Auto-Sleeper

INSTRUCTION MANUAL

Clubman Manual

AUTO-SLEEPER

VOLKSWAGEN

CLUBMAN GL

OWNERS' MANUAL

November 1996

VIM 013

INTRODUCTION

CONGRATULATIONS ON YOUR PURCHASE OF AN AUTO-SLEEPER. WE ARE CONFIDENT THAT IT WILL GIVE YOU MANY YEARS OF SATISFACTION. THIS HANDBOOK HAS BEEN COMPILED TO GIVE YOU MAXIMUM PLEASURE FROM YOUR VEHICLE. HOWEVER, SHOULD YOU HAVE ANY PROBLEMS WHATSOEVER, WE WOULD ASK THAT YOU CONTACT EITHER YOUR LOCAL AUTO-SLEEPER DEALER, OR OURSELVES AT THE ADDRESS BELOW, QUOTING THE CHASSIS NUMBER AND AUTO-SLEEPER PRODUCTION NUMBER THAT YOU WILL FIND INSIDE THE FACIA LOCKER. OUR COMMITMENT IS NOT ONLY TO PRODUCE QUALITY VEHICLES BUT ALSO TO ENSURE YOUR SAFETY AT ALL TIMES. THROUGHOUT THIS INSTRUCTION BOOK THERE ARE REFERENCES TO SAFETY ITEMS WITH WHICH YOU MUST BE FAMILIAR BEFORE USING YOUR AUTO-SLEEPER. YOUR FORD LEGEND CONFORMS TO THE NCC/SMMT MOTOR CARAVANS CODE OF PRACTICE 201 FOR HABITATION REQUIREMENTS RELATING TO HEALTH AND SAFETY.

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The policy of Auto-Sleepers Limited is one of continuous improvement as part of our commitment to quality. The information contained in this manual is not binding and Auto-Sleepers reserve the right to alter any parts, accessories, design and/or details as technical or manufacturing requirements arise.

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SPECIFICATION

1) VEHICLE TYPE

Auto-Sleeper Clubman GL based on T4 SWB Chassis Cab built to a "caravan" specification with a 2.0 litre engine and five speed or automatic gear box. A 5 cylinder 2.4 litre petrol engine, 5 cylinder 2.4 litre diesel engine, and a 5 cylinder 2.4 litre turbo diesel engine are also available.

2) BODY TYPE

Coachbuilt, monocoque glassfibre construction.

3) EXTERIOR DIMENSIONS

Overall Length:	5296mm	(17'4½")
Overall Width (including mirrors):	2432mm	(7'11¾")
Overall Width (excluding mirrors):	2127mm	(6'11¾")
Overall Height:	2710mm	

4) INTERNAL DIMENSIONS

Internal Height (Maximum)	1918mm	(6'3½")
Internal Height (Minimum)	1852mm	(6'1")

5) WEIGHTS

a) Definitions

Details of vehicle weights are found at Annex I. All weights are in kilograms (Kg); for the purpose of this manual, the mass of the unladen vehicle is defined as the mass of the standard conversion with bodywork, including the following:

coolants (oil and water)	-	washer fluid
100% of automotive fuel	-	tools
spare wheel	-	driver (75 Kg is allowed for a driver)
crockery	-	fire extinguisher

All other options are excluded.

b) Options and Weights

When the following options are fitted, the mass of the unladen vehicle is increased by the corresponding amount and the maximum authorised payload should be reduced accordingly.

Pull out overcab bed	18.50Kg
Roof vent with built in extractor	4.50Kg
Lap restraints	1.75 Kg each
Seat armrests	1.00 Kg each
Awning wedges	0.30 Kg each
Awning 2.6 metre	16.50 Kg
Awning 3.0 metre	24.50 Kg
Ladder guard	2.60Kg
Omnimax TV aerial	1.00 Kg
Front marker lights (front and rear)	0.20 Kg

c) Exceeding a vehicle's maximum authorised mass, or the maximum authorised mass for an axle is an offence. To determine whether or not a vehicle is exceeding one of its maximum authorised masses, the vehicle with all of its load (passengers, contents, luggage and external load), should be weighed on a weighbridge.

6) RECOMMENDED TYRE PRESSURES

For tyre pressures, refer to the base vehicle instruction booklet. Tyre pressure may need to be adjusted to a small degree from these figures according to the vehicle payload.

7) WATER SYSTEM

a) *Water Tank.*

A 72 litre (15 gallon) fresh water tank is fitted. A triple diaphragm water pump and hot water heater provide both hot and cold water. The water system is externally filled using a non-toxic hose. The water pump is fitted with an over-ride switch in the electrical control panel, and is protected with a 10 amp fuse. A 42 litre (9 gallon) waste water tank is fitted as standard.

8) GAS SYSTEM

a) *General.*

Storage for LPG gas cylinders is found in the offside cylinder housing. Each appliance has its own isolating tap. Appliances are designed for low pressure 28mb Butane or 37mb Propane. Two 7kg gas bottles may be fitted.

b) *Input Ratings.*

Input ratings for the gas appliances are as follows:

Carver Rapide	1.20KW
Cooker/Oven	6.28KW
Fridge (Gas Operation)	.186KW
Carver 3600STC	3.75KW

9) ELECTRICAL SYSTEM

a) *General.*

A second battery is fitted as standard, which supplies the caravan 12 volt electrics, the capacity of which is:

1. Petrol engine - 12 volt 66 amp/h
2. Diesel engine - 12 volt 75 amp/h (Maintenance Free)

Note: The conversion battery is co-located with the main vehicle battery, each being positioned under the bonnet on the offside.

On vehicles fitted with air conditioning the conversion battery is re-located in a compartment in the forward end of the offside bed box. This battery is a maintenance free unit, with a breather pipe passing to the underside of the vehicle.

b) *Interior Lighting.*

Interior lighting consists of:

(1) Four fluorescent lights in main compartment (16W).
(2) Four spot lights (10W each).
(3) Two courtesy lights.
(4) One fluorescent light in toilet/shower compartment (16W)
(5) One fluorescent light in overcab compartment (16W).
(6) One fluorescent light in overcab storage lockers (if fitted) (16W).
(7) One 230 volt wall light.

c) *Appliance Rating.*

Appliance ratings are as follows:

(1) *12 volt Appliances*	*Watts*	*Amps*
Refrigerator	100	8
Water Pump	36	3 (running)
Fanmaster	18	1.5
Charger output (max)	150	0-12.5amp
Cassette Toilet	-	2.3 max

(2) *230 volt Appliances*	*Watts*	*Amps*
Refrigerator	105	0.4
Rapide Water Heater	900	3.7
230 volt socket outlet	-	10 max
Wall Light	25	0.1
Charger	220	0.95
Fanmaster Mains element	2000	8.69 (at 230volt)

10) BED SIZES

Bed sizes are as follows:

(1) Single Bed Nearside	1842mm	(6' ½")
	685mm	(2' 3")
(2) Single Bed Offside	1842mm	(6' ½")
	685mm	(2' 3")
(3) Transverse Double Bed	1842mm	(6' ½")
	1320mm	(4' 4")
(4) Optional Overcab Double Bed	1727mm	(5' 8")
	1092mm	(3' 7")

11) CLIMATIC CONDITIONS

The Clubman GL is manufactured for use in temperate climates.

12) ROOF RACK

Access to the roof rack is by a stainless steel ladder fitted to the rear offside of the vehicle. Whilst the roof is capable of carrying normal loads and is safe to stand on, it should not be subject to loads exceeding 80Kg per m² up to a total of 127Kg or point loads exceeding 5Kg per 10cm².

13) TURNING CIRCLE

The turning circle is 37' 0".

14) OPTIONS - AUTO-SLEEPERS

(a) Pull out overcab bed in place of the storage lockers.
(b) Roof vent with built in extractor/.cooling fan, in place of rear roof ventilator.
(c) Lap restraints (one of each side of vehicle)
(d) Cab seats with arm rests.
(e) Awning wedges.
(f) Awning (specify)
(g) Ladder Guard.
(h) Omnimax TV aerial.
(i) Detachable work surface.

15) HISTORICAL

The Clubman GL was launched at the 1991 Earls Court Caravan and Camping Exhibition.

MATERIALS

1) The following materials have been used in the manufacture of your Auto-Sleeper. Should any of these items be required we ask that you let us know the exact type together with the Auto-Sleeper production number which is found in the glove compartment of your vehicle. This will enable the correct item to be sent to you as soon as possible.

2) INTERIOR MATERIALS AND COLOURS

Cushions	Carolina Blue
Curtains	Fantasy II Blue
Carpet	Fashion Conqueror Surf
Lining Material	Cockcroft Grey Blue
	Gaskell Cloud AS Blue
	Blue/Grey Velour
Units	Light European Oak
Unit Work Surfaces	Light European Oak
Shower Lining	Blue Haze
Shower Curtain	Whisper Beige

3) EXTERIOR COLOURS

Base Vehicle	Volkswagen Grey White
Base Vehicle Code	R902
Coachwork	Toyota White 023
Skirt and Upper Coachline	Austin Rover Slate Grey
Code	LRC 348
Adhesive Coach Stripes	¾" Grey, ½" Grey/Blue
	¼" ⅛" White with
	1/16" Red.
	1" Grey

4) EXTERIOR TRIM

Wheel Trims	Silver Jupiter

Note: On certain special order vehicles, the above specification may vary to a small degree. If you are in any doubt as to the materials used in the construction of your Auto-Sleeper, please contact the factory.

INTERNAL LAYOUT

1) GENERAL

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, an additional two berts in the Luton may be specified; these are best suited for occupation by children.

2) SEATING ARRANGEMENTS

Cab Seats

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. As a factory fitted option, armrests are available. The vehicle has four seats designated for use whilst the vehicle is in motion.

Child seats suitable for use with the cab seat belts may be obtained from:

John Lyus
In-Car Safety Centre
Unit 5, 37 Erica Road
The Auto-Centre, Stacey Bushes
Milton Keynes, MK12 6HS

Telephone: 01908 220909

4) TABLES

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 in the storage position. The table legs are housed, when not in use, in the wardrobe by use of the retaining 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.

Important: Both tables must be secured in their stowed position whilst the vehicle is in motion.

5) KITCHEN AREA

The kitchen area 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 giving further storage space for small items. The sink is fed by both hot and cold running water and when not in use is concealed by a laminated hinged lid which gives additional working surface if required. Adjacent to the sink/drainer is the two burner cooker and grill with oven below. When the cooker is in use, stainless steel splash plates ensure that the furniture units remain protected both from heat and cooking stains.

Like the sink, the cooker is concealed by a laminated lid which when not in use affords further working space. A shelved cupboard is to be found under the sink with two hinged doors. All kitchen shelves are coated with a plastic material which is easily cleaned should spillage occur.

A further small cupboard is to be found underneath the oven which incorporates the gas taps for the interior heater, cooker and refrigerator. The triple diaphragm water pump is housed behind a panel in the base of the cupboard below the sink. There is a courtesy light located on the rear of the refrigerator unit beside the rear door step.

A large 2 cubic foot (gross) gas/12 volt/230 volt Electrolux RM4213 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 protected by a heat resistant work surface.

Immediately above the refrigerator is found the cocktail cabinet which incorporates a hinged glass fronted door and includes four wine glasses as standard and provision for three bottles. On the right-hand side of the cocktail cabinet is a 230 volt socket outlet for use with mains hook-up.

Above the cocktail cabinet is the electrical control panel which incorporates a fresh water level indicator, battery condition indicator lights, a 12 volt socket, master switches for the water pump and 12 volt circuits. The electrical control panel also incorporates separate fuses for all major appliances, the 12 volt system isolating switch, and an indicator light that shows when the refrigerator is operating on 12 volts.

The crockery compartment, which houses crockery for four as standard, is to be found in the rear nearside top locker. The crockery is held in position by two restraining straps. 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.

The Carver Rapide GE water heater, with mains facility, is mounted in the offside bed box. At the inner end of this unit is the manually reset trip thermostat, access to which is through the hole in the front cupboard of the offside bed box. The water heater isolation gas tap is located in the compartment to the right of this access hole.

6) SHOWER COMPARTMENT

The shower compartment is on the rear offside of the vehicle adjacent to the wardrobe. It consists of a chemical cassette toilet, a drop down wash basin with mixer taps, a shower head incorporating both hot and cold running water, a vanity unit, mirror and a full length shower curtain. The shower compartment is heated by the blown air thermostatically controlled heater system and is fully insulated. A four-way directional roof ventilator with night blind provides ventilation as required. A fluorescent light is fitted in the ceiling and an insulated bound floor carpet prevents damage to the shower floor when not in use. A towel rail is provided on the inside of the shower compartment door.

The shower tray, which incorporates a small plug, drains to the waste tank. A large dressing mirror is fitted to the forward wall of the shower compartment.

The large window fitted with flyscreens and blinds is designated as an emergency exit.

7) WARDROBE UNIT

The wardrobe unit is situated adjacent to the shower compartment and consists of two parts:

a) *Wardrobe.*
The wardrobe which incorporates a hanging rail is found immediately above the thermostatically controlled blown air heater. In the top of the wardrobe is a lipped full width shelf suitable for soft clothing. The wardrobe is fully lined and insulated. On the right-hand wardrobe wall are the two table legs and the rear jack brace securely held by restraining clips. Wardrobe dimensions are: Height 38", depth 20" and width 20½".

b) *Thermostatically Controlled Blown Air Heater.*
The thermostatically controlled blown air Fanmaster heater unit is found in the base of the wardrobe compartment. For operating instructions and for details of access to the blower fan, please refer to "Operating Instructions". A 230 volt light, along with the controls for the Fanmaster and Carver Rapide control box, are fitted to the left-hand outer wardrobe wall. A 12 volt electric clock is fitted on the overcab bulkhead.

Note: In the unusual event of the Carver Fanmaster tripping, the reset button is on the rear of the unit and is accessible through the access hole on the rear of the heater box in base of the wardrobe.

8) STORAGE

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

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

Important: Heavy items must not be stored in any overhead locker or in any storage area from which it could come free and cause injury to the occupants of the vehicle. Ensure all cupboards are securely fastened before moving off.

9) SLEEPING ARRANGEMENTS

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

a) *Single Beds.*
Two single beds may be made up as follows:

Move the appropriate cab seat fully forward on its runners. Lift and fold down the armrest adjacent to the rear of the cab seat into the horizontal position. Slide the settee base outwards, towards the centre of the vehicle (In the case of the nearside seat, extend to first locking position only).

Place the infill cushion in the space between the armrest and the forward end of the settee. Align 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. The offside backrest cushion can be left in position if the infill cushions are not fitted.

b) *Double Bed.*
Remove both tables from storage position behind offside settee backrest cushion and place in appropriate storage areas immediately behind the cab seats. Slide the nearside settee base outwards, towards centre of the vehicle to stop position. Fit the two infill cushions into the space to the rear of the offside settee cushion. Release centre locking catch that is found centrally on underside of the nearside settee base. Pull settee base through intermediate locking position. By moving to rear of the vehicle, continue to withdraw offside sliding settee base until it meets edge of nearside settee base. Fit the nearside backrest cushion into the space to the rear of the nearside settee cushion. The offside backrest cushion can be left in position if the infill cushions are not fitted.

Important: The optional overcab bed must not be occupied when the vehicle is in motion.

10) WINDOWS

Double glazed acrylic windows are fitted as standard to all caravan windows. 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:

The locking catches on double glazed windows are to be found on the front centre sliding panel. To release the window, first squeeze the catch that will in turn allow the window to slide. For locking the windows, they should be pushed firmly shut at which time the lock will re-assert itself.

The rear acrylic window panels may slide forward to assist in the cleaning of the windows. To carry out this operation remove the infill rubber from the inner bottom track. This will allow full and free movement of the rear window panel.

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.

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

The Clubman GL is fitted with two four-way roof ventilators each with night blind, in the living area and one in the shower compartment. This gives generous ventilation when required.

Each roof ventilator has a drop down flyscreen and the four-way opening facility may be achieved by moving the adjustment handle to the required position. In hot weather and wherever possible, the vehicle should be parked in the shade and it is recommended that, in order to avoid extreme heat in hot climates, the curtains are drawn when the vehicle is not in use. On no account should any ventilators be obstructed.

Note: Do not travel with the roof vents open.

Floor Vents.

To allow any accidental build ups of gas to escape and to provide for cooling the refrigerator, there are vents in the floor of the vehicle. 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. The dashboard ventilators should be open whilst the vehicle is being used as a caravan or whilst the unflued gas appliances are burning.

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

12) INSULATION

All body panels except the front doors are insulated using fibreglass insulation material. This insulation gives protection against extremes of hot and cold and at the same time minimises condensation.

13) REAR CORNER STEADIES

The rear corner steadies, which can be lowered by using the wheel brace specially 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.

Important: On no account should the rear corner steadies be used to jack up the vehicle when carrying out maintenance or changing a wheel etc.

14) ROOF RACK AND LADDER

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. Maximum load on the roof rack should not exceed 280lbs with a maximum loading of 17.5lbs per square foot.

Note: The roof rack load is not in addition to your payload.

15) JACK

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

16) FIRE EXTINGUISHER

A 1 kg dry powder fire extinguisher is fitted: it is manufactured to BS 6165.

17) CLOCK

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 in turn will give access to the rear, battery and time change wheel.

OPERATING INSTRUCTIONS

1) GENERAL

All appliances fitted to the Clubman GL have been thoroughly assessed by our Development Department in conjunction with the relevant manufacturer. Before using them you should refer to the appropriate section in this Instruction Book as well as to any accompanying manufacturer's literature. All warranty certificates should be completed and returned to the relevant manufacturer.

2) GAS SYSTEM

a) The Zintex lined gas cylinder compartment is located on the lower offside of the vehicle, with access through a hinged lockable door. It is fully ventilated and sealed from the interior of the vehicle. The gas cylinders are anchored by the use of two retaining straps. Gas cylinders and regulators are not supplied with the vehicle. The system will run on either Propane or Butane, Propane is recommended. The compartment allows 2 x 7Kg cylinders to be fitted.

Regulators should be of the type appropriate to the gas being used.

To connect the gas cylinder to the vehicle gas line, a length of Neoprene hose to British Standard 3212 Part 1 will be required.

Important: Hose clips are to be used on all flexible hose connections. The hose used must conform to BS 3212/1.

Important: The gas bottle, when fitted, must be secured by use of the restraining strap.

b) *Gas Isolation Taps.*
These are in the following locations:

(a) Cooker/Convector Heater/Refrigerator. In the small cupboard below the oven are three taps. Working from the top down they control:
(1) Refrigerator.
(2) Space heater.
(3) Cooker.

(b) The gas tap for the water heater is in the small compartment to the rear of the front offside bed box.

Important: All gas appliance should be extinguished, and relevant gas isolation taps switched to the "OFF" position, when the vehicle is being refuelled.

3) VOYAGER 2000 COOKER

a) *General*
The Clubman GL is fitted with a combined cooker/grill with oven beneath.

1) *Boiling Burners.* To light a burner, push in the appropriate knob, rotate a quarter anti-clockwise, to the fully 'ON' position and apply a flame to the burner. It should light immediately. If the burner goes out when the knob is released repeat the procedure but hold the knob in longer before releasing it.

To turn the burner to the low/simmer position, give a further quarter turn anti-clockwise; any required setting between full and low/simmer can be obtained by positioning the knob between these two settings.

To turn off the gas rotate the knob clockwise until the bar on the knob is vertical and in line with the dot on the cooker fascia.

2) *Flame Failure Safety Off Device (FFD).* In the event of the flame being extinguished the burners will automatically shut off the gas. The oven is fitted with an FFD valve.

b) *Cleaning and Maintenance*
Each time the hob has been used it should be wiped over with a damp cloth and if greasy, a little mild liquid cleaner.

Stubborn marks can generally be removed with one of the commercial cleaners or stainless steel polishing pads available at most hardware stores. ***Do not use harsh abrasive material as these leave scratch marks.***

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

In order to clean below the oven, it is necessary to detach the oven slide from the rear of the cupboard door. This should be done by removing the top screw, thus allowing the oven door slide to swivel.

Important: On no account should the cooker be used to heat the interior of the vehicle.

4) THETFORD CASSETTE TOILET - TYPE C2

INTRODUCTION

The Thetford 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.

The toilet section includes a seat cover, flush and valve blade opening knob, toilet tissue compartment and holder, waste level indicator, built-in toilet fluid storage compartment, a drip tray, a drain tube assembly and level indicator for the fresh water tank and a fresh water tank. The cassette is located underneath the toilet and is removed for emptying from outside the vehicle through a lockable access door. A rotating pour-out spout, automatic holding tank vent, air release valve, valve blade, carrying handles and grips are incorporated into the cassette.

Other features include a safety sensor that guards against adding water to the bowl without the cassette in proper position.

Preparing for Use

1. Open access door on the side of the vehicle and swing out fresh water fill funnel.
2. Add a small amount of Aqua Rinse through the water fill funnel, which results in a better flush and improves the hygiene of the toilet. Then fill the water tank with fresh water using a hose or jerrycan until water funnel level reaches neck. Tank capacity is 15 litres.
3. Replace cap. Swing the water fill funnel inward until it touches side of water tank.

Note: 150 ml of water will remain in the fill bottle when fresh water tank is empty.

4. Remove the cassette by pressing the retaining clip down.
5. Pull the cassette straight out. When cassette hits stop, tilt downward slightly and remove (stop for safety when cassette is full).
6. Position tank vertically and swivel pour out spout upward.
7. Remove cap. Remove deodorant from storage compartment. Add given amount of Thetford toilet fluid through pour out spout. Add water until the bottom of the cassette is completely covered with fluid. Replace cap and return pour out spout to its original stored position.
   Note: The cap of the pour out spout is packed together with the instruction for use. Hotter weather or longer retention time may require addition of more toilet fluid.
   Caution: Never add toilet fluid through the valve blade or the toilet bowl. Pressure due to heat and altitude change can build up in the cassette tank causing bowl contents to splash upward upon opening the valve blade, if opened to fast.
8. Slide the cassette, pour out spout facing outside, into the vehicle through access door. Be aware that sliding cover is placed correctly; the two arrows on top have to be pointing towards each other.
9. Make sure the cassette is locked with the retainer clip. Close and lock access door.

Operation

Flushing

10. In order to prevent over pressure at high temperatures or differences in heights, open and close the valve blade once before lifting the lid. Then add water to the bowl by pressing the flush knob.
11. 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 the water. After flushing, turn the knob in a 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.

Toilet tissue

12. 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.

13. 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 directions until you hear a click. Pull apart. Place tissue on holder, insert prongs of cover into holder. Hold cover and holder and twist in opposite direction until locked. Aqua Soft toilet tissue is recommended for best results.

Emptying the Cassette

The cassette 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 the tank is over ¾ full.

Caution: Do not allow the cassette to become overfilled, see trouble-shooting section for emergency emptying procedure.

14. To empty the cassette be sure that the valve blade is in the closed position. Open the access door on side of vehicle. Depress the retainer clip, pull cassette until stop, tilt and remove.

15. Carry the cassette using the lower carrying handle, pour out spout up, to a normal household type toilet or other authorised disposal point. Set cassette in vertical position on the ground and rotate pour out spout upward.

16. Remove spout cap. Grasp unit by upper carrying handle, nearest to pour out spout. Place other hand on upper rear hand grip so that the air relief valve button can be depressed with thumb while 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.

Note: Depress air release valve button only when pour out spout is pointed downwards.

17. If necessary make the toilet ready for use (see nr. 1 up to nr. 7). Slide the cassette into the toilet and lock the access door.

Cleaning And Maintenance

The large seal and the seal for the ventilation, frequently have to be cleaned and greased (depending of the frequency of use, once or twice a month), with silicon spray or vegetable oil. Clean the cassette by rinsing it very well with clean water. Clean the toilet bowl, seat and cover, and the toilet itself with a moist cloth. For heavy soiling use washing-up liquid or an other mild soap. If the toilet is not going to be used after cleaning, leave the cap off the pour out spout so the cassette can dry.

Winterizing/Storage

The Thetford cassette is easily winterised for storage or cold weather use.

18. Empty the fresh water tank using the drain tube/fresh water tank level indicator. Pull the level indicator/drain tube down from the top plug position outward through the door opening to drain the water from the tank.
19. Empty the water fill funnel by swinging the funnel away from the tank. Remove the small cap at the bottom, allowing the water to drain from the funnel.

Note: Do not tighten caps, this helps in keeping unit dry.

Cold weather use

The cassette can be used during cold weather when the vehicle is heated. When the vehicle is not heated for more than a day (or a night) winterise the cassette.

High Altitude and Hot Weather Use

20. With large temperature differences and changing heights during driving, over pressure can start to build up in the holding tank.

To depressurise your tank continuously, we recommend to keep the flush knob about 10 degrees in the direction of the arrow.

Note: 2.5 Amp Fuse
A 2.5 amp cartridge fuse protects the cassette micro switch. In the event of this fuse being blown, no power will be available to add water to the toilet bowl. In the event of there being no water feed to the toilet bowl, this fuse should be checked and if necessary replaced. Access to this fuse is as follows:

1) Remove cassette.
2) Identify microswitch assembly on left-hand side of roof of cassette chamber.
3) Remove 2.5 amp fuse from barrel holder and replace as necessary.

Thetford Warranty (Statement by Manufacturer)

1. The Thetford cassette is warranted to the original buyer for one year from the date of purchase, provided the warranty card duly completed has been returned to us within 30 days after the date of purchase.
2. The warranty covers replacement of parts arising from defects and workmanship and from the inability of the unit to perform its intended function.
3. In case of a defect apply to original dealer or Thetford Service Centre with proof of purchase.
4. Defects, which in our judgement occurred from misuse, negligence or accident, are not covered by the warranty. In addition, the warranty does not apply if the product is **installed** or handled **improperly** or if other than the prescribed chemical agents have been used or if the product has been

altered in any way or has been repaired by unqualified persons, or if the serial number and/or date has been altered or removed.

5. Should the original buyer wish to return to us parts believed to be defective, the parts should be sent prepaid. If we find the parts defective and covered by warranty, they will be repaired and returned. If warranty does not apply or has expired, a nominal charge will be made. Any transport costs are for the account of the owner.
6. Before returning the product or parts, they should be cleaned, in order to carry out inspection and repair.
7. No other warranty is given and no personal representative is authorised to make any warranty other than that is contained herein.

5) SPACE HEATER - OPERATION

(a) Carver Caravan heaters are completely room-sealed units based on a well proven and extremely efficient heat exchanger consisting of a pair of internally and externally finned aluminium die castings.

(b) The gas burner is situated at the bottom of a vertical passage which permits complete combustion of the gas before meeting the exchanger surfaces. The combustion products travel along the top horizontal section and then downwards through further galleries while transferring their heat to the vehicle. Gases are kept moving by the thermal drive of the rising column of hot gasses from the flame.

(c) The flue outlet of the heater is at the bottom of the heat exchanger thus ensuring that the majority of the heat is extracted from the combustion products before they leave the heat exchanger. The combustion path is completely sealed from the living space, all of the products of combustion are discharged through an insulated stainless steel flue pipe to a roof mounted terminal.

(d) The heater is controlled by a knob mounted on top of the heater case which operates a thermostatic gas control valve, incorporated in this valve is a flame failure device, so that if for any reason the burner flame is extinguished, the heater will automatically go to safe shut down. The unit is fitted with electronic ignition.

