



Auto-Sleepers

MOTORHOMES OF EXCELLENCE

VAN CONVERSION
Motorhome Owner's Manual



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IMPORTANT NOTICE

Your vehicle is fitted with deadlocks on all doors. These are intended to improve vehicle security and mean that even if forced entry is gained to the vehicle, for example through a broken window, it is still not possible to open the doors from inside.

However, this also means that in some circumstances exit from the vehicle may be delayed in an emergency.

Please read carefully the warning given on page 6-1.



Welcome

Congratulations on your purchase of an Auto-Sleeper motorhome. We are confident it will give you many years of pleasure.

This handbook has been compiled to enable you to obtain the maximum pleasure from your vehicle. It contains the appliance instructions along with advice on safety matters.

Please read this Handbook thoroughly so that you are conversant with all the motorhome systems, operating instructions and precautions.

Failure to observe these recommendations or precautions may result in incorrect operation of equipment and subsequent risk to occupants.

Information leaflets and literature on safe operation of appliances and equipment fitted to your motorhome are included in the Auto-Sleeper Customer Pack. Please read these carefully prior to use.

Should you experience any difficulties contact your dealer who will be pleased to offer advice. To find your nearest Auto-Sleeper dealer please go to www.auto-sleepers.com and click on "Dealers".

It is the policy of the base vehicle manufacturer and Auto-Sleeper to continually improve their vehicles, so whilst the details contained in this Handbook are correct at the time of going to press, they reserve the right to alter the specifications at any time without notice.

Auto-Sleeper motorhomes offer a variety of customer uses and whilst each vehicle features the optimum storage, fluid, seating and sleeping capabilities, it is the customer's responsibility to select the proper combinations of loads without exceeding weight capacities.

Your Auto-Sleeper motorhome conforms to the European standard of EN 1646-1 for habitation requirements relating to Health and Safety.

IMPORTANT:

In the interests of safety, replacements parts for appliances must conform to the manufacturer's specification and should be fitted by them or an authorised agent.

Model

This Handbook covers the Auto-Sleepers panel van models, based on the Peugeot Boxer, Citroen Relay or FIAT Ducato high roof window vans.

Gas System

The gas system is designed to operate on LPG stored in a re-fillable tank fitted underneath the vehicle. The regulator has a working pressure of 30 mbar.

Conversion Type

Auto-Sleepers take delivery of standard complete unregistered base vans and convert them into motor caravans with kitchen, bathroom, lounge and seats that convert into beds. They are converted prior to registration.

Climatic Conditions

This motorhome is designed for use in cold climates. It has been tested and shown to provide a comfortable internal environment even when the external temperature is as low as -15°C.

Handbook

Any queries should be addressed to your Auto-Sleeper dealer.

Appliance Instructions

Full instructions for the electrical control panel are given in the separate document "Harmony Utility Management System". The appliance instructions included have been extracted from those supplied from the appliance manufacturers.

Automotive

For all automotive matters you should refer to the base vehicle instruction manual. This includes tyre pressures. The Auto-Sleeper conversion does not affect the tyre pressures in any way because the completed vehicle is built within the maximum capacities of the base vehicle. The pressures are specified by the base vehicle manufacturer for the specified maximum axle masses.

The tyre pressures for Peugeot, Citroen and FIAT vehicles can be found on a label located on the door pillar on the left hand side of the body.



Air Suspension

Your vehicle has been fitted with a supplementary air suspension system on the rear axle. This is called "Top Drive System", is manufactured by Esi Italia and uses additional air springs to improve the quality of the vehicle ride.

The operating pressure may be adjusted by the vehicle user to suit their requirements. More information is given in the manufacturer's instruction leaflets provided by Esi Italia.

The system does not increase the carrying capacity of the rear axle, or the vehicle as a whole.

AUTO-SLEEPERS WARRANTY

Warranty Registration

The supplying dealer's representative and the purchaser must sign the declaration in the Warranty/Service book to verify that the dealer has explained the warranty terms and conditions and that the purchaser understands them.

The dealer must then register the sale on the Auto-Sleepers warranty system to activate the cover.

Warranty Terms and Conditions

For full details of the warranty terms and conditions, please refer to the Warranty/Service handbook supplied with your Auto-Sleeper.

Contact Us

You may contact us at:

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

Tele: 01386 853338

Fax: 01386 858343

E-mail: aftersales@auto-sleepers.co.uk

Internet: www.auto-sleepers.co.uk

To enable us to deal with your queries efficiently, always quote your vehicle's production number, which can be found written on a label in the glovebox and on the bottom edge of the Type Approval plate fitted to the driver or passenger door pillar.



THE COUNTRY & COASTAL CODES

Upon arrival at your destination you should be aware of the Country Code relating to motorhome owners. This is entitled the Motor Caravanners' Code.

Code of Conduct - Camp Sites

Arrivals

- Report to reception immediately on arrival.

Vehicle Movement

- Keep to roadways unless otherwise directed.
- Adhere to speed limits. Note that these are generally 10 mph. (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.

Use of Site

- Use the electrical mains hook-up in the correct manner and with caution.
- Ensure that all fresh water taps/connections are turned off after use.
- Have care and consideration when using all facilities (toilets and showers etc.) and leave them clean and tidy. Young children should be escorted.

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).

Noise

- Do not make excessive noise.
- Children should be restrained from making excessive noise.

- Flying kites and model aircraft and the use of items like catapults or air-guns as well as ball games should not be permitted among, or close to, motorhomes.
- Musical instruments, record players, radios and televisions should not be used to the inconvenience of other people on site.
- Open and close doors quietly.
- Power generators must be adequately silenced and used with consideration and according to the restricted site times..

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.

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 kg (2lb) dry powder fire extinguisher complying with standard EN 3-7 is carried. It is important to check at regular intervals that the extinguisher is working as is required by types meeting EN 3-7.

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.



Awnings and 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.

Departure

- Leave the pitch clean and tidy.
- On leaving, check out with the reception paying the required dues.

Wild camping

Camping away from licensed sites, without the permission of the landowner 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 accounts should:

- Litter be disposed of other than in receptacles provided.
- Water be allowed to escape from the vehicle.
- Chemical toilets be emptied except into the disposal places agreed with the landowner.
- Washing or similar be hung outside the vehicle.

Parking

Motorhomes should only be parked in approved places. When using the facilities of a motorhome at such times, care and consideration should be given to those around them.

Driving

When using a motorhome on either the public highway or private road, the Highway Code should be complied with and full consideration given to other road users.

In the event of a motorhome travelling slowly and there being a queue of traffic behind, the driver of the motorhome should, where possible, pull over in order to let the other traffic pass.

When the vehicle is in motion it is compulsory that all passengers are seated in designated passenger seats and seat restraint straps worn.

Before moving off, elevating roofs **MUST** 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 the manufacturer of the appliance permits such use.

Handbook

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

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

Guard against all risk of fires. Hay and heath land catch alight easily and once ablaze are very hard to put out. Remember: Fire Spreads Quickly.

- Keep to public paths across farmland.
- Use gates and stiles to cross fences, hedges and walls.
- Leave livestock, crops and machinery alone. View from a distance.



- Take your litter home - it is unsightly and harmful to wildlife.
- Help to keep all water clean.
- Take special care of country roads.
- 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 our coastlines are increasingly used for recreation and education, the following suggestions are made to enable us to enjoy our inheritance and preserve it for posterity.

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

Fire Precautions

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

YOUR MOTORHOME (Weights explained)

Mass in Running Order (MRO)

The weight of your motorhome as it leaves the factory, as new with standard fixtures and fittings, plus an allowance for driver and 90% fuel for propulsion. Note that all options, accessories and the mass of fresh water are not included in the quoted MRO.

Maximum Technically Permissible Laden Mass (MTPLM)

The maximum weight of the vehicle when fully laden for use on the road. See specification section for actual figure.

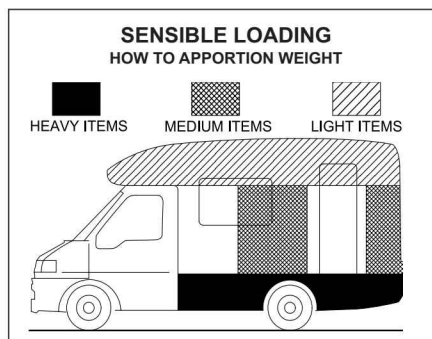
User Payload

The load margin (payload), this represents the difference between the Mass in Running Order (MRO) and the Maximum Technically Permissible Laden Mass (MTPLM). It shows the maximum weight which can be loaded into your motorhome, covering items such as food, crockery, cutlery, clothing, bedding, gas cylinders, etc. See Technical Specification for actual figure.

Please take care to ensure that you have allowed for the masses of all items you intend to carry in the motorhome, e.g.. passengers, optional equipment, essential habitation equipment and personal effects such as clothing, food, pets, bicycles etc.

Although there may be additional seat belts within the motorhome, please refer to the stated number of passengers that are allowed due to the MRO and MTPLM.

LOADING AND DISTRIBUTION OF WEIGHT IN THE MOTORHOME



Loading

Correct weight distribution is a major factor in making your motorhome a balanced and pleasant vehicle to drive without compromising road-holding. Care should therefore be taken to ensure that heavy items are well spaced and are in as low a position as possible, for example, low cupboards and bed boxes.

DO NOT EXCEED THE STATED MAXIMUM LOAD. ITEMS FITTED OTHER THAN STANDARD EQUIPMENT WILL DEplete THE PAYLOAD STATED IN THIS HANDBOOK.

WARNING: Under no circumstances should the maximum permissible laden mass of the motorhome be exceeded.

Roof Loading

DO NOT ALLOW CHILDREN TO CLIMB ONTO THE ROOF.

WARNING: Take special care when on the roof in wet or frosty weather conditions, which cause it to be particularly slippery.

Roof Bars

Note that the bars fitted to the sides of the roof of your vehicle are intended as a styling feature only. They are not intended to be used to secure anything to the roof.

Peugeot Citroen and FIAT specify the maximum roof loading in their user handbook.



Before Moving Off

Whenever making a journey with your motorhome, either setting off on holiday or returning home, it is good practice to run through this simple checklist.

1. Close and secure all cupboards and drawers and check any loose articles. Do not store tins, bottles, etc. in overhead lockers.
2. Close and secure all windows and roof lights.
3. Leave all curtains and blinds open to aid visibility.
4. Turn off all gas appliances, except those heating appliances designed to function while the vehicle is in motion. Ensure that the red isolation taps are in the 'off' position.
5. Ensure that there is sufficient gas to meet your needs.
6. Switch off 230 volt supply at source, disconnect mains cable from site supply before disconnecting from vehicle. Beware of potential electric shock from wet cable. Coil cable and store in a safe place.
7. Check your RCD's/MCB's for operation.
8. Check and if necessary, charge the habitation battery.
9. Check battery selection switch is in the OFF position.
10. Check that the battery is secure and that the battery box lid is fastened.
11. Ensure the fridge is on 12V operation and door lock is set. (**Note:** the electrical relays will allow the fridge to be run on the vehicle battery when the engine is running.)
12. Remove any external fresh water connections etc.
13. Make sure any heavy articles are stored in accordance with the loading procedure. Tables should also be made secure.
14. Lock the motorhome exterior door (remember to take out your keys).
15. Check your external rear view mirrors and adjust if necessary.
16. Check that all corner steadies are wound up and that, if a step is used, it is put away before moving off.
17. Check wheel nuts are secure and tyre pressures are correct.
18. Ensure, if required, that your fresh water tank is full and your waste tank is empty.
19. Referring to your base vehicle manual, check all fluid levels including automotive fuel and tyre pressures. Remember to check that your spare tyre is at the recommended pressure.
20. Ensure that, on models fitted with an elevating roof, the roof is securely locked down with the exterior catches applied.
21. The fridge vent covers should be fitted when the vehicle is to be driven in order to comply with European Type Approval regulations for vehicle external projections.
23. Check underneath the vehicle for stray items.
24. Safely store levelling blocks away in an appropriate place.



MOTORWAY DRIVING

Speed Limits (UK)

If a speed limit is not in force, your motorhome can be driven up to 70mph on motorways and dual carriageways. See the highway code and/or Government websites for further information about speed limits.

1. Reduce Speed:
 - i) In high or cross winds.
 - ii) Downhill.
 - iii) In poor visibility.
2. High sided vehicles cause air buffeting, so extra care must be taken when passing or being passed. As much space as possible should be given.

Motorway Handling

When passing other vehicles allow more than the normal clearance.

Allow longer to get up speed to pass. Do not swing out suddenly.

Carry out all manoeuvres as smoothly as possible.

Use nearside wing mirror to check motorhome has cleared when overtaking.

Changing a Wheel

Refer to the vehicle handbook

WARNING: Ensure the wheel is of the same construction and size as the one that has been removed.

Jacking

Front and Rear - use the standard jacking points as per the base vehicle handbook.

Removing the Spare Wheel

CAUTION: Exercise care when lowering the wheel frame due to its weight.

Access to Vehicle Rear Lights

To gain access to the vehicle rear lights, it is necessary to remove access panels. The panels are usually the base vehicle panels. If the bathroom is at the rear, plastic panels are fitted in the interior behind the rear lamps. Remove the two white caps in the rear corner of the shower to see the screws. On the

offside, access to the top retaining nut is through a hole in the panel in the corner below the sink, while the lower nut is accessible through the heater access door at the back of the kitchen.

To change a light bulb, follow the instructions in the base vehicle manufacturer owner's handbook.

Access Step

Your vehicle is fitted with an electrically operated side step. In the event of the step being left extended a buzzer, positioned under the dashboard, will sound (when the ignition is switched on) and the step will retract automatically.

Cycle Rack

In the event of a cycle rack being fitted, the cycle rack, when folded will increase the vehicle length by 400mm. Your Auto-Sleepers dealer will give further advice or assistance if required.

Whilst Driving

Whilst the vehicle is being driven ensure that:

- The passengers and driver wear seat belts - this is a legal requirement. Passengers may only be carried in seats where there are seat belts fitted. Children must be properly restrained in accordance with local law.

Please note that Auto-Sleepers advises against the retrofitting of additional seat belts.

- Heavy loads are not stored in top cupboards or in areas from which they may become detached. Please ensure that heavy items are stored low down and take care not to overload individual wheels, the axles or the MTPLM.
- Table(s) are stowed in the correct position and table legs secured in their retaining clips. Do not travel with the table in front of the forward facing seat if the seat is occupied, as this may constitute an injury hazard in the event of an accident.
- Furniture lids are lowered; cupboards and flaps are closed and secured.



- The refrigerator door is closed and secured by its travelling catch.
- The retractable rear step if fitted, is retracted or, if a separate step is supplied, it is safely stowed in the vehicle.
- Roof ventilators are closed and locked in the down position.
- The bathroom is not used whilst the vehicle is in motion. (**Note:** Refers only to models fitted with shower or toilet compartment).
- Top hinged windows are closed, and securely fastened.
- Children do not roam around the vehicle; they may fall and injure themselves.

