.
- x. *Wild Camping* Camping away from licensed sites, without the permission of the land owner or his agent, is not allowed in the United Kingdom.
When permission has been granted, all aspects of this Code should be adhered to.
On no account should:
- i. Litter be disposed of other than in receptacles provided.
 - ii. Water be allowed to escape from the vehicle.
 - iii. Chemical toilets be emptied except into the disposal places agreed with the land owner.
 - iv. Washing or similar be hung outside the vehicle.

- xi. *Parking* Motorhomes should only be parked in approved places. When using the facilities of a motorhome at such times, care and consideration should be given to those around them.
- xii. *Driving* When using a motorhome on either the public highway or private roads, the Highway Code should be complied with and full consideration given to other road users.
In the event of a motorhome travelling slowly and there being a queue of traffic behind, the driver of the motorhome should, where possible, pull over in order to let the other traffic pass.
When the vehicle is in motion it is compulsory that all passengers are seated and seat restraint straps worn. Before moving off, elevating roofs should be lowered and correctly secured, and top hinged windows closed. Likewise all doors and access lockers for gas containers and chemical toilets must be properly closed.
Exterior steps should be properly retracted and secured. When the vehicle is being refuelled, or on a ferry, all gas systems must be turned off.
Gas appliances should only be used when the vehicle is in motion when such use is permitted by the manufacturer of the appliance.
- xiii. *Handbook* Before using a motorhome all aspects of the handbooks produced by the chassis manufacturer and the converter must be read and adhered to.
- xiv. *Environment* Care and consideration should be taken to protect the environment.
Observe the Country and Coastal Codes shown below.

9.3.2 The Country Code

Enjoy the countryside but respect its life and work.

More people than ever before are exploring the countryside, interested in farming, plant life, bird watching or just observing the general wildlife. Whatever your interest, there is a lot to learn, but please observe the following code.

- i. Guard against all risk of fires. Hay and heathland catch alight easily and once ablaze are very hard to put out. **Remember: Fire Spreads Quickly.**
- ii. Keep to public paths across farmland.
- iii. Use gates and stiles to cross fences, hedges and walls.
- iv. Leave livestock, crops and machinery alone. View from a distance.
- v. Take your litter home - it is unsightly and harmful to wildlife.
- vi. Help to keep all water clean.
- vii. Take special care of country roads.
- viii. Make no unnecessary noise. Most animals are very timid, noises can disturb them unnecessarily. If you want to get the best out of the country, go quietly.

9.3.3 The Coastal Code

As our coastlines are increasingly used for recreation and education, the following suggestions are made to enable us to enjoy our inheritance and preserve it for posterity.

Do **not** trample about, or move rocks unnecessarily.

Do **not** frighten seals or seabirds.

Do **not** spear fish.

Do **not** spill detergents, solvents or fuel from boats as these can kill marine life.

When sailing, moderate your speed - the wash from a fast boat can destroy banks and nests.

Live molluscs and crustaceans need not be collected as souvenirs - dead shells can usually be found.

Shellfish can take years to grow and fines can be imposed for not observing national regulations.

Do **not** pull up seaweed unnecessarily.

Make your visit instructive - not destructive.

Look at material, don't remove it. Take notes and photographs, not specimens.

Observe bye-laws and be considerate to others.

National Trust property or Country Parks have regulations to protect the wildlife. Follow these.

9.4 Fire Precautions

You should also make yourself aware of the local fire regulations.

ARRANGEMENT OF EQUIPMENT

1 GENERAL

- 1.1 The Clubman GL has been designed as a two-berth model with two large wide single beds being formed without the use of the cab seats. As a factory fitted option, two additional berths in the Luton may be specified; these are best suited for occupation by children.

2 SEATING ARRANGEMENTS

2.1 Cab Seats

- 2.1.1 Both the reclining cab seats have full fore and aft movement which can be obtained by releasing the catch on the front of the seat and sliding it to the require position. Armrests are available as an option.

3 TABLES

- 3.1 Two dinette tables are provided; these are stored behind the backrest of the nearside settee. They are secured by cloth tabs which should be attached to prevent unnecessary movement of the tables when stored. The table legs are housed, when not in use, in the wardrobe secured by use of spring clips. When the tables are required, the legs should first be placed in the appropriate floor mounting and the tables placed upon them. When not in use, the table bungs should be placed in the floor mounting holes.

- 3.1.1 Both tables must be stowed away whilst the vehicle is in motion.

4 KITCHEN AREA

- 4.1 The kitchen is at the rear of the vehicle. Between the caravan door and the shower is the stainless steel sink and drainer and the cooker/grill and oven. Beneath the sink/drainer is a hinged flap which gives access to the sliding cutlery drawer as well as a storage space for small items. The sink is fed with hot and cold water and when not in use can be concealed by a laminated hinged lid which provides an additional working surface. Adjacent to the sink is the two-burner hob and grill with oven below. When the hob is in use, stainless steel splash plates ensure that the furniture units remain protected from heat and cooking stains.

- 4.2 Like the sink, the cooker is concealed by a laminated lid which when not in use.

- 4.3 A shelved cupboard is found under the sink. All kitchen shelves are coated with a plastic material which is easily cleaned with soapy water.

- 4.4 A small cupboard is found underneath the oven in which will be found the gas taps for the heater, cooker and refrigerator. The water pump is housed behind a panel in the base of the cupboard below the sink; access being through a detachable panel in the rear of the base of this unit. There is a courtesy light located on the side of the refrigerator unit beside the rear doorstep.

- 4.5 A large 2 cubic foot (gross) gas/12 volt/230 volt Electrolux RM4213S tilt-tolerant refrigerator fitted with electronic ignition and freezer compartment is found adjacent to the caravan door. As found elsewhere in the kitchen area, the refrigerator unit is fitted with a heat resistant work surface.

- 4.5 Immediately above the refrigerator is the cocktail cabinet which is fitted with a four wine glasses and provision for three bottles. On the right-hand side of the cocktail cabinet is a 230 volt socket outlet, 12 volt socket and a 12 volt isolation switch.
- 4.7 Above the caravan door is the electrical control panel which incorporates a fresh water level indicator, battery condition indicator lights, master switches for the water pump and 12 volt circuits. The electrical control panel also incorporates separate fuses for all major appliances.
- 4.8 The crockery compartment, which houses crockery for four, is found in the rear nearside top locker. The crockery is held in position by two restraining straps.
- 4.9 The fire extinguisher is found on the rear end of the nearside top locker. Above the rear window are two further storage lockers suitable for small items.
- 4.10 The Truma Ultrastore water heater is mounted in the offside bed box; the outer end of the unit incorporating the gas module extends through the side of the vehicle. The control panel is on the left-hand side of the wardrobe. At the inner end of the heater is the manually reset trip thermostat, access to which is via the hole in the front compartment of the offside bed box. The water heater gas isolation tap is located in the compartment to the right of this access hole.

5 SHOWER COMPARTMENT

- 5.1 The shower compartment is on the rear offside of the vehicle adjacent to the wardrobe. It is fitted with a chemical cassette toilet, a drop down washbasin with mixer taps, an adjustable showerhead, a vanity unit, mirror and a full-length shower curtain. The drop-down handbasin may be removed by lifting upwards and forwards - thus giving access to the catchment tray for cleaning and retrieving any articles inadvertently tipped out of the bowl.
- 5.2 The shower compartment is heated by the blown air thermostatically controlled heater system. A five-way directional roof ventilator with a flyscreen provides ventilation as required.
- 5.3 A fluorescent light is fitted in the ceiling and a bound floor carpet prevents damage to the shower tray when not in use. A towel ring is provided.
- 5.4 The shower tray, which incorporates a small plug, drains to the waste tank. A large dressing mirror is fitted to the forward wall.
- 5.5 The opaque window is fitted with flyscreens and blinds and is designated as an emergency exit.

6 WARDROBE UNIT

- 6.1 The wardrobe unit is situated adjacent to the shower compartment and comprises of two parts:

6.1.1 Wardrobe

The wardrobe which incorporates a hanging rail is found above the thermostatically controlled blown air heater. In the top of the wardrobe is a full width shelf. The wardrobe is fully lined and insulated. On the right-hand wardrobe wall are the two table legs and the rear corner steady brace secured by restraining clips.

7 TRUMA ULTRAHEAT SPACE HEATER

7.1 In the base of the wardrobe is the Truma Ultraheat Space Heater. The controls are fitted in the top of the front cover.

8 STORAGE

8.1 Storage is provided by the cupboards, lockers and the bed boxes. Additional storage is available in the overcab bed area.

8.1.1 The optional removable overcab bulkhead is not available on this model.

8.1.2 In the interests of safety heavy items must not be stored in overhead lockers or in any storage areas from which they could come free and cause injury to the occupants of the vehicle. Ensure all cupboards are securely fastened before moving off.

9 SLEEPING ARRANGEMENTS

9.1 The Clubman GL offers two large wide single beds or a large double.

9.1.1 Single Beds

Two single beds may be made up as follows:

- i. Move the appropriate cab seat fully forward on its runners. Lift and fold down the armrest at the front end of the settee into the horizontal position, so it rests on the cab seat runners.
- ii. Slide the settee base out, towards the centre of the vehicle (In the case of the nearside seat, extend it to its first locking position only).
- iii. Place the infill cushion in the space between the armrest and the forward end of the settee. Align the cushions for maximum comfort ensuring that the infill cushion flap is fully extended and tucked into the area between the forward end of the armrest and the rear of the passenger seat.

9.1.2 Double Bed

- i. Remove both tables from their storage position behind the offside settee backrest cushion and place in the storage areas immediately behind the cab seats. Slide the nearside settee base outwards, towards centre of the vehicle to its stop position. Fit the two infill cushions into the space between the offside settee cushion and the side of the vehicle. Release the locking catch that is found centrally on underside of the nearside settee base. Pull the
- ii. settee base through its intermediate locking position. Move to rear of the vehicle and continue to pull out the offside settee base until it meets the nearside one. Fit the nearside backrest cushion into the space between the nearside settee cushion and the side of the vehicle. The offside backrest cushion can be left in position if the infill cushions are not fitted.

10 WINDOWS

10.1 Double glazed acrylic windows are fitted as standard. Both the dinette windows have sliding sections to give generous ventilation as required. Ensure that the windows, when closed, have the securing catches in the correct position. The securing catches operate as follows:

10.1.1 Double Glazed Side Windows

The locking catches on the side windows are on the front centre-sliding panel. To slide the window, first squeeze the catch to release it and allow the window to slide. To lock the window, push it be firmly shut at which time the lock will re-engage. The rear acrylic window panels can be slid forward to assist cleaning. To do this remove the infill rubber from the inner bottom track. This will allow full and free movement of the rear window panel.

10.1.2 In the event of the acrylic windows misting inside the bubble if, a slight build-up of condensation occurs, remove the small nylon bungs and pass warm air through the window in order to disperse the moist air. This is best done by use of a hairdryer or vacuum cleaner. We recommend the bungs are not replaced as this allows the window to breathe. Contrary to what may be believed, there is no vacuum between the panels and because acrylic is flexible any vacuum effect would cause the acrylic to distort.

10.1.2 To Open the Rear Window

First lift the levers at either side of the window and then push window base outwards to the half or fully open position as required. For closing, the window should first be opened fully to release the ratchet, thereafter the action should be reversed.

10.1.3 The design of the sliding windows is such that in certain conditions water may lie in the channel. This is part of the design and does not constitute a problem.

11 VENTILATION

11.1 The Clubman GL is fitted with two five-way roof ventilators each with a flyscreen and night blind, in the living area, and one, with flyscreen only, in the shower compartment.

11.2 Each roof ventilator has a drop down flyscreen and the four-way opening facility may be achieved by moving the adjustment handles to the required positions. On no account should any ventilators be obstructed.

11.2.1 Do not travel with the roof vents open.

11.3 Floor Vents

11.3.1 To provide ventilation for the occupants, the refrigerator, and to allow any accidental build up of gas to escape, there are vents in the floor of the vehicle.

11.3.2 These vents are situated below each appliance, in the base of the gas cylinder housing and in the gas tap compartment. These vents should be regularly checked to ensure they do not become blocked and the mesh covering then cleaned using a stiff brush.

11.3.3 Do not obstruct the ventilators which are fitted - your safety depends upon them.

12 INSULATION

- 12.1** All body panels except the front doors are insulated using glassfibre wool. This gives protection against extremes of hot and cold and at the same time minimizes condensation.

13 REAR CORNER STEADIES

- 13.1** The rear corner steadies, which can be lowered by using the wheel brace supplied, are designed to give greater stability to the vehicle when it is stationary on site. The wheel brace for use when lowering the rear corner steadies is stored in the wardrobe. Under no circumstances are these corner steadies to be used as a substitute for the vehicle jack or as stands for the vehicle when the wheels are removed.

14 ROOF RACK AND LADDER

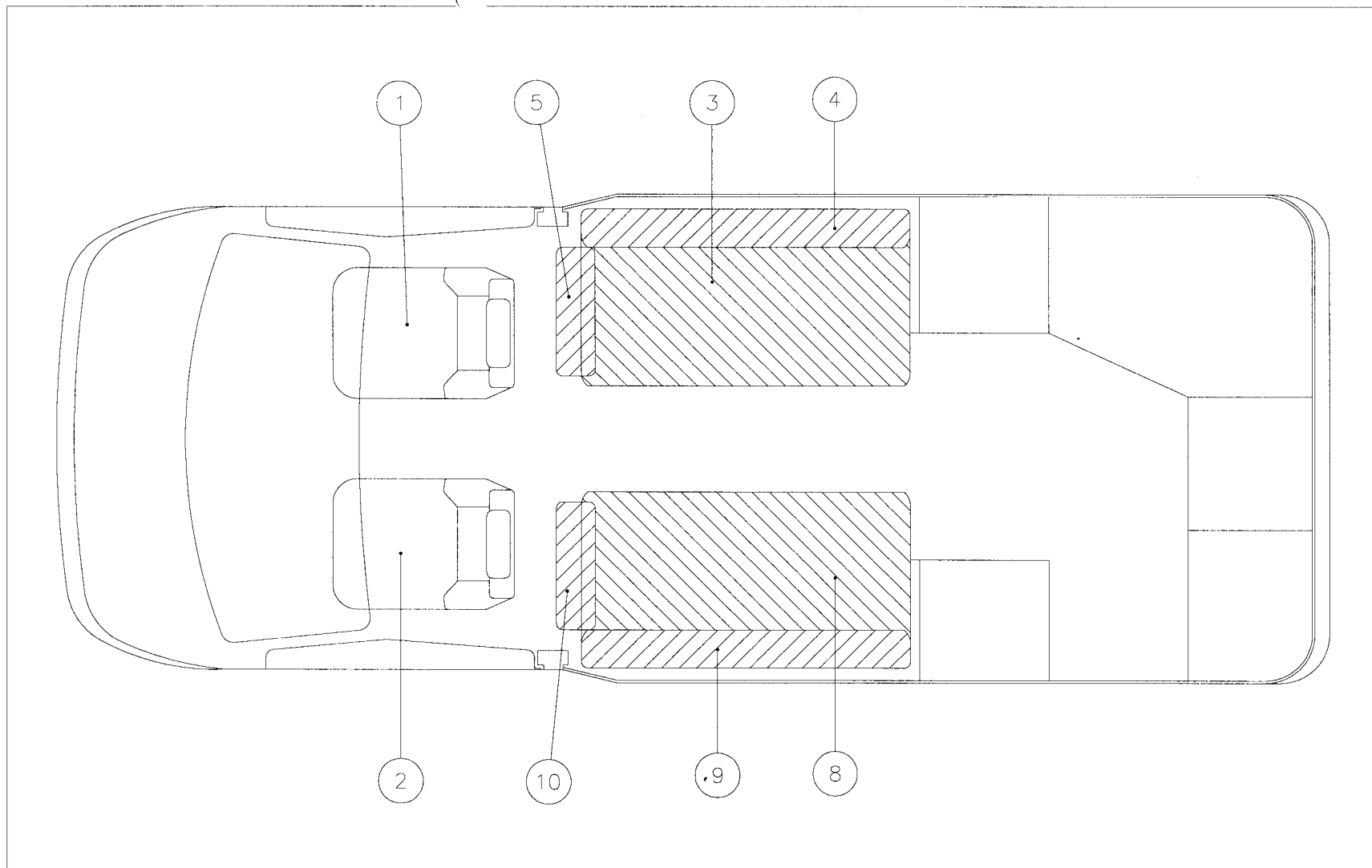
- 14.1** When using the roof rack, care should be taken to see that all the items are securely anchored. Apart from general cleaning and polishing, the stainless steel roof rack and ladder require no special maintenance.
- 14.2** Maximum load on the roof rack should not exceed 100lbs with a maximum point loading of 17.5lbs per square foot. The roof rack load is not in addition to your payload.

15 JACK

- 15.1** The jack and handle are stored in the front of the offside bed box.

16 CLOCK

- 16.1** Replacement of the battery and the resetting of time necessitates the removal of the electric clock. This may be achieved by pulling the clock out of its recessed housing which will give access to the battery and resetting wheel.