2) SAFETY - PLEASE READ THESE PRECAUTIONS BEFORE USING THE HEATER

(a) The gas supply to the heater must be from a pressure regulator of adequate capacity giving a working pressure of 28mbar for Butane or 37mbar for Propane. Under **NO** circumstances should an industrial or adjustable regulator be used on caravan applications.

(b) The heater **MUST NOT** be operated while refuelling or when the vehicle is in a confined space such as a garage.

(c) The heater **MUST NOT** be used if the flue has been damaged. The products of combustion pass through the flue ducting to the roof cowl, therefore, any damage to the flue could affect your safety.

Make sure the outlet from the cowl on the roof is not obstructed in any way, such as by snow or articles blown against it.

(d) **DO NOT** place objects that are likely to damage the flue against it. Avoid hanging wet clothes, etc. against the flue ducting.

(e) The heater has an underfloor air intake requiring unrestricted air entry beneath the vehicle. A minimum of three sides of the vehicle around the underfloor intake to the heater must be open at all times. This is required to maintain good combustion and the efficiency of the heater. If there is a possibility of the sides becoming blocked by snow etc., then the heater must not be used. The blockage must be cleared before further use of the heater.

(f) Curtains **MUST NOT** hang within 150mm of the sides of the heater, or within 300mm above the top of the appliance.

(g) There **MUST NOT** be a mantle piece or shelving sited above the heater.

(h) **DO NOT** place furniture or upholstery closer than 5mm to the sides of the heater.

(i) Always wait three minutes before attempting to light the heater after switching off or the heater turning itself off.

(j) **DO NOT** obstruct the gap at the bottom of the heater or the outlet grille slots.

(k) When the vehicle is in motion the heater (as with all appliances) **MUST BE SWITCHED OFF** and the gas cylinders turned off.

(l) A guard fitted around the heater is recommended where children, the elderly of the infirm are present. (This is a Carver accessory and is available from Carver & Co).

(m) Aerosols and highly inflammable materials **MUST NOT** be stored in the compartments behind, or adjacent to the heater.

(n) This heater **DOES NOT** contain any asbestos or asbestos related products.

(o) When the appliance is in use, the flue ducting becomes hot. No plastics, fabrics or aerosols must be placed near the ducting.

3) CARVER 3600-STC/AUTO HEATER

a) Before Lighting the Heater
Ensure that the gas is turned on at the cylinder.

b) Lighting the Heater
Press the Gas Control Knob down and turn to the "Z" position. The auto ignition system igniter will be heard to tick repeatedly until the gas ignites. Check through the viewing window on the lower half of the case that the pilot burner is alight.

After the pilot has lit, continue to hold the gas control knob down for 30 seconds. This is to operate the flame failure safety device within the gas control.

The control knob can now be released, and the pilot will remain alight. To operate the main burner, turn the knob anti-clockwise and set at the desired position between High and Low.

If the burner fails to remain alight or if it is extinguished for any reason, the heater will shut down to a safe condition.

After shut down, always **WAIT 3 MINUTES** before attempting to relight the heater.

c) *To Adjust the Room Temperature*
Turn the Gas Control Knobs to the setting that gives the required comfort level. The main burner will 'cycle' on and off automatically as required by the thermostat to maintain the set temperature; the pilot will always remain alight.

d) *Turning Off the Heater*
Turn the gas control knob fully clockwise to the "●" position.

3) *Servicing*
In order to ensure that your Carver heater continues to operate safely and effectively, you will need to arrange for it to be serviced and the flue inspected at least once a year by a competent and trained service engineer.

Similarly, you will need to call for service if, at any time, you experience difficulties with the heater's performance. There are a number of Dealers throughout the country who can give you this facility. If however, it is impractical to use them you are recommended never to try to deal with the problem yourself but to turn off the gas to the heater, preferably at the cylinder, and to call your nearest Auto-Sleeper Dealer for advice. He can then arrange for a competent engineer either to deal with the heater at your motorcaravan or to remove the heater and deal with it at a suitable workshop and then reinstall it.

The reason for this advice is that **BY LAW** no one is permitted to deal with the installation and servicing of gas appliances unless he is competent to work with the Gas Safety and Use Regulations 1990.

Carver provide special training facilities for their own and Dealer staff to ensure you have available at all times competent engineers to deal with your requirements.

Carver & Co (Engineers) Limited
Coppice Side Industrial Estate
Brownhills,
Walsall
WS8 7ES
Tel: 01543 452122 Fax: 01453 452950

Spares & Service: 01453 452122

6) ELECTROLUX RM 4213 (TILT TOLERANT) REFRIGERATOR

a) Important User Information.

Read this carefully before using the appliance.

1) This refrigerator is designed to be operated by adults. Children should not be allowed to tamper with the controls.
2) This refrigerator should be serviced by an authorised Electrolux Service Engineer, and only genuine Electrolux spare parts should be used.
3) It is dangerous to alter the specifications or modify this refrigerator in any way.
4) Electrolux refrigerators are designed to be used specifically for the storage of edible foodstuffs only.
5) There are working parts in this product which heat up. Always ensure that there is adequate ventilation as a failure to do this will result in component failure and possible food loss.
6) Before defrosting, cleaning or maintenance work is carried out, be sure to switch off the appliance.
7) The ice box contains tubes through which the refrigerant passes. If these are punctured this would cause substantial damage and result in food loss. DO NOT USE SHARP INSTRUMENTS to scrape off frost or ice. Under no circumstances should solid ice be forced off the ice box. Solid ice should be allowed to thaw when defrosting the appliance. See defrost instructions.
8) Frozen food must not be refrozen once it has thawed out.
9) Under no circumstances should you attempt to repair the appliance yourself. Repairs carried out by inexperienced persons may cause injury or more serious malfunctioning. Refer to your local Electrolux Service Centre and always insist on genuine Electrolux spare parts.

Winter Covers

12) The winter covers on the exterior refrigerator vents help control the performance of the refrigerator in cold conditions and should ideally be fitted when the ambient temperature is below 10°C (50°F). The covers are also ideal for fitting over ventilator grills when the vehicle is being washed using a high pressure spray.
Important: Remember to remove the winter covers at all other times when the refrigerator is in use. They are held in position by plastic bayonet type screws which may be turned with a blunt screwdriver, or alternatively, a small coin.

b) Operating Instructions

1) (a) Controls.

The refrigerator can be powered by 230 volt, 12 volt or LP gas. Changing between these modes of operation is carried out by means of the controls on the control panel.

(b) Two rocker switches are used to select the electric power supply, one for 230 volt and one for 12 volt.
(c) Refrigerator temperature is controlled by a thermostat when the refrigerator is powered by the 230 volt supply.
(d) The electric igniter discharges sparks over the burner when the control is depressed.

(e) Refrigerator temperature is controlled by a thermostat when the refrigerator runs off LP gas. Please note that the thermostat has no "off" position.

(f) The gas supply to the refrigerator should be shut off by means of a gas shut off valve close to the refrigerator.

(g) The refrigerator is fitted with a safety device which automatically shuts off the supply of gas when the flame goes out. The safety device can be overridden by depressing the control.

(h) An indicator lamp on the control panel flashes when the automatic igniter attempts to light the burner. Otherwise the lamp is normally off.

CAUTION!

Only use one source of energy at a time

2) *Starting the Refrigerator*

a) *LP Gas Operation.*

Make sure that the refrigerator electric 230 volt power supply is switched off.

Make sure that all valves between the gas container and the refrigerator are open.
Turn on the gas control to the large flame symbol.
Turn on the electric igniter. A ticking sound will be heard and the lamp will start flashing.
Depress the gas control knob.
When the lamp stops flashing the flame is alight.
Keep the gas control knob depressed for a further 15-30 seconds.

b) *230 Volt Operation*

Turn off the gas by means of the shut-off valve.
Set the 230 volt rocker switch to 1 and the 12 volt rocker switch to 0.

c) *12 Volt Operation*

Turn off the gas by means of the shut-off valve.
Set the 230 volt rocker switch to 0 and the 12 volt rocker switch to 1.

3) *Winter Operation*

If the refrigerator has been left switched off in an unheated environment when the outside temperature is below -12°C the cooling unit will become so cold that it cannot be started in the 230 volt or 12 volt modes of operation. In such event the refrigerator must be started on LP gas.

4) *Regulating the Temperature*

a) Once the refrigerator has been started it will take a few hours to become cold.

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

c) On 12 volt operation the refrigerator is not controlled by a thermostat, the refrigerator works continuously.

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

5) Travel Catch

a) Make sure that the travel catch is engaged when the vehicle is on the move.

b) 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.

6) Food Storage

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.

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

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 iced lollies straight from the compartment as they could cause frost burns.

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 packings.

7) Ice Making

a) Fill the ice tray just below the brim with drinking water and put the tray on the freezer shelf.

b) It is possible to make ice faster by turning the control knob temporarily to its highest value but do not forget to turn it back to its regular setting afterwards as the refrigerator will otherwise become much too cold.

8) Defrosting

a) 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.

b) Check the formation of frost regularly every week and when it is about 3mm thick it will be necessary to defrost the refrigerator.

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

d) If desired, defrosting may be speeded up by filling the ice tray with hot water and placing it in the frozen food compartment.

e) Do not try to accelerate defrosting by using any kind of heating appliance as the plastic surfaces of the refrigerator might then be damaged, neither should any sharp objects be used to scrape off the ice.

f) The defrosted water runs from a collector channel down a tube to a drip tray at the rear of the refrigerator where it evaporates. When all the ice has melted, wipe the refrigerator dry and restart it.

g) Place the food items back inside but wait until the refrigerator is cold before making ice cubes.

9) Cleaning the Refrigerator

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

b) 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.

c) 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.

d) 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.

10) Turning off the Refrigerator

If the refrigerator is not in use for some time:

* Turn off the LP gas and electric power.
* Empty the refrigerator and defrost it.
* Clean the refrigerator interior and accessories and wipe them dry afterwards.
* Leave the door ajar. It can be secured in this position by means of the travel catch.

11) If the Refrigerator Fails to Work

Check the following points before calling a service technician:

a) That the "STARTING THE REFRIGERATOR" instructions have been followed.

b) The refrigerator is level and not tilted in any direction ± 7½°.

c) If it is possible to start the refrigerator on any of the connected sources of energy.

d) If the refrigerator fails to work on gas, check that:
* The gas bottle is not empty.
* All LP gas valves are open.

e) If the refrigerator fails to work on 12 volt, check that:
*The 12 volt supply is connected to the refrigerator.
*The fuse on the 12 volt supply is intact on the control panel.

f) If the refrigerator fails to work on 230 volt, check that:
*The 230 volt supply is connected to the refrigerator.
*The fuse is intact.

If the refrigerator is not cold enough it may be because:

(i) The ventilation is inadequate owing to objects or winter covers blocking the ventilation passages.
(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 the same time.

(vii) The door is not properly closed.
(viii) More than one source of energy is used at the same time.

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

12) *Some Useful Hints*

Make sure that:

a) Defrosting is carried out periodically.
b) The refrigerator is clean and dry with the door left open when it is not to be used for some time.
c) Liquids or items with a strong odour are well packaged.
d) The ventilation openings are unobstructed.
e) The door is secured by means of the travel catch when the vehicle is on the move.
f) Only one mode of operation at a time is used to run the refrigerator.

13) *Guarantee*

The refrigerator is guaranteed by Electrolux for one full year on condition that it is used in a correct manner and in accordance with these operating instructions. It is also embraced by a European guarantee as described in the brochure supplied with the refrigerator.

14) *Service and Spare Parts*

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

15) *Technical Data*

a)	Mode of Electricity Operation:	-	230v AC 95 watts
		-	12 v DC 95 watts
	Energy Consumption	-	1.6 kWh/24 hours
b)	Mode of Gas Operation:		
	Rated Power	-	205 watts
	Energy Consumption	-	0.21 kg/24 hours
	Cooling Medium	-	R717

7) CARVER CASCADE GE RAPIDE

The Carver Rapide GE is fitted on the offside of the Clubman and has a 9 litre (2 gallon) capacity. The heater is installed through the wall of the vehicle with only the flue cowl visible.

All the gas operation parts are contained within a single module which can be easily removed from the outside of the vehicle. Control of the gas operation of the Cascade Rapide GE is made from the wall mounted remote control unit. On the front of the controller is a push button ON/OFF switch and LED indicator lights. On the front are the indicator lights which show the state of the heater. The lights on this controller do not show that mains electricity is being used. The Cascade Rapide GE can make use of the mains electricity supply which can be used as an alternative to the gas operation or used with the gas to facilitate a faster warm-up.

The immersion element can be used on 230 volt 50 Hz and is rated at 605 Watt. The thermostat for the appliance is not adjustable and is set to give a water temperature approximately 70°C.

a) Two safety features are included on the Cascade Rapide GE these being:

1) A pressure relief valve which automatically opens if the internal pressure exceeds 3 bar (44 psi) then closes when the pressure drops.

2) A fusible plug which is located behind the cowl. If the temperature rises too high this plug melts and sprays water onto the burner thus causing the heater to shut down. In addition to the above safety features the Rapide GE plus also incorporates a resettable high limit thermostat for electric water heating.

1) Before Switching On:

a) Ensure that the gas is turned on and that the system is full of water i.e. air free water flows from the hot taps.

b) Check that the 12 volt supply is connected and switch on. **DO NOT** use a battery charger as the only source of supply.

2) *To Light the Heater - Gas Heating:*

a) Switch on the 'ON' button on the wall switch.

3) *The Lights Indicate*:

a) **Green**. The heater is working satisfactorily.

b) **Green** and **Yellow**. The DC voltage is below the 10.8 volts that is required to operate the heater. Recharge the battery.

c) **Green** and **Red**. The heater has failed to ignite or has gone to safety shut down. This is usually due to failure of the gas supply or air in the gas system after fitting a new cylinder. Switch the heater off and **WAIT 3 MINUTES** before attempting to relight the heater. If air in the gas system is the problem several attempts may be necessary before the heater ignites.