Front Seat Swivel (where fitted)

Your vehicle may be fitted with a swivel base to either or both of the front seats, so that they may be turned to face the rear of the vehicle.

The release lever, coloured red, is located at the front of the seat and is pushed downwards to unlock the swivel mechanism.

Note: It may be necessary to lower the handbrake in order to swivel the driver's seat. In this case, ensure that first gear (or PARK on automatic) is engaged and the road wheels are chocked first.

WARNING: It is important that while the vehicle is in motion, any seat swivels are locked in the forward facing position.

Map Storage

In the rear of each cab seat there is a map pocket for storage of maps, periodicals and light items.



CHECK SITE REGULATIONS

Siting your Motorhome

When siting your motorhome, keep to the roadways unless otherwise directed. Obey the speed limit which, in general, is 10 mph. Only a person in possession of a current driving licence is permitted to drive on the site. Stopping distances on grass are considerably greater than on tarmac.

Selecting a Pitch

Carefully select where you wish to park your motorhome. The site should be as level as possible, well drained and away from boggy areas and, preferably, not under or near trees. Consider also, how you will move your motorhome when leaving the site. For example, on sloping ground in wet conditions, pitch facing downhill.

Levelling

It is important to site your motorhome level to ensure correct operation of the refrigeration, cooker and water system, by using purpose made ramps and NOT bricks or such items.

Awning Light

The exterior awning light is controlled by a switch on the electrical control panel above the door.

Fridge vent covers

Remove the fridge vent covers from the outside vents by turning the screws anti-clockwise and pulling the covers gently outward from the bottom. Store in a safe place and replace in the reverse fashion, prior to driving on public roads.



SAFETY

Important: Your attention is drawn to the notice affixed in the motorhome advising on fire prevention, ventilation and what to do in case of fire.

Emergency Exits

WARNING: Your vehicle is fitted with deadlocks, on all doors, as part of the base vehicle security system. These are activated when the 'Lock' button on the key fob is pressed twice in succession, and means that the doors cannot be opened even if entry has been gained to the inside, through a broken window for instance.

However, this also means that in an emergency, exit from the vehicle may be delayed if the key fob has been used to lock the vehicle with people inside, and is not immediately to hand.

In order to avoid this possibility it is important that the vehicle is not locked using the key fob when people are inside, at night for instance.

Instead, use the central locking button on the facia (adjacent to the hazard warning lamp switch) to lock the vehicle.

This will lock the vehicle from the outside, without applying the deadlocks, but means that the doors can still be opened immediately from inside by pulling the door release lever.

Please refer to the Peugeot handbook section on 'Access' for further details, and note carefully the warnings given there also.

The cab doors, side door and rear doors may be used as emergency exits.

Children

Do not leave children alone in the motorhome in any event, keep potentially dangerous items out of reach as at home. e.g. matches, drugs, etc.

WARNING: When upper bunks are used by children especially under six years of age care shall be taken against the risk of them falling out.

General

Before using your Auto-Sleeper, you should be fully conversant with the following safety precautions; if you are in any doubt as to the meaning of any of them, you should contact your supplying Auto-Sleepers dealer. Please read the following carefully.

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

WARNINGS:

- 1 **Never use portable cooking or heating equipment, other than electric heaters that are not of the direct radiant type, as it is a fire and asphyxiation hazard.**
- 2 **Do not use appliances with naked flames such as cookers as heaters or dry flammable items on the cooker or space heater.**
- 3 **Make sure that combustible materials can not come into contact with hot surfaces or burners.**
- 4 **Do not use additional independent gas appliances inside the vehicle.**
- 5 **Never allow modifications of electrical or LPG systems or appliances except by qualified technicians.**
- 6 **Surfaces of appliances may become hot in use and the guard provided does not give full protection to the young and elderly.**

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

Turn off all gas equipment and cylinders/tanks and any other heating appliances before travelling.

Ventilation openings are located below all the gas appliances, each gas tap, each gas pipe joint and (if fitted) in the base of the gas locker. In winter conditions make sure the vents are clear of snow and mud. These openings should be regularly checked and any mesh covering them cleaned with a stiff brush to prevent any risk of them becoming blocked. The openings are provided for your safety - please do not obstruct them.



Fire Extinguishers

It is recommended that a 1 kg (2 lb) minimum capacity dry powder fire extinguisher be located by the main exit door at all times.

A pan fire should not have an extinguisher aimed at it but be smothered with a fire blanket (which should be stored by the cooker).

What to do if you smell gas:

Directly close the valve of the gas bottle, extinguish any naked flames, do not switch on any electrical devices or lighting, open the windows and leave the room. Then contact a gas expert to address the problem.

The initial use of dry powder extinguishers is recommended only if it is likely that the leakage can be stopped by closing the cylinder valve or that the cylinder can be speedily removed.

In case of fire

- Get everyone out of the motorhome as quickly as possible using whichever exit is the quickest including windows. Do not stop to collect any personal items.
- Raise the alarm — Call the fire brigade.
- Turn off gas container valve if safe to do so.
- Cool with water all gas cylinders which cannot be removed.

Ventilation and Condensation

The ventilation points on your motorhome are fixed points of ventilation which are stated by the European Standards. Under no circumstances must these vents be blocked or obstructed. It is advised that fixed ventilation points and any protective screens are checked and cleaned (if necessary) on a regular basis.

Fresh air circulation should be allowed below the motorhome when appliances are in use and when flues terminate below the floor to allow free evacuation of the products of combustion. At least three sides of the underfloor space should always be kept open and unobstructed especially by snow. Do not make any additional openings in the floor.

Under no circumstances must these vents be blocked or obstructed.

Additional night time ventilation is obtained by slightly opening windows and roof vents.

Smoke Alarm

A Fire Angel battery operated smoke alarm is fitted to your vehicle. Please read carefully the manufacturer's instructions supplied in order to understand its operation.

Carbon Monoxide Alarm

A Fire Angel battery operated Carbon Monoxide Poisonous Gas alarm is fitted to your vehicle. Please read carefully the manufacturer's instructions supplied in order to understand its operation.

Air Bags

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

Awnings

There is no danger of pollution of an enclosed awning space by the LPG exhaust from the refrigerator venting into it.

WARNING: Space heaters may produce sufficient exhaust gases to pollute the awning space if it is totally enclosed (from a general comfort, smell and hygiene point of view). In the extreme case, there could be a build up of carbon dioxide to a dangerous level.

Note: Motorhome owners are advised to allow some fresh air circulation into the awning space when such appliances are in use.



ELECTRICAL SYSTEMS

Batteries

Battery terminals and connectors should be firmly attached. Battery surfaces should be free of moisture and dirt.

Where removable cell taps are fitted these must be screwed firmly home.

When removing a battery always remove the negative cable first. On re-connection the negative cable should be connected last.

Switch off all lamps and appliances before disconnecting the battery. Do not smoke while working on or near to the battery.

Fuses

Always replace blown fuses with one of a correct rating.

Overload

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

Shower Compartment Light

Ensure that water does not ingress into the light unit.

Charger Unit

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

230 Volt Mains Operation

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

SECURITY

Chassis number

Record the chassis number and the factory job number of your motorhome, and keep them in a safe place at home.

The vehicle identification number "VIN" is a 17 digit number and is found on a plate visible in the bottom left hand corner of the windscreen. The number is also known as the chassis number and is shown on the type

approval plate, attached to the cab door pillar, along with the permissible weight data

The factory job number is an alphanumeric code consisting of a letter followed by four numbers, and is found on a label inside the glove box or on the bottom of the type approval plate. The number is useful when contacting the dealer or factory to discuss the vehicle.

Vehicle Location Device "Tracker"

Your vehicle is fitted with a satellite location device manufactured by Sargent Electrical Services Ltd. It is a Thatcham category 6 approved device which uses sophisticated GPS technology to detect whether your vehicle has been moved illegally.

It is integrated into the Sargent EC700 power control system and is known as EC700.

Full instructions are given in the separate document "Harmony Utility Management System".

If your vehicle is moved without the ignition on, or if the battery is tampered with, an alert will automatically be sent to your mobile phone.

You will then need to contact the police to report the theft and obtain a crime reference number. Then contact the Sargent team by telephoning:

01482 678981

Or using the internet:

<https://sargentltd.co.uk/tech-support>

The tracking system is designed, made and operated by Sargent Electrical Services independently of Auto-Sleepers. Sargent operate a web-based registration system at: <https://asmonitor.azurewebsites.net/>

Please be aware that use of the Sargent Tracking Service is dependent on an annual subscription. To activate your subscription call the number given above or register via the "asmonitor" web page.

If you sell your vehicle or change your contact details, particularly your mobile phone number, please contact the Customer Support team.

Note: For effective operation of the system the leisure battery must be maintained in a good state of charge at all times.



WATER SYSTEMS

Fresh/Waste Tanks

The fresh and wastewater tanks are located under the floor near the middle of the vehicle. The drain taps for both tanks are clipped to the underside of the vehicle on the offside, with the waste drain being nearer to the rear of the vehicle.

For capacities of both see the Technical Specification Section.

The freshwater tank is filled through either the Whale socket or the lockable cap on the side of the vehicle. A special filler hose is supplied for use with the Whale socket. Note that the socket lid must be used to lock the plug securely into the socket.

All tanks and pipework are manufactured to food grade material specification.

Breathers

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

Frost Precaution

If the vehicle is not being used during freezing conditions the water should be drained. If the vehicle is being used in such conditions, refer to the "care of your motorhome" section for details of the automatic draining of the heater and use of the water tank heaters.

FRESH WATER PUMP

A Whale submersible water pump is fitted in the freshwater tank of your vehicle. This is a compact, self venting, high flow pump which is quiet in operation. It is controlled by a pressure sensitive switch; see the "water sensitive switch page" for more information.

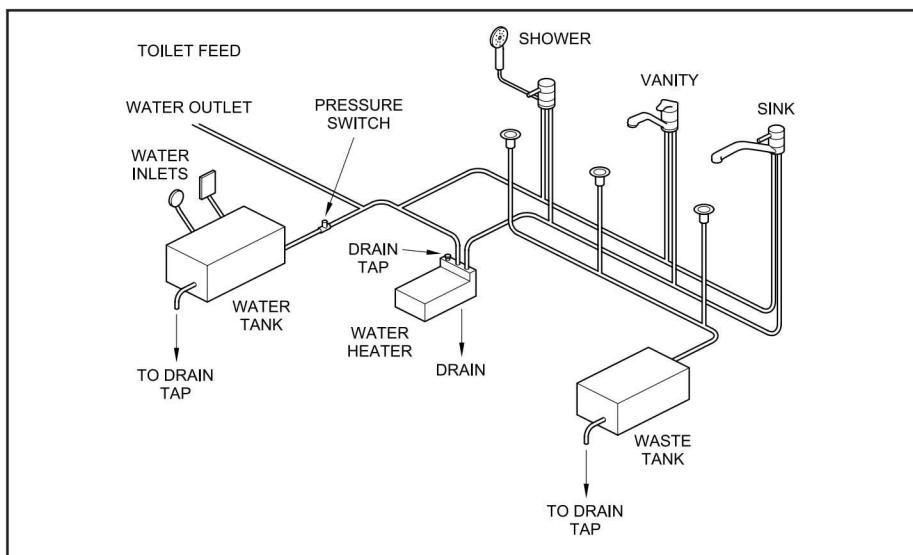
Maintenance

The pump is a sealed unit so no maintenance is required other than a check as part of the annual habitation service.

Ensuring the water supply is free of debris when filling the tank will reduce the likelihood of pump clog.

Winterising

To protect against damage as a result of freezing, drain the entire water system when there is danger of freezing conditions.





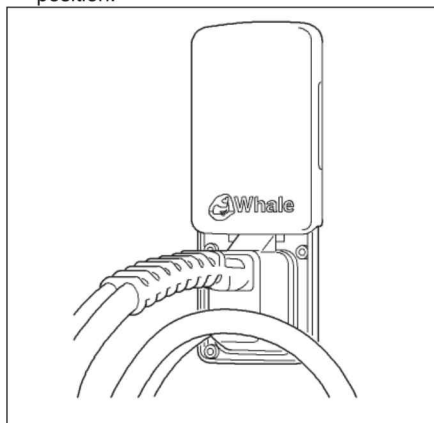
FRESHWATER FILLER

The Whale Watermaster system is used on your vehicle to make the connection of an outside water supply to the water system easier.

Operation

Priming:

1. Open one cold tap (e.g. kitchen sink).
2. Place pump into water container.
3. Insert plug into wall socket.
4. Whale socket: Insert plug into socket and slide cover down to lock the plug in position.



5. Adjust dust cover over opening in container (please note dust cover should not be secured to water container as air must be allowed to enter container to replace water being pumped out).
6. Switch on 12 volt supply at main panel isolator switch.
7. Water will flow from the open tap expelling any trapped air in a few seconds.
8. Turn off tap, the system is now ready for use.

When removing plug

1. Switch off 12 volt supply at main panel isolator switch.
2. Whale socket: Lift socket lid to release plug.
3. Pull out plug from socket using hand grip.
4. Shut lid.

The submersible pump can be run for quite long periods when in water, but it is recommended that running periods should be restricted to a maximum of 15 minutes. Do not run the pump without water. Do not use the pump in water temperatures above 40°C (100°F).

Maintenance

The pump is fitted with a strainer which should be inspected and cleaned at frequent intervals. The pump is a completely sealed unit, no maintenance is required.

Helpful Hints:

Before switching on, place the pump in water and shake for a few seconds in a horizontal or inverted position to release trapped air.

This will ensure successful priming and should be repeated after refilling the water tank. The plug for the Whale socket has a groove under the handgrip for clipping the water hose into when refilling the water container.

Fault Finding

1. If the pump will not run:
Check contacts in plug and socket are clean and making contact. Check wiring connections.
2. If the pump cycles on/off with tap closed:
Check for air or water leaks in taps and piping. Re-adjust pressure switch.
3. If pump motor runs steadily and will not stop: Check that there is water in the container. Battery voltage may be too low (at or below 10.5 volts). Adjust pressure switch and/or recharge battery. Check all connections in pipe-work. The Whale Tiptoe Pump can be fitted in-line with the submersible pump and used as a manual back-up.

Notes

- * The socket lid must be used to lock the plug securely into the socket.
- On the back of the filler socket, on the inside of the vehicle, is an adjusting screw for the pump solenoid. This is set by the manufacturer and under no circumstances should it be tampered with by the owner.

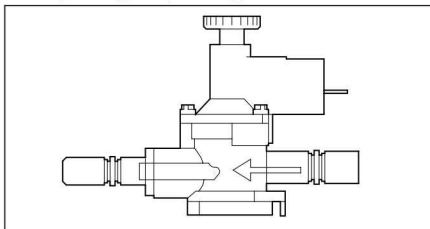


WATER PRESSURE SWITCH

Your pressure switch is factory set and should not normally require adjustment. In the event that your pump doesn't switch off when you close the taps, or it pulses on and off when the taps are fully open, follow these guidelines to readjust the setting.

Pressure switch adjustment may be required usually because the power supply voltage has varied from the previous setting.

Possible causes are battery drainage through normal use or higher voltage supply when battery charger operating



Pressure Switch Setting

The pressure switch is located in a seat base near to the exterior water inlet.

1. Ensure the system, including the heater is full of water and all taps are closed. Be sure to set the switch at low battery condition.
2. If there is a locknut, loosen it, then turn the adjusting screw clockwise until the pump comes on.
3. Open the tap furthest from the pressure switch until you have a smooth flow of water, then close the tap. You should hear the pump running and the pump running light if fitted will be on.
4. Return to the pressure switch and turn the screw slowly anti-clockwise until the pump has stopped. Turn the screw a further half turn (180 degrees) anti-clockwise.
5. Check for correct operation by opening and closing all taps individually. The pump should turn on when the cold tap is opened and switch off immediately when the cold tap is closed. NB At low flows there may be some pulsation.
6. The hot side may take longer to react (both on and off) due to cushioning from the water heater.

7. If necessary carefully tighten the lockout keeping the adjustment screw in position.

Remember: You may also have to adjust the pressure switch to cope with changes in voltage from either battery or mains. Do so using the above instructions.

If the pressure switch setting is still not correct you may experience the following problems:

If the pump runs continuously, even with the taps closed, it could result in pump failure and a flat battery. The present voltage could be significantly lower when last adjusted, or water container may be empty.

CURE: Re- adjust switch or refill container

If pump does not run at all and the fuse is not blown and the connections are intact, then most likely cause is excessive continuous running (see above)

CURE: Replace pump and readjust switch

Pump runs intermittently ON, OFF, ON, OFF etc. Seen as pulsing flow from tap, or as inability to set constant water temperature, water goes hot, cold, hot, cold instead of constant warm. Most likely cause is that present voltage is significantly higher than when last adjusted.

CURE: Readjust pressure switch and if problem persists add a Whale Surge Damper.

Pump runs very noisily but does not pump water. Likely to occur after water container has been refilled. Pump is air- locked and is fighting to get air out and water in.

CURE: Unplug from the socket, allowing pump to flood and reconnect by plugging in again. The correct sequence when refilling the container is to unplug, put pump into container, then reconnect.

If the pump continues to run for up to 30 seconds after tap is turned off it is not a problem. This is a characteristic of pressure switch systems caused by the dampening effect of the hot water heater or surge damper on the cold side.

Note: NEVER allow the pump to run dry.

NEVER allow the pump to run continuously for more than 15 minutes.



GAS

GENERAL INFORMATION

The gas appliances in this vehicle are powered by Liquefied Petroleum Gas (LPG) which is stored, under pressure, in a tank located under the floor in the centre of the vehicle. This tank is refilled, when required, at a re-fuelling station using a nozzle and hose in a similar way to refilling the engine fuel tank.

The Regulator

Your motorhome is equipped with a gas regulator, which has a working pressure of 30 mbar, and is suitable for use with all commercially available brands of LPG. **Do not use appliances with a different working pressure.**

A Truma Mono Control Crash Sensor unit is fitted adjacent to the regulator to automatically cut off the gas supply in the event of an accident. This assembly is fitted under the vehicle near the bulk tank installation. In the case of an accident with a deceleration of between 3g and 4g acting

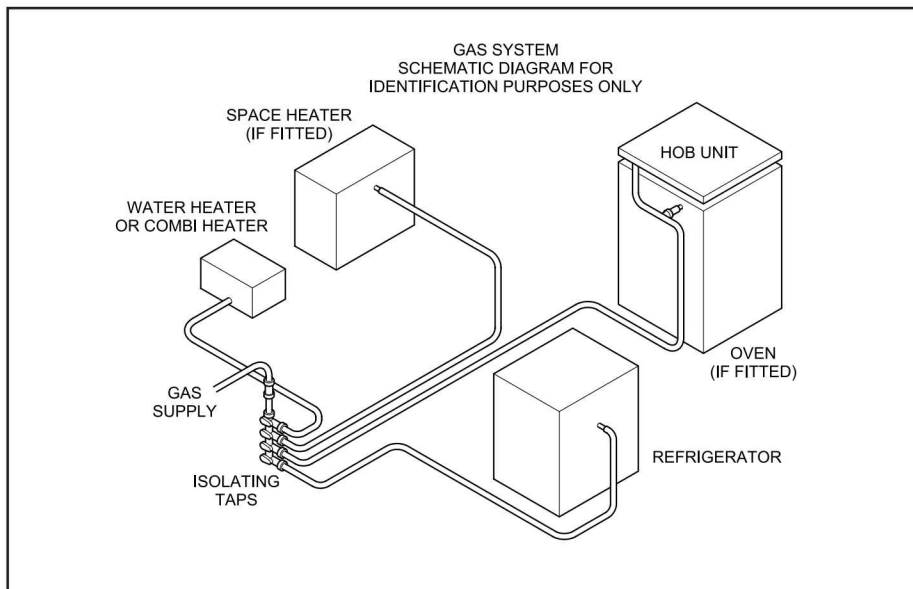
directly on the triggering element (equivalent to a collision speed of approximately 10-15 mph with a fixed obstruction), the integrated crash sensor will cut off the flow of gas. The gas supply can be restored by pressing the green button on the Mono Control inwards and holding for approximately 10 seconds. It may be necessary to press with reasonable force, using a pen or pencil.

Availability

LPG is becoming more widely available as more vehicle engines are converted to run on it. Many garages now have an LPG pump and other outlets are available in more rural areas, often near farming communities for instance. Look for signs advertising 'Autogas'.

If you have internet access, search for 'LPG filling stations' and there are many sites where input of your postcode will locate the nearest filling station to your location.

There are many companies producing LPG but all brands are suitable for use in your vehicle.



LPG Re-fuelling

LPG re-fuelling is simple and efficient, carried out in much the same way as petrol and diesel with a hose and nozzle designed to lock onto the filling connector on the vehicle. The refuelling point is located behind a black plastic cover on the offside of the vehicle behind the driver's door.

Once the connection is made, the customer simply presses and holds down a button on the dispenser until they have put the required amount of fuel into the vehicle or until the tank is full.

LPG tanks are fitted with a valve that stops the flow once the tank has reached its maximum safe filling level. Once the meter stops the customer simply disconnects the nozzle and returns it to the dispenser.

Note: Although the nominal capacity of the tank is 25 litres, a float valve automatically cuts off at 80% full to allow space for the gas vapour above the liquid. Therefore, the maximum amount of LPG which can be put into the tank is 20 litres.

There is a gauge for the LPG tank, fitted at the right hand side of the dashboard, which uses LED lights to indicate the fuel level.

Safety Note

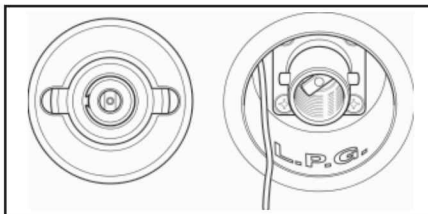
- When arriving at the Autogas dispenser ensure the vehicle is parked with the filling connector located nearest to the dispensing pump.
- Apply the handbrake and switch off the engine. If the Combi space heater is running it will turn off automatically. It will need to be re-started at the control panel after the engine has been re-started.
- No smoking, naked flames or mobile phones are allowed on the Service Station forecourt.
- If the re-fuelling process will take longer than 15 minutes (ie with the ignition off) then turn the refrigerator off at its main switch in order to prevent it from switching automatically to the alternative energy source of gas and producing an ignition spark.
- The use of an adaptor is not recommended.

Note: For European touring, adapters for use with the UK bayonet filling connector may be used temporarily.

- Refilling of portable LPG cylinders is not allowed.
- All dispensing nozzles should be fitted with a nozzle shield. Please report to staff if missing.

Filling Nozzles

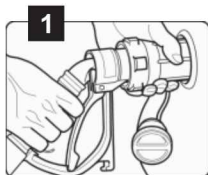
When connecting the nozzle to the filler valve on your vehicle always check that the locking pins are aligned.



There are two main types of filling nozzles used in the UK - 'Gas Guard' and 'De Visser'. Gas Guard uses a rotating barrel to lock on to the filler valve whereas De Visser uses a lever.

1 - Gas Guard nozzle filling instructions

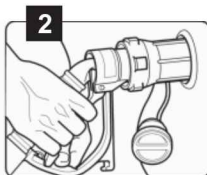
Ensure Gas Guard nozzles are fitted with protective nozzle shields. Report to site staff if missing. (Nozzle shields have been removed from picture for clarity).



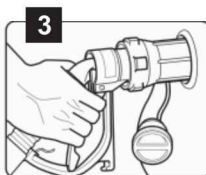
Connecting

(1) Push nozzle over the lugs on the filler valve and turn barrel a quarter turn clockwise to lock. Do not squeeze lever before nozzle is connected.

Caution: From this moment onwards ensure hands are away from the nozzle barrel.



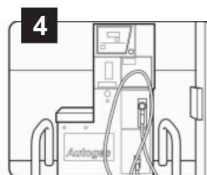
(2) Pull back lever and latch into place. Ensure lever is latched securely. Follow instructions on dispenser to commence dispensing.



Disconnect

(3) Ensure hands are away from the nozzle barrel.

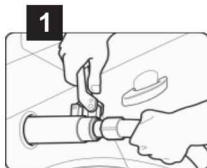
Caution: When dispensing has ended, squeeze back lever and release latch. Release lever fully. A small release of gas will occur as you release the lever. This is normal! Do not place hands on barrel until after the gas has been released.



(4) Turn barrel anti clockwise a quarter turn to release nozzle from vehicle. Replace nozzle in holder on dispenser.

1 - De Visser nozzle filling instructions

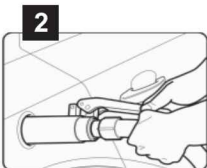
Ensure De Visser nozzles are fitted with protective nozzle shields. Report to site staff if missing. (Nozzle shields have been removed from picture for clarity).



Connecting

(1) Hold the hose behind the nozzle and the guard, keeping lever pushed forward with the handle at 12 o'clock position. Locate the nozzle over the lugs on the filler valve and turn the lever a quarter turn clockwise to lock.

Caution: From this moment onwards ensure hands are away from the nozzle barrel.



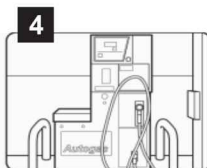
(2) Pull back lever towards hose and latch into place. Ensure lever is latched securely. Follow instructions on dispenser to commence dispensing.



Disconnect

(3) Ensure hands are away from the nozzle barrel.

Hold hose behind guard and release lever by pushing forward. A small release of gas will occur as you release the lever. This is normal!



(4) Turn lever anti clockwise a quarter turn to release nozzle from vehicle. Replace nozzle in holder on dispenser.

GAS SAFETY ADVICE

Facts about LPG

- LPG is not poisonous.
- LPG has been given a smell by manufacturers in order to identify leaks.
- Bi-products of combustion are harmless.
- There is danger if all air and oxygen are excluded, therefore ventilation holes must be kept clear at all times.

PRECAUTIONS

- Never look for a leak with a match. Always use a soap solution or its equivalent when testing connections. Do not operate any electrical apparatus whatsoever, especially light switches. If the leak is not obvious, the vehicle should be evacuated and qualified personnel consulted.
- Open all doors and windows to disperse any gas escape.
- Avoid naked lights when refuelling.
- LPG is more dense than air. Consequently any vapour may flow along the ground and into drains, sinking to the lowest level of the surroundings and be ignited at a considerable distance from the source of leakage. In still air the vapour will disperse slowly.

MAINTENANCE

To ensure that the LPG tank installation remains safe the following maintenance must be carried out by a competent person.

Annually:

- Visual examination of the LPG tank, filling point, valves, regulators and fittings for:
- Dents and gouges
- Corrosion, particularly under any mounting strap or bracket
- Condition of the hoses, mounting straps, brackets and fixing to the vehicle
- Damage to valves and fittings, in particular the filling connection and cap
- Correct operation of valves, regulator, over pressure shut-off valve and fittings

All defects shall be rectified by a competent person

At periods not exceeding 10 years

This period is based on the date of manufacture (or previous test) marked on the tank. The tank shall be:

- Removed from the vehicle
- Stripped and subject to a thorough examination
- Re-painted
- The valves replaced
- Hoses replaced
- Tested after assembly and re-certified by a competent person

Alternatively, replacing the LPG tank will satisfy these requirements.

Repair

Note the following important safety warnings:

- Vehicles undergoing repairs involving welding or the application of heat, to any part within 1m of the LPG fuel tank, should have the fuel lines emptied and the tank removed or shielded from the source of heat.
- Vehicles with LPG tanks should not be put through a low bake repainting oven or similar heating process unless the temperature is controlled to less than 40°C.

CHANNEL TUNNEL

Eurotunnel now allows motorhomes fitted with LPG tanks for habitation purposes (although not for propulsion) to use the shuttle service. Their regulations say that the maximum capacity of the tank must not exceed 47 kg, it must be fitted with a capacity gauge and not filled to more than 80% of its capacity. All these criteria apply to our standard installation.

Note: All the red gas isolation taps must be in the 'closed' position before boarding and remain closed for the duration of the journey.



IN AN EMERGENCY

In an emergency the gas supply to any of the appliances can be cut-off by closing the red isolation taps located inside the vehicle, see Location of Key Facilities chart.

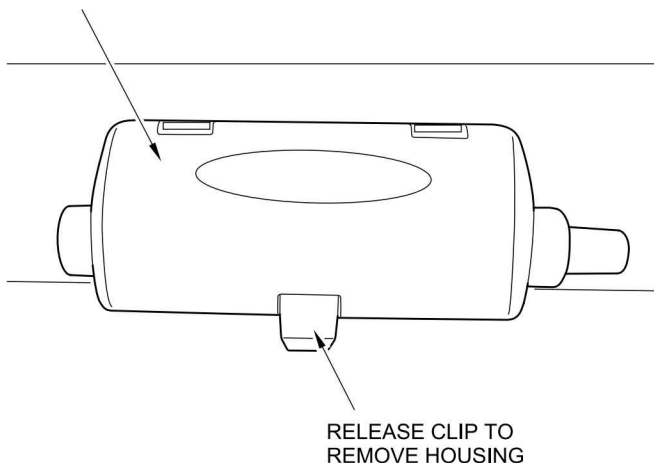
If it is necessary to cut off the gas supply at the tank underneath the vehicle, then remove

the valve housing cover by releasing the black plastic clip. Then turn the large brass knob clockwise to close the outlet valve.

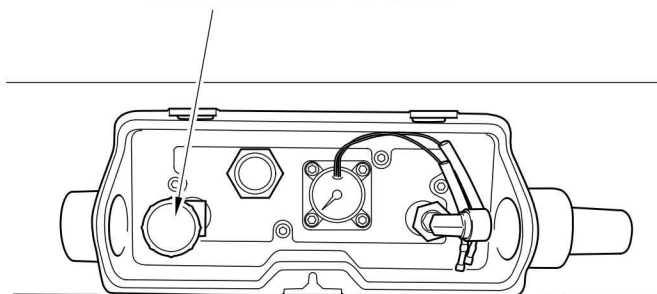
Note: When replacing the housing cover ensure that the rubber seal around the edge is located correctly in the groove.

ACCESS TO LPG TANK GAS OUTLET VALVE

CONTROL VALVE HOUSING



GAS OUTLET VALVE - ROTATE BRASS KNOB CLOCKWISE TO CLOSE





VENTILATION

General

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

Low Level Ventilation

Under each appliance, each gas tap and each gas connection 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. This should be checked regularly to see that it has not become blocked.

Additional vents are provided in the motorhome door step well. The vents are intended to allow air to flow through the vehicle while cooking and they must not be blocked.

High Level Ventilation

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

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. Screens and/or grilles should be kept clean and free from dust. See diagram of upper/lower ventilation.

All ventilation complies with BS EN 721 and vents should not be obstructed in any manner as this could lead to insufficient fresh air. In this case the confined atmosphere becomes depleted of oxygen which leads to the formation of the highly poisonous gas 'carbon monoxide'. Carbon Monoxide is odourless, colourless and tasteless and will rapidly cause unconsciousness and death with little or no warning prior to collapse. THERE IS NO DANGER WHEN ADEQUATE VENTILATION IS PROVIDED.

When you are cooking, it is essential to provide additional ventilation such as opening windows near grill, cooker or oven.

Flue installations

All flue installations should be inspected once a year throughout their length for corrosion.

Flues should be replaced if any sign of perforation is found. Ensure that the replacement is of an approved type.

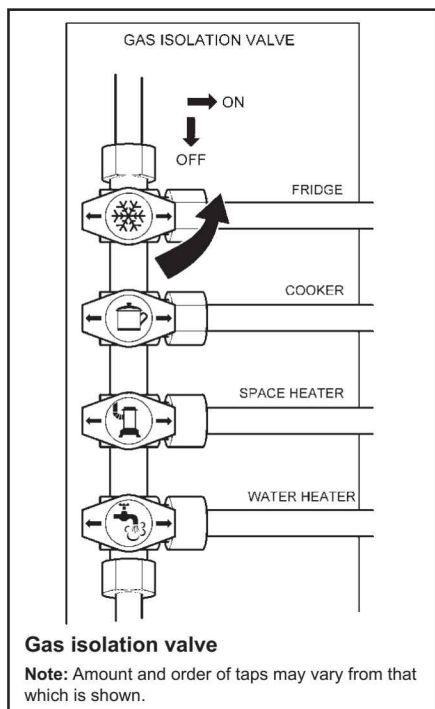
WARNING: Never allow modification of LPG systems and appliances except by qualified persons.



Connection

Before turning on the gas supply, ensure that all gas operated equipment in the motorhome is turned off.

All gas equipment is supplied through a central Gas Manifold System which has individual isolation taps for each appliance denoted by a symbol (see below).



Safe Usage

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

- Always read and follow the use 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.
- Never check for gas leaks with a naked flame.
- Always turn off the gas cylinder valve(s) or inlet to the motorhome or other dwelling when gas appliances are not in use.
- 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 practical, turn off all appliances before retiring to bed, preferably at the cylinder or inlet to the motorhome.
- Unless the appliance incorporates automatic ignition, when lighting an appliance always make sure you apply a lighted match or taper to the burner before turning on the gas.
- If any appliance is disconnected for repair, maintenance, etc., ensure that the gas line is capped off.
- 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.
- Always seek advice when in doubt.

WARNINGS:

- 1 Interior outlet sockets must only be used with original appliances supplied by manufacturer.**
- 2 No appliance must be used outside when connected to an internal socket.**
- 3 No additional appliance must be used inside the motorhome.**

Never use portable cooking or heating equipment other than electric heaters, that are not of the radiant type as they are a fire and asphyxiation hazard.

ELECTRICITY

As with electricity in the home, care must be exercised when handling mains electricity.

Your attention is drawn to the following notice as laid down by the Institute of Electrical Engineers.

INSTRUCTIONS FOR ELECTRICITY SUPPLY

On arrival at caravan site

The motorhome mains inlet flexible supply cable and its limits are shown on page 7-12.

- Before connecting the motorhome installation to the mains supply, check that:
- the mains supply is suitable for your installation and appliances, i.e. whether it is a.c. or d.c. and whether it is at the correct voltage and frequency,
- your installation will be properly earthed. Never accept a supply from a socket outlet or plug having only two pins, or from a lighting outlet, and
- any residual current device (earth leakage circuit breaker) in the mains supply to the motorhome has been tested within the last month.
- Ensure that the RCD and the main switch on the control box are OFF until after the mains cable has been connected.

In case of doubt, consult the site owner or his agent.

MAKE SURE THAT THE SWITCH AT THE SITE SUPPLY POINT IS OFF.

- Lift the cover of the electricity inlet provided on the motorhome and insert the connector of the supply flexible cable.
- Remove any cover from the socket outlet provided at the site supply point and connect the plug at the other end of the supply flexible cable to this. Switch on the main switch at the site supply point.

Note: Use mains cable fully uncoiled and protect from traffic.

CAUTION: Be aware that the 12V appliances, except the refrigerator, will not operate whilst the ignition is switched on and

the vehicle engine running. The master switch on the electrical control panel controls the 12 volt supply.

IT IS IMPORTANT THAT THE MAIN SWITCH AT THE SITE SUPPLY POINT SHOULD BE SWITCHED OFF, THE SUPPLY FLEXIBLE CABLE DISCONNECTED, AND ANY COVER REPLACED ON THE SOCKET OUTLET AT THE SITE SUPPLY POINT BEFORE DISCONNECTING THE FLEXIBLE CABLE FROM THE MOTORHOME. IT IS DANGEROUS TO LEAVE THE SUPPLY SOCKET OR SUPPLY FLEXIBLE CABLE LIVE.

Note: Please check appliance manufacturers handbook to see if suitable for use with generator or charger.

A generator may only be connected via the mains socket. If using a generator you also need to comply with the requirements/ instructions supplied with the generator.

Because motorhomes are sometimes left unused for long periods in the open, it is strongly advised that the mains installation is inspected periodically to ensure that it is safe to use. The IEE Wiring Regulations recommend that mains installations in motorhomes are re-inspected every 3 years by a qualified person (see list) who should sign and issue a periodic inspection report. (The manufacturer recommends annual inspections).

Suitably qualified persons acceptable to the NCC to sign and issue inspection and completion certificates are:

- an approved contractor of the National Inspection Council for Electrical Installation Contracting* or
- a member of the Electrical Contractors' Association
- a member of the Electrical Contractors' Association of Scotland
- a qualified person acting on behalf of the above (in which event it should be stated for whom he is acting).



The names and addresses of Approved Contractors in any locality (there are over 10,500 in the UK) can be obtained from:

NICEIC

Warwick House
Houghton Hall Park
Houghton Regis
Dunstable LU5 5ZX

Telephone: 0333 202 5721

Email: enquiries@niceic.com

The names and addresses of members of the Electrical Contractors' Associations can be obtained direct from:

ECA

Rotherwick House
3 Thomas More Street
London
E1W 1YZ

Telephone: 020 7313 4800

WARNING: Current consumption in the motorhome must not exceed 16 amps or the pitch permitted maximum if this is less than 16 amps.

It is dangerous to attempt modifications and additions yourself. Never allow modification of electrical systems and appliances except by qualified persons. Lampholder-plugs (bayonet-cap adaptors) should not in any circumstances be used.

CAUTION: Electrical heaters have the potential to draw 8 amps at 2kW. It is, therefore, advisable to check the supply rating before switching on two loads (items) greater than the supply as this may cause an overload and the circuit breaker to trip.

OVERSEAS CONNECTION

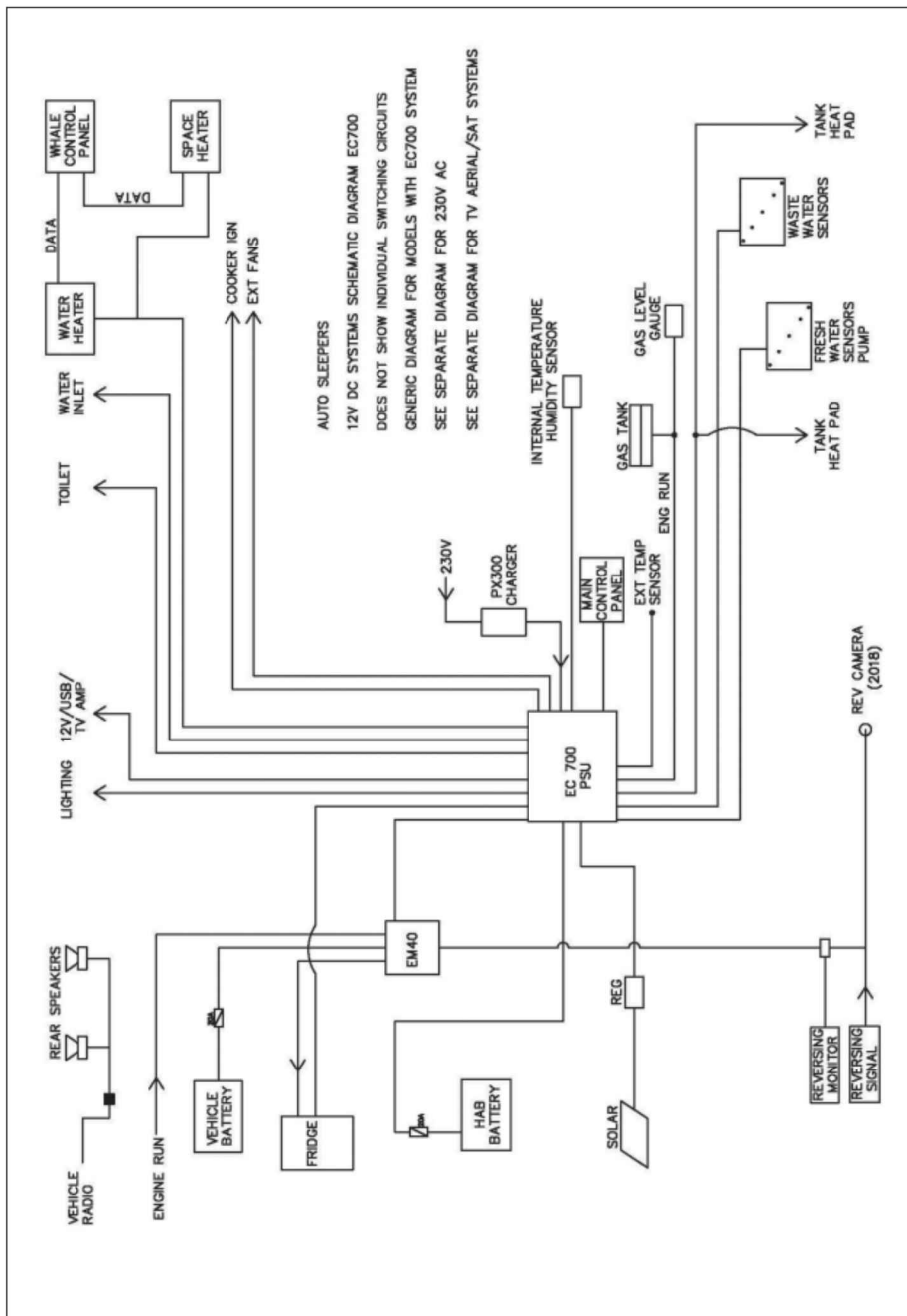
Note: Connection to a mains voltage supply OVERSEAS requires particular attention.

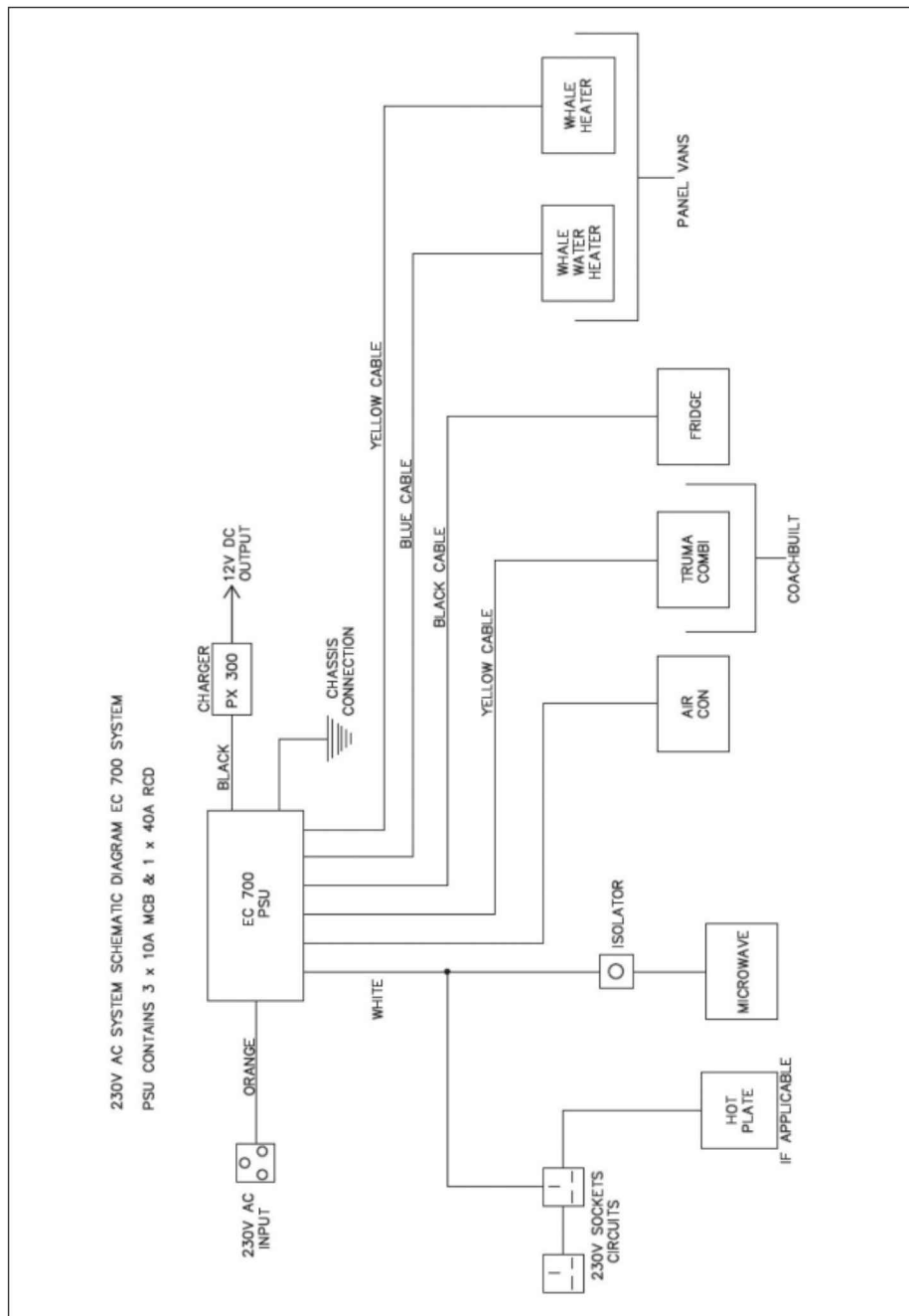
Care must be taken when connecting supplies abroad since the supplies can be of REVERSE POLARITY.

The significance of REVERSE POLARITY is that when equipment is switched off it may not be electrically isolated.

The only certain way of making equipment safe is to unplug it.

If it can be achieved, it is preferable to connect live to live, and neutral to neutral to maintain full electrical protection.







TECHNICAL DATA

Base Vehicle Data

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

Tyre Pressures

The Auto-Sleeper conversion does not affect the tyre pressures in any way because the completed vehicle is built within the maximum capacities of the base vehicle. The pressures are specified by the base vehicle manufacturer for the specified maximum axle masses.

The tyre pressure for Peugeot, Citroen and FIAT vehicles can be found on a label located on the door pillar on the left hand side. Check the tyre size fitted to your vehicle and read off the appropriate information.

The tyre pressures for Mercedes models can be found on a label located on the driver's seat pan.

Weights, Dimensions and Capacities

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

Weights

Details of vehicle weights are found below, and are presented in the manner prescribed in the European Union Regulation EU 1230/2012.

Take care to ensure that heavy loads are stored low down in bed boxes and low cupboards, and distribute weight evenly side to side as far as possible.

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

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

Note 3: The Mass in Running Order contains provision for the mass of liquids, gas etc (see definition). Part of this provision can be used as additional payload if, for example, you wish to travel with water tanks empty or with no gas cylinders.

DEFINITIONS

Maximum Technically Permissible Laden Mass (MPTLM)

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

Please check your driving licence to ensure you are allowed to drive a vehicle at this weight.

Mass in Running Order (MRO)

The Mass in Running Order is defined as the mass of the vehicle equipped to the manufacturer's standard specification and including the following:

- Driver (assumed to be 75 kg, 11st 12lb)
- Fuel tank - 90% full
- Mains electricity connection cable

Note: The MRO assumes that the freshwater tank is empty. If you travel with water in the freshwater tank then the User Payload will reduce accordingly.

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

Mass of the User Payload

The Mass of the User Payload is the difference between the MPTLM and the MRO. It is the vehicle's carrying capacity for everything placed in or on it, including the passengers (but excluding the driver who is already included in the MRO).

Everything listed below must be subtracted from the payload.



Mass of the Conventional Load

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

Essential Habitation Equipment

The Essential Habitation Equipment is defined as the items of fluids required for the safe and proper functioning of habitation equipment. As the gas is not included in the MRO and the toilet system is supplied from the fresh water tank the mass of the essential habitation equipment is now 10kg.

This must be subtracted from the User Payload.

Auto-Sleepers include the 230V connection cable and the habitation battery in the mass in running order.

Options, Personal Effects and Accessories

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

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

You may wish to allocate the user payload to suit your own use. For example, to increase the available payload, the water system may be emptied.

Gross Train Mass (GTM)

If you are towing a trailer with your Auto-Sleeper, the Gross Train Weight is the maximum allowable weight of the towing vehicle, the trailer and the mass of every item carried. The figures are shown on the Vehicle Masses data chart on the next page. Please check your driving licence to ensure you are allowed to drive a vehicle combination at this weight.

Please note that Broadway FB models are not certified to tow.

Maximum Braked Trailer Mass (MBTM)

This is the maximum allowable weight of the trailer together with its load, provided the trailer has a braking system, which complies with European trailer braking legislation. The figure is shown on the Vehicle Masses data chart on the next page.

MTPLM of the Axles

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



VEHICLE MASSES (in kg.)	Peugeot and Citroen		
Engine:	2.2 TD manual		
(Standard vehicle with no options)	Symbol	Symbol Plus	Warwick Duo
Vehicle Designation	L2 H2	L2 H2	L2 H2
Wheelbase	3450	4035	4035
Maximum Technically Permissible Laden Mass (MTPLM)	3300	3500	3500
Mass in Running Order (MRO)	2850	3010	2892
Mass of the User Payload	450	490	608
Designated Passenger Seats (excluding driver)	2	2	1
Conventional Load @ 75kg per person	150	150	75
Essential Habitation Equipment	10	10	10
Personal Effects (standard minimum figure)	84	90	80
Payload remaining available for Personal effects/ Options/Accessories	206	240	443
Optional Premium Pack	32	35	35
Optional Habitation Area A/C	27	27	27
Gross Train Mass	5800	6000	6000
Maximum Braked Trailer Mass	2500	2500	2500
Maximum Un-braked Trailer Mass	750	750	750
Maximum permissible static vertical load on the tow ball	100	100	100
Axle Masses			
Mass of Front Axle, in Running Order	1551	1608	1648
Mass of Rear Axle, in Running Order	1299	1402	1244
MTPLM, Front Axle	1800	1850	1850
MTPLM, Rear Axle	1900	2000	2000

Note: The MRO is calculated with the freshwater tank empty. If you travel with water in the freshwater tank then the User Payload will reduce accordingly.



VEHICLE MASSES (in kg.)	Peugeot and Citroen			
Engine:	2.2 TD manual			
(Standard vehicle with no options)	Fairford Fairford Plus	Kemerton XL	Kingham	Warwick XL
Vehicle Designation	L4 H2	L4 H2	L4 H2	L4 H2
Wheelbase	4035	4035	4035	4035
Maximum Technically Permissible Laden Mass (MTPLM)	3500	3500	3500	3500
Mass in Running Order (MRO)	3111	3089	3102	3066
Mass of the User Payload	389	411	398	434
Designated Passenger Seats (excluding driver)	3	2	1	1
Conventional Load @ 75kg per person	225	150	75	75
Essential Habitation Equipment	10	10	10	10
Personal Effects (standard minimum figure)	104	94	84	84
Payload remaining available for Personal effects/Options/Accessories	51	158	230	266
Optional Premium Pack	35	35	35	35
Optional Habitation Area A/C	Not permissible	27	27	27
Gross Train Mass	6500	6500	6500	6500
Maximum Braked Trailer Mass	3000	3000	3000	3000
Maximum Un-braked Trailer Mass	750	750	750	750
Maximum permissible static vertical load on the tow ball	120	120	120	120
Axle Masses				
Mass of Front Axle, in Running Order	1620	1602	1622	1629
Mass of Rear Axle, in Running Order	1491	1487	1480	1437
MTPLM, Front Axle	2100	2100	2100	2100
MTPLM, Rear Axle	2400	2400	2400	2400

Note: The MRO is calculated with the freshwater tank empty. If you travel with water in the freshwater tank then the User Payload will reduce accordingly.



VEHICLE MASSES (in kg.)	FIAT		
Engine:	2.3 TD manual		
(Standard vehicle with no options)	Symbol	Symbol Plus	Warwick Duo
Vehicle Designation	L2 H2	L3 H2	L3 H2
Wheelbase	3450	4035	4035
Maximum Technically Permissible Laden Mass (MTPLM)	3300	3500	3500
Mass in Running Order (MRO)	2865	3025	2907
Mass of the User Payload	435	475	593
Designated Passenger Seats (excluding driver)	2	2	1
Conventional Load @ 75kg per person	150	150	75
Essential Habitation Equipment	10	10	10
Personal Effects (standard minimum figure)	84	90	80
Payload remaining available for Personal effects/ Options/Accessories	191	225	428
Optional Premium Pack	32	35	35
Optional Habitation Area A/C	27	27	27
Gross Train Mass	5800	6000	6000
Maximum Braked Trailer Mass	2500	2500	2500
Maximum Un-braked Trailer Mass	750	750	750
Maximum permissible static vertical load on the tow ball	100	100	100
Axle Masses			
Mass of Front Axle, in Running Order	1556	1613	1653
Mass of Rear Axle, in Running Order	1309	1412	1254
MTPLM, Front Axle	1750	1850	1850
MTPLM, Rear Axle	1900	2000	2000

Note: FIAT base vehicles with automatic gearboxes are 55kg heavier than the Peugeots.

Note: The MRO is calculated with the freshwater tank empty. If you travel with water in the freshwater tank then the User Payload will reduce accordingly.



VEHICLE MASSES (in kg.)	FIAT			
Engine:	2.3 TD manual			
(Standard vehicle with no options)	Fairford Fairford Plus	Kemerton XL	Kingham	Warwick XL
Vehicle Designation	L4 H2	L4 H2	L4 H2	L4 H2
Wheelbase	4035	4035	4035	4035
Maximum Technically Permissible Laden Mass (MTPLM)	3500	3500	3500	3500
Mass in Running Order (MRO)	3102	3064	3077	3041
Mass of the User Payload	398	436	423	459
Designated Passenger Seats (excluding driver)	3	2	1	1
Conventional Load @ 75kg per person	225	150	75	75
Essential Habitation Equipment	10	10	10	10
Personal Effects (standard minimum figure)	104	94	84	84
Payload remaining available for Personal effects/Options/Accessories	59	182	254	290
Optional Premium Pack	35	35	35	35
Optional Habitation Area A/C	Not permissible	27	27	27
Gross Train Mass	6000	6000	6000	6000
Maximum Braked Trailer Mass	2500	2500	2500	2500
Maximum Un-braked Trailer Mass	750	750	750	750
Maximum permissible static vertical load on the tow ball	100	100	100	100
Axle Masses				
Mass of Front Axle, in Running Order	1563	1592	1612	1619
Mass of Rear Axle, in Running Order	1539	1472	1465	1422
MTPLM, Front Axle	1850	1850	1850	1850
MTPLM, Rear Axle	2000	2000	2000	2000

Note: FIAT base vehicles with automatic gearboxes are 55kg heavier.

Note: The MRO is calculated with the freshwater tank empty. If you travel with water in the freshwater tank then the User Payload will reduce accordingly.



VEHICLE Dimensions in mm	Peugeot, Citroen and FIAT		
	Symbol	Symbol Plus, Warwick Duo	Fairford (and Plus) Kemerton XL, Kingham and Warwick XL
Standard vehicle with no options			
Vehicle Designation	L2 H2	L3 H2	L4 H2
Wheelbase	3450	4035	4035
Overall Length	5413	5998	6363
Width (mirrors extended)	2508	2508	2508
Overall Width (mirrors folded)	2260	2260	2260
Overall Height including TV Aerial	2640	2640	2640
Overall Height including media pack	2840	2840	2840
Overall Height including habitation A/C	2840	2840	2840
Internal Height (minimum)	1900	1900	1900
Freshwater Tank Capacity (litres)	69	69	69
Wastewater Tank Capacity (litres)	40	40	40
Gas, Refillable Tank, LPG, litres	25	25	25



IMPORTANT

To maximise the usage of fitted equipment in your motorhome it is essential that any accompanying manufacturers' literature is read fully. All recommended maintenance and preparation procedures should be followed. The information provided in this manual is only intended as a guide. If in any doubt consult your manufacturer appointed dealer, particularly before attempting to install extra equipment.

In the interests of safety, replacement parts for an appliance shall conform to the appliance manufacturer's specifications and should be fitted by him or his authorised agent.

BARBECUE GAS POINT

An external gas point is fitted to the nearside rear corner of the vehicle behind a lift-up flap. The unit has a tap to enable the gas supply to be cut off prior to connection or disconnection of an external gas appliance.

MICROWAVE OVEN

Your Auto-Sleeper is fitted with a Dometic MWQ240 microwave oven. It functions on 230V mains electricity only.

For full safety and operating instructions please refer to the separate information supplied by the appliance manufacturer.

SPINFLO TRIPLEX 700 COMBINATION OVEN

Your vehicle is fitted with a Spinflo Triplex cooker. It is essential to read the safety and operating instructions in the Thetford operation instructions before using the appliance.

Do not use the cooker while driving.

The instruction manual is produced by the appliance manufacturer and is supplied with your motorhome.

DOMETIC CK2000 RECIRCULATION EXTRACTOR COOKER HOOD

The cooker hood removes the odours and steam produced during cooking. The device is fitted with two integral lamps and two detachable filters: one grease filter for filtering grease and steam out of the air and an active carbon filter for filtering odours. The air is extracted at the sides. The purified air is channelled downwards; this creates a dome of air which prevents steam and odours escaping.

For full instructions on the safe use of the cooker hood, please refer to the separate instructions supplied with the vehicle.

WARM AIR & HOT WATER HEATING

A Whale Heat Air Space Heater and Expanse hot water boiler are fitted and operate on LPG and/or 230V electricity depending on the chosen mode of operation.

Please refer to the Whale user operating instructions before use.

If weather conditions are below zero centigrade and the motor caravan is not being used for habitation the water heater and water system should be drained.

NOTE: The heater is able to operate while the vehicle is in motion. For safety reasons when re-fueling, the heater will turn off automatically when the engine is turned off. After the engine is re-started the heater will need to be re-started at the control panel.



WATER TANK HEATERS

If specified, electrically heated, thermostatically controlled, water tank heater blankets are fitted to enable operation of your vehicle in cold conditions.

Operation

- Make sure that the tank heaters are only selected when there is liquid in the tanks.
- Press the defrost button on the control panel when you know the ambient temperature will approach freezing.
- If there is no liquid in the waste tank, the heater for it must be turned off using the isolation switch, ensuring that the LED is NOT lit. The switch is located on the electrical control panel.
- When the temperature in the tank drops to approximately 7°C the thermostat will turn the heating element 'ON'.
- When the contents of the tank rise to 18°C the thermostat will turn the system 'OFF'.
- Turn the control panel switch 'OFF' when draining fluid, connecting electrical hook up or starting a generator. This will prevent damage to the built in thermostat.
- Turn the control panel switch 'OFF' when the ambient temperature remains above freezing.

Maintenance

Periodically conduct a visual check of the system to ensure cables, connections and the heater pads are as installed and have not been damaged or become disconnected.

REFRIGERATOR

Introduction

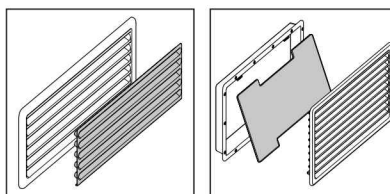
Your vehicle is fitted with a Thetford Premium LCD absorption type refrigerator. The control panel allows you to select your preferred energy source (12V, 230V or gas) and cooling level. Refer to the separate operating instructions before using the refrigerator.

The refrigerator only functions on 12V when the engine is running.

Important Note: The gas supply should be turned off while you are driving.

Winter Use

When you are going to use the refrigerator with an outside temperature below 10°C, install a suitable winter cover (as illustrated).



The covers will protect your refrigerator against cold air and makes sure the refrigerator will still perform optimally.

Make sure you remove the winter cover again once the temperature is above 10°C.

Use safely

For correct and safe use of this refrigerator, you need to observe several precautions and general recommendations. If these instructions have not been followed, warranty claims will not be accepted.

What to do if you smell gas:

Directly close the valve of the gas supply, extinguish any naked flames, do not switch on any electrical devices or lighting, open the windows and leave the room. The contact the Customer Service Department in your country or holiday location.