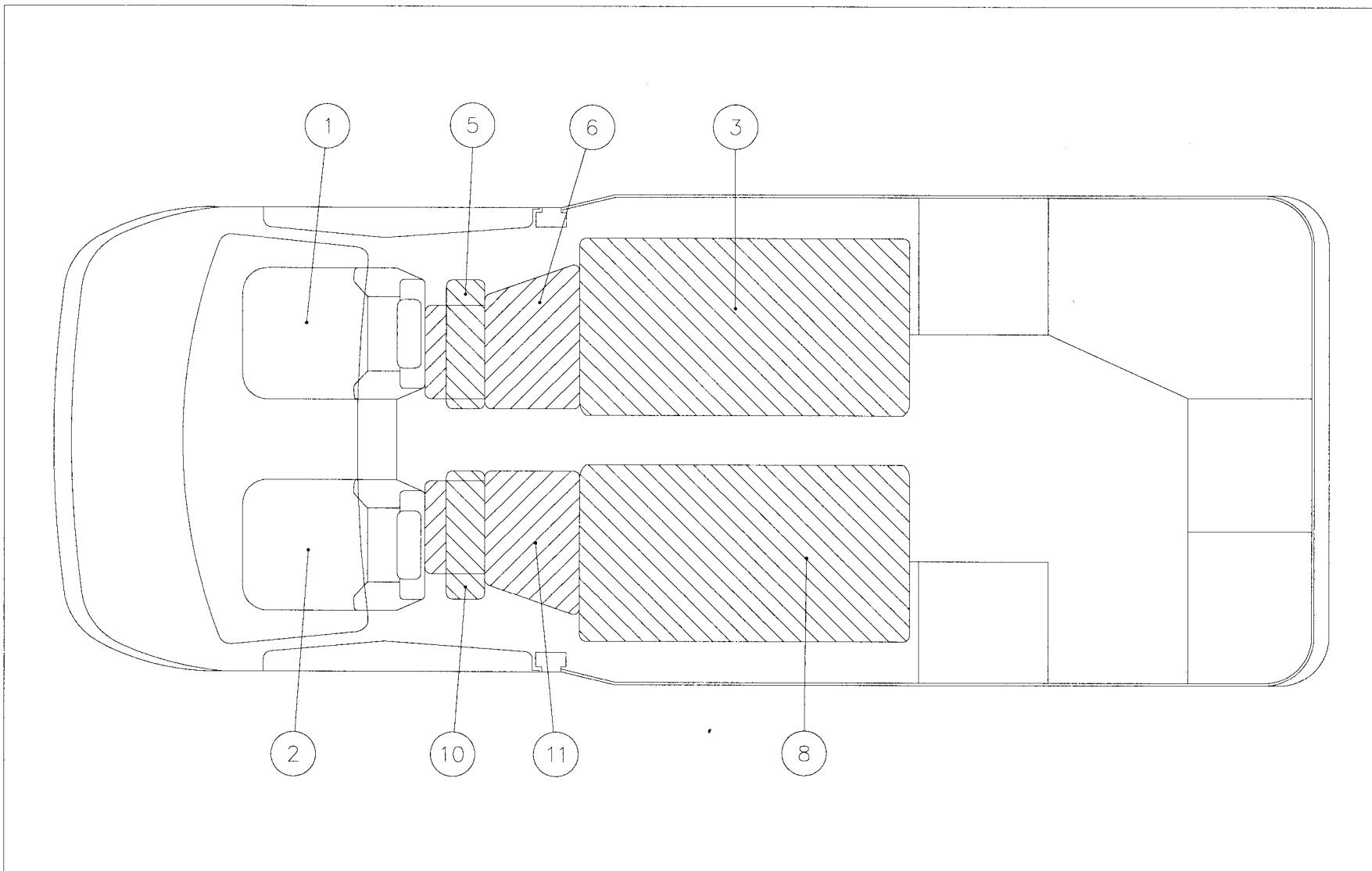


DRG No SAD11448/A

CLUBMAN GL CUSHION ASSEMBLY - NORMAL

© AUTO-SLEEPERS LIMITED
MARCH 1999

3.6

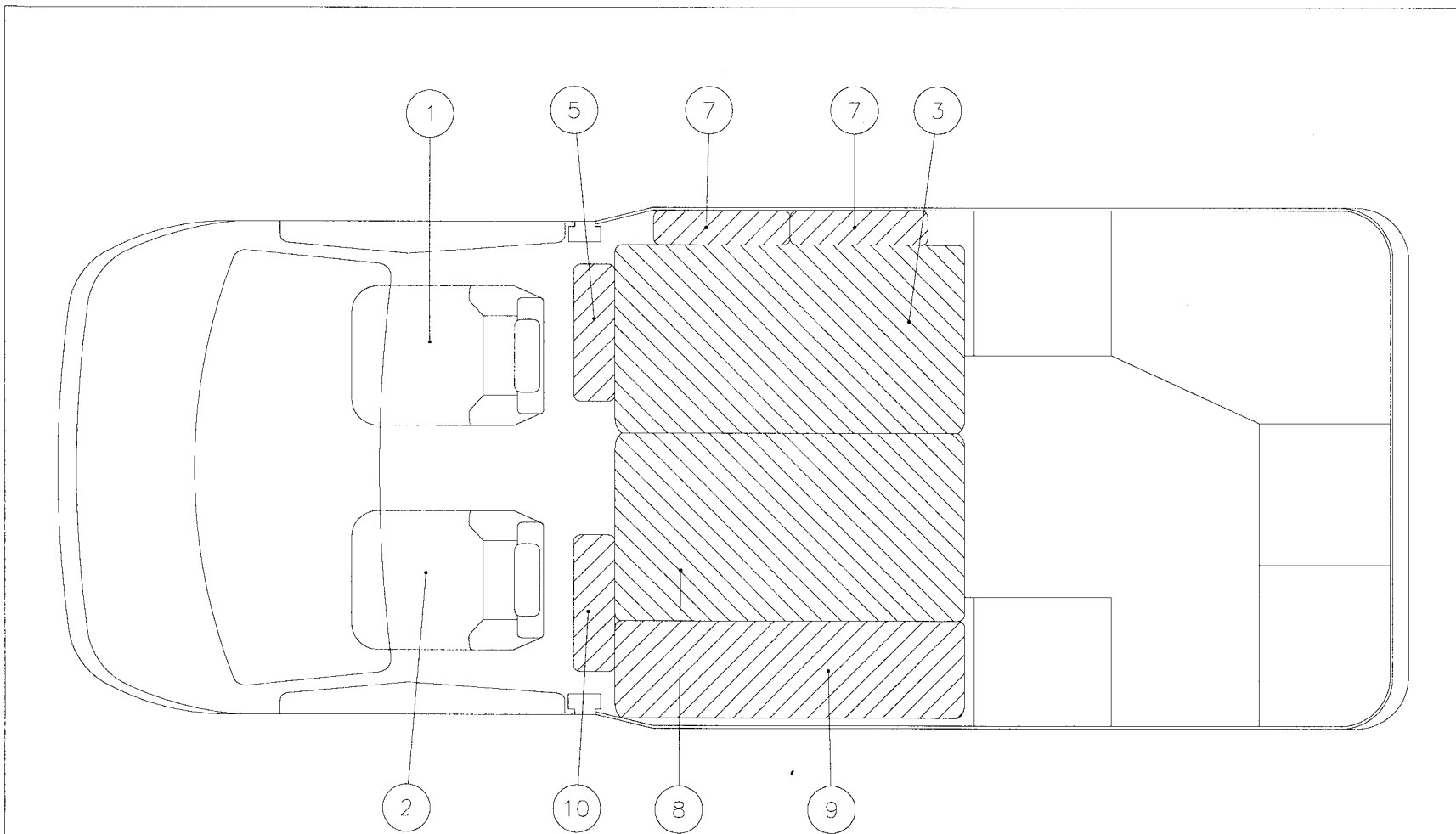


DRG No SAD11448/B

CLUBMAN GL SINGLE BED ASSEMBLY

© AUTO-SLEEPERS LIMITED
MARCH 1999

3.7

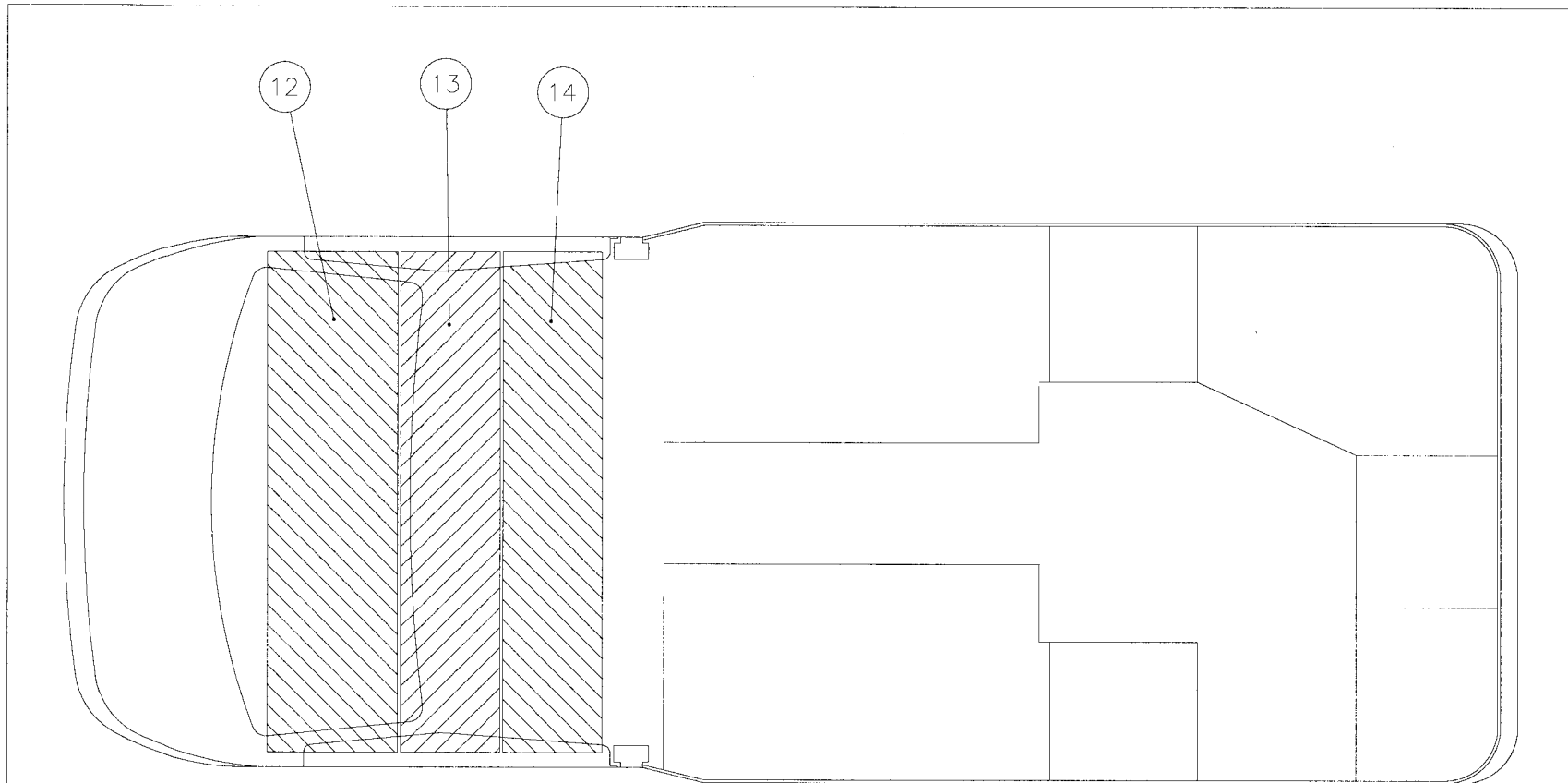


DRG No SAD11448/C

CLUBMAN GL DOUBLE BED ASSEMBLY

© AUTO-SLEEPERS LIMITED
MARCH 1999

3.8



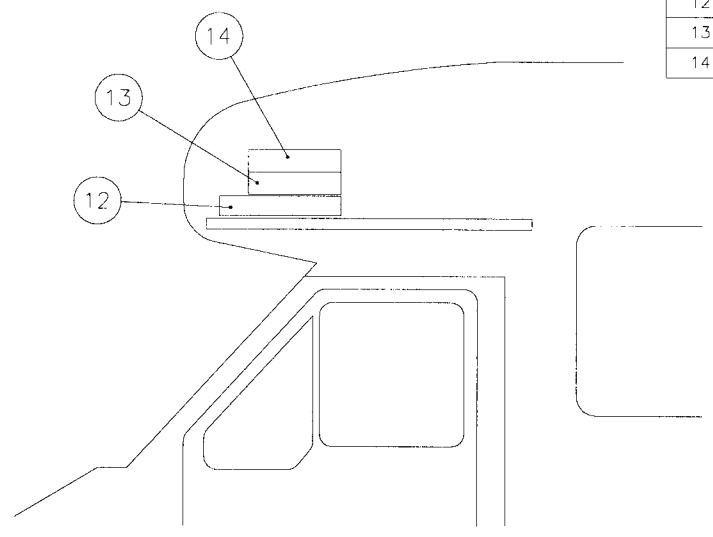
DRG No SAD11448/D

CLUBMAN GL OVERCAB BED ASSEMBLY

© AUTO-SLEEPERS LIMITED
MARCH 1999

3.9

Item	Part No	Description/Cushion type	Qty	Notes
1	CS0146	CABSEAT R/H	1	-
2	CS0146	CABSEAT L/H	1	-
3	CS0156A	O/S BASE CUSHION	1	-
4	CS0156B	O/S BACKREST CUSHION	1	-
5	CS0156C	O/S ARMREST CUSHION/BOARD	1	-
6	CS0156D	O/S INFILL FLAPPED CUSHION	1	-
7	CS0156E	O/S DOUBLE BED INFILL CUSHION	2	-
8	CS0156F	N/S BASE CUSHION	1	-
9	CS0156G	N/S BACKREST CUSHION	1	-
10	CS0156H	N/S ARMREST CUSHION/BOARD	1	-
11	CS0156I	N/S INFILL FLAPPED CUSHION	1	-
12	CS0118A	ROOF MATTRESS	1	-
13	CS0118B	ROOF MATTRESS	1	-
14	CS0118C	ROOF MATTRESS	1	-



DRG No SAD11448/E

CLUBMAN GL PARTS LIST

© AUTO-SLEEPERS LIMITED
MARCH 1999

3.10

APPLIANCES

1 GENERAL

- 1.1 This Section covers the operating instructions of all the appliances fitted to your Auto-Sleeper. These instructions are repeated in the appliance documentation found in your vehicle pack. Before using any appliance, please refer to these operating instructions, which for your convenience are repeated below. It is not necessary to return the warranty certificates to each appliance manufacturer; this warranty cover is included within the Auto-Sleeper warranty agreement.

2 ELECTROLUX RM4213S (TILT TOLERANT) REFRIGERATOR

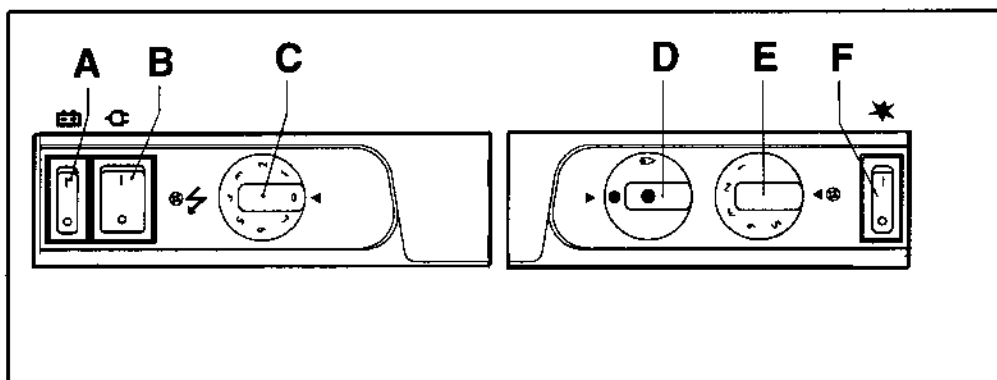
2.1 Operating Instructions

2.1.1 Controls

- i. The refrigerator can be run on either 230 volt, 12 volt or LP gas. Changing between these modes of operation is carried out by means of the controls of the control panel shown below.
- ii. Two rocker switches are used to select the electric power supply, one for 230 volt (B) and one for 12 volt (A).
- iii. Refrigerator temperature is controlled by a thermostat (C) when the unit runs on 230 volt. The gas supply is turned on/off by means of the knob (D). When lighting the gas, one must press in the knob as explained further on.
- iv. Refrigerator temperature is controlled by a thermostat (E) when the refrigerator runs on LP gas. Please note that the thermostat has no "off" position.
- v. The gas flame is electronically lit, monitored and relit if necessary. For this the toggle switch (F) should be "on" during gas operation.
- vi. An indicator lamp in the switch flashes when the automatic igniter attempts to light the burner. Otherwise this lamp is off.

2.1.2 Starting the Refrigerator

- i. The position numbers refer to the diagram below.




Caution!
Only use one source of energy at a time.

2.1.3 LP Gas Operation

- i. After initial installation, servicing, or changing gas cylinders etc., the gas pipes may contain some air which should be allowed to escape by briefly
- li turning on the refrigerator or other appliances. This will ensure that the flame lights immediately.

2.1.4 To Start Gas Operation

- i. Open the shut-off valve of the gas bottle (check that there is enough gas). Open any on-board shut-off valve.
- ii. Check that the switches for mains and 12 volt operation are off.
- iii. Turn on the gas supply by pressing the (D) knob and turning it to the position .
- iv. Set the thermostat knob (E) to the highest setting.
- v. Throw on switch (F). A light in the switch should now start to flash, indicating that sparks are being generated at the burner.
- vi. Press the (D) button. This opens the flame failure device and allows gas to flow to the burner.
- vii. When the flame lights, the sparking stops automatically and the switch stops flashing.
- viii. Keep the (D) button pressed for a further 10 to 15 seconds to activate the flame failure device, then release it.
- vix. To terminate gas operation, turn knob (D) to "●" and (when applicable) set switch (F) to "0".

2.1.5 230 Volt Operation

- i. Turn off gas or 12 volt operation when applicable.
- ii. Turn the knob (C) of the thermostat to its highest (coldest) position.
- iii. Set switch (B) to position I.

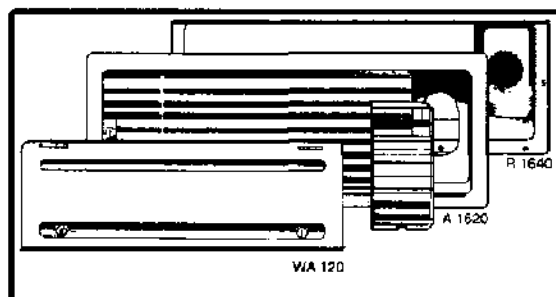
2.1.6 12 Volt Operation

If applicable, turn off the gas operation.

- i. Set the 12-volt rocker switch (A) I.

2.2 Winter Operation

2.2.1 Please check that the ventilation grilles or flue outlet are not blocked by snow, leaves, etc.



2.2.2 Electrolux ventilation grilles A 1620 (above), can be fitted with winter covers, model WA 120, to protect the cooling unit against cold air. The covers may be fitted when the outside temperature is below approximately 10°C and should be fitted when the temperature is below the freezing point.

2.2.3 We suggest that you fit the winter covers also in the case that the vehicle is laid up during the winter months.

2.3 Regulating the Temperature

2.3.1 The position number refers to the previous diagram.

2.3.2 It will take a few hours for the refrigerator to reach normal operating temperature. So we suggest you start it well in advance of a trip and if possible store it with pre-cooled foodstuffs.

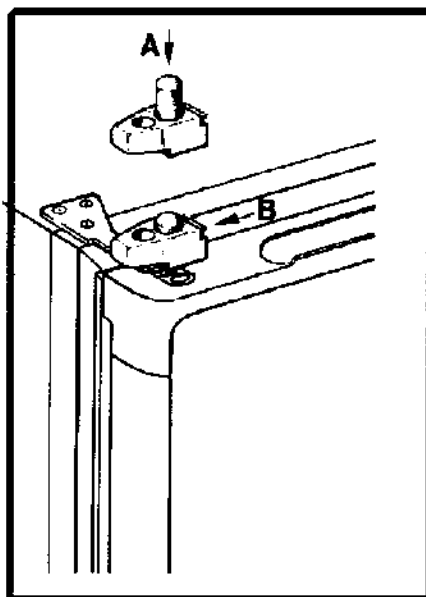
2.3.3 On 230 volt operation the refrigerator is controlled by a thermostat and the thermostat knob (C) should be set at 3-5. If a lower (colder) temperature is desired, set the thermostat to a higher figure.

2.3.4 On 12 volt operation the works continuously.

2.3.5 On LP gas operation the refrigerator temperature is regulated by the gas thermostat (E), which should be set at 3-5. If a lower (colder) temperature is desired, set the thermostat to a higher figure.

2.4 Travel Catch

2.4.1 Make sure that the travel catch is engaged when the vehicle is on the move (see below).



2.4.2 The travel catch at the top of the door can be set in two different positions. In one position the door is held tightly shut. In the other position the door is secured ajar so that the refrigerator can be aired when not in use.

2.5 Food Storage

2.5.1 Always keep food in closed containers. Never put hot food in the refrigerator; allow it to cool first. Never keep items in the refrigerator which might give off flammable gases.

2.5.2. The 2-star (**) frozen food compartment is intended for the storage of frozen food and for making ice. It is not suitable for freezing items of food.

2.5.3 Never put bottles or cans of fizzy drinks in the frozen food storage compartment as they may burst when freezing. Also do not give children ice-lollies straight from the frozen food compartment as they could cause frost burns.

2.5.4 Most kinds of frozen food can be stored in the frozen food compartment for about a month. This period of time may vary, however, and it is important to follow the instructions on the individual packets.

2.6 Ice Making

2.6.1 It is practical to make ice during the night - then the refrigerator is less demanded and the cooling unit has more reserves. Fill the ice tray to just below the brim with drinking water and place it on the freezer shelf.

2.6.2 To speed up the ice making, one can spill one or two spoonfuls of water on the freezer shelf to improve the contact to the ice tray. If you have more than one ice tray it is a good idea to make ice in advance and save the frozen trays in the frozen food compartment.

2.7 Defrosting

2.7.1 Frost will gradually accumulate on the refrigerating surfaces. It must not be allowed to grow too thick as it acts as an insulator and adversely affects refrigerator performance.

2.7.2 Check the formation of frost regularly every week and when it gets about 3mm thick, defrost the refrigerator.

2.7.3 To defrost the refrigerator, turn it off and remove the ice tray and all food items.

2.7.4 Normally the temperature of items of frozen foods would rise unduly during defrosting and so they should be consumed within 24 hours or discarded.

2.7.5 Do not try to accelerate defrosting by using any kind of heating appliance as this might damage the plastic surfaces of the refrigerator. Neither should any sharp objects be used to scrape off the ice.

2.7.6 The defrost water runs from a collector channel to a receptacle at the rear of the refrigerator where it evaporates. Defrost water in the freezer compartment should be mopped up with a cloth.

2.7.7 When all the ice has melted, wipe the refrigerator dry and restart it. Place the food items back inside but wait until the refrigerator is cold before making ice cubes.

2.8 Cleaning the Refrigerator

2.8.1 Clean the inside of the refrigerator regularly to keep it fresh and hygienic.

2.8.2 Soak a cloth in a solution consisting of a teaspoon of bicarbonate of soda to half a litre of warm water. Wring out the cloth and use it to clean the interior of the refrigerator and its fittings.

2.8.3 Never use detergents, scouring powder, strongly scented products or wax polish to clean the interior of the refrigerator as they may damage the surfaces and leave a strong odour.

2.8.4 The exterior of the refrigerator should be wiped clean now and again, using a damp cloth and a small quantity of detergent. But not the door gasket, which should only be cleaned with soap and water and then thoroughly dried.

2.9 Turning off the Refrigerator

2.9.1 If the refrigerator is not to be used for some time:

- i. Set any switches to 0.
- ii. Set the gas valve (D) to ●.

- iii. Shut off any on-board valve in the gas line to the refrigerator.
- iv. Empty the refrigerator. Defrost and clean it as described earlier. Leave the door or the refrigerator and the frozen food compartment ajar. Use the travel catch to hold in this position.
- v. When the vehicle is laid up for a long period of time (e.g. during the winter months), we suggest fitting the winter covers (see page 6.4), onto the vent grilles.

2.10 If the Refrigerator Fails to Work

2.10.1 Check the following points before calling a service technician:

- i. That the **STARTING THE REFRIGERATOR** instructions have been followed.
- ii. The refrigerator is level.
- iii. If it is possible to start the refrigerator on any of the connected sources of energy.

2.10.2 If the Refrigerator Fails to Work on Gas, Check:

- i. That the gas bottle is not empty.
- ii. That all LP gas valves are open.

2.10.3 If the Refrigerator Fails to Work on 12 Volt, Check:

- i. That the 12 volt supply is connected to the refrigerator.
- ii. That the fuse on the 12 volt supply is intact.
- iii. That the 12 volt fuse is on.

2.10.4 If the Refrigerator Fails to Work on 230 Volt, Check:

- i. That the 230 volt supply is connected to the refrigerator.
- ii. That the fuse is intact.

2.10.5 If the Refrigerator is not cold enough it may be because:

- i. The ventilation is inadequate owing to reduced area of the ventilation passages (partial blockage of grilles from wire mesh etc.).
- ii. The evaporator is frosted up.
- iii. The temperature control setting is incorrect.
- iv. The gas pressure is incorrect - check the pressure regulator at the gas container.
- v. The ambient temperature is too high.
- vi. Too much food is loaded at one time.
- vii. The door is not properly closed or the magnetic sealing strip is defective.
- viii. More than one source of energy is used at the same time. If the refrigerator still does not work properly, call a service technician.
- vix. The sealed cooling system must not be opened, since it contains corroding chemicals under high pressure.

2.11 Maintenance

2.11.1 Inspect the gas hose pipe periodically for cracks or deep chaffing marks. Connections can be tested for leaks using a soap solution. Do not use a naked flame! If there is any suspicion of damage, call for a service technician.

2.11.2 The cooling unit behind the refrigerator should be cleaned with a brush from time to time, but make sure that the refrigerator is switched off when doing this.

2.11.3 We recommend that a service technician checks the refrigerator once a year.

2.11.4 Some Useful Hints:

Make sure that:

- i. The refrigerator is not operating on 12 volt when the vehicle is parked, otherwise you will drain the vehicle battery in a short time.
- ii. Defrosting is carried out periodically.
- iii. The refrigerator is left with the door(s) ajar when it is not to be used for some time.
- iv. Liquids or items with a strong odour are well packaged.
- v. The ventilation openings are unobstructed.
- vi. The door is secured by means of the travel catch when the vehicle is on the move.
- vii. Only one mode of operation at a time is used to run the refrigerator.

2.12 Guarantee and Service

2.12.1 The refrigerator is for one full year on condition that it is used in a correct manner and in accordance with these operating instructions.

2.12.2 It is also embraced by a European guarantee as described in the brochure supplied with the refrigerator.

2.12.3 Service and spare parts are obtainable from your Auto-Sleeper dealer or Electrolux - consult the telephone directory.

2.13 Technical Data

2.13.1 Capacity:

gross	60 lit.
net	51 lit.
frozen food compt.	6 lit.
Weight (without packaging)	21 kg

2.13.2 Electrical Data:

Input 230 V	105 watt
Input 12 V	100 watt
Energy consumption/24 h	2.3 kW/h

2.13.3 LP Gas Data:

Input	186 watt
ditto, low flame	86 watt
Energy consumption/24 h	0.24 kg

Cooling medium Ammonia (R 717)

3 TRUMATIC E 2400 SPACE HEATER

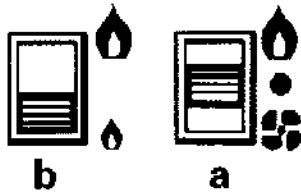
L.P.G. Heater with electronic control, built-in air distribution and thermostat.

Operating Instructions

Always observe the operating instructions and "Important operating notes" prior to starting! The vehicle owner is responsible for the correct operation of the appliance.

A yellow sticker with warning information is attached to the inner face of the wardrobe door.

Control panel with thermostat



- a. Slide valve.
Heating - Off - Ventilation
- b. Slide valve for high setting (large flame symbol) and low setting (small flame symbol).

Switching on the Heating

1. Remove cowl cap.
2. Turn on gas cylinder and open quick-acting valve in the gas supply line.
3. Adjust desired room temperature at rotary knob.
4. Switch the slide valve (a) to heating and the slide valve (b) to the desired output setting. If the outside temperature is low, switch to high setting.

Switching on

Switch the slide valve (a) to Ventilation switch, and the slide valve (b) to high setting or low load.

Switching Off

Move the slide valve (a) to middle position. If the appliance is switched off after a heating phase, the fan can continue running in order to make use of the residual heat.

If the appliance is not used for a prolonged period of time, mount the cowl cap, close quick-acting valve in the gas supply line and turn off gas cylinder.

Green indicator lamp "Operation" (under rotary control knob)

When the appliance is switched on (heating or ventilation) the green indicator lamp must be illuminated (the fan is running). If the indicator lamp is **not** illuminated, possibly check the (main) switch. For this purpose observe respective instructions of vehicle manufacturer.

During the heating operation, while the flame is burning, the green indicator lamp lights up with twice the intensity. This also makes it possible to determine the instantaneous switching point of the room temperature.

Fuses

Fig H1: The appliance fuses are situated on the electronic P.C. board on the appliance.

Important note: Only replace the miniature fuses F1 and F2 with a fuse of the same type:

F1 = 3,15 AF EN 60127-2-1 (fast)

F2 = 1,25 AF EN 60127-2-2 (fast)

Red indicator lamp "Failure"

Should a failure occur, the red indicator is illuminated **permanently**. Possible causes for the failure can be e.g. no gas, insufficient combustion air, heavily soiled rotor, defective fuse etc. Deactivate by switching off and then switching on again.

Flash operation indicates that the operating voltage is too low or too high for the appliance (charge battery, if necessary).

Important Operating Notes

1. If the cowl is positioned in the direct vicinity of an opening window (or hatch), this window must remain closed during the operation of the appliance (see warning plate).
2. The integrity and tight fit of the exhaust gas double duct must be checked regularly, particularly at the end of long trips. Also check the mounting of the appliance and the cowl.
3. Following a blow-back (misfire) always have the exhaust gas system checked by an expert!
4. If appliances are assembled on the outside of the vehicle, regularly check the flexible air ducts for damage. A damaged duct could lead to exhaust gas entering the vehicle.
5. Always keep the cowl for conducting exhaust gas and supplying combustion air, free from contamination (slush, leaves etc.).
6. The installed temperature limiter shuts off the gas supply if the appliance becomes too hot. Therefore do not shut the warm air outlets and the opening for the returning circulating air.
7. If the electronic control p.c.b. is defective return in well packed. If you fail to do so, guarantee claims shall no longer be valid. Only use original p.c.b. as a spare part!

The vehicle owner is the person responsible for arranging the inspection and the replacing of the parts.

8. Always mount the cover cap for the wall cowl when the appliance is not being used. This applies in particular when washing the vehicle and for boats.

GENERAL SAFETY NOTES

If the gas system is leaking or if there is a smell of gas:

- extinguish all naked flames
- do not smoke
- switch off the appliances
- shut off the gas cylinder
- open the windows
- do not actuate any electrical switches
- have the entire system checked by an expert

1. Repairs may only be carried out by an expert.

Attention: A new O-ring must always be installed after dismantling the exhaust duct!

2. Any alteration to the appliance (including exhaust duct and cowl) or the use of spare parts and accessories which are important to the function of the heater and which are not original Trumatic parts, as well as the non-observance of the installation and operating instructions, will lead to the cancelling of the guarantee and exclusion of liability claims. It also becomes illegal to use the appliance, and in some countries this even makes it illegal to use the vehicle.
3. **The operating pressure for the gas supply is 30 mbar (or 28 mbar butane/37 mbar propane) and must correspond to the operating pressure of the appliance (see name plate).**
4. Do not operate the appliance when refuelling the vehicle and when in the garage.
5. During the initial operation of a brand new appliance (or after it has not been used for some time), a slight amount of fumes and smell may be noticed for a short while. This can be remedied by running the heater at maximum output and ensuring adequate room ventilation.
6. If the burner makes an unusual noise or if the flame lifts off, it is likely that the regulator is faulty and it is essential to have it checked.

Technical Data

Type of gas: **Liquid gas (propane/butane)**

Operating pressure: **30 or 50 mbar (refer to nameplate)**

Rated thermal output: **High setting: 2400 W. Low setting: 1200 W.**

Gas consumption: **High setting: 200 g/h. Low setting 100 g/h.**

Air flow rate: **High setting: approx. 130 m³/h. Low setting: approx. 77m³/h.**

Current input at 12 V: **High setting 1.1 A. Low setting 0.6 A.**

Current input at 24 V: **High setting 0.7 A. Low setting 0.4 A.**

Standby: **0.01 A**

Weight: **approx. 4.7 kg**

Declaration of Conformity

The Trumatic E 2400 has been DVGW-tested and complies with the EC gas appliance guideline (90/396/EEC) as well as with the associated EC guidelines. : CE-0085AO0008. General design approval of the federal office for motor vehicles: S 260

4 CEC BATTERY CHARGER AND POWER SUPPLY UNIT

The Charger Unit is located below the bottom shelf in the offside unit along with the RCD/Water Heater and Battery Charger switches.

The Charger is accessed by lifting out the bottom shelf using the aperture provided

4.1 INTRODUCTION

4.1.1 The Inter-Power from Plug-In-Systems Ltd is an extremely light weight and efficient unit, combining power and safety to provide the ultimate in battery chargers. It is especially designed for caravan and motorhome installations, simple to install and requiring minimal attention in use.

4.1.2 The unit incorporates important safety features:

OVERCURRENT PROTECTION
SHORT CIRCUIT PROTECTION
REVERSE POLARITY PROTECTION (BATTERY)

The Inter-Power is designed to work with a battery in circuit and for optimum performance a good quality Leisure battery is recommended.

4.2 UNIT DESCRIPTION

4.2.1 With the unit connected to a protected 240 volt electrics, its operation is fully automatic once switched on. The unit is capable of providing up to 12 amps, should this load be exceeded then the Inter-Power will enter current limit mode to prevent damage to itself and associated 12 volt installations.

The Inter-Power will, if necessary, operate on a low mains input (making ideal for low continental voltages) and still provide a stable (regulated) dc output voltage. As a precautionary measure a de fuse is fitted in the output circuit of the Inter-Power, in normal use this fuse should not require attention.

4.2.2 Warning: If using the Inter-Power in conjunction with a generator, first check the output voltage is no higher than 240 volts as failure to do so could result in damage to the unit.

4.3 OPERATION

- a) **Connect mains 240 volts ac to the caravan/motorhome via Mains Inlet Socket.**
- b) Switch the RCD (on the mains protection unit) to the ON position (upwards).
- c) Switch the relevant MCB (6 amp) to the ON position (upwards).
- d) Switch ON the Inter-Power, at this point power will be available from the Inter-Power via the dc output connectors. If this is not the case, check all connections and fuses.

4.4

4.5 SPECIFICATION

Mains Input 220/240 volts - AC
Frequency 50 Hz
Output Voltage 13.8 volts DC
Output Current 12 amps (max)
DC Output Fuse 20mm quick blow (see label for rating)
Dimensions Height 175mm
Width 150mm
Depth 75mm
Weight (inc. cable) 1.12 Kg

4.5 PRODUCT SUPPORT SERVICE

- 4.5.1 Plug-In-Systems Ltd offer to the customer an On-Site Service, available for both Warranty and Non-Warranty repairs (on the CEC and Plug-In-Systems range of equipment only). If you would like to take advantage of this service please ring Plug-In-Systems (direct) on:
(01482) 659309 and ask for PRODUCT SERVICE

5 SHURFLO FRESH WATER PUMP

5.1 General

- 5.1.1 Restrictions in a plumbing system may cause the pump to rapid cycle (ON/OFF within 2 seconds) during low flow demands. Cycling should be minimized to prevent pulsating flow, and to achieve maximum pump life.

5.2 Pressure Adjustment

- 5.2.1 To determine if adjustment is necessary, turn a tap ON to lower than average flow of water. The pump should cycle, but its "OFF time" must be 2 seconds or longer. If the cycling is correct, leave alone. If the pump is cycling rapidly increase the setting by turning the screw clockwise (1½ turn MAX.) until the pump operates for 1 second with at least 2 seconds "OFF time". If cycling cannot be minimized consider removing the plumbing restrictions or simply install a Shurflo Accumulator. (Your Auto-Sleeper dealer will advise you.)

5.3 Winterizing

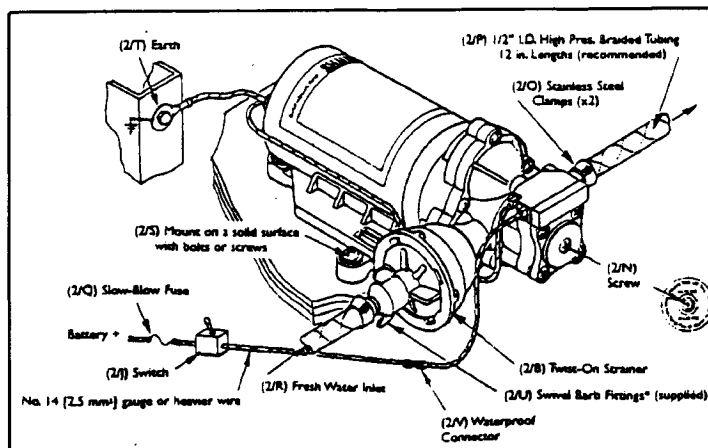
- 5.3.1 If water is allowed to freeze in the system, serious damage to the plumbing and the pump may occur. Failures of this type are not covered by the warranty. The best guarantee against damage is to completely drain the water system. However, non-toxic anti-freeze for fresh water, if available at local motorhome dealers, may be used.

- 5.3.2 **Caution:** Do not use Automotive Antifreeze to winterize drinking water systems. Such solutions are highly toxic. Ingestion may cause serious injury or death.

- 5.3.3 To properly drain the system perform the following:

- i. Open all the taps (including the lowest valve or drain in the plumbing) and allow the pump to purge the water from the plumbing, then turn the pump OFF.
- ii. Using a pan to catch the remaining water, remove the plumbing at the pump's inlet/outlet ports. Turn the pump ON, allowing it to operate until the water is expelled. Turn OFF power to the pump once the plumbing is emptied. Do not reconnect pump plumbing. Make a note at tank filler as a reminder: "Plumbing is disconnected".

5.3.4 All taps must be left open to guard against damage.



5.4 Troubleshooting

5.4.1 Vibration induced by road conditions can cause plumbing to loosen. In the event of a leak first check for any system components that are loose. Most leaks can be resolved by simply tightening the hardware.

5.4.2 Pump Will Not Start/Blows Circuit- Check:

- i. Electrical connections, fuse or breaker, main switch, and earth connection.
- ii. Is the motor hot? If it is the thermal breaker may have triggered; it may reset when cool.
- iii. Is voltage present at the switch? Try to bypass the pressure switch. Does the pump operate, if it does it indicates faulty switch.
- iv. Charging system for correct voltage ($\pm 10\%$) and good earth.
- v. For an open or grounded circuit, or motor; or improperly sized wire.
- vi. For seized or locked diaphragm assembly (water frozen?).

5.4.3 Will Not Prime/Splutters - (No discharge/motor runs) - Check:

- i. Is the filter clogged with debris?
- ii. Is there water in the tank, or, has air collected in the hot water heater?
- iii. Is the inlet pipework/plumbing sucking in air at plumbing/connections?
- iv. Is inlet/outlet plumbing severely restricted or kinked?
- v. Proper voltage with the pump operating ($\pm 10\%$).
- vi. For debris in pump inlet/outlet valves or swollen/dry valves.
- vii. Pump housing for cracks or loose drive assembly screws.

5.4.4 Pump Will Not Shut-Off/Runs When Tap is Closed - Check:

- i. Output side (pressure) plumbing for leaks.
- ii. For air trapped in outlet side or pump head.
- iii. For correct voltage to pump ($\pm 10\%$).
- iv. For loose drive assembly or pump head screws.
- v. Are the valves or internal check valve held open by debris or is the rubber swollen?
- vi. Pressure switch operation/adjustment, refer also to shut-off adjustment instruments for the switch.

5.4.5 Noisy Or Rough Operation- Check:

- i. For plumbing which may have vibrated loose.
- ii. Is the pump plumbed with rigid pipe causing noise to transmit?
- iii. Does the mounting surface multiply noise (flexible)?
- iv. For mounting feet that are loose too tightly compressed.
- v. For loose pump head to motor screws (3 long screws).
- vi. With the pump head removed. Is noise from motor or pump head?

5.4.6 Rapid Cycling - Check:

- i. Pressure switch shut-off adjustment.
- ii. Water purifier, if fitted, should be on separate feed line.
- iii. For restrictive plumbing, flow restrictors in taps/shower heads.

5.5.7 Leaks From Pump Head or Switch - Check:

- i. For loose screws at switch or pump head.
- ii. Switch diaphragm ruptured or pinched.
- iii. For punctured diaphragm if water is present in the drive assembly.

6 THETFORD C2 CASSETTE TOILET

6.1 Introduction

6.1.1 By buying a Thetford Cassette you can be sure you have bought a Thetford quality product. The Thetford Cassette design is functional and incorporates modern sculpture styling with home like features making it aesthetically compatible with the motorhome bathroom decor. The unit is an integral part of the motorhome bathroom.

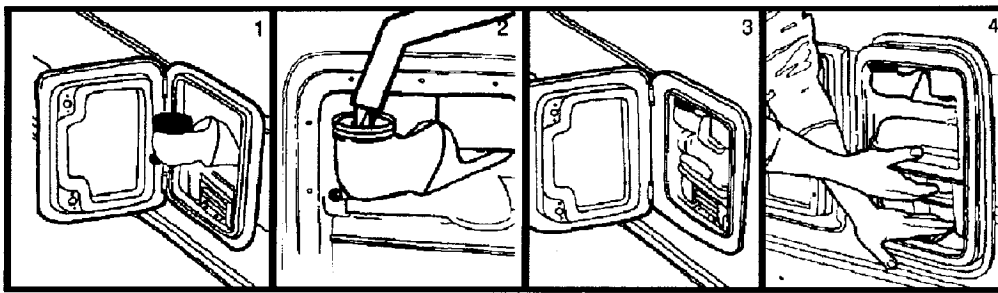
6.1.2 The Cassette is constructed of high quality plastics for durability and has a high gloss finish that is easy to clean and maintain. The unit consists of two sections, a permanently installed toilet system and a slide out waste holding tank.

6.1.3 The toilet section includes a seat and cover, flush and valve blade opener knob, toilet tissue compartment and holder, waste level indicator, built in toilet fluid storage compartment, a drip tray - a drain tube assembly also level indicator for the fresh water tank and a fresh water tank.

The unique waste holding tank section is located underneath the toilet and is removed for emptying from outside the motorhome through an access door.

6.1.4 A rotating pour-out spout, automatic holding tank vent, air release valve, valve blade, carrying handles and grips are incorporated into the waste holding tank.

6.1.5 Other features include a safety sensor switch that guards against adding water to the bowl without waste holding tank being in a proper position. The Thetford Cassette is a unique solution to a motorhome's sanitary problem.



6.2 Preparing for Use

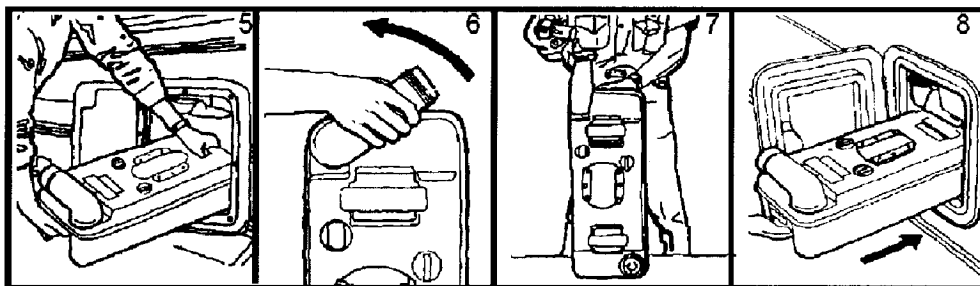
6.2.1 Open access door on the outside of the motorhome and swing out the fresh water fill funnel (fig. 1).

6.2.2 Add given amount of Aqua Rinse through the water fill funnel, which results in a better flush and improves the hygiene of the toilet.

6.2.3 Then fill the water tank with fresh water using a hose or jerrycan until water funnel level reaches neck. Tank capacity is 15 litres (fig. 2).

6.2.4 Replace cap. Swing water fill funnel inward until it touches side of water tank. 150ml of water will remain in fill bottle when fresh water tank is empty.

6.2.5 Remove the waste holding tank by pressing the retaining clip down (fig. 4).

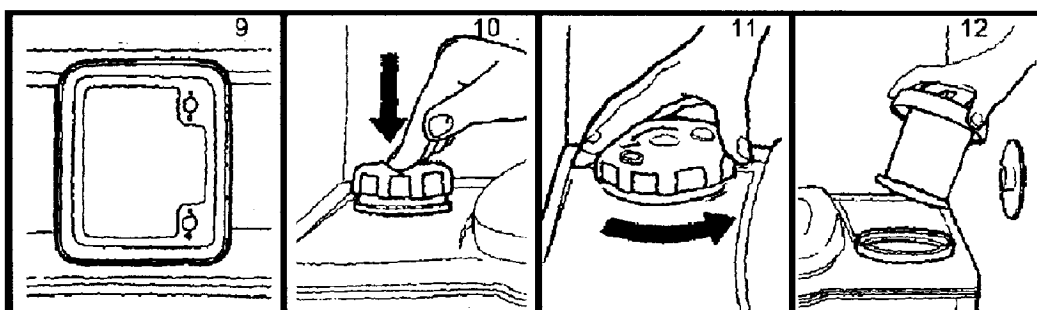


6.2.6 Pull the waste holding tank straight out. When the waste holding tank hits stop, tilt downward slightly and remove (stop for safety when waste holding tank is full) (fig. 5).

6.2.7 Position tank vertically and swivel pour-out spout upward (fig. 6).

6.2.8 Remove the dosage cap from the pour-out spout and add required amount of Thetford toilet fluid into the dosage cup (fig. 7). Then add approximately two litres of water through spout to cover holding tank bottom.

6.2.9 Replace cap onto the pour-out spout. The cap of the pour-out spout is packed together with the instruction for use (fig. 8).



6.2.10 Never add toilet fluid through the valve blade or the toilet bowl (fig. 9).

6.2.11 Slide the waste holding tank, pour-out spout facing outside, in the motorhome through access door. Be aware that sliding cover is placed correctly: the two arrows on top have to be pointing towards each other. Never force insertion as this can cause severe damage to the toilet.

6.2.12 Make sure the waste holding tank is locked with the retaining clip. Close and lock the access door.

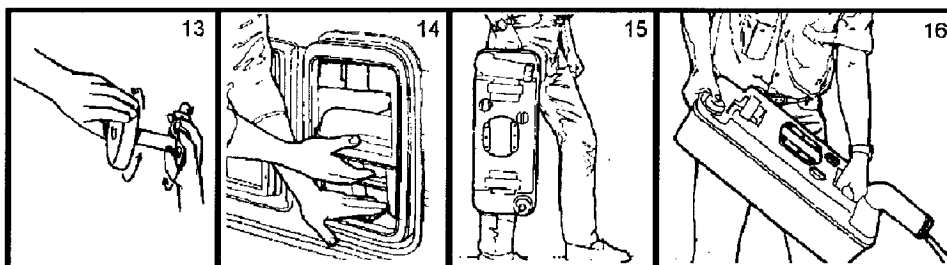
6.3 Operation

6.3.1 Flushing:

- i. Add water to the bowl by pressing the flush knob (fig. 10)
- ii. To flush after use press the flush knob down while turning in anti-clockwise direction. The turning motion opens the valve blade, emptying the toilet bowl. This procedure results in the best bowl rinse and most efficient use of water (fig. 11).
- iii. After flushing, turn the knob in anti-clockwise direction to close valve blade. The toilet can also be used with the valve blade open, which allows the waste to go directly into the holding tank.

6.3.2 Toilet Tissue:

- i. Toilet tissue is stored in the specially designed storage compartment that helps keep tissue clean and dry. Tissue can also be suspended on a tissue holder using the special wall mount bracket, if desired (figs. 12 & 13).



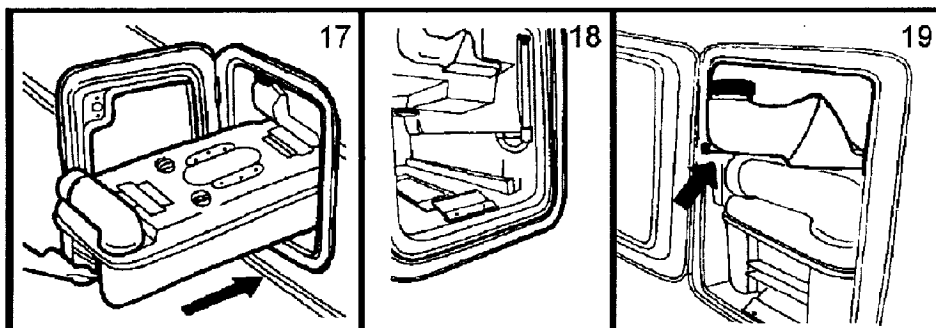
- ii. To replace tissue, remove tissue holder from compartment by pulling up on tissue cover. Hold bottom of tissue holder in one hand and cover in the other, and turn in opposite direction until you hear a click. Pull apart.
- iii. Place tissue on holder and twist in opposite direction until locked. Aqua Soft toilet tissue is recommended for best results.

6.4 Emptying The Waste Holding Tank

6.4.1 The waste holding tank capacity is 20 litres and should be emptied when the waste level gauge indicator goes from green to full red. The gauge does not begin to move from green to red until tank is over $\frac{3}{4}$ full. Do not allow cassette to become overfilled, see trouble shooting section for emergency emptying procedure.

6.4.2 To empty waste holding tank be sure that the valve blade is in the closed position. Open the access door on side of motorhome. Depress the retainer clip, pull cassette until stop, tilt and remove the waste holding tank (fig. 14).

- 6.4.3** Carry the waste holding tank using the lower carrying handle, pour-out spout up, to a normal household type of toilet or other authorised disposal point. Set waste holding tank in vertical position on the ground and rotate pour-out spout upward (fig. 15).
- 6.4.4** Remove spout cap. Grasp unit by upper carrying handle nearest to pour-out spout. Place other hand upper on rear handgrip so that the air relief valve button can be depressed with thumb whilst emptying, to ensure smooth outflow of tank contents. When empty remove the sliding cover manually by sliding it towards the pour-out spout, rinse tank and valve blade area with water (fig. 16).



- 6.4.5** Depress air release valve button only when pour-out spout is pointed downwards (fig. 17).
- 6.4.6** If necessary make the toilet ready for use. Slide the waste holding tank into the toilet and lock the access door.

6.5 Winterizing and Storage

- 6.5.1** The Thetford Cassette is easily winterised for storage or cold weather use.
- 6.5.2** Empty the fresh water tank using the drain tube/fresh water tank level indicator. Pull out level indicator/drain tube down from top plug position outward through door opening to drain water from tank (fig. 18).
- 6.5.3** Empty the water filler funnel by pulling the bottle away from the tank. Remove small water cap at fill bottom, allowing water to drain from water funnel. Do not tighten caps, this helps in keeping unit dry (fig. 19).

6.6 Cold Weather Use

- 6.6.1** The Cassette can be used during cold weather when the motorhome is heated. When the vehicle is not heated for more than a day (or a night) winterize the Cassette.

6.7 Maintenance Advice for the Seal, Blade and other areas of a Thetford toilet.

- 6.7.1** We advise that when cleaning the seal and blade you use Thetford Bathroom Cleaner and rinse with water. Alternatively use a lukewarm solution of diluted washing-up liquid. Never use household cleaners as they could cause irreversible damage to the seal and other toilet parts.
- 6.7.2** To ensure optimum performance we recommend that Thetford toilet additives only are used in conjunction.

- 6.7.3** Dry the seal and blade thoroughly. Spray both the seal and blade economically with Thetford Maintenance Spray. No Vaseline or vegetable oils other than olive oil should be used as they may cause problems.
- 6.7.4** Repeat the operation if the seal/blade is dirty or if opening/closing of the blade is getting more difficult. When putting the toilet into storage or not using for long period (i.e. winter), then the seal should be kept clean and lubricated with Thetford Maintenance Spray. The blade of the toilet should also be left open as this will prevent the seal from sticking to the blade if any moisture remains on the blade.
- 6.7.5** The rest of the toilet can be safely and effectively cleaned with Thetford Bathroom Cleaner. On parts where rinsing is not practical, use a damp cloth, then wipe dry with a soft piece of fabric or duster for extra shine. Alternatively use a lukewarm solution or washing-up liquid.

7 VOYAGER 2000 HOB/GRILL/OVEN

7.1 Caution

- 7.1.1** These instructions must be read and understood before proceeding with the installation and to avoid any possibility of accident it is essential that the appliances are installed and operated in accordance with these instructions.
- 7.1.2** No unit should be installed in a motorhome if fixed ventilation is not provided.
- 7.1.3** No alterations or adjustments should be made to the burners or gas supply pressure by unauthorised or unskilled persons. In the event of a failure or breakdown of a unit itself, turn off the gas supply at the cylinder or isolating cock valve for the unit and contact your supplying Auto-Sleeper dealer.
- 7.1.4** Do not remove any parts from the appliance or substitute alternatives as this may affect the performance and safety of the appliance.
- 7.1.5** The installation should be carried out in accordance with the appropriate codes of practice for the country in which the installation is done.
- 7.1.6** If aluminium foil is used in the oven, then it must not be allowed to block the oven flue outlet or smother the burner.
- 7.1.7** Do not spray aerosols in the vicinity of these appliances while they are in operation.
- 7.1.8** Do not use this appliance to heat the vehicle.
- 7.1.9** Turn off the grill once the grill pan has been removed.
- 7.1.10** Be sure appliance taps are closed before opening cylinder valve.
- 7.1.11** Be sure to apply ignition source to burner before opening appliance valve.
- 7.1.12** If you wish to drill the sides for your own grimbals you must first remove the right-hand side for drilling as there is a gas pipe behind this panel.

7.1.13 When a flexible hose is used do not allow the hose to come into contact with the back panel.

7.1.14 In any communication it is essential to quote the model and number marked on the data badge on the back of the appliance.

7.1.15 When fitted the grill door must be fully open when using the grill element.

7.2 Burner Adjustment and Rates

7.2.1 All burners are supply ready for use on Butane (28mbar).

7.2.2 If required to be used on Propane (37mb) the following instructions must be followed. Only hob burners require this adjustment. The jets do not need to be replaced. This adjustment must only be carried out by a qualified gas fitter.

7.2.3 Whenever the unit is altered for use on a different gas the label identifying the gas type at the rear of the cooker **MUST** be altered to indicate this change.

7.2.4 Remove the 4mm socket screw in burner side (using a 2mm hex key) and remove the enamelled cap.

7.2.5 Remove the retaining screw on the top of the burner body.

7.2.6 Take out the brass air sleeve.

7.2.7 Invert air sleeve and replace (the smallest diameter is now at the top).

7.2.8 Replace the retaining screw and refit the enamelled top (see figure above).

7.2.9 Heat Input:	Hob Burner	1.65 kw
	Grill Burner	1.72 kw
	Oven	1.26 kw

7.3 Operating Instructions

7.3.1 Make sure that the gas is turned on at the cylinder. It is recommended that a spark ignition device is used rather than a naked flame.

7.3.2 All burners are fitted with a Flame Failure Safety Shut Off Device (FFD). In the event of the flame being extinguished the gas supply will be cut off to the burner.

7.3.3 The flame should be blue although it may have some yellow tipping. The flame height should be level and stable.

7.3.4 To light a burner push in the appropriate knob, rotate anti-clockwise to the full on position (the large flame symbol, setting 8 for the oven valve) and apply a spark to the burner. It should light immediately, but continue to hold the knob in for a further 15 seconds.

If the burner goes out when the knob is released repeat the procedure but hold the knob in for longer before releasing. The tap can then be rotated to the desired setting (high through to low).

7.3.5 To turn off the gas, rotate the knob clockwise until you reach the off position (the "0" symbol vertically above the knob). If any of the burners on the appliance are found to have become extinguished then the valve must be switched off and the unit left for a period of one minute to allow any unburnt gases to escape, before attempting to re-light the burner. If the oven burner has been extinguished the oven door should be opened as well.

7.4 Hobs

7.4.1 Any required setting between full and low/simmer can be obtained by positioning the knob between these two settings. The hob burners are suitable for pan sizes ranging from 10cm to 22cm base diameter (4" to 8½").

7.5 Grill

7.5.1 It is recommended that an oven glove is used when using the grill as the grill pan handle may become hot if the pan is placed too far under the grill. For maximum efficiency place the pan about 30mm (1¼") from the edge of the grill compartment base; it is not necessary to preheat the grill but if a preheat period is used the empty pan should be placed under the grill to protect the grill base.

7.5.2 The grill pan trivet is reversible giving a choice of two grilling heights.

7.5.3 If fitted, the grill door must be fully open when using the grill element.

7.6 Oven

7.6.1 The best results will be obtained by pre-heating the oven for about 15/20 minutes at the required gas setting. The tap has 8 marked settings which correspond to the temperature given below. Intermediate temperatures can be obtained by turning the knob to the appropriate setting.

7.6.2 The oven will cook a wide range of food from a rich fruitcake, using a low setting to bread or Yorkshire pudding using the higher settings.

7.6.3 A simple table is given to cooking some basic items on the middle shelf but do not hesitate to experiment with your oven as you vary the quantities and types of food you are cooking.

Mark 1	110°C
Mark 2	130°C
Mark 3	150°C
Mark 4	170°C
Mark 5	190°C
Mark 6	210°C
Mark 7	230°C
Mark 8	250°C

7.7 Aids to Cooking Times

	Setting	Approximate Cooking Time
Poultry	5	20 mins per lb plus 20 mins
Meat (Red)	7	25 mins per lb
Yorkshire Pudding	7	45 mins
Casseroles	3	2 - 3 hours
Rice Pudding	2	2 - 3 hours
Fruit Tart	6	30 mins
Scones	7	12 mins
Small Cakes	5	18 - 20 mins
Victoria Sponge	4	25 - 30 mins
Rich Fruit Cake	2	2 hrs

7.8 Cooker Accessories (Supplied according to model)

7.8.1 Pan Support. The pan support is located in 4 studs on the main hob. The pan support is sprung into position to prevent rattling.

7.8.2 Oven Shelf. To fit an oven shelf, place the upstand on the shelf to the back of the cooker, ensuring that the two hooks pass under the oven shelf runners and lift the notches above the runners. If the shelf is correctly fitted it will not tip when pulled forward.

7.8.3 Door Catch. Certain cookers are fitted with a wire door catch which is sprung into holes in the sides of the cooker and dropped down over the door. The same catch can be used as a grill pan stop by fixing the wire in the upper pair of holes.

7.9 Cleaning

7.9.1 Each time the hob has been used it should be wiped over with a damp cloth and if greasy a little mild liquid cleaner.

7.9.2 Stubborn marks can generally be removed with one of the commercial cleaners. Do not use harsh abrasive materials as these leave scratch marks.

7.9.3 The interior of the oven should be cleaned with a damp cloth but if it becomes necessary to use a cleaner then choose one which is approved by the Vitreous Enamel Development Council (VEDC).

7.9.4 All spillages should be wiped up immediately before they 'burn on'.

7.9.5 We recommend that you occasionally remove the enamelled top to your burner and clean it ensuring that the ports in the top are free from dirt and grease.

7.9.6 If properly adhered to, these few simple suggestions should extend the life of your cooker.

7.10 Maintenance

7.10.1 Before attempting any maintenance work make sure that the gas supply is turned off at the cylinder and disconnected from the unit.

7.10.2 If the spillage tray is removed care must be taken to ensure that the gas joints are not stressed as this may result in a gas leak. No gas joint should be broken.

7.10.3 To Remove A Spillage Tray:

- i. Remove the tap knobs; by pulling straight forward.
- ii. Release the locknuts on the front fascia and remove the fascia panel.
- iii. Unscrew the 4 pan support studs.
- iv. If the model has a grill, some form of support (e.g. a towel) should be placed in the grill compartment to provide support for the burners.
- v. Release the socket screw on the side of the burner and remove the enamel cap.
- vi. Remove the 3 screws per burner.
- vii. Remove the 2 screws supporting the grill (if present).
- viii. Remove the screw on the back lip of the spillage tray in the left-hand corner.
- vix. The spillage tray can then be lifted clear.

7.10.4 To Replace A Hob Thermocouple:

- i. Remove the spillage tray as explained above.
- ii. Release the thermocouple from the back of the tap.
- iii. Release the nut holding the thermocouple into the burner.
- iv. The new thermocouple can then be bent to shape and the process reversed.

7.10.5 To Replace A Grill Thermocouple:

- i. Remove the spillage tray as explained above.
- ii. Release the thermocouple from the rear of the tap.
- iii. Disconnect the probe from the grill hood and remove.
- iv. Fit the new thermocouple ensuring the tip of the probe is in line or slightly above the holes in the grill tube and no further than 4 mm away.

7.10.6 To Remove An Oven Thermocouple:

- i. Remove the spillage tray as explained above.
- ii. Remove the right-hand side panel: 3 screws front and back.
- iii. Remove the back panel.
- iv. Release the thermocouple nut from the rear of the tap.
- v. Release the nuts holding the probe in position over the burner; this is easiest to do with the unit turned on its left-hand side.
- vi. Remove the old thermocouple through the side and replace with the new one ensuring that it is clear of the door springs.
- vii. The tip of the thermocouple should be approximately 20mm above the centre of the burner.
- viii. To replace the side all the edges should be inside the chassis.
- vix. The back should have its top edge underneath the spillage tray and the oven flue through the space in the back.

7.10.7 If the appliance needs more detailed servicing or replacement of other parts this servicing should be carried out by a competent person (e.g. CORGI registered fitter).

7.10.8 The gas valves fitted to this unit are not to be stripped for re-greasing or maintenance purposes. If required, the whole of the valve must be replaced. It is recommended that this appliance is professionally serviced every two years.

7.11 Spare Parts (Available through your supplying Auto-Sleeper dealer)

7.11.1 Description	Part No	
Oven Thermocouple	180	
Hob Thermocouple	181/3	
Grill Thermocouple	181/2	
Tap Knob	247	Please state colour and which tap.
Oven Shelf	212	
Pan Support	213	
Door Seal	237	

7.11.2 It is essential that you quote the Date Plate details (on rear of cooker) and the model type when ordering spares.

8 OMNIVENT ELECTRIC EXTRACTOR FAN (OPTIONAL)

8.1 An Omnivent may be fitted as an optional extra. It features a hinged roof vent operated by a knob. The vent incorporates a 2 way fan motor; its preferred method of operation may be selected by a rocker switch incorporated into the body of the vent. Switch positions represent the following loading:

Position 1	1.6 amps
Position 2	2.2 amps
Position 3	3.6 amps

Ensure the fan is switched off when the vent is closed.

9 TRUMATIC-ULTRASTORE WATER HEATER

The Truma Ultrastore is a liquid gas operated storage water heater with an additional 230v electric heating element. It is fitted on the offside of the vehicle and is identified by an external cowl. The cylinder and all main components are found in the adjacent bed box.

9.1 Operating Instructions

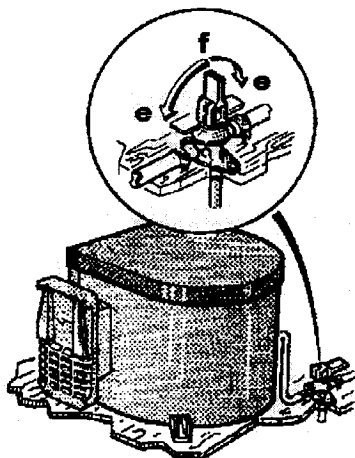
9.1.1 **Always observe the operating instructions prior to starting.** The owner is responsible for the correct operation of the appliance.

9.1.2 A yellow sticker with the warning information is fitted to the wardrobe door. Read this before use.

9.1.3 **Attention:** Always mount the cowl cap when the water heater is not being operated and drain the water heater if there is a risk of frost.
Claims under guarantee for damage caused by frost, cannot be accepted either by ourselves or Truma.

9.1.4 In the event of changing the water pump with one of a different type, ensure that a pressure of 2.8 bar is not exceeded. We recommend the Shurflo water pump model Trailing 7.

9.2 Safety/drain valve



e =Lever position "Closed"

f =Lever position "Drain"

9.3 Filling the Truma-Ultrastore with Water

9.3.1 Check that the safety/drain valve in the cold water intake is closed: Lever should be in horizontal position, position (e).

9.3.2 Open hot tap in bathroom or kitchen, with pre-selecting mixing taps or single-lever fittings to "hot".

9.3.3 Switch on water pump on electrical control panel.

9.3.4 Leave the tap open to let air escape while the water heater is filling. The heater is filled when water flows out of the tap.

9.3.5 Residues of frozen water can prevent filling if there is a frost. The water heater can be defrosted by switching on the heater for a short period (max. 2 minutes).

9.3.6 **Note:** If just the cold water system is being used, without the water heater, the heater tank is also filled up with water. In order to avoid damage through frost, the water contents must be drained by actuating the safety/drain valve and also when the heater has not been used. As an alternative, a shut-off valve can be installed upstream of the cold and hot water connection (your Auto-Sleeper dealer will advise you regarding this).

9.4 Draining the Water Heater

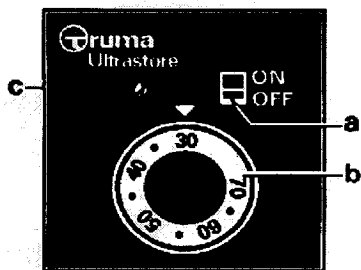
9.4.1 Disconnect power for water pump by switching off the water pump switch.

9.4.2 Open hot water taps in the kitchen and the bathroom.

9.4.3 Open safety/drain valve; with lever in vertical position, position (f).

9.4.4 The water heater can now be drained directly to the outside via the safety/drain valve. Check that the water contents have been completely drained (approximately 10 litres).

9.5 Control Panel (Gas Operation)



- a = Slide switch On/Off.
- b = Rotary knob for water temperature (illuminated by green indicator lamp "Operation").
- c = Red indicator lamp "Failure".

9.5.1 Gas Operating Instructions

Attention: Never operate the water heater without water in it.

If the wall cowl is positioned close to an opening window - in particular directly under it - it must remain closed when the water heater is in use.

9.5.2 Remove cowl cover.

9.5.3 Open gas cylinder and open isolation tap in the gas supply line.

9.5.4 Select required water temperature at rotary knob (b), which is infinitely variable from approximately 30° to 70°C.

9.5.5 Switch on water heater at the slide switch (a) on the control panel, the green indicator lamp "Operation" then lights up.

9.5.6 If there is air in the gas supply line, it may take up to a minute before the gas is available for combustion. If the appliance switches to "Failure" during this period, switch off the appliance - wait 2 minutes - and switch on again.

9.6 Switching Off (Gas Operation)

9.6.1 Switch off the water heater at the slide switch (a).

9.6.2 Drain the water heater if there is a risk of frost.

9.6.3 If the water heater is not to be used for a long period, fit the cowl cover. Non-observance of this point can lead to the operation of the appliance being impaired through water, dirt or insects. Close the isolation tap in the gas supply line and turn off the gas cylinder.

No warranty claim will be met if this point is not observed. Always remove the cowl cover prior to operating the water heater.

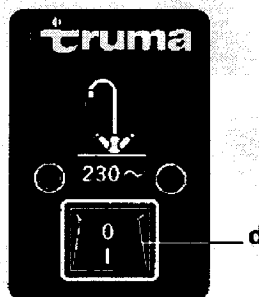
9.7 Red indicator lamp "Failure"

9.7.1 The red indicator lamp (c) lights up if there is a failure.

9.7.2 The reason for such an indication is, for example, if no gas is available or if there is air in the gas supply system, triggering the excess temperature monitor. To unlock, switch off the appliance, wait 5 minutes, and switch on again.

9.7.3 In the event of faults, always contact Truma Service (they may be contacted through your local Auto-Sleeper dealer).

9.8 Truma Control Panel (Electrical operation 230 V, 450 W)



d = Switch On/Off

9.9 Electrical Operating Instructions

9.9.1 **Attention:** Never operate the water heater without water in it.

9.9.2 Switch the switch (d) on the Truma control panel to "On". The indicator lamp indicates that the electrical water heating is switched on.

9.9.3 **Note:** The water temperature is fixed at approx. 70°C. For a faster heating up period the appliance can be simultaneously operated on both gas and electrical power.

9.9.4 Maintenance

Use wine vinegar for de-scaling the water heater; this should be introduced into the appliance via the water supply. Allow the product to react and then thoroughly flush out the appliance with plenty of fresh water. To sterilise the water we recommend "Certisil-Argento". Your local Auto-Sleeper dealer will obtain this on your behalf. Other products, particularly those containing chlorine are unsuitable.

9.9.5 **Note:** The water tank in the Truma-Ultrastore is of high quality stainless steel. The plastic elbow water connections and the safety/drain valve fulfil the EC guidelines for food quality in plastic parts (90/128/EEC).

- 9.9.6** In order to avoid the colonization of micro organisms, Truma recommend heating up the tank to 70°C at regular intervals and not using the water as drinking water.

10 Fault Tracing Guide

101 Gas Operation

Primary Symptom	Cause	Cure
When switching on from cold, no indicator lights come on	No power at wallswitch. Reversed power supply	Check wire connections. Check polarity of connection from motorhome wiring to wallswitch. Correct polarity and replace fuse
When switching on from cold, green light comes on, burner fails to light	Power not reaching heater	Check wiring from wallswitch to heater for disconnection
When switching on from cold, green and yellow lights come on	Voltage below 10.5v	Charge battery
When switching on, green and red lights come on	No gas or air in supply line	Purge by switching on several times or change gas bottle
Yellow light comes on when pump is operated	Voltage near 10.5v	Charge battery
Red light comes on and after 30-40 mins, water and steam.	Fusible plug blown	Replace module and fusible plug.
Occasional operation of red light (lock-out)	Incorrect gas pressure	Check regulator or change gas bottle
Continuous water flow from cowl when pump is operated	No drain plug Fast drain open	Replace drain plug or close fast drain
Isolating switch indicator light not alight	No power	Check fuse or RCD for open circuit

10.2 Mains Electrical Operation

Symptom	Cause	Cure
Mains immersion heater does not operate	No power Re-set trip operated	Check supply fuse or RCD No water, fill and re-set (if operates again seek service attention)

11 RESIDUAL CURRENT DEVICE

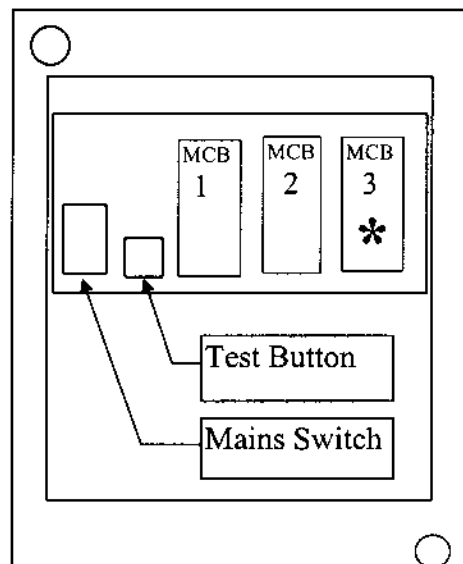
11.1 This unit is designed to give both overload and earth leakage protection for the electrical supply in your motorhome.

11.2 The MCB's (Miniature Circuit Breakers) are better described as mechanical fuses, which in the event of an overload situation in the circuit which they protect will automatically switch to the OFF position. After elimination of the fault the MCB is re-set by switching back on again (against the spring pressure) in an upwards direction.

- 11.3** In normal operation these MCB's should be left in the ON position. The residual current device (RCD) is fitted to provide protection against earth faults and possible electric shock.
- 11.4** In the event of an earth fault causing a leak of current to earth, either directly or via the human body, the unit will immediately trip and switch OFF the supply.
- 11.5** Only after elimination of the fault will it be possible to re-set the RCD to the ON position and so restore the supply again. The ON position is upwards against the spring pressure.

11.6 Periodically it is necessary to test the RCD.

11.7 This is achieved by ensuring that it is in the switched ON position with an electricity supply connected. By pressing the TEST button marked 'T' the unit should immediately switch to the OFF position. Provided this happens all is correct and the switch should be returned to the ON position (upwards) to restore the supply back to normal.



11.8 The RCD also acts as the main switch. And is used to switch off all 230 volt circuits in the vehicle.

11.9 Two are fitted. The circuits they protect are shown below.

11.9.1 Panel Vans and Styrofoam Models

- | | | |
|---------------|---|--|
| MCB1 (10 amp) | - | 230v Socket Outlet |
| MCB2 (6 amp) | - | Refrigerator (Mains Op), Battery Charger (if fitted),
Water Heater (if fitted) and 230v Light (if fitted) |

12 SEITZ CASSETTE BLINDS/FLYSCREENS

12.1 General

12.1.1 Seitz roller blinds and flyscreens are fitted to the caravan, Luton and rear windows. Each blind has special tensioning lugs at one end of the cassette, whilst others the end of the cassette is used for tension.

12.2 Operation and Care

12.2.1 Twin Cassettes (Luton). The blind and flynet are locked together and released by squeezing together the central operating catch, pulling down to the fully closed or intermediate positions, and releasing the catch.

12.2.2 Before separating the blind and flynet make sure the flynet is fully recoiled, separate and guide the blind to the required position. Do not allow blind or flynets to recoil out of control.

12.2.3 It is recommended that the blinds are left recoiled in their cassettes when the vehicle is travelling or being stored for long storage periods, to avoid overstraining the recoil springs.

12.2.4 Clean the cassette, side track and fabrics with clean water and mild detergent.

12.2.5 Lubrication of the mechanism or spring should not be required or recommended.

12.2.6 If the metal components or spring require cleaning, do so only with WD40, or similar, applied with a fluff free cloth. Use of other lubricants and oils could result in deterioration of the plastics and contamination of the fabrics.

12.2.7 Spare parts for the SEITZ blinds are available through your local Auto-Sleeper dealer.

12.3 Adjusting SEITZ roller blinds

12.3.1 Firstly a quick look at how a blind works will help in understanding how to adjust and operate them.

12.3.2 The flynet or blind fabric is rolled onto a steel or aluminium tube. This tube has a spring inside which recoils the fabric back into the open position.

12.3.3 The spring can be tensioned a maximum of 40 revolutions (tensioning beyond 40 will result in damage to the spring). Small cassette maximum 6.

12.3.4 When the blinds leave the factory they are pre-tensioned with approximately 12 revolutions of the spring, which should be enough for normal operation.

12.3.5 Example: for **TWIN** cassettes, if the blind is pulled closed, lets say 1 metre, then the tube revolves 17 times, applying this amount of tension to the spring.

12.3.6 The total tension on the spring is then $12 + 17 = 29$, which is still 11 revolutions under the maximum of 40 for which the spring is designed.

12.3.7 Total number of revolution applied to the spring should not exceed 40 in all cases.

12.3.8 The fabric must be fully rolled onto the tube evenly and centrally between the cassette ends before tensioning.

12.4 Method of adjustment for roller blinds

12.4.1 Blinds with tensioning lugs. Locate the tension lugs at the end of the cassette. These may be under a plastic cover which is removed by holding the cover and pulling off. The angle of pull is at 90° degrees to the wall.