4) To shut the heater down - press the OFF button on the wall switch

Mains Electricity Operating Instructions - Rapide GE

Ensure that the vehicle is connected to the site mains and the supply is adequate.

1) *To Switch On*

Switch on the neon isolation switch situated in the wardrobe adjacent to the main trip switch. The light should indicate that the heater is working.

2) *Thermostat*

The thermostat cannot be adjusted and is pre-set to approximately 70°C.

3) *Over Temperature Thermostat - **IMPORTANT***

If the mains electrical supply to the heater is switched on but the heater is not working the over temperature thermostat may have operated.

This can be due to:

a) Switching the heater on without water in the tank. Always check that the heater is full of water before switching on i.e., water flows from the hot taps.

b) Failure of the normal operating thermostat.

c) Manually reset the over temperature thermostat by pressing in the button in the centre of the electrical connection box. If the operating thermostat has failed the over temperature thermostat will again trip out. The reset button is located at the inner end of the water heater, access being through the removable panel in the base of the wardrobe.

If the heater continues to trip out **DO NOT use the immersion heater and consult your Carver or Auto-Sleeper dealer.**

Frost Precautions:

Important: During periods when the heater is likely to freeze, it MUST be drained down to prevent damage.

It is also recommended that if the vehicle is stored during the winter that the water system is drained.

To Drain the System Proceed as Follows:

1) Park the vehicle on level ground.

2) Ensure that the gas and electricity are turned off.

3) Unscrew the drain plug which is located at the bottom left of the flue cowl on the outside of the vehicle. When the end of the thread is reached pull the plug out slightly. The plug will still be retained but will allow the heater to drain.
Now locate the small slotted plug at the top left hand corner of the Cascade flue, directly above the large drain plug. With a screw driver turn the slot just ¼ of a turn, left or right. The water (which may be hot) will freely flow from the lower drain. When finished turn a further ¼ turn.

4) Open both the hot and the cold taps. At least 9 litres (2 gallons) of water should drain from the heater. Use a bucket to collect the water to ensure the heater has drained completely.

5) Close the taps when the heater has stopped flowing. It is recommended to leave the drain plug out while the system is empty and replace before refilling.
Note: Be careful not to loose the rubber 'O' sealing ring.

Sterilising

When cleaning the water system at the start and end of the season it is advisable to use a sterilising fluid e.g., Milton 2, Chempro SDP or similar. **DO NOT use domestic bleach, Camden tablets or sodium metabisulphide.**

8) ELECTRICAL SYSTEM

1) 12 Volt

The electrical supply for the conversion is taken from the second battery with the refrigerator wired separately and controlled via a relay through the ignition switch. The second battery is fitted as standard and a split charge relay is wired between the batteries to prevent the vehicle battery from becoming discharged.

2) ***230 Volt***

230 volt mains supply is available for the operation of the internal mains light, the refrigerator, the water heater and the 230 volt socket outlet. The socket inlet is situated on the side of the cocktail cabinet.

3) ***Battery.***

The vehicle battery is located under the bonnet. The second battery is fitted as follows:

Petrol/Diesel	Co-located with the main vehicle battery.
Odd Specification (vehicle fitted with air conditioning/ABS)	In a sealed compartment inside the front cupboard of the offside bed box. (Maintenance Free).

4) ***Internal Lighting***

a) Double filament 16w fluorescent lights are fitted in the following positions:

1) In the rear ceiling above the sink unit.
2) In the centre ceiling between the top lockers.
3) Two are found one beneath each of the two side top lockers.

b) Four spotlights are found one on each end of the two side lockers.

c) One courtesy light is to be found beside the rear door on the side of the refrigerator unit.

d) A 230 volt mains lamp is fitted to the left-hand wall of the wardrobe.

e) In the event of the storage lockers being fitted, an additional fluorescent light is found in the centre storage compartment.

f) For details of the Volkswagen lights, refer to the Volkswagen instruction manual.

5) ***Water Pump***

The water pump fitted to the Clubman GL is found by removing the panel in the lower right-hand side of the cupboard under the sink/drainer. The water system is operated by switching on the overriding switch found in the electrical panel, and thereafter controlling the flow of water, and the operation of the water pump, by means of the taps. The water pump, which is of the triple diaphragm type, is protected by the 10 amp fuse found in the control panel, (fuse No 2). It should be noted that replacement pumps should be of the low pressure type and **MUST NOT EXCEED AN OPERATING PRESSURE OF 12 psi.**

6) ***Electrical Control Panel***

a) The electrical control panel is situated in a unit above the refrigerator. It should be noted that the following fuses protect the circuits below.

Fuse No 1 (10 amp)	Lighting Circuit
Fuse No 2 (10 amp)	Water Pump (Low Pressure)
Fuse No 3 (2 amp)	Refrigerator Ignition and Water Gauge
Fuse No 4 (10 amp)	12 Volt Socket Outlet
Fuse No 5 (10 amp)	Fanmaster
Fuse No 6 (5 amp)	Cassette Toilet and Carver Rapide Gas Ignition

The electrical control panel incorporates the following additional facilities.

b) *Refrigerator 12 Volt Operation Light.* The light illuminates when the refrigerator is operating on the 12 volt system. A similar warning light is also fitted on the refrigerator control panel.

c) *Battery Condition Indicator Lights.* In order to check the battery condition, press the water gauge button (READ) and the battery condition indicator lights will illuminate. Readings should be interpreted as follows:

1)	**Green**	-	Battery is fully charged - 12 to 14 volts.
2)	**Red**	-	Battery requires recharging - level has reached 11 volts and recharging should take place as soon as possible.

d) *12 Volt Master Switch.* This may be used to isolate the caravan electrical system except the refrigerator 12 volt system which operates independently through the vehicle ignition switch.

e) *Water Pump Master Switch.* This may be used to isolate the water pump. It must be switched off when the water pump is not in use.

f) *12 Volt Socket Outlet.* This socket should be used only with the plug supplied. It is suitable for only 12 volt DC operation up to a maximum of 10 amps. When connecting the 12 volt plug it should be noted the centre terminal is POSITIVE and the outer terminal NEGATIVE.

g) *Water Level Indicator.* In order to check the water level in the fresh water tank, press the push button which will give a reading on the dial showing the state of the water level. In order to calibrate the water level gauge, fill the water tank fully then press and hold 'READ' button, setting the indicator to the FULL position by use of the calibration knob.

7) Battery/Second Battery.

The vehicle is fitted with an auxiliary battery which provides the residential 120 supply. The residential supply is protected by a 30A blade fuse. This fuse is located within a relay/fuse against the vehicle bulkhead in the engine compartment(see note 1).

The auxiliary battery is charged from the vehicle battery whilst the engine is running. A 30 amp fuse is fitted in this circuit, to protect the system from overloading.

Note 1

On 2.5TDI models, the residential battery is located under the offside seat behind the driver's seat. This is accessed by opening the flap. The battery is fitted in a boxed compartment which has a removable top section. A 30 amp blade fuse is fitted with the battery which protects the battery on the vehicle charging circuit only. The residential 30 amp fuse is located the same as for the petrol, diesel models.

Note 2

An E.M.C. relay is fitted to Clubman models, which disconnects the 12v supply to the residential circuits when the vehicle ignition is switched on, or when the vehicle is in motion.

Important: The fuse ratings in paragraph 4 (above) must be adhered to when replacements are needed.

8) *230 Volt AC Mains Hook-Up*

The mains circuit is protected by an RCD (Residual Current Device) and three MCB's (Miniature Circuit Breakers). These units are co-located and are found in the wardrobe.

Operation of RCD.

With mains hook-up connected, the following actions must take place:

a) Switch the main RCD on, (which is in the UP position).

b) Press the test button (located adjacent to RCD switch). This should cause the main switch to trip.

c) Return main switch to ON position.

d) Switch the 10 amp MCB to the UP position, (ON). This circuit controls the 230 volt socket outlets.

e) Switch the 6 amp MCB to the UP position, (ON). This circuit controls the 230 volt circuit to the refrigerator, wall lamp and the water heater.

Note: MCB's are numbered as follows:
MCB 1 - 10 amps. 230 volt socket outlets.
MCB 2 - 10 amps. Fanmaster.
MCB 3 - 6 amps. Refrigerator, charger, water heater

9) **OPERATION AND MAINTENANCE OF ZIG X-7 BATTERY CHARGER**

General

The Clubman is fitted with the Zig X-7 battery charging unit, which will charge and recharge the auxiliary battery by raising its terminal voltage to equal that of the charger which is 13.8 volts.

The charger is located in the rear of the cupboard below the sink. To gain access to the charger unit the rear panel of the cupboard must be removed.

Introduction

The X-7 is a fully automatic battery charger. Connected to a six cell lead acid battery with a nominal voltage of 13.6 volts, the unit will charge and recharge the battery by raising the terminal voltage to equal that of the output of the battery charger.

As the battery voltage increases the input current from the battery charger automatically reduces until it ceases to flow. This provides fast and efficient battery charging and eliminates the possibility of overcharging, unless the battery is at fault.

Operation

When battery charging is required and 230 volt hook-up is available, the X-7 should be switched to the "ON" position and the green indicator will illuminate as confirmation that the charger is working. The unit is fully automatic and no further action is required.

Warning: Under no circumstances must non-rechargeable batteries be connected to the X-7.

Warning: The charger is fitted with a safety device which provides a time delay of approximately two seconds to reduce the surge of inrush current when switched on. For this device to function correctly, there must be an interval of 45 second between switching off and on.

Note: The green indicator light will illuminate when the charger is working. If the current rating is exceeded the light will go out. The circuit is self-resetting when the load is reduced to the units specification.

The X-7 is designed to charge 12v lead acid type batteries. The capacity of the battery must not be less than 60 amp per hour.

Should the battery contain a faulty cell, the terminal voltage will not rise sufficiently to switch the charger off and the battery will eventually boil dry. The most common cause for cell failure is discharging the battery below the recommended level, approximately 10v.

Auxiliary Battery Connections:
Terminal 1 on the X-7 is positive terminal on the auxiliary battery (via 25 amp in-line fuse supplied).
Terminal 4 on the X-7 to negative terminal on the auxiliary battery.

Mains Electric 230v Wiring:
The X-7 does not control the mains facilities within your van - it uses mains 230 volts during its operation.

In order to ensure the unit is functioning correctly, note the following procedure:

Disconnect auxiliary battery by removing the in-line fuse.
Hook the vehicle to the mains supply.
Switch the X-7 power supply on.

If the 12 volt accessories work in the van the unit is functioning correctly:

Replace the in-line fuse.

The unit is unaffected by low input voltages or reversed polarity in the incoming supply (see specification) ensuring that it works to its full potential particularly when travelling abroad.

Reversed Battery Connection:
The X-7 supply unit is fully protected against reversed battery connection. Should this happen it will be necessary to reconnect the battery leads the correct way round and also replace the 25 amp in-line fuse.

Note: If a battery is not used or is heavily discharged the load drawn by the accessories must not exceed the rated output of the X-7.

Your Zig power supply is designed to give years of trouble free service. It is rigorously tested and complies with the following standards:

BS 6765
BS EN 60335-2-29
EN 55014
EN 50082-1
EN 60555 Part 2
EN 60555 Part 3
NCC/SMMT Regulations
and their European Norms where applicable.

Product Specification - X-7 Power Supply:

Input Specification:

1.	Rated input voltage	220-240 VAC +/- 10%
2.	Max input current	1 A (RMS) max at 230 VAC
3.	Rated input frequency	47 Hz - 63 Hz
4.	Max input power	233 w

Output Specification:

1.	Rated output voltage	Nominal 13.8V
2.	Rated output current (continuous)	0A - 12.5A
3.	Ripple and noise	100 mv p-p
4.	Output voltage, stability	+/- 0.5%
5.	Current limit	13.5A
6.	Max output power	186w

Guarantee (Statement by Manufacturer):
Zig products are fully guaranteed for a period of one year from the date of first purchase against faulty workmanship or materials.
Zig Electronics Ltd will repair any such item free of charge provided they have been installed and used in accordance with our instructions.

In the event of a fault the product should be returned to the place of purchase for repair or replacement under the terms of this guarantee.

This guarantee does not in any way affect your statutory rights under the Sale of Goods Act (1979).

12) WATER SYSTEM

a) *General*

An 72 litre (15 gallon) fresh water tank is fitted. A drain tap, to enable the water tank to be drained is situated in the centre of the offside skirt. A waste water tank 42 litre (9 gallon) is also fitted as standard.

The water system is fed by a triple diaphragm water pump and non-toxic hosing is used throughout. The water filler is found on the front nearside of the vehicle.

b) *Water Level Indicator (Fresh Water Tank)*

The water level indicator is fitted in the electrical control panel and is operated by the press button adjacent to the gauge. The reading to the fresh water tank indicator may be adjusted for accuracy by use of the small knurled calibration knob.

c) *Water Pump*

The water pump is self priming and incorporates its own pressure switch. It is recommended that the water pump master switch be switched off when the vehicle is travelling or is unattended. The water pump is of the low pressure (12psi) type.

Note: Dry running the water pump may not blow a fuse but may seize the water pump bearings due to overheating.

d) *Water Filter*

The water filter is fitted to the top of the water pump. This should be checked periodically and cleaned as necessary. The filter will split for cleaning and it is not necessary to remove it from the pump or hose.

e) *Water Tank*

The water tank is fitted with breathers to ease the filling process. When the tank is full, water may escape through these breathers.

f) *Waste Tank*

The waste tank is fitted to the centre underside rear of the vehicle. The outlet pipe is to be found in a retaining clip immediately under the rear bumper; this incorporates a drain tap on the end of the pipe. ***This tank should always be drained before driving away from a site, or as soon as practicable to avoid carrying unnecessary weight.***

g) *Shower Hand Basin*

Soap and washing accessories should be removed from the hand basin before it is retracted into the storage position. In the event of soap or other toilet items being accidentally left in the basin when folded away, these will remain in the catchment area immediately behind the hand basin. Access to the catchment area is achieved by lifting the basin forwards and upwards out of the unit.