THETFORD CASSETTE TOILET

Introduction

Auto-Sleepers panel van conversions are fitted with a Thetford Cassette CS-402 or C-223 CS toilet. These appliances are functional and incorporate modern styling with home like features. The unit is an integral part of the motorhome bathroom.

Thetford Cassette toilets are 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 Cassette.

Each toilet has a flush system which is fed directly from the water tank without any intermediate cistern.

Please refer to the separate user instructions to ensure safe and correct use. Waste should be disposed at an authorised waste disposal point.

TELEVISION & AERIAL

Standard System

Your vehicle is pre-wired to enable use of a TV with a built-in satellite receiver.

If a TV with a built-in satellite receiver is used, then, at the TV connection point, simply connect the TV signal (digital terrestrial) to the TV connector and the SAT signal to the SAT connector.

There is also a cable input socket, on the outside of the vehicle, with two inputs for connection of external signals. One is for connection of a standalone satellite dish and the other is for a standalone digital aerial or super site aerial supply.

All Terrestrial TV signals are connected together within the vehicle wiring system and connect to the TV outputs on the TV connection point.

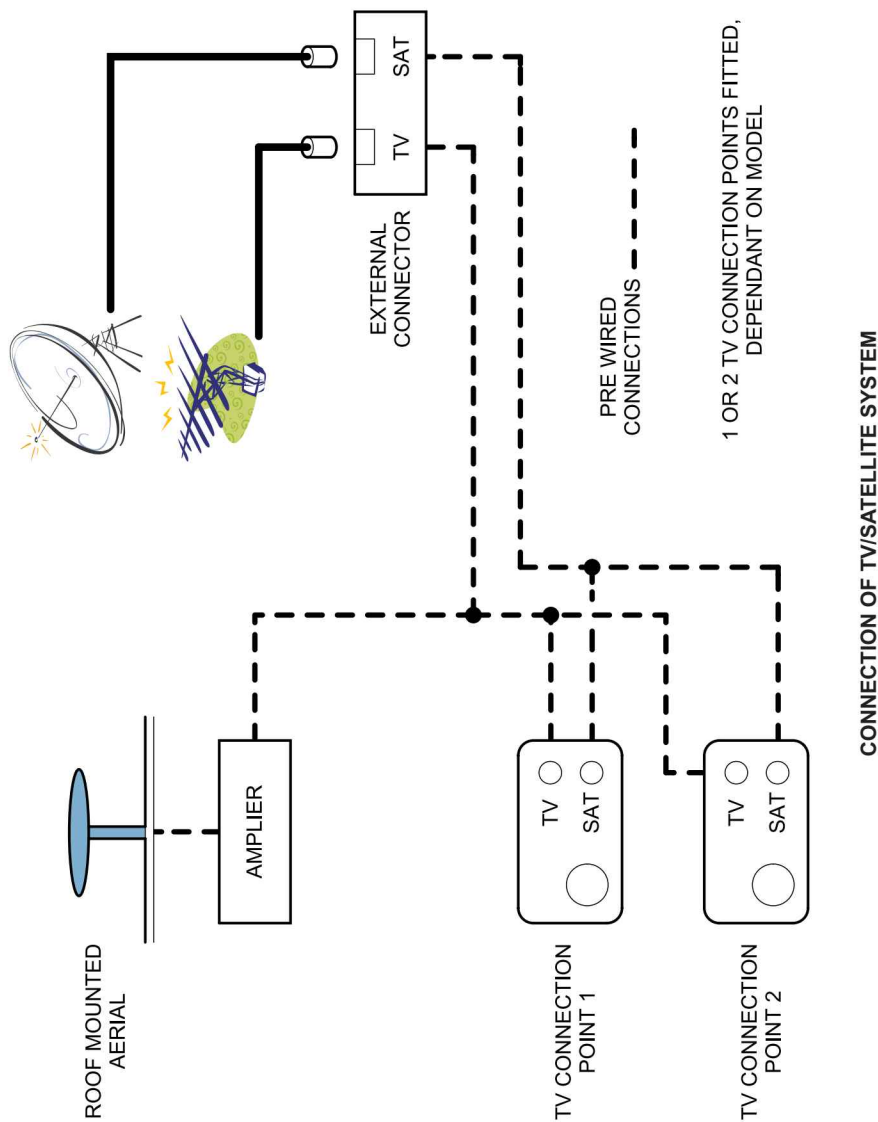
All Satellite signals are connected together within the vehicle wiring system and connect to the SAT outputs on the TV connection point.

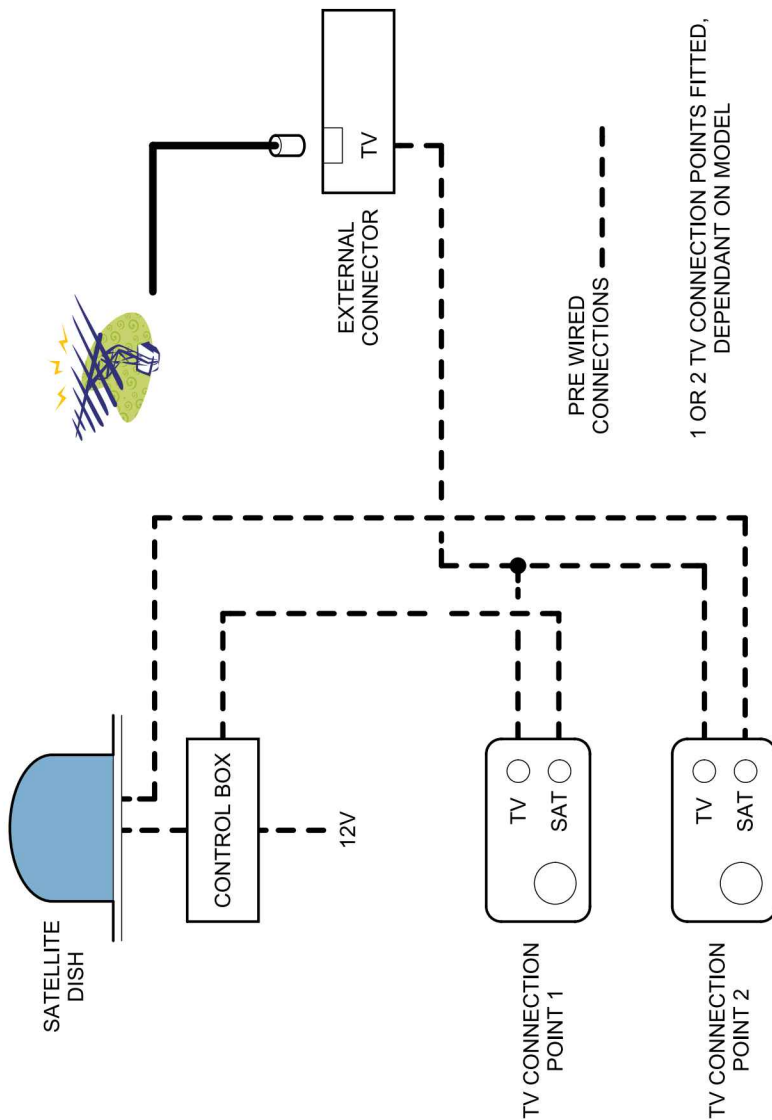
The roof mounted aerial is for digital terrestrial TV and links to the TV outputs on the TV connection points via an amplifier unit.

See diagram for details of connection.

Media pack option

If the optional media pack, with roof mounted satellite system, is fitted then the vehicle is wired differently. See diagram for details.





CONNECTION OF TV/SATELLITE SYSTEM - WITH OPTIONAL MEDIA PACK



ELECTRIC STEP

An electrically operated rear step is fitted, which is operated by the switch located adjacent to the entrance door.

Note: When extending the step, hold the switch until the step is completely extended.

NEVER MOUNT THE STEP IF RETRACTED OR IF NOT FULLY EXTENDED, because then the lock is not working and the motor can be damaged.

CAUTION: In the event of the rear step being left extended, a buzzer, positioned behind the dashboard, will sound (when the ignition is switched on) - and the step will self-retract. The step automatically retracts when the ignition is switched on.

Maintenance

Dirt and frost can prevent the step from operating properly. In this case the moving parts should be cleaned or defrosted. All points of movement are layered in maintenance-free bearings.

Consult manufacturers literature for further maintenance details.

REVERSING CAMERA

An Echomaster wide angle, colour reversing camera is fitted to your vehicle, adjacent to the high mounted rear stop lamp.

The system sends pictures to a display unit mounted in the rear view mirror of your vehicle; when reverse gear is selected the camera is automatically connected to the screen which then displays the rear view.

The monitor is clipped over the original interior mirror and is automatically activated when reverse gear is selected.

Take care to avoid hard objects from scratching the LCD surface of the screen.

Note that the default setting for the rear camera is to operate only when reverse gear is selected. If required, the mode of operation may be changed so that it functions as a full time rear view mirror. To do this, use the remote control supplied with the monitor and holding it close to the monitor, use the mode selection button to toggle between the two different functions.



AWNING

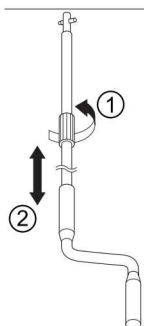
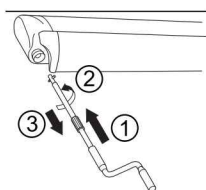
If specified, your vehicle will be fitted with a Thule Omnistor awning.

General

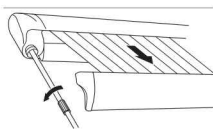
- An awning is a sun and not a rain protection. The awning should be closed in case of storm, snowfall or heavy rainfall.
- The awning cannot be used without putting out the support legs.
- The fabric should not be rolled up wet for long periods. It should be dried as soon as possible.
- Clean the awning using only water or OMNI CLEANER.

User instructions

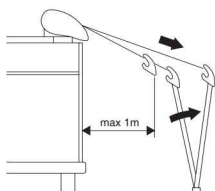
- 1) Adjust the crank handle to the required length.
- 2) Insert the crank handle end into the bayonet socket.



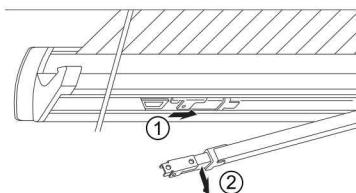
- 3) Turn the crank handle anti-clockwise to unroll the awning while keeping the handle down. Note the awning will only open after a couple of turns.



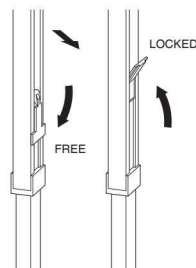
- 4) Unroll a maximum of 1m. Then put out the support legs before unrolling further.



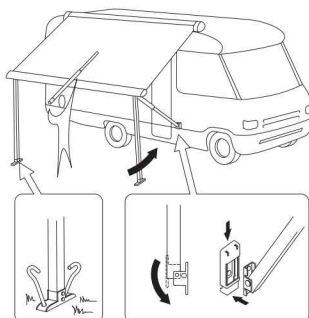
- 5) Slide the support legs out of the front profile.



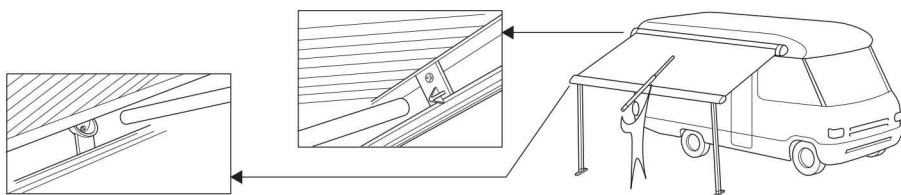
- 6) Adjust the support legs to the required height. The fabric can be tightened by rolling up a little. Note - Never put out the support legs so high that the fabric jams between the arms and the box.



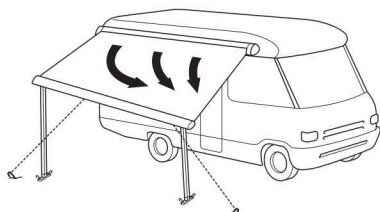
- 7) Fasten the support legs.



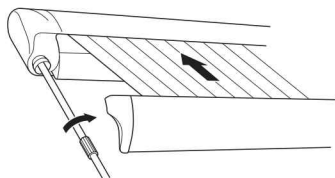
- 8) Install the tension rafter (on larger models).



- 9) When raining, lower one side of the awning so that water can run down the fabric. Prevent the fabric from flying up in a sudden gust by using the hold down kit (optional).



- 10) The front profile locks automatically when the awning is rolled up.



- 11) If you wish to fit leg mounting brackets to the vehicle bodyside, consult your local dealer or the Auto-Sleepers Service Centre.

**LOCATION OF KEY FACILITIES INDEX**

Awning light switch	On electrical control panel. Also see Harmony user instructions.
Step lights	If fitted, next to entrance door.
Controls for space/water heater	On panel above door.
Electric step switch	Next to entrance door.
Electrical control unit	In under-seat storage area
Electrical isolation switch for water heater	In under-seat storage area or wardrobe.
Fuses, 12V DC	On Electrical Control Unit in under-seat storage area. Also see Harmony user instructions.
Gas isolation tap manifold	In kitchen cupboard, wardrobe or in under seat storage.
Habitation battery	In under-seat storage area.
Main 12V control panel	On panel above side door.
Main 12V switch for lighting	On control panel. Each lamp has a separate switch.
Microwave oven isolation switch	On panel above microwave oven
Miniature Circuit Breakers (MCBs)	On Electrical Control Unit in under-seat storage area. Also see Harmony user instructions.
Reading lights	Below overhead lockers, all individually switched.
Residual Current Device (RCD)	On Electrical Control Unit in under-seat storage area. Also see Harmony user instructions.
USB charging socket	On power sockets.
Water heater safety / drain valve	On or adjacent to water heater.
Water pump / filter	In freshwater tank.
Water pressure adjustment valve	In storage area closest to external water filler.
Waste tank heater switch	On electrical control panel. Also see Harmony user instructions.



EQUIPMENT ARRANGEMENT

Ventilation

When the vehicle is being driven the roof ventilators should be fully closed. Wind noise may be reduced by closing the night blind.

WARNING: The roof ventilators are designed to flow a certain amount of air even when fully closed. Do not obstruct them - your safety depends on them.

Roof Lights

The roof lights incorporate a separate sliding flyscreen and night blind which can operate even if the ventilator is open. To open the large roof light, release the handle and wind until the required position is reached.

To open the smaller roof light, release the catch and push upwards until one of the holding positions is reached.

Omni-vent

The Omni-Vent, if fitted, has a hinged outer cover which is operated by the rotating knob. A roller night blind can be closed in various positions.

The roof vent can incorporate an electric fan which can be used to extract or intake air. This is operated by the touch switches on the control panel in the corner of the vent.

Climate control

If specified, your vehicle will be fitted with a Truma Aventa Comfort air conditioning unit in the roof of the habitation area. This will supply fresh and dehumidified air in summer and warm air in winter. The unit can be set, using the digital Truma control panel or a handheld remote control unit, to operate in conjunction with the Combi heater to maintain any required room temperature. It is also possible to set timers for automatic switching on and off, and there is a sleep function for quiet cooling.