12.4.2 The tension lugs have a slot in them and are located into the cassette on a bayonet principle similar to a light bulb. Insert a screwdriver, or similar tool, into the slot (the tighter the tool fits the slot, the easier the operation), turn the lug clockwise and allow the spring tension to push the lugs just free of the cassette. The spring can now have more or less tension applied as required; follow the tension formula above.

- 12.4.3** Care should be taken in keeping fingers away from the screwdriver tip, to avoid injury to the fingers if the tension lug spins free.
- 12.4.4** If there is any doubt to the amount of tension to be applied, it is best to release all the tension and start afresh.
- 12.4.5** To release the tension carefully allow the screwdriver to rotate and the spring to uncoil, keeping the screwdriver located in the slot.
- 12.4.6** Re-tensioning can now take place, which is a reversal of the above procedure.
- 12.4.7** Blinds without tension lugs. The right-hand cassette end cap has to be removed as this holds and applies the tension. Remove the cassette end cap by removing the screws, (with the screws removed the cap is a tight fit in the cassette and should remain secure until released). Pull the cap gently away from the cassette (approximately 1cm). When the cap is free of the cassette tension can be applied, or released by turning the cap. It is important to hold the cassette and cap firmly as the spring tension will now be on the cap. Tension is the same as for blinds with tension lugs.
- 12.4.8** It may be necessary to remove the cassette from the wall of the vehicle to allow re-tensioning to be carried out.

The blinds are self-contained so removal will not release tension or small parts. If the blind is operated when removed from the wall it is important to make sure the fabric recoils centrally to avoid the fabric edges being damaged on the cassette

ELECTRICAL SYSTEM

1 CONTROL PANELS

1.1 General

1.1.1 The electrical control panel manages the 12 volt DC system and appliances.

1.1.2 Incorporated in this are six circuit protection fuses, master switch for the 12 volt DC system, battery condition indicators, water tank level gauge and pump operation master switch. Also included is a battery charger "ON" indicator light.

1.2 Master Switch

1.2.1 This master switch will isolate all the habitation 12 v DC System when switched off. Note: It does not affect the refrigerator 12 volt operation when driving. To operate any of the 12 volt systems such as lights, pump etc. this switch must be "ON". If the vehicle is not to be used for a period of time, the switch should be "OFF". This will prevent any current drain on the habitation battery.

1.3 Water Gauge

1.3.1 The fresh water tank level gauge is operated by pressing the "push to read" button. The scale is graduated $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and full. To calibrate the gauge, an adjuster is situated adjacent to it. In order to set the calibration, simply fill a known quantity of water into the tank so that it is approximately half full, e.g. if the fresh water tank holds 60 litres, fill the tank with 30 litres of water. Then press the "push to read" button to obtain a reading and whilst still pressing turn the adjuster to the $\frac{1}{2}$ position on the scale.

1.4 Battery Condition Indicators

1.4.1 Two LED lights, one green and one red, are located on the control panel. These are operated by pressing the "push to read" button.

1.4.2 When checking the battery condition, only one of the lights will illuminate. If a green light shows, this means that the battery has normal charge (between 12.3 and 13.8 volts DC). If the red light illuminates this means that the battery requires re-charging as the voltage has fallen below 12.3 volts DC.

1.4.3 It may be noticed that when releasing the "READ" button, the green and red lights may momentarily flash - this does not mean the battery is running low and should be ignored.

1.5 Pump Switch

1.5.1 This is a master switch for the water pump and when "OFF" will prevent the pump from operating. To operate the pump, ensure that this switch is "ON". It is advisable to switch off the pump when not in use.

1.6 Charger On Indicator Light

1.6.1 A green indicator light is provided for the battery charger unit. This gives a visual indicator that the charger is operating on mains 230 volt AC. This light will remain on irrespective of the battery being fully charged or not.

1.7 Fuses

1.7.1 6 fuses are located behind a cover on the control panel.

1.7.2 These fuses are for the individual circuits within the habitation systems and are numbered thus:

Fuse 1	Lighting circuit	10A
Fuse 2	Water pump	10A
Fuse 3	Water Heater Gas Ignition, Cooker Ignition Fridge Ignition Control Circuit, Water Gauge and Battery Condition Indicators/Fan Master 12v control.	5A
Fuse 4	12 volt socket	10A
Fuse 6	Spare	5A

1.7.3 In the event of a fuse blowing, the cause must be identified before replacing the fuse.

1.7.4 Should any extra appliances be fitted to the habitation 12 Volt System, i.e. TV aerial systems, three speed fans, awning light etc., care must be taken not to overload any of the circuits. Please consult your Auto-Sleeper dealer in the first instance.

1.8 Main Habitation Fuses and Relays

1.8.1 Depending on engine variant, these are located in one of two locations:

1.8.2. 2.0L Petrol Engine

The main habitation fuse (30 amp) is located within the relay module adjacent to the vehicle/habitation battery.

The relay module contains 3 relays/3 fuses. The fuses and relays left to right are for as follows:

Green 30A - Split charge circuit
Green 30A - Habitation system
Blue 15A - Fridge 12vdc system

The habitation battery is co-located adjacent to the vehicle battery and is of an AH 12v type.

1.8.3. 2.4 Diesel Engine

The main habitation fuse (30 amp) is located within the relay module adjacent to the vehicle, habitation battery. The relay module contains 3 relays/2 fuses, and are as follows:-

Green 30A - Habitation system
Blue 15A - Fridge 12v

An in line fuse rated at 70A is fitted in line with the vehicle battery/relay module supply lead, this fuse is for the split charge system circuit.

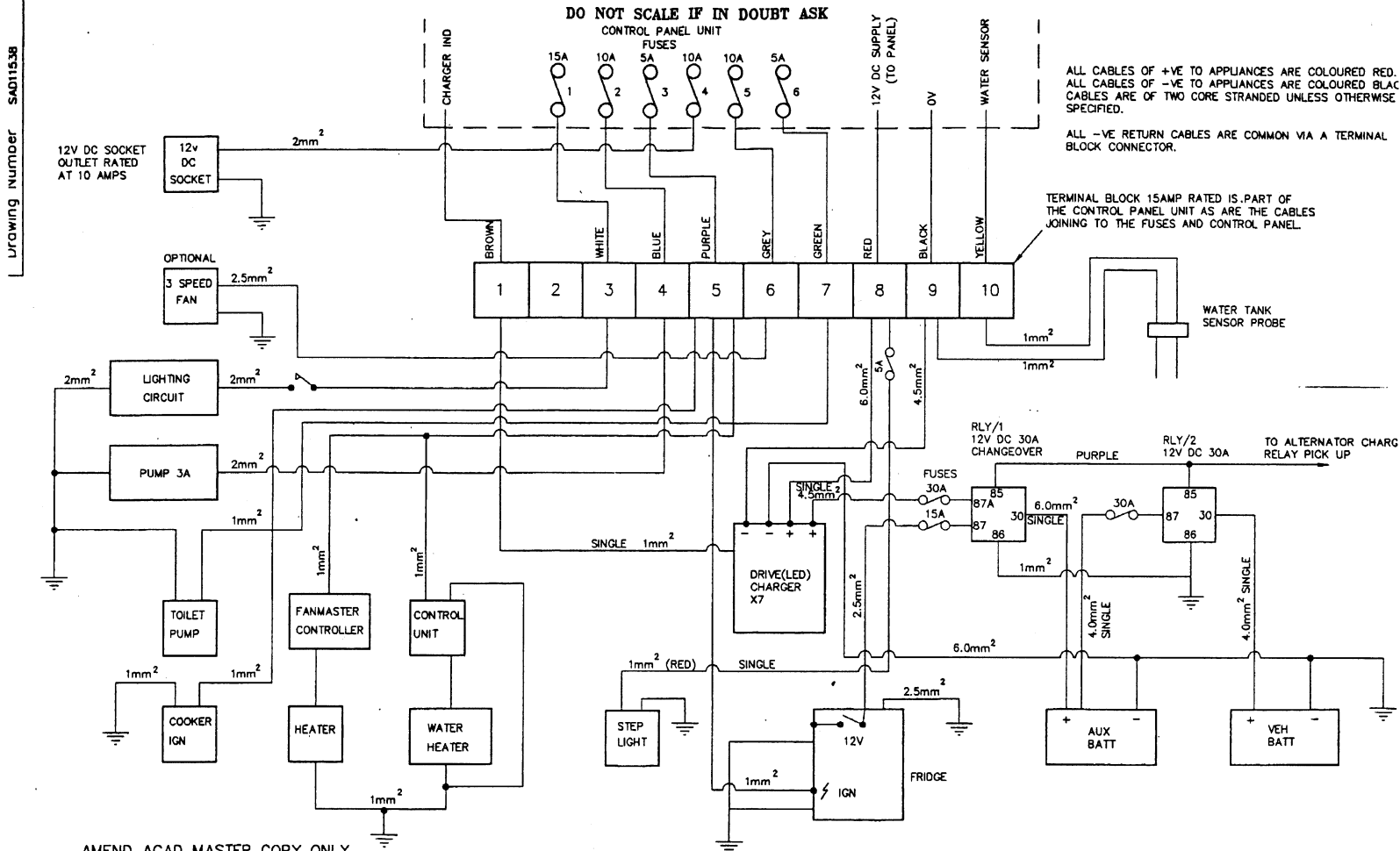
1.8.4. 2.5 TD, 2.5P and Other Engine Variant or Models Where the Habitation Battery is Located Internally

The habitation fuse 30A, is located adjacent to the habitation battery in the lower kitchen cupboard unit at the rear of the vehicle.

The fuse is accessed via the aperture in the rear panel. The habitation battery is of the 80AH leisure type and requires periodic maintenance.

The split charge fuse/relay and the fridge 12v fuse/relay are located within the engine compartment on the relay module adjacent to the vehicle battery.

SSUE	A	B	C	D	E	F	G
Revision	NOTE ADDED. 5A FUSE ADDED.	6.0mm WAS 4.5mm. FUSE 6 WAS 10A.					
Date & Initials	5.7.98 SH SS	29.7.98 SH SS					



AMEND ACAD MASTER COPY ONLY

	AUTO-SLEEPERS LTD	Drawn by S HINSLEY	Date 27.6.98	Approved <i>[Signature]</i>	Date 30/7/98	Drawing Number SAD11538	Sheet1 of 1
	ORCHARD WORKS, WILKERSEY, NR BROADWAY WORKS WR12 7DF TEL 0386 853338 FAX 0386 858343	Projection 3rd Angle	Project COACHBUILT	Dimensions mm	Scale 1:1	Title 12V DC SYSTEM	

ALL RIGHTS RESERVED. THE DESIGN AND ARTICLES SHOWN HERE ARE PROTECTED BY COPYRIGHT AND MAY BE THE SUBJECT OF PATENTS, REGISTERED DESIGNS OR APPLICATIONS THEREFOR © AUTO-SLEEPERS LIMITED. NO REPRODUCTIONS MAY BE MADE WITHOUT PRIOR WRITTEN CONSENT.

WATER SYSTEM

1 FRESH/WASTE TANKS

- 1.1 Both fresh and waste water tanks are fitted on the underside of the vehicle. For capacities of both see Section 11. The water system is externally filled using non-toxic semi-rigid hose. All pipework is manufactured to food grade material specification. The drain taps for both the fresh and waste water tank are positioned at the lower rear of each tank.

2 BREATHERS

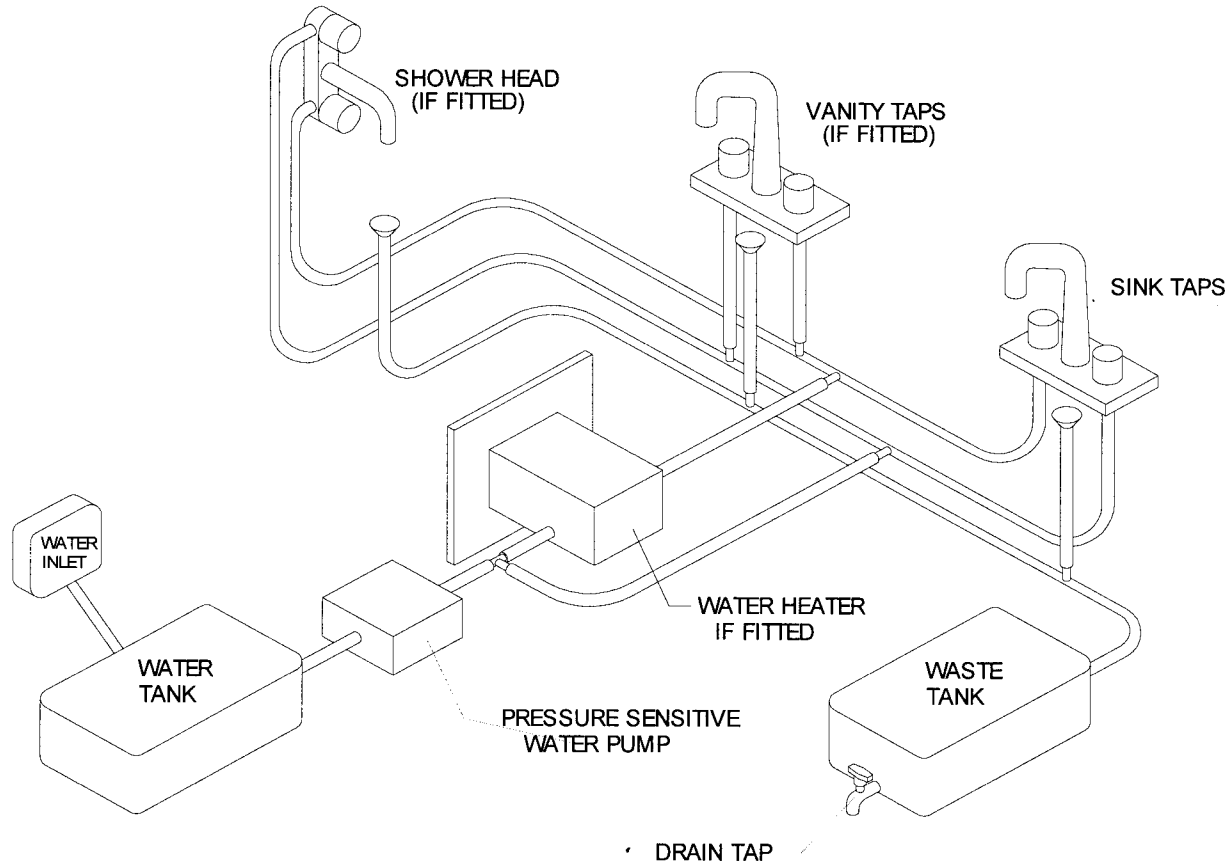
- 2.1 Both tanks are fitted with breathers which allow air displacement when filling. When filling the fresh water tank, water may escape through these breathers; this should give no cause for concern.

3 FROST PRECAUTION

- 3.1 If the vehicle is not being used during freezing conditions the water must be drained. Whilst the vehicle is being used in such conditions, and the water heater is at risk of freezing, it should be drained and the isolation tool fitted.

WATER SYSTEM

SCHEMATIC DIAGRAM FOR IDENTIFICATION PURPOSES ONLY



6.2

DRG No SAD11604

SCHEMATIC WATER SYSTEM LAYOUT

© AUTO-SLEEPERS LIMITED
JAN 1999

GAS SYSTEM

1 SAFETY ADVICE

- 1.1 Liquefied Petroleum Gas (LPG) has a stenching agent added to make it smell as an aid leak detection.
- 1.2 If at any time a gas leak is suspected turn off the cylinder at the valve and do not use the gas system until any leak has been eliminated.
- 1.3 If the cylinder is leaking it should be moved to an open area away from any drains or sources of ignition and the site warden or gas supplier informed.
- 1.4 LPG is heavier than air and any leaking gas will collect at low level in areas such as the bases of cupboards, bed boxes or hollows in the ground.
- 1.5 Gas cylinders should be turned off when the vehicle is in motion.
- 1.6 All gas appliances should be extinguished before refueling the vehicle.
- 1.7 Never allow any unqualified person to work on the gas system.

2 INTRODUCTION

- 2.1 The LPG system fitted has been designed to comply with the latest regulations governing the installation and use of LPG in motorhomes.

3 GAS

- 3.1 Two types of LPG are available Butane and Propane. Butane is usually supplied in blue cylinders and propane in red or orange. The system is designed to operate on either and both will give satisfactory performance during the summer. Propane is recommended for use at all other times because of its superior low temperature performance.

4 CYLINDERS

- 4.1 Cylinders should always be:
 - 4.1.1 Stored in the LPG compartment.
 - 4.1.2 Stored in an upright position.
 - 4.1.3 Secured to prevent movement during transit.
 - 4.1.4 Fitted with a safety cap when not connected to the system (this applies to both empty and full ones)
- 4.2 Do not lag cylinders during cold weather it will make the systems performance worse, not better.

5 REGULATORS

- 5.1 Should be of a type suitable for the cylinder type being used and should provide an outlet pressure of 28 mbar for butane and 37 mbar for propane.

6 PIPEWORK

- 6.1 Two types of pipe are used on the system.

6.2 The first is the flexible tubing connecting the regulator to the low pressure nozzle and this must comply with the requirements of BS 3212/1.

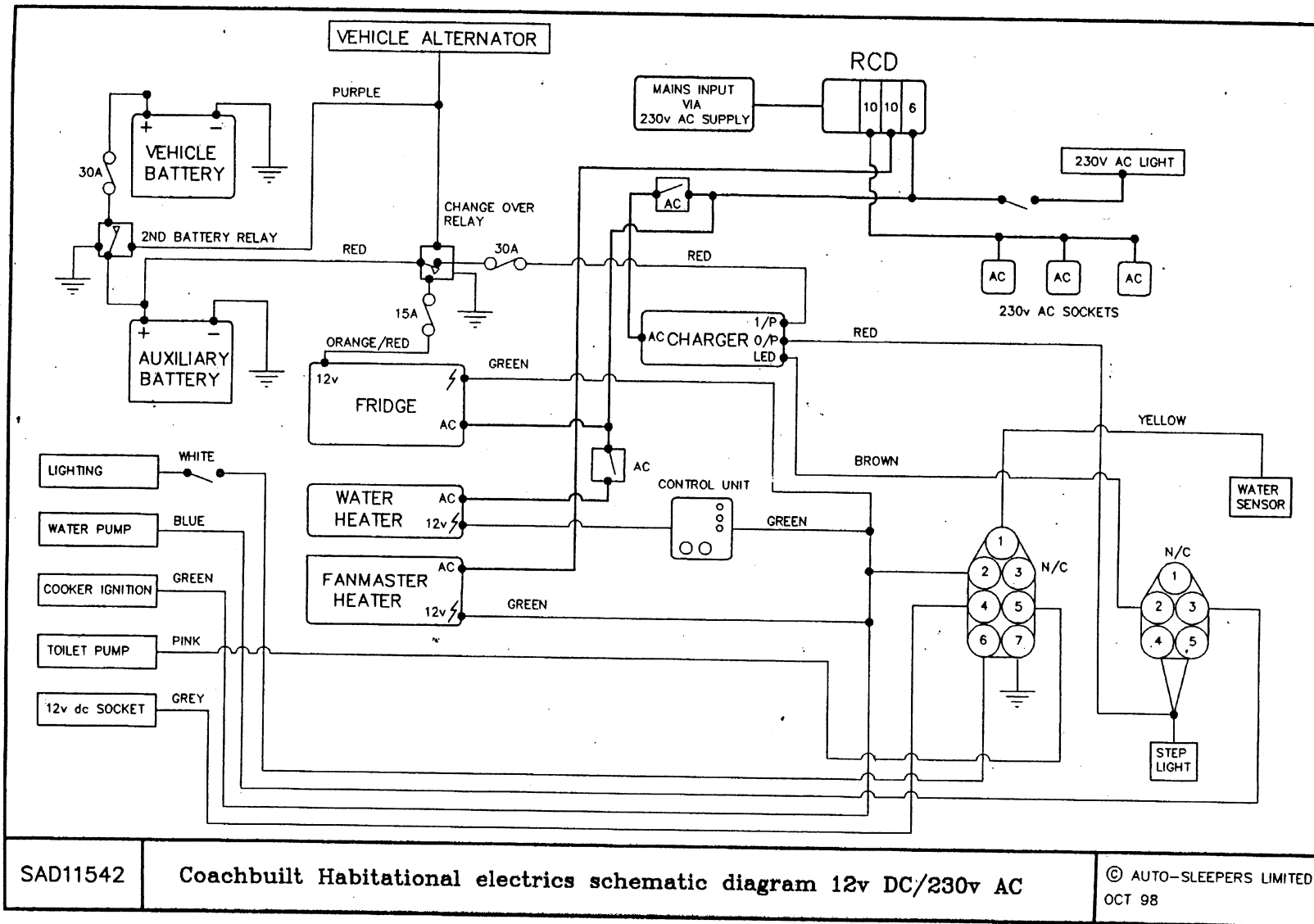
6.3 The second is the copper pipework connecting the appliances. All appliances are fitted with individual isolating valves.

7 APPLIANCES

7.1 Appliances should be used in line with the manufacturers instructions and serviced by qualified persons.

8 VENTILATION

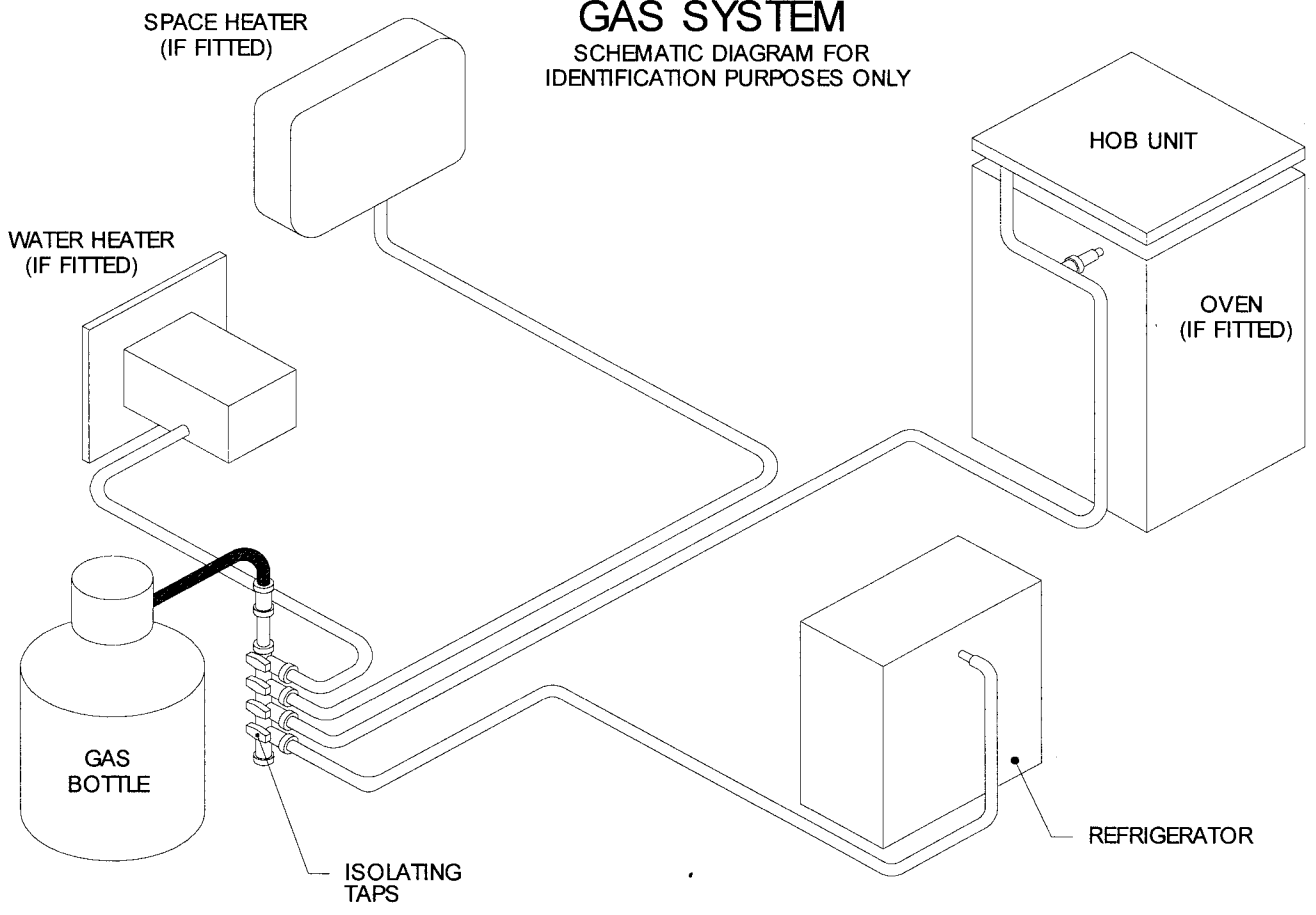
8.1 There are various ventilators fitted to the vehicle and these all form part of the gas system design, they should not be blocked or obstructed in any way. Their function is to provide air for the occupants and appliances and to provide an escape route for gas in the event of a leak.