Note: The outlet from the catchment basinarea may become blocked with fluff and dirt; should this occur the outlet should be cleared carrying out the action as described above.

Important: The catchment basin outlet should be checked at least every six months to ensure that loose debris is not blocking the drain hole.

h) *Shower Head.*
A trigger operated shower head is fitted which offers either a controlled or full flow facility. The diffuser, which should be cleared annually, may be unscrewed for maintenance.

13) WINDOW BLINDS/FLYSCREENS

The Clubman is fitted with Remis Flyscreens and Sunblinds.

a) *Flyscreen.*
Pull the flyscreen fully down and gently push the crossbar toward the window so that it locates in the retaining catch on the sunblind crossbar. To release, gently pull the crossbar downwards and toward you, and allow the tension of the spring mechanism to rewind the flyscreen upwards.
DO NOT RELEASE THE HANDLE - causing the flyscreen to "**WHIPLASH**" upwards - as this will cause damage to the spring mechanism.

b) *Sunscreen.*
The front channel of the vertical guides has a number of "cut outs" to enable to sunscreen to be retained at various heights - look inside the vertical guides to locate these.

c) *Tension Adjustment.*
The tension adjustment clips are located at the left side of the cassette - top one is for the flyscreen and the lower one for the sunscreen.

Insert screwdriver into tension clip, apply gently inward pressure and rotate tension clip one or two clockwise turns to increase tension or anti-clockwise to reduce tension.

Gently release the inward pressure to enable tension clip to re-engage into its internal rachet. Check tension and if necessary repeat until the crossbars return to their top positions without too much tension or assistance. **DO NOT OVER TENSION.**

d) *Winterisation.*
The flyscreen/sunscreen should NOT be left in the "closed" position through the winter as this may cause the spring mechanism to lose tension. However to rectify this, gently pull crossbar downwards and toward you allowing the tension remaining in the mechanism to rewind.

When it stops pull the crossbar downwards and upwards five or six times to restore correct tension. Should the blinds not retract fully please follow Tension Adjustment instructions show above.

14) ROOF VENTILATORS

a) *General.*
Two MPK roof ventilators are fitted in the living area, and one in the shower.

b) *Operation.*
Each roof ventilator has two side handles which, when raised, afford a variety of positions.

Note: ***All roof ventilators must be closed when the vehicle is in motion. The slots in the vent surrounds must not be blocked since they contribute to the fixed ventilation of the vehicle.***

c) *Optional Omnivent Electric Extractor Fan.*
An Omnivent may be fitted as a factory fitted optional extra. It features a hinged roof vent operated by a knurled knob; when the roof vent is closed, the fan will not operate.

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

15) INSULATION

a) All body panels, except the front cab doors are insulated using fibreglass wool.

The roof is also insulated giving protection against extremes of hot and cold whilst at the same time minimising condensation.

16) FIRE EXTINGUISHER

a) A rechargeable Guardian Vanguard 1Kg Powder (BC) stored pressure type fire extinguisher, with a fire test rating of 34B, is fitted on the rear end of the nearside roof locker. It is manufactured and inspected to BS 5423: 1987.

The fire extinguisher should be checked at regular intervals for the following:
1) Check that the anti tamper seal is intact.
2) Ensure that the nozzle is not obstructed.
3) Check the pressure gauge pointer is in the green section.

Note: ***If the extinguisher is very cold, the pressure will drop. The pointer should be in the centre of the green section at 20°C (68°F).***

You should not test your extinguisher, even for a short burst, since this will cause a loss of pressure and make the extinguisher inoperative.

21) MARKER LIGHTS

The marker lights are fitted as standard to the front and rear of the vehicle. They are fitted with a 12 volt 5 watt, 0.4 amp bulb.

24) AWNING

We recommend should an awning be required that a 3.5m Fiamma or Omnistor unit be fitted. Three awning blocks will be required, placed equidistantly about the caravan door. When fitting, care should be taken to ensure that the awning, when extended, does not snag the opening of the caravan door. Two 12mm 18" x 16" panels are bonded in the bodywork to support the front and rearmost awning wedges. These are available either through your local Auto-Sleeper dealer or direct from the factory. The awning wedges must be bolted onto the coachwork and not screwed.

22) CYCLE RACK - REINFORCEMENT TO REAR OF VEHICLE

Four inches below the rear window, and extending down to the top of the rear light recess, is a panel, centrally mounted at the rear of the vehicle of dimension 21" x 8" with a thickness of 12 mm to which a cycle rack, if fitted, should be mounted.

It is bonded into the vehicle bodywork. The cycle rack must not be attached to any other area. A Fiamma 200 UL or 300 UL is recommended. Ensure this is fitted in accordance with the maker's instructions.

MAINTENANCE

GENERAL

1) BATTERIES

Terminals of both the main vehicle and second battery should be regularly cleaned and greased. The batteries should be checked for security when the base vehicle is serviced. The second battery is a maintenance free unit which incorporates a breather to the exterior of the vehicle.

2) WORK SURFACES

Laminated work surfaces are fitted to all furniture units. Whilst these are hard wearing hot pans should not be placed directly on these surfaces since damage could result.

3) FURNITURE

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. Heavy stains may need to be sanded out and the edging re-polished. Final finish may be achieved by using wire wool and wax.

4) UPHOLSTERY

a) Cleaning

Your upholstery should be brushed or vacuum cleaned regularly. Fabrics should be wiped every six to eight weeks with a lint free cloth and fabric cleaning fluid. Velour materials should be dry cleaned at regular intervals.

b) *Fabric Care*

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 damage.

Whenever possible, avoid exposing the product to direct sunlight which might eventually cause the fabric to fade.

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.

c) Stain Removal

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.

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

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.

d) *Upholstery Fillings*
All seat and cushions incorporate combustion modified fillings which fully comply with the 1988 Furniture and Fire Regulations.

4) CURTAINS

a) Nearly all curtain fabrics are treated with a formaldehyde resin which, if not cured properly, has been known to give a "fishy" smell. If this is present, it will rapidly disperse.

b) All back-coated curtains can be washed at a recommended temperature of 40° C. We do not recommend dry cleaning. Coachbuilt model curtains are separately lined and may also be washed at 40°C.

c) The shrinkage on back-coated fabrics washed at the recommended temperature, or lower, should not be more than 4%.

5) ROLLER BLINDS

The cassettes, tracks and blind fabrics can be cleaned with a mild detergent suitably diluted in clean water, and dried before allowing the fabrics to be rolled away. The spring mechanism should not be oiled in any way, as the fabrics could be contaminated, and the plastics affected. The mechanisms are designed to be lubrication free, and if kept clean should not give any problem.

6) EXTERIOR PAINTWORK AND FIBREGLASS

Exterior paintwork and fibreglass should be regularly washed and polished with a non-abrasive car wax. In the event of the bodywork blooming, the depth of shine can be restored by use of a mild 'T'-Cut abrasive cutting paste, followed by application of a wax polish. See Annex J for further details of recommended cutting and polishing agents.

7) ACRYLIC DOUBLE GLAZED WINDOWS

Great care should be taken in the maintenance of these windows and only approved materials used for the cleaning thereof. See Annex J for details of maintenance and removal of scratches.

8) GAS VENTS

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

Important: Blocking of vents and flues is extremely hazardous and should be avoided at all times.

9) GAS FLEXIBLE RUBBER HOSES

All gas flexible rubber hoses should be changed annually and must be secured at each end with jubilee clips. When removed, they must be replaced with the approved type. ***Important: All flexible hoses must be replaced annually with new hose to British Standard 3212/1.***

10) GAS INSTALLATION

Important: Gas installations must be inspected annually by qualified personnel. If in doubt contact your local Auto-Sleeper dealer. Modifications should not take place unless carried out by qualified tradesmen.

11) SEAT RESTRAINTS

Important: Seat restraint mouldings should be checked for tightness annually and retightened if necessary to a torque setting of 24 newton metres. 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.

12) Servicing of the automotive aspects of your motor caravan is best carried out by a commercial vehicle service centre who would have a better understanding of your vehicle and should have any specialist tools that are necessary.

IMPORTANT NOTICE

Maintenance and servicing of the conversion is the responsibility of your local franchised Auto-Sleeper dealer to whom all matters should be referred in the case of any queries.

SAFETY PRECAUTIONS - GENERAL

1) VENTILATION

The ventilation system on the vehicle dashboard constitutes an important part of the ventilation system of the motor caravan and when the vehicle is being used as such all vents should be set open i.e. so as to provide the maximum fresh air inlet that is possible.

2. WATER PUMP

Note: The water pump must not produce a pressure greater than 20psi otherwise damage to the Carver Rapide may result.

3. GAS LOCKER SEALS

Important: Rubber seals around the gas locker doors (internal and external) should be inspected annually and replaced as necessary.

4) INTERIOR HEATING

Important: On no account should the cooker be used to heat the interior of the vehicle.

5) GENERAL

a) In the interests of safety, replacement parts for an appliance should conform to the appliance manufacturer's specification and should be fitted by them or their authorised agent.

b) **NEVER** use portable heating equipment, other than electric heaters that are not of the direct radiant type, as it is a fire and asphyxiation hazard.

c) **NEVER** allow modification of electrical or LPG systems or appliances except by qualified tradesmen.

d) The water heater fitted to the vehicle is of the "room sealed" type, any replacement should be the same i.e. "room sealed".

e) Unflued water heaters should not be used in the motor caravan, to do so would be extremely hazardous.

f) Turn off all gas equipment and cylinders/tanks and any other heating appliances before travelling except heaters which are intended for use when the vehicle is in motion.

Important: Heaters intended to be used when the vehicle is in motion MUST be turned OFF before refuelling the vehicle or gas tanks/cylinders.

g) Make reference to the Base Vehicle Handbook for matters relevant to the motor caravan as a road vehicle.

h) Ventilation openings are located below all the gas appliances and in the base of the gas locker, these openings should be regularly inspected and any mesh covering them, cleaned with a stiff brush to prevent any risk of them becoming blocked.

i) Ensure that the refrigerator ignition is switched off before you start your journey. This is particularly important when on a petrol station or when gas bottles are being connected or disconnected.

j) When children, invalids or elderly persons are left unattended in the motor caravan then any locks or stable door catches that are beyond their reach should be left in the open position.

k) Ensure that the child proof lock is not activated when the motor caravan is parked off the road.

l) Do not store aerosols in any areas in which they could be affected by heat, i.e. adjacent to heaters, heating ducts, cookers etc.

SAFETY PRECAUTIONS

GAS APPLIANCES AND FITTINGS

1) OPERATING INSTRUCTIONS

Please read the instructions and labels provided with your appliance carefully and keep them handy for future reference. If there is anything that you are not quite sure about - ask your Auto-Sleeper dealer for advice. Make sure you have means of lighting the gas before turning on the supply.

2) PERSONNEL

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

3) CYLINDERS

Cylinders must be sited away from any heat source, in a well ventilated place, must stand in a stable upright position and be secured by their retaining straps.

4) REGULATORS

It is important to ensure that the correct type of gas regulator is fitted.

For Propane cylinders and for Butane cylinders having 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. ***(Note: The thread is left-handed)***.

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.

5) SCREWED CONNECTIONS

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

6) AWNINGS

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

7) HOSE AND CLIPS

The flexible gas hose should be regularly inspected for deterioration and renewal annually with an approved type. Always use hose clips when connecting flexible hose to regulators or LPG nozzles.

8) LEAKS

After connecting appliances/regulators, etc. check that there is no leak of gas before use. 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. NEVER look for a leak with a naked flame, but trace it by smell and confirm by brushing leak-detecting fluid (or soapy water) over the suspected joint. Equipment must not be used until any leak is eliminated.

9) **MAINTENANCE**

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

10) **TURNING OFF**

After using an appliance it is of the ***utmost importance*** that any valve fitted to the appliance is then closed to ensure that when the appliance is again used the turning on of the cylinder valve does not allow gas to escape from the appliance before being ignited.

11) **FIRE**

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. ***(Do not use a water jet on a fire of liquid LPG).*** If this is too dangerous call the fire brigade and move all people away from the area.

Important: The gas appliances should only be used when the vehicle is stationary and when adequate ventilation is provided.

12) **PROBLEMS**

If you are in any doubt about the operation of the appliance please consult your Auto-Sleeper dealer.

Important: All gas appliances must be extinguished and the relevant gas taps turned to the "off" position when your vehicle is being refuelled.

Important: It is of the utmost important that any tap fitted to a gas appliance is in the "off" position when the appliance is not in use.

Important: For safety reasons to not use gas appliances while the vehicle is in motion.

Important: The refrigerator ignition must be switched off when the vehicle is in motion and whilst it is being refuelled. Whilst the vehicle is being driven, the refrigerator should be operated only on 12 volts.

SAFETY PRECAUTIONS

ELECTRICAL SYSTEMS

1) **BATTERIES**
Battery terminals and connectors should be firmly connected. Battery surfaces should be free of moisture and dirt. Cell tops must be fully tightened if appropriate. When removing a battery always remove the negative wire first. On re-connection, the negative should be connected last. Switch off all appliances and lamps before disconnecting the battery.

2) **FUSES**
Always replace blown fuses with a correct rating equivalent.

3) **OVERLOAD**
Never overload any electrical circuit especially the 12 volt socket outlet. The rating of equipment should be checked before connection.

4) **SHOWER COMPARTMENT LIGHT**
Ensure that water does not ingress into the light unit.

5) **CHARGER UNIT**
Keep the charger unit well ventilated and never allow material or bags to be in contact with the unit casing since heat is emitted during operation.

6) **230 VOLT MAINS OPERATION**
Before connecting supply, ensure that the contacts in both the plug and the socket are clean and dry and ensure also that the hook-up plug is firmly located and locked into the socket. Ensure the RCD is easily accessible at all times.

7) **WIRING DIAGRAMS**
Wiring diagrams are found in the rear of this instruction booklet. If in doubt refer to these diagrams and if necessary contact your local Auto-Sleeper dealer who will be pleased to answer any of your queries.

(Base vehicles fitted with 12v electric clocks and alarm systems)

In the event of the vehicle remaining unused for a long period, we recommend that the fuse through which the vehicles electric clock is wired is removed. Similarly, consideration should be given to wiring the alarm system, if so fitted, through the caravan battery so, in the event of the battery becoming fully discharged, the vehicle will be able to be started and the leisure battery charged.

SAFETY PRECAUTIONS

FIRE

IN CASE OF FIRE: Get everybody out, then:

1) Switch off engine.

2) Switch off fuel/gas/electricity.

3) Raise the alarm and call the Fire Brigade.

4) Tackle the fire if it is safe to do so.

FIRE PRECAUTIONS

1) Children should not be left alone in the motor caravan.

2) Keep combustible materials clear of all heating and cooking appliances.

3) Provide fire extinguisher(s) that comply with the requirements of BS 5423 and a fire blanket next to the door.

4) Check fire precautions on site.

FIRE EXTINGUISHER

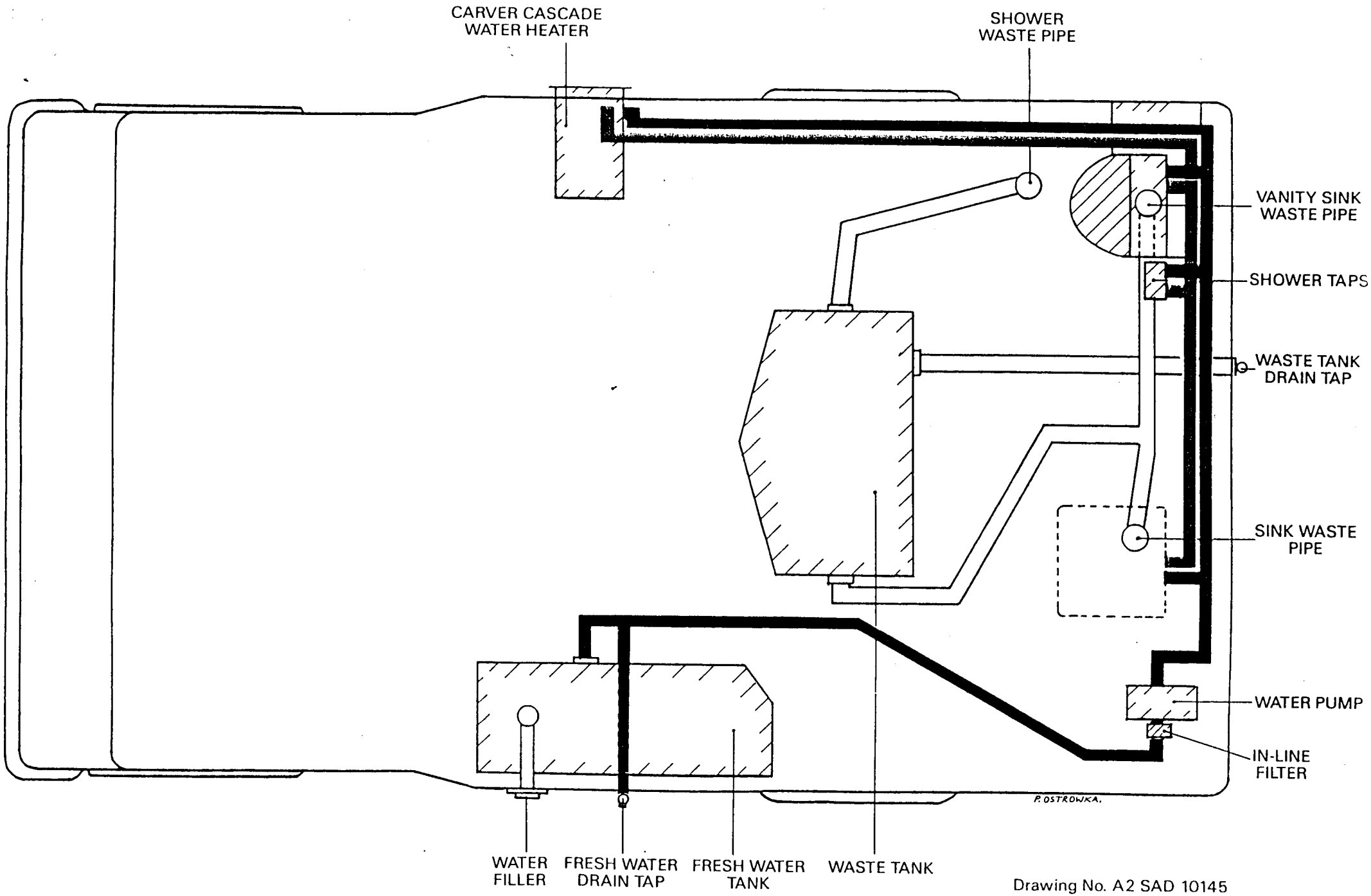
1) A fire extinguisher is fitted as standard. For maintenance see manufacturers instructions. (See page 5.25 paragraph 16, for a summary of these instructions).

AUTO-SLEEPERS ELECTRICAL FAULT DIAGNOSIS

Symptom	Cause	Remedy
No power to 12v system	Battery discharged	Check/recharge battery
	30A fuse blown	Replace fuse
	Switch on Zig panel is in "OFF" position	Switch to "ON"
	Fuse on Zig X-7 charger blown	Replace fuse
No power to one or more circuits	Fuse blown on control panel	Check fuses panel
Lights dull/non-operational	Low battery	Recharge battery
	Faulty tube	Replace tube
	Faulty light unit	Replace light unit
Water pump does not operate	Not switched on at control panel	Turn switch on
	Pressure switch not operating on pump	Refer to dealer
	Fuse blown at control panel	Replace fuse
Water gauge does not operate/or show correct readings	Calibration control incorrectly set	Reset/recalibrate control knob
	Moisture ingress on connector between probe on control panel	Check for signs of water ingress or loose or damaged wiring
	Probe fault	Refer to dealer (Check probe connectors not arcing)
No power on 12v socket	Fuse blown	Replace fuse
	Overload from appliance causes fuse to blow	Check current rating on appliances
	Plug wired incorrectly	Check wiring in plug, refer to manual
Carver Rapide 12v unit showing orange light	Low battery	Recharge battery

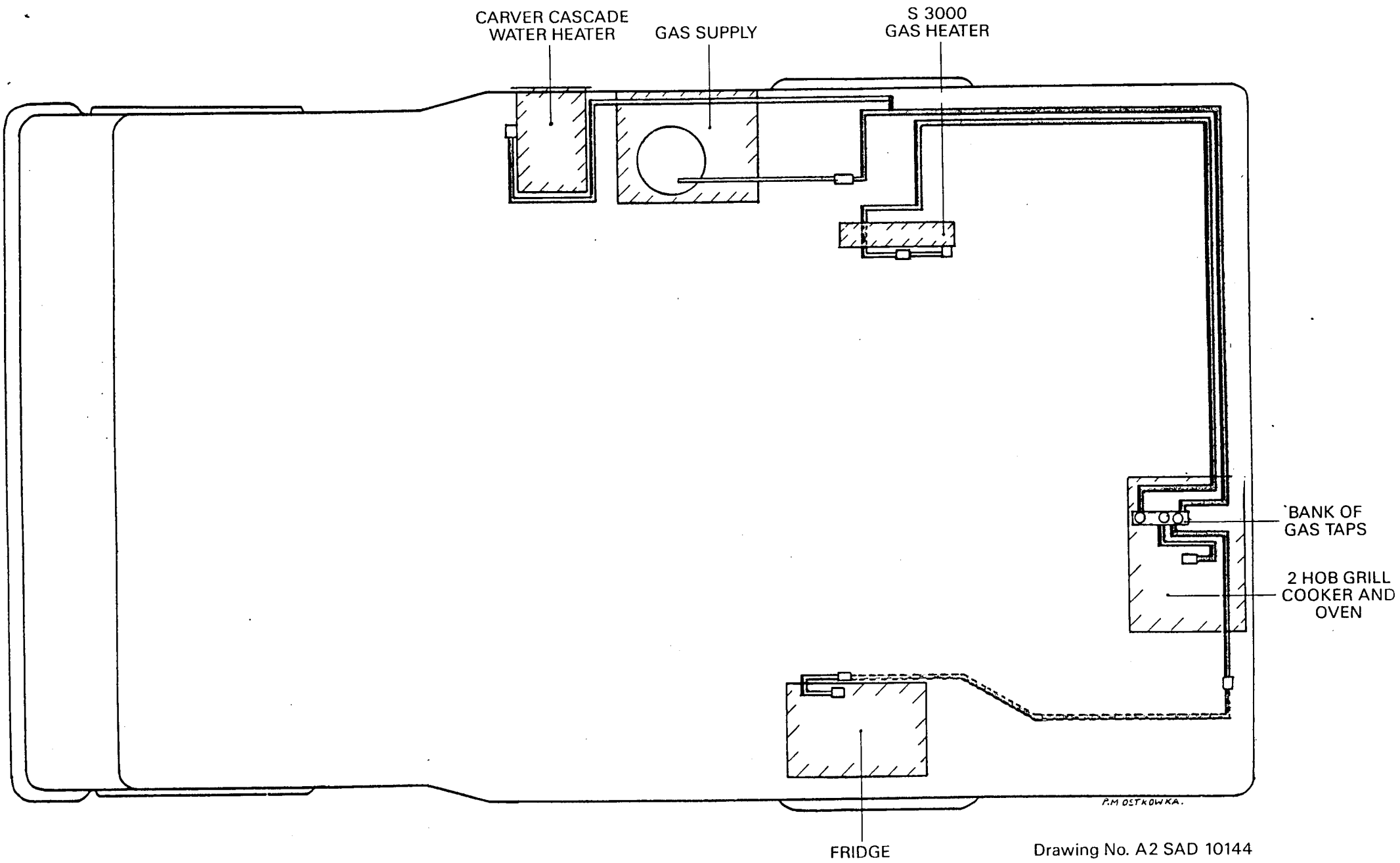
Symptom	Cause	Remedy
Cascade 12v unit does not trigger gas ignition	Fuse in control unit (Cascade) blown	Replace 1A fuse located in Cascade unit
Fridge ignition flashes but no spark is heard	Fault on ignition unit	Refer to dealer
Unit sparks but no light on switch	Faulty switch	Refer to dealer
Fridge not operating on 12v	Relay not operating correctly	Refer to manual for operation
	Element on fridge faulty	Refer to dealer
Toilet pump does not operate (Thetford Cassette)	Fuse blown on Zig panel	Replace fuse
	Toilet unit not pushed in fully	Check that unit has fully engaged into unit
	Faulty pump	Refer to dealer
Auxiliary battery does not charge	30A fuse blown	Replace fuse
	Relay not operating	Refer to dealer
	Faulty battery	Test battery/electrolyte levels
	Bad contacts on battery	Clean terminals, grease terminals if necessary
Both vehicle & auxiliary battery not charging	Alternator fault	Refer to base vehicle commercial dealer
Auxiliary battery drains after a period of time when not in use or does not hold charge	Faulty battery	Replace battery check water levels
	Current being drawn by an appliance	Ensure all appliances are OFF and 12v panel is OFF when not in use
No 230v systems operate	230v input plug not connected	Ensure connections are correctly made
	RCD switches off	Check positions of switches
RCD will not reset keeps tripping out	Fault on 230v supply	Check supply

Symptom	Cause	Remedy
	Faulty appliance	Turn off all appliances, then reset RCD unit, switch on each appliance individually until fault occurs. Isolate faulty appliance
10A MCB keeps tripping out	Faulty appliance on 230v socket outlet	Check appliance
	Overload on appliance current consumption exceeding 10A	Do not use appliance
Carver Rapide does not operate on 230v AC	Fuse on Rapide switch blown	Replace fuse (top barrel fuse on front of battery Charger)
	Thermal trip on heater tripped out	Reset switch. (See instruction manual for location of reset button)
Battery charger not operating	Charger not switched "on"	Switch charger "on"
Fridge not operating on 230v	Switch on fridge/thermostat dial not ON	Check positions of switch/dial
	Element fault	Refer to dealer
230v light not operating	Bulb faulty	Change bulb
	Bulb not screwed fully home	Tighten bulb in fitting

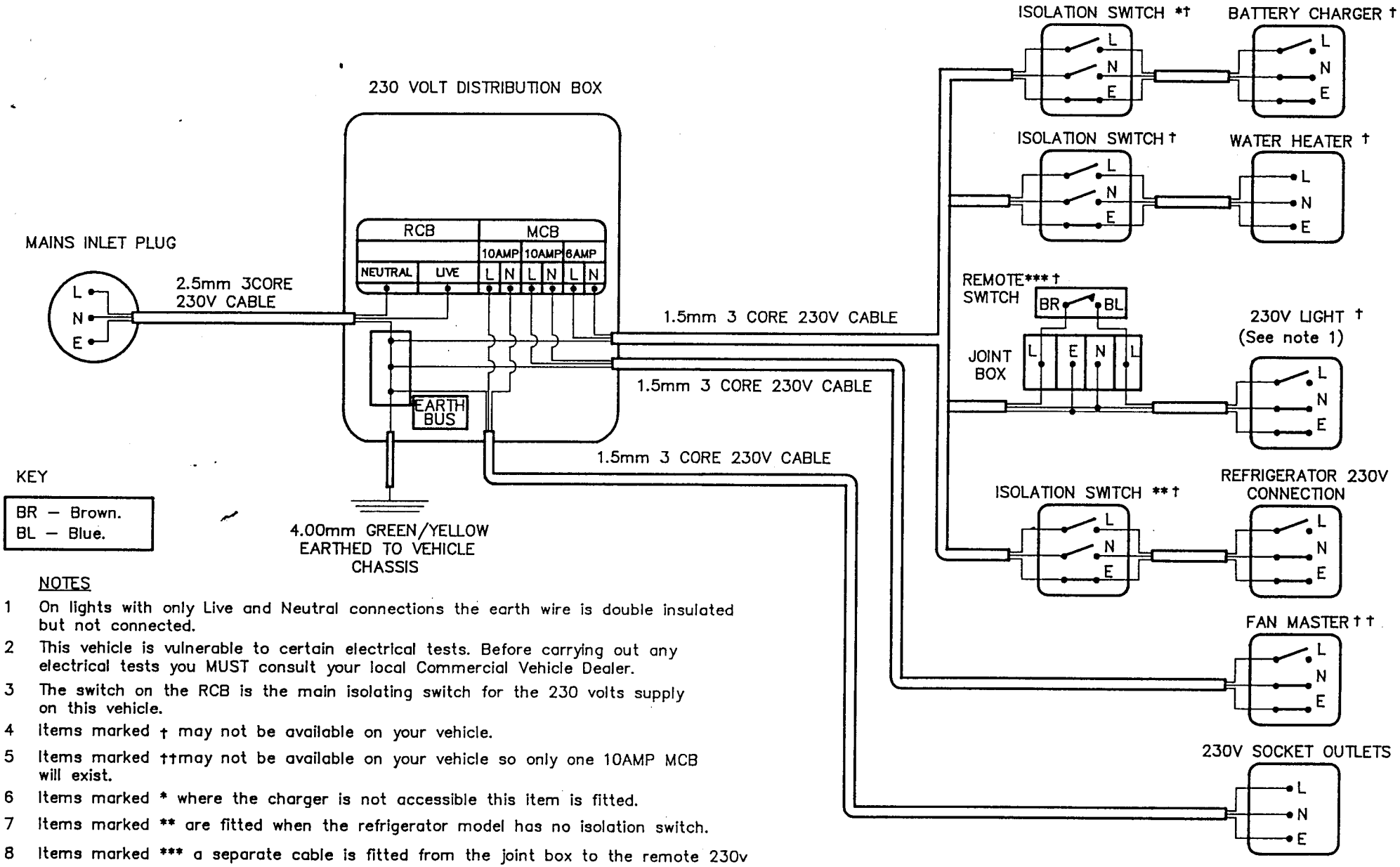


Drawing No. A2 SAD 10145

Volkswagen T4 Clubman. Gas Components & Pipe Route



Drawing No. A2 SAD 10144



NOTES

1 On lights with only Live and Neutral connections the earth wire is double insulated but not connected.

2 This vehicle is vulnerable to certain electrical tests. Before carrying out any electrical tests you MUST consult your local Commercial Vehicle Dealer.

3 The switch on the RCB is the main isolating switch for the 230 volts supply on this vehicle.

4 Items marked † may not be available on your vehicle.

5 Items marked †† may not be available on your vehicle so only one 10AMP MCB will exist.

6 Items marked * where the charger is not accessible this item is fitted.

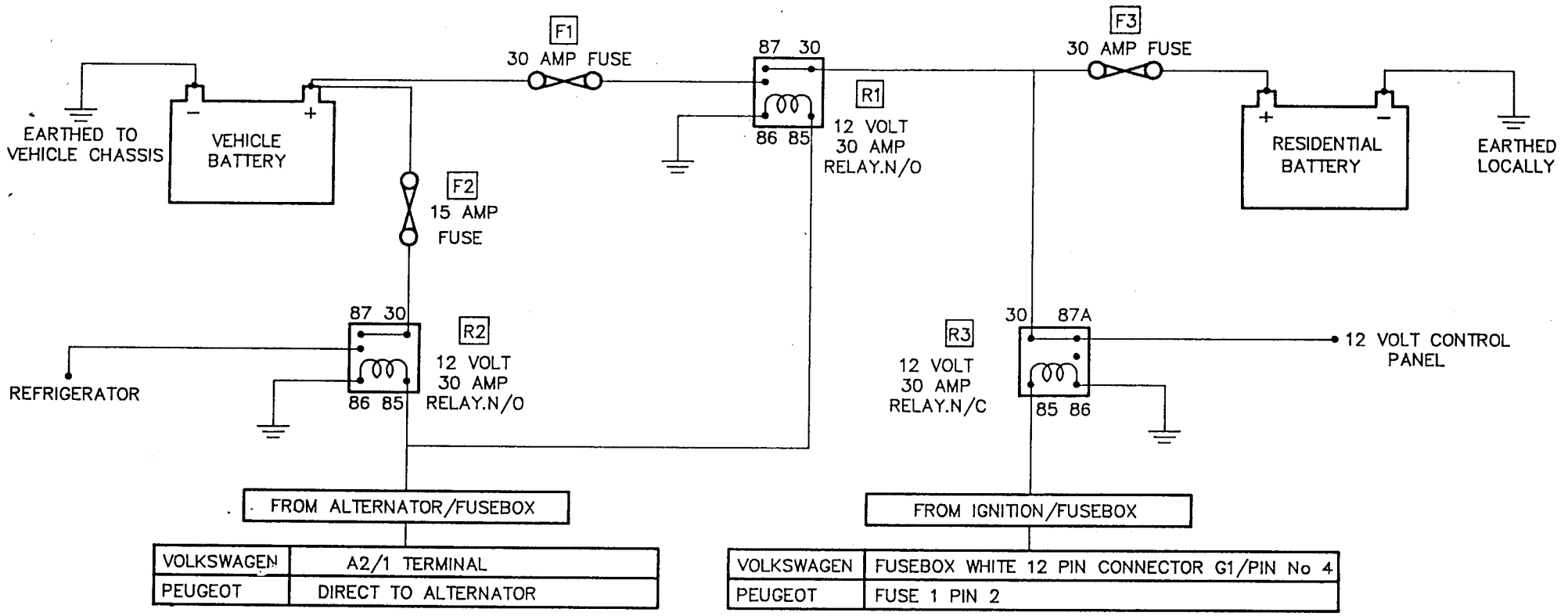
7 Items marked ** are fitted when the refrigerator model has no isolation switch.

8 Items marked *** a separate cable is fitted from the joint box to the remote 230v light switch, which uses the Blue as a return,live.

ALL MODELS

SAD11367

Auto–Sleepers 230 Volt Wiring Layout



VOLKSWAGEN	A2/1 TERMINAL
PEUGEOT	DIRECT TO ALTERNATOR

VOLKSWAGEN	FUSEBOX WHITE 12 PIN CONNECTOR G1/PIN No 4
PEUGEOT	FUSE 1 PIN 2

NOTES

1. On Peugeot based motor caravans the battery, fuse F3 and relays R1, R2 and R3 are all located under the drivers seat. The fuses F1 and F2 are located in the engine compartment above the vehicle battery.
2. On Volkswagen based motor caravans the residential battery is located with the vehicle battery and fuses F1, F2 and F3 together with relays R1, R2 and R3 are located above the batteries.
3. The EMC Approval may be invalidated if you connect any item of equipment to the refrigerator circuit or before relay R3.
4. The purpose of relay R3 is to disconnect the 12 volt electrical appliances from the residential battery whilst the vehicle is in motion.
5. For faults on the vehicle electrics consult your local commercial vehicle dealer.

VW/PEUGEOT

SAD11404

Auto-Sleepers wiring diagram with Second Battery

AUG 95

LPG Safety in Caravans

Extract from BS 5482 (Part 2)

The safe use of LPG in caravans and non-permanent dwellings.

1) GENERAL

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 must be used and stored always in a vertical position with the valve uppermost.

2) SAFE USAGE

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

a) 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.

b) Never check for gas leaks with a naked flame.

c) Always turn off the gas cylinder valve(s) or inlet to the vehicle or other dwelling when gas appliances are not in use.

d) 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 vehicle.

e) Unless the appliance incorporates automatic ignition, when lighting an appliance always make sure you apply a lighted match or tape to the burner ***before*** turning on the gas.

f) If any appliance is disconnected for repair, maintenance, etc. ensure that the gas line is capped off.

g) 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.

h) Always seek advice when in doubt.

3) ROUTINE CHECKING

a) It is essential to check the installation as follows:

b) Flexible hoses and tubing should be regularly inspected and replaced when signs of cracking or other deterioration appears. After replacement ensure that the ends are well secured and leak tight.

c) Check the complete gas installation soundness at least once per annum and as necessary according to usage.

d) All flue installations should be inspected, at least once a year, throughout their length for integrity of attachment, both the 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 0.10mm thick and should be one of the following grades of stainless steel as specified in BS 1449: Part 2.

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

4) CHANGING GAS CYLINDERS

The following procedure should be adopted:

a) Extinguish any fire, flame or source of ignition (including cigarettes, pipes and pilot lights) before changing gas cylinders.

b) Wherever possible change gas cylinders in the open air.

c) Ensure that the gas cylinder valve(s) is/are closed before disconnecting any empty cylinder or before removing the plastic caps or plug on the outlet connection of the replacement cylinder. (Note: left-hand thread).

d) 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.***

e) Ensure that the replacement gas cylinder is the correct one for the installation.

f) 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 manufacturers instructions.

g) In the case of a connection on a pressure regulator of 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.

h) 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.

MOTOR CARAVANNERS' CODE

CODE OF CONDUCT

Camp Sites

(a) Arrivals

- Report to reception immediately on arrival.

(b) Vehicle Movement

Keep to roadways unless otherwise directed.

- Adhere to speed limits. Note that these are generally 10mph. (Remember that the stopping distance on grass is considerably greater than on tarmac).
- Only a person in possession of a current driving licence may drive on the site.
- Park correctly as advised on your pitch. Where possible leave 20ft of free space around your vehicle.

(c) Use of Site

- Use the electrical mains hook-up in the correct manner and with caution.

(d) Appliances

- 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.

(e) Waste Disposal

- If the vehicle is not fitted with a waster 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.
- Empty 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.

(f) 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 caravans.

- 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.

(g) 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 10ft.

- No animal should be allowed in the shower/toilet blocks.

- Do not let dogs foul the site.

(h) 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 1 x 2kg 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 of 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.

(i) 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.

(j) Departure

- Leave the pitch clean and tidy.

- On leaving, check out with the reception paying the required dues.

(k) 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:

  a) Litter be disposed of other than in receptacles provided.
  b) Water be allowed to escape from the vehicle.
  c) Chemical toilets be emptied except into the disposal places agreed with the land owner.
  d) Washing or similar be hung outside the vehicle.

(l) Parking

- Motor caravans should only be parked in approved places.

- When using the facilities of a motor caravan at such times care and consideration should be given to those around them.

(m) Driving

- When using a motor caravan 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 motor caravan travelling slowly and there being a queue of traffic behind, the driver of the motor caravan 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.

(n) Handbook

- Before using a motor caravan all aspects of the handbooks produced by the chassis manufacturer and the converter must be read and adhered to.

(o) Environment

- Care and consideration should be taken to protect the environment.

- Observe the Country and Coastal Codes shown below.

THE COUNTRY CODE

Enjoy the countryside but respect its life and work.

More people that 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.

1) 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.***
2) Keep to public paths across farmland.
3) Use gates and stiles to cross fences, hedges and walls.
4) Leave livestock, crops and machinery alone. View from a distance.
5) Take your litter home - it is unsightly and harmful to wildlife.
6) Help to keep all water clean.
7) Take special care of country roads.

8) 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.

THE COASTAL CODE

As out 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.

1) Do **not** trample about, or move rocks unnecessarily.
2) Do **not** frighten seals or seabirds.
3) Do **not** spear fish.
4) Do **not** spill detergents, solvents or fuel from boats as these can kill marine life.
5) When sailing, moderate your speed - the wash from a fast boat can destroy banks and nests.
6) Live molluscs and crustaceans need not be collected as souvenirs - dead shells can usually be found.
7) Shellfish can take years to grow and fines can be imposed for not observing national regulation when taking them.
8) Do **not** pull up seaweed unnecessarily
9) Make your visit instructive - not destructive.
10) Look at material, don't remove it. Take notes and photographs, not specimens.
11) Observe bye-laws and be considerate to others.
12) National Trust property or Country Parks have regulations to protect the wildlife. Follow these.

VENTILATION

1) GENERAL

Fixed ventilation is a statutory requirements in all motor caravans that are fitted with gas burning appliances. These ventilation apertures are positioned both high and low level and for your safety these should not be obstructed.

2) LOW LEVEL VENTILATION

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. The vehicles fresh air ventilation in the dashboard should be open when the vehicle is being used in the caravan mode.

3) HIGH LEVEL VENTILATION

High level ventilation is afforded through the roof lights. The ventilation area relates to the rating of the appliances in the vehicle. Roof lights must not be covered with any objects that may limit or affect the ventilation requirements.

4) MAINTENANCE

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 and rectified accordingly.

USEFUL DATA RECORD

We suggest that you record key detail in the spaces below should you accidentally mislay you keys or other vital documentation.

Vehicle Type .....

Vehicle Model .....

Auto-Sleepers Production Number .....

Keys

Ignition Key .....

Door Key (if applicable) .....

Fuel Filler (if applicable) .....

Water Filler .....

Cassette Toilet Door Key: .....

Alarm Code (if fitted) .....

AA/RAC Membership Number .....

Radio Security Code .....

Supplying Dealer Contact Number .....

RECOMMENDED ANNUAL CHECK FOR MOTOR CARAVAN BODIES AND CONVERSIONS

Note: This is an SMMT/NCC publication relating to all types of motor caravan. Parts of this, therefore may nor refer to your particular type of vehicle and therefore should be ignored.

INTRODUCTION

This annex offers guidelines for the checking of a motor caravan's habitation area and to ensure continual compliance with NCC/SMMT Code of Practice 201.

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.

Reference should also be made to:

a) Any owner's manual or equivalent supplied with the vehicle by the motor caravan converter.
b) Appliance manufacturer's leaflets.
c) Driver's handbook or equivalent supplied by the chassis manufacturer.

A vehicle is accepted for survey at the dealer's discretion.

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.

Not all of the equipment mentioned in this manual is fitted as standard to every motor caravan.

This guide is published as an aide memoir for owners and 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 then death or personal injury due to negligence on their part.

SECTION 1 BODY MOUNTING

1.1 BODY TO CHASSIS

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

1.2 BODY TO CAB

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

1.3 BODY RETENTION (DEMOUNTABLES)

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

SECTION 2 WINDOWS

2.1 WINDOWS

- Check window glazing rubber or sealing for cracks and general condition.
- Check for satisfactory opening and closing.
- Check fixing of top hinge rail on top hung windows.
- Check for good weather seal when window is closed and latched.
- Check catches and stays for satisfactory operation.

SECTION 3 DOORS

3.1 EXTERNAL DOORS

- Not including base vehicle doors.

3.1.1 Security

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

3.1.2 Sealing

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

3.1.3 Childproof Lock

- Where a door is fitted with a childproof lock, check that the appropriate warning notice is fixed adjacent to the door.

3.2 INTERNAL DOORS

3.2.1 Security

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

3.2.2 Safety

- 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.

SECTION 4 ATTACHMENTS TO CHASSIS OR UNDERBODY

4.1 CORNER STEADIES

- Check that attachments to chassis are secure.
- Ensure steadies work freely and satisfactorily.
- Lubricate screw to ensure correct operation.

4.2 FOLDING STEP

- Check that step pivots are satisfactory and are not worn.
- Check that, when closed, the retaining mechanism holds the step securely.
- If fitted, check warning light switch is working.

4.3 UNDERFLOOR WATER TANK MOUNTINGS

- 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

- Remove spare wheel and check for damage.
- Check tyre pressure.
- Check mounting frame for security to body and for secure retention of spare wheel.

4.5 WHEELBOXES

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

SECTION 5 ATTACHMENTS TO BODY EXTERIOR

5.1 ROOF LIGHTS

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

5.2 ROOF RACKS AND LADDERS

- Check security to body and general condition.
- Check roof for damage adjacent to rack.

5.3 MOULDINGS AND TRIMS

- Check security.
- Check sealing has not deteriorated (see Section 6.1).

5.4 FLUE TERMINALS AND AIR VENTS

- Check security.
- Check sealing has not deteriorated.
- Check that these are not blocked.

SECTION 6 INTERNAL

6.1 BODY SEEPAGE CHECK

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

6.2 FURNITURE

- Check furniture is securely fixed.
- Check door hinges, catches and stays for satisfactory operation.

6.3 DINETTE SEAT/BEDS

- Check seat bases for security of fixings and for damage.
- make up beds according to manufacturer's instructions and check for rigidity and safety.

6.4 UPPER BUNKS

- Check that there is a safe means of access to upper bunks and that protection against falling out and entrapment are provided.

6.5 CURTAINS/BLINDS/NETS

- Check track is secure and curtains draw freely without snagging.
- Check blinds and/or nets for correct operation.
- Check flyscreens in roof lights and air vents.

6.6 CAB SEATS

- 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, seat swivels and seat back operation.

6.7 FIRE EXTINGUISHER

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

6.8 FIRE BLANKET

- Check position (should be near cooker).
- If one is not present, advise the customer of the advisability of such equipment.

6.9 WARNING NOTICE

- Check condition.
- Replace if necessary.

6.10 PORTABLE OR OPEN FLAME HEATING EQUIPMENT

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

SECTION 7 ELEVATING ROOFS

7.1 LIFTING MECHANISM

- 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

- Check for satisfactory attachment to body and roof.
- Check for splits or holes, particularly at fold lines.
- Check that the canvas stows satisfactorily when roof is lowered.
- (A waterproofing check will be done at the prior request of the customer).

7.3 SOLID SIDE WALLS

- Check sides and end panels fold up and down correctly.
- Check 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

- 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.

SECTION 8 GAS SYSTEMS

8.1 CYLINDERS AND REGULATORS

- Establish that the cylinders and regulators are compatible.
- Butane cylinders should have a regulator with a working pressure of 28 m bar.
- Propane cylinders should have a regulator with a working pressure of WG 37 m bar.
- Check that the regulator is controlling the gas to the correct pressure for the type of cylinder fitted.
- Check cylinder compartment vents and gas drop hole in the floor are free from obstruction.
- Check seals on internal doors.

8.2 HOSE AND PIPING

- Check any flexible hose for condition and cracking.
- Check piping for condition, damage, and correct support.
- Carry out an overall leak test.

8.3 APPLIANCES

- 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

8.3.1 Cleaning

- 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.

8.3.2 Controls

- 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.

8.3.3 Correct Flame Structure

- Check that all pilot flames burn quietly and clearly.

- **Refrigerator**: With the refrigerator gas control turned to maximum, the colour of the flame should be predominantly blue.
- **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.
- **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.
- **Grill Burners**: It is normal for the flames on this type of burner to develop yellow tips as it heats up, particularly on butane.
- **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.

8.3.4 Flues

- 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.

8.3.5 Flame Failure Device (FFD)

- 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 the appliance does not light, FFD is satisfactory.

8.3.6 Security

- 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.

8.3.7 Protection of Adjacent Surfaces

- Check that surfaces adjacent to open flame cooking appliance have adequate protection i.e. any vertical surface within 300mm should be protected by non combustible material.

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

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

9.2 WASTE WATER TANK

- Check drain tap is clear and working.
- 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

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

9.4 SYSTEM CHECK

- Operate pump. Check all piping for leaks.
- 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

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

9.6 COUPLINGS AND FLUIDS

- 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.
- Check that filler positions are designated "petrol", "diesel", or "water" as appropriate.

SECTION 10 ELECTRICAL SYSTEMS

10.1 EXTRA LOW VOLTAGE 12 VOLTS (EXCLUDING VEHICLE)

10.1.1. Battery/ies

- Check battery/ies for condition.

- Check connections, wires, fuses and relays appertaining to the habitation electrics.

10.1.2 Wiring

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

10.1.3 Fuses/Fuse Holders

- 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

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

10.2 MAINS 230V VOLT SYSTEM

- The inspection and certification of 230 volt system should be carried out by a qualified electrician who is an approved contractor of the NICEIC.

SECTION 11 VENTILATION

11.1 HIGH LEVEL

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

11.2 LOW LEVEL

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

- **Note**: If the Motor Caravan has been approved by the NCC in accordance with COP 201 it can be assumed that adequate high and low level ventilation has been provided by the Motor Caravan Manufacturer.

MOTOR CARAVAN ANNUAL CHECK CHECK SHEET CUSTOMER COPY

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

A Class
Coachbuilt
High Top Conversion
Demountable
Elevation Roof

CHECK ITEM	Manual	O.K	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	-	-	
ENTERNAL	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		
DINNETTE SETAS/BEDS	6.3		
UPPER BUNKS	6.4		
CURTAINS, BLINDS, NETS	6.5		
CAB SEATS	6.6		
FIRE EXTINGUISHER	6.7		
FIRE BALNKET	6.8		
WARNING NOTICE	6.9		
HEATING EQUIPMENT	6.10		

CHECK ITEM	Manual	O.K	Remarks - Advice to Customers
SECTION 7: ELEVATING ROOFS	-	-	
LIFTING MECHANISM	7.1		
CANVAS SIDE WALLS	7.2		
SOLID SIDE WALLS	7.3		
LOCKING	7.4		
SECTION 8: GAS SYSTEM	-	-	
CYLINDERS & REGULATORS	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:

DEALER STAMP	DEALER STAMP
DATE: / /19	DATE: / /19
DEALER STAMP	DEALER STAMP
DATE / /19	DATE: / /19
DEALER STAMP	DEALER STAMP
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DEALER STAMP	DEALER STAMP
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DEALER STAMP	DEALER STAMP
DATE: / /19	DATE: / /19

MODEL	*CLUBMAN GL*	*CLUBMAN GL*	*CLUBMAN GL*	*CLUBMAN GL*	*CLUBMAN GL*
BASE VEHICLE MANUFACTURER	VW	VW	VW	VW	VW
BASE VEHICLE MODEL	1200 T4	1200 T4	1200 T4	1200 T4	1200 T4
BASE VEHICLE COLOUR	R902	R902	R902	R902	R902
WHEELBASE	2920	2920	2920	2920	2920
TRANSMISSION	MAN	MAN	MAN	AUTO	MAN
ENGINE	2.5P	2.4D	2.0P	2.5P	2.5T/D
FUEL CAPACITY DIESEL	0	80	0	0	80
FUEL CAPACITY PETROL	80	0	80	80	0
DESIGNATED SEATS	2	2	2	2	2
BERTHS	4	4	4	4	4
FRONT AXLE TO SEAT	925	925	925	925	925
FRONT AXLE TO FUEL TANK	835	835	835	835	835
CONVERTED WEIGHTS					
MAM	2810	2810	2810	2810	2810
MAM FRONT AXLE	1350	1350	1350	1350	1350
MAM REAR AXLE	1460	1460	1460	1460	1460
MASS OF FRONT AXLE DRY	1117	1127	1051	1127	1127
MASS OF REAR AXLE DRY	1160	1160	1168	1160	1160
MASS OF VEHICLE DRY	2277	2287	2219	2287	2287
ALLOWANCE FOR DRIVER	75	75	75	75	75
100% OF AUTOMOTIVE FUEL	60	72	60	60	72
UNLADEN MASS OF FRONT AXLE	1211	1230	1145	1221	1230
UNLADEN MASS OF REAR AXLE	1201	1204	1209	1201	1204
UNLADEN MASS	2412	2434	2354	2422	2434
PAYLOAD	398	376	456	388	376
maximum braked trailer mass	2000	2000	2000	2000	2000
gross train mass	4500	4500	4500	4500	4500

CARE & MAINTENANCE OF GLASSFIBRE BODYWORK AND ACRYLIC WINDOWS

GENERAL CLEANING FIBREGLASS BODYWORK

At regular intervals, you should wash the fibreglass bodywork with a recognised detergent sold 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 Boat Pride Hull Cleaner. This is designed for cleaning large areas of fibreglass surfaces in a fast and economical way. It removes grime, oil stains, and old polish restoring the surface and colour to its original state.

DISCOLOURATION

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 Boat Pride Hull Cleaner, or in extreme cases Boat Pride Rubbing Compound.

REMOVING SCRATCHES FROM BODYWORK

Scratches can be removed from both gel coat and painted hull 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 flatting 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 local Auto-Sleeper dealer.

REMOVING SCRATCHES FROM ACRYLIC WINDOWS

Apart from the chassis cab windows and the Luton windows, all remaining Auto-Sleeper windows are manufactured in acrylic. Over time these become scratched and their clarity becomes impaired. 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. For scratched acrylic windows, Boatpride Acrylic Window Polish removes unwanted scratches and blemishes and leaving a clear, haze free finish.

RECOMMENDED MATERIALS

We would recommend Farecla Boatpride 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 Boatpride Hull Cleaner
Discolouration:	Farecla Boatpride Rubbing Compound
Removing Scratches from Bodywork:	Farecla Boatpride Rubbing Compound or Farecla Boatpride Acrylic Window Polish
Removing Scratches from Acrylic Windows:	Farecla Boatpride Acrylic Window Polish

Note: 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

AUTO-SLEEPERS MAIN DEALERS

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

Cornwall Motor Caravans
Lanner
Redruth
Cornwall. TR16 6AS
Tel: 01209 820718

Berkshire Motor Caravans
The Spinney
Oxford Road
Chieveley, Newbury
Berkshire RG20 8RU
Freephone: 0500 691772

Bowers Motor Caravans
Green Lawns Garage
Luton Road
Harpenden
Herts AL5 3FN
Tel: 01582 713094

Bromley Motor Caravans
New London Leisure Centre
55/65 Abbey Road
Belvedere DA17 5DG
Tel: 0181 3113500

Brownhills Limited
A1/A46 Junction
Newark
Notts NG24 2EA
Tel: 01636 704201

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

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

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

Essex Motor Caravan Centre
Dunmow Road
Takeley
Essex CM22 6SJ
Tel: 01279 870755

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

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

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

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

Southern Cross Motor Caravan Centre
Pantiles Park, London Road,
Bagshot
Surrey GU19 5HN
Tel: 01276 452111

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

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

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

Spinney Motor Caravans
Chelford Road, Ollerton
Knutsford
Cheshire WA16 6SB
Tel: 01565 634011

Strathaven Caravan Centre
Darvel Road
Strathaven
ML20 6QD
Tel: 01357 22444

Three Counties Motor Caravans
129 Somerford Road
Christchurch
Dorset
BH23 3PY
Tel: 01202 471929

Todds Mobile Leisure Limited
Coote Lane
Lostock Hall
Preston
Lancs PR5 5HS
Tel: 01772 35360

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

Western Motor Caravans Limited
Box Road
Bathford
Bath BA1 7QH

Tel: 01225 858290

David Hayton
Hillcrest Garage
Gilwilly Industrial Estate
Penrith
Cumbria. CA11 9BN
Tel: 01768 890870