For full operating details please read carefully the instructions supplied with the vehicle.

Insulation

All body panels, except the front doors and engine bulkhead are insulated using polyurethane insulation material, giving

protection against extremities of hot and cold and at the same time, minimising condensation.

Stainless Steel Sink and Drainer

The stainless steel sink and drainer should only be cleaned with light detergent. Under no circumstances should bleach be used since this will react adversely with the stainless steel and may cause small holes in the metal. The chrome mixer tap has a small rubber end cap to eliminate water droplets marking the work surface whilst in transit.

Habitation Battery

This is located under a seat. The battery is a 12V, low maintenance, leisure battery which should only require attention at the annual habitation service.

End user guide for lithium batteries

Your motorhome is fitted with lithium (LiFePO4) Habitation battery rated at 60AH (equivalent to an 85 AH lead acid battery) and if maintained correctly should give many years of life.

Lithium technology has many advantages over lead acid wet cell batteries such as:

- Lightweight, a 65 Ah battery weighs 7.2kg
- Built in battery management system (BMS).
- Fast charging capability
- Fully sealed, no venting required.
- Up to 2000 charging cycles.

Like any battery, lithium batteries should be kept in a good state of charge, ideally above 12.5 volts. Lithium batteries have a very low self-discharge rate and will hold charge for long periods of time even in cold temperatures.

The BMS within the battery will prevent over charging or over discharging and will shut the battery down if a certain discharge level is reached, however the motorhome electrical system will alert the user when the battery voltage reaches approx. 10.5v.

If the alert is triggered, the battery must be recharged, either by using the on board battery charger, or running the engine.



The on board charger can be left on once the battery is charged as required.

If you intend not to use the vehicle for prolonged periods of time, it is advisable to disconnect the battery as even if the habitation system is shut down because the Power Supply Unit will still be active in its monitoring state.

Discharged Lithium Batteries

If the battery is fully discharged and reaches the BMS cut off threshold of 10v it will shut down and a reading of approx. 0.7v will be noted.

When the charger is switched ON, the voltage will rise to 13.8-14v and the charge current will rise to approx. +20A for a short period of time. This will cause the battery fuse/fuse holder (25A) to get warm, however, as the battery charges it will be noted that the charge current will decrease steadily over time. The initial bulk charge will occur generally over the first 10 mins of charging. Lithium batteries require a charger suitable for lithium batteries, i.e. the charging output voltage needs to be at least 13.5-14.2v and have a current output of at least 20A for batteries of 60AH and above.

The Sargent EC 328/EC500/EC700 PSU systems supplied with Auto-Sleepers vehicles are suitable. Lithium batteries can be fitted in place of lead acid batteries if the above conditions are met, however, lithium batteries have a different type of cable connection, using a M8 bolt.

If a replacement habitation battery should be required then it is important that the replacement be of the same type and specification as that originally fitted.

WARNING: Switch off all appliances and lamps before connecting or disconnecting the habitation battery.

SMOKING PROHIBITED.

Electronic Control System/Battery Charger

A Sargent EC700 Power Control System is fitted to your vehicle. Full instructions are given in the separate document "Harmony Utility Management System". It features a

built-in battery charger, a digital control panel to provide intelligent control of the vehicle systems and incorporates a smart charge feature. This monitors both leisure and vehicle batteries and automatically adjusts and directs the charger power (and solar power if a solar panel is installed) to maintain the leisure and vehicle batteries at an optimal level.

Electrical - General

The 230V AC sockets fitted to your vehicle are suitable only for medium demand items such as televisions and hairdryers.

Safety/overload protection is provided by the MCBs located under the cover on the front of the electrical control box.

An electrical interface adaptor box is located on the bulkhead behind the driver's seat.

This contains fuses and relays for systems connected directly to the base vehicle electrical system and these are unlikely to require attention from the owner.

At least one 12V socket and one 5V USB charging socket are provided with your vehicle. For their locations, please refer to the Location of Key Facilities chart.

The mains hook up cable, provided as standard, is stowed beneath the offside settee.

Retrofit Options

Please consult either your local Auto-Sleepers dealer or the Motorhome Service Centre, Willersey for a comprehensive list of suitable options available for fitment to your vehicle.

SLEEPING ARRANGEMENTS

Schematic drawings of the alternative bed layouts are shown in the next three pages. In case of difficulty contact your Auto-Sleepers Dealer or the Auto-Sleepers Aftercare Centre.

Care shall be taken against the risk of falling out, when upper bunks are used by children, especially under 6 years of age. These bunks are not suitable for the use by infants without supervision.

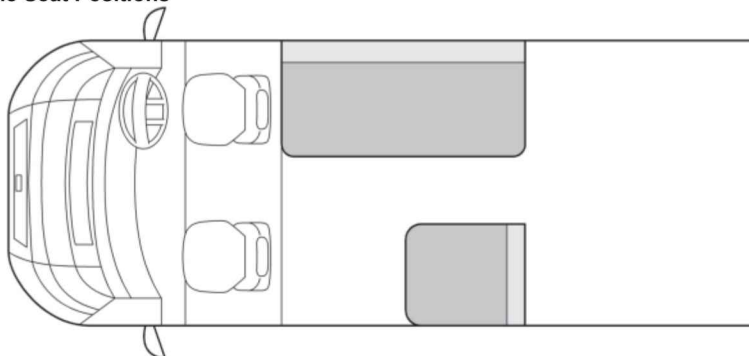
Use upper bunks for sleeping only, with protection against falling out in position.



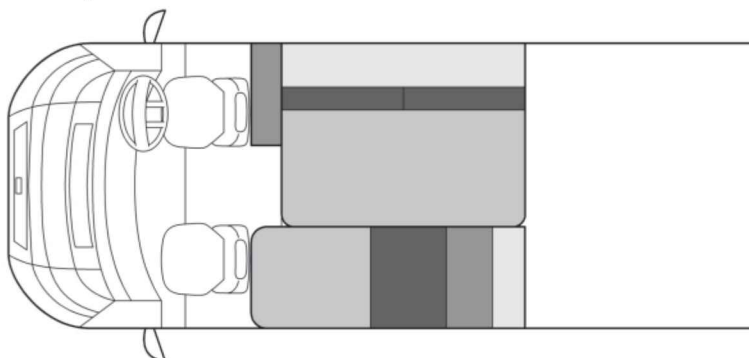
SLEEPING ARRANGEMENTS

Symbol, Symbol Plus, Kemerton XL:

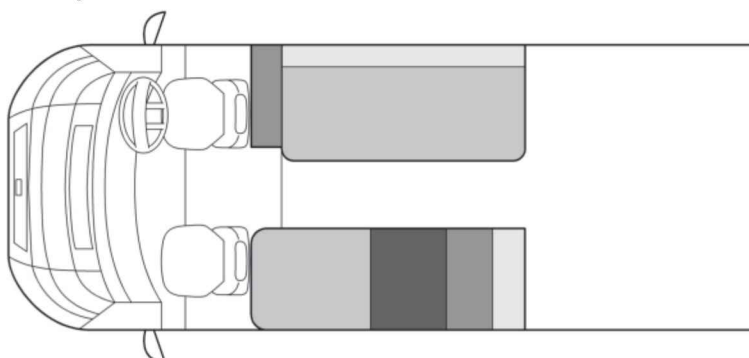
Daytime Seat Positions



Double Bed Layout



Single Bed Layout

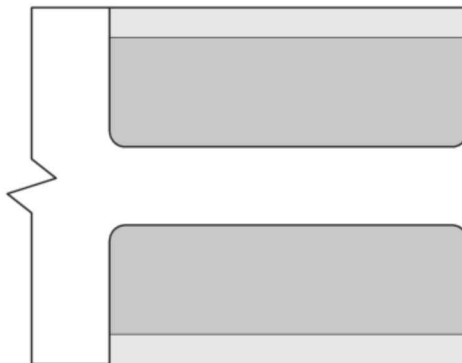




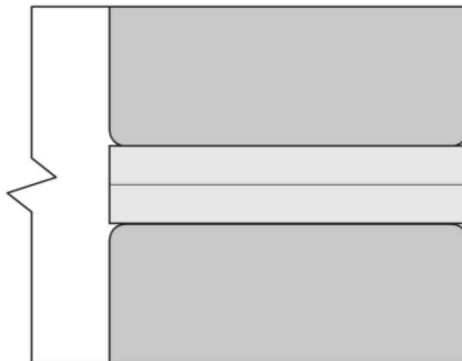
SLEEPING ARRANGEMENTS

Warwick (Duo and XL) Fairford:

Daytime Rear Seat Positions



Rear Double Bed Layout



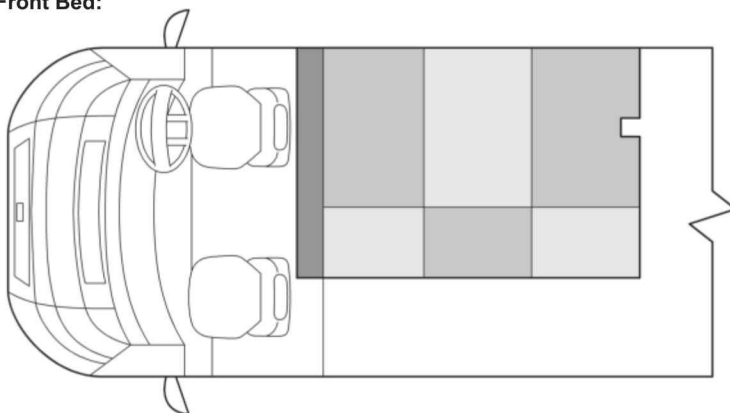
Rear Single Bed Layout



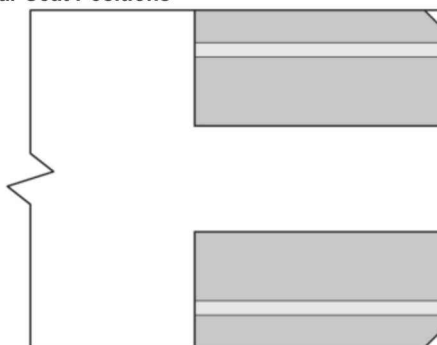


SLEEPING ARRANGEMENTS

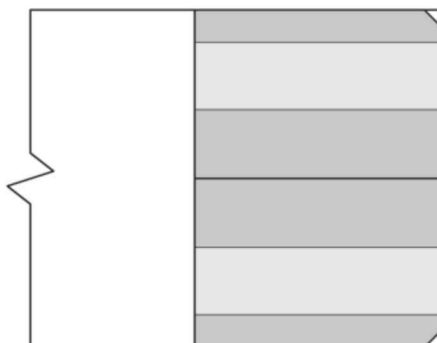
Fairford Front Bed:



Fairford Plus Daytime Rear Seat Positions



Fairford Plus Rear Double Bed Layout





FAIRFORD PLUS Rear Bed

The Fairford Plus model has an ingenious rear bed which converts into two different configurations. When folded as shown the mechanism liberates an open space suitable for transporting personal affects of any description.

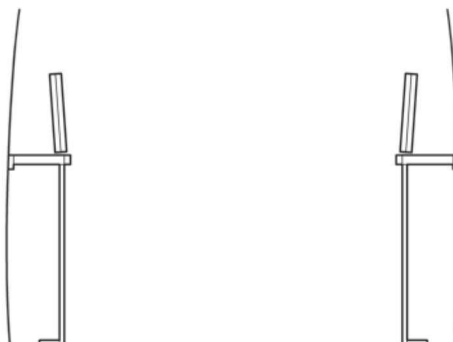
Owners should be aware of the payload capacities when loading the garage area, both the maximum technically permissible mass and the maximum rear axle loading must be respected. The maximum masses are stated in the technical specification section.

Loading eyes are fixed to the floor to enable loads to be secured safely; it is important that items are not left unsecured in case there is an emergency while driving on the road.

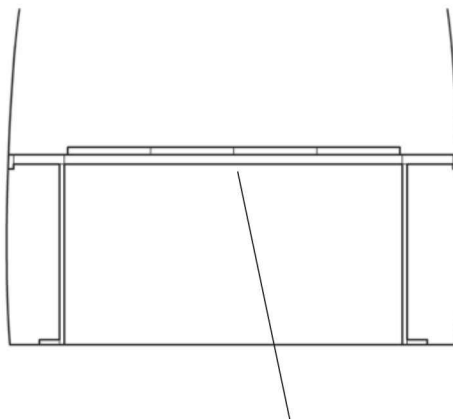
To make the bed, first remove the cushions. Raise the panels and place the two support bars in position in the sockets at waist height. The bars will convert the panels into a bed platform. Replace the cushions to provide the sleeping platform.

Unfortunately the mechanism is fitted at the factory and it is not economically possible to retro-fit them to existing Fairford's with the conventional rear dinette.

FAIRFORD PLUS GARAGE LAYOUTS



GARAGE



**DOUBLE BED WITH
SUPPORT BARS**



GENERAL

In order to keep your Auto-Sleeper in first class condition, periodic maintenance will be required to both the bodywork, windows, upholstery and other parts of the conversion. A car shampoo without wax is recommended. This maintenance should be carried out as follows:

Servicing

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

To find your nearest Auto-Sleepers dealer please go to www.auto-sleepers.com and click on "Dealers"

GLASSFIBRE BODYWORK AND ACRYLIC WINDOWS

General Cleaning

At regular intervals, you should wash the fibreglass bodywork with a recognised cleaner for use on fibreglass gel coats. A car shampoo without wax is recommended.

Should marks remain, use a cleaner with chemical and abrasion agents formulated for use on gel coats.

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.

Removing Scratches from Bodywork

Scratches can be removed from both gel and painted surfaces. The method depends upon the depth of the scratch, as care has to be taken to avoid penetrating the paint or gel coat. Very fine, hairline scratches can be removed by rubbing across the line of the scratch with rubbing compound. Slightly deeper scratches should be lightly wet sanded first using very fine (2000 grit or finer) abrasive paper. Rubbing compound will then remove the flattening marks created by the abrasive paper. For deep gouge type scratches, where the paint or gel may have been penetrated, you should first seek the advice of your supplying Auto-Sleeper dealer.

Cleaning Interior Plastics

Interior plastic parts, such as the shower and wash basin, should only be cleaned with warm soapy water, or non-abrasive cleaners specified as being suitable for use on plastic items.

Recommended Materials

G3 Paste Compound: This is a cutting compound and polish, recommended for use on painted surfaces and GRP. It is ideal for removing the traffic film that builds up on glassfibre coachwork and not only restores it to its former glory, but adds a high level of polish as well.

G10 Extra Fine Grade Liquid: This is again ideal for polishing surfaces and removes swirl marks and very fine scratches. It is less abrasive than G3 yet has the same polish properties and cleans and restores discoloured surfaces. It is ideal for use on dark colours and can also be used to polish out scratches on plastic windows.

Finishing Cloths: These are very fine grade cloths, woven and thus easily washable that are recommended by Farecla for use with their materials.

The above can be purchased from our Service Centre, Willersey (01386) 853511.



UPHOLSTERY MAINTENANCE

Cleaning

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

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 the snag to run.

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

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. Do not apply cleaning solvents to velour piping, otherwise the flock will be removed.

Work Surfaces

Whilst these are hard wearing, hot pans should not be placed directly on these surfaces, since damage may result.

STAINLESS STEEL COMPONENTS

Internal

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

GAS INSTALLATION

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

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

Gas Appliance Igniters

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

Annual Inspection

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

SEAT RESTRAINTS

WARNING: 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.



WATER SYSTEM

Fresh Water Tank

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

Waste Water Tank

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

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

WINTERISATION

General

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

Water System

The water system should be fully emptied, by opening the drain valve located adjacent to the water heater (see heater section for more details), and the drain taps on both the fresh water tank and waste water tank left in the open position. Likewise, all internal taps should be left open and the water pump run until the last traces of water have come out of the taps. Take the vehicle for a short drive, with all the drain taps open, in order to remove the last drops of water from the tanks and water system. Remove all sink plugs to allow the water system to breathe.

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

Upholstery

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

Curtains/Blinds

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

Refrigerator

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

Ventilation

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



Exterior

Fit, where appropriate, winter covers to the fridge ventilator grilles. Give your Auto-Sleeper a good wash and polish before laying up, and apply a small film of protective oil to the stainless steel roof rack, ladder and any other external polished metal components.

Electrical

Turn the EC700 power control system off using the 'Shutdown Switch' on the front of the control box – (see Harmony user instructions). This turns off all the leisure electronics apart from any alarm and tracker power feeds.

To maintain the vehicle battery in good condition it is recommended that it is fully charged prior to storage and then recharged every 3 months.

Windows

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

Automotive

Follow the advice laid down by the base vehicle manufacturer. In particular,

- Secure the vehicle using chocks. Release the handbrake to prevent the brake linings from seizing on.
- Increase the tyre pressure to the maximum noted on the tyre side wall to prevent the tyres from becoming flat.

WARNING: Do not exceed the maximum pressure noted on the sidewall of the tyre.

- Jack up the vehicle to relieve the load on the tyres.
- Cover the tyres to protect from sunlight, as they will deteriorate rapidly in ultra-violet light. A light proof cover will help to prevent cracking of sidewalls and premature ageing.
- Check coolant for antifreeze protection, correct as required.
- Check windscreen and headlamp cleaning systems for antifreeze protection, correct as required.



TROUBLESHOOTING

The following are a series of fault finding charts to which you should refer in the event of problems you may have regarding 230/12V, LPG and water. This should be used as a guide only, and in the case of an electrical fault, where a fuse has blown or an MCB tripped out, the fault must be located before replacing the fuse. If a fault is suspected with the LPG system, consult a GAS SAFE registered technician.

If in doubt consult a qualified technician or your local Auto-Sleepers dealer.

12V TROUBLESHOOTING CHART

Symptom	Cause	Remedy
Habitation 12V does not operate	Main 20A fuse blown	Check/Replace
	Battery Discharged	Recharge
	Switch on control panel in off position	Switch to on
	Vehicle ignition 'on'	Switch 'off' ignition
Habitation battery not charging	Main 20A fuse blown	Check/Replace
	Relay fault	Refer to dealer
	Contacts dirty/loose on battery terminals	Clean and check for tightness
Battery does not hold its charge	Failed battery	Electrically test and replace if necessary
	Current being drawn	Check all appliances are off when not in use
Battery discharges over a short time with appliances operating	Poor battery cell condition	Electrically test battery
	Failed battery	Change battery
	Battery not fully charged	Fully recharge battery
No power to one or more 12V appliances	Circuit fuse blown	Find fault and replace fuse with same rating
Water pump not operating	Switch on panel 'off'	Switch it 'on'
	Fuse blown	Find fault and replace fuse with same rating
No power on 12V socket outlet	Fuse blown	Find fault and replace fuse with same rating

**12V TROUBLESHOOTING CHART (continued)**

Symptom	Cause	Remedy
Heater not operating/cuts out	Fuse blown	Find fault and replace fuse with same rating
	Low battery charge	Recharge battery
	Unit fault	Refer to dealer
Cooker ignition not operating	Fuse blown	Find fault and replace fuse with same rating
	Spark unit fault	Refer to dealer
	Fault on cooker unit	Refer to dealer
Fridge gas ignition not operating	Fuse blown	Find fault and replace fuse with same rating
	Ignition control switch fault	Refer to dealer
Fridge does not operate on 12V when engine is running	Fuse in EM40 interface box blown	Find fault and replace fuse with same rating
	Fault on fridge relay	Refer to dealer
	Fault on fridge unit	Refer to dealer

230V TROUBLESHOOTING CHART

Symptom	Cause	Remedy
230V system inoperative	No site power	Check site supply
	RCD/MCB switches tripped out	Reset circuit breakers
RCD/MCB keeps tripping out	Fault on 230V supply	Refer to dealer
	Faulty appliance	Turn off all appliances, Isolate faulty appliance Refer to dealer
	Overload on current consumption by appliance	10A maximum available Refer to dealer
Heater does not operate on 230V	No power	Switch on isolator switch/check MCB is on.
	Over temperature trip activated	Leave to cool down.
Cooker Hotplate not heating up	No power	Check MCB is on

**LPG TROUBLESHOOTING CHART**

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



WATER TROUBLESHOOTING CHART

Note: For more help with water pump issues, please refer to page 7-1 of this handbook.

Symptom	Cause	Remedy
Continuous running of water pump	No water	Fill tank
	Major leak	Switch off immediately and check system
	Pressure not set correctly	Adjust as page 7-1
Intermittent operation of water pump	Minor leak in water system	Check push fit joints
Water pump does not operate	Fuse blown	Find fault and replace fuse with same rating
Water gauge does not operate	Probe fault	Refer to dealer (check probe connections)
No hot water (230V system)	No power	Switch on isolator switch/check MCB is on
	Over temperature trip activated	Leave to cool down
Slow drainage from sink/shower tray	Blocked breathers in waste tank	Drop tank and clear breathers



DATA RECORD

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

Vehicle Type

Vehicle Model

Auto-Sleepers Production Number

Keys

Ignition Key

Door Key (if applicable)

Fuel Filler Key (if applicable)

Water Filler Key

Gas Compartment Key

Toilet Compartment Key

Alarm Code (if fitted)

Breakdown Service Membership Number

Radio Security Code

Supplying Dealer Contact Number



RECOMMENDED ANNUAL SERVICE CHECK FOR MOTOR CARAVAN BODIES AND CONVERSIONS

It is recommended that the annual service is carried out by an approved motorhome service centre.

Introduction

This entire section offers guidelines for the checking of a motorhome's habitation area and to ensure continual compliance with EN1646-1.

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:

- Any owner's manual or equivalent supplied with the vehicle by the motorhome converter.
- Appliance manufacturer's instructions.
- Driver's handbook or equivalent supplied by the chassis manufacturer.
- A vehicle is accepted for service at the dealer's discretion.
- Any defects, repairs, adjustments, cleaning or lubrication required will be noted on the checklist. 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 motorhome.

This guide is published as an aide memoire for dealers. Any work carried out following the check, and the sufficiency of the work in the check itself, is subject to the contract between the customer and the dealer.

SECTION 1 - BODY MOUNTING

Body to Chassis

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

Body to Cab

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

Body Retention (dismountable)

Check serviceability and tightness of body retaining gear.

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

SECTION 2 - WINDOWS

Windows

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

EXTERNAL DOORS

Not including base vehicle doors.

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.



Sealing:

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

Childproof Lock:

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

INTERNAL DOORS

Security:

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

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

Corner Steadies

Check that attachments to chassis are secure.

Ensure steadies work freely and satisfactorily.

Lubricate screw to ensure correct operation.

Folding/Retractable Steps

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

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).

Spare Wheel

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

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

Wheel Boxes

Check for damage, corrosion, water seepage, signs of tyre scrubbing.

SECTION 5 - ATTACHMENTS TO BODY EXTERIOR

Roof Lights

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

Roof Racks and Ladders

Check security to body and general condition.

Check roof for damage adjacent to rack.

Mouldings, Trims

Check security. Check sealing has not deteriorated.

Flue Terminals, Air Vents

Check security. Check sealing has not deteriorated.

Check that these are not blocked.

SECTION 6 - INTERNAL

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 meter should be used where appropriate.

Furniture

Check furniture is securely fixed.

Check door hinges, catches and stays for satisfactory operation.

Dinette Seats/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.



Upper Bunks

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

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.

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, swivels and seat back operation.

Fire Extinguisher

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

Fire Blanket

Check position (should be near cooker).

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

Advice to Occupiers/Warning Notice

Check presence and condition and advise customers accordingly.

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

Advice to Occupiers/Warning Notice

Check presence and condition and advise customers accordingly.

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

ADVICE TO USERS VENTILATION

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

IN CASE OF FIRE

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

FIRE PRECAUTIONS

Children: Do not leave them alone.

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

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

Fire Fighting: Provide, at least, a 1kg power fire extinguisher, that complies with EN 3-7 by the main exit door, and a fire blanket next to the cooker. Make yourself familiar with the instructions on your fire extinguisher and the fire precaution arrangements on the caravan park.

Portable or Open Flame Heating Equipment

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



SECTION 7 - ELEVATING ROOFS

Lifting Mechanism

Gas struts or spring nuts 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.

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 request of the customer).

Solid Side Wall

Check sides and end panels fold up and down correctly, that they seal against each other where appropriate and that retaining mechanisms are satisfactory.

Check all hinges for security and freedom from strain.

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

Cylinders, Regulators and Feed Hoses

Establish that the cylinder and feed hose is compatible.

Since the introduction of BS EN1949 the gas pressures for Butane (blue) cylinders and propane (red) cylinders have been harmonised across Europe. The gas system pressure is now 30mbar for both gases.

The gas regulator is now fitted as standard equipment by Auto-Sleepers. Your supplying dealer will need to supply you with the correct hose compatible with the cylinder to be fitted.

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

Check seals on internal doors.

Hose and Piping

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

The maximum permissible hose length is 400mm, longer hoses should not be used. The hose length is the length of the flexible portion of the hose assembly. Do not use external cylinders and or extension hoses.

Check piping for condition, damage and correct support.

Carry out an overall leak test.

Appliances

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

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

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.



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.

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.

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.

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 appliance does not light, FFD is satisfactory.

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.

Protection of adjacent surfaces:

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

Inspections:

It is recommended that inspections are carried out by a qualified fitter trained to GAS SAFE standards.

SECTION 9 - WATER SYSTEM

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

Fresh Water Tank

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

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).

Pump Filter

When applicable, remove filter and replace.

Check the in-line pump for security and condition. Remove the submersible pump from tank, check condition.

Check pump inlet and outlet are clear and not obstructed.

Check delivery hose and electric cable are secure and satisfactory.



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).

Waste Water System

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

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.

Toilet Waste Tank

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

SECTION 10 - ELECTRICAL SYSTEMS

Extra Low Voltage 12 Volts (excluding vehicle)

Batteries:

Check batteries for condition.

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

Wiring:

Examine all visible wiring.

Check all connections and joints are sound and satisfactory.

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.

Appliances:

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

Function test all appliances.

Mains 230 Volt System

It is recommended that the inspection and certification of the 230 volt system be carried out by a qualified electrician who is an approved contractor of the NICEIC (National Inspection Council for Electrical Installation Contracting) or a member of the Electrical Contractors Association.



AUTO-SLEEPERS SERVICE CENTRE ANNUAL HABITATION CHECK

Introduction

It is recommended that every 12 months the habitation side of your motorhome is inspected by qualified technicians. Attached to this brief, is a list of all the points that are checked.

A few customers are of the belief that this check includes rectification of faults. It is stressed that this is not the case, the annual service is a check **only** of the habitation aspect of the motorhome.

If faults are found, the technician will advise you, the customer, of the fault and the recommended course of action to resolve this.

Servicing is not included in this check.

All facilities are run and tested through their operational envelope. For example, the flame propagation on the refrigerator and other main gas appliances (where visible) is checked. If the flame is burning a wrong colour or burning too far from the jet, we again advise you, the customer, as to how this should be rectified.

We also recommend and are able to arrange for the refrigerator of your vehicle to be checked here at the Service Centre by a qualified engineer. Our own on site personnel are qualified to service Dometic fridges and for other makes we will arrange for a visit by the appropriate service engineer.

A further aspect of the test is a gas pressure test.

You will see also that we check that key components are serviceable (fire extinguishers etc) and furthermore that where appropriate, items are lubricated and checked for serviceability.



MOTOR CARAVAN ANNUAL HABITATION SERVICE CHECK CHECK SHEET

Vehicle Registration Mark Make & Model Year of Manufacture Recorded Mileage	A Class Coachbuilt High top conversion Elevating Roof Dismountable
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CHECK ITEM	Manual	OK	Remarks - Advice to Customers
SECTION 1: BODY MOUNTING			
BODY TO CHASSIS			
BODY TO CAB			
BODY RETENTION			
SECTION 2: WINDOWS			
WINDOWS			
SECTION 3: DOORS			
EXTERNAL			
INTERNAL			
SECTION 4: CHASSIS			
CORNER STEADIES			
FOLDING STEP			
WATER TANK MOUNTS			
SPARE WHEEL			
WHEEL BOXES			
SECTION 5: BODY EXTERIOR			
ROOF LIGHTS			
ROOF RACK AND LADDER			
MOULDINGS AND TRIM			
FLUE TERMINALS, AIR VENTS			
SECTION 6: INTERNAL			
SEEPAGE CHECK			
FURNITURE			
DINETTE SEATS/BEDS			
CURTAINS, BLINDS, NETS			
CAB SEATS			
FIRE EXTINGUISHER			
FIRE BLANKET			
WARNING NOTICE			
HEATING EQUIPMENT			



SERVICE DETAILS



CHECK ITEM	Manual	OK	Remarks - Advice to Customers
SECTION 7: LIFT UP ROOFS			
LIFTING MECHANISM			
CANVAS SIDE WALLS			
SOLID SIDE WALLS			
LOCKING			
SECTION 8: GAS SYSTEM			
CYLINDERS & REGULATOR			
HOSE & PIPING			
APPLIANCES			
SECTION 9: WATER SYSTEM			
FRESH WATER TANK			
WASTE WATER TANK			
FILTER PUMP			
SYSTEM CHECK			
WASTE WATER SYSTEM			
COUPLINGS & FLUIDS			
SECTION 10: ELECTRICS			
12 VOLT SYSTEM			
BATTERIES			
WIRING			
FUSES, FUSE HOLDERS			
APPLIANCES			
MAINS 230 VOLT SYSTEM			
SECTION 11: VENTILATION			
HIGH LEVEL			
LOW LEVEL			

DEALER:	SIGNED:
	DATE:

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Auto-Sleepers

MOTORHOMES OF EXCELLENCE

ISSUE 21/1

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