7.3

GAS SYSTEM

SCHEMATIC DIAGRAM FOR IDENTIFICATION PURPOSES ONLY



DRG No SAD11605

SCHEMATIC GAS SYSTEM LAYOUT

© AUTO-SLEEPERS LIMITED
JAN 1999

7.3

SAFETY PRECAUTIONS

1 GENERAL

- 1.1 Before using your Auto-Sleeper, you should be fully conversant with the following safety precautions; if you are in any doubt as to the meaning of any of them you should contact your supplying Auto-Sleeper dealer. Please read the following carefully.
- 1.2 In the interests of safety, replacement parts for appliances should conform to the appliance manufacturer's specification and should be fitted by them or their authorised agent.
- 1.3 **NEVER** use portable heating equipment, other than electric heaters, as it is a fire and asphyxiation hazard.
- 1.4 **NEVER** allow modification of electrical or LPG systems or appliances except by qualified technicians.
- 1.5 The water heater fitted to this vehicle is of the "room sealed" type, any replacement should be the same i.e., "room sealed".
- 1.6 Turn off all gas equipment and cylinders/tanks and any other heating appliances before travelling.
- 1.7 Ventilation openings are located below all the gas appliances, and in the base of the gas locker. In winter conditions make sure the vents are clear of snow and mud. These openings should be regularly checked and any mesh covering them cleaned with a stiff brush to prevent any risk of them becoming blocked. The openings are provided for your safety - please do not obstruct them. For further details see the Drawing.

2 ELECTRICAL SYSTEMS

2.1 Batteries

- 2.1.1 Battery terminals and connectors should be firmly attached. Battery surfaces should be free of moisture and dirt.
- 2.1.2 Where removable cell taps are fitted these must be screwed firmly home.
- 2.1.3 When removing a battery always remove the negative cable first. On re-connection the negative cable should be connected last. Switch off all lamps and appliances before disconnecting the battery. Do not smoke while working on or near to the battery.

2.2 Fuses

- 2.2.1 Always replace blown fuses with one of a correct rating.

2.3 Overload

- 2.3.1 Never overload any electrical circuit, especially the 12 volt socket outlet. The rating of appliances should be checked before connection.

2.4 Shower Compartment Light

- 2.4.1 Ensure that water does not ingress into the light unit.

2.5 Charger Unit

2.5.1 Keep the charger unit well ventilated and never allow material or bags to be in contact with the unit casing which gets hot when the unit is operating.

2.6 230 Volt Mains Operation

2.6.1 Before connecting to the supply, ensure that the contacts in both the plug and the socket are clean and dry and that the hook-up plug is firmly located and locked into the socket. The RCD must be easily accessible at all times.

2.7 Wiring Diagram

2.7.1 Wiring diagrams are to be found in the rear of this instruction booklet. If in doubt refer to this diagram and if necessary contact your local Auto-sleeper dealer who will answer any of your queries.

2.8 (Base Vehicles Fitted With 12 Volt Electric Clocks and Alarm Systems)

2.8.1 In the event of the vehicle remaining unused for a long period, we recommend that the fuse through which the vehicle's electric clock is wired is removed.

2.8.2 Similarly, consideration should be given to wiring the alarm system through the leisure battery so that, in the event of the battery becoming fully discharged, the vehicle will still start, allowing the leisure battery to be charged.

3 GAS APPLIANCES AND FITTINGS

3.1 Operating Instructions

2.1.1 Please read the instructions and labels provided with your appliances carefully and keep them handy for future reference. Make sure you have means of lighting the gas before turning on the supply.

3.1.2 If there is anything that you are not quite sure about - ask your Auto-Sleeper dealer for advice.

3.2 Personnel

3.2.1 Ensure that you know how to operate the equipment - and never allow anyone other than a competent person to connect or disconnect appliances, regulators or cylinders.

3.3 Cylinders

2.3.1 Cylinders must be sited away from any heat source, in a well ventilated place and must stand in a stable upright position.

3.4 Regulators

3.4.1 It is important to ensure that the correct type of gas regulator is fitted. Your Auto-Sleeper dealer will offer any advice you may need.

3.4.2 When using Propane cylinders or Butane cylinders with screwed connectors always, before connecting a regulator to a cylinder, ensure that the mating parts are clean, free from dirt and undamaged, and, in the case of Butane regulators, check that the washer is in place on the spigot of the connector and is in good condition. The connecting nut of the regulator must be spanner tightened to the cylinder valve. (The thread is left-handed.)

3.4.3 For Butane cylinders with 'switch-on' or 'clip-on' connectors consult your dealer on the type of adapter or regulator you require and fit in accordance with the manufacturer's instructions.

3.5 Screwed Cylinder Connections

3.5.1 All screwed connections should be firmly tightened with a spanner. All nuts with notches on the hexagon have a left-handed thread.

3.6 Awnings

3.6.1 Awnings should be fitted so that any flue discharging into them does not constitute a hazard.

3.7 Leaks

3.7.1 After connecting appliances/regulators, etc., check that there is no leak of gas before using.

3.7.2 Propane and Butane have a distinctive smell and a leak can usually be detected immediately by this fact. If a leak is suspected, extinguish all naked lights and close the cylinder valve.

3.8 Maintenance

3.8.1 Like any other pieces of equipment, your appliances will need regular servicing and cleaning as directed in the manufacturer's handbooks.

3.9 Fire

3.9.1 In case of fire, try to turn off the cylinder valve, remove the cylinder from the fire and extinguish the fire with a dry compound extinguisher. If this is too dangerous move all people from the area and call the fire brigade.

4 LPG SAFETY IN CARAVANS (EXTRACT FROM BS 5482 PART 2 1977) - The safe use of LPG in Caravans and non-permanent dwellings.

4.1 General

4.1.1 Propane and Butane are stored in cylinders as liquids under pressure. When the pressure is released, i.e., when the cylinder valve is opened, the liquid boils and gas is evolved. Both gases are heavier than air and any leaking gas will tend to collect at a low level. The gas has a strong and unpleasant smell which enables leaks to be easily detected. The gas is highly flammable and a small quantity of gas in air can form an explosive mixture. Cylinders shall be used and stored always in a vertical position with the valve uppermost.

4.2 Safe Usage

4.2.1 To avoid accidents the following fundamental advice should be carefully read before using gas appliances or changing gas cylinders.

i. Always read and follow the user and maintenance instructions provided by the manufacturers of gas equipment. Should any soot accumulate on pans, fire radiants, etc., or any smell be produced, consult a competent installer on the correct maintenance and adjustment of burners.

ii. **Never check for gas leaks with a naked flame.**

- iii. Always turn off the gas cylinder valve(s) or inlet to the motorhome or other dwelling when gas appliances are not in use.
- iv. Never use gas appliances without adequate ventilation. All gas appliances require a plentiful supply of fresh air for correct operation. Fixed ventilators or air inlets should not be stopped up. Where practicable, turn off all appliances before retiring to bed, preferably at the cylinder or inlet to the motorhome or other dwelling.
- v. Unless the appliance incorporates automatic ignition, when lighting an appliance always make sure you apply a lighted match or taper to the burner **before** turning on the gas.
- vi. If any appliance is disconnected for repair, maintenance, etc., ensure that the gas line is capped off.
- vii. If taps are stiff to operate or appear to be a source of leakage, call in a competent installer to rectify. LPG taps require a special grease.
- viii. Always seek advice when in doubt.

4.3 Routine Checking

4.3.1 It is essential to check the installation as follows:

- i. Flexible hoses and tubing should be regularly inspected and when signs of cracking or other deterioration appears. After replacement ensure that the ends are well secured and leak tight.
- ii. Check the complete gas installation, for soundness at least once per annum, and as necessary according to usage.
- iii. All flue installations should be inspected, at least once a year, throughout their length for integrity of attachment, both to appliance and cowl, and for perforation due to damage or corrosion. Flues should be replaced if any sign of damage or perforation is found. It should be ensured that the replacement is of an approved type conforming to the recommendations of BS 5440: Part 1. Flexible flue pipes should be manufactured of material not less than 0.10 mm thick and should be of one of the following grades of stainless steel as specified in BS 1449: Part 2.

316S11	316S33	320S31
316S13	317S12	320S33
316S31	317S16	

4.4 Changing Gas Cylinders

4.4.1 The following procedure should be adopted.

- i. Extinguish any fire, flame or source of ignition (including cigarettes, pipes and pilot lights) before changing gas cylinders.
- iii. Wherever possible change gas cylinders in the open air.

- iii. Ensure that the gas cylinder valve(s) is/are closed before disconnecting any empty cylinder or before removing the plastic cap or plug on the outlet connection of the replacement cylinder. (Note left-handed thread).
- iv. Make firm gas-tight joints. Any leaking vapour will smell. If a leak is suspected after changing gas cylinders and opening valve, test by brushing with soapy water around the joints. Bubbles will form if vapour is leaking. **Never use a naked flame.**
- v. Ensure that the replacement gas cylinder is the correct one for the installation.
- vi. Gas cylinder valves are of various designs depending on the type of cylinder and the use for which it is intended and it is essential that the correct pressure regulator with the correct pressure setting and capacity for the installation is used in accordance with the manufacturer's instructions.
- vii. In the case of a connection on a pressure regulator or gas appliance which relies upon a sealing washer(s) to maintain a gas-tight joint, it is essential to check that the washer is present, is sound and is correctly positioned prior to making the connection. Where the connection relies on a metal to metal seating or bull nose connection to obtain a gas-tight joint, it is essential that the mating surfaces are clean and undamaged. In no case should a damaged valve or connection be used.
- viii. Where connections are designed to be tightened with a spanner it is essential that a spanner of the correct size is used and that the union is firmly tightened: hand tightness is not sufficient. When self-sealing valves are incorporated in a gas cylinder, connections should be made in accordance with the manufacturers instructions and tools should not be used.

4.5 Leaks

4.5.1 Action to be taken in the event of a suspected leak.

- i. If a gas leak is suspected, close the gas cylinder valve or other valve at the inlet to the premises. Do not operate electrical switches. Open all doors and windows to disperse any gas escape.
- ii. The strong unpleasant smell of LPG will enable the general area of the leak to be detected. Check that gas is not escaping from an unlit appliance. In the case of a leak, close cylinder valve(s) and call a competent installer to rectify the fault.
- iii. If a leaking gas cylinder cannot be stopped, remove the cylinder to a safe place in the open air in an upright position away from drains and any source of ignition.

4.6 Fire

4.6.1 Precautions and actions to be taken:

- i. A fire extinguisher of adequate size and preferably of the dry powder type should be available.
- ii. The initial use of dry powder extinguishers is recommended only if it is likely that the leakage can be stopped by closing the cylinder valve or that the cylinder can be speedily removed.
- iii. Cool with water all gas cylinders which cannot be removed.
- iv. As soon as possible remove cylinders adjacent to the fire to a safe place in order to gain access to the seat of the fire.

5 VENTILATION

5.1 General

5.1.1 Fixed ventilation is a statutory requirements in all motorhomes. These ventilation apertures are positioned at both high and low level and for your safety should not be obstructed, even partially.

5.2 Low Level Ventilation

5.2.1 Under each appliance is a fixed ventilation aperture, of a size commensurate with the rating of the appliance itself. It is either gauze covered or incorporates a fixed plastic vent. Fixed lower ventilation is shown on the drawing on page 8.9. This should be checked regularly to see that it has not become blocked.

5.3 High Level Ventilation

5.3.1 High level ventilation is provided by the roof vents. The ventilation provided has been carefully calculated and relates to the rating of the appliances in the vehicle. Roof vents must not be covered with anything that may limit or affect the ventilation they provide

5.4 Maintenance

5.4.1 Under no circumstances should any fixed ventilation aperture be blocked, covered, either partially or fully, or be modified in any manner whatsoever. They should be checked at least annually for damage or blockage. Screens and/or grilles should be kept clean and free from dust. See Page 8.9 for diagram of upper/lower ventilation.

6 SAFETY MATTERS - GENERAL

6.1 Below are some useful **DO'S** and **DONT'S** which should be borne in mind at all times when using your Auto-Sleeper.

6.1.1 DO

- i. Close all roof ventilators when the vehicle is in motion.
- ii. Drain the waste tank before driving away from a site, or as soon as practicable to avoid carrying unnecessary weight, and to prevent backflow in the shower tray.
- iii. Switch off all gas appliances and turn off the gas at the cylinder's valve when the vehicle is in motion.

6.1.2 DO NOT

- i. Occupy the roof bed whilst the vehicle is in motion.
- ii. Store heavy items in any overhead locker or in any storage area from which they could come free and cause injury to the occupants of the vehicle.
- iii. Use the rear corner steadies (if fitted) to jack up the vehicle when carrying out maintenance, when changing a vehicle tyre, etc.
- iv. Exceed the weight limitations of the area encompassed by the roof rack (if fitted).
- v. Store any items outside the area encompassing the roof rack.
- vi. Use the cooker to heat the interior of the vehicle.
- vii. Store aerosols in any compartments adjacent to the heater or any source of heat.
- viii. Operate any gas appliance while the vehicle is being refuelled or in a confined space such as a garage.
- vix. Use the heater if the flue has been damaged.
- x. Operate the water pump when the fresh water tank is empty; this may seize the water pump bearings due to overheating.
- xi. Block the slots that surround the roof ventilator since they contribute to the fixed ventilation of the vehicle.
- xii. Use an adjustable regulator on the gas cylinder.

7 WARNINGS

7.1 Throughout your Auto-Sleeper will be found a number of Warning Notices.

7.2 You must adhere to the advice given in these Notices - your safety depends upon them. Replacements are available from your Auto-Sleeper dealer.

8 AIR BAGS

- 8.1** Do not fit rear facing children's seats to front facing seats protected by air bags. It is recommended that small children do not sit in the front passenger seat whilst the vehicle is in motion. Follow the advice given in your base vehicle instruction book.

9 FIRE - SAFETY ADVICE TO USERS

9.1 Ventilation

- 9.1.1** Do not obstruct the permanent ventilation openings which are fitted; your safety depends on them.

9.2 In Case of Fire

- 9.2.1** Get everyone out.

- 9.2.2** Turn off outside gas valve and/or liquid fuel valve (if fitted).

- 9.2.3** Disconnect the main electricity supply.

- 9.2.4** Raise the alarm and call the Fire Brigade.

- 9.2.5** Attack the fire if safe to do so.

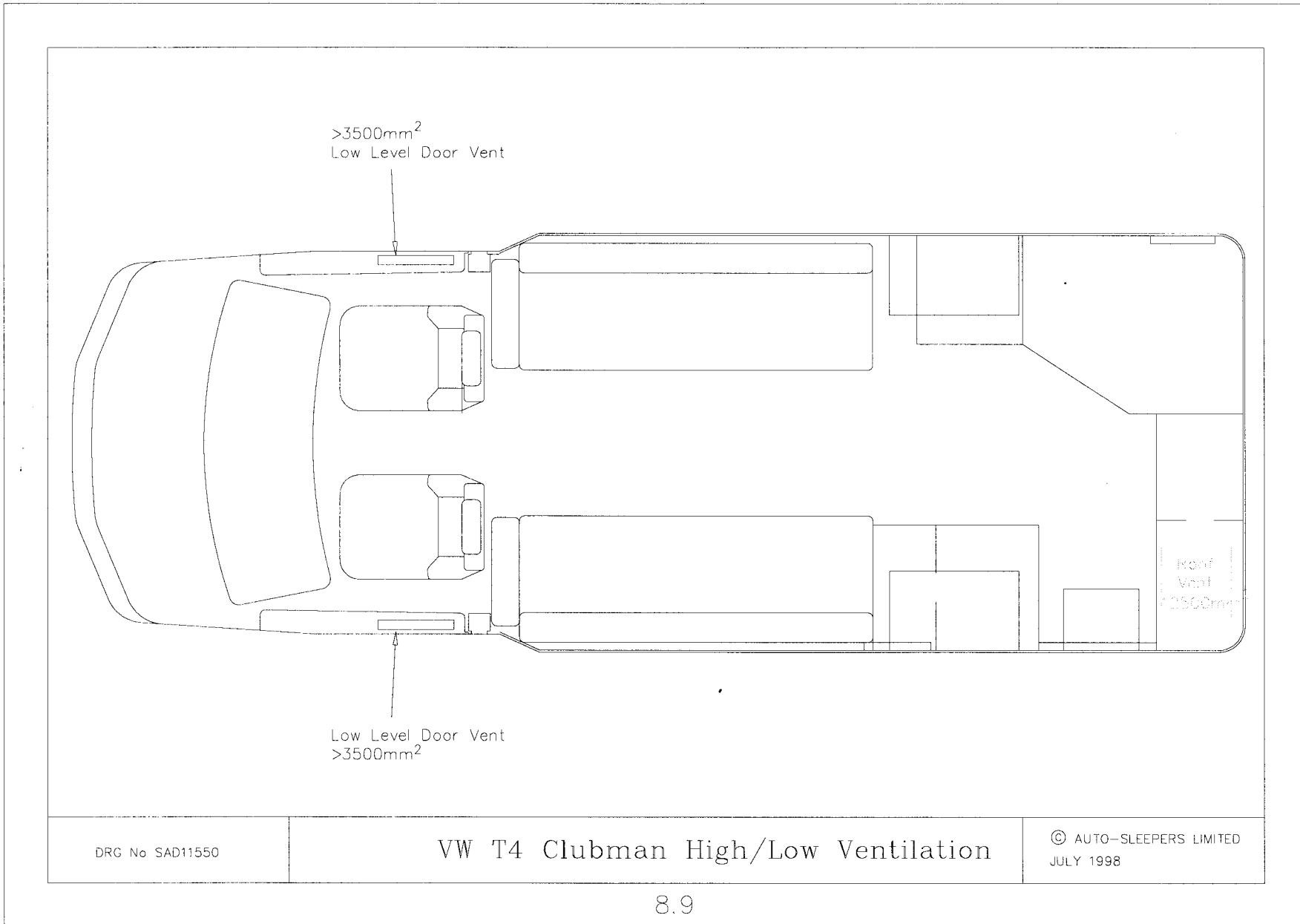
9.3 Fire Precautions

- 9.3.1** Children. Do not leave children alone.

- 9.3.2** Means of Escape. Make sure you know the location and operation of the emergency exits. Keep all escape routes clear.

- 9.3.3** Combustible Materials. Keep them clear of all heating and cooking appliances.

- 9.3.4** Fire Fighting. Provide one dry powder fire extinguisher of an approved type or complying with ISO 7165 of at least 1 kg capacity by the main exit door, and a fire blanket next to the cooker. Familiarise yourself with the instructions on your fire extinguisher and the local fire precaution arrangements.



MAINTENANCE AND SERVICING

1 GENERAL

1.1 In order to keep your Auto-Sleeper in first class condition, periodic maintenance will be required to both the bodywork, windows, upholstery and other parts of the conversion. This maintenance should be carried out as detailed below.

1.2 Servicing

1.2.1 Servicing of the conversion is the responsibility is your local franchised Auto-Sleeper dealer to whom all queries should be referred. Servicing of the base vehicle should be carried out by your local base vehicle commercial dealer.

2 GLASSFIBRE BODYWORK AND ACRYLIC WINDOWS

2.1 General Cleaning

2.1.1 At regular intervals, you should wash the fibreglass bodywork with a recognised cleaner for use on fibreglass gel coats. Should marks remain, use a cleaner with chemical and abrasion agents formulated for use on gel coats such as Caravan Pride Hull Cleaner. This is designed for cleaning large areas of fibreglass in a fast and economical way. It removes grime, oil stains, and old polish, restoring the surface and colour to its original state.

2.2 Discolouration

2.2.1 Fading or discolouration of the gel coat is a natural ageing process caused by ultraviolet light. To overcome this, use a mild abrasive which removes a thin layer of the discoloured surface. This will restore the bodywork to its original colour and surface lustre. Since discolouration develops gradually, it should not be necessary to carry out this procedure more than every three years. Frequent use of abrasive materials can reduce the thickness of the gel coat, to a potentially harmful extent. Depending on the severity of the discolouration, use either Caravan Pride Cleaner, or in extreme cases Caravan Pride Rubbing Compound.

2.3 Removing Scratches from Bodywork

2.3.1 Scratches can be removed from both gel coat and painted surfaces. The method depends upon the depth of the scratch, as care has to be taken to avoid penetrating the paint or gel coat. Very fine, hairline scratches can be removed by rubbing across the line of the scratch with rubbing compound. Slightly deeper scratches should be lightly wet sanded first using very fine (1200 grit or finer) abrasive paper. Rubbing compound will then remove the flattening marks created by the abrasive paper. For deep gouge type scratches, where the paint or gel coat may have been penetrated, you should first seek the advice of your supplying Auto-Sleeper dealer.

2.4 Removing Scratches from Acrylic Windows

2.4.1 All windows, except the chassis cab and luton, are manufactured in acrylic. Over time these become scratched and their clarity impaired. Caravan Pride Acrylic Window Polish removes unwanted scratches and blemishes and leaving a clear, haze free finish. Minor scratches can be polished out directly. Some deeper scratches can be removed by wet sanding with a fine grade of abrasive paper (1500 grit for example) first, and then polishing with Boat Pride Acrylic Window

Polish. Some care should be exercised since it may not be possible to remove severe damage without seriously weakening the acrylic.

2.5 Recommended Materials

2.5.1 We would recommend Farecla Caravan Pride Materials for both fibreglass maintenance and for the removal of scratches from acrylic windows. These materials are readily available from Boat Chandlers or similar outlets.

Cleaning Fibreglass Bodies & Roofs:	Farecla Caravan Pride Cleaner
Discolouration:	Farecla Caravan Pride Rubbing Compound
Removing Scratches from Bodywork:	Farecla Caravan Pride Rubbing Compound or Farecla Caravan Pride Acrylic Window Polish
Removing Scratches from Acrylic Windows:	Farecla Caravan Pride Acrylic Window Polish

In the event of Farecla products not being readily available, we suggest that you contact the manufacturers direct at the address below:

Farecla Products Limited

Broadmeads

Ware

Hertfordshire

SG12 9HF

Tel: 01920 465041

Note: All Auto-Sleeper dealers have addresses and telephone numbers of Farecla retail outlets, by region. If in doubt ask your dealer for the address and telephone number of your local Farecla outlet.

3 UPHOLSTERY MAINTENANCE

3.1 Cleaning

3.1.1 Upholstery should be brushed or vacuumed regularly. Fabrics should be wiped every six to eight weeks with a lint free cloth and fabric cleaning fluid. Velour materials may be dry cleaned.

3.2 Fabric Care

3.2.1 Fabric snags caused by sharp objects such as toys, nails, etc., should be trimmed off immediately. Never attempt to pull them off since this could cause the snag to run.

3.2.2 Whenever possible, avoid exposing the upholstery to direct sunlight which might eventually cause the colour to fade.

3.2.3 Fabrics with a velour type pile finish will develop crush marks in use - this is unavoidable and does not affect the quality of the product in any way.

3.3 Stain Removal

3.3.1 A proprietary dry cleaning fluid will remove most household stains. However, stubborn stains, such as coffee, wine or ice-cream may need pre-treatment with a mild soap and distilled water.

3.3.2 Small marks in velour type fabrics can usually be removed by stroking along the pile using a small brush and warm water.

3.3.3 We strongly recommend that before commencing any treatment an inconspicuous piece of material is tested for colourfastness and shrinkage. If in doubt, please contact a professional dry cleaning company. Do not apply cleaning solvents to velour piping, otherwise the flock will be removed.

4 WORK SURFACES

4.1 Laminated work surfaces are fitted to the tops of all furniture units. Whilst these are hard wearing, hot pans should not be placed directly on these surfaces, since damage may result.

5 STAINLESS STEEL COMPONENTS

5.1 External

5.1.1 In the event of discolouration of the stainless steel roof rack and ladder, this should be removed with T-Cut or any other mild abrasive and the surface protected with WD40 or a similar product.

5.2 Internal

5.2.1 Do not clean stainless steel fittings i.e. splash plate and sinks with bleach since this reacts with the stainless steel and may lead to corrosion.

6 FURNITURE

6.1 Furniture should be cleaned with a proprietary furniture polish periodically. Any water marks that may occur on the hardwood edging of the furniture units should be removed by use of fine grade wire wool and furniture wax.

6.2 Heavy stains may need to be sanded out and the edging re-polished with a proprietary varnish (Ronseal etc.). The high gloss finish is achieved by using wire wool and wax.

7 GAS INSTALLATION

7.1 All gas vents and flue pipes should be periodically checked for damage and should be kept free from dirt.

7.1.1 Blocking of vents or flues is extremely hazardous and should be avoided at all times.

7.2 Gas Appliance Igniters

7.2.1 It is advisable, periodically, to check visually the igniters on hobs, grills and ovens are sparking correctly.

7.3 Annual Inspection

7.3.1 The gas installations should be inspected annually by qualified personnel. If in doubt contact your supplying Auto-Sleeper dealer. Modifications to the gas systems should not take place unless carried out by qualified technicians.

8 SEAT RESTRAINTS

8.1 Seat restraint mountings should be checked for tightness annually and re-tightened if necessary to a torque setting of 40 Newton Metres.

8.2 In the event of any impact of 25 mph or over in which seat belts have been worn, they must be replaced before the vehicle is used again.

9 WATER SYSTEM

9.1 Fresh Water Tank

9.1.1 At regular intervals, and at least every three months, the fresh water system should be flushed through with fresh water. Furthermore it is advisable that prior to using your Auto-Sleeper, the fresh water system is thoroughly flushed with fresh water.

9.2 Waste Water Tank

9.2.1 Since the waste water tank can hold foreign matter, it should be regularly flushed with fresh water. To prevent odours working back through the shower and sink outlets, flush the waste tank through with a small amount mild disinfectant.

9.2.2 Depending on the use of the waste tank, it is possible that this will collect solid waste matter which in some instances may build up and block the waste tank outlet tap. In this case it will be necessary to drop the tank for cleaning. Access is through a large diameter fitting in the tank top. Once removed this will allow the tank to be flushed out in an inverted position and all solids removed.

WINTERISATION

1. General

1.1.1 This section contains information on the winterisation of your Auto-Sleeper, particularly when you may wish to lay up your vehicle for the winter months.

1.2 Water System

1.2.1 The water system should be fully emptied and the drain taps on both the fresh water tank and waste water tank left in the open position. Likewise, all internal taps should be left open and the water pump run until the last traces of water have come out of the taps. Purely as a precaution, against very severe freezing conditions, the water filter that is attached to the water pump on the outlet side should be removed and cleared of all water. In doing so it will give you the opportunity of cleaning it, if necessary, ready for the coming season. Remove all sink plugs to allow the water system to breathe.

1.2.2 Flush fully the waste water tank to remove any excess debris and waste material. Flush through again with disinfectant as part of the final drain. Leave drain tap open.

1.3 Upholstery

1.3.1 We advise that any detachable upholstery is removed and taken indoors during prolonged winter storage, particularly detachable upper bed mattresses and scatter cushions.

1.4 Curtains/Blinds

1.4.1 To prevent uneven bleaching, and possible excess sunlight onto the furniture and fabrics, we recommend that either the curtains or blinds are left drawn.

1.5 Refrigerator

1.5.1 Leave the refrigerator door open, on its intermediate lock position; this will allow the refrigerator to breathe and prevent any unpleasant odors in the storage department.

1.6 Ventilation

1.6.1 There is fixed upper and lower ventilation in your Auto-Sleeper which is built-in in the interests of safety. There is therefore no need to leave any windows or roof ventilators ajar - indeed the roof ventilators have sufficient fixed ventilation to allow the interior or the vehicle to breathe satisfactorily.

1.7 Exterior

1.7.1 Fit, where appropriate, the Electrolux winter covers to the fridge ventilators. Give your Auto-Sleeper a good wash and polish before laying up, and apply a small film of protective oil to the stainless steel roof rack, ladder and any other external polished metal components. We would advise also that a small squirt of WD40, or similar aerosol lubricating oil, is applied to the brake discs to stop any surface corrosion appearing over the winter months.

1.8.1 Electrical

1.8.1 Remove the battery, if appropriate, from the electric clock. If your Auto-Sleeper is fitted with a clock that operates from the main vehicle battery, we would advise that the appropriate fuse is removed. Remember, too, that security alarms and perimeter alarms, over the course of the winter, could lead to the vehicle battery becoming discharged and we would suggest that perhaps monthly, this battery is trickle charged to prevent any long term damage.

1.8.2 Check electrolyte of both vehicle and conversion battery before storage. Disconnect leads from conversion battery if no alarm or security device is fitted.

1.9 Windows

1.9.1 Open all windows fully. Check all window seals are in tact and shut firmly. Ensure locks and over centre catches are applied as appropriate.

1.10 Automotive

1.10.1 Follow the advice laid down by the base vehicle manufacturer. From experience we advise that the handbrake is left released, since in prolonged storage this can, on rare occasions, seize in the 'on' position.

1.10.2 Tyres deteriorate rapidly in ultra-violet light. You should consider therefore protecting your tyres with a light proof material that will lead to the prevention of cracking of side walls and premature ageing.

TROUBLE SHOOTING

- 1 Shown below are a series of fault finding charts to which you should refer in the event of problems you may have regarding 230/12v, LPG and water. This should be used as a guide only, and in the case of an electrical fault, where a fuse has blown or an MCB tripped out, the fault must be located before replacing the fuse. If a fault is suspected with the LPG system, consult a CORGI registered technician.
- 1.1 If in doubt consult a qualified technician or your local Auto-Sleeper dealer.

12 VOLT

Symptom	Cause	Remedy
Habitation 12v does not operate.	Main 30A fuse blown.	Check/Replace.
	Battery Discharged.	Recharge
	Switch on control panel in off position.	Switch to on.
	Vehicle ignition 'on'.	Switch 'off' ignition.
Habitation battery not charging.	30A fuse blown.	Check/Replace.
	Relay fault.	Refer to dealer.
	Contacts dirty/loose on battery terminals.	Clean and check for tightness.
	Poor earthing.	Check earthing to chassis point.
Battery does not hold its charge.	Failed battery.	Check cells with hydrometer change electrolyte if necessary.
	Current being drawn.	Check all appliances are off when not in use.
Battery discharges over a short time with appliances operating.	Poor battery cell condition.	Check cells with hydrometer.
	Failed battery.	Change battery.
	Battery not fully charged.	Fully recharge battery.
No power to one or more 12v appliances.	Fuse on control panel blown.	Check fuses.
Lights dull/only one tube illuminating.	Low battery charge.	Check battery.
	Faulty light unit/tube.	Replace/Check.
Water pump not operating.	Switch on panel 'off'.	Switch it 'on'.
	Pressure switch on pump not operating.	Refer to dealer.
	Fuse No 2 (10A) on panel blown.	Check fuse.
Water tank gauge showing false readings.	Calibration out.	Re-calibrate.
No power on 12v socket outlet.	Fuse 4 on panel blown.	Check fuse.
	Appliance has caused fuse 4 to blow.	Check appliance rating. Max 10A.
	12v plug incorrectly connected/wired.	Check plug.
	Fuse 5 on control panel blown.	Check fuse.
Space Heater not operating/cuts out.	Low battery charge.	Check battery.

Symptom	Cause	Remedy
	Unit fault.	Refer to dealer.
	Fuse 3 on control panel blown.	Check fuse.
Water Heater not operating/cuts out.	Lower battery charge.	Recharge battery.
	Unit fault.	Refer to dealer.
	Fuse 3 on control panel blown.	Check fuse.
Cooker ignition not operating.	Spark unit fault.	Refer to dealer.
	Fault on cooker unit.	Refer to dealer.
	Fuse 3 on control panel blown.	Check fuse.
Fridge gas ignition not operating.	Ignition control switch fault.	Refer to dealer.
	Fault on fridge unit.	Refer to dealer.
Fridge ignition switch flashes but gas does not ignite.	Faulty fridge ignition switch.	Refer to dealer.
Ignition can be heard to be sparking but no flashing on fridge switch.	15A fuse blown.	Check fuse.
Fridge does not operate on 12v when engine is running.	Fault on fridge relay.	Refer to dealer.
	Fault on fridge unit.	Refer to dealer.
	Fuse 6 on control panel blown.	Check fuse.
Toilet pump/valve not operating.	Fault on toilet unit.	Refer to dealer. Refer to instructions for toilet unit.

Note: All ignition systems on appliances are fused via Fuse No 3 (5A) on the control panel.

230 VOLT

Symptom	Cause	Remedy
230v system inoperative.	No site power.	Check site supply.
	RCD/MCB switches tripped out.	Reset circuit breakers.
RCD/MCB keeps tripping out.	Fault on 230v supply.	Check supply including polarity.
	Faulty appliance.	Turn off all appliances, reset circuit breakers, turn on appliances until fault occurs. Isolate faulty appliance.
	Overload on current consumption by appliance.	10A maximum available do not use appliance.
Water Heater does not operate on 230v.	No power.	Switch on MCB isolator switch/ check fuse.

Symptom	Cause	Remedy
Battery Charger does not operate.	Charger switched off.	Switch on.
Refrigerator does not operate on 230v.	Switch on refrigerator thermostat dial not 'on'.	Check position of thermostat dial.
	Element fault.	Refer to dealer.
Mains lighting not working.	Bulb/tube fault.	Replace bulb/tube.
Blown air not working.	No power.	Switch on isolator switch/MCB.

LPG

Symptom	Cause	Remedy
Appliance will not light.	No gas.	Change the cylinder.
		Check cylinder is turned on.
	Check isolation valve is open.	
	Low battery (auto ignition).	Charge battery.
Appliance lights but goes out immediately the FSD override is released.	Flame supervision device (FSD) is not functioning correctly.	Refer to Dealer.
Odour.	Gas leak.	Turn off the gas at the cylinder and do not use the gas system until the problem has been rectified.
		In the event of a leaking cylinder, if possible, position the cylinder in an open area away from any sources of ignition. Contact the site warden and/or the local gas supplier.
Yellow flame.	Lack of primary air. Please note yellow tipping to the flame is normal.	Refer to Dealer.
Orange flame.	Particles of dust or dirt in the mixing tube being carried through the burner ports.	Reduce the amount of dust in the air.
	Burner ports partially blocked.	Refer to Dealer
Floating flame.	Lack of secondary air.	Check all vents are clear (air inlet to vehicle).
	Blocked retention ports	Check retention ports are clear.
	If in an oven.	Check the flue way is clear.

WATER

Symptom	Cause	Remedy
Continuous running of water pump.	1. No water.	1. Fill tank.
	2. Major leak.	2. Switch off immediately and check system
Intermittent operation of water pump.	Minor leak in water system.	Check Jubilee clips for tightness.

Symptom	Cause	Remedy
Intermittent operation of water pump 20 second cycle approx).	Water pump pressure release valve reasserting itself.	No action - part of pump design.
Water pump does not operate.	Circuit Breaker tripped/ Fuse blown in the Control Panel.	Check and refer to dealer if necessary.
Water gauge does not show correct readings.	Calibration control incorrectly set.	Re-calibrate.
Water gauge does not operate.	Probe fault.	Refer to dealer (check probe connections).
No hot water (gas system).	Gas module not lighting.	Refer to dealer.
No hot water (gas system).	Ignitor not working.	Check 12v switched on.
Slow drainage from sink/shower tray.	Blocked breathers in waste tank.	Drop tank and clear breathers.
Tip-up handbasin slow to drain.	Blocked drain hole.	Remove basin and clear.
Unsatisfactory operation of water pump.	Filter blocked.	Clean filter.

TECHNICAL DATA

- 1 Below is technical data relating to your Auto-Sleeper. This section is laid out as follows:

BASE VEHICLE DATA WEIGHTS, DIMENSIONS AND CAPACITIES

2 BASE VEHICLE DATA

- 2.1 For all matters relating to the base vehicle, and particularly tyre pressures, refer to the base vehicle instruction book or if in doubt consult your local base vehicle commercial dealer.

3 WEIGHTS, DIMENSIONS AND CAPACITIES

- 3.1 Before using your Auto-Sleeper you should be fully conversant with all matters relating to weights. The following definitions should be fully understood and then related to the tabulated base vehicle weight data.

3.2 Weights

- 3.2.1 Details of vehicle weights are found below, and are presented in the manner prescribed in the European Standard EN1646-2 for Payloads. All weights are in kilograms (kg).

- 3.2.2 **Note 1:** Please take care to ensure that you have allowed for the masses of all items you intend to carry in the motor caravan e.g. passengers, optional equipment, essential habitation equipment and personal effects such as clothing, food, pets, bicycles, sailboards, sports equipment, etc.

- 3.2.3 **Note 2:** Warning - Under no circumstances should the maximum technically permissible laden mass of this motor caravan, or its individual axles, be exceeded.

3.3 Definitions

3.3.1 Maximum Technically Permissible Laden Mass (MTPLM).

The Maximum Technically Permissible Laden Mass is a figure given by the manufacturer of the base vehicle. It is the combined maximum permitted weight of the vehicle and all of its contents, both inside and out. The MTPLM is unaffected by the Auto-Sleeper conversion.

3.3.2 Mass in Running Order (MRO).

The Mass in Running Order is defined as the mass of the standard converted vehicle with bodywork including the following:

- | | | | |
|------|----------------------------|---|-----------------------------|
| i. | - coolants (oil and water) | - | washer fluid |
| ii. | - 90% of automotive fuel | - | tools |
| iii. | - spare wheel | - | driver (@75 kg, 11st 12lb) |
| iv. | - crockery | - | fire extinguisher |

All other optional equipment whether on the base vehicle or part of the conversion is excluded from the mass in running order.

3.4 Mass of the User Payload

3.4.1 The Mass of the User Payload is the difference between the MPTLM and the MRO. It is the motor caravans carrying capacity for everything placed in or on the vehicle, including the passengers.

Please note that a driver (at 75kg, 11st 12lb) is included in the MRO. Everything listed in italics below must be subtracted from the payload.

3.4.2 Mass of the Conventional Load

The Conventional Load is the mass of the passengers carried and must be subtracted from the payload. The "EC standard person" weighs 75kg (11st 12lb). The user should adjust the figure according to the mass and number of passengers carried. Motorhome Manufacturers designate passenger seats as being suitable for travelling, and provide seat belts accordingly. Multiplying the weight of the passengers by the number of passengers gives the Conventional Load. Please note that a driver (at 75kg, 11st 12lb) is included in the MRO.

3.4.3 Essential Habitation Equipment

For the purpose of EN1646-2, the mass of the Essential Habitation Equipment includes the mass of the following:

- i. - the LPG cylinders, full.*
- ii. - 90% of the fresh water.*
- iii. - the water system, full.*
- iv. - the waste water tank, empty.*
- v. - the toilet system flushing tank (if fitted) empty.*
- vi. - the toilet system holding tank (if fitted) empty.*

All of these must be subtracted from the user payload.

Auto-Sleepers include the low voltage (230V) connection cable and the second battery in the mass in running order.

3.4.4 Options, Personal effects and Accessories

When options, personal effects and accessories are fitted or carried the mass must be subtracted from the user payload. All optional equipment whether on the base vehicle or part of the conversion is excluded from the mass in running order. Personal effects are any items of any description carried by the vehicle.

To determine accurately if a vehicle is exceeding one of its maximum technically permissible laden masses, the vehicle with all of its load (that is passengers, contents, luggage and external load) should be weighed on a weighbridge.

You may wish to allocate the user payload to suit your own use. For example, to increase the available payload, the water system may be emptied. If the vehicle is not being used for camping the gas bottles can be left at home to increase the mass available for other items.

3.5 Gross Train Mass (GTM)

3.5.1 If you are towing a trailer with your Auto-Sleeper, the Gross Train Mass is the maximum allowable weight of the towing vehicle, the trailer and the mass of every item carried. The GTM is given by the base vehicle manufacturer and is unaffected by the Auto-Sleeper conversion. Please check your driving licence to ensure you are allowed to drive a vehicle combination at this weight.

3.6 Maximum Braked Trailer Mass (MBTM)

3.6.1 This is the maximum allowable weight of the trailer together with its load, provided the trailer has a braking system which complies with the local Construction and Use Regulations. The MBTM is given by the base vehicle manufacturer and is unaffected by the Auto-Sleeper conversion.

3.7 MPTLM of the Axles.

3.7.1 The individual axles also have MTPLM's. The sum of the two axle MTPLM's usually exceeds the overall vehicle MTPLM, but this does not mean you can load each axle to its maximum, because doing so would exceed the overall MTPLM of the whole vehicle.

4 WEIGHT AND DIMENSION DATA

4.1 In tabulated form below is the weight data of your Auto-Sleeper.

4.2 Weight Data Table

		2.4D	2.5TDi Auto	2.5TDi
	Vehicle Designation	T4		
3.3.1	MTPLM	3300	3300	3300
3.3.2	Mass in Running Order	2430	2490	2460
3.4.1	Mass of the User Payload	870	810	840
3.4.2	Conventional Load (@ 75kg per person)	75	75	75
3.4.2	Designated Passenger Seats (plus driver)	1	1	1
3.4.3	Essential habitation equipment	129	129	129
3.4.4	Remainder for Personal Effects/Options/Accessories	666	606	636
3.4.4	Optional Omnivent	1.8	1.8	1.8
3.4.4	Awning	26	26	26
3.4.4	Armrests	1	1	1
3.5.1	Gross Train Mass	4500	4500	4500
3.6.1	Max braked trailer mass	1200	1200	1200
Axle Weights				
	Front in Running Order	1227	1287	1257
	Rear in Running Order	1203	1203	1203
3.7.1	MTPLM Front	1570	1570	1570
3.7.1	MTPLM Rear	1800	1800	1800

4.3 Dimensional Data

Base Vehicle Manufacturer	VW
Base Vehicle Model	T4
Wheelbase	2920
Length	5430
Width (Mirrors Extended)	2420
Width (Mirrors Folded)	2170
Height	2700
Internal Height (Maximum)	1918
Internal Height (Minimum)	1852
Single Bed (Offside)	1829 x 686
Single Bed (Nearside)	1829 x 640
Double Bed	1905 x 1295
Overcab Bed	1727 x 1092
Fresh Water Tank Capacity litres	75
Waste Water Tank Capacity litres	50

APPENDIX A

USEFUL DATA RECORD

- 1 We suggest that you record key detail in the spaces below should you accidentally mislay you keys or other vital documentation. You should consider removing this page when complete for security reasons.

- 2 Vehicle Type
- 2.1 Vehicle Model
- 2.2 Auto-Sleepers Production Number
- 3 **Keys**
- 3.1 Ignition Key
- 3.2 Door Key (if applicable)
- 3.3 Fuel Filler (if applicable)
- 3.4 Water Filler *CS1*
- 3.5 Gas Compartment Key *FS 905*
- 3.6 Toilet Compartment Key *FS 905*
- 3.7 Alarm Code (if fitted)
- 3.8 AA/RAC/etc. Membership Number
- 3.9 Radio Security Code
- 4 Supplying Dealer Contact Number

APPENDIX B AUTO-SLEEPER DEALERS

Don Amott Motor Caravans
Hilton
Derbyshire
DE6 5FJ
Tel: 01283 732193

Marquis Berkshire

The Spinney
Oxford Road
Chieveley, Newbury
Berkshire RG20 8RU
Tel: 01635 248888

Capital Motor Caravans Ltd
Woodside Road
Glenrothes
Fife KY7 4AA
Tel: 01592 759260

Cotswold Motor Caravans
Cheltenham Road East
Churchdown
Glos
GL2 9QL
Tel: 01452 857131

Bowers Leisure Essex
Dunmow Road
Takeley
Essex CM22 6SJ
Tel: 01279 870755

Hayes (Leisure) Ltd
Walsall Road
Darlaston
West Midlands WS10 9SS
Tel: 0121 5263433

Motorhome Ireland
8 Station Road
Saintfield
Northern Ireland
BT24 8TW Tel: 01238 519519

Plymouth Motor Caravans Ltd
Lee Mill, Ivy Bridge
Plymouth, Devon
PL21 9EE
Tel: 01752 892977

Brownhills Motorcaravan & Leisure
Centre
A1/A46 Junction
Newark
Notts
NG24 2EA
Tel: 01636 704201

Cleveland Motor Homes
Teesside Airport
Darlington
Co Durham DL2 1RH
Tel: 01325 332626/333111

Cranham Motorhomes
Old Gailey Park
Southend Arterial Road
Upminster
Essex RM14 1TJ
Tel: 01277 222555

Hampshire and Dorset Motor Caravans
Iford Bridge, Main A35
Oak Avenue, Christchurch
Dorset BH23 2QA
Tel: 01202 479444

Hayes (Leisure) Limited
Box Road
Bathford Bath
Avon BA1 7QH
Tel: 01225 858290

Perthshire Caravans
Dundee Road
Errol
Perth PH2 7SR
Tel: 01821 670212

Robsons of Wolsingham
Wolsingham in Weardale
County Durham
DL13 3HU
Tel: 01388 527242

Ron Reynolds Leisure Vehicles
Otley Road
Bradford
West Yorkshire BD3 0LN
Tel: 01274 630582

Marquis Surrey
Pantiles Park, London Road,
(A30) Bagshot
Surrey GU19 5HN
Tel: 01276 452111

Stewart Moulard Motor Caravans
South Coast Road (A259)
Peacehaven
Sussex BN10 7ET
Tel: 01273 587229

Bowers - Suffolk
Lower Road (A1092)
Glensford
Nr Sudbury
Suffolk CO10 7QU
Tel: 01787 280263

Todds Mobile Leisure Limited
Coote Lane Lostock Hall
Preston
Lancs PR5 5HS
Tel: 01772 335360

West Country Motorhomes Ltd
Turnpike Road
Lower Weare
Nr Axbridge
Somerset BS26 2JG
Tel: 01934 732503

Simpsons Motor Caravan Centre
Suffolk Road
Great Yarmouth
Norfolk NR31 0LN
Tel: 01493 601696

Spinney Motor Caravans
Caravan Court, Knutsford Road
Cranage, Nr Holmes Chapel
Cheshire CW4 8HJ
Tel: 01477 535808

Strathaven Caravan Centre
Darvel Road
Strathaven
Strathclyde ML10 6QD
Tel: 01357 522444

APPENDIX C

RECOMMENDED ANNUAL SERVICE CHECK FOR MOTOR CARAVAN BODIES AND CONVERSIONS

- 1 Note: This is an SMMT/NCC publication relating to all types of motorhome. Parts of this, therefore, may not refer to your particular type of vehicle and therefore should be ignored.
- 2 **INTRODUCTION**
 - 2.1 This entire section offer guidelines for the checking of a motorhome's habitation area and to ensure continual compliance with EN1646-1.
 - 2.2 It does not cover any part of the base vehicle, although there may be minor overlapping (such as tyre pressures, cab seats, internal lights, battery and windows) in a van conversion. The base vehicle must be serviced in accordance with the chassis manufacturer's instructions.
 - 2.3 Reference should also be made to:-
 - 2.3.1 Any owner's manual or equivalent supplied with the vehicle by the motorhome converter.
 - 2.3.2 Appliance manufacturer's instructions.
 - 2.3.3 Driver's handbook or equivalent supplied by the chassis manufacturer.
 - 2.4 A vehicle is accepted for service at the dealer's discretion.
 - 2.5 Any defects, repairs, adjustments, cleaning or lubrication required will be noted on the check list. The customer's approval will be obtained before any work is done.
 - 2.6 Not all of the equipment mentioned in this manual is fitted as standard to every motorhome.
 - 2.7 This guide is published as an aide de memoir for dealers. Any work carried out following the check, and the sufficiency of the work in the check itself, is subject to the contract between the customer and the dealer. The NCC/SMMT and their member companies are not part of this contract, and accept no liability in contract, tort or otherwise, other than death or personal injury due to negligence on their part.

CONTENTS

INTRODUCTION

SECTION 1 BODY MOUNTING

SECTION 2 WINDOWS

SECTION 3 DOORS

SECTION 4 ATTACHMENTS TO CHASSIS OR UNDERBODY

SECTION 5 ATTACHMENTS TO BODY EXTERIOR

SECTION 6 INTERNAL

SECTION 7 ELEVATING ROOFS

SECTION 8 GAS SYSTEMS

SECTION 9 WATER SYSTEM

SECTION 10 ELECTRICAL SYSTEMS

SECTION 11 VENTILATION

1 SECTION 1 BODY MOUNTING

1.1 Body to Chassis

1.1.1 Examine all fixings retaining the body to the chassis - this may be direct or through a sub-frame. Where practical, all fittings should be checked to ensure there are all present and correctly secured.

1.2 Body to Cab

1.2.1 Examine joint between body and cab for signs of movement and soundness of sealing media.

1.3 Body Retention (dismountables)

1.3.1 Check serviceability and tightness of body retaining gear.

1.3.2 Check serviceability of body support struts and mountings (Note: - whether it will be necessary to demount the body to check the body supports must be agreed between dealer and customer).

2 SECTION 2 WINDOWS

2.1 Windows

2.1.1 Check window glazing rubber or sealing for cracks and general condition. Check for satisfactory operation and closing,

2.1.2 Check fixing of top hinge rail on top hung windows.

2.1.3 Check for good weather seal when window is closed and latched.

2.1.4 Check catches and stays for satisfactory operation.

3 SECTION 3 DOORS

3.1 External Doors

3.1.1 Not including base vehicle doors.

3.1.2 Security:

- i. Check that hinges and catches are satisfactory and that, when latched, doors are held securely shut.
- ii. Check that the keys or internal latches lock the doors correctly.
- iii. Check that any device fitted to hold a door in the open position is satisfactory.

3.1.3 Sealing:

- i. Check all door seals for cracking and general condition.
- ii. Check correct closing to give a weather-tight seal.

3.1.4 Childproof Lock:

- i. Where a door is fitted with a childproof lock check that an appropriate warning notice is fixed adjacent to the door. Appropriate warning notices are available from motorhome manufacturers.

3.2 Internal Doors

3.2.1 Security:

- i. Check that hinges and catches are satisfactory and that, when latched, the door is held securely shut.

3.2.2 Safety:

- i. Check that any device fitted to hold a door in the closed position can be operated from both sides to open the door in an emergency.

4 SECTION 4 ATTACHMENTS TO CHASSIS OR UNDERBODY

4.1 Corner Steadies

4.1.1 Check that attachments to chassis are secure.

4.1.2 Ensure steadies work freely and satisfactorily.

4.1.3 Lubricate screw to ensure correct operation.

4.2 Folding/Retractable Steps

4.2.1 Check that step pivots are satisfactory and not worn. Check that, when closed, the retaining mechanism holds the step securely. If fitted, check device is working.

4.3 Underfloor Water Tank Mountings

4.3.1 Check mounting frames are secure to body. Any fastenings that require releasing to remove the tank should be free of rust and operate freely. (Removal, flushing, cleaning and replacing of tanks will be carried out at the prior request of the customer or will be done subsequently with other work).

4.4 Spare Wheel

4.4.1 Remove spare wheel. Check for damage. Check tyre pressure.

4.4.2 Check mounting frame for security to body and for secure retention of spare wheel.

4.5 Wheelboxes

4.5.1 Check for damage, corrosion, water seepage, signs of tyre rubbing.

5 SECTION 5 ATTACHMENTS TO BODY EXTERIOR

5.1 Roof Lights

5.1.1 Check security, general condition, and that sealing has not deteriorated.

5.2 Roof Racks and Ladders

5.2.1 Check security to body and general condition.

5.2.2 Check roof for damage adjacent to rack.

5.3 Mouldings, Trims

5.3.1 Check security. Check sealing has not deteriorated (see section 6.1).

5.4 Flue Terminals, Air Vents

5.4.1 Check security. Check sealing has not deteriorated.

5.4.2 Check that these are not blocked.

6 SECTION 6 INTERNAL

6.1 Body Seepage Check

6.1.1 Examine for moisture/water staining of areas under windows, at side of roof and at corners which could indicate water seepage problems. A moisture meter should be used where appropriate.

6.2 Furniture

6.2.1 Check furniture is securely fixed.

6.2.2 Check door hinges, catches and stays for satisfactory operation.

6.3 Dinette Seats/Beds

6.3.1 Check seat bases for security of fixings and for damage.

6.3.2 Make up beds according to manufacturer's instructions and check for rigidity and safety.

6.4 Upper Bunks

6.4.1 Check there is a secure means of access to upper bunks and that, where applicable, protection against falling out and entrapment is provided.

6.5 Curtains/Blinds/Nets

6.5.1 Check track is secure and curtains draw freely without snagging.

6.5.2 Check blinds and/or nets for correct operation.

6.5.3 Check flyscreens in roof lights and air vents.

6.6 Cab Seats

6.6.1 Where cab seats form part of the living area and/or bed layout they should be checked for security of attachment, smooth and easy operation of seat slides, swivels and seat back operation.

6.7 Fire Extinguisher

6.7.1 Check condition and expiry date. If an extinguisher is not fitted, inform the customer of the advisability of such equipment.

6.8 Fire Blanket

6.8.1 Check position (should be near cooker).

6.8.2 If one is not present, inform the customer of the advisability of such equipment.

6.9 Advice to Occupiers/Warning Notice

6.9.1 Check presence and condition and advise customers accordingly.

The wording and the layout of the notice should be set at as follows:

ADVICE TO USERS

VENTILATION

Do not obstruct the ventilators which are fitted; your safety depends on them.

IN CASE OF FIRE

1. Get everyone out.
2. Turn off outside gas valve and/or oil valve (if fitted).
3. Disconnect the mains electricity supply.
4. Raise the alarm and call the fire brigade.
5. Tackle fire if safe to do so.

FIRE PRECAUTIONS

Children:- Do not leave them alone.

Means of Escape:- Make sure you know the location and operation of the emergency exits, keep all escape routes clear.

Combustible Materials:- Keep them clear of all heating and cooking appliances.

Fire Fighting:- Provide, at least, a 1 kg powder fire extinguisher, that complies with BS5423 by the main exit door, and a fire blanket next to the cooker. Make yourself familiar with the instructions on your fire extinguisher and the fire precaution arrangements on the caravan park.

6.10 Portable or Open Flame Heating Equipment

6.10.1 Check for its presence. The customer must be advised against its use.

7. SECTION 7 ELEVATING ROOFS

7.1 Lifting Mechanism

7.1.1 Gas struts or spring struts should be checked for corrosion (particularly on the piston rods of gas struts), smooth operation when operating roof up and down and to ensure that they support the roof when fully up. Check attachment points of struts to body and roof.

7.2 Canvas Side Walls

7.2.1 Check for satisfactory attachment to body and roof.

7.2.2 Check for splits or holes, particularly at fold lines.

7.2.3 Check that the canvas stowed satisfactorily when roof is lowered.
(A waterproofing check will be done at the prior request of the customer).

7.3 Solid Side Wall

7.3.1 Check sides and end panels fold up and down correctly, that they seal against each other where appropriate and that retaining mechanisms are satisfactory. Check all hinges for security and freedom from strain.

7.4 Locking of Roof

7.4.1 It is important to ensure that, when the roof is in the travelling position, it is safely and positively locked down. Any locking retaining mechanism should be carefully examined.

8. SECTION 8 GAS SYSTEMS

8.1 Cylinders and Regulators

8.1.1 Establish that the cylinders and regulators are compatible.

8.1.2 Butane (blue) cylinders should have a regulator stamped with the pressure 11" WG (28 mbar) and propane (red) cylinders should be stamped 14" WG (37 mbar).

8.1.3 Check that the regulator is controlling the gas to the correct pressure for the type of cylinder fitted.

8.1.4 Check cylinder compartment vents and gas drop hole in floor are free from obstruction.

8.1.5 Check seals on internal doors.

8.2 Hose and Piping

8.2.1 Check any flexible hose is of an approved type. Check its condition and any evidence of cracking.

8.2.2 Check piping for condition, damage and correct support.

8.2.3 Carry out an overall leak test.

8.3 Appliances

8.3.1 In general, the checking of gas appliances can be divided into the following:

- | | |
|----------------------------|-------------------------|
| 1. Cleaning | 4. Flues |
| 2. Operation of controls | 5. Flame failure device |
| 3. Correct flame structure | 6. Security |

8.3.2 Cleaning

- i. Where appropriate, remove cover(s) to gain access to heat exchanger. Clean away any fluff or foreign matter. Reassemble and test. Clean flame viewing window.

8.3.3 Controls

- i. Check that all knobs etc. work smoothly and are secure on their spindles. If gas taps require greasing to ease stiffness, use only approved LPG grease. Check that appliances can be brought into service using the normal controls.

8.3.4 Correct Flame Structure

- i. Check that all pilot flames burn quietly and clearly.

8.3.5 Refrigerator: With the refrigerator gas control turned to maximum, the colour of the flame should be predominantly blue.

8.3.6 Instantaneous Water Heating: The main burner flame should be of even height and blue in colour. A flame burning yellow will allow sooting to occur.

8.3.7 Ovens: The oven flame should burn quietly and be of even height, mainly blue/green in colour. If the gas is propane, the flame will normally develop yellow tips as the burner heats up. If the gas is butane, a small amount of yellow tipping will be seen immediately after lighting, increasing as the burner heats up.

8.3.8 Grill Burners: It is normal for the flames on this type of burner to develop yellow tips as it heats up, particularly on butane.

8.3.9 General: A flame lifting away from the burners is an indication of too high a pressure, although it may happen with grill burners whilst the frets are heating up. A yellow flame will cause sooting and is an indication of too low a pressure. Providing the regulator and piping have been checked and found satisfactory, the above faults should not appear.

8.3.10 Flues:

- i. Flues should be examined for security of fixing and for correct attachment to appliances and flue terminals. They should be free from damage and corrosion. Check for leakage of flue gases into the vehicle.

8.3.11 Flame Failure Device (FFD):

- i. Where fitted, FFD should be checked to ensure satisfactory operation. After the appliance has been successfully checked, allow time for the thermocouple to cool. Attempt to relight the appliance by turning it on without pushing in the gas control knob. (Do not override the FFD). If appliance does not light, FFD is satisfactory.

8.3.12 Security:

- i. Check appliance is securely fixed to the vehicle/furniture and will be free from rattles. Where applicable, check that water pipes are satisfactorily attached with no sign of leakage.

8.3.13 Protection of adjacent surfaces:

- i. Check that surfaces adjacent to open flame cooking appliance have adequate protection.

8.3.14 Inspections:

- i. It is recommended that inspections are carried out by a qualified fitter trained to, for example, CORGI (Confederation of Registered Gas Installers) or Calor standards.

9 SECTION 9 WATER SYSTEM

Before operating the water system, a visual check of the following items may show up an obvious leak source.

9.1 Fresh Water Tank/Container

- 9.1.1 Check condition, fill tank and check for leaks.
- 9.1.2 Check the external filter and filter pipe to tank.
- 9.1.3 Check for satisfactory venting.
- 9.1.4 Check condition and presence of filter cap.

9.2 Waste Water Tank

- 9.2.1 Check drain tap is clear and working.
- 9.2.2 Check condition and presence of drain hose. (The water tank will be drained, flushed, cleaned and charged with a measure of toilet fluid/disinfectant at the prior request of the customer).

9.3 Filter Pump

- 9.3.1 When applicable, remove filter and replace.
- 9.3.2 Check the in-line pump for security and condition. Remove the submersible pump from tank, check condition.
- 9.3.3 Check pump inlet and outlet are clear and not obstructed.
- 9.3.4 Check delivery hose and electric cable are secure and satisfactory.

9.4 System Check

- 9.4.1 Operate pump. Check all piping for leaks.
- 9.4.2 Operate taps and shower. If a hot water system is fitted, it can be checked for leaks etc., using cold water. (Note:- Aerated water from tap could be due to a leak on the suction side of the pump).

9.5 Waste Water System

- 9.5.1 With water running through the drain pipes, check for leaks and satisfactory draining of water from sinks etc.

9.6 Couplings and Fluids

- 9.6.1 Check that the appropriate markings are used - blue for fresh water, grey for waste water. Ensure a sealing off cover is supplied for each coupling.
- 9.6.2 Check that filler positions are designated "petrol", "diesel" or "water" as appropriate.

9.7 Toilet Waste Tank.

- 9.7.1 Check that any fixed tank intended to receive discharge from a toilet is fitted with either a level or full indicator

10 SECTION 10 ELECTRICAL SYSTEMS

10.1 Extra Low Voltage 12 Volts (Excluding Vehicle)

10.1.1 Battery/ies:

- i. Check battery/ies for condition.
- ii. Check connections, wires, fuses and relays appertaining to the habitation electrics.

10.1.2 Wiring:

- i. Examine all visible wiring.
- ii. Check all connections and joints are sound and satisfactory.

10.1.3 Fuses/Fuse Holders:

- i. Ensure that fuses and fuse holders used to protect the habitation electrics are satisfactory and that fuse ratings are compatible with the circuit appliances being protected.

10.1.4 Appliances:

- i. Inspect all appliances for damage, signs of overheating and secure fixing. Function test all appliances.

10.2 Mains 230 Volt System

10.2.1 It is recommended that the inspection and certification of the 230 volt system be carried out by a qualified electrician who is an approved contractor of the NICEIC (National Inspection for Electrical Installation Contracting) or in membership of the Electrical Contractors Association 16th Edition Wiring Regulations.

11 SECTION 11 VENTILATION

11.1 High Level

11.1.1 Check all high level ventilators, including roof lights, are free from obstruction and allow a free flow of air.

11.2 Low Level

11.2.1 Check all low level ventilators are free from obstructions and allow a free flow of air. If the ventilator is manually adjustable then ensure the mechanism is free and operating correctly.

**MOTOR CARAVAN ANNUAL HABITATION SERVICE CHECK
CHECK SHEET**

CUSTOMER COPY

Vehicle Reg. Mark
Make & Model
Year of Manufacture
Recorded Mileage


A Class
Coachbuilt
High top conversion
Elevating Roof
Dismountable

CHECK ITEM	Manual	OK	Remarks - Advice to Customers
------------	--------	----	-------------------------------

SECTION 1: BODY MOUNTING	-	-	
BODY TO CHASSIS	1.1		
BODY TO CAB	1.2		
BODY RETENTION	1.3		
SECTION 2: WINDOWS	-	-	
WINDOWS	2.1		
SECTION 3: DOORS	-	-	
EXTERNAL	3.1		
INTERNAL	3.2		
SECTION 4: CHASSIS	-	-	
CORNER STEADIES	4.1		
FOLDING STEP	4.2		
WATER TANK MOUNTS	4.3		
SPARE WHEEL	4.4		
WHEEL BOXES	4.5		
SECTION 5: BODY EXTERIOR	-	-	
ROOF LIGHTS	5.1		
ROOF RACK AND LADDER	5.2		
MOULDINGS AND TRIM	5.3		
FLUE TERMINALS, AIR VENTS	5.4		
SECTION 6: INTERNAL	-	-	
SEEPAGE CHECK	6.1		
FURNITURE	6.2		
DINETTE SEATS/BEDS	6.3		
CURTAINS, BLINDS, NETS	6.5		
CAB SEATS	6.6		
FIRE EXTINGUISHER	6.7		
FIRE BLANKET	6.8		
WARNING NOTICE	6.9		
HEATING EQUIPMENT	6.10		

CHECK ITEM	Manual	OK	Remarks - Advice to Customers
SECTION 7: LIFT UP ROOFS	-	-	
LIFTING MECHANISM	7.1		
CANVAS SIDE WALLS	7.2		
SOLID SIDE WALLS	7.3		
LOCKING	7.4		
SECTION 8: GAS SYSTEM	-	-	
CYLINDERS & REGULATOR	8.1		
HOSE & PIPING	8.2		
APPLIANCES	8.2		
SECTION 9: WATER SYSTEM	-	-	
FRESH WATER TANK	9.1		
WASTE WATER TANK	9.2		
FILTER PUMP	9.3		
SYSTEM CHECK	9.4		
WASTE WATER SYSTEM	9.5		
COUPLINGS & FLUIDS	9.6		
SECTION 10: ELECTRICS	-	-	
12 VOLT SYSTEM	10.1		
BATTERIES	10.1.1		
WIRING	10.1.2		
FUSES, FUSE HOLDERS	10.1.3		
APPLIANCES	10.1.4		
MAINS 230 VOLT SYSTEM	10.2		
SECTION 11: VENTILATION	-	-	
HIGH LEVEL	11.1		
LOW LEVEL	11.2		

DEALER:	SIGNED:
	DATE:

<p>DEALER STAMP  MARQUIS MOTORHOMES GREENLAWNS LUTON ROAD KINSBOURNE GREEN HARPENDEN HERTFORDSHIRE AL5 3NF TEL: (01582) 460583 DATE: FAX: (01582) 460459 5 JUL 02</p>	<p>DEALER STAMP</p> <p>DATE: / /</p>
<p>DEALER STAMP</p> <p>DATE: / /</p>	<p>DEALER STAMP</p> <p>DATE: / /</p>
<p>DEALER STAMP</p> <p>DATE: / /</p>	<p>DEALER STAMP</p> <p>DATE: / /</p>
<p>DEALER STAMP</p> <p>DATE: / /</p>	<p>DEALER STAMP</p> <p>DATE: / /</p>
<p>DEALER STAMP</p> <p>DATE: / /</p>	<p>DEALER STAMP</p> <p>DATE: / /</p>
<p>DEALER STAMP</p> <p>DATE: / /</p>	<p>DEALER STAMP</p> <p>DATE: / /</p>

APPENDIX D WARRANTY

- 1** Should you misplace your warranty certificate its contents are re-produced below for reference.
- 1.1** AUTO-SLEEPERS LIMITED (hereinafter called "the Company") hereby guarantee the body conversion of the motorhome details of which are specified above against failure or defect arising through defects in workmanship or material under normal use and service for a period of one year from the date the same was purchased.
- 1.2** Subject to the limitations and conditions specified, the Company, will during the said period, repair or replace free of charge any defects which arise in the body conversion of the said motorhome and which is found on the Company's inspection to result solely from faulty design, workmanship or materials. It is a condition of this Warranty that the said motorhome is delivered to an authorised dealer or distributor of the Company or the Company's factory for any such repair (at the Company's discretion) and afterwards collected therefrom both at the sole expense of the Purchaser.
- 1.3** **Conditions**
 - 1.3.1** The benefit of this Warranty shall apply only to the Purchaser named herein and shall not be transferable and shall also apply to motorhome which are the subject of hire purchase or credit sale agreements.
 - 1.3.2** This Warranty does not extend to faults attributable solely to wear and tear or to defects repaired by or on the instructions of the Purchaser without first obtaining the Company's written authorisation. Faults attributable to willful damage, negligence, abnormal conditions and failure to follow the Company's instructions (whether oral or in writing), misuse or alteration are excluded.
 - 1.3.3** This Warranty does not apply to a motorhome which has been subject to overloading or otherwise misused or has not been maintained in accordance with the Company's recommendations contained in the handbook.
 - 1.3.4** This Warranty applies only to the body conversion and does not cover any failure or defect in the chassis or engine of the vehicle or any other part of the vehicle not manufactured by the Company although supplied by the Company or to any item on the vehicle which has its own separate Warranty or Guarantee from the Manufacturers of such item.
 - 1.3.5** Where under the terms of this Warranty a replacement part is supplied the conditions of the Warranty shall apply to such part for the unexpired portion of the original Warranty period covering the defective part.

- 1.3.6** It is a condition of this Warranty that the Purchaser shall give to an authorised dealer or distributor of the Company notice in writing of the model, type, chassis number and date of purchase of the vehicle within 14 days of the discovery of the alleged defect and the vehicle or defective part being returned at the expense of the Purchaser as indicated above.
- 1.3.7** Any disagreement between the Company and the Purchaser as to the interpretation of this Warranty shall be referred for determination to a single Arbitrator to be appointed by agreement and in the event of no agreement being reached by the Society of Motor Manufacturers and Traders.
- 1.3.8** This Warranty is valid only in the United Kingdom and the Company's distributors, dealers or agents have no authority to vary the terms hereof.
- 1.3.9** This Warranty becomes valid only when the tear-off registration card has been received by the Company duly completed and posted within 14 days of the purchase.
- 1.3.10** The Purchaser's attention is drawn to the Motor Manufacturers Warranty which covers the chassis engine of the said vehicle.
- 1.3.11** The Purchaser's attention is also drawn to the fact that these conditions do not affect the Purchaser's statutory rights.

AUTO-SLEEPERS LIMITED

Orchard Works, Willersey, Near Broadway, Worcs. WR12 7QF