



COACHMAN

2021
OWNER'S HANDBOOK



INTRODUCTION

All Coachman models have been certified by the National Caravan Council for compliance with stringent European Standards, British Legislation and industry set Codes of Practice, specifically

relating to health and safety issues. The approval process covers the testing and inspection of critical areas of the product from fire safety, weights and dimensions to gas, electrics and ventilation.



Not all equipment described is fitted to every derivative, to check your individual specification please check with the brochures and your dealer or visit the Coachman website (www.coachman.co.uk)

All the illustrations and descriptive matter in this guide are intended to give a general idea of the caravan. Changing market and supply situations may prevent us from maintaining exact specification details in this guide and we therefore reserve the right to alter specifications as materials and conditions demand.

Please check current details with your dealer and inspect the caravan to ensure it is satisfactory before purchase. Dealers are not agents and have absolutely no authority to bind Coachman Caravan Company Limited by any express or implied undertaking or representation.

For the most updated version of the Owner's Handbook please refer to: www.coachman.co.uk

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Introduction

Welcome to the world of caravans

You are now the owner of a Coachman caravan. The User's Guide has been prepared for your guidance to help you derive the greatest amount of pleasure from the use of your caravan. It is recommended that you read the pages of this guide thoroughly so that you are fully conversant with all the caravan systems. The major proprietary components of the caravan such as the chassis, heater, oven, water heater, refrigerator and electrical control systems all have their own comprehensive operating instructions which should be supplied with your caravan. It is strongly recommended that you read these too as it is not possible to include all the information they contain in this handbook.

Your supplying distributor is responsible for carrying out a thorough pre-delivery inspection on your caravan and also for arranging any warranty work or routine servicing which may be required.

Authorised Dealers will be able to supply any replacement parts for your caravan, should the need arise, along with any accessories you may require. Please note that it is not possible to purchase replacement parts or accessories direct from Coachman Caravan Company Ltd.

We are sure you will have many happy times with your caravan but please remember a happy carefree time is based on proper, thorough and responsible preparation, careful driving with regard to the "Rules of the Road", other road users and above all ensuring your caravan is in a first class roadworthy condition. It is a condition of your warranty that your caravan is serviced by an authorised workshop once every twelve months and that the service record in the back of your Service, Warranty and Technical Data Manual, is maintained in accordance with instructions.

Your Coachman caravan has been designed as a recreational vehicle and is intended for recreational use only. It is not intended for living in, using for business

purposes, or hiring, and the Company accepts no liability if the caravan is used for any purposes other than holidays.

To ensure the very best quality and reliability the caravan has been through an extensive design and testing programme. Therefore the Company accepts no liability if the caravan is altered or modified in such a way that, in the Company's opinion, the changes would adversely affect the reliability or functionality.

You should consult your dealer before any additional equipment is fitted.

Towing vehicles

When selecting a towing vehicle for your caravan we strongly recommend you check the NCC website "Towcheck" www.towcheck.co.uk to ensure your car and touring caravan towing combination is safe and legal.

Security

Repairs

If you damage your caravan or it should require repairing for any reason, please contact your supplying dealer. These repairs must be carried out by an authorised dealer using Coachman genuine parts, recommended sealant and following Coachman procedures.

All Coachman caravans are classed as portable and therefore all warranty work requires the caravan to be delivered and collected from the supplying dealer. The cost of transporting, towing or moving the caravan to and from the place of repair is the responsibility of the owner.

Warranty

All Coachman caravans carry a three year manufacturer's warranty. This warranty applies to the UK and Northern Ireland.

During the first twelve months of ownership the Coachman manufacturer's warranty will cover faults arising from manufacturing defects but not those

which are the results of normal wear and tear or accidental damage caused by misuse of any component part of the caravan. Exclusions also include tyres, fuses, LED lighting and bulbs, and proprietary products which are covered by the respective manufacturers' own guarantee and service arrangements.

In years two and three the warranty will cover all original components of the caravan including permanently fitted equipment forming part of the original manufacturer's specification plus water ingress and delamination.

The specific exclusions of the Coachman Caravan Company Ltd Warranty during years two and three are bright work and all similar finishes, tables, hinges, knobs, window catches, stays and associated fittings, adjustments, bulbs, LED lighting and electrical connections, entertainments/communications system, microwaves, chrome work and mirrors.

Proprietary products which are covered by the respective manufacturers' own guarantee and service arrangements.

The caravan is not covered if: the manufacturer's identification (17 digit vehicle identification number) has been removed or defaced. The Coachman Three Year Manufacturer's Warranty also excludes the following:

- Failure due to reasons of fair wear and tear
- Damage resulting from accidents
- Misuse of any component
- Replacement of parts which have reached the end of their effective working life because of age and/or usage
- Cleaning or adjustment of any component
- Caravans used for hire or reward
- Caravans used for other than recreational purposes, i.e. for living in or business purposes

Your caravan

- The cost of transporting the caravan, by whatever means, to the place of repair
- Any consequential cost or loss arising
- Damage by mould
- Damage by forces of nature
- Damage by vermin

All Coachman caravan warranties have a requirement that a full annual service is carried out by a competent service centre. This service must be carried out within 90 days either side of the anniversary of the date of the purchase for interim years before the anniversary date of the 3rd year, in accordance with the National Caravan Council's recommendations as detailed in the service section of the Service, Warranty and Technical Data Manual; failure to do so will invalidate your Coachman warranty.

Your service handbook must be stamped accordingly and the original VAT invoices and damp report must be retained as proof that the annual service has been

carried out in accordance with the warranty terms and conditions.

The dealership from which you purchased your caravan is liable for warranty repairs. Any other approved dealer/workshop may carry out work on a caravan at its own convenience and discretion but is not obliged to.

Water ingress

On every new Coachman caravan sold, we offer a comprehensive 6 year water ingress and delamination warranty:

- Water ingress between new and 6 years - Coachman Caravan Company Limited will pay the total labour costs and supply parts free of charge providing there is a full service history and the 6th service is completed before the anniversary date from the original date of purchase. This applies to water ingress through any permanently sealed joints.

If you purchase a Coachman caravan as a used caravan, it is possible to transfer the unexpired term of the warranty and water ingress cover for up to six years from the original date of purchase. Please see rear of the **Service, Warranty and Technical Data Manual** change of ownership form. This warranty and offer is subject to the conditions, terms and exclusions. A small charge will be made for carrying out the transfer. This transfer must be completed within 28 days of change of ownership.

Additionally for 2015 onwards for the first owner, Coachman make a 10 year water ingress warranty:

- Water ingress between 6 and 10 years Coachman will pay the total labour cost and supply parts free of charge provided there is a full service history and the 3rd, 6th and 10th service were carried out before the anniversary date on the final year of this offer. This applies to water ingress through any permanently sealed joints.

Your caravan

To preserve this offer your annual services in years 1- 6 have been carried out in line with the service scheduling detailed. In years 7, 8 and 9 are carried out within 90 days either side of the anniversary of the date of purchase

NOTE: Caravan Movers

Any caravan mover fitted shall comply with the design, fitment and safety requirements of NCC Code of Practice 305. The installation of a caravan mover shall be in accordance with the motor mover manufacturer's installation instructions.

You should ensure you receive a signed installation certificate of compliance from the installer. Failure to do so may invalidate your warranty.

NOTE: Self Levelling Systems

Any self-levelling system fitted shall comply with the design, fitment and safety requirements of the NCC Code of Practice 308. The installation of the self-levelling system shall be in

accordance with the self-levelling system manufacturers installation instructions.

You should ensure you receive a signed installation certificate of compliance from the installer. Failure to do so may invalidate your warranty.

Fire retardant foams

Under the condition of the Consumer Protection Act 1987, the manufacturer has a responsibility to ensure that their product is as safe as possible.

With this in mind all caravans are equipped with either Combustion Modified High Resilient (C.M.H.R.) foam cushions or sprung mattresses. (These foams are very much safer from a fire point of view than those previously used. In addition all upholstery is made of fire retardant fabric).

NOTE: Whilst this manual will describe the general operation of the caravan, we recommend that you refer to the individual equipment manufacturers manuals for detailed information.

CRIS registration and VIN chip

Caravan Registration

This caravan has been security marked and recorded under the Caravan Registration and Identification Scheme that is recognised by the Caravan Industry.

Shortly after purchasing this caravan you should receive your Touring Caravan Registration Document. It will be sent by post to your home address.

Your Touring Caravan Registration Document will include a 17 character VIN (Vehicle Identification Number), shown in the top right hand corner. This 17 character VIN will be permanently marked onto the caravan chassis.

To protect yourself and your touring caravan, never leave the Registration Document in the caravan. For security reasons keep it in a safe place.

If you sell the caravan please follow the instructions on the touring caravan registration document.

Your caravan

If you do not receive a touring caravan registration document, lose it, or any of the details recorded are incorrect, please contact:

CRiS

PO BOX 445, Aldershot. GU11 9FS
or tel: 0203 282 1000

VIN Chip Caravan Identification

The caravan's unique 17 character VIN will be incorporated into VIN Chip tamper evident labels; the master VIN Chip label is situated on the front nearside window to aid police checking, another in the gas locker and a maximum of 10 placed on the inside of all windows (with the exception of opaque windows).

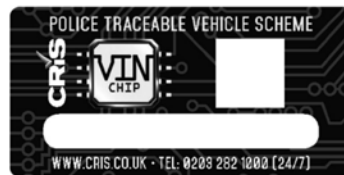
Three electronic RFID chips containing the individual identity of your caravan are concealed within the caravan and can only be read by using a specially programmed RFID scanner.

Your local police can obtain the use of a **CRiS VIN Chip scanner by contacting CRiS on Tel 0203 282 1000.**

Window Lozenge



Master Window Label



Gas Bottle Locker Warning Label



Alarm and tracking (where fitted)

A security system developed by Phantom in leisure vehicle security.

It's the complete insurance rated alarm and the latest Phantom Pro3 GPS system, not only protecting your caravan but bringing the ability to monitor and control remotely.

Never again will you wonder if you set the alarm. A simple secure app will show you the alarm status and allow you to arm or disarm the alarm from wherever you are.

My phantom your portal

The unique portal providing online access to monitor your caravan. Login via the Phantom website or download our App on Android or Apple. You'll be able to check your location and battery

voltage as well as setting service mode. Caravan information and your individual Phantom Tracking device number.

Your caravan

You can edit the name to suit yourselves.

Displays the location of your vehicle which updates each time you move or every 6 hours if stationary.

The portal will let you know when your subscription ends and when it started.

Your mileage history graph will give you readings linked to the ignition. If you have a caravan then these readings are calculated using our GPS data and can be less accurate.

Reports monitor and store the voltage of the leisure battery which is being used to power the Phantom tracking unit for 30 days, this enables you to spot possible issues with power drains, solar panel effectiveness and predict when your battery may need to be recharged.

Your battery dial, displays the current voltage.

Online support

You can submit a support request on our online system. You can monitor all chat responses and view your whole conversation.

Phantom our app

Visit the Apple Appstore or Google Play Store to download the Phantom App where you can:

a) Overview

Overview is your account information, the date your subscriptions end, caravan info etc.

b) View

View your caravan location.

c) Reports

View the mileage history and battery history of your caravan where applicable.

d) Service

1. Temporarily disable power or alarm alerts.

2. Place your caravan into service mode for a period of time.

3. Select which alerts you wish to disable.

e) Viewers

Manage who can see your caravans location. Friends and family if you want them to monitor your vehicles.

Alarm

Your alarm is connected to the tracking system. We notify you via a call if the alarm goes off. You can alarm and disarm the alarm from the app.

Shield

The shield function can be used to alert users to movement of the caravan, which can be easily enabled or disabled.

Your caravan

Please note:

1) You must enable notifications for this to work

2) Shield only sends a notification to any devices that are logged into the myphantom app.

It does not send an alert to the call centre.

On Android go into apps and select your app. It should give you notifications options.

24-7 monitoring of your caravan

Phantom systems are designed exclusively with Caravaners in mind, providing features now and in the future to match any tracking needs.

The 'Pro3' checks into Phantom's central server twice a day, every day. It reports its position and battery level as well as recording any mileage travelled. It has a unique sim card allowing it to utilise any network, providing unrivalled communications across the UK and over

28 European countries.

All this information is accessed through our online portal or Android 'App' and Apple App.

You or your family can check where the van is and its current battery level as well as a historical 30 day graph of voltage levels - great for keeping your eye open for any unexpected events. This will also help ensure longer battery life by showing users when their battery needs charging.

Text and phone calls confirm any alerts or power cuts.

More information is available from www.myphantom.uk.net

Security

VIN (Vehicle Identification Number)

Record your caravan VIN which can be found stamped on the underside of the drawbar or on one of the eye level windows. Make a note of this number in the space provided at the front of this

guide and make a separate note of the number to keep safe at home.

Caravan theft

The theft of a caravan can occur in the most unlikely circumstances; from a motorway service area, even from an owner's driveway.

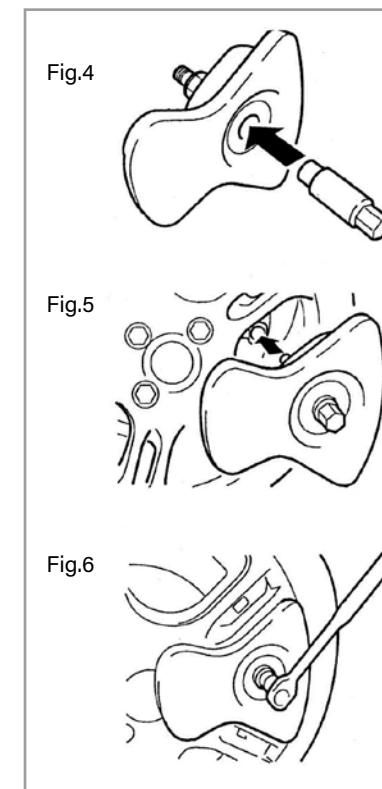
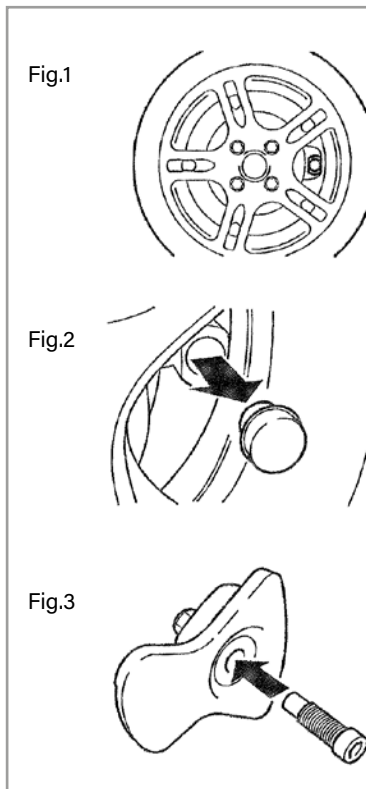
Secure all windows and doors when your caravan is unoccupied, even if only for a short length of time.

Additional security

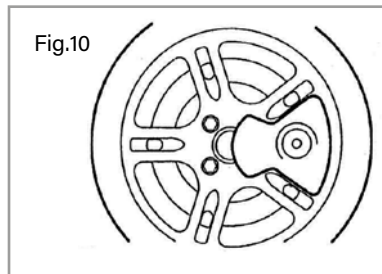
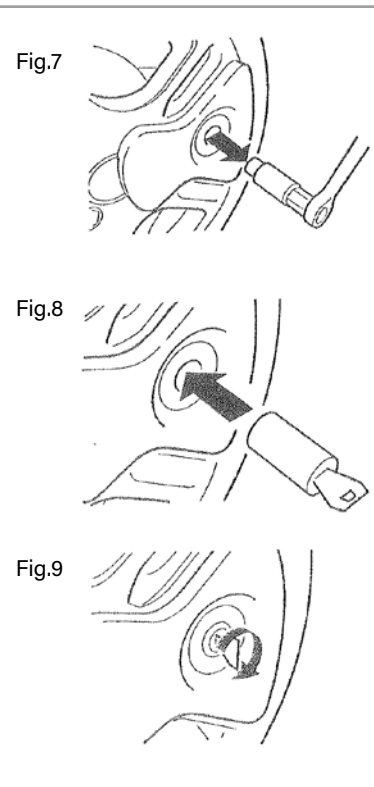
Some models come as standard with the AL-KO Secure wheel clamping device. While some models have the AL-KO Secure receiver fitted as standard and the AL-KO Secure device can be purchased from your dealer, alternatively consider fitting any device, which might deter or prevent intrusion by thieves. A hitch lock cover prevents towing of the caravan.

Fitment of AL-KO Secure

- Align the wheel so that the receiver can be seen in the centre of the rim opening. DO NOT use the rim opening in which the tyre valve is fitted. **(Fig 1)**
- Unscrew the plastic cap from the receiver and store in the tool kit box. (When AL-KO Secure is not in use, always screw the plastic cap in place). **(Fig 2)**
- Insert the locking bolt into the rim specific insert. **(Fig 3)**
- Insert the locking bolt socket key. **(Fig 4)**
- Line up the locking bolts and assembly with the receiver. **(Fig 5)**
- Tighten the locking bolt socket using the wheel spanner provided (or torque wrench as shown) to wheel torque (Ideally 86 Nm). **(Fig 6)**



Your caravan



- Remove the locking bolt socket key. **(Fig 7)**
- Insert barrel lock. **(Fig 8)**
- Hold the lock fast and lock. **(Fig 9)**
- The AL-KO Secure is now fitted. **(Fig 10)**

Twin axle caravans

Fit the front lock first by aligning the wheel so the receiver can be seen in the centre of the rim opening. Chock front wheel and opposite wheel. Jack the caravan (preferably using the AL-KO side lift jack) until the rear wheel is clear of the ground. Fit the second lock by aligning the wheel as described previously.

Free crime prevention

Advice on securing your caravan, protecting your valuables, property marking, either at home or whilst on site, can be obtained from the Crime Prevention Officer through your local Police Station.

AL-KO galvanised chassis

The AL-KO chassis fitted to your Coachman is constructed from high quality, hot dip galvanised steel.

The axles and suspension are comprised of 3 rubber elements within a hexagonal

tube. Additional AL-KO Octagon Shock Absorbers are fitted as standard for increased damping and improved road holding.

⚠ Warning

Holes must not be drilled into the chassis. When purchasing a stabiliser or other equipment, consult your dealer who will advise you.

Braking system

The braking system comprises a rod operated overrunning device with expander mechanism and adjuster box.

An automatic reversing system with a spring-loaded reverse lever is attached to the adjuster box.

The system also incorporates a link device, which gives added safety to the handbrake operation when parking on a reverse slope or steep hill. Brake adjustment should be carried out by your dealer.



Body shell

Coachman caravans are manufactured using Advanced Bonding Construction. The bodies are made from the highest quality materials. The floor is constructed from a styrofoam plywood sandwich impregnated with anti-damp and rot compounds and adhesives. The roof is bonded but to maximise integrity it has a floating outer aluminium skin which allows it to expand and contract under climatic conditions without putting excessive pressure on the front, side and rear joints.

Under some conditions the roof may

appear rippled. This is not detrimental to the bonding process, and allows natural expansion and contraction of the vehicle structure.

The wall comprises an insulated foam sandwich having a pre-coated aluminium exterior surface and a coated plywood interior finish. Framing is positioned within the sandwich to add strength.

The very latest 'state of the art' presses are employed to produce the extremely well insulated, robust, yet lightweight sections.

Windows are all of a dual glazed acrylic construction and the door frames are extruded aluminium. Fronts and backs are moulded acrylic capped ABS construction for strength and lightness.

Each caravan is fitted, as standard with an awning channel as an integral part of the aluminium roof and body side moulding. If it is found necessary to fit additional attachments care must be taken to ensure any holes that are drilled

Towing code

in the outside of the body are correctly sealed (this should be carried out only by an approved dealership).

Awnings which employ rubber sucker or Pole Pad attachments rather than screw fixings are recommended.

On NO account should screws be permitted to enter the shell sandwich (from inside).

All Coachman caravans are classified as Grade 3 thermal insulation. This means that with an outside temperature of -15°C the internal temperature can be raised to 20°C within 4 hours of starting the heating.

Exterior doors

Your Coachman caravan is fitted with either the Holzhauer one piece door or the Seitz exterior door.

Firstly and most importantly, the door must not be slammed.

When closing the door from the outside, the handle should be pulled and the door

pushed to with one hand. With the other hand, pressure should be applied to the front of the handle surround then the handle should be released and you will hear a click. This indicates that the door is shut.

When closing the door from the inside, you should move the lever down, pull the door closed firmly then release the lever.

Towing Code

Driving licence entitlement

If you passed your car test before 1st January 1997 you are generally entitled to drive a vehicle and trailer combination up to 8,250kg maximum authorised mass (MAM). This is the weight of a vehicle or trailer including the maximum load that can be carried safely when it's being used on the road.

If you passed your driving test after 1st January 1997 and have an ordinary category B (car) licence, you can:

- Drive a vehicle up to 3,500kg MAM

towing a trailer of up to 750kg MAM

- Tow a trailer over 750kg MAM as long as the combined MAM of the trailer and towing vehicle is no more than 3,500kg

For anything heavier you need to take a category B+E driving test.

From 19th January 2013, drivers passing a category B (car) test can tow:

- Small trailers weighing no more than 750kg
- A trailer over 750kg as long as the combined weight of the trailer and towing vehicle is no more than 3,500kg MAM

If you want to tow a trailer weighing more than 750kg, when the combined weight of the towing vehicle and trailer is more than 3,500kg, you'll have to pass a further test and get B+E entitlement on your licence.

Payloads for UK Touring Caravans

The Code of Practice has been prepared by the National Caravan Council and formulated with input from industry experts. The Code of Practice applies to UK specification touring caravans and applies for NCC certification to 2012 VIN onwards touring caravans.

The Code of Practice provides for the requirements for European Whole Vehicle Type Approval ECVTA, (The Framework Directive) and the directives referenced therein.

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

Definition of terms

Maximum Technically Permissible Laden Mass (MTPLM) upper limit

This mass takes into account specific operating conditions including factors such as the strength of the materials, load capacity of the tyres, etc. This mass must not be exceeded.

Warning
Under no circumstances should the maximum technically permissible laden mass (MTPLM) be exceeded.

Maximum Technically Permissible Laden Mass (MTPLM) lower limit

The fully laden mass of the caravan in the manufacturer's standard specification which enables the caravan to be matched to a wider range of towing vehicles.

Mass in Running Order - (MRO)

NOTE:
A weight plate upgrade can be requested to the 'upper MTPLM' by the original owner of the caravan and within the first 12 months of ownership.

Mass of the caravan equipped to the manufacturer's standard specification plus the following:

a) LPG

The mass of the recommended gas storage tank(s) when filled to 100% of the permissible maximum capacity. A mass of 10kg per cylinder is assumed and the number of cylinders is equal to the number of connections at the regulator.

b) Fluids

The mass of the liquids normally remaining in the systems:

1. Central heating system – full;

Towing code

Towing code

- 2. Freshwater – any fixed water storage tank(s) – empty;
- 3. Toilet system flushing tank – empty;
- 4. Toilet system holding tank – empty;
- 5. Essential fluids for the use of any other items of standard equipment – full.

c) **Electricity supply**

4kg for the low voltage connection cable.

NOTE: No payload allowance is included in the MRO for a full water heater or fresh water tank(s). It is recommended that you tow with the water heater empty.

Warning

The mass of the caravan in running order (MRO) contains provision for the masses of liquids, gas etc. (see mass in running order in user handbook). Part of this provision can also be utilised as additional payload if for example you wish to travel with water tanks empty (if fitted) or with no gas cylinder.

User payload

The user payload allows for items common to all occupants, such as food, cutlery, pots, pans, clothing, footwear, bedding, sports equipment etc.

The user payload shall not be less than:

10L + 10N + 50(kg) Where:

L is the overall length of the caravan in metres excluding draw gear as given in ISO 612.

N is the sum of all standard and optional berths.

The mass of the auxiliary battery is not included in the MRO and therefore forms part of the User Payload.

Typical example of weights (Kg)

Kettle	0.5	Aquaroll (Empty)	5
Bed linen	6	Waste bin	1
Crockery	5	Toilet fluid etc.	2.5
Saucepans	3	Cutlery	2
Wastemaster	6	Battery	25

Optional equipment

Items made available by the manufacturer over and above the standard specification of the caravan.

The manufacturer shall specify the mass of each factory fitted item of optional equipment available including the mass of any fluids required for their safe and proper use.

Alternatively the manufacturer can specify a maximum optional payload

available. The user can then choose any options up to this limit.

In either case this mass shall be added to the user payload.

The mass of optional equipment only includes equipment that is fitted in the factory by the caravan manufacturer. It does not include the mass of any equipment that is fitted to the caravan by the dealership or any other party. The weight of any equipment fitted after the caravan has left the manufacturer forms part of the User Payload.

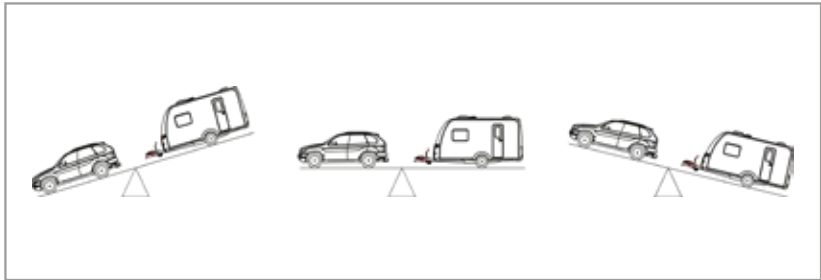
Nose weight

The part of the weight of the caravan supported by the rear of the towing vehicle.

When measuring the nose weight, it is important that the caravan is loaded and level. Do not place extra items

indiscriminately into the caravan after this adjustment has been made.

The caravan is intended to be towed slightly nose heavy. The nose weight can be adjusted by distribution of the load within the caravan. You must not exceed the maximum nose weight rating of the hitch head, which is usually a maximum of 100kg (please refer to the detailed vehicle specifications), or that of the towing vehicle as stated in the towing vehicle's manufacturer's handbook. The caravan's nose weight should be as high as practical; taking into account the towing vehicle and caravan nose weight limits.



Towing vehicle terms

Kerb weight:

The weight of the towing vehicle as defined by the vehicle manufacturer.

The Caravan and Towing Vehicle Weight Ratio

This can be determined by calculation and is equal to:

$$\frac{\text{actual laden mass of caravan}}{\text{kerb weight of towing vehicle} \times 100\%}$$

Towing code

Towing code

⚠ Warning

The law requires that caravans & their towing vehicles & the loads they carry must be in such a condition that no danger or nuisance is caused. (Regulation 100 of the Road and Vehicles (Construction and Use) Regulations 1986).

Measurement of nose weight:

Nose weight may be measured using a proprietary brand of nose weight indicator. Such equipment is obtainable at your caravan dealer.

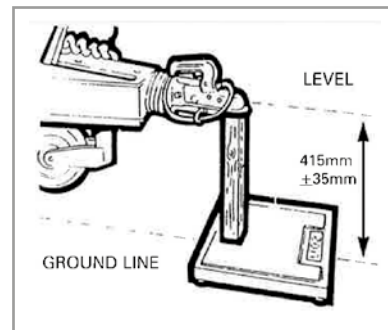
All proprietary measuring devices will have tolerances and therefore give differing readings.

Another simple method is to use bathroom scales under the coupling head with a piece of wood between the coupling head and the scales, of such length that the caravan floor is horizontal

with the jockey wheel raised.

Nose weight can be adjusted simply by distribution of weights in the caravan.

(See Loading)

**Insurance**

Compulsory third party insurance cover is required by the Road Traffic Act for a caravan and this is normally provided by the towing car insurance policy, but it is essential that you ensure your car policy is not invalidated by towing.

Do not forget to take out separate

insurance cover on the caravan and contents.

Loading and distribution of weight

Under no circumstances should the MTPLM of this caravan be exceeded.

When the towing vehicle and caravan are fully laden and "ready to go" the towing vehicle should be level fore and aft. If the nose of the caravan is high at the start of your journey you may experience snaking and on rough and uneven ground the rear of the caravan could catch the road.

Caravans should be loaded so that the nose weight of the caravan is in accordance with the tow vehicle manufacturer's recommendation. Also under no circumstances should it exceed the maximum hitch weight shown in the specification for the caravan.

Heavy items should be stowed as close to the axle as possible and lightweight items, such as bedding, should be loaded

at the rear. Try to stow bulky tinned supplies in the lower kitchen cupboards or even in the bottom of the bed boxes until you arrive at your final destination. Please note that the roller catches and spring loaded doors are only to keep the door closed and not to stop items falling out of lockers and on to work surfaces. Only light items should be stowed high up in the roof lockers. Ensure that all items are secure and will not move around while on tow.

Towing vehicle's rear suspension

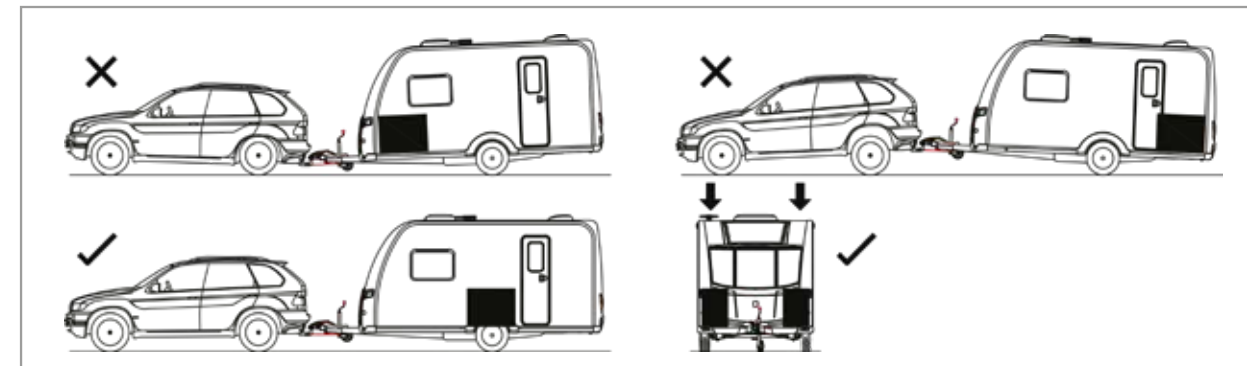
It is important that the towing vehicle's rear suspension is not deflected excessively by the nose weight on the tow ball. If it is excessive the steering and stability will be affected.

The greater the towing vehicle's tail overhang (the distance between the rear axle and the tow ball) the greater the effect the nose weight will have on the towing vehicle's rear suspension.

After trying out the caravan it may be found that stiffening of the vehicle's rear suspension is necessary - note that this may give the towing vehicle a firmer ride when not towing.

There are a number of suspension aids available and advice should be sought on which to use and how to fit.

It is important to ensure that the caravan is towed either level or slightly nose down. This is particularly important on twin axle models.



Preparing for the road

Stability

The most common causes of poor stability include:

- a) Worn shock absorbers or loose suspension components on the towing vehicle.
- b) Towing vehicle springs too soft.
- c) Insufficient nose weight.
- d) Nose of caravan is towing too high.
- e) Incorrect loading.
- f) Incorrect tyre pressures on car or caravan.

Tyres and Pressures

The tyres fitted to your caravan will operate with complete safety at the UK maximum speed limit of 60 mph, but the tyres are rated to 130 km/hr. The tyres on your caravan must be operated at the pressures indicated on the caravan's specification sheet. Remember that the towing vehicle tyres should be inflated to the 'heavy loaded' pressure given in the

vehicle manufacturers' Service, Warranty & Technical Data manual.

NOTE: Pressures should only be checked when the tyres are cold, not after a journey or if the vehicle has been standing in the sun.

Tyre Tread

This caravan is subject to the same criteria applied to car tyres, namely, the minimum tread should be 1.6 mm around the total circumference and across the entire width of the tyre.

Brakes/Breakaway cable

A breakaway cable is fitted so that in the case of the caravan becoming detached from the car it immediately applies the brakes. Always ensure the breakaway cable is secured to the towing vehicle. Refer to breakaway cable section.

Snaking

This is a term used to denote an unstable car and caravan combination where the caravan 'weaves' from side to side often causing a similar swaying movement in the car itself.

Causes:


- I. Unsuitable or unbalanced outfit.
- II. Incorrect loading or weight distribution.
- III. Excessive speed especially downhill.
- IV. Side winds.
- V. Overtaking.
- VI. Being overtaken by a large fast moving vehicle.
- VII. Erratic driving.
- VIII. Insufficient tyre pressure.
- IX. Incorrect vehicle tow ball height
- X. Worn stabiliser pads or tow ball.

Preparing for the road

Cures:

Cases of persistent snaking can be alleviated or even completely cured by various proprietary devices, about which your dealer will advise you.

Pre-tow checklist and hitch-up


**Warning**
Never enter the caravan without first lowering the four corner steadies with the brace provided. Corner steadies should not be used as a jacking device, or to take the weight of the caravan.


Loose articles must be stowed securely. Do not stow tins, bottles or heavy items in overhead lockers prior to towing.

- Ensure all lockers and cupboard doors are closed and secured.
- All bunks are secure.
- All rooflights are closed and secured.

- Tables are stored in their transit positions.
- Fridge is on 12V operation and door travel catch is set.
- All windows are fully closed and latched. Never tow with windows on night setting.

Leave all curtains and blinds open to aid rear visibility.

**Warning**
Turn off all gas appliances except those heating appliances designed to function while the vehicle is in motion.

**Warning**
Gas cylinders and appliances are correctly positioned, secured and turned off.

- Battery is secure and mains connecting cable is disconnected and stowed.

Check gas locker, battery locker, wet locker and cassette toilet doors are secure.

Check wheel bolts, tyre pressures and tyre conditions.

Lock the entrance door.

Towing Vehicles

Your new caravan is designed to be towed by a normal motor car.

If you intend to tow it with a pick up type vehicle, passenger derived van or a 4x4 type vehicle additional care should be exercised because of the potential for a harder rear suspension on such vehicles which may impose excessive loads on the caravans. You may also have to adjust your driving style over rough terrain and particular attention should be given to the height of the tow ball in relation to the caravan coupling.

- Ref: UNECE R55
The height of the tow ball on the towing vehicle, when laden, is also critical. To comply with UNECE regulation R55,

Preparing for the road

the towing vehicle tow ball should be between 350mm and 420mm from the ground.

Your new caravan should not be towed by a commercial vehicle with a gross weight in excess of 3500kgs.

When selecting a towing vehicle, it is recommended that you check the NCC website "Towcheck" www.towcheck.co.uk to ensure your car and touring caravan combination is safe and legal.

Warning

Many modern cars are equipped with 'stop/start' technology. Once the engine has stopped, the fridge may not be supplied power and will turn off. The fridge will have to be manually switched back on to 12V operation. It is therefore, best to turn off the 'Stop/Start' feature if possible.

Stabilisers and traction control

All Coachman caravans come fitted with a stabiliser. It can make a good towing vehicle/caravan combination safer to handle. A stabiliser should never be used to try to improve a combination which has poor stability, since instability will reappear at a higher speed.

Warning

Under no circumstances should holes be drilled into the chassis members e.g. for fitting additional equipment.

Coachman caravans are also equipped for the fitment of the AL-KO Trailer Control System (ATC) and some models have it fitted as standard.

The AL-KO ATC is the emergency braking system for caravans and works in a similar way to Electronic Stability Programme systems for cars. The advanced, but simple electronic system monitors the lateral movement of a

caravan during travel. When difficult driving conditions are experienced, such as evasive manoeuvring, high side winds and turbulence encountered while overtaking HGV's, AL-KO ATC takes control to regain stability and prevent dangerous snaking accidents.

ATC operating instructions

After coupling the caravan correctly to the towing vehicle, connect the 13 pin plug to the tow bar.

Upon connection, ATC will carry out an initial self-test and the LED light on the front fairing will light up RED. During the self-test, the sound of the push rod moving inside ATC can be heard. When the self-test is complete, the LED will turn GREEN or flashing GREEN to signal that ATC is active.

If the LED does not change to GREEN, then ATC is not functioning correctly. For details of what to do in this case, see the provided table on page 23.

Preparing for the road

Warning

A 20 amp fuse is required on the actual towing vehicle on the constant 12V supply. Please check with your vehicle dealer/towbar installer. If only a single fuse is fitted at the tow bar a minimum fuse rating of 25 amps must be used.

Warning

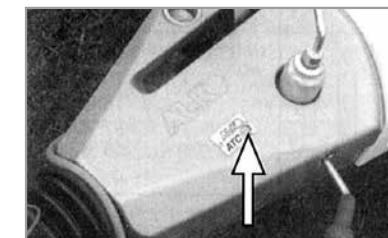
When providing power from an independent supply e.g. a portable power pack, it is necessary that a battery rated at least 12V 55 Ah is used to supply the auxiliary feed. It is also important that the power supply is fused at 20 amps.

Warning

Please be aware your ATC is 'live' all of the time your 13 pin connection is made. If the car and caravan are stood for a long period of time (eg. ferry crossing) the ATC will continue to draw power from your battery.

Always re-check the ATC LED is green after any interval during a journey, such as a service station break.

ATC LED light on the fairing



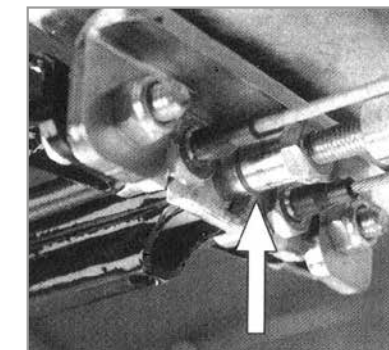
Troubleshooting

Should you experience a fault with ATC, the LED light on the fairing will change colour. Therefore, refer to the table on page 23 and follow instructions.

If no illumination of the LED is evident, refer to system requirements and check tow bar wiring for permanent supply.

In the unlikely event that you receive a red flashing LED light and disconnecting and re-connecting the power does not

alleviate the problem, check the push rod position as detailed. Locate ATC on the axle and check the position of the push rod. (See photograph).



If no red line is visible, ATC is not active and can be driven. However, we recommend that you contact AL-KO at the earliest convenience.

If the red line is visible on the push rod, as shown above, the caravan should not be moved.

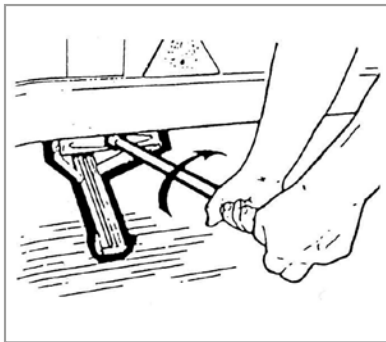
Contact AL-KO or a specialist workshop.

Preparing for the road

Display colour	ATC Condition	Diagnosis	What to do	Outcome	Status
Green	ATC active	Everything OK			
Green flashing	ATC active	Self test incomplete	Drive forward to detect movement to complete self test and re check LED	Green (Constant)	Ready for journey
Red	ATC inactive	Possible to continue journey.	Remove 13 pin plug and wait 5 seconds. Reconnect plug	Green Red	Ready for journey. ATC faulty but can be driven. Consult AL-KO. See AL-KO handbook for details
Red flashing	ATC has detected a fault	Do not continue with ATC connected	Remove 13 pin plug and wait 5 seconds. Reconnect the plug.	Green Red (flashing)	Ready for journey. ATC faulty and cannot be driven. Remove push-rod as shown in the AL-KO handbook. Consult AL-KO. See AL-KO handbook for details.
LED not working	ATC has no power. LED faulty	Check push rod position as detailed in the AL-KO handbook continuing journey.	Remove 13 pin plug and wait 5 seconds. Reconnect the plug. Check for constant live - refer to system requirements as detailed in the AL-KO handbook.	Green. LED not working.	Ready for journey. If power OK, check push rod position. Red line visible - possible to continue journey but consult AL-KO. See AL-KO handbook for details.

Prior to commencing any journey, ensure that the caravan lighting is fully operational and check the vehicle is loaded appropriately, the nose weight and tyre pressure are correct and confirm that the caravan is coupled to the vehicle tow bar correctly.

Preparing for the road



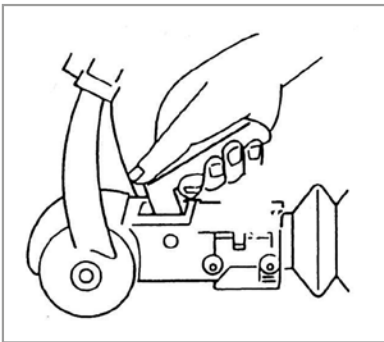
Hitching up

Wind up the corner steadies to the fully retracted position.

Wind up the jockey wheel to raise the hitch to the above height of the towing vehicle ball. Remove ball cover.

(It is an advantage to have a person standing by the caravan to direct the driver of the towing vehicle to place the vehicle in the correct position).

Reverse the towing vehicle so that the

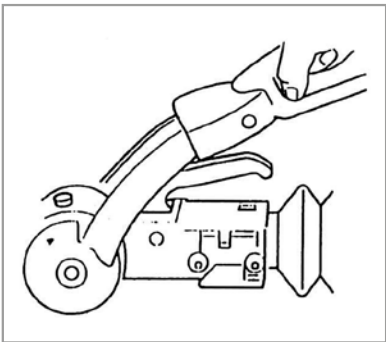


towing ball is just under the caravan hitch.

Operating Instructions - AKS 3004

The AKS 3004 stabiliser fitted to your caravan has 4 special friction pads, which suppress both snaking and pitching and it is essential that the tow ball is kept completely clean as contaminated pads will reduce its effectiveness.

The maximum vertical static load for this coupling is 100kg and must not be



exceeded. However, the vertical static load on the towing vehicle may be less than this (check with towing vehicle manufacturer). Whichever is the least must not be exceeded.

Preparing for the road

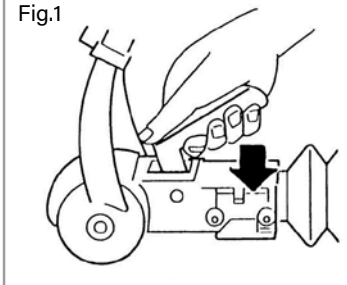
To hitch up with the AKS 3004 follow the following procedure:

⚠ Warning

The tow ball should be free of rust, undamaged and not excessively worn.

- Using the coupling handle (which should be in the upright position), put the AKS on to the towball. Push the black handle down and check the green indicator button is showing. **(Fig. 1)**

Fig.1



- Press the red stabilising lever down. The AKS is now ready for the road. **(Fig. 2)**

Safety Indicators

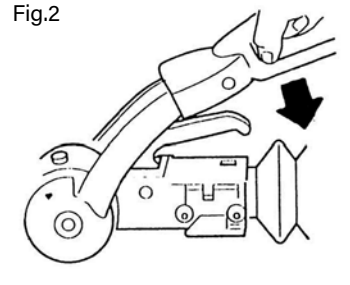
- If the green indicator is visible then you know you have correctly coupled your AKS to your towing vehicle. **(Fig. 3)**

Wear Indicator

For coupling mechanism and front/rear friction pads. **(Fig. 4)**

- Wear of the coupling ball and mechanism can be easily monitored. If the green section is visible (when

Fig.2



coupled to your towball) then the front/rear friction pads, coupling ball and mechanism are in order.

- If the red lower section obscures the green section then you need to check these parts immediately.

Fig.3

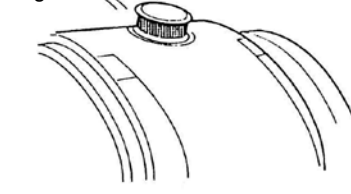
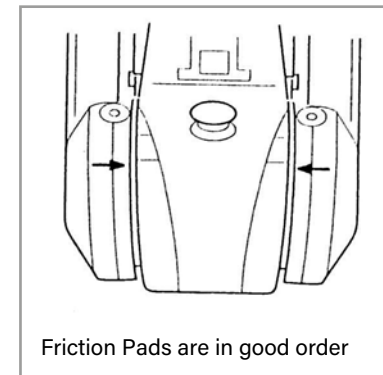
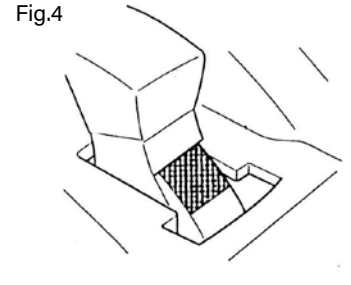
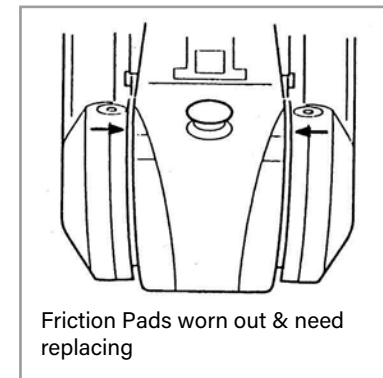


Fig.4



Friction Pads are in good order



Friction Pads worn out & need replacing

Friction Pads Replacement

- Unscrew the 2 screws which are under the red rubber soft dock by using the special tool. **(Fig. 5)**
- Remove screw from back plate. **(Fig. 6)**
- Remove friction pads. **(Fig. 7)**

Loading capacity

The AKS 3004 can tow vehicles up to gross weight of 3000kg and a maximum nose weight of 100kg.

Uncoupling

Lower the jockey wheel to the ground. Disconnect the breakaway cable and plugs.

Release stabilising lever and lift the coupling handle whilst winding.

Lift the coupling head clear of the towball.

Fig.5

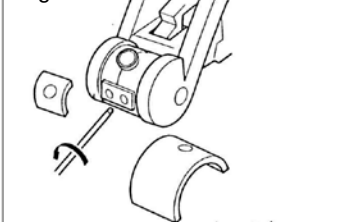
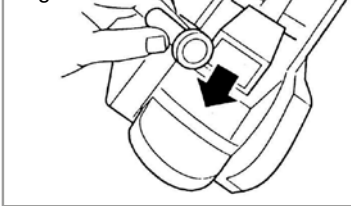


Fig.6



Fig.7



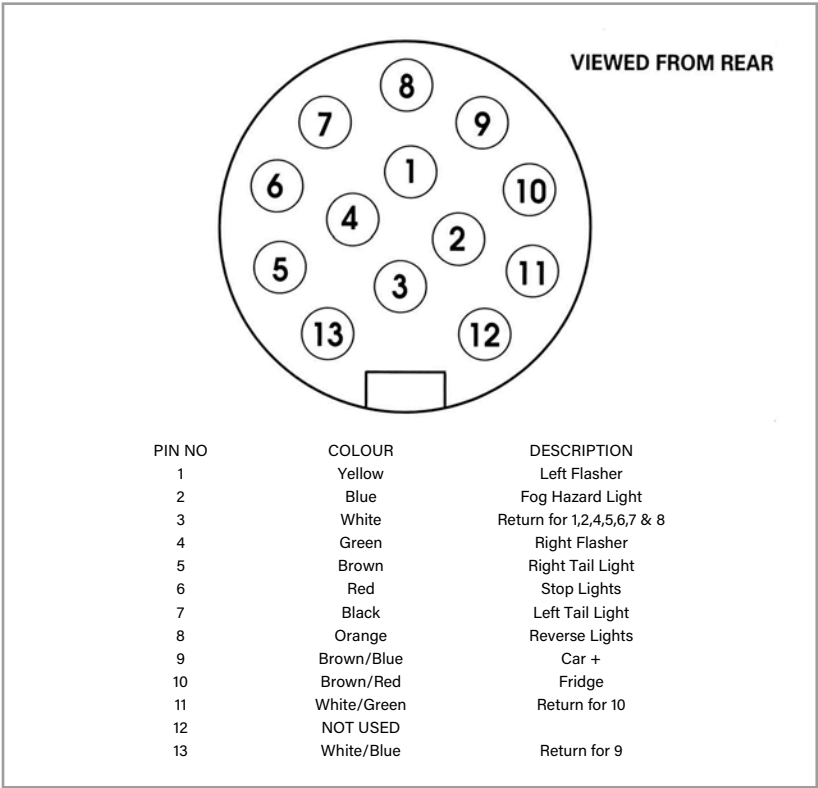
Preparing for the road

Preparing for the road

Electrical Connections and Road Lighting

Plug in the 13 pin electrical connections and check that all road lights work.

In accordance with EN150 11446 your caravan is fitted with a 13 pin Jaegar plug for electrical connections and road lighting. If your car is fitted with the old type 12N and 12S sockets we would strongly recommend that you do not use adapters but have it rewired and a 13 pin Jaegar socket fitted. (Ensuring the car socket is wired in accordance with the drawing below).



Breakaway cable

UK law requires that all trailers with brakes built on or after 1st October 1982 (e.g. caravans, horse boxes, flat bed car trailers etc.) are fitted with a safety device to provide protection in the unlikely event of the separation of the main coupling while in motion. A device referred to as a "breakaway cable" fulfills this requirement and when fitted to a trailer its use is mandatory. For further information please refer to:

http://www.tourerinfo.co.uk/images/breakaway_cable_leaflet_consumer_042015_final.pdf

Purpose - To apply a trailer's brakes if it becomes separated from its towing vehicle. Having done this, the cable assembly is designed to part, allowing the trailer to come to a halt away from the towing vehicle.

Construction - Usually a thin steel cable, possibly plastic coated, and fitted with a means of attachment for connection to the towing vehicle.

Operation - In the event of the main coupling of the trailer separating from the towing vehicle, the cable should be able to pull tight, without any hindrance, engaging the trailer's brakes.

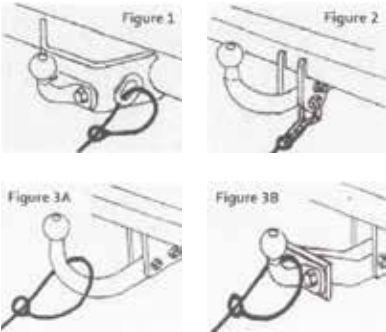
NOTE: The breakaway cable should never become taut during normal use.

Correct procedure for use:

- Regularly check the cable and clip for damage. If in doubt, contact your dealer or service agent.
- Make sure the cable runs as straight as possible and goes through a cable guide underneath the trailer coupling.
- Determine whether or not the towbar has a designated attachment point (i.e. a part specifically designated by its manufacturer for a breakaway cable).

Where a designated attachment point is provided on the towbar:

Either: a) Pass the cable through the attachment point and clip it back on itself (Fig. 1)



Or: b) Attach the clip directly to the designated point (Fig.2). This alternative must be specifically permitted by the trailer manufacturer since the clip may not be sufficiently strong for use in this way.

Where NO designated attachment point is provided on the towbar:

Fixed ball: Loop the cable around the neck of the towball. If you fit the cable like this, use a single loop only. See figs. 3A and 3B.

Preparing for the road

Detachable ball: You must seek guidance on procedure from the towbar manufacturer or supplier.

When the breakaway cable is attached, check to ensure:

- a) That the cable cannot snag in use on the trailer coupling head, jockey wheel, or any accessory e.g. a stabiliser, bumper shield, cycle carrier, etc.
- b) That there is sufficient slack in the cable to allow the towing vehicle and trailer to articulate fully without the cable ever becoming taut and applying the brakes.

NOTE: For peace of mind you might wish to check the state of the cable by positioning the trailer and towing vehicle at extreme angles before setting off.

- c) That it is not so slack that it can drag on the ground. If left loose, the cable may scrape along the ground and be weakened so that it subsequently fails to do its job. The cable may also be

caught on an obstacle when in motion thus engaging the trailer brakes prematurely.

Having followed this advice, should you feel that a satisfactory coupling arrangement cannot be achieved, consult your dealer.


Mirrors

There is a legal requirement for you to have mirrors that allow you to see clearly an area that is 4 metres wide from the side of your caravan at a distance 20 metres behind the driver. A caravan is significantly wider than a car even a large 4x4 and you simply can't comply with the law unless you fit towing mirrors. The driver of the towing vehicle must have an adequate view of the rear.

If there is no rear view through the caravan it is essential that additional exterior towing mirrors are fitted.

Any rear view mirror fitted shall be 'e' marked and cover the field of view as stipulated by type approved

requirements (Regulation 33 of the Road Vehicles Constructions and Use Regulation 1986).

**Warning**

Any rear view mirror must not project more than 250mm outside:

- a) the width of the caravan when being towed.
- b) the width of the towing vehicle when driven solo

Preparing for the road/Towing and driving

Coupling up a caravan check list

- 1. Is the hitch fully down over the tow ball?
- 2. Is the hitch head lever fully closed (down)?
- 3. Are the visual indicators showing green?
- 4. Is the breakaway cable correctly attached, passing through the cable guide, loose but not dragging, and will not snag on full lock?
- 5. Is the stabiliser correctly attached, with the handle closed and indicators green?
- 6. Is the jockey wheel fully retracted and stowed away securely?
- 7. Are the electrics correctly attached and free from dragging or snagging on full lock?
- 8. Have the lights and road indicators been checked and are they working?

- 9. Once "Hitched Up", are the corner steadies fully retracted, and the caravan handbrake OFF?
- 10. Has the caravan step been stowed away?
- 11. Are the caravan door, windows, lockers and roof lights closed and secured?
- 12. Is the rear number plate correct and clearly visible?
- 13. Is the gas system turned off for towing?
- 14. If fitted check ATC system. (See page 22)
- 15. Is the caravan loaded correctly and all items secure?
- 16. Is the sink empty of all items including the bowl?

Speed limits

Normal road towing: 50mph (80 kph) - normal speed restrictions apply

Motorways (including dual carriageways): 60mph (96 kph) - normal speed restrictions apply

Pulling off

Let the clutch out smoothly.

Allow more engine speed to produce the power to move the additional weight of the caravan.

Avoid wear and tear on clutch and transmission by taking extra care.

Change gears smoothly. Try not to jerk the clutch.

Caravan handling

Allow for caravan being wider than car.

Do not bump kerb with caravan wheels. When passing other vehicles allow more than normal clearance for driving solo. Allow longer to get up speed to pass.

Allow for the vehicle being twice its normal length.

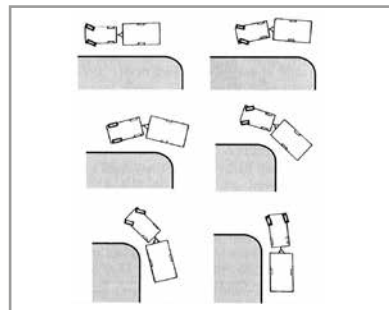
Do not suddenly swing out.

Carry out all manoeuvres as smoothly as possible.

Use nearside wing mirror to check

Towing and driving

caravan has cleared when overtaking.



Reversing

It is advisable to have a second person available when reversing the caravan. Start practising by choosing a left-hand bend for ease. Reverse slowly, turning the wheel, initially the opposite way to the direction you want the caravan to go.

Now the front of the caravan is nudged out and moving the rear in the intended direction. Take care not to hit the van with the car!

Midway through the manoeuvre, when the caravan is correctly angled, slow to a crawl and gradually apply opposite lock. Make the car follow the caravan round then finally straighten up.

Proficiency at reversing can only be achieved with practice.

Warning

Care must be taken to prevent fouling when traversing ramps or other ground obstacles.

Warning

Caravans may not be towed in the outside lane of a three or four lane motorway. (Ref. 12(2) of the Motorway Traffic (England and Wales) Regulations 1982)

Motorway driving

1. Reduce speed:

- i) In high or cross winds.
- ii) Downhill.
- iii) In poor visibility.
- iv) Poor road conditions.

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.

Changing a wheel

1. Unhitch the caravan and ensure handbrake is applied.
2. Lower the front of your caravan by retracting the jockey wheel as much as possible.
3. Lower the corner steadies, as a safety measure, to stabilise the caravan. Do not use to jack up caravan.
4. Your spare wheel is located in the AL-KO Group spare wheel carrier

situated just behind the axle.

5. To remove the spare wheel from the carrier locate hand wheel situated on the centre of the spare wheel carrier retaining plate on the nearside of the chassis and remove the split ring in the hole at the end of the bolt. Now loosen and remove the hand wheel.
6. Now slide the carrier out of the locating holes on the chassis and rest the nearside on the floor.
7. Reach into the centre of the spare wheel and remove the clamping sleeve and the retaining wheel nut. Remove spare wheel from carrier.
8. Use your wheel brace to slacken off the wheel bolts on the wheel to be changed.
9. If your caravan has a jack receiver fitted, then jack up the caravan in line with the instructions. If not position a suitable jack under the axle at the appropriate jacking point (rear axle on twin axle models) (on soft ground use something to act as a spreader plate).

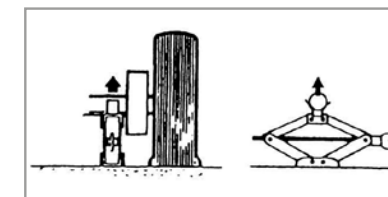
10. Jack up caravan until the wheel to be removed is just off the ground.

11. Remove the wheel bolts and remove the wheel.

12. Fit spare wheel and reverse the above procedure placing the punctured wheel in the wheel carrier.

Warning

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

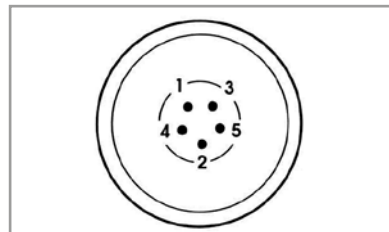


13. Tighten all bolts equally in order shown in the diagram.

Warning

If you are unsure about your ability to perform the safe elevation of your vehicle, or the process of wheel removal and refitting, then please enlist the help of a professional service.

Torque settings are:



Warning

1. After the first 30 miles check all road wheel bolts and tighten, if required, to correct torque setting.
2. Check wheel bolt torque before each major journey.
3. Never use grease of any kind on wheel bolts.

Steel wheels	88Nm	(65 lbs/ft).
Alloy wheels	130Nm	(96 lbs/ft).

Wheel bolt tightening sequence

Before fitting a new wheel, examine it for distortion or other damage. Ensure that all mating surfaces are clean and dry, including bolt seats.

ALWAYS USE THE CORRECT BOLTS TO SECURE THE WHEEL. THERE ARE UNIQUE BOLTS FOR ALLOY WHEELS AND UNDER NO CIRCUMSTANCES SHOULD ANY OTHER BOLTS BE USED WITH ALLOY.

Please note with Alloy Wheels you should first tighten all bolts to 85Nm (63lbs/ft) then go around again in the sequence shown and increase the torque from 85Nm (63lbs/ft) to 130Nm (96lbs/ft). The correct conical and tapered wheel bolts (stamped 10.9) must be used.

Safety and Security

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

Children

Do not leave children alone in the caravan. Keep potentially dangerous items, e.g. matches, drugs etc, out of reach, as at home.

Fire extinguisher

It is recommended that you provide one dry powder fire extinguisher, of an approved type or complying with EN 3-7, of at least 1kg capacity by main exit door, and a fire blanket next to the cooker.

Familiarise yourself with the instructions on the fire extinguisher and the local fire precaution arrangements.

A fat pan must not have an extinguisher aimed at it, but must be smothered by a fire blanket.

In case of fire

1. Get everyone out of the caravan as quickly as possible using whichever exit is quickest including windows. Do not stop to collect any personal items.

2. Raise the alarm. Call the fire brigade.
3. Turn off gas container valve if safe to do so.

Ventilation and condensation

All caravans comply with EN 721. The ventilation points on your caravan are fixed points of ventilation, which are required by the European Standards. Low level ventilation is located at various points. High level ventilation is through the roof lights. It is advised that fixed ventilation points are checked and cleaned (if necessary) on a regular basis.

Warning

Under no circumstances must these vents be blocked or obstructed, even partially.

Warning

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

Warning

Petrol/Diesel Fumes

The fitting of a tail pipe to your exhaust will reduce the possibility of fumes entering your caravan through the front fixed ventilation points.

Check site regulations for any local restrictions

Selecting a pitch

Carefully select where you wish to place your caravan. The site should be as level as possible, preferably not under or near trees, well drained and away from possible boggy areas. Consider how

you will move the caravan when it is time to leave the site. On sloping ground it is better to pitch facing downhill, especially during wet weather. It should be noted that some items of caravan equipment are only designed for use up to a 3 degree angle and if this angle is exceeded the components may fail.

It is good practice to chock the wheels of the caravan when parked on a slope even though the caravan brakes are applied.

Warning

Always disconnect the 13 pin plug between the towing vehicle and the caravan before connecting an LV (230V) supply to the caravan and before charging the caravan battery by any other means.

Arrival at site

Unhitching

Apply the caravan handbrake.

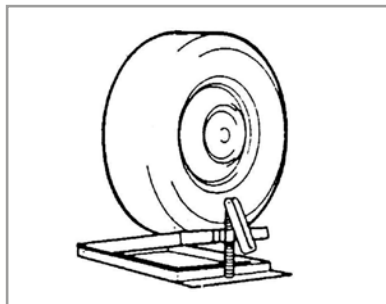
Disconnect the breakaway cable.

Disconnect the 13 pin plug and return it to its holder.

Unclamp and lower the jockey wheel to the ground.

Release the stabilising lever and coupling handle.

Operate the handle to wind down the jockey wheel until the coupling head is clear of the towing ball.



Replace towball cover.

Park your vehicle alongside the caravan on the offside.

Lateral levelling

On uneven ground lateral levelling may be accomplished by the use of a leveller jack and a spirit level placed 'across' the caravan floor.

Place the leveller jack, folded flat, in front of the wheel needed to be raised to level the axle.

Tow the caravan onto the leveller jack. Wind up until the spirit level shows that the caravan is laterally level. Apply the caravan handbrake and chock the caravan wheel if necessary. Lower the jockey wheel to ground level.

Proceed with unhitching as described above.

(On upward facing pitches when the hydraulically damped drawbar of the hitch becomes fully extended it will be necessary to compress the drawbar

slightly in order to achieve a 'clean' unhitching). With the caravan brake on, reverse the towing vehicle about 1 inch (2.54cm) to release hitch lock tension and using the jockey wheel adjustment unhitch the caravan as previously described.

NOTE: Under no circumstances should the caravan steadies be used as a jack. They are only a means of stabilising the caravan.

FORE and AFT levelling

Warning

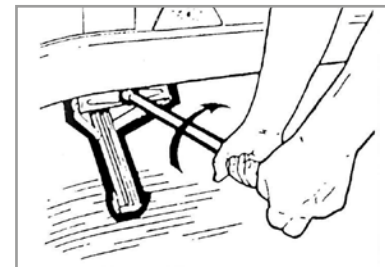
Never enter the caravan without first lowering the four corner steadies with the brace provided. Corner steadies should not be used as a jacking device.

Place the spirit level 'fore and aft' and using the jockey wheel adjustment level the caravan horizontally.

Wind down the corner steadies onto load spreaders (blocks of wood a minimum

Arrival at site/Connecting services - Water

of 6 inches (15.25cm) square taking care not to lift the caravan wheels.



It is important that the caravan is correctly levelled to ensure the correct working of the refrigerator, cooker etc.

Your caravan should not be operated at an angle greater than 3 degrees.

Parking on a reverse - sloping site or steep hill

For successful parking on a reverse slope or steep hill, the operator need only apply the handbrake with one hand while gently but purposely inching the caravan or trailer a small distance backwards with the other.

Warning

If the handbrake is NOT fully applied (i.e. vertical) and is set to some lesser position than the full vertical, then problems will almost certainly arise after the trailer has been uncoupled from the towing unit. On steep hills or sloping sites always chock the caravan wheels.

E+P Self-Levelling System

Before you use your self-levelling system, please fully read and understand your user manual.

The instructions below are only intended as a basic guide. Detailed operating instructions and trouble shooting can be found in the handbook or E+P hydraulics website.

- 1) Unhitch the caravan from the tow vehicle
- 2) Ensure the nose of the caravan is pointing down

3) Switch on the self-levelling system

4) The level indicator must show the nose is down (If not, the jockey wheel LED will show)

5) Press the Auto button, The Jacks deployed LED will show

6) The maximum slope is 8% or 5°. If the slope is too steep, press the manual operation button

7) The level indicator lights green when the caravan is level

Connecting services

Connection of services is dealt with under separate headings. In all cases become familiar with manufacturers' instructions.

Before making connections of any description to the caravan ensure ALL equipment is turned off and that where appropriate switches are moved to the off positions.

Water

Your caravan will be fitted with a Whale IC pump.

Under no circumstances should mains water be connected to the caravan without a pressure reducer.

If using the system after a storage period, carry out checks as outlined in "Setting up the Water System".

Fill fresh water container and place in suitable position. Place waste water receptacles in position.

Place the submersible pump or filler pipe into the water container, ensuring that it is fully submerged before operating the system.

Waste connection

Your caravan is fitted with a 28mm waste water system. Two waste water outlets are located on the offside of the caravan to the rear of the wheels.

These outlets connect to a standard

waste hose, which can then be inserted into suitable waste water containers.

Pressurised water system

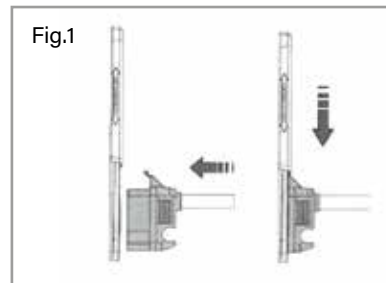
Fresh water is supplied to the caravan from either an internal or external pump.

WHALE principles of operation

The Watermaster® IC is a means of control for the Whale Watermaster® High Flow pump, which allows it to operate without the need for pressure switch adjustment. It offers three key features: eliminates a rapid water pulsation, ensures that the pump turns off at low battery voltages and also in a run-dry situation when the water supply runs out.

This Intelligent Control® is achieved as the pressure switch turns the pump on when the pressure drops to a low level and the microprocessor turning off the pump at programmed current levels. These current levels are set during the simple calibration process. This calibration process may have to be repeated if the pump is replaced.

Connecting your plug and pump kit



Prior to using your water system for the first time, the system will need to be primed and the Watermaster® IC unit will need to be calibrated by the following simple steps.

To prime the water system

Step one - Place the pump into a full water container. Ensure the pump can reach the bottom.

Step two - Insert Easi-Push plug into socket and slide the lid to lock into place see Fig.1 above.

Step three - Adjust dust cover 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).

Step four - Switch on 12 volt supply at main panel (Isolator switch) - the pump should start to run.

Step five - Open the cold shower mixer (or the outlet furthest from the Watermaster® IC Control Unit in the van).

Step six - After trapped air has been expelled, by following Step five, water will flow from the open outlet.

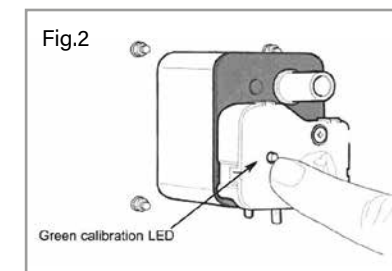
Step seven - When air has been expelled turn off the shower, the pump should turn off after approximately 10 seconds.

Step eight - Repeat this operation with the hot taps until there is a good flow. This will take longer as your water heater will be filling.

Calibration

To ensure successful installation and optimum performance of the Watermaster® IC Control unit, you must follow the 5 simple steps below:

Step one - Press and hold the calibration button until the green LED starts to flash after 1-3 seconds (see Fig.2)



Step two - Open the cold shower and the pump should start (there may be a short delay).

Step three - After approximately 30 seconds, turn off the shower.

Step four - After approximately 10 seconds, (the pump should still be running), press and hold the calibration button again until the LED turns green and the pump will stop after approximately 10 seconds.

Step five - The green LED should turn off and blink briefly every 5 seconds. The system is now calibrated.

The Watermaster® is now installed and ready for use. During normal use you will only need to recalibrate if you use a different pump. Simply repeat the steps above to calibrate a new pump.

Please note: When the tap is first opened a small drop in water pressure is normal until the pump starts running.

Please note: In normal operation the pump may run for up to 15 seconds after the tap is closed.

Handy hint: Pump hose can be inserted into groove on plug to keep pump off ground while refilling water container. (Fig. 3). The plug must always be removed before moving the caravan/ motorhome.

Fig.3



Removing the pump

Step one - Slide up the lid to unlock the plug.

Step two - Pull out plug from socket using hand grip.

Step three - Slide to close.

Pump storage

The plug must always be removed from the external water socket before moving the caravan and stowed in a clean, dry place.

Maintenance

This IC control unit (located on the back of the socket) is designed to be service free and does not contain serviceable parts. Please note that the unit is enclosed to protect the electronics. Opening the wall unit will result in damage, and will invalidate warranty.

Winterisation

If there is any chance of the temperature falling below freezing when the caravan

is not in use the water system and toilet system must be winterised. All the taps should be opened; the water filter and the caravan system drained using all the drain taps (cold/hot/water heater) situated within the caravan. Additionally shower heads should be removed and the hose left hanging downwards.

If you have a Whale external shower you must drain the filter housing by connecting up the outside shower and allowing the remaining water to drain by the open shower head.

Clean the water system at the start and end of each season.

FAILURE TO CARRY OUT THIS PROCEDURE MAY INVALIDATE YOUR WARRANTY ON ALL WATER SYSTEM ASSOCIATED PARTS.

Mixer taps

The shower, hand basin and kitchen taps are operated by raising or lowering the handle to control the flow and moving from side to side to blend hot

and cold water to achieve the desired temperature.

WHALE on board system (Where fitted)

The external/onboard water system where fitted gives the user ultimate flexibility of water supply to the caravan.

This includes a self-contained 36 litre underslung tank.

The system can be used in five modes.

1. Supply to the caravan from an external water container.
2. Supply to the caravan from a mains water supply. (By use of an Ultraflow Waterline)
3. Fill the underfloor tank from an external water container.
4. Fill the underfloor tank from a mains water supply. (By use of an Ultraflow Waterline)
5. Supply the caravan from the underfloor tank.

Operation of the underfloor water tank system

As submersible pump system see Control Panel Instructions.

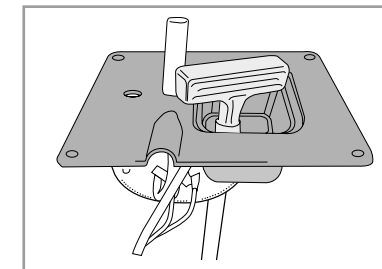
NOTE: The external pump will automatically switch off when the tank is full.

Tank drain operation

The water tank should be drained when the vehicle is not in use or is in transit.

Simply lift the drain plug handle out from recessed area, rotate 45° and rest on top surface as shown in the diagram. This will enable the tank to be drained without having to hold the handle. When the tank is drained, refit the handle by pushing through the drain plug, to seal the tank from debris.

NOTE: The tank module is connected to the caravan water system and wiring. Please refer to the Ultraflow instructions.



IMPORTANT - Auto change over.

The lower float switch within the tank, will automatically switch over to an external water supply, when the tank water level drops below the bottom float position.

Maintenance

To clean and sterilise inside the water tank, use diluted sterilising fluid and fully flush tank with water afterwards. Ensure an industry recommended freshwater tank cleaner is used.

Connecting services - Water

Problem	Possible Causes	Potential Solution
Pump fails to turn on	Loose wiring connection	Remake a sound connection.
	Pump circuit has no power.	Replace fuse/reset.
	Blown fuse.	Reset pressure switch using manufacturer's instructions.
	Pressure switch failure.	Replace pump.
Float switches fail to operate.	Defective motor.	Replace pump.
	Loose wiring connection.	Remake a sound connection.
Tank leaking from drain plug	Defective switch.	Contact Whale Support.
	Drain stem not engaged past O-ring.	Reseal ensuring the drain system is fully home.

Troubleshooting

The Whale water tank is fitted with a control module, in the unlikely event you are experiencing problems with the system, please refer to the table above.

If the problem persists contact Whale Support on 028 9127 0531

Winterising

Freezing in winter may cause damage to the Whale under-floor tank and module.

To avoid this damage, ensure the system is completely drained. Please see storage and winterisation section (Page 153).

1.Drain the fresh water tank using the drain stem.

2.Turn pump on and open all taps (including drain valve) and allow the pump to purge the water from the system (not suitable for submersible systems).

3.Open the taps until water flow stops

(suitable for submersible systems).

4.Turn off power isolator switch for water pump.

5.Remember to leave all outlets and Taps open.

FAILURE TO CARRY OUT THIS PROCEDURE MAY INVALIDATE YOUR WARRANTY ON ALL WATER SYSTEM ASSOCIATED PARTS.

Connecting services - Gas

Travelling

Do not travel with water in the tank. It is strongly recommended that all water is drained from the tank before travelling.

Gas (LPG)

The gas installation of your caravan has been designed to meet the requirement of EN1949 and BS 5482.

EN1949 requires a fixed outlet pressure regardless of the gas type and lays down a harmonised pressure of 30m bars for LPG installations in touring caravans across Europe. Your caravan

Warning

It should be noted the standard UK domestic butane or propane regulator is not suitable for use on caravans manufactured to EN1949. They are not set on 30 mbar and have a greater outlet pressure tolerance. Likewise the current standard automatic changeover regulator will not be suitable.

is fitted with a regulator which meets these requirements and thus allows users to move freely between European countries by being able to purchase any

LP gas type. Different bottle types are accommodated by using different hose adapters, which connect to the 30 mbar regulator.

Warning

- Do not use appliances which have a different working pressure.
- The gas system should only be modified by competent and qualified persons.
- The gas system and appliances must be inspected/maintained every 12 months (irrespective of usage) by a qualified technician.
- The caravan is designed to accept a maximum of 2 x 7 kg steel butane or 2 x 6 kg propane bottles or 1 x 5 kg.
- Ensure there is no stress at the hose assembly when it is connected to the cylinder.
- If using an external LPG supply the pressure must not be less than 0.3 bar and not greater than 0.5 bar.
- Inspect flexible hoses on a regular basis for deterioration, wear and damage and renew as necessary with an approved type, in any case no later than the expiry date marked on the hose.
- Do not site bottles outside the gas locker compartment as this would necessitate the use of a high pressure hose in excess of 450mm.
- Do not use any additional independent gas appliances inside your caravan.
- When changing cylinders ensure that all appliances are turned off and the service valve is closed.
- Use appliances only for the purpose for which they were designed/installed eg. Do not use cookers as a space heater.

Types of gas: Butane

Butane is supplied in the UK in green or blue bottles.

All these have a male left hand thread except for Camping Gaz, which has a special female right hand, Calor, 7.5 kg and 15 kg bottles have a special clip-on connection.

Continental bottles usually have a male left hand thread similar, but not identical, to UK butane.

Butane is suitable for use at temperatures down to 2°C but will not work below that.

Propane

Propane is supplied in red steel containers or partly red bottles which have a female left hand threaded connector.

Scandinavian countries use the same connector. Germany or Austria supply propane with a male connection.

Propane will work at temperatures as low as - 40°C and is therefore suitable for all winter caravanning.

Connection

Make sure that heating, cooking appliances and gas cylinders are switched off. Ensure the regulator has been connected via the flexible hose supplied by your dealer to the gas bottle.

NOTE: Gas bottle valves should always be in the 'OFF' position when towing.

Hoses

Your caravan will be supplied with a high pressure hose which must be used between the pressure regulator and your gas bottle (there are different adapters for propane and butane and different types of cylinders).

Ensure that the open end of the gas hose is protected against the entry of dirt or insects if it is to be left disconnected for any extended period.

Gas safety advice

Regularly check flexible gas hose. Finally make sure that each gas appliance is working efficiently to the recommendations of the appliance manufacturers.

Warning

Inspect flexible hoses regularly for deterioration, wear and damage, and renew as necessary with an approved type, in any case not later than the expiry date marked on the hose.

Awning spaces LPG appliance exhaust

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

If totally enclosed, water heaters may produce sufficient exhaust to pollute the awning space, from a general comfort, smell and hygiene point of view. In

extreme cases there could be a build up of carbon dioxide to a dangerous level.

Caravan owners are advised to allow some fresh air circulation in the awning space when such appliances are in use.

Ventilation

Fresh air circulation should be allowed below the caravan when appliances are in use. 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.

Fixed ventilation/gas drop holes are sited under gas appliances in various locations in your tourer.

Gas leak precautions

- a) NO SMOKING, extinguish all naked flames.
- b) If a gas leak is suspected immediately turn off all supply at the cylinder.

Warning

Under no circumstances should fixed ventilation openings or gas appliance flues be obstructed in any manner as this could lead to a build up of dangerous carbon monoxide. Gas drop holes under appliances should also be kept clear at all times.

Grilles and flues should be kept clean and free from dust.

- c) NEVER look for a leak with a naked flame. Always use a soap solution or special leak detecting liquid when testing connections.
- d) DO NOT operate any electrical apparatus, especially light switches.

If the leak is not obvious, the caravan should be evacuated and qualified personnel consulted. Turn the supply off at the cylinder.

- e) Avoid naked flames when connecting or changing a cylinder.

Facts about LPG

LPG has been given a smell by the manufacturers in order to identify leaks.

The gas is heavier than air and therefore sinks to the lowest point.

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 electrical or LPG systems and appliances except by qualified persons.

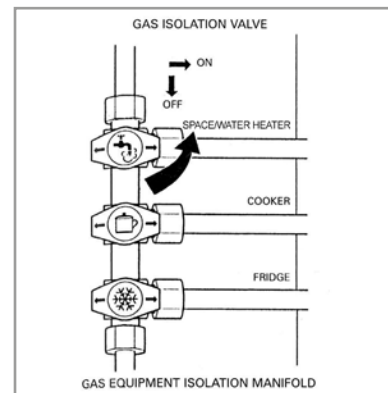
Care should be taken that any additional equipment or appliances are installed in accordance with the appliance/equipment manufacturers and Coachman's instructions (e.g. air conditioning, satellite dish, fuel cells etc.)

Aerosols and highly flammable liquids must not be stored in the compartment behind, or adjacent to, any gas appliance.

Some industrial LPG appliances operate at a high pressure and require a 'high pressure' regulator. This often has an adjusting handle on it. NEVER use such a regulator on a caravan.

Gas Equipment Isolation Manifold

This is located in one of the lower cupboards or front beds and the circuits covered by each tap are clearly indicated. If a fault is suspected then isolate the unit involved and consult your dealer.



External Quick Release Gas Coupling (BBQ Point)

This is supplied with a nozzle for your appliance which is a simple push-fit into

the coupling on the caravan. To attach, push back the knurled collar on the coupling. This action automatically seals the gas supply and will then allow you to turn on the gas supply.

⚠ Warning

This is to be used as a gas outlet. **Do not use this outlet as a means to input gas into the vehicle.** Do not use this as a gas barbecue in an enclosed awning space.

⚠ Warning

External LPG supply. To external supply plug-ins should not be less than 0.3 bar and not exceed 2.2 bar.

Changing gas cylinders

If a gas cylinder is to be left disconnected for an extended period, then care must be taken to ensure that dirt and insects cannot enter the open end of the gas supply hose.

Connecting services - Gas

Empty cylinder:

- Turn off cylinder valve and all gas appliances
- Release retaining strap.
- Remove hose connection from cylinder.
- Remove cylinder from gas locker and stand on ground.

Full cylinders:

- Remove plastic protector from cylinder.
- Place cylinder in gas locker.
- Connect hose to cylinder (If you are changing the type of cylinder you will have to change this hose or use an adapter - see your dealer). Avoid tension on the rubber gas hose.
- Connect retaining strap.
- Turn on cylinder valve and then systematically turn on appliance valves relight appliances as required.

Electricity mains supply (Low Voltage)

⚠ Warning

Never allow modification of electrical or LPG systems and appliances except by qualified persons.

Care should be taken that any additional equipment or appliances are installed in accordance with the appliance/equipment manufacturers and Coachman's instructions (e.g. air conditioning, satellite dish, fuel cells etc.)

Your caravan's main electrical installation is designed to run on a 230V 50Hz AC supply.

On arrival at caravan site

- Before connecting the caravan installation to the mains supply, check that:
 - the mains supply is suitable for

your installation and appliances, i.e. whether it is AC or DC 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.
- any residual current device (earth leakage circuit breaker) in the mains supply to the caravan has been tested within the last month.

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

- Make sure that the switch at the site supply point is off and that all electrical equipment in the caravan is switched off.
- Remove any cover from the electricity inlet provided on the caravan and insert the connector of the supply flexible cable.
- Remove any cover from the socket

Connecting services - Electricity

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.

On leaving caravan site

Reverse the procedure described in Paragraph 3 and 4 above.

NOTE: If you wish to use any 12v appliances, you must turn on at the control panel.

Warning

In case of difficulty consult an approved electrical installation contractor (who may be the local electricity board). It is dangerous to attempt modifications and additions yourself.

Lampholder-plugs (bayonet-cap adaptors) should not in any circumstances be used.

Warning

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 out let at the site supply point.

It is dangerous to leave the supply socket or supply flexible cable live.

Periodically, not less than once a year the caravan electrical installation should be inspected and tested and a report on its condition obtained as prescribed in the Regulations for Electrical Installations, published by the Institute of Electrical Engineers.

Connection to a mains voltage supply OVERSEAS requires particular attention.

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

A means of checking the polarity of the mains supply when overseas is useful.

There are available several proprietary makes of equipment for the purpose.

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

CHECK all caravan equipment is set-up to accept the site supply before actually switching on.

NOTE: It is possible that all of the 230V mains electrical equipment may not be able to be operated simultaneously. A typical UK caravan site mains hook up point provides a maximum output of 16 amps and on some continental sites the available output may be as low as 5 amps. If your loading exceeds the site supply it may trip the site circuit breaker. Please check the available mains output with your site operator.

Connecting services - Electricity

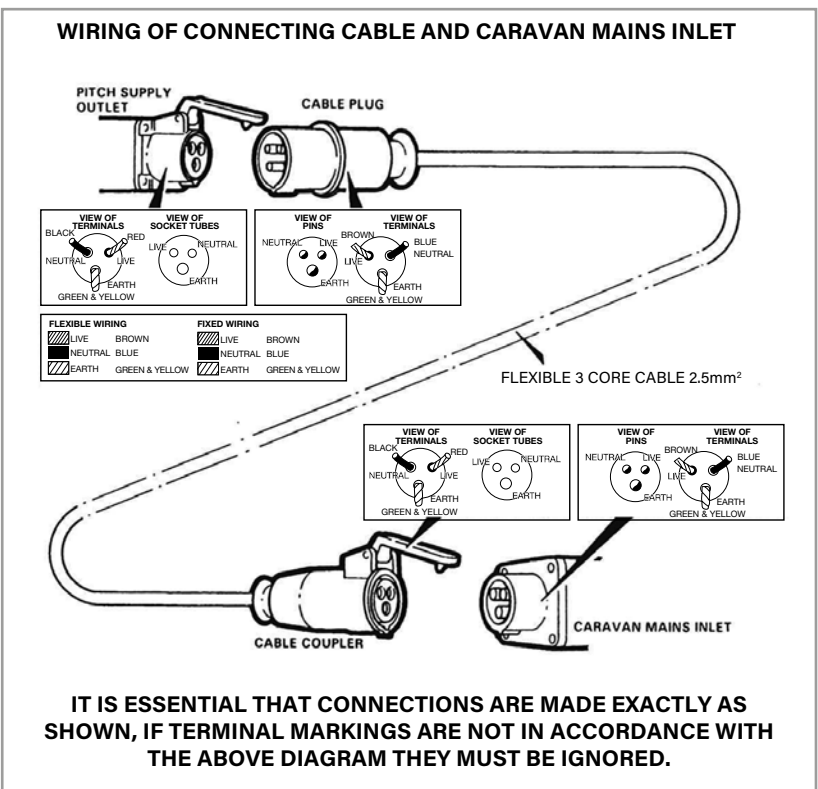
The following items need to be added together if used simultaneously.

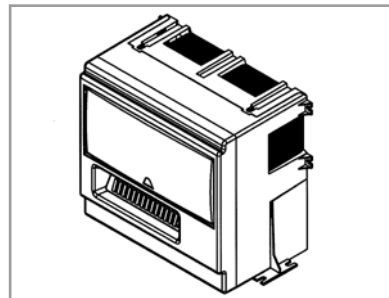
230V mains equipment typical consumption figures:

Fridge	0.80 amps
Charger	0.80 amps
Water heater	3.7 amps
Blown air heaters (Elec)	8.00 amps
Colour TV	2.50 amps
Microwave	6.00 amps
Air conditioning (Elec)	4.00 amps
Kettle	1.5 KW 6.5 amps
	3.0 KW 13.0 amps

12V electrical system (Extra low voltage)

Your caravan is fitted with a Power Distribution Unit (PDU). This comprises of the 230 volt RCD and MCB's, Relay housing and Power Supply/Battery charger, this is located under the front off side seat towards the centre of the caravan.





RCD & MCB'S (See Service Warranty & Technical Data Manual for 12 volt fuse ratings and locations)

This is for the 230 volt distribution RCD (Residual Current Device) and MCB's (Miniature Circuit Breakers). The RCD gives protection against electric shock, in the event of an earth fault that would cause earth leakage or earth directly through the human body the RCD will automatically disconnect the whole 230 volt supply. Only after removing the fault will the RCD be able to be switched back to the ON position. This is done by moving the switch upwards against

the spring pressure and so restoring the supply.

The MCB's are designed to protect both for the overload of each circuit and also the short circuit. In both events the MCB will automatically switch to the OFF position and when the fault is removed they can be switched upwards against the spring to the ON position. Both the RCD and MCB's will only latch back into position if the fault has been removed. If these devices will not locate back into the ON position consult a qualified electrician.

⚠ Warning

Always disconnect the electrical connector between the towing vehicle and the caravan before connecting a mains supply to the caravan and before charging the caravan battery by any other means.

⚠ Warning

The information provided in the guide relating to fitted equipment is only intended as a quick reference. Comprehensive details of maintenance and fault finding charts where appropriate can be found by referring to the accompanying manufacturer's literature. If any doubts still exist about the operation of the equipment qualified personnel or your caravan dealer should be consulted.

Battery charger/ Power supply

Your caravan is fitted with a 20 amp 12 volt power supply providing the extra low voltages to the caravan and charging the battery. It will give a constant 13.8 volts that will supply the caravan when it is needed, as long as the 230 volt supply is connected. When you disconnect 230

volt supply the caravan auxiliary battery will supply your caravan extra low voltage system.

NOTE: A BATTERY MUST BE CONNECTED AT ALL TIMES.

The refrigerator requires that the battery is connected for the gas igniter to work.

CAUTION!

- As with all types of transformer/ power supply a certain amount of heat is generated, this will vary with the charge rate, therefore adequate space and ventilation must be provided and maintained around the unit to aid cooling.
- Keep all flammable materials and aerosols well away from this appliance and other sources of heat, as this could cause the pressure in the aerosol to rise. Should a seal then fail it is possible an explosion will ensue.
- N.B. Remember any work, replacing parts or repair, must only be carried out when the mains supply has been

disconnected, and only by a qualified electrician.

Solar panel

Where caravans are fitted with a Solar Technology International premium crystalline solar panel. The panel is rated at 100 watts, meaning in peak conditions (summer sunshine) it will generate power at 100 watts per hour.

The panel is bonded to the roof of the van and pre-wired for continuous operation. There are no switches to turn ON or OFF - it is permanently working (during daylight conditions) so long as the panel is connected to the battery via the installed charge controller and is outdoors.

Solar Panel

The solar panel will continuously deliver power to charge the leisure battery in the caravan. **Therefore the leisure battery must be connected at all times.** If the battery is removed you must also remove the in-line fuse for the solar

panel. This is located in the fuse holder situated between the regulator and the battery. In order to protect the battery from overcharging and reverse feeding, an 8Ah charge controller is fitted and can be found located on the front offside bed box.

Charge Controller

Please refer to the charge controller instructions.

Purpose and function of the solar panel

The solar panel operates in all daylight conditions and should prevent the battery from discharging during periods of storage (assuming the caravan is outdoors) and it will enable a much higher degree of power self-sufficiency if on a campsite without electric hook-up.

Typically, the panel will generate up to 25Ah per day in peak conditions.

There is no maintenance required with this product, however, it is advisable to clean the panel with water twice per year to ensure best performance.

For any technical questions please contact the Solar Technology International helpline on 01684 774000, 0800 774 7755.

Relay housing

Provides the 12 volt distribution throughout the caravan. All the fuses are located at the front of the PDU behind the lift up cover. Ensure fuses being replaced are of the rating indicated on the PDU and never increase the rating of the fuse you replace.

The system is fully compliant with the EMC recommendations within the EU.

When the caravan is plugged into the car the 12 volt's system will be supplied by the car except the refrigerator.

When the car ignition is switched on and the car is started the system will automatically switch the 12 volt supply in the caravan off, then it will connect the refrigerator 12 volts on and connect the auxiliary battery to charge from the car.

The car alternator, in this mode, will only supply the battery with a small trickle charge.

Connecting electricity testing RCD

Periodically it is necessary to test the operation of the RCD. This is achieved by ensuring that it is switched in the ON position with an electricity supply connected and by pressing the test button marked 'T'. The unit should immediately switch to the OFF position. Provided this happens all is correct and the switch should be returned to the ON position, upwards against the spring pressure, to restore the supply back to normal. The RCD also acts as the main switch for the unit and if it is required to switch off all circuits in the caravan this can be achieved by switching the RCD to OFF.

Reverse polarity

When connecting mains supply abroad, the supply can be of reverse polarity. The significance of this is that when equipment is switched OFF it may not be electrically isolated. The only certain way of making sure equipment is safe is to unplug it.

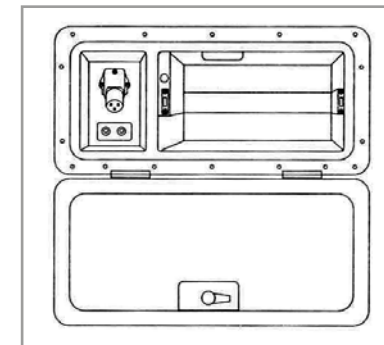
There are several; proprietary makes of equipment to check the polarity of mains supply. This equipment is useful, mostly for mains connection when overseas.

If reverse polarity occurs on site then reverse the live and neutral connections inside the plug on your mains cable. This must be done by a qualified electrician. Ensure that the cable is re-connected to its original configuration on return to the UK.

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

Battery box

Located in the battery box below the mains inlet your caravan will be fitted with an aerial and satellite connection if an external source is available.



⚠ Warning

Always use battery tray provided.

When using a battery with a vent kit, leave the vent tube in the battery tray. Ventilation is provided through the battery box door when the door is closed at the top and bottom.

⚠ Warning

Do not smoke – explosive gases may be present at the battery. Prevent flames and sparks in that area. Switch off all appliances and lamps before disconnecting the auxiliary battery.

⚠ Warning

Batteries should be tested regularly to ensure reliability and safety. Should a fault develop the charger will continue to try to charge the battery leading to possible overheating and failure. If in doubt have it checked by your supplier.

⚠ Warning

Any replacement of an auxiliary battery shall be of the same type and specification as that originally fitted or as specified by the manufacturer.

Connecting services - Electricity

⚠ Warning

Switch off ALL appliances and lamps before connecting or disconnecting the auxiliary battery.

Battery Type

It is recommended that a top quality 12V leisure battery of a sealed type is used which is essential to flatten out current surges. It should be noted that a leisure battery is designed to deliver a lesser current over longer periods which is often referred to as 'cycling', or 'deep cycling'. Leisure batteries are constructed differently to starter batteries to withstand the many cycles of discharging and recharging. The battery locker will take up to a 120 amp hour battery (depending on the manufacturer) **and we would recommend you use a high quality 110 amp hour minimum. The maximum size of battery which can be accommodated is: length: 352mm, depth: 172mm, height: 190mm.**

It should be noted that if using a motor mover the battery should be of an AGM type and capable of at least a 500 amp cold crank current. That is the power the battery can deliver for a given time under certain conditions and is usually referred to as its CCA (cold cranking amps). There are various different methods of measuring the CCA, but the most popular standard in the UK is the SAE (Society of Automobile Engineers) method. Always use the battery tray and retaining strap when installing a battery always ensuring fixing across to two points never around the battery.

For full verification of quality leisure batteries please refer to the "NCC verified leisure battery scheme." www.thencc.org.uk/our_schemes/ncc_verified_leisure_battery_scheme.aspx

CAUTION: Take care not to expose the battery to sparks or naked flames, as explosive gases may be present.

NOTE: As with mains supply, switch off all appliances and lights before disconnecting the battery.

⚠ Warning

Never leave a leisure battery in a discharged (flat) condition as this will cause the battery plates to 'Sulphate' rendering the battery useless and also invalidate any warranty. Lead-acid batteries must be left in fully charged condition, when left idle for long periods a top-up charge must be performed periodically. These rules apply to all types of lead-acid batteries.

Connecting services - Control panel

Generators

When using a generator ensure that the actual output voltage does not exceed the rated generator output voltage, and the rated input voltage of the consumer unit, otherwise internal damage to the unit could occur.

Before starting the generator ensure that the RCD lever is in the off position.

NOTE: Refer to the manufacturer's instruction book before use.

NOTE: It is important as with all power supplies that the generator is run up to speed and allowed to settle before switching it onto the system.

Control panel (where fitted)



- Master 12 volt ON/Off Switch
- Pump ON/OFF Switch/Pump Run Indication
- 12 volt Lighting Switch
- Awning Light Switch
- Voltmeter Switch

When the caravan is connected to the car, the car supply is connected automatically. For your convenience the master 12 volt switch, switches all the 12 volt circuits from the caravan except for the circuits requiring dedicated supplies from the battery, such as fridge ignition or alarm if fitted.

The pump switch, switches the supply to the pump, but the pump light is illuminated all the time.

Seattle Control Panel (where fitted)

User Manual - not all functions are available



Overview:

The Seattle control panel allows the user a central point to check:

- Leisure battery voltage
- Leisure battery current
- Load current

Connecting services - Control panel

- Mains current
- Solar current
- Internal temperature
- Water level
- Battery source
- Pump source
- Battery overvoltage/current alarms
- Battery under voltage alarms
- High solar current alarm
- Communication error
- Empty water tank
- Fuse blown alarms

The Seattle control panel also allows the user to:

- Switch on/off all non-essential electrical appliances/accessories
- Switch on/off the lights
- Change the pump mode
- Switch on/off the pumps
- Force the internal pump to run (For purging pipes)
- Switch on/off the awning light
- Calibrate water/waste probes

The Seattle control panel also has optional audio and visual warnings for:

Function Buttons:



NOTE: Some of the options or features highlighted above are not available on selected models.

Navigation Buttons:



Use the ▼ and ▲ buttons to navigate up and down through menus. Pressing the button will allow the user to enter menus or change settings (If further settings are available).

Master Button:



When the Master Button is pressed the control panel will switch power to all non-essential accessories. Some features require the Master Button to be switched on to be enabled.

NOTE: Essential appliances may remain powered when the master switch is off, for example the Alarm or Fridge.

Connecting services - Control panel

Lights Button:



When the Lights Button is pressed the control panel will switch power to all the interior lights.

NOTE: If the master switch is off this button will not function.

Pump Button:



When the Pump Button is pressed the control panel will enable/disable the water pumps. If the water level is 0% the pump may not run, holding down the Pump Button forces the internal pump to run regardless of tank level.

NOTE: If the master switch is off this button will not function. See "notifications and Warning section for pump running notification.

Awning Button:



When the Awning Button is pressed the control panel will switch power to the exterior awning light.

Fridge Button:



When the Fridge Button is pressed the control panel will switch power to the fridge.

NOTE: If the master switch is off this button will not function.

Main Page Descriptions:

NOTE: Some menu pages may be unavailable on selected models.

Main Page - Clock Display:

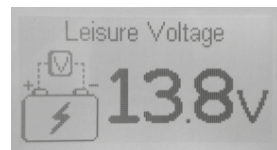
16:13

The Clock Display main page is displayed by default. The control panel will return to the main page when left to idle. The main page displays the time as well as any relevant notifications or warnings that are present. The time can also be set from this page, to set the time please follow the instructions below:

1. On the main page hold [Enter] for 3 seconds until the hours being to flash.
2. Keep pressing ▼ or ▲ to change the hours
3. Press [Enter] to set the hours, the minutes will now flash
4. Keep pressing ▼ or ▲ to change the minutes
5. Press [Enter] to set the minutes and finish setting the time

Connecting services - Control panel

Leisure Battery Voltage Display Page:



This page displays the leisure battery voltage. If a 230V mains supply is connected then the charging voltage of the leisure battery will be displayed. If the leisure battery is being charged then a lightning icon will appear in the battery.

To increase the accuracy of the battery voltage reading, switch the "Master Switch" off, this will reduce the load and give a better indication of the batteries voltage level.

NOTE: See the "Notifications" section in the User Settings to enable/disable the high and low voltage notifications for the Leisure Battery

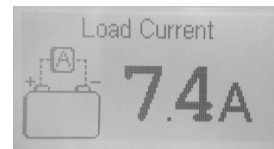
Leisure Battery Current Display Page:



This page displays the amount of current being drawn from the Leisure Battery, when the Leisure Battery is being charged a lightning icon is displayed inside the battery symbol. A higher current draw will drain the battery faster.

NOTE: See the "Notifications" section in the User Settings to enable/disable the high Leisure Battery load notifications

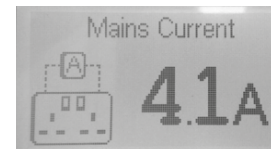
Load Current Display Page:



This page displays the amount of current that is being used by the leisure vehicle to power its internal systems, such as lights, pumps and sockets for example.

NOTE: The Load current and Battery current values may be different if the battery is also being charged by a 230V connection or a solar panel. See the "Notifications" section in the User Settings to enable/disable the High Load notification.

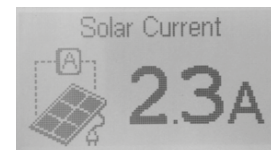
Mains Current Display Page:



This page displays the amount of current that is being drawn from the 230V mains connection.

NOTE: See the "Notifications" section in the User Settings to enable/disable the High Mains load notification.

Solar Current Display Page:



This page displays the amount of current that is being generated by the solar

panel. A solar regulator is required to drop down the solar panel voltage to battery safe levels.


NOTE: See the "Notifications" section in the User Settings to enable/disable the High Mains load notification.

Internal Temperature Display Page:







This page displays the internal temperature, it is measured by a sensor inside the control panel and displayed on the screen in degrees Celsius by default.

User Settings:

This page is the user settings menu page, pressing the  button will enter the user settings and allow some settings to be altered, such as display settings, sound settings and which notifications are enabled etc. There is a description for the different settings, options and how to navigate the menus below.



Navigation:

- Scroll through the settings with the  and  buttons.
- The user settings menu has drop-down menus, pressing the  button on a setting that has the  icon (Highlighted in the image below) will open the drop-down menu and allow settings to be changed.

Connecting services - Control panel



- To edit a setting, highlight it then press the button. Depending on the setting the user may be required to use the and buttons to scroll through the different options available to a setting.
- Once the required option has been selected, press the button to confirm the value change.
- To exit the User Settings menu scroll to the bottom of the page and press on "Save and Exit"

Display Menu:

Pressing on the Display setting will open the Display drop-down menu.

Contrast:

Pressing on will allow the contrast value to be changed using the and buttons. Increasing the contrast will

make the screen darker overall, decreasing the contrast will lighten the screen overall. At its minimum (0) and maximum (63) the screen will become almost unreadable. Pressing the button will save new contrast value.

Standby:

Changing this setting alters the amount of time the control panel will stay lit before it goes into standby mode. Press to select the setting and then the and buttons to select the time in 5s increments.

Return to home:

This setting is toggled On/Off using the button. When this setting is enabled the control panel will return to the main clock screen when it goes into standby.

Sound Menu:

Pressing on the Sound setting will open the Sound drop-down menu.

Key Tones:

Pressing the button enables and disables the key tones on the control panel. When this setting is disabled pressing buttons will no longer make a noise.

Alarm Tone:

Pressing the button enables and disables the alarm tones on the control panel. When this setting is disabled alarms will no longer make a noise.

Temperature Unit:

Pressing the button switches the default temperature setting between degrees Celsius (°C) and degrees Fahrenheit (°F).

Hide Advice:

Pressing the button enables/disables whether advice pages are displayed after an alarm has been acknowledged. The advice pages give a slightly more detailed explanation on the cause of the alarm.

Connecting services - Control panel

LBat Low Volt:

Pressing the button enables/disables the Leisure Battery Low Voltage notification. Disabling this will no longer inform the user when the Leisure Battery voltage goes below 11V.

LBat High Volt:

Pressing the button enables/disables the Leisure Battery High Voltage notification. Disabling this will no longer inform the user when the Leisure Battery voltage goes above 14.9V.

Notifications:

The list below contains all of the settings available in the notifications menu.

High Load:

Pressing the button enables/disables the High Load notification. Disabling this will no longer inform the user when the leisure vehicle is drawing over 18A.

Low Water:

Pressing the button enables/disables the Low Water notification. Disabling this will no longer inform the user when the water levels in the water tank get to 10% or below.

High Waste:

Pressing the button enables/disables the High Waste notification. Disabling this will no longer inform the user when the waste levels in the waste tank get to 90% or above.

High Mains:

Pressing the button enables/disables the High Mains notification. Disabling this will no longer inform the user when more than 16A is being drawn from the mains supply.

Pump Running:

Pressing the button enables/disables the Pump Running notification. Disabling this will no longer inform the user when the pump is running.

High Lbat Load:

Pressing the button enables/disables the High Leisure Battery Load notification. Disabling this will no longer inform the user when the Leisure Battery's load is over 20A.

High Solar Load:

Pressing the button enables/disables the High Solar Load notification. Disabling this will no longer inform the user when the solar panel is providing over 15A.

Fuse Alarm:


Pressing the button enables/disables the Fuse Alarm notification. Disabling this will no longer inform the user when a fuse has blown.

Overload Fault:


Pressing the button enables/disables the Overload Fault notification. Disabling this will no longer inform the user when a FET Overcurrent has occurred.

Connecting services - Control panel


Mains Removed:

Pressing the  button enables/disables the Mains Removed notification. Disabling this will no longer inform the user when the mains have been removed.

Engine Running:

Pressing the  button enables/disables the Engine Running notification. Disabling this will no longer inform the user when ignition signal is present (Engine Running).

Comms Fault:

Pressing the  button enables/disables the Comms Fault notification. Disabling this will no longer inform the user when there are communication faults between the control panel and other products communicating over the LIN network.

NOTE: Some settings/options may be unavailable on selected models.


Firmware:

The Firmware option does not have any settings as it just displays the current version of Firmware that is installed onto the control panel.

Save and Exit:

Selecting this option will save any changed settings and then go back to the user settings page in the main menu.

Notifications and Warnings:










There are a number of icons which can appear at the top of the main clock page. When a new notification or warning is triggered it may be accompanied by a pop-up alarm screen if the correct settings are enabled. When this occurs the control panel will flash and beep until the warning is acknowledged by pressing the  button.



In the event of a Whale lockout, attempt to turn the heater on and follow the on screen instructions, if this faults to clear the fault then please consult the Whale user manual for more detailed information.

Connecting services - Control panel

Please see table below for the name and description for each icon:

Icon	Name	Description
	Low Leisure Battery Voltage Warning	Displays when the Leisure Battery Voltage is lower than 11V (Default value)
	Low Vehicle Battery Voltage Warning	Displays when the Vehicle Battery Voltage is lower than 11V (Default value)
	High Leisure Battery Voltage Warning	Displays when the Leisure Battery Voltage is higher than 14.9V (Default value)
	High Vehicle Battery Voltage Warning	Displays when the Vehicle Battery Voltage is higher than 14.9V (Default value)
	High Leisure Battery Current Warning	Displays when the Leisure Battery Current is higher than 20A (Default value)
	High Vehicle Battery Current Warning	Displays when the Vehicle Battery Current is higher than 20A (Default value)
	High Load Current Warning	Displays when the Load Current is higher than 18A (Default value)
	High Solar Panel Current Warning	Displays when the Solar Panel is providing more than 15A (Default value)
	High Mains Current Warning	Displays when the mains supply is drawing more than 16A (Default value)

Connecting services - Control panel

	No Communications Warning	Displays when there are communication faults in the LIN network
	Ignition Notification	Displays if the engine is running
	Fuse Blown Warning	Displays if a fuse has blown
	Draining Leisure Battery Notification	Displays if the leisure vehicle is being powered from the Leisure Battery
	Draining Vehicle Battery Notification	Displays if the leisure vehicle is being powered from the Vehicle Battery
	Mains Connected Notification	Displays if the leisure vehicle is connected to a mains supply
	FET Overcurrent Warning	Displays if there is an overcurrent fault from the control panel
	Pump Running Notification	Displays if the pump is running
	Thermistor Icon	Displays if there are faults with the temperature sensors
	Waste Level High Warning	Displays if the waste level is at 90% or over (Default value)
	Water Level High Warning	Displays if the water level is at 10% or under (Default value)
	Space Heater General Fault	Displays if there is a Whale Space Heater General Fault
	Space Heater Ignition Fault	Displays if there is a Whale Space Heater Ignition Fault
	Space Heater Over-heat Fault	Displays if there is a Whale Space Heater Over-heat Fault

	Space Heater Voltage Fault	Displays if there is a Whale Space Heater Voltage Fault
	Space Heater Air-pressure Fault	Displays if there is a Whale Space Heater Air-pressure Fault
	Space Heater Misc. Fault	Displays if there is a Whale Space Heater Misc. Fault
	Water Heater General Fault	Displays if there is a Whale Water Heater General Fault
	Water Heater Ignition Fault	Displays if there is a Whale Water Heater Ignition Fault
	Water Heater Over-heat Fault	Displays if there is a Whale Water Heater Over-heat Fault
	Water Heater Voltage Fault	Displays if there is a Whale Water Heater Voltage Fault
	Water Heater Air-pressure Fault	Displays if there is a Whale Water Heater Air-pressure Fault
	Water heater Misc. Fault	Displays if there is a Whale Water heater Misc. Fault

Warranty:

If you believe that there is problem with your control panel please contact your dealership who will be able to help.

NOTE: Not all warning/notifications may appear due to differences in leisure vehicle specifications, the default values may be altered depending on the vehicle specification

Caravan equipment

ALDE central heating and hot water system - where fitted.

Full instructions on the use of this system are included in the information pack you received with your caravan and we would strongly recommend you read them thoroughly before using the boiler.

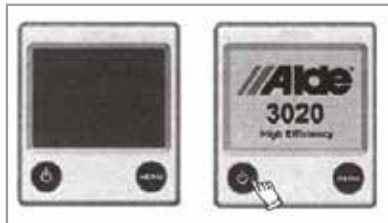
Warning Quick Start Guide - 3020 Colour Touch

This quick start guide allows end users to confidently use the core features of their Alde control panel. See the operating and installation instructions for the Alde control panel for more details.

Important!

Please read the operating instructions for the Alde 3020 Compact HE boiler before using the system.

Starting the system



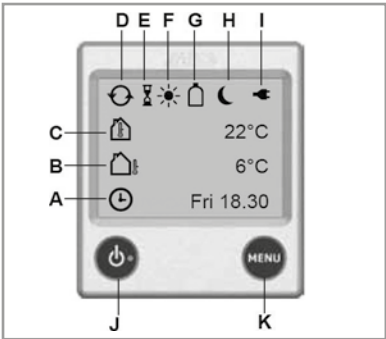
- Both the control panel and boiler are off.
- To start the system, press the Power button on the control panel. The Splash Screen is displayed and green LED is lit. The boiler will now start with the previously saved settings (factory settings by default).

The system will now be drawing variable 0.2-1A of current from the 12V supply.

Standby screen

The Standby Screen is displayed after the Splash Screen. This screen contains useful information about the status of your heating system.

NB: If Standby Screen is set to “Dark” in Backlight settings, the Standby Screen will not be displayed, the screen will be dark unless touched.



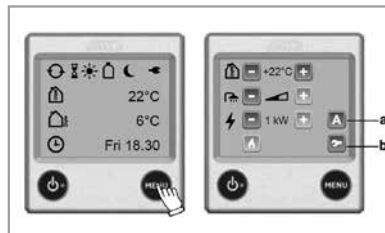
- A. Clock is enabled. Day of the week and time shown.
- B. Outdoor Temperature. [Optional outdoor temperature sensor required.]
- C. Room Temperature. Measured at the control panel. [Optional discrete room temperature sensors available.]
- D. Central heating circulation pump is active.

Caravan equipment

- E. Delayed Start/Cycle is enabled.
- F. Day Mode active.
- G. Gas Cylinder Status. Full/empty and active EisEx shown.
[Additional accessories required.]
- H. Night Mode active.
- I. 230V supply. If not displayed, the boiler is not receiving 230V supply.
- J. Power button. Press to switch system on-off. Lit green LED indicates system is on.
- K. MENU button. Press to access Main Menu from Standby Screen or Settings Menu.

Main menu

Press MENU button to access the Main Menu from the Standby Screen or Settings Menu. The screen will revert to the Standby Screen after 30 secs if untouched.



1. Standby Screen. Press MENU button.
2. Main Menu.
 - a. What's Activated Menu. [Not displayed if no activated functions are detected.]
 - b. Settings Menu



Desired Room Temperature

The desired room temperature can be set from 5 to 30°C, in 0.5 increments.

The World Health Organisation recommends a room temperature of 18–24°C for healthy living.

NB: If Day or Night Mode are active, the temperature cannot be adjusted, the Plus and Minus buttons will be greyed out.

1. The current desired room temperature is displayed.

2. Adjust by pressing Plus or Minus button.



Domestic Hot Water

The Alde boiler stores 8.4 Litres of hot water as standard. If the hot water cylinder is empty, the air is heated but no damage can result.

In a good summer, for example, lower the desired temperature on the control panel to around 10°C. The central heating will not circulate (unless the temperature drops to 10°C), but you can still control hot water.

NB: If Day or Night Mode Sans Hot Water are active, the hot water cannot be adjusted, the Plus and Minus buttons will be greyed out.

1. Hot Water Ignore. Volume bar empty. No attempt is made to heat hot water specifically. This saves energy when the freshwater is drained down.
2. Hot Water Normal. Volume bar half-

full. Hot water is heated to greater than 50°C. **NB:** If Circulation Pump is set to Continuous, this option will not be available.

3. Hot Water Boost. Volume bar full. Central heating circulation is disabled for 30 mins. Hot water is heated to greater than 65°C. After 30 mins the system reverts to Hot Water Normal.

4. Adjust by pressing Plus or Minus button.



Electric Heating

Check that 230V supply is displayed on the Standby Screen. The Alde boiler is programmed to use power economically and there are times when it may use no power at all, even if set to 3kW.

1. Select Off, 1, 2 or 3 kW electric heating. More power equals better performance, but may be restricted by the current (amps) limit on the electric hook-up.

2. Adjust by pressing Plus or Minus button.

Max current draw from 230V supply is

4.5A on 1kW, 9A on 2kW, 14A on 3kW. If the electric supply has unstable voltage, the amperage will also fluctuate.



Gas Heating

The Alde boiler is programmed to use power economically. The gas burner has two stages, shifting dynamically between low or full flame. There are times when it may use no power at all, even if gas heating is selected.

1. Press the Flame button to select gas heating. Green is on, blue is off.

Use both gas and electric heating for best performance.

Shutting down the system

To save energy, the control panel only updates the boiler after the last adjustment is made. Wait 10 secs before shutting down the system to ensure the boiler is updated.

1. Press the Power button again. The screen goes dark, the green LED is unlit. The system is off.

Caravan equipment

Setup

Most UK installations do not need setting up in the Settings Menu, and use default factory settings.

Restore default factory settings

Before using the system for the first time, restore default factory settings. Your control panel may have been tested by the dealer or installer, and some settings may have been changed.

1. Press Tool button to access the Settings Menu (bottom right in Main Menu).
2. Press down arrow, until Reset button is displayed.

3. Press the Reset button to proceed.



Caravan equipment

Set up Antimicrobial function

To actively kill Legionella, set up the Antimicrobial function. At 2:00 every night, the hot water will be heated to over 65°C for 30 mins. This further reduces the risk of Legionella.

1. Press Tool button to access the Settings Menu (bottom right in Main Menu).
2. Press down arrow, until Antimicrobial button is displayed.
3. Press Antimicrobial button to proceed.



Setup Standby Screen for bedtime

The backlight on the Standby Screen can be disturbing if the control panel is visible from your bed. It can be inverted for white text on black background.

1. Press Tool button to access the Settings Menu (bottom right in Main Menu).

2. Press down arrow, until Backlight button is displayed.
3. Press Backlight button, select Inverted to proceed.



Maintenance

The Alde control panel requires no maintenance, other than cleaning of the screen as needed. Use a microfibre cloth to clean the touchscreen.

Troubleshooting

Any error messages will be displayed on the Standby Screen. Error messages can be cleared by switching off 12V supply to the boiler for 10 secs.

The system is completely dead, the control panel is blank

- Check the 20 mm T3.15 Amp glass fuse in the boiler. This is located under the lid of the black plastic service hatch, in a green plastic fuse holder.

- Check the 12V supply to the boiler, it should be above 12V.

- Check the 12V cable is plugged into the boiler. Check the cable is plugged into the Alde control panel.

“Panel failure 1” & “Panel failure 2”

- Moisture is trapped in the control panel.
- Remove the Alde control panel from the vehicle and air in a warm, dry place overnight.

“Gas failure”

- Out of gas or gas is not igniting.
- Check the gas cylinder is full. Try a different gas cylinder, ensuring it is propane gas.

“Overheat red fail” or “Overheat blue fail”

- Bleed the system of air.
- Check the fluid level in the expansion tank. It should be 1cm above Min mark when cool.

Caravan equipment

- Check the circulation pump is responding.
- Wait 15 mins for the fluid to cool down.

“Overheat PCB”

- Failsafe in boiler has triggered.
- Check the fluid level in the expansion tank. It should be 1cm above the Min mark when cool.

- Check the boiler compartment is ventilated, and that the vents are unobstructed. Do not place stowage in the boiler compartment.

“Fan failure”

- Combustion fan speed too low. Bearing may be stiff after a period of disuse.
- Automatically clears after 5 mins. Please try again.

“Connection failure”

- Loose connection between Alde control panel and boiler.
- Unplug cable at the control panel and

boiler, then carefully plug back in.

- Check there is slack on the cable at the control panel, but not excessive weight from free-hanging/unmanaged cable.

“Window open”

- Optional window sensor has triggered, gas heating is suspended. Automatically clears and gas heating resumes when window is closed.

“Connection fail ext”

- Break in comms between Alde control panel and daisy-chained third party control panel.
- Check the cable between the Alde control panel and third party control panel.

“Low battery”

- 12V supply to boiler has dropped below 10.5V, possibly causing system brownout.
- Automatically clears when 12V supply reaches 11V.

“No match Heater/Panel”

- Control panel is incompatible with boiler PCB.
- Check control panel part number. Control panel 3020-013 is for 3020 A-series boiler, 3020-113 is for 3020 HE-series boiler.

If problems persist, please contact Alde, or your dealer or installer.

For our frequently asked questions, or download all instruction manuals, please visit our web site at: www.alde.co.uk or watch a demonstration on YouTube - “How to use the Alde 3020 control panel”

Refrigerator operation

Dometic refrigerator operation

⚠ Warning

When your refrigerator has reached its end of life, dispose the product according to the local rules. Do not dispose the refrigerator with normal household waste. The correct disposal of your old product will help prevent potential negative consequences to the environment and human health.

The refrigerator is equipped to operate on three power modes:

- **Mains voltage (230V AC)**
- **Direct-current voltage (12V DC)**
- **Gas (liquid gas propane/butane)**

Select the desired power mode by the **energy selector switch** (battery igniter models) or the **energy selector button** (MES, AES). Appliances with automatic energy selection (AES) are additionally provided with "automatic

mode" function. Then the AES system automatically selects the best energy source for each particular situation.

⚠ Warning

Many modern cars are equipped with a 'Smart Alternator' and 'Stop/Start' technology. Once the engine has stopped, the fridge may not be supplied power and will turn off. The fridge will have to be manually restarted on 12v operation.

A smart alternator may not supply the required power output at the tow bar electrical connection to run the fridge. This should be checked by an appropriate technician.

- When the appliance is first put into operation, there may be a mild odour which will disappear after a few hours.
- Park the vehicle level, particularly when starting up the refrigerator and filling with food before starting a journey.
- The cooling unit is silent in operation.

- The refrigerator will take several hours to reach its operating temperature in the cooling compartment. The freezer compartment should be cold about one hour after switching on the refrigerator.

Cleaning

Before starting up the refrigerator, it is recommended that you clean it inside and repeat this at regular intervals.

Use a soft cloth and lukewarm water with a mild detergent. Then wipe out the appliance with clean water and dry thoroughly.

Keep the condensation water drain channel free of deposits.

To avoid material alterations, do not use soap or hard, abrasive or soda-based cleaning agents. Do not allow the door seal to come into contact with oil or grease.

Maintenance

In compliance with the applicable regulations, please note that the gas

unit and the connected ventilation ducts must be checked by authorised technical personnel after first use and after every other year for compliance with the European Standard EN 1949. A test certificate has to be issued. **It is the user's responsibility to arrange this test.**

- **The gas burner must be inspected and cleaned as necessary at least once a year. When using liquefied petroleum gas (tank or refill cylinders) the maintenance interval is reduced to half-yearly or quarterly.**

Keep the evidence of maintenance work carried out on your refrigerator.

- **Work on gas and electrical equipment shall be carried out by qualified personnel only.**

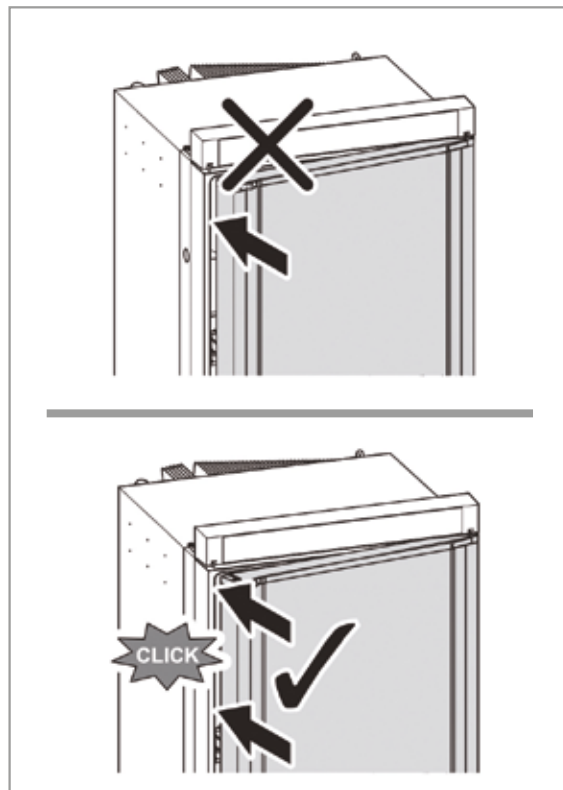
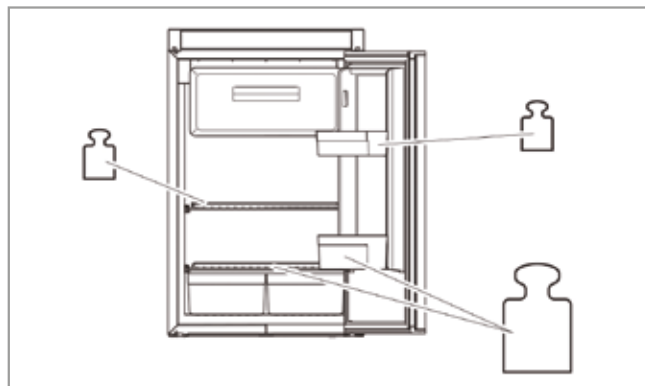
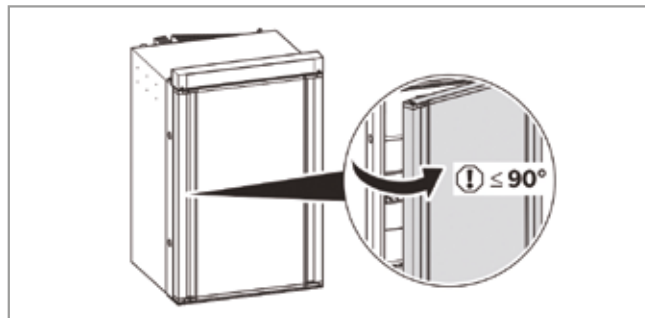
It is recommended that this carried out by an authorised customer services department.

We recommend maintenance following an extended shut-down of the vehicle. Please contact our customer services.

Refrigerator operation

Refrigerator operation

Dometic RMD10



Please refer to detailed instructions supplied with the refrigerator, or download it from Dometic.com.

Explanation of symbols



Warning!

Safety instruction: Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



Caution!

Safety instruction: Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



Notice

Indicates a situation that, if not avoided, can result in property damage.



Note

Supplementary information for operating the product.

Safety instructions

The manufacturer accepts no liability for damage in the following cases:

- Damage to the product resulting from mechanical influences and incorrect connection voltage
- Alterations to the product without express permission from the manufacturer
- Use for purposes other than those described in the operating manual

Safety when operating with gas

Explosion hazard



Warning

Failure to obey these warnings could result in death or serious injury.

- Only operate the device at the pressure shown on the type plate. Only use pressure controllers with a fixed setting which comply with the national regulations.

Refrigerator operation

- Never operate the device with gas:
 - At petrol stations
 - In parking garages
 - On ferries
 - While transporting the caravan or mobile home with a transport vehicle or tow truck
- Never use a naked flame to check the device for leaks.
- In case of gas odor:
 - Close the gas supply cock and the valve on the cylinder.
 - Open all windows and leave the room.
 - Do not press an electric switch.
 - Put out any naked flames.
 - Have the gas system checked by a specialist.
- **Never** store liquid gas cylinders in unventilated areas or below ground level (funnel shaped holes in the ground).
- Keep liquid gas cylinders away from direct sunlight. The temperature may not exceed 50 °C.

Refrigerator operation

⚠ Notice

Damage hazard. Only use propane or butane gas, not natural gas (see rating plate).

Safety when operating

⚠ Caution

Failure to obey these cautions could result in minor or moderate injury.

Health hazard

- Make sure that you only put items in the device which may be chilled at the selected temperature.
- Food may only be stored in its original packaging or in suitable containers.
- Opening the door for long periods can cause significant increase of the temperature in the compartments of the device.
- Clean regularly surfaces that can come in contact with food and accessible

drainage systems.

- Store raw meat and fish in suitable containers in the device, so that it is not in contact with or can drip onto other food.
- If the device is left empty for long periods:
 - Switch off the device.
 - Defrost the device.
 - Clean and dry the device.
 - Leave the door open to prevent mould developing within the device.

Risk of injury

- The device door or the freezer door can completely detach from the device if used incorrectly. Push the doors closed until you hear a clear click at the top and bottom.
- Do not lean on the open device door.

⚠ Notice

Damage hazard. If the door is not locked correctly on the opposite side, push on that side at the top and the bottom until it locks in place.

Only store heavy objects such as bottles or cans in the device door, in the vegetable compartment or on the bottom shelf.

i Note

Put the device door and the freezer door into the winter position if you are not going to use the device for a longer period of time. This prevents mold from forming.

For ambient temperatures of +15 °C to +25 °C, select the average temperature setting.

Refrigerator operation

Intended use

The device is suitable for:

- Installation in caravans and motor homes
- Cooling, deep-freezing and storing food

The device is **not** suitable for:

- Storing medications
- Storing corrosive substances or substances that contain solvents
- Quick-freezing food

Technical description

The refrigerator is an absorber refrigerator and is designed for operation

- on a DC power supply (12 V)
- on an AC power supply
- with liquefied gas (propane or butane)

The refrigerator has an automatic operating mode that selects the most economical type of energy connected. The refrigerator unit operates silently.



Refrigerator operation

Operating and display elements

RM10.5T, RMS10.5T, RMS10.5XT

The TFT display features the following operating and display elements (fig.1 A):

Symbol	Description
	Cooling capacity indicator
	Operation with AC power
	Operation with DC power
	Operation with gas
AUTO	Automatic mode: In automatic mode, the refrigerator automatically selects the most economical operating mode in the following order of priority:
	Battery: Symbol lights up when the battery packs (optional) are fitted and the device is in stand-alone gas mode.
	Fan (optional): Symbol lights up when the fan function is activated.
	Symbol lights up when the refrigerator is connected to the CI bus.
	Dim TFT display After 30 seconds, the brightness of the display is reduced to the set level.

	Beep off: • Error messages and warnings are not signaled acoustically. • Door left open for an extended period is signaled acoustically.
	Beep on: Error messages, warning messages and door left open for an extended period are signaled acoustically.
	Confirm selection and return to the main menu

RM10.5S, RMS10.5S, RMS10.5XS

The LED display features the following operating and display elements (fig.1 B):

Symbol	Description
	ON/OFF button
	Fault indicator
	Operation with DC power
	Operation with gas
	Operation with AC power
A	Automatic mode
	Temperature indicator
	Energy selection button
	Temperature selection button

Using the refrigerator

i Note

- Before starting your new refrigerator for the first time, clean it inside and outside with a damp cloth for hygienic reasons.
- When using the refrigerator for the first time, there may be a mild odor which will disappear after a few hours. Air out the living space well.
- Park the vehicle so that it is level, especially when starting up and filling the refrigerator before setting off on a journey.
- The cooling capacity can be affected by:
 - the ambient temperature (e.g. when the vehicle is exposed to direct sunlight)
 - the amount of food to be refrigerated
 - how often you open the door

Tips for optimal refrigerator operation

- Do not store goods in the refrigerator for the first 12 hours after start-up.
- Protect the interior of the vehicle from warming up excessively (e.g. sunshades in the windows, air conditioner).
- Protect the refrigerator from direct sunlight (e.g. sunshades in the windows).

Operation at low outdoor temperatures

i Notice

In AC power mode and DC power mode, install both winter covers. In gas mode or automatic mode, install the lower winter cover only. This prevents heat from building up and ensures the fumes from the refrigerator can dissipate properly.

Refrigerator operation

i Note

Cold air can impact the performance of the cooling unit. Install the winter covers if you determine a loss of cooling capacity at low ambient temperatures.

Tips for optimal refrigerator operation

- Press for 2 seconds
 - **RM10.5T, RMS10.5T, RMS10.5XT:** the control knob
 - **RM10.5S, RMS10.5S, RMS10.5XS:** the button

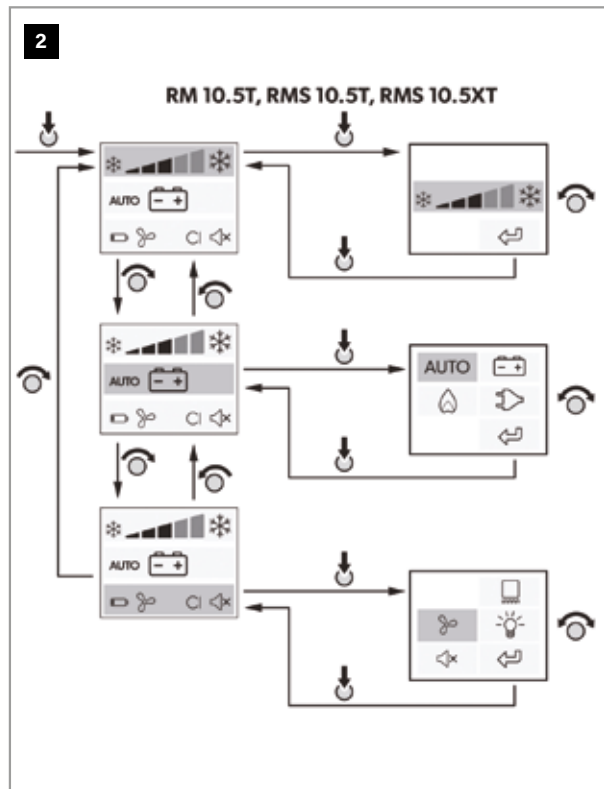
The refrigerator starts with the most recent settings.

Switching off the refrigerator

- Press for 4 seconds
 - **RM10.5T, RMS10.5T, RMS10.5XT:** the control knob
 - **RM10.5S, RMS10.5S, RMS10.5XS:** the button

A beep sounds and the refrigerator switches off.

Refrigerator operation



Operating the refrigerator (RM 10.5T, RMS 10.5T, RMS 10.5XT)

Menu navigation: fig.2

- The TFT display features the following operating and display elements (fig.1 A):

Main menu	Detail menu
	Cooling capacity menu
	Operating mode menu
	Settings menu

- Turn the control knob to select the desired detail menu.
- Press the control knob to open the selected detail menu.
- Turn the control knob to navigate through the detail menu.
- Selected settings are displayed in blue.
- Press the control knob to choose the selected setting.
- Confirm the selection using

Operating the refrigerator (RM 10.5S, RMS 10.5S, RMS 10.5XS)

Controls

- Repeatedly press , until the LED indicates the desired operating mode.
- Repeatedly press , until the desired temperature level is set.

Please note the following special features when using stand-alone gas mode:

- The light inside the refrigerator remains switched off.
- The display turns off 2 seconds after the last activity.
- The display briefly switches on every 15 seconds. This indicates that the refrigerator is switched on.
- If there are error messages, the display stays switched on.

Stand-alone gas mode is indicated:

- RM10.5T, RMS10.5T, RMS10.5XT:** by the symbols and

- RM10.5S, RMS10.5S, RMS10.5XS:** by the flashing of LED every 15 seconds

Setting the cooling capacity

Note

For ambient temperatures of +15 °C to +25 °C, select the average cooling capacity.

Set the cooling capacity:

- RM10.5T, RMS10.5T, RMS10.5XT:** Select the desired temperature level in the cooling capacity menu.
- RM10.5S, RMS10.5S, RMS10.5XS:** Repeatedly press until the desired temperature level is selected.

Notes on storing food

Caution

Health hazard!

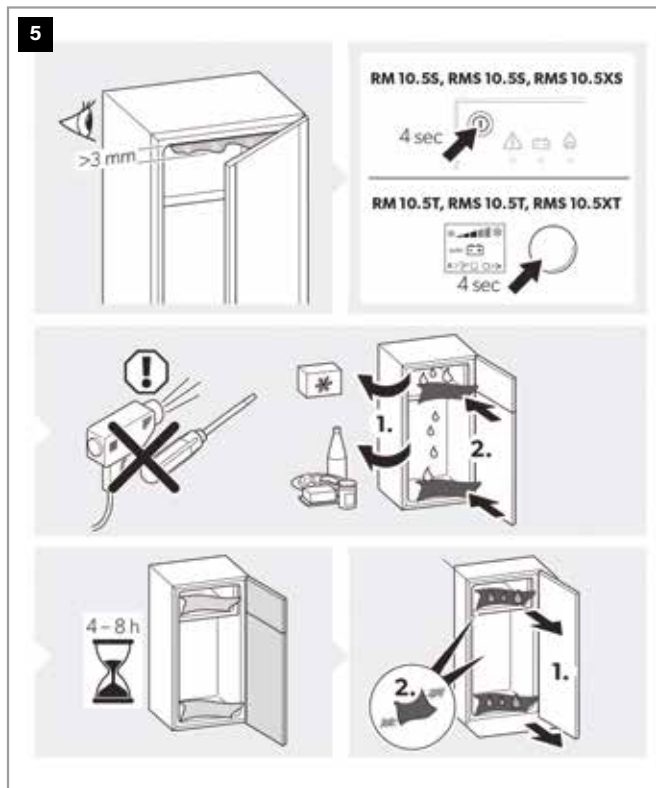
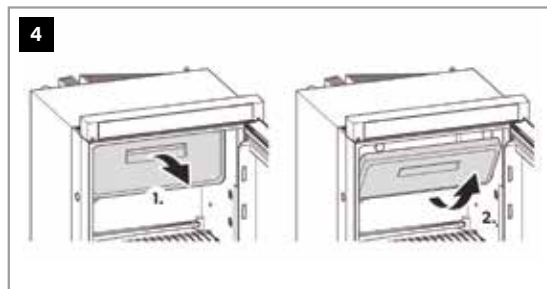
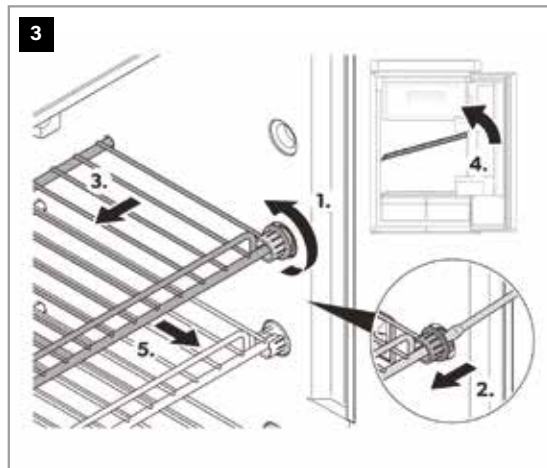
- Please check whether the cooling capacity of the refrigerator is suitable for the food you wish to cool.

Refrigerator operation

Caution

- Opening the door for long periods can cause significant increase of the temperature in the compartments of the refrigerator.
- Store raw meat and fish in suitable containers in the refrigerator, so that raw meat and fish is not in contact with or drip onto other food.
- Food may only be stored in its original packaging or in suitable containers.
- The freezer compartment is suitable for making ice cubes and for keeping frozen food. It is not suitable for freezing previously unfrozen food.
- If the refrigerator is exposed to a room temperature of below +10 °C for an extended period of time, a uniform temperature cannot be guaranteed in the freezer compartment. This can lead to an increase of the freezer compartment temperature and the goods stored in it may defrost.

Refrigerator operation



! Notice

- The maximum weight per door shelf is 6 kg. The maximum weight for the entire door is 7.5 kg.
- Store heavy objects such as bottles or cans in the refrigerator door, in the lower storage compartment or on the bottom shelf only.
- Do not keep carbonated drinks in the freezer compartment.

- Store food as shown (fig.1)

Positioning the shelves

! Warning

Children beware!

All shelves are fixed in place to prevent children from climbing into the refrigerator.

- Only remove the shelves for cleaning purposes.
- Refit the shelves and secure them in place.

- Remove the shelf as shown (fig.3).
- Refit the shelf in the reverse order.

Removing the freezer compartment

You can take out the freezer compartment to make more space in the refrigerator compartment.

i Note

- Keep the freezer compartment door and the base in a safe place to prevent any damage.
- When installing, replace the parts in the reverse order.

- Proceed as shown (fig.4)

Defrosting the refrigerator

! Notice

Do not use mechanical tools or a hair dryer to remove ice or to loosen frozen items.

Refrigerator operation

i Note

Over time, frost builds up on the cooling fins inside the refrigerator. If this layer of frost is about 3 mm thick, you should defrost the refrigerator.

- Proceed as shown (fig.5)

Positioning the refrigerator door in the winter position

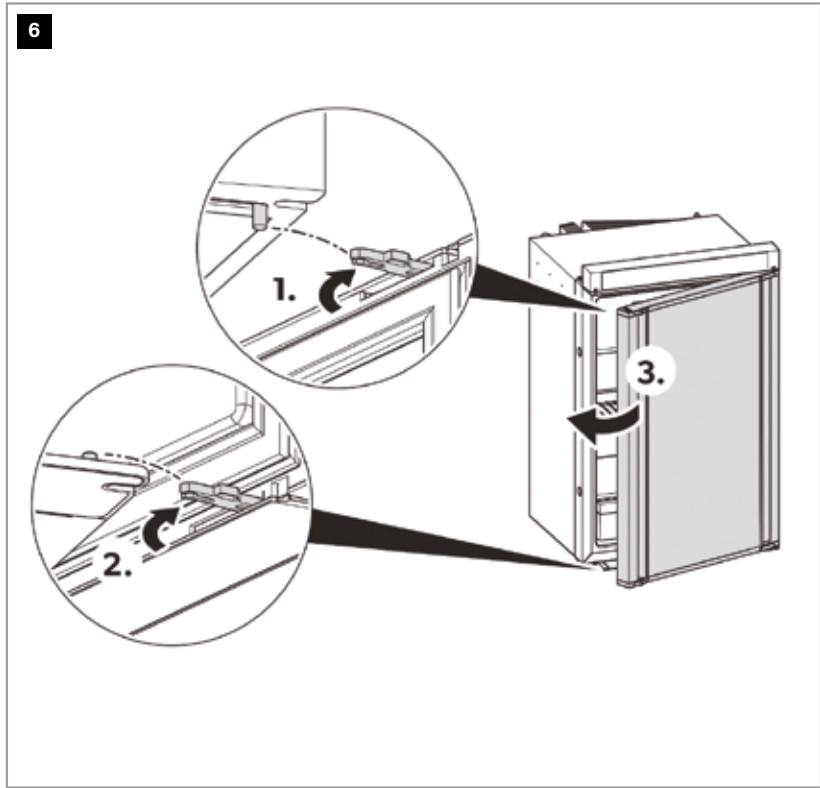
! Caution

The winter position may **not** be used while driving.

Place the refrigerator door and the freezer compartment door into the winter position if you are not going to use the refrigerator for an extended period of time. This prevents mold from forming.

- Defrost the refrigerator.
- Unscrew the hook near the securing mechanism all the way at the top and bottom of one side of the door (fig.6).

Refrigerator operation



- Press against the refrigerator door.
 - The protruding pin snaps into the hook.
- Open the door in winter mode as follows:
- Pull the door toward you.
 - Push the protruding hooks at the top and bottom of the door back in.

Troubleshooting

Note

To safely operate 12 V consumer units in the caravan while driving, it must be ensured that the towing vehicle provides sufficient voltage. On some vehicles, the battery management system may automatically switch off the consumer units to protect the battery. Ask your vehicle manufacturer for more information.

Refrigerator operation

Fault	Possible cause	Suggested remedy			
In AC power mode: The refrigerator does not work.	The fuse in the AC power supply is defective.	Replace the fuse.	In gas mode: The refrigerator does not work.	The gas cylinder is empty.	Replace the gas cylinder.
	The vehicle is not connected to the AC power supply.	Connect the vehicle to the AC power supply.		The gas valve is closed.	Turn the valve to open.
	The AC heating element is defective.	Contact an authorized customer service point.		Air is in the gas line.	Switch the refrigerator off and on again. Repeat the procedure three or four times if necessary. If installed, switch on the stove and repeat the process on the refrigerator if necessary.
In DC power mode: The refrigerator does not work.	The fuse in the DC cable is defective.	The fuse on the relay must be replaced. Contact an authorized customer service point.	In automatic mode: The refrigerator is being operated with gas although it is connected to the AC power supply.	The grid voltage is too low.	The refrigerator automatically switches back to AC power supply as soon as the grid voltage is sufficient again.
	The vehicle fuse has blown.	Replace the vehicle fuse. (Please refer to the operating manual of your vehicle.)			
	The vehicle battery is discharged.	Test the battery and charge it.			
	The ignition is not switched on.	Switch on the ignition.			
	The DC heating element is defective.	Contact an authorized customer service point.			


Refrigerator operation


The refrigerator is not cooling adequately.	The ventilation around the cooling unit is not sufficient.	Check that the ventilation grille is not obstructed.
	The evaporator is iced up.	Check whether the refrigerator door closes properly. Make sure that the refrigerator seal fits correctly and is not damaged. Defrost the refrigerator.
	The temperature is set too high.	Set a lower temperature.
	The ambient temperature is too high.	Remove the ventilation grille for a while so that warm air can escape quicker.
	Too much food was placed in the refrigerator at the same time.	Remove some of the food.
	Too much warm food was placed in the refrigerator at the same time.	Remove the warm food and leave it to cool down before putting it in again.
The refrigerator has not been operating for very long.		Check the temperature again after four or five hours.

Fault messages and signal tones

All faults are indicated by a warning symbol, a fault ID and a beep. The beeping lasts for 2 minutes and is repeated every 30 minutes until the error has been rectified.

If multiple faults occur, the display shows the most recent fault. The underlying faults are displayed after the last fault has been confirmed.









RM10.5T, RMS10.5T, RMS10.5XT: Faults are indicated by a fault code with a warning symbol () in the middle of the TFT display.

RM10.5S, RMS10.5S, RMS10.5XS: In the event of a fault, the LED warning symbol () in the display lights up continuously and the LEDs flash according to the fault.

Refrigerator operation

WARNING type fault messages


All faults of the WARNING type are reset automatically once the fault has been rectified.






RM10.5T, RMS10.5T, RMS10.5XT	RM10.5S, RMS10.5S, RMS10.5XS	Fault	Solution
W01		Defective temperature sensor in the refrigerator compartment	Contact an authorized customer service point.
W05		AC power not connected or AC voltage <190 V	Connect the refrigerator to AC power or select a different energy type, e.g. gas or DC power.
W06		DC power not connected	Connect the refrigerator to DC power or select a different energy type, e.g. gas or AC power.
W11		DC overvoltage (>16 V).	Reduce the DC supply voltage.
			
		Tank stop mode: Gas operation is blocked for 15 minutes.	Wait 15 minutes or switch to another operating mode.
	Beep	The door has been open for more than 2 minutes.	Close the door.
W10 + Beep			

Refrigerator operation










ERROR type fault messages

All faults of the ERROR type must be reset manually:




- RM10.5T, RMS10.5T, RMS10.5XT: Press the control knob for 2 seconds.
- RM10.5S, RMS10.5S, RMS10.5XS: Press  for 2 seconds.
- A beep sounds.
- The error has been reset.

RM10.5T, RMS10.5T, RMS10.5XT	RM10.5S, RMS10.5S, RMS10.5XS	Fault	Solution
E03		No connection between power module and display	Contact an authorized customer service point.
E07	 	No cooling capacity in gas mode	Check if the device is at an angle and adjust it so it is level, if necessary. Reset the error. Contact customer service if this error occurs again.
E08	 	No cooling capacity in AC power mode	Check if the device is at an angle and adjust it so it is level, if necessary. Reset the error. Contact customer service if this error occurs again.

Refrigerator operation

RM10.5T, RMS10.5T, RMS10.5XT	RM10.5S, RMS10.5S, RMS10.5XS	Fault	Solution
E09	 	No cooling capacity in DC power mode	Check if the device is at an angle and adjust it so it is level, if necessary. Reset the error. Contact customer service if this error occurs again.
E12	 	Gas valve test error	Gas operation is not possible. Reset the error. Contact customer service if this error occurs again.
E13	 	Internal communication error	Gas operation not possible. Reset the error. Contact customer service if this error occurs again.
E14	 	In stand-alone gas mode: The battery charge of the battery packs is too low	Insert new batteries and then reset the error.
E50		Gas lock after 3 ignition attempts	Ignition not possible. The gas cylinder is empty. Replace the gas cylinder. Reset the error.

Refrigerator operation

RM10.5T, RMS10.5T, RMS10.5XT	RM10.5S, RMS10.5S, RMS10.5XS	Fault	Solution
E51		Gas lock, internal error in the power module	Reset the error. Contact customer service if this error occurs again.
E52		Ground contact, gas valve	Reset the error. Contact customer service if this error occurs again.
E53		Ground contact, ignition electrode	Reset the error. Contact customer service if this error occurs again.

Refrigerator operation

Refrigerator door does not close

Note

If the door no longer closes, then the door handle is blocked on the opened side.

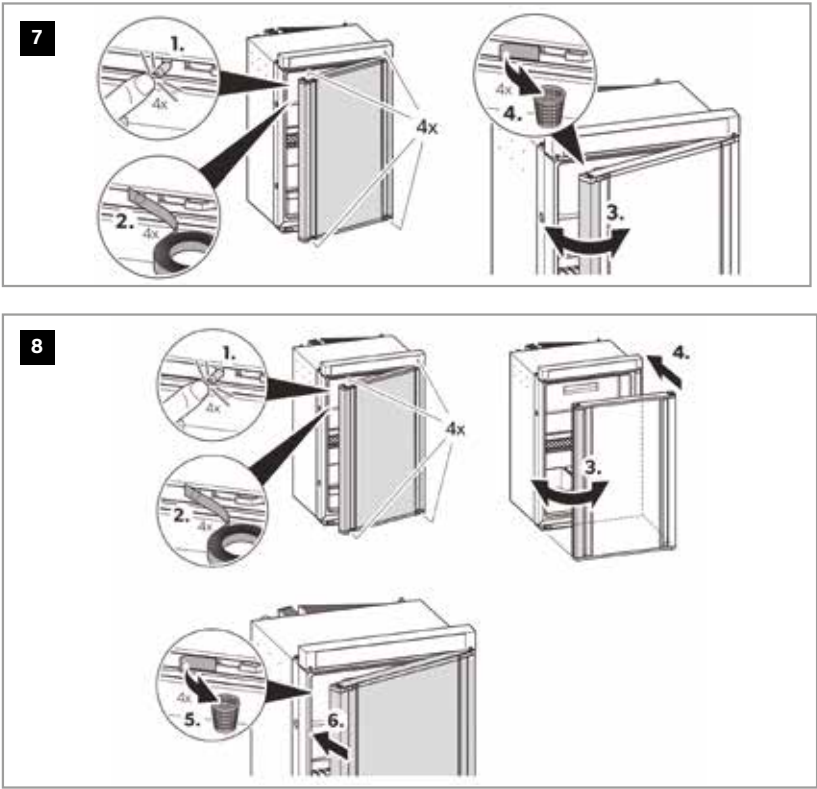
- Remove the door handle blockage as shown (fig.7).

Refrigerator door has completely detached from the device

Caution
Risk of injury

The door can completely detach from the device if the locking pins have been tampered with or are twisted.

- Remove the door handle blockage as shown (fig.8).



Refrigerator operation

Cleaning and maintenance

⚠ Warning
Always disconnect the refrigerator from the energy supply before cleaning and servicing it.

❗ Notice
When cleaning, never use sharp cleaning agents or hard or pointed tools to remove layers of ice or to loosen objects which have frozen in place.

- Clean the refrigerator regularly and when it gets dirty using a damp cloth.
- Make sure that no water drips into the seals. This can damage the electronics.
- Wipe the refrigerator dry with a cloth after cleaning.
- Check the condensate drain the condensate drain when necessary. If it is blocked, the condensate collects on the bottom of the refrigerator.

- Make sure that the ventilation grilles in the outer wall of the mobile home or caravan and the refrigerator roof ventilator are free from dust and pollutants. This ensures that the heat generated during operation can dissipate, the refrigerator is not damaged and the cooling capacity is not reduced.

Maintenance

- Have the gas system and connected flues inspected before starting up the device for the first time, and by an authorized professional every two years to ensure they comply with the national safety requirements.

- Keep a record of any maintenance performed.

Warranty


The statutory warranty period applies. If the product is defective, please contact the manufacturer's branch in your country (see dometic.com/dealer) or your retailer.

For repair and warranty processing, please include the following documents when you send in the device:

- A copy of the receipt with purchasing date
- A reason for the claim or description of the fault

Refrigerator operation

Technical data

	RM10.5(S)(T)	RMS10.5(S)(T)	RMS10.5X(S)(T)
Connection voltage:		230 V~/50 Hz 12 V---	
Capacity			
Gross capacity:	88 l	78 l	92 l
Refrigerator compartment:	78.7 l	69.1 l	80.3 l
Freezer compartment:	9.2 l	9.2 l	12.1 l
Total net capacity:	86 l	76 l	90 l
Excluding freezer compartment			
Gross capacity:	93 l	83 l	98 l
Net capacity:	91 l	81 l	96 l
Power input:		135 W (230 V~) 130W (12 V---	
Energy consumption:	2.8 kWh/24 h (230 V~)	2.5 kWh/24 h (230 V~)	3.2 kWh/24 h (230 V~)
Gas consumption:		270 g/24 h	
Climate class:		SN	
Dimensions H xWx D:	821 x 523 x 548 mm		821 x 523 x 603 mm
Weight:	28 kg	27.4 kg	29 kg
Inspection/certification:			

For the current EU Declaration of Conformity for your device, please refer to the respective product page on dometic.com or contact the manufacturer directly.

Refrigerator operation

DOMETIC RMD10

Safety Instructions

The manufacturer accepts no liability for damage in the following cases:

- Damage to the product resulting from mechanical influences and incorrect connection voltage
- Alterations to the product without express permission from the manufacturer
- Use for purposes other than those described in the operating manual

General Safety

- Never open the absorber unit. It is under high pressure and can cause injury if it is opened.
- Do not operate the refrigerator if it is visibly damaged.
- If the connection cable for this refrigerator is damaged, it must be replaced by the manufacturer, customer service or a similarly qualified person in

order to prevent safety hazards.

- This refrigerator may only be repaired by qualified personnel. Improper repairs can result in considerable danger or damage to the refrigerator.
- This refrigerator can be used by children aged 8 years or over, as well as by persons with diminished physical, sensory or mental capacities or a lack of experience and knowledge, providing they are supervised or have been instructed how to use the refrigerator safely and are aware of the resulting risks.
- Cleaning and user maintenance may not be carried out by unsupervised children.
- Children must be supervised to ensure that they do not play with the refrigerator.
- Do not store any explosive substances, such as spray cans with propellants, in the refrigerator.

CAUTION!

- Danger of crushing!
Do not place your hand on the hinge.

Food may only be stored in its original packaging or in suitable containers.

NOTICE!

- Do not open the refrigerant circuit under any circumstances.
- The refrigerant in the refrigerant circuit is highly flammable. In the event of any damage to the refrigerant circuit (smell of ammonia):
 - Switch off the refrigerator.
 - Avoid naked flames and sparks.
 - Air the room well.
- Check that the voltage specification on the type plate is the same as that of the energy supply.
- The refrigerator is not suitable for storing substances which are caustic or contain solvents.
- Keep the condensation opening clean at all times.

Refrigerator operation

- Do not use a high-pressure cleaner near the ventilation grill when cleaning the vehicle.
- Never pull the plug out of the socket by the connection cable.
- The refrigerator lighting may only be replaced by customer service.
- The refrigerator may not be exposed to rain.

Safe operation

CAUTION!

- Close the refrigerator door before beginning a journey.
- The refrigerator unit at the back of the refrigerator becomes very hot during operation. Protect yourself from coming into contact with hot parts when removing ventilation grills.
- Only store heavy objects such as bottles or cans in the refrigerator door, in the vegetable compartment or on the bottom shelf.

NOTICE!

- Do not use electrical devices inside the refrigerator unless they are recommended by the manufacturer for that purpose.
- Danger of overheating!
Always ensure sufficient ventilation so that the heat generated during operation can dissipate. Make sure that the refrigerator is sufficiently far away from walls or other objects so that the air can circulate.
- Ensure that the ventilation openings are not covered.
- Do not fill the inner container with ice or liquids.
- Protect the refrigerator and the cables from heat and moisture.
- Make sure that foodstuffs do not touch the walls of the refrigerator compartment.

Safety when operating with DC power

NOTICE!

- Only select operation with DC power supply (battery mode) if the vehicle engine is running and providing sufficient voltage to the light system, or if you are using a battery monitor.

Safety when operating with AC power

NOTICE!

- Check that the voltage specification on the type plate is the same as that of the energy supply.
- Only use the supplied connection cable to connect the refrigerator to the AC mains.
- Never pull the plug out of the socket by the connection cable.

Refrigerator operation

Safety when operating with gas

WARNING!

- Only operate the refrigerator at the pressure shown on the type plate. Only use pressure controllers with a fixed setting which comply with the national regulations.
- Never store liquid gas cylinders in unventilated areas or below ground level (funnel shaped holes in the ground).
- Keep liquefied petroleum gas cylinders away from direct sunlight. The temperature may not exceed 50 °C.
- Never operate the refrigerator with gas
 - at petrol stations
 - while driving
 - while transporting the camper van or mobile home with a transport vehicle or tow truck
- Never use a naked flame to check the refrigerator for leaks.

- In case of gas odor:
 - Close the gas supply cock and the valve on the cylinder.
 - Open all windows and leave the room.
 - Do not press an electric switch.
 - Put out any naked flames.
 - Have the gas system checked by a specialist.

NOTICE!

- Only use propane or butane gas (not natural gas).

Safety when operating with ventilation grille

NOTICE!

- Attach the winter covers of the ventilation grille when the vehicle is cleaned from the outside or not used for a prolonged period of time.

Accessories

Available as accessories (not included in the scope of delivery):

Description

Winter cover LS300 for the ventilation grille (white, other colours available on request)

Cleaning brush for cleaning the burner

Battery pack

Refrigerator compartment shelf

Freezer compartment shelf

Interior accessories package (3x large stacking box, 6x small stacking box, 1x egg tray, 4x goods holder (for locking on the shelf), 1x ice maker with aroma protection lid)

All the accessories are available from specialist dealers. If you have any questions, please contact the dealer or your service partner directly.

Intended use

The refrigerator is designed for installation in camper vans or mobile homes. It is only suitable for cooling, freezing and storing food. The refrigerator is not intended for proper storage of medicine.

Warning

Health hazard
Please check if the cooling capacity of the refrigerator is suitable for storing the food you wish to cool.

Warning

To safely operate 12V consumer units in the camper, it must be ensured that the towing vehicle provides sufficient voltage. On some vehicles, the battery management system may automatically switch off the consumer unit to protect the battery. Ask your vehicle manufacturer for more information.

Technical description

The refrigerator is an absorption refrigerator.

The refrigerator is designed for use:

- on a 12V DC power supply
- on an AC mains
- with liquefied gas (propane or butane)

NOTICE!

The refrigerator may not be run on natural gas or city gas.

The refrigerator has an automatic operating mode that selects the most economical connected type of energy.

The refrigerator is equipped with automatic gas ignition and gas monitoring.

The electronic control ensures that the refrigerator temperature is kept constant and as little power as possible is consumed.

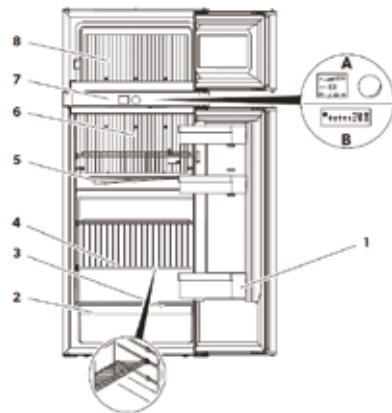
Refrigerator operation

Depending on the model, the refrigerator has either a TFT display (RMD10.5T and RMD10.5XT) or an LED display (RMD10.5 and RMD10.5X).

The refrigerator can be equipped with an optional battery compartment in the electronics housing. The battery compartment (with battery packs) provides a self sufficient power supply to ensure gas operation when no external DC power supply is available.

Refrigerator operation

Component RMD10.5T and RMD10.5XT



Description	
1	Tray
2	Vegetable compartment
3	Type plate (behind the vegetable compartment)
4	Shelf
5	Thawed water drain
6	Evaporator for cold storage
7	Control elements
8	Ice compartment

Menu navigation and operation

Press the control knob to activate the TFT display.

The main menu is divided into three lines:

Main menu	Details menu
Cooling capacity menu	
Operating mode menu	
Settings menu	

- Turn the control knob to select the desired detail menu.
- Press the control knob to open the selected detail menu.
- Turn/press the control knob to navigate through the detail menu and find settings.

Selected settings are displayed in blue.

- Confirm the selection with

This will return you to the main menu.

Setting the dimming function

The TFT display has a dimming function. After 30 seconds, the brightness of the display is reduced to the set level.

Select the setup menu

- Select
- Set the required brightness level.
- Confirm the setting with

Activating/deactivating the frame heater

The refrigerator has a frame heater in the area of the display to reduce condensation.

NOTE

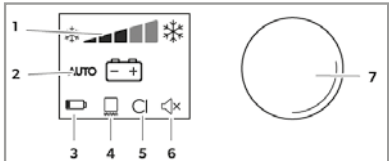
- In gas mode, the frame heater must be activated manually via the setup menu.
- A permanently switched on frame heater can lead to a faster discharge of the battery.
- Select the setup menu.
- Activate/deactivate the frame heater
- Confirm the setting with

Switching off the acoustic signal for error messages and warning messages

- Select the setup menu.
- Activate
- Confirm the setting with

RMD10.5T and RMD10.5XT

Control and display elements



The RMD10.5T and RMD10.5XT refrigerator has a TFT display and a control knob in the divider between the main compartment and the freezer compartment.

Refrigerator operation

TFT display

	Symbol	Description
1		Cooling capacity indicator: Lowest position: lowest cooling (warmest internal temperature) Highest position: highest cooling (coldest internal temperature)
2		Selected operating mode: AC power DC power Gas Automatic
3		Battery: Symbol lights up when the battery packs (optional) are inserted and the device is in stand-alone gas mode.
4		Frame heating of the freezer compartment: Symbol on: in operation Symbol off: not in operation
5		Symbol lights up when the refrigerator is connected to the CI bus.
6		Beep sound off: Error messages and warnings are not signaled acoustically Door left open period is signaled acoustically. Beep sound on: Error messages, warning messages and door left open are signaled acoustically.
7		Control knob

Refrigerator operation

Optional battery packs

If the vehicle's own 12V DC battery power supply is unavailable or if the power supply is cut off while the appliance is in operation, the electronic control unit automatically switches over to the internal battery power (if batteries are inserted).

The compartments for the battery packs (**not included in scope of delivery**) are located on the right and left under the central divider between the main compartment and the freezer compartment. A total of 12 AA batteries are needed.

Using the refrigerator

NOTICE!

- Make sure that you only put items in the refrigerator which may be chilled at the selected temperature.
- Food may only be stored in its original packaging or in suitable containers.
- Before starting your new refrigerator for

the first time, you should clean it inside and outside with a damp cloth for hygienic reasons.

- The cooling performance can be affected by
 - The ambient temperature (e.g. when the vehicle is exposed to direct sunlight)
 - The amount of food to be refrigerated
 - How often you open the door
- When using the refrigerator for the first time, there may be a mild odor which will disappear after a few hours. Air the living space well.
- Park the vehicle so that it is level, especially when starting up and filling the refrigerator before setting off on a journey.
- The refrigerator unit operates silently.
- Approximately one hour after switching on, the freezer compartment of the refrigerator should be cold. The

refrigerator reaches its operating temperature after a few hours.

- When using the refrigerator in a camper:

If the towing vehicle is equipped with an energy management system, the operation of the refrigerator with DC may not always be ensured. Further information can be obtained from the manufacturer of your towing vehicle.

Tips for using the refrigerator optimally

- When the temperature in the interior of the refrigerator exceeds +4 °C, the shelf life of goods that spoil quickly cannot be guaranteed. To attain an optimal cooling capacity in the interior of the refrigerator, observe the following information:
- Do not store goods in the refrigerator for the first 12 hours of operation.
 - Protect the interior of the vehicle from warming up excessively (e.g. sunshades in the windows, air conditioner).

Refrigerator operation

Only RMD10.5T, RMD10.5XT

In gas operation, the frame heater can be switched on manually.

- Refer to chapter "Activating/deactivating the frame heater" to turn on the frame heating manually.

Switching on the refrigerator

NOTICE

- When using gas operation: Make sure that the gas supply is ensured.
- When using the optional battery packs: Make sure that batteries are inserted.

Switching on the RMD10.5T, RMD10.5XT

- Press the control knob for 2 seconds.
- The refrigerator starts with the last selected type of power and settings.

- Protect the refrigerator from direct sunlight (e.g. sunshades in the windows).
- Voltage fluctuations can have a negative effect on the cooling capacity. Check the temperature in the interior of the refrigerator regularly
 - when using DC current during the journey
 - when using AC current at the site of use

Energy saving tips

- Choose a well ventilated position which is protected from direct sunlight.
- Allow warm food to cool down first before keeping it cool in the refrigerator.
- Do not open the refrigerator more often than necessary.
- Do not leave the doors open for longer than necessary.
- Defrost your refrigerator as soon as a layer of ice forms.

- Avoid unnecessarily low temperature settings.
- Arrange the food in the refrigerator so that air can circulate inside.
- Leave a distance of about 10 mm between the contents and secondary evaporator.

Operation at high ambient temperatures

At high outside temperatures in combination with high levels of humidity, condensation may form on the freezer compartment frame. The freezer compartment is equipped with a frame heater to reduce condensation on the frame of the freezer compartment.

The frame heater is switched on continuously in the following operating modes:

- AC operation
- DC operation (when the ignition of the vehicle is switched on)

Refrigerator operation

Switching off the refrigerator

NOTICE!

- Close the gas valve in the vehicle and the gas supply at the gas cylinder.
- If you do not use the refrigerator for a long time, remove the batteries from the battery compartment.
- If you are not going to use the refrigerator for a longer period, set up the winter setting.

Switching off the RMD10.5T, RMD10.5XT

- Press the control knob for 4 seconds.
- A beep sounds and the refrigerator switches off.

Selecting the operating mode

Warning

Observe the safety instructions in chapter "Safety instructions" on page 72

- Select the operating mode menu.
- Activate the desired operating mode.

Operating in automatic mode

In automatic mode the refrigerator automatically selects the most economical operating mode according to the following priority:

- AC power
- DC power
- Gas
- Automatic


Operating with AC power supply

Warning

Observe the safety instructions in chapter "Safety when operating" on page 73

Warning

When the energy supply is connected to AC mains, it is preferable to use this energy source.

Activate 

Operating with DC power supply

Warning

Only select operation with DC power supply (battery mode) if the vehicle engine is running and providing sufficient voltage to the light system, or if you are using a battery monitor. The cooling capacity of the refrigerator in DC operation is slightly reduced. Operate the refrigerator with AC power supply or gas until the desired cooling temperature is reached; only then switch to operation with DC power supply.

Activate 

Refrigerator operation

Gas operation


Warning

Do not attach the top winter cover (not in scope of delivery) while operating with gas. This prevents heat from building up and the fumes from the refrigerator can be extracted properly.

Warning

When operating with LPG, the burner must be cleaned frequently (two or three times a year).

- Ignition problems may occur at altitudes above 1,000m. If possible, switch to a different energy source.

Activate 

Autonomous gas mode

Warning

In autonomous gas mode, the refrigerator must be switched off manually during refueling.

For autonomous gas mode, the optional battery packs must be installed (refer to the chapter "Optional battery packs" on page 97). A connection to an AC or DC power supply is then no longer necessary.



When using 12 batteries (type AA), the refrigerator can be operated autonomously for 2 to 3 days.

Please note the following special features for autonomous gas operation:

- The refrigerator interior lighting remains switched off.
- The display turns off 2 seconds after the last activity.
- The display switches on briefly every 15 seconds. This indicates that the refrigerator is on.

- If there is a pending error message, the display switches on permanently.


RMD10.5T, RMD10.5XT

- Autonomous gas operation is indicated by the symbols  and 
- If error "E 52" is displayed, the batteries in the battery packs must be replaced.

Tank stop mode

If the vehicle's ignition is switched off, the refrigerator will switch to tank stop mode for safety reasons. This blocks gas operation for 15 minutes. After that, the refrigerator automatically switches back to regular, automatic mode.

RMD10.5T, RMD10.5XT

In tank stop mode, the  symbol is displayed.

Refrigerator operation

Setting the cooling capacity

⚠ Warning

For ambient temperatures of +15 °C to +25 °C, select the average cooling capacity. The refrigerator operates in the optimum power range.

The display shows the selected temperature:

- one bar = lowest cooling capacity
- three bars = medium cooling capacity
- five bars = highest cooling capacity

Setting the RMD10.5T, RMD10.5XT cooling capacity

- Select the cooling capacity menu.
- Set the desired temperature.
- Confirm the selection with

Using refrigerator door/freezer door

⚠ Warning

The refrigerator door or freezer door can completely detach from the device if used incorrectly.

⚠ Warning

Ensure that the refrigerator door is closed and locked before starting to drive.

⚠ Warning

Open the doors of the refrigerator carefully as items may have moved and can fall out as a result.

Do not lean on the open fridge door.

⚠ Warning

Refrigerator door and freezer door can be opened on both sides.

If the door is not locked correctly on the opposite side, push on the side up and down until it locks in place.

An incorrectly locked door is not recognised as a “door open” error.

Opening the refrigerator door/freezer compartment door.

Closing the refrigerator door/freezer door

⚠ Warning

When closing the door, make sure it locks properly at the top and bottom.

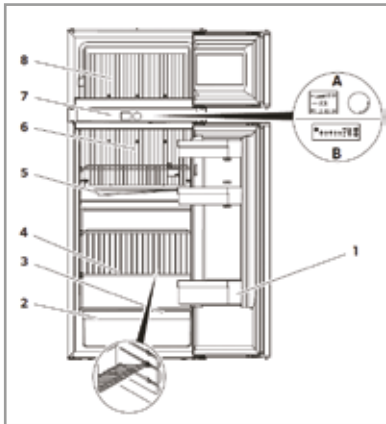
- Press the door shut until you hear it clearly click.
- The door is now closed and locked.

Notes on storing food

⚠ Warning

The maximum weight per shelf is 6 kg. The maximum weight for the entire door is 7.5 kg.

Store heavy objects such as bottles or cans only in the refrigerator door, in the lower storage compartment or on the bottom shelf.



The refrigerator compartments are recommended for the following types of food:

Food	
1	Frozen food
2	Cooked foods
3	Dairy products, prepared food, thawing goods
4	Meat, fish
5	Salad, vegetables, fruit
6	Drink in bottles or cartons
7	Dressing, ketchup, jam
8	Eggs, butter

Refrigerator operation

⚠ Warning

- Do not keep carbonated drinks in the ice compartment.
- The ice compartment is suitable for making ice cubes and for keeping frozen food short-term. It is not suitable for long-term food storage.
- If the refrigerator is exposed to a room temperature of below +10°C for a prolonged period of time, an even temperature of the ice compartment cannot be guaranteed. This can lead to a potential increase in the freezer compartment temperature and stored goods will defrost.
- Pack raw and cooked items separately.
- Observe the expiry date on the packaging.
- Do not leave refrigerated items outside the refrigerator for too long.
- Clean the inside of the refrigerator at regular intervals.

Refrigerator operation

Positioning the shelves

Warning

Children beware!

- All shelves are fixed in place to prevent children from climbing inside the refrigerator.
- Only remove the shelves for cleaning purposes.
- Afterwards, refit the shelves in the same position and lock them in place.

Using the VG fresh base

Only RMD10.5T, RMD10.5XT

Warning

Children beware!

The maximum load capacity of the VG fresh base is 5.5 kg.

Storing fruits and vegetables optimally

Using the slider in the VG fresh base, the humidity in the vegetable compartment below can be regulated.

Goods to be cooled		Optimal humidity	Slider position
Vegetables		High	ooo ➤ Close the slider.
Fruit		Low	o ➤ Open the slider.

Inserting the VG fresh base

Warning

Children beware!

To remove the vegetable compartment, the door must be open $\geq 90^\circ$.

- Remove the vegetable compartment.
- Insert the VG fresh base.
- Put the vegetable compartment back in.

Removing the VG fresh base

- Remove the vegetable compartment.
- Remove the VG fresh base.

Defrosting the refrigerator

Warning

Children beware!

Do not use mechanical tools or a hair dryer to remove ice or loosen frozen items.

Warning

Children beware!

Over time, frost builds up on the cooling fans inside the refrigerator. If this layer of frost is about 3 mm thick, you should defrost the refrigerator.

- Switch off the refrigerator.
- Disconnect the energy supply.
- Empty the refrigerator.

Refrigerator operation

- Put a cloth in the ice compartment and the refrigerator to absorb any excess water.
- Leave the door open.
- The condensation of the main cooling compartment is removed via a hose out of the ventilation grille of the vehicle.
- Wipe both compartments dry with a cloth.

Positioning the refrigerator door in the winter position

Warning

The winter position must not be used while driving.

Ensure that the refrigerator door and the freezer door are closed and locked before starting to drive.

Warning

Put the refrigerator door and the freezer door into the winter position if you are not going to use the refrigerator for a longer period of time. This prevents mold from forming.

Proceed as follows to bring the refrigerator door into the winter position:

- Defrost the refrigerator (see chapter "Defrosting the refrigerator" on page 103).
- At the top and bottom of the door in the area of the locking mechanism, pull the hook all the way out.
- Press the refrigerator door.
- The protruding pin snaps into the hook.
- Install both LS300 winter covers.

Open the door in winter mode as follows:

- Pull the door toward you.
- Push in the protruding hooks at the top and bottom of the door.
- If necessary, remove the winter cover.

Refrigerator operation

Troubleshooting

Fault	Possible cause	Suggested remedy
With AC operation: The refrigerator does not work.	The fuse in the AC mains is defective.	Replace the fuse.
	The vehicle is not connected to the AC mains.	Connect the vehicle to the AC mains.
	The AC heating element is defective.	Contact the authorised customer service.
With DC operation: The refrigerator does not work.	The fuse in the DC supply is defective.	The fuse on the relay must be replaced. Contact the authorised customer service.
	The vehicle fuse has blown.	Replace the vehicle fuse. (Please refer to the operating manual of your vehicle).
	The vehicle battery is discharged.	Test the battery and charge it.
	The ignition is not turned on.	Switch on the ignition.
	The DC heating element is defective.	Contact the authorised customer service.
	The gas cylinder is empty	Replace the gas cylinder.
	The gas valve is closed.	Twist the valve open.
With gas operation: The refrigerator does not work.	Air is in the supply line.	Switch the refrigerator off and on again. Repeat the procedure three or four times if necessary. If available, switch on the stove and repeat the process with the refrigerator if necessary.
	The mains voltage is too low.	The refrigerator changes to AC power supply automatically as soon as the mains voltage is sufficient again.
In automatic mode: The refrigerator is being operated with gas although it is connected to the AC mains.		

Refrigerator operation

Fault	Possible cause	Suggested remedy
The refrigerator is not adequately cooling.	The ventilation around the cooling unit is not sufficient.	Check that the ventilation grill is not obstructed.
	The evaporator is iced up.	Check whether the refrigerator door is properly closed. Make sure that the refrigerator seal fits correctly and is not damaged. Defrost the refrigerator.
	The temperature is set too high.	Set a lower temperature.
	The ambient temperature is too high.	Remove the ventilation grill for a while so that warm air can escape quicker.
	Too much food at once was placed in the refrigerator.	Remove an item.
	Too much warm food at once was placed in the refrigerator.	Remove the warm food and leave it to cool down before putting it in again.
	The refrigerator has not been operating for very long.	Check the temperature again after four or five hours.

Fault messages and signal tones

⚠ Warning
All faults of the type ERROR must be reset manually.
All faults of the type WARNING are reset automatically once the fault has been rectified.
Contact customer service if you cannot remedy the fault yourself.

All faults are indicated with a warning symbol, a fault ID and a beep. The beeping lasts for 2 minutes and is repeated every 30 minutes until the error has been rectified.

If multiple faults occur, the display shows the last fault. The underlying faults are displayed after the last fault has been confirmed.

RMD10.5T, RMD10.5XT

Faults are caused by a fault code with a warning symbol (⚠) in the middle of the display.

Reset ERROR type faults manually:

- Press the control knob for 2 seconds.
- A beep sounds.
- The error has been reset.

Refrigerator operation

Code	LEDs	Fault	Type	Solution
W01		Temperature sensor in the refrigerator compartment is defective	Warning	Replace the temperature sensor.
E03		No connection between power module and display	Error	Check the connection between the power module and display. Reset the error manually.
W05		AC power not connected or AC voltage < 190V	Warning	Connect the refrigerator to AC or select a different energy type, e.g. gas or DC.
W06		DC power not connected	Warning	Connect the refrigerator to DC or select a different energy type, e.g. gas or AC.
E07		No cooling capacity in gas mode	Error	Check if the unit is at an angle and adjust it if necessary. Reset the error manually. Contact customer service if this error occurs again.
E08		No cooling power in AC operation	Error	Check if the unit is at an angle and adjust it if necessary. Reset the error manually. Contact customer service if this error occurs again.
E09		No cooling power in DC mode	Error	Check if the unit is at an angle and adjust it if necessary. Reset the error manually. Contact customer service if this error occurs again.
W10	Beep	Door is open for more than 2 minutes; a signal tone is emitted.	Warning	Close the door.
W11		DC overvoltage (> 16V).	Warning	Reduce DC supply voltage.

Refrigerator operation

Code	LEDs	Fault	Type	Solution
E12		Gas valve check error	Error	Gas operation is not possible. Reset the error manually. Contact customer service if this error occurs again.
E13		Internal communication error	Error	Gas operation not possible. Reset the refrigerator. Reset the error manually. Contact customer service if this error occurs again.
E50		Gas lock after 3 ignition attempts	Error	Ignition not possible. The gas cylinder is empty. Replace the gas cylinder. Reset the error manually.
E51		Gas lock, internal error in the power module	Error	Reset the error manually. Contact customer service if this error occurs again.
E52		Ground contact, gas valve	Error	Reset the error manually. Contact customer service if this error occurs again.
		In autonomous gas operation: The battery charge of the battery packs is low.	Error	Insert new batteries.
E53		Ground contact ignition electrode	Error	Reset the error manually. Contact customer service if this error occurs again.
		Tank stop mode: Gas operation is blocked for 15 minutes.	Warning	Wait 15 minutes or switch to another operating mode.
		Recurring beeps	Warning	Close the door.

Refrigerator operation

Cleaning and maintenance

Warning

Always disconnect the refrigerator from the energy supply before you clean and service it. Working on gas and electrical installations may only be performed by qualified technicians.

Warning

Do not use abrasive cleaning agents or hard objects during cleaning, as these can damage the refrigerator. Never use hard or sharp tools to remove ice or to free objects frozen onto the device. Do not use any mechanical tools or any other tools to speed up the defrosting process. The internal parts of the refrigerator (vegetable compartment and shelves) are not suitable for dishwashers. They can be damaged if they are cleaned in a dishwasher.

- As soon as the refrigerator gets dirty, clean it with a damp cloth.
- Make sure that no water drips into the seals. This can damage the electronics.
- Wipe the refrigerator dry with a cloth after cleaning.
- Check the condensate drain regularly.
- Clean the condensate drain when necessary. If it is blocked, the condensate collects on the bottom of the refrigerator.
- Make sure that the ventilation grilles in the outer wall of the RV or caravan and the refrigerator roof ventilators are free from dust and pollutants. This ensures that the heat generated during operation can be dispersed, the refrigerator is not damaged and the cooling capacity is not reduced.

Caravan equipment

Oven, hob and grill

Warning

The hotplate indicator will illuminate if the hotplate is hot. DO NOT shut the lid if this light is lit. The electrical supply can be isolated by removing the 3 pin plug under the oven behind the pan flap.

Thetford Introduction

This appliance has been installed in accordance with the local, national and European regulations in force. Particular attention has been given to the requirements regarding ventilation. Read the instructions before using the appliance.

Thetfords policy is one of continuous development and improvement. Specifications and illustrations may change subsequent to publication.

Provision of Ventilation

The use of a gas cooking appliance results in the production of heat and moisture in a room in which it is installed. Ensure that the kitchen is well ventilated, keep natural ventilation holes open or install a mechanical ventilation device (mechanical extractor hood).

Prolonged intensive use of the appliance may call for additional ventilation, for example opening a window, or more effective ventilation, for example increasing the level of mechanical ventilation where present.

Warning

Shut off gas supply at isolating valve, switch off electric supply and ensure all parts are cool before cleaning or servicing.

All servicing must be carried out by an approved competent person. After each service the appliance must be checked for gas soundness. This appliance must not be modified or adjusted unless authorised and carried out by the manufacturer or his representative. No parts other than those supplied by the manufacturer should be used on this appliance. If the supply cord is damaged, it must only be replaced by the manufacturer or his representative in order to avoid a hazard.

Caravan equipment

Thetford Oven

This from the user manual for your Thetford cooker. Read the safety instructions and information on use and maintenance of the cooker carefully before continuing. This will enable you to use the cooker safely and efficiently. Retain this manual for future reference.

For the latest version of this manual, please visit www.thetford.com.

Safety

- This appliance may be used by children aged 8 years or older and persons with reduced physical, sensory or mental capabilities and/or lack of experience and knowledge only if they are supervised or have been given instructions on the safe use of this appliance and understand the potential hazards.
- Keep children younger than 8 years away from the appliance, except under constant supervision.

- Do not allow children to play with the appliance.
- Do not allow children to clean or maintain this equipment unattended.
- Use only parts supplied by the manufacturer.
- Do not change or adjust anything on the appliance, unless the change is authorised by the manufacturer or its representative.

- If the power cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Use the appliance for cooking only and not for anything else, for example room heating. This can lead to carbon monoxide poisoning and overheating. The manufacturer cannot be held liable for damage resulting from improper use or incorrect setting of the controls.
- This appliance is not intended to be operated by means of an external timer or separate remote control system.

- The use of this gas cooking appliance results in the production of heat, moisture and products of combustion in the room in which it is installed.
- Ensure the room has sufficient ventilation when the appliance is in use. During prolonged use, additional ventilation may be needed by opening a window or increasing the extraction force of the hood.
- Never extinguish a cooking fire with water. Turn the burner off and cover the flame with a lid or a fire blanket.
- The appliance and its accessible parts become hot during use. Care should be taken to avoid touching heating elements.
- The cooking process must be supervised. A short term cooking process must be supervised continuously. Unattended cooking on a hob with fat or oil can result in fire. Do not leave the appliance unattended when in use.

- The use of inappropriate hob guards can cause accidents.
- Danger of fire, do not store items on the cooking surface of the hob.
- The food shelves and trays in the appliance are hot during and after use. Allow all parts to cool before touching them, as this can cause serious injury.
- Always use oven gloves when removing the shelves and trays.
- Do not store items in the appliance.
- Do not put heavy objects on the open appliance door.
- The appliance and accessible parts become hot when the grill is in use. Young children should be kept away.



- Caution, hot surfaces. Door must be open when grill is in use. In the event that abnormal drift in cooking

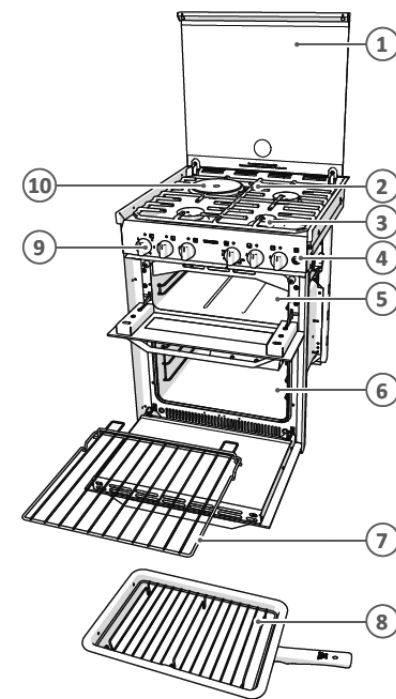
temperature of the oven is observed, have the thermostat checked by a qualified service engineer.

- Care should be taken not to overload the oven, allowing adequate spacing to ensure free circulation of heat.
- Do not use steam cleaners or pressure washers to clean the appliance. See Maintenance and cleaning for instructions.
- Do not allow oil or fat to build up on the appliance. Clean the appliance after each use.
- Before cleaning or maintenance work the appliance must be left to cool and be disconnected from the gas and electrical supplies.
- The glass lid may snap shut towards the end of lowering due to the travel-lock action of the hinges. Make sure all fingers are clear of the appliance when closing the lid.
- Do not use harsh abrasive cleaners or sharp metal scrapers to clean the

surface of the glass, since they can scratch the glass surface which may result in shattering of the glass.

- Remove any spillage from the glass lid before opening the lid.
- Do not shut the glass lid when the burners are lit or still warm.





Main components

1. Glass lid
2. Pan supports
3. Gas burners
4. Spark ignition (optional)
5. Grill
6. Oven
7. Oven shelf
8. Grill pan
9. Control panel
10. Electric hotplate (Dual Fuel only)

The types of burners may vary depending on the type of appliance. Refer to Technical specifications for further details.

Before use

Before using the appliance:

- Ensure that all packaging materials have been removed.
- Clean the appliance with warm water and household detergent and dry carefully with a soft cloth.
- Ensure that the gas supply is connected and turned on.

- Ensure that the appliance is connected to the 12V DC battery for the cooling fans and spark ignition.
- Ensure that the pan supports are positioned properly.
- Ignite the gas burners and let them burn to expel odours and vapours first.
- Ignite the burner and heat the grill for about 20 minutes to eliminate any residual factory lubricants that might impart unpleasant smells to the food being cooked. Smoke may occur during this procedure. Open any windows and turn on mechanical ventilators to help remove the smoke.
- Ignite the burner and heat the oven for about 30 minutes at 200°C to eliminate any residual factory lubricants that might impart unpleasant smells to cooked food. Smoke may occur during this procedure. Open any windows and turn on mechanical ventilators to help remove the smoke.

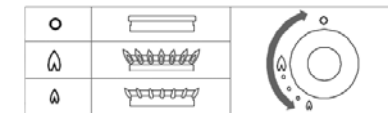
Dual fuel only:

- Ensure the electricity is connected and switched on.
- Prime the hotplate by switching on the hotplate for a short period, without a pan, to harden and burn off the coating. Use a medium to high setting for 3 - 5 minutes. Allow adequate ventilation to disperse any smoke that occurs during this process. Allow the hotplate to cool.
- Season the hotplate by heating the hotplate for 30 seconds on a medium setting and then switching off. Pour a minimal amount of unsalted vegetable oil onto a clean dry cloth or paper towel, and apply a thin coat of oil to the hotplate surface. Wipe off any excess oil, then heat the hotplate on a medium setting for 1 minute. Occasional seasoning will help to maintain the hotplate's appearance.

Warning

Only use LPG (Liquefied Petroleum Gas). The appliance operates on propane or butane. Propane is preferred over butane, because butane provides poor performance at an ambient temperature below 10°C and cannot be used at an ambient temperature below 5°C.

Use of the burners



For the exact location of the control knobs, see main components. Turning on:

- Push and turn the control knob.
- Turn the control knob anti-clockwise to the full rate position.
- Push the ignition button
- Keep the control knob pressed for about 10-15 seconds and then release it.

- Adjust the height of the flame.

Warning

If the burner accidentally extinguishes turn the control knob to the 0 position and wait at least 1 minute before re-igniting the burner. If the burner has not lit within 15 seconds turn the control knob back to the 0 position and release it. Wait at least 1 minute and repeat the steps above to turn on the appliance.

Turning off:

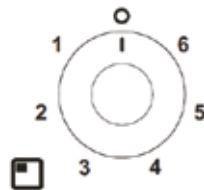
- Turn the control knob clockwise to the 0 position to turn off the burner.

Warning

Always make sure the control knob is in the 0 position when you have finished using the gas burners. Do not shut the glass lid when the burners are lit or still warm.

Caravan equipment

Use of the electric hotplate (if applicable)



For the exact location of the control knob, see main components. Turning on:

- Rotate the control knob either clockwise or anti-clockwise to the required position (1 - 6).

Warning

For maximum efficiency, a correctly sized pan with a flat heavy gauge base should be used. The pan size should be the same or slightly larger than the hotplate (up to 1" / 2.5cm oversize).

Turning off:

- Turn the control knob to the 0 position to turn off the hotplate.

Warning

Always make sure the control knob is in the off position when you have finished using the hotplate. Do not shut the glass lid when the hotplate is turned on or still warm.

Use of the grill



For the exact location of the control knob, see main components.

Turning on:

- Open the door and push the control knob.
- Continue pressing the control knob and turn it anti-clockwise to the

full rate position.

- For spark ignition models: Push the ignition button.
- For non-ignition models: Hold a lit match or gas match to the burner.
- Keep the control knob pressed for about 10-15 seconds and then release it.
- Adjust the required heat setting.
- Depending on the food to be cooked, the correct grilling height can be achieved by inverting the pan trivet into either the high or low position.
- The grill pan supplied is multi-functional, for use in grill or oven and the handle design allows removal or insertion whilst the pan is in use. Always remove the handle when the pan is in use.

Warning

The grill door must remain open when lighting and using the grill. If the burner accidentally extinguishes turn the control knob to the 0 position and wait at least 1 minute before re-igniting the burner. If the burner has not lit within 15 seconds turn the control knob back to the 0 position and release it. Wait at least 1 minute and repeat the steps above to turn on the appliance. Although the grill heats up quickly, it is recommended that a few minutes preheat be allowed. It is normal for the flames on this burner to develop yellow tips as the grill heats up.

Turning off:

- Turn the control knob clockwise to the 0 position to turn off the grill.

Warning

Always make sure the control knob is in the 0 position when you have finished using the grill.

Use of the oven

For the exact location of the control knob, see main components.

Turning on:

- Open the door and push in the control knob.
- Continue pressing the knob and turn it anti-clockwise to the full rate position (240°C, gas mark 9).
- Push the ignition button.
- Keep the control knob pressed for about 10-15 seconds and then release it.
- Adjust the required heat setting.
- Place the oven shelf in the required position and close the door.

Warning

Ignition must always be carried out with the oven door open. If the burner accidentally extinguishes turn the control knob to the 0 position and wait at least 1 minute before reigniting the burner. If the burner has not lit within 15 seconds turn the control knob back to the 0 position and release it. Wait at least 1 minute and repeat the steps above to turn on the appliance. Although the oven heats up quickly, a 10 minute preheat is recommended. The oven should reach full temperature in about 15-20 minutes.

Turning off:

- Turn the control knob clockwise to the 0 position to turn off the oven.

Warning

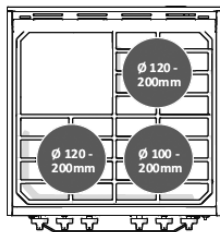
Always make sure the control knob is in the 0 position when you have finished using the grill.

Caravan equipment

Caravan equipment

Safe cooking

- Do not allow cooking vessels to overlap the edges of the appliance - use the correct sizes of pans and position them centrally over the burners.



- Ensure that there is at least a 10mm gap between the pans and the edges of the hob.
- Turn the pans so that the handles do not overhang the front of the appliance.
- Ensure that the flame of the gas burner heats the bottom of the pan, not the sides.
- The pans and trays supplied with this appliance are the maximum sizes.

Do not use larger pans and trays. They may restrict good circulation of heat, which may increase cooking times.

- Do not leave the appliance unattended when in use.
- Do not use the appliance while the vehicle is moving.
- Turn the control knob back to the 0 position after cooking.
- Keep the appliance clean and prevent accumulation of grease and food scraps.

Warning

Never cover slots or holes in the appliance and never cover a shelf with materials such as aluminium foil. That restricts the airflow and may cause carbon monoxide poisoning. The food shelves and trays in the appliance are hot during and after use. Allow all parts to cool before touching them, as this can cause serious injury. Always use oven gloves when removing the shelves and trays.

Temperature control

The temperature in the oven is controlled by a thermostatic gas tap and is variable over the range 120°C to 240°C.

Warning

Care should be taken not to overload the oven, allow adequate spacing to ensure free circulation of heat. When roasting with aluminium foil ensure the foil does not impair circulation of heat or block any oven flue outlet.

Maintenance and cleaning

Thetford recommends an annual inspection service by an approved service centre. Between annual servicing, clean the appliance regularly after use. Before any cleaning work is started, the appliance should have been left to cool and be disconnected from the gas and electrical supplies.

- Always remove any spills or contamination immediately after use with soap and hot water. Towel dry the surface with a soft cloth.
- Use a non-abrasive multi-purpose cream cleaner and a nylon scourer pad to clean more stubborn dirt or grease.
- Use a proprietary stainless steel cleaner or polish to remove superficial surface scratching.

Warning

Do not use abrasive cleaners, metal scouring pads or hard brushes. They could damage the appliance.

Warning

If you clean the burner rings, ensure that the holes are not clogged. Do not use harsh abrasive cleaners or sharp metal scrapers to clean the glass surface, since they can scratch the glass surface which may result in shattering of the glass. Do not leave wet cloths, cleaning pads, residues of food or cleaning products or other dirt to dry on the surface. It can cause pitting, marking or even rusting. Always clean in the direction of the brushed finish and not across the grain. Cleaning agents containing bleach should not be left in contact with stainless steel. Mineral content in water (such as iron or lime scale) can affect the appearance of the metal. Remove any spillage from the glass lid before opening the lid. The control knobs can be removed for cleaning. The knobs are easy to replace.

Gas leaks

As soon as you smell gas:

- Ensure that all burners are turned off.
- Extinguish all naked lights and do not smoke.
- Shut off the gas supply at the gas bottle immediately.
- Do not use electrical switches.
- Open all doors and windows.

Warning

LPG is heavier than air. Escaping gas accumulates at lower levels. By following the strong, unpleasant smell of gas, you can determine where the leak is located. To investigate where it is exactly, use a special leak detection spray. Never use an open flame to find the leak!

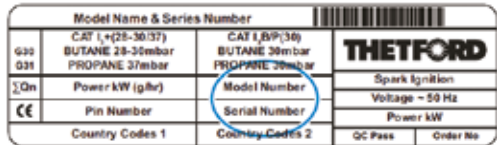
Troubleshooting

Problem	Possible cause	Solution
Burners do not burn or burn unevenly	Gas bottle is empty as tap is closed. Burner caps are not correctly positioned. Burners are wet or clogged.	Change gas bottle. Open tap. Allow caps to cool, then re-position them. Dry or clean burners.
Spark ignition does not spark	12V DC battery is discharged. Connections are loose. Ignition points are wet or dirty.	Charge battery. Secure connections. Dry or clean ignition points.
Control knobs do not function	Knobs are mounted incorrectly.	Install knobs correctly.

Servicing


All servicing must be carried out by an approved competent person. Before any service work is started, the appliance should have been left to cool and be disconnected from both the gas and electrical supplies. After each service the appliance must be checked for gas soundness and electrical safety.

For service, please contact your authorised local Service Centre giving details of the model and serial number on the data badge plus date of purchase.



Putting in storage

- Close the gas valve at the gas bottle.
- Dual fuel only: Disconnect the electrical supply.
- Spark ignition models only: Disconnect the battery.
- Ensure that the control knobs are in the 0 position.
- Close the glass lid.
- Close the grill door.
- Close the oven door.
- Wipe the appliance clean and dry.

**Warning**
This appliance is suitable for use with LPG (Liquefied Petroleum Gas) and should not be used with any other gas. This appliance must be earthed.

To reduce energy use on the hob while cooking:

Warranty

Thetford BV offers the end users of its products a three-year warranty. In the case of malfunction within the warranty period, Thetford will replace or repair the product. In this situation, the costs of replacement, labour costs for the replacement of defective components and/or the costs of the parts themselves will be paid for by Thetford.

Purchased spare parts carry a one-year warranty. Any fitting and/or labour costs are not covered by warranty.

- Use the correct size of pan - a pan which fits the hotplate will use less energy than one that is too large or too small.
- Use the minimum heat setting to maintain simmering or boiling - additional heat is just wasted.
- Cover pans or kettles with a lid whenever possible - this helps to retain heat.
- Do not use old, damaged or distorted pans, they will reduce efficiency

Questions

If you have questions about your product, parts, accessories or authorised services:

- Visit www.thetford.com.
- If you cannot solve a problem, contact the authorised local Service Centre or Thetford Customer Service in your country.

1. To submit a claim under this warranty, the user must take the product to an authorised Thetford Service Partner. The claim will be assessed there.
2. Components replaced during repair under warranty become the property of Thetford.
3. This warranty does not prejudice current consumer protection laws.

4. This warranty is not valid in the case of products that are used for commercial purposes.
5. Warranty claims falling into one of the following categories will not be honored:
 - The product has been improperly used or the instructions in the manual have not been followed;
 - The product has not been installed in accordance with the instructions;
 - Modifications have been made to the product;
 - The product has been repaired but not by an authorised Thetford Service Partner;
 - The serial number or product code has been tampered with or removed;
 - The product has been damaged by misuse.

Caravan equipment

Microwave oven

All our caravans are fitted with a microwave oven, for usage instructions please refer to the Manufacturers Operation Manual and Cookbook. We would however draw your attention to the following important safety instruction and information.

Important safety instructions

Please read carefully and keep for future reference.

Microwave Oven Use:

- The oven is for domestic food use only.
- Never operate the oven when empty.
- Do not leave or store anything inside the oven when not in use.
- Never attempt to use the oven with the door open. It is important not to force or tamper with the door safety latches.
- Never operate the oven with any object caught in the door.

- Do not insert fingers or objects in the holes of the door latches or air-vent openings as this may damage the oven and cause an electric shock.
- If water or food drops inside the air vent openings switch off the oven immediately, unplug it and call an approved service facility.

⚠ Warning

Never allow children to use the microwave oven without adult supervision.

⚠ Warning

Liquids and other foods must not be heated in sealed containers since they are liable to explode. Microwave heating of beverages can result in delayed eruptive boiling, therefore care has to be taken when handling the container. Stir the liquid prior to and during heating/ reheating, let liquid stand for at least 20 seconds in the oven after cooking.

⚠ Warning

If smoke is observed, switch off and unplug the appliance and keep the door closed in order to stifle any flames.

How your microwave oven works

Microwaves are energy waves, similar to those used for TV and radio signals.

Electrical energy is converted into microwave energy, which is directed into the oven cavity via a waveguide. To prevent food and grease entering the waveguide it is protected by the waveguide cover.

Microwaves cannot pass through metal, because of this the oven cavity is made of metal and there is a fine metal mesh on the door. During cooking the microwaves bounce off the sides of the oven cavity at random.

Microwaves will pass through certain materials, such as glass and plastic, to heat the food.

Water, sugar and fat in food absorb microwaves which cause them to vibrate. This creates heat by friction, in the same way your hands get warm when you rub them together.

Once cooking is complete the oven automatically stops producing microwaves.

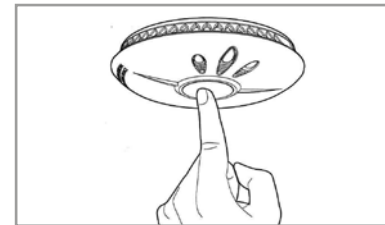
Standing time is necessary after cooking, as it enables the heat to disperse equally throughout the food.

⚠ Warning

Microwaves are not designed to run continuously for over 20 minutes. If in hot conditions the microwave stops, then it may have tripped into a thermal overload condition. Allow the microwave to cool down and then reset if required.

Smoke alarm

The smoke alarm fitted to your caravan is approved for use in caravans and motor homes. The National Caravan Council (NCC) requires that all new or used touring caravans sold by its members be fitted with a smoke alarm featuring an alarm silence facility.



WARNING

Test smoke alarm operation after caravan has been in storage, before each trip and at least once per week during use.

⚠ Warning

A different smoke alarm to the one illustrated may be fitted (subject to availability) but it still meets the criteria above.

For further information on use of the alarm, battery replacement, testing etc., refer to the manufacturer's literature contained in the Owner's Information Pack.

Poisonous gas (CO) alarm

FireAngel manufactures some of the most technologically advanced carbon monoxide detectors in the world.

Introduction

The Carbon Monoxide Poisonous Gas Alarm which is fitted to your caravan is one of a new generation of domestic life safety products from FireAngel Limited, which combines the latest technology and innovative design to provide an aesthetically pleasing and effective

Caravan equipment

contribution to your home safety.

The FireAngel range of products is constantly being improved and expanded. Please visit www.fireangel.co.uk to find out about the latest additions to our product range.

Operating Features

- An advanced electrochemical sensor designed to accurately measure low levels of carbon monoxide (CO) providing an early warning of toxic CO levels in your home.
- Detects carbon monoxide continuously.
- Resistant to false alarms caused by normal household contaminants.
- Sounds a loud 85dB alarm (at 1 meter (3 feet)) to alert you in case of an emergency.
- Test/reset button.
- Regular self-check to ensure detector is operating correctly.

- Simple to mount, portable, ideal for travelling.
- Independently tested to confirm to the European Carbon Monoxide Alarm Standard BS EN 50291 : 2001.
- 7 year warranty

Carbon Monoxide and how it can affect you and your family.

Carbon monoxide is a dangerous, poisonous gas that kills hundreds of people each year and injures many more. It is often referred to as the silent killer because it has no odour or taste and cannot be seen.

Like oxygen, CO enters the body through the lungs during the normal breathing process. It competes with oxygen by replacing it in the red blood cells, thereby reducing the flow of oxygen to the heart, brain and other vital organs. In high concentrations CO can kill in minutes.

Many cases of reported carbon monoxide poisoning indicate that

while victims are aware they are not feeling well, they become disorientated and unable to save themselves by either exiting the building or calling for assistance. Exposure during sleep is particularly dangerous because the victim usually does not wake up.

Symptoms of CO poisoning

The following symptoms may be related to CO poisoning which all household members should be made aware of:

- Mild Exposure: Slight headache, nausea, vomiting, fatigue (often described as 'flu-like' symptoms).
- Medium Exposure: Severe throbbing headache, drowsiness, confusion, fast heart rate.
- Extreme Exposure: Unconsciousness, convulsions, cardiorespiratory failure, death.

Your FireAngel CO detector monitors the level of CO as parts per million (ppm) in the atmosphere surrounding the detector.

35ppm The maximum allowable concentration for continuous exposure for healthy adults in any 8 hour period, as recommended by the Occupational Safety and Health Administration (OSHA)

200ppm Slight headache, fatigue, dizziness, nausea after 2-3 hours.

400ppm Frontal headaches within 1-2 hours, life threatening after 3 hours.

800ppm Dizziness, nausea and convulsions within 45 minutes. Unconsciousness within 2 hours. Death within 2-3 hours.

Should you suspect CO may be affecting you and your family, open the doors and windows of your caravan to ventilate, turn off your appliances and evacuate the caravan. At this time the authorities should be contacted to locate the source of the carbon monoxide before re-entering the caravan. Medical attention

should be sought for anyone suffering the effects of CO poisoning.

Common sources of CO

- Oil and gas boilers
- Portable generators
- Oil or solid fuel cookers
- Gas or paraffin heaters
- Barbecues
- Clogged chimneys
- Wood or gas fireplaces
- Cigarette smoke
- Gas appliances
- Any fossil fuel burning appliance

Warning

This FireAngel carbon monoxide detector is not a combustible gas detector, nor a smoke detector. Do not use this carbon monoxide detector on an intermittent basis, or as a portable detector for trying to trace one source of the spillage of combustion products from fuelburning appliances or from chimneys.

Caravan equipment

Warning

DO NOT:

- IGNORE ANY WARNING FROM YOUR CO DETECTOR!
- Burn charcoal inside your home, caravan, tent or cabin.
- Install, convert or service fuelburning appliances without proper knowledge, skill and expertise.
- Use a gas cooker for heating a room.
- Operate unvented gas burning appliances using paraffin or natural gas in closed rooms.
- Operate petrol-powered engines indoors or in confined areas.
- Barbecue indoors, or in an attached garage.
- Ignore a safety device when it shuts an appliance off.

ALWAYS

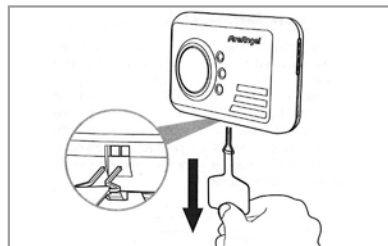
- Buy appliances accepted by a recognised testing laboratory.
- Install appliances according to the

Caravan equipment

manufacturer's instructions.

- Have appliance installations carried out by professionals (for gas appliances engineers should be registered on the Gas Safe register)
- Have your appliances checked regularly by a qualified service engineer.
- Have your chimneys and flues cleaned professionally every year.
- Make regular visual inspections of all fuel-burning appliances
- Open windows when a fireplace or oil/solid fuel cooker is in use.
- Only install CO detectors that meet the requirements of BS EN 50291:2001 in your home
- Be aware of CO poisoning symptoms.

EDUCATE YOURSELF AND YOUR FAMILY ON THE SOURCES AND SYMPTOMS OF CO POISONING AND HOW TO USE YOUR CARBON MONOXIDE DETECTOR.



Power pack activation

See Diagram

- Your detector comes complete with an integrated power pack that will provide power for its entire operational life. To activate the power pack you need to pull the disabling tab (see image). This will in turn pull out the metal disabling clip, which is attached to the end of the tab, from the disabling socket which is situated on the underside of the detector. Retain the disabling tab for future use.
- When the detector is activated the Power LED will begin to flash green once every minute to indicate that the

detector is receiving power from the power pack and is fully operational.

- Test the sounder, power pack and circuitry by pressing and holding the centre of the Test/Reset button briefly to confirm that the detector is operating properly. The sounder will sound as soon as the button is pressed and the Alarm LED will illuminate red indicating that the sounder is working and the power pack is providing power to the unit. This test for the sounder, power pack and circuitry should be performed on a weekly basis. This should be continued for the lifetime of the product.

⚠ Warning

Prolonged exposure to the sounder in close proximity to your ears may damage your hearing. Under normal operating conditions, the power pack will last for the lifetime of the product i.e. 7 years. The detector will not protect against the risk of carbon monoxide poisoning when the power pack has drained.

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⚠ Warning

Constant exposure to extreme high or low temperatures may reduce the life of the power pack.

Carbon Monoxide poisonous gas alarm

Test/Reset button feature

This button will:

- Test the sounder, power pack and circuitry
- Allows you to test the sensor by introducing a source of CO into the detector (See 'Testing the Sensor' below).
- Silence the loud 85dB (at 1 meter (3 feet)) sounder during an alarm (only for alarms due to levels of CO of less than 50ppm)

Testing the sounder, power pack and circuitry

Test the sounder, power pack and circuitry by pressing and releasing the Test/Reset button to confirm that the detector is

operating properly. The sounder should sound as soon as the button is pressed, and the Alarm LED will illuminate red indicating that the sounder is working and the power pack is providing power to the unit. This test for the sounder, battery and circuitry should be performed on a weekly basis.

Testing the sensor

NOTE: We suggest the use of an incense stick or cigarette as the inefficient way in which these products burn means the smoke given off contains a detectable localised amount of carbon monoxide. Alternative sources of smoke, for example an extinguished candle or match, will not contain sufficient levels of carbon monoxide to obtain a response from the detector during this test. Please note your CO detector will not detect smoke.

CAUTION: Sensor testing should only be performed by a responsible adult. This test should only be performed once a month. Excessive testing will cause the life of the power pack to be shortened.

NOTE: CO test kits may be used in order to avoid having to burn cigarettes, incense sticks etc. However we recommend that incense sticks are used as they are cheap and readily available.

- Read all steps thoroughly before attempting the sensor test.

Step 1 If the detector is wall or ceiling mounted unhook the detector from the screws.

Step 2 Cover the sounder vents with one hand. Press and hold the Test/Reset button down with your thumb/finger until the Fault LED illuminates yellow and the sounder sounds for a second time (this should happen after around 5 seconds). Release the Test/Reset button. Upon releasing the Test/Reset button the Fault LED will flash yellow once every second. This indicates that the sampling rate of the detector has increased and can be tested using a known source of CO.

Step 3 Light a cigarette or an incense stick using a match or lighter. If using an incense stick be sure to blow out the

Caravan equipment

flame so that incense stick is smouldering. Extinguish the lighter, or put out the match and place it in a dish of water.

Step 4 Turn the detector on its side so that the vents on the right hand side of the detector are pointing downwards (See diagram). Hold the burning cigarette or incense stick 15 – 20cm (6 – 8 inches) below the detector, so that the smoke enters the vents on the side of the detector. An increase in the localised carbon monoxide level within the sensor to more than 50ppm will cause the sounder to sound for one cycle of four loud beeps and the Fault LED to illuminate yellow for a short time. This will end the test.

The Fault LED will no longer flash yellow and the detector will go back to normal operating mode i.e. the Power LED will flash green once every minute (it may take up to two minutes of exposure to the smoke for the localised level of carbon monoxide within the sensor to reach over 50ppm). Now move the source of CO away from the detector as the test is finished.

Step 5 After step 4, put out the incense stick or cigarette by placing it into a dish of water. Ensure that all flames have been extinguished.

NOTE If the localised carbon monoxide level within the sensor does not reach 50ppm during the test, the sensor test will stop automatically after 3 minutes.

Understanding the product's indicator

The higher the concentration of carbon monoxide detected by the detector, the quicker it will respond. When sufficient carbon monoxide is detected a loud audible signal *8.5 dB at 1m (3 feet) will be emitted and the Alarm LED will flash red **once every second**.

The Alarm will sound:

- Between 60 and 90 minutes when exposed to 50ppm of CO
- Between 10 and 40 minutes when exposed to 100ppm of CO

- Within 3 minutes when exposed to 300ppm or more of CO.

Fault/low power pack signal:

The unit continuously checks the settings of its sensor and circuitry. If any of these settings are found to be incorrect or if the power pack becomes low then the detector will emit a single chirp once per minute and the Fault LED will flash yellow once per minute for up to 30 days.

IMPORTANT:

This does NOT mean that the detector has detected carbon monoxide.

If the product is still within warranty then contact technical support. If the product is no longer in warranty replace immediately!

IMPORTANT:

The selected power pack was chosen to provide power beyond the lifetime of the product, in particular the sensor (under normal operating conditions).

The sensor life is seven years. For this reason, the detector should be replaced

after seven years from the date of installation.

FireAngel Technical Support Line
e-mail: technicalsupport@fireangel.co.uk

Maintaining/testing your detector

Maintenance

Your detector will alert you to potentially hazardous CO concentrations in your caravan when maintained properly. To maintain your FireAngel detector in proper working order, and to ensure that the sensor will last for the lifetime of the product, it is recommended that you:

- Test the sounder, power pack and circuitry of your detector at least once per week by pressing the Test/Reset button briefly.
- Perform the Sensor Test once every month.
- Keep the detector free of dust by gently vacuuming the case with a soft brush attachment once per month.

To prevent the possibility of contaminating the sensor in your detector and thus affecting its reliability:

- Never use cleaning solutions on your detector. Simply wipe with a slightly damp cloth.
- Do not paint the detector
- Do not spray aerosols on or near the detector
- Do not use any solvent based products near the detector.
- Move the detector to a safe location and store in a plastic bag before performing any activities using substances that emit strong fumes. Remember to remove it from the bag and replace the detector when these activities are finished.

Failure of any test should be reported to the Technical Support Team.

Do not attempt to repair your CO detector. Do not remove any screws or open the main casing of your detector. Any attempt

to do so may cause malfunction and will invalidate the warranty.

What to do in the event of an alarm

WARNING

A loud alarm is a warning that unusually high and potentially lethal levels of carbon monoxide are present. Never ignore this alarm, further exposure can be fatal. Immediately check residents for symptoms of carbon monoxide poisoning, and contact the proper authorities to resolve all CO problems. **NEVER IGNORE ANY ALARM.**

Please carefully review the owner's manual to ensure that you know what actions to take in the event of an alarm.

What to do during an alarm

- Keep calm and open the doors and windows to ventilate the caravan.
- Turn off appliances where possible and stop using the appliances.

Caravan equipment

- Evacuate the caravan leaving the doors and windows open.
- Do not re-enter the property until the alarm has stopped. When exposed to fresh air it can take up to 10 minutes for the sensor to clear and the alarm to stop depending on the level of carbon monoxide detected.
- Get medical help immediately for anyone suffering the effects of carbon monoxide poisoning (headache, nausea), and advise that carbon monoxide poisoning is suspected.
- Do not use the appliance again until it has been checked by an expert. In the case of gas appliances the engineer must be registered on the Gas Safe register.

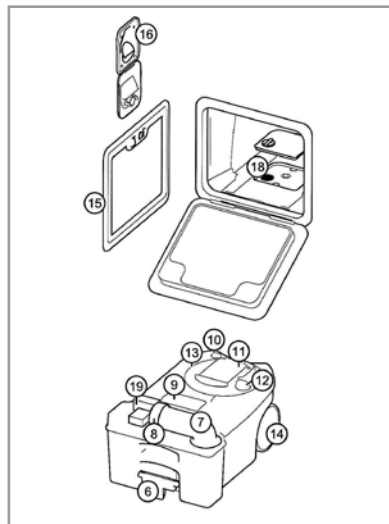
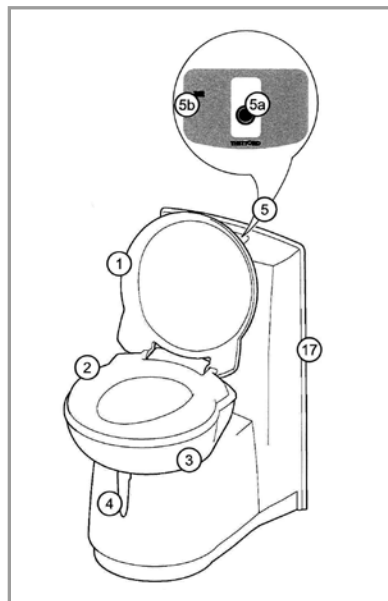
Toilet Instructions

Before you put the toilet in operation please read the entire manufacturer's operating manual carefully. These manuals provide you with the necessary information for the proper use, care and servicing of the toilet.

Please ensure you observe all safety instructions.

Thetford

See Thetford quick guide supplied



Main Parts

Standard

1. Cover.
2. Seat.
3. Swivelling toilet bowl.
4. Blade handle to open/close blade.
5. Control panel (position is different from C263 models).
- 5a. Flush button.
- 5b. Waste-holding tank level indication.

level or 3 levels dependent on model).

6. Pull handle.
7. Pour out spout.
8. Cap with measuring cup.
9. Automatic pressure release vent.
10. Vent button.
11. Sliding cover.
12. Blade opener.
13. Waste holding tank mechanism.
14. Wheel.
15. Service door.
16. Waterfill door (only for C262 model).

Introduction

This Thetford cassette toilet is a high quality product. It is user friendly, meets high quality standards and gives you all the convenience of home.

For the latest version of the manual please visit www.thetford.eu

Preparing for use

This cassette toilet has a waste holding tank of 17.5LA C262 model has its own 8L flush -water tank. Before using your toilet, it is vital that you add toilet additives to these tanks. Check the correct dosage on the additive package. Then add $\pm 3L$ of water to the waste holding tank. Fill the flush-water tank of a C262 model to the top.

Warning

Never add toilet additives directly via the blade as this could damage the lip seal of the waste-holding tank. Add fluid via the pour out spout.

Warning

Never force if you cannot get the waste-holding tank back into place easily. If blockage occurs, always check if the blade handle is in the closed position.

Thetford offers a pleasantly scented toilet flush for the flush-water tank (Aqua rinse) and a variety of waste holding products (Aqua Kem Blue, Aqua Kem Green, Aqua Kem Natural, Aqua Kem Sachets)

Aqua rinse keeps the flush water fresh, ensures a smooth flush and leaves a protective layer. All products for the waste -holding tank suppress unpleasant smells, stimulate the breakdown of waste, reduce the formation of gas, protect moving parts and help to keep the waste-holding tank fresh and clean. For the differences

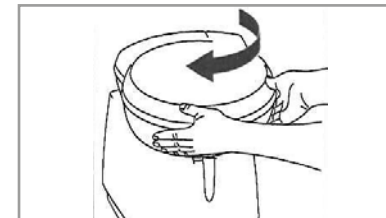
Caravan equipment

between distinguishing qualities of each waste holding tank product please visit

www.thetford.europe.com

The range of toilet products may vary for each country.

Use of your toilet



Turning the bowl

You can turn this bowl to a desired position (max $\pm 90^\circ$). Close the cover and use both hands to rotate the bowl as illustrated.

Opening the blade

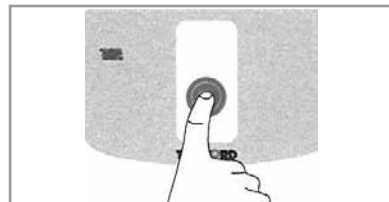
The toilet can be used with the blade open or closed. To open the blade, slide the blade handle sideways as illustrated.

Caravan equipment

Make sure you always close the blade completely after use.



Flushing the toilet



Warning

Ordinary toilet paper can cause clogging. Use Aqua Soft toilet paper instead. This toilet paper is super-soft, dissolves quickly, prevents clogging and makes it easier to empty the waste holding tank.

Press the flush button once to activate the control panel. Then press the flush button for several seconds to flush the toilet.

Level indication

You can check whether your waste holding tank has a 1 level or a 3 level indication. Make sure the tank is empty and place it back properly. The activates the control panel. If no level indication light lights up, you toilet has a 1 level indication. It will only indicate a full tank. If a green level indication light immediately lights up, you toilet has a 3-level indication. It will show empty half full and full.

Emptying Tank Waste-Holding Tank

When the red light to the level indicator on the control panel lights up, you need to empty the waste-holding tank. Remove the tank via the service door. Then take it to an authorised waste disposal point. Empty the waste holding tank via the pour out spout.

To empty the tank without splashing, press and hold the vent button with

your thumb while the pour out spout is pointing downwards.

If you want to continue using your toilet after emptying, prepare the waste-holding tank gain.

Aqua Kem Green, Aqua Kem Natural and Aqua Rinse (Test ISO-11734) are absolutely safe to empty into a septic tank or small biological systems on camping sites.



Please avoid to traveling with anything in the a waste tank

Flush Water Tank

The flush water tank has a capacity of 8L. Only empty the flush water tank completely if you don't expect to use your toilet for a long time (winter) period.

Place a sufficiently large bowl under the drain tube and catch the remaining water. Empty this bowl at an authorised waste disposal point.

See Thetford quick guide diagrams for visual reference.

Warning

To prevent water damage to your caravan, ensure that you don't travel with a full flush water tank, or with water in the bowl.

Cleaning

Just like your toilet at home, it is also important to clean this cassette toilet regularly. You will prevent limescale and ensure optimal hygiene. Clean the inside of the bowl with Thetford toilet bowl cleaner and a soft brush and use bathroom cleaner for the outside of the toilet.

Warning

Never use household cleaners to clean your toilet. These may cause permanent damage to the seals and other toilet components.

Remove seat and cover

To clean your toilet thoroughly, remove the seat and cover. First push the seat and

cover together to the right, then lift them up.

Winter Use

You can use your toilet as normal in cold weather as long as the toilet is situated in a heated location. If this is not the case and there is a risk of frost, we advise not to use your toilet. Make sure you completely empty the waste-holding tank. For a C262 model also empty the flush-water tank.

Aqua Kem Sachets are particularly suitable for winter camping as the sachets are filled with powder. They completely dissolve in water, are easy to dose and economical in use.

Maintenance

To prolong the life of your toilet, maintain your toilet regularly. Use cassette tank cleaner 2 or 3 times a year on the waste-holding tank. It safely removes stubborn limescale on the inside of the tank. When seals become dry, use seal lubricant to keep the seals soft and pliable. It has been specially developed for mobile toilets and is absolutely safe to use.

Warning

Never use Vaseline or vegetable oil to lubricate the seals as this may cause leakage to your waste-holding tank.

Storage

If you don't expect to use your toilet for a long period, you have to thoroughly empty, clean and dry the whole toilet.

Also empty the flush-water tank of a C262 model. This is also a good moment to maintain your toilet.

During storage we advise leaving the blade open to prevent damage to the blade and to loosen the cap of the pour out spout to ventilate the waste holding tank.

Questions

If you require further information or have any questions about your toilet please visit

www.thetford.europe.com

Caravan equipment

Spare Parts

Original Thetford spare parts are available through your own dealer or an authorised Thetford Service Centre.

FAQ

What should I do in case of a defect on my Thetford toilet?

Contact your dealer where you bought your caravan or, if you are on holiday, contact an authorised Thetford Service Centre.

A red light on the control panel flashes, what should I do?

Check if the waste-holding tank is present or positioned properly.

I cannot move waste-holding tank.

Check if the blade of you toilet is completely closed.

What should I do when the electric blade doesn't function?

Manually open or close the blade by sliding the small handle under the toilet

bowl sideways.

What should I do if the blade is blocked?

Loosen the cap with measuring cup from the pour out spout and try again.

Does the toilet have a fuse?

Yes, the toilet has a maintenance-free self-resetting fuse.

Warranty

Thetford BV offers the end users of its products a three-year guarantee. In case of malfunction within the warranty period, Thetford will replace or repair the product at its discretion. In this case, the cost of replacement, labour costs for the replacement of defective parts and/or the costs of the parts themselves will be paid by Thetford.

1. To make a claim under this guarantee the user must take the product to his Dealer or authorised Thetford Service Centre (www.thetford.eu). The claim will be assessed there.

2. Components replaced during repair

under guarantee become the property of Thetford.

3. This warranty does not prejudice current consumer protection laws.

4. This warranty is not valid in the case of products that are for, or are used for, commercial purposes.

Guarantee claims falling into one of the following categories will not be accepted.

- The product has been improperly used or the instructions in the manual have not been followed (for example incorrect use of additives).
- The product has not been installed in accordance with the instructions.
- Alterations have been made to the product.
- The product has been repaired by an unauthorised Thetford Service Centre.
- The product code or serial ID has been changed.
- The product has been damaged by

circumstances outside the normal use of the product.

- Not using Thetford products to care for your Thetford toilet could create some damage, which would not be covered by this warranty.

Thetford is not liable for any loss and/or damage caused directly or indirectly by use of the toilet.

Roof lights

When opening the roof lights, care must be taken to release the locking mechanism as the unit is raised.

Roof lights must be fully closed when towing or in high winds.

When closed roof lights still provide fixed ventilation. Ventilation shouldn't be blocked.

Windows

All opening windows have two catch positions. The first position is for ventilation the second seals the window

from ventilation and rain.

Note: Always have the catch in the fully closed position before travelling.

The Omnivent 12 Volt rooflight fan

Use Rooflight

- Close the lid before driving.
- To take away the roller blind, unscrew and click the frame off at the side of the knob.

Use of the Ventilator

- The ventilator is started by the soft switch S2. The middle LED light lights up and the ventilator starts in comfort mode, this is the lowest speed (extract). See Fig. 1.
- By pushing on the switch S1 (extract) or S3 (intake), the airflow can be adjusted in 6 steps.

*MIN = 3,7 m3 /min. (2W – 0,17 A)

*MAX = 24 m3/min. (86W – 7,20 A)

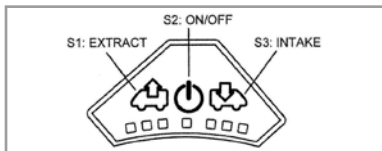


Fig.1

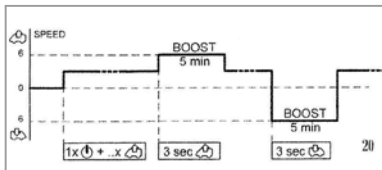


Fig.2

TROUBLE SHOOTING	
FLASHING LED's	PROBLEM
■ ■ ■ ■ ■	or Tension < 11,1 V or Tension > 19,5V
■ ■ ■ ■ ■	Motor blocked
■ ■ ■ ■ ■	Motor not connected

Fig.3

- In order to save the battery, the speed drops from position 6 to the lowest position after one hour of use.
- It is possible to allow the ventilator to work for 5 minutes on the highest speed

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(boost). To do this push for 3 seconds on the button S1 (extraction) or S2 (intake). After 5 minutes the ventilator returns to its previous speed setting. See table in Fig. 2.

- For reasons of security, the ventilator stops when the tension is too high (19,5V) or too low (11,1V) or when the fan is blocked. For trouble shooting see Fig. 3.

Maintenance

The ventilator grid can be removed for cleaning. Also the mosquito screens can be taken out for cleaning.

The roof light is only waterproof in the direction of the traffic. When transporting the caravan in the opposite direction or when the back of the caravan is up, ensure the dome is watertight by using the 'Lock-unlock' (not supplied on a ventilator version) or by using something that ensures that the dome remains closed when being transported.

Micro, Midi + Mini Heki rooflight (where fitted)

Safety precautions:

- Repairs should be carried out only by trained personnel.
- Inform an approved dealer in case of defects and malfunctions.
- Before starting off, check the rooflight for damage in the dome (tension cracks) and the opening mechanism which could arise owing to, for example, branches and other natural causes.
- Do not step on the dome.
- Close the rooflight before starting off (check whether it is locked).
- Do not leave the vehicle with the rooflight open (danger of burglary).
- Do not open in strong wind or rain.
- Before opening, remove snow, ice, dirt, etc. from the dome
- Malfunctions are to be repaired by an

approved dealer at once.

- Do not use caustic detergents (danger of tension cracks in the dome).

- Before setting off close the dome, check the locking mechanism and open the blinds.

Care instructions

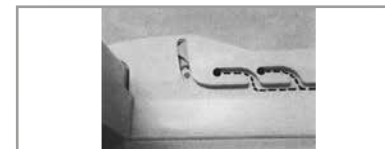
- Clean the dome with the Seitz acrylic cleaner.
- Opaque spots and light scratches on the dome can be removed with the Seitz Acrylic Polish and the Seitz special polishing cloth.
- Use talcum powder regularly (four times yearly) to care for the rubber seals supplied with versions without permanent ventilation.
- Clean the blinds only with water and mild suds.

The guarantee becomes null and void if the care and safety instructions are not followed.

Micro, Midi + Mini Heki rooflight (where fitted)

Intermediate position of dome

By pushing the bar into the marked rest position, two extra opening angles, apart from the one in which the dome is fully opened, can be chosen.



Closing the dome (Drive and rest position)

Push the bar with hands on the right and the left side in such a way that the hook bolts (1) the dome on the left and the right side and the bar lies on the push button (2). Check if the dome is locked.

Opening/closing the blind and fly net

Pull the end rod from the recessed part and push it in a position you desire. (Both

systems are adjustable in any positions and can be used independently from each other).

Opening / closing the dome:

- Press the push button (1) and simultaneously open the dome with the bar (2).

Position "A"

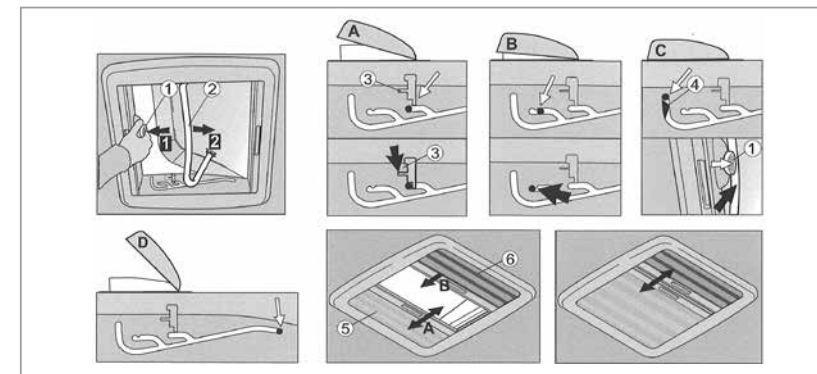
- Push the bar (2) to the marked rest position (●).
- Fix the bar in the rest position by pushing the sliders (3), left and right, downwards.

Position "B"

- Push the bar (2) to the marked position (●) and lead over the locking mechanism left and right by applying slight pressure.

Position "C"

- Push the bar (2) to the marked rest position (●).
- Applying slight pressure, lead the bar (2) over the catch hook (4) left and right so that the dome is locked and the bar (2) lies on the push button (1).



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Position “D”

- Push the bar (2) to the marked position (●)

Opening / closing the blinds

- Push the blind (5) in the direction of the arrow (A) and the flyscreen (6) in the direction of the arrow (B).

The guarantee becomes null and void if the care and safety instructions are not followed.

Window blinds

Pull blind down by its centre catch. Do not pull down by one side of the blind. This will inevitably lead to problems. Do not allow blinds to spring back freely. Always control them by hand.

Flyscreens

To operate the flyscreen, either pull the screen fully down or fully up, dependant on type of window fitted. To release – if a cross bar is fitted, gently pull the cross bar downwards towards you and allow the tension of the spring to

roll up the flyscreen.

Where a cross bar is not fitted, disconnect from the blind catch and release gently.

It is recommended that blinds are in the open position whilst the caravan is moving.

Winterisation

Warning

DO NOT leave blinds/flyscreens in the closed position throughout the winter as the memory of the mechanism may be lost.

DO NOT leave blinds in the closed position for long periods of time in prolonged heat.

DO NOT leave blinds in the closed position during any period in storage as this can lead to heat build-up and deformation of the windows.

Gas barbecue point (where fitted)

The gas barbecue point, is situated on the nearside towards the front. This point is for use with a gas barbecue only.

Warning

This is to be used only as a gas outlet. Do not use this outlet as a means to input gas into the vehicle. Do not use a gas barbecue in an enclosed awning space.

Simply lift up the flap, unplug the red plastic end cap and connect the appliance in accordance with the gas barbecue manufacturer's instructions. Turn the gas supply valve on.

NOTE: The connection cannot be undone unless the gas supply valve is first turned off.

CAUTION! Do not use a gas barbecue inside the awning. ALWAYS use the appliance in the open air.

Entertainment systems

Your caravan is fitted with a radio/USB + aux in.

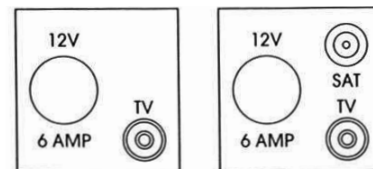
For instructions on how to set up and use this equipment, you should refer to the manufacturer's handbook you have received with your information pack. For service, warranty support and technical queries you should refer to the rear of this handbook.

Warning

Radio Fascia plates should be removed and stored in the plastic pouch, if the vehicle is to be stored for any period of time. The fascia panel will cause a drain on the leisure battery.

AV/TV CONNECTIONS

For TV 12 volt supply + aerial connection.



Vision Plus Status 570 Digital Antenna System

Your caravan is fitted with a high gain, directional aerial. It receives FM, AM, MW and WN, digital and analogue signal. No adjustments is required but it must have power connected. If you encounter an electrical 'spike' and your antenna stops working turn off your caravan master switch, leave for 1 minute then turn it back on.

Technical:

Antenna Dome	
Length	413mm
Width	348mm
Height	72mm

Mounting Foot

Diameter	122mm
Height	35mm

Amplifier

114 x 45 x 29mm

Frequency Range

UHF 470-790 Mhz
FM 88 – 108 Mhz
DAB 175 – 230 Mhz

Antenna Forward Gain

7db

Amplifier Gain

16db

Gain Adjustment

15db

Noise Figure

2.8 db

Output Impedence

75 ohms

Output

95 dbuV

Power Supply

12-24 vDC

Power Consumption

55 ma

Signal Outputs

2 TV 1 Radio

Operating the system

Travelling

When positioning the antenna dome please allow for the following:

DO NOT TRAVEL:-

- With the antenna raised.

Caravan equipment

- With the antenna set for vertical signals. To reduce the possibility of damage when travelling, have the antenna pointing towards the rear of your caravan/motor home.

Operating

1. Loosen the Mast Locking Collar and raise the antenna.
2. Determine whether the TV transmissions are horizontal or vertical and position accordingly.
3. Switch ON the a mplifier and the LED will illuminate and check the gain is set to MIN by rotating the button anti-clockwise.
4. Once the transmitter has been located increase the Gain to MAX.
5. Turn on your television set and tune in. This will be necessary at all new locations.
6. Secure the antenna by hand tightening the Mast Locking Collar.

IMPORTANT

You may detect more than one transmitter. Choose the position that gives you the most channels when tuning in your TV.

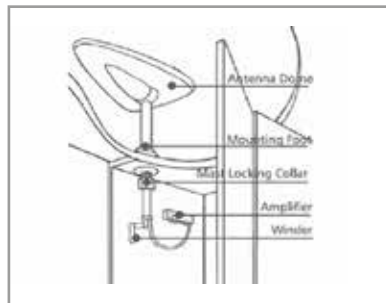
In strong signal areas you may need to reduce the gain by rotating the control anti-clockwise.

Removing the Antenna

A permanently fitted Status can be easily removed leaving only the mounting foot and rubber gaiter.

1. Unplug the antenna lead from the amplifier.
2. Loosen the Mast Locking Collar and lift off whilst feeding out the mast, coaxial cable and plug.
3. Push the Blanking Cap supplied into place.

IMPORTANT – The Blanking Cap is a temporary seal and is not recommended for long term use.



Fault finding

The following are some of the key areas we suggest you check which generally solve the most common problems encountered with the operation of the Status antenna.

Coaxial Connections

It is critical that all connections in the system are fitted correctly. Please check all connectors ensuring they are wired correctly. Secondly please ensure only quality plugs have been used.

Coaxial Cable

Sharp bends, kinks and hot surfaces can

easily damage coaxial cable and should be avoided. Coaxial cable, if placed in close proximity to electrical cables, transformers or other pieces of electrical equipment, may pick up electrical interference causing picture quality to deteriorate, especially in poor reception areas. Excess cable should be removed and NOT coiled as this may cause picture distortion. An inspection of the routing of the cable is highly recommended to ensure all is correct.

Gain Control

In normal use the button should be rotated clockwise for maximum. In strong signal areas the amplification may need to be reduced. To reduce amplification rotate the button anti-clockwise until picture quality improves. The button rotates through 270 degrees from MAX to MIN.

LED Light

Should the LED on the amplifier not light, firstly check there is power to the unit. Secondly check the polarity is correct. Otherwise contact Grade UK Ltd for further assistance.

Short Hook Up – Test 1

This test isolates the wiring from the amplifier through to your TV/radio points.

Unplug the coaxial plugs from the 'TV' sockets of the amplifier and using you TV fly lead with Converter 1 supplied. Connect your TV to the Amplifier.

Please ensure the antenna dome is plugged directly into the 'ANT-IN' socket of the amplifier and switch on. Tune in your TV for the strongest signal.

If the picture quality improves the fault lies with the wiring of the system between the Amplifier and the TV outlet socket.

Short Hook Up – Test 2

This test isolates the amplifier by connecting your TV direct to the antenna.

Unplug the antenna from the amplifier and connect Converter 2 supplied to the plug on the cable end. Using your TV Fly Lead connect the antenna directly to your TV. Tune in your TV for the strongest signal.

If the picture quality improves, the fault lies with the Vision Plus Amplifier.

Antenna Dome Coaxial Cable

Check the routing of the coaxial cable from the antenna dome to the amplifier. Check to ensure there are no kinks or trapped cable or if there are loops of surplus cable which could be affecting performance.

Radio reception troubleshooting.

If you experience any loss or poor radio reception signals, when please try the following steps.

- Are all connectors on the amplifier connected?
- Are there any obvious obstructions in the vicinity that may impair reception?
- What position is the antenna head in? For radio reception it is advised that head be in the vertical position for better coverage.
- Has someone else got a better reception? Coverage varies geographically.

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- Are there any USB style chargers or adapters plugged in? Try removing these, as they often emit a radio frequency.
 - Are tablets and phones being used? Try turning these off briefly, to see if the reception improves.
 - Is DAB radio being used? If so ensure on the radio's menu that the 'Antenna power' option is set to 'OFF'.
 - Is the amplifier turned on? Try turning this off.
- If there are issues with TV signals, then try some of the steps above, but also
- Is the tapered end of the antenna pointing towards the nearest local transmitter?
 - Do all connectors appear to be correctly seated as far as can be seen? The cable from the mast must run to the 'Ant-in' on the amplifier.
 - Are there any obvious obstructions in the vicinity that may impair reception.
 - What position is the mast in? Main TV
- transmitters broadcast horizontally, whilst relay transmitters may broadcast with vertical signals.
- Has the antenna been tried in more than one location? As with radio, TV coverage varies geographically.
 - Is the amplifier turned on via the rocker switch, also has the 'gain' wheel been adjusted?
 - Depending on the broadcasting region and vehicle location, not all usual TV channels may be received.

Customer Help Line

Should you still be experiencing difficulties and require assistance, please do not hesitate to contact Grade UK Ltd at the address below.

Gade UK Limited
8 Finch Close
Lenton Lane Industrial Estate
Nottingham
NG7 2NN
Tel: 0115 986 7151
Email: customerservice@visionplus.co.uk
www.visionplus.co.uk

Caravan equipment

SIGNAL	SYMPTOM	ACTION
Very Poor	No picture or sound, TV freezing severe pixellation, break up and picture drop out.	Check the amplifier gain is set to maximum (rotate clockwise). Check antenna alignment which must be directed at the transmitter. Ensure the antenna's polarity is correct, whether horizontal or vertical. Bypass the amplifier by following "Short Hook-Up Test 1".
Poor	Moderate pixellation and sound distortion	
Medium	Minor pixellation, will not receive all channels	
Good	Stable picture, good sound quality, will receive all channels	N/A
Strong	Possible pixellation, picture break up and drop out.	Reduce the amplifier gain (rotate anti-clockwise). Rotate antenna AWAY from the transmitter.
Very Strong	No picture or sound, TV freezing, severe pixellation, break up and picture drop out.	Rotate antenna AWAY from the transmitter. Switch "OFF" the amplifier and turn the gain control to maximum (rotate clockwise).
After performing any of the "Actions" above you must re-tune your TV		

Caravan equipment

Maintenance

Gaiter

We suggest you periodically check the gaiter for any signs of damage or for wear.

If the rubber is caught by overhead obstructions it may rip or tear which would allow water to work its way into the fabric of the roof.

Over an extended period of time the gaiter will wear at the contact area with the mast. Should the gaiter begin to fail the signs will be small amounts of water dripping down the outside of the mast, however, the design of the Gaiter and Mounting Foot ensures that water cannot work its way into the fabric of the roof. Should this problem occur contact Grade UK Ltd for a replacement unit.

Spares & Repairs

Should you require any parts for replacements or repair please log on to www.visionplus.co.uk or telephone 0115 986 7151.

Guarantee

The Status Antenna has a return to base guarantee against defective parts and workmanship for two years or a period determined by Coachman Caravans. This does not include any malfunction resulting from improper use, incorrect installation, accidental or malicious damage. To support your guarantee claim a dated Proof of Purchase will be required.

This does not affect your statutory rights. Any queries concerning warranty please contact Grade UK Ltd.

Warning

Any TV must be removed from the wall bracket before travelling.

Mobile alarm system (where fitted)

Manufactured exclusively for Phantom by their partners at Gemini, the VanGuard alarm is designed to secure your caravan simply and reliably. The standard alarm incorporates an electronic tilt sensor and a wireless Passive Infrared sensor (PIR) along with 2 four button remotes.

The alarm does have the facility to turn the awning light on during the arm and disarm process. This is likely only available where your alarm is factory fitted. The PIR can be excluded if necessary and the sensitivity of the tilt sensor adjusted where required.

System arming

The alarm unit can be armed by pressing the arming button. Two high-pitched beeps will confirm the operation and the dome light will turn ON for approx 30 sec. The system has a 30 sec arming delay which allows you to exit the vehicle without triggering an alarm. After the arming delay, the system is fully armed.

If the PIR sensor battery level is becoming exhausted, a 'Bop' will sound after the arming acoustic signals (replace PIR internal batteries. Use only 2 CR2032 batteries.).

System Disarming

To disarm the system, press the disarming button 2 on the remote control. Three high-pitched beeps will confirm disarming and the dome light will turn ON for approx 30 sec.

System arming without internal sensors

The system can be armed without enabling the wireless PIR sensor(s). To do so, press button 3 on either remote control to arm the system. One high-pitched beep will be confirmed the system is armed with the sensors excluded.

Tilt sensor exclusion

Arm the alarm as usual by pressing button 1. After the usual two beeps wait 4 seconds and press button 3. Tilt sensor exclusion is confirmed by one beep.



NOTE:

Sensor exclusion is bound to a single arming cycle. Sensors will automatically be enabled the next time the alarm is armed.

Tilt sensor adjustment

The TILT sensor sensitivity level is factory set to trigger an alarm if the vehicle is tilted at an angle of approx 1.5° with respect to the x,y and z-axis.

Awning light

Arming/Disarming the alarm will activate the awning light for 30 seconds. Button 4 on the remote will also activate the light for 5 minutes before automatically turning off.

Typically awning light controls will only be possible with factory installations.

Alarms

An alarm event will trigger the siren for a maximum of 30 seconds. If the alarm condition remains or the alarm is not disarmed it will trigger another cycle after a pause of 5 seconds. Each alarm condition will trigger a maximum of 8 cycles.

Alarm trigger memory

If there had been an activation in your absence it will be signaled by 2 long beeps on disarming, followed by a number of high pitched 'chirps' to indicate the cause of the last trigger.

Caravan equipment

Pairing new devices

The alarm is supplied with 2 remotes and a wireless PIR sensor but extra sensors can be added via the LEARN button.

Press the LEARN button 5 times in a row within 5 seconds. Each press will generate a single beep and then a final 2 beeps will confirm the system is in pairing mode for the next 30 seconds.

Press one of the new remote buttons or trigger the sensor to be paired. A single beep will confirm the new device is added. To exit pairing mode press the LEARN button once.

Warning

The alarm memory has 12 slots. Trying to save any further devices will delete the first one.

Battery Replacement

When the remote battery are too weak you'll notice the blue LED flicker/flash when arming or disarming the alarm. Replace the CR2032 battery.

If the PIR battery is running low a secondary "bop" will sound after the usual arming 2 beeps of the siren. To replace the batteries detach the cover of the PIR from its mounting base.



Register online to validate your warranty for your vanguard alarm.

www.phantom.uk.net/vanguard

Beds and bunks

Front double bed

The two front single beds can be converted into a double bed by pulling the central slats until they are fully extended. Re-arrange the seat appropriately.

Prior to tilting the single beds to access storage, please ensure the backrest is laid flat on the base cushion.

Warning

Please ensure the adjustable feet on the bed are adjusted to touch the floor/ carpet so that the bed is completely level and will not put strain onto the bed mechanism in its extended position.

NOTE:

Any failures due to strain caused by non level usage are not covered by warranty

Care of your caravan

Cleaning

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

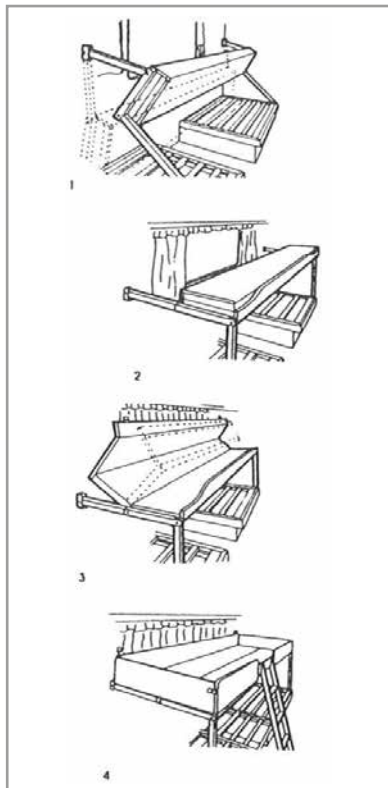
This section of the guide is devoted to the care, cleaning and general preservation of your caravan in order to keep it in good condition.

Exterior

- Side walls of your caravan are finished in acrylic finished aluminium, which is extremely durable and easy to clean. It is recommended that a proprietary brand of vehicle shampoo with plenty of cold water is used.

Warning

Do not use soaps or detergents containing citrus ingredients (especially limonene) as this can cause yellowing degradation of the sealant surface.



Warning

When upper bunks are used by children especially under the age of six, care must be taken against the risk of falling out. These bunks are not suitable for use by infants without supervision.

Warning

Use high level bunks for sleeping only with protection against falling out fitted and in place.

Warning

Care should be taken when opening and closing table leg mechanisms, that fingers and limbs do not become trapped in the moving parts.

Care of your caravan

- Ideally pH should be around 7 (neutral)
- When using a concentrated soap it should be mixed with water at around a maximum of 5%
- Always rinse with clean water after using cleaner or soap solution
- Do not use steam cleaners especially in combination with soapy cleaners
- Do not use a pressure washer as this can disturb the mastic seals.
- An occasional polish with a good quality vehicle wax will help obtain a high gloss finish. **Under no circumstances should an abrasive or harsh cleaner be used.**
- Plastic and ABS panels should be cleaned using water and a mild detergent.

Under no circumstances should alcohol spirit or solvent-based liquids be used on these items, as these substances will react with the material and cause visual damage.

Lock lubrication

Lubricate all locks with Tri-Flow or any other lightweight oil (such as sewing machine oil). DO NOT use heavy grease, WD40 or silicone based lubricants.

Acrylic Windows

Your caravan is fitted with shatter resistant acrylic windows. To preserve their clarity and unblemished transparency it is essential that the following cleaning instructions are strictly adhered to:

Road grit, dust, sand, flies, lime tree secretions, bird droppings etc., should be 'swilled off' using plenty of cold water. Any remaining dirt should be washed off using a soft cloth and warm water.

Under NO circumstances should any abrasive cleaning agents, household detergents or proprietary cleaning fluids be used. Alcohol spirit or solvent-based liquids must not be used on these items as they will react with the material and cause visual damage.

Correct removal of scratches from acrylic panes is achieved by using a special polishing cloth and acrylic polishing paste. Light scratches and matt areas can be removed from acrylic by using the acrylic polishing paste and polishing cloth. Distribute the polishing paste on the pre-cleaned surface with the polishing cloth and polish gently in a circular motion for 3-5 minutes. Rinse with warm water. Do not use in strong sunshine. Correct antistatic treatment of the acrylic pane is achieved with an antistatic acrylic cleaner. The acrylic cleaner prevents the static charging and with it the attraction of dust; it removes among other things, light stains and dust which clings loosely to the pane. Regular care with acrylic cleaner prevents the formation of a film of grime, which might be difficult to remove later, and renews constantly the antistatic effect. Spray the acrylic cleaner on the pane, with an unbroken movement wipe the surface with a fresh polishing cloth (for example: first vertically, then horizontally, but not in a circular motion!). Rub gently do not rub dry, leave to dry naturally. Do not use

in strong sunshine. Thus can the acrylic panes be enjoyed again.

It is a popular misconception that caravan windows are vacuum sealed. This is not the case.

The windows in a caravan can be susceptible to condensation if the temperature difference between inside and outside is changed quickly and dramatically, such as when a damp or cold caravan heats up quickly via a heater or the sun. This can be exaggerated particularly if the ventilation is not allowing the temperatures to balance.

The caravan window, unlike a glass window is not completely diffusion-proof, which means it is permeable to the water vapour contained in the air. That is to say that water is initially absorbed from the air on the surface of the panes. The water molecules then penetrate by diffusion into the material itself and then end up on the inside of the pane. Here they are absorbed by the air trapped between the two panes. If the water vapour in the air surrounding

the window is high enough, this procedure continues until the air in the window is completely saturated.

In view of the fact that the quantity of water vapour which can be absorbed by a volume of air decreases when the temperature falls, as soon as the temperature drops the water condenses at the coldest points of the window where it becomes visible as droplets. When the pane heats up again, the water evaporates. It is in fact still there but invisible. If the air around the window becomes very dry, then the diffusion procedure starts up again through the acrylic in the other direction. Most of the moisture disappears from the window.

It should be noted that the diffusion procedure through the window is relatively slow.

It is true condensation can be the result of window delamination but for a quantity of windows to delaminate on the same caravan would be extremely unlikely and the real test is "do the windows eventually clear".

Condensation actually occurs when the humidity inside the caravan exceeds 60% and the ventilation is not sufficient. To help overcome this some of the following actions can be taken:

- Leave the rooflight open.
- Put windows onto night vent position.
- Leave doors between compartments open.
- Keep temperature at night to minimum.
- Increase ventilation above normal in inclement weather.

Interior Walls

Your caravan interior walls are finished with a vinyl coating and will only require a wipe over with a damp cloth, using a mild detergent, to keep them in a good condition.

Furniture

Treat your caravan furniture as you would the furniture in your home. Polish wood surfaces sparingly with a good quality wax polish. Use a damp cloth to clean laminated surfaces.

Your furniture is made from wood or wooden based materials so it requires attention and care to maintain its beauty.

Warning

Moisture in air can cause damage to furniture. Wood expands or contracts with an increase or decrease in the relative humidity in the air. The damage can be quite visible if the relative humidity is higher than 80% for a long time. To prevent damage assure the relative humidity of air is not too high for a long time by ventilating the van.

When wood is wet, wipe it dry. Do not just wait for the sun to dry it. The longer the water stays on the surface, the more damage it can do.

Carpets, upholstery and curtains

General facts on fabric upholstery

You may find that seat comfort is a little firm at first – this is perfectly normal and your seats will soften gradually during initial use to give you longer lasting durability. All foam can lose up to 20% of its volume during the first few months of use. This is quite normal and is not a fault.

Many pile fabrics may appear darker or shaded in different areas of the furniture. This is due to the way the direction of the pile reflects light, especially when the pile is crushed during use. This is not a fault but a normal characteristic of some types of fabric. Gentle, regular brushing with a soft brush can help raise the flattened pile and reduce the effects of pile crush.

Fabric will stretch and develop creases during use especially on seats, these 'comfort wrinkles' are to be expected and are completely normal wear and tear.

Please be aware that some fabrics have

inherent characteristics that are part of their charm.

Most upholstery fabrics will show wear due to friction from use. Pilling, the formation of little balls of fuzz on the surface of your fabric can occur with normal use. The occurrence of pilling depends on several factors, including the type fibre, the weave, the construction of the fabric itself and the type of use the fabric receives. Pilling is a natural occurrence in certain upholstered fabrics and is not considered a defect.

Care of fabric and upholstery

It is **essential** that all cushions are 'dressed' regularly. Vigorous plumping by shaking and squeezing will redistribute the fillings, put air back into the fibres and ensure the cushions fill the cover to the correct shape.

If this dressing is not carried out, the filling can cause a mass giving the cushion a flat or lumpy appearance and/or making the covers appear baggy. This is not considered a defect.

Prolonged exposure to direct sunlight and heat can damage your fabrics and cause them to fade and potentially fray. Protect by placing your furniture away from prolonged direct sunlight or by drawing curtains or blinds.

Vacuuming helps to eliminate dirt before it becomes embedded in the fabrics.

Dust can be removed by pre-brushing gently with a soft brush.

Loose threads can be trimmed off neatly with sharp scissors.

Curtains are dry clean only and should never be laundered in a washing machine.

Spillage and stains

Due to the variety of fabrics used, these instructions are for general guidelines only.

Soiling can occur from the clothing you wear when using your upholstery and some fabrics, for example denim can transfer dye onto your covering. Newspaper ink from your hands or direct from the paper will stain very readily. Food

and drinks can soil and stain the material and any accidents should be dealt with straight away. Liquids need to be soaked up quickly.

Please see the below guidelines on removal or spillages and stains:

- Do not soak or allow fabrics to get wet.

- Never rub or scrub with wet cloth to remove spills or stains as this will damage the fabric and can remove colour.

- Do not use washing liquid, detergents or bleach to remove stains.

- Liquid spills: blot or soak up immediately using dry, soft colour absorbent cloth using a dabbing action.

- Solid spills (food and mud): remove excess gently before dabbing to clean stains

- Water based stains: dab using a specialist upholstery shampoo sparingly. Do not soak.

- Pen, Ink, Fruit or blood: use a

specialist cleaner.

- Oil based stains (butter, margarine, cream etc.): use a spot remover containing dry cleaning fluid which can be obtained from most supermarkets or hardware stores. Follow manufacturer's instructions, testing products on a hidden area first to ensure it does not damage fabric or affect colours.

- For stubborn spots and stains we recommend professional cleaning by a specialist service.

Argent Stainless Steel Sink

Routine Cleaning

It is good practice to clean equipment immediately after use. Most deposits can be removed by washing with soap or mild detergent and hot water, followed by a clean water rinse and drying with a soft cloth to prevent water spotting. For more tenacious deposits a non-abrasive multi-purpose cream cleaner may be used. This should be applied with a soft damp cloth followed by a clean water rinse and drying.

Care of your caravan

Stubborn dirt and grease may require the use of nylon scouring pad (such as Scotchbrite), in conjunction with the multi-purpose cream cleaner.

Oil, grease and fingerprints can generally be removed with a soap/water solution but a hydrocarbon solvent may be required.

Care must be taken to use the proper safety precautions if using solvents. Fingerprints, on the glass lid, can be eliminated with a glass cleaner. Removal of the excess cleaner with a soft cloth leaves a protective film from which fingerprints can be wiped.

Tannin (Tea) Stains

Tannin stains can be removed using a hot solution of sodium carbonate (washing soda) and water, alternatively, the solution can be applied with a soft cloth/sponge. This treatment should be followed by a clean water rinse to remove any residues and drying with a soft cloth.

Heat Tinting and Discoloration

Heavy oxidation is unlikely to occur

during normal usage. If heat tinting does occur, slight abrasion of the surface will be required and the type of cleaner will depend upon the original finish of the component. A highly polished surface will require the use of a proprietary stainless steel polish but slight scratching may occur during the polishing treatment. If the finish is directional, as in a ground, brush or dull polish, then a nylon scouring pad/cloth in conjunction with the multi-purpose cream cleaner can be used.

Scratches

Scratching will be most noticeable on highly polished components, in particular the drainer area of sinks where hard objects are likely to be placed during normal household use. These marks are usually only superficial and can be removed with a proprietary stainless steel cleaner/polish. A useful alternative is a car paint restorer, such as 'T-Cut'.

Rust Marks

Under normal usage, it is unlikely that these marks will be caused by rusting

of the stainless steel itself, but are more likely to be the result of small particles of "ordinary steel" which have become attached to the surface and subsequently rusted. These brown marks are usually only superficial stains and can be removed by using a soft damp cloth and multi-purpose cream cleaner. Occasionally, it may be necessary to resort to a proprietary stainless steel cleaner, to return the surface to its original condition.

Cautions

1. Cleaning agents containing sodium hypochlorite (bleach) should not be left in contact with stainless steel. This includes many of the new "trigger-dispense" cleaning products and some multi-purpose cream cleaners. If bleach is necessary, it should be used only in the strengths prescribed by the manufacturer and never left in contact with the surface for longer than 30 minutes, after which the stainless steel should be rinsed thoroughly with clean water.

2. On no account should "wire wool" pads be used unless they are made of stainless steel.
3. Harsh abrasives and scouring materials should not be used for cleaning stainless steel as they will leave scratch marks in the surface and damage the appearance of the article. Likewise, do not use wire brushes, scrapers or contaminated scouring pads.
4. If the article has a directional polished grain, any cleaning with abrasives should be carried out along this grain and not across it.
5. After use, always remove wet cleaning aids (such as cloths, pads, containers) from the surface, to avoid formation of water marks/stains.
6. Most domestic dishwashing liquids contain chlorides; if they are left in long-term contact with stainless steel, pitting corrosion may occur.
7. Silver Dip cleaners are particularly harmful as they contain strong

acids which can very quickly cause discoloration and pitting. If this type of cleaner comes into contact with the surface of a stainless steel article, it should be rinsed off thoroughly with clean water.

Ovens

Only clean ovens with soap and water.

Shower Room and Wash Basin Fittings

Always put the cold water into the wash hand basin before adding the hot. Thermoplastic products such as basins and showers have an adequate but limited resistance to high temperature. 70°C normally should be considered the maximum temperature the products can withstand. Bear in mind the maximum comfortable for human skin is approximately 40°C!

The normal effect of overheating on plastics is distortion of the surface, although perhaps unsightly this does not generally affect the practical application of the product.

The best way to keep the surface clean is by regular conventional soap and water and clear rinsing in cold water. For stubborn stains Thetford Bathroom Cleaner is recommended. The use of any other cleaners may harm the product, cause premature failure and will invalidate the warranty.

Abrasive products should never be used and the same applies to solutions such as nail varnish remover (Acetone), linseed oil based products (such as putty), thinners, pine oil, etc.

Thetford Bathroom Cleaner is available from most good caravan dealers.

Water Systems

The water systems, and in particular storage tanks, in caravans are susceptible to contamination by bacteria if care is not taken with their use and cleaning. The symptoms caused by bacterial contamination are not purely limited to gastro-intestinal diseases, but may also manifest themselves as ear, nose, throat, eye or skin infections. It is therefore

Care of your caravan

important that you carry out the following procedure prior to using the caravan each time, even if you boil or filter all water you use for drinking.

Containers

1. All water remaining in the container should be disposed of so that the container is empty.
2. The outside of the container should be thoroughly cleansed and washed down to remove any dirt, dust or other contaminant. Water at a suitably hot temperature containing an appropriate detergent is recommended for this purpose.
3. Water should be put into the container swirled round, then emptied out.
4. The container should then be totally filled with water containing an appropriate disinfectant/sterilant solution and allowed to stand for the recommended contact time.
5. The solution should be emptied from the container.

6. The opening of the container should be cleaned thoroughly with an appropriate pre-prepared wipe impregnated with a disinfectant/sterilant.

7. The container should be inverted whilst stored overnight (if possible).

8. The container must be filled with mains water only and mains water only should be used for the above cleaning procedure.

9. On no account should garden hoses be used to fill water tanks.

Systems

1. Drain down the system (Open all taps to allow air in, enabling the system to drain quickly), using the floor mounted drain taps.

2. Remove any water filters fitted, and replace with a short length of hose or empty filter cartridge (this will ensure the filter is not affected by the disinfectant/sterilant solution).

3. Fill the system by using the pump with

a disinfectant/sterilant solution. (Check that the solution at full strength appears all taps/showers). Allow to stand for the recommended period of time.

4. Drain the system down completely, as 1.

5. Thoroughly clean the outside of all taps/connectors with a cloth soaked in the disinfectant/sterilant.

6. Flush the system through with clean drinking water until no traces of disinfectant/sterilant can be detected at any tap.

7. Replace the filter.

Suitable sterilising chemicals are available from your caravan dealer, accessory shop, chemists, or home-brew shops. It is not, however, recommended to use bleach or sodium metabisulphide.

Winterisation & storage

If the caravan is to be stored for any length of time, especially over the winter period, the following operations are recommended.

- Remove all linens, blankets, cushions, clothes, mattresses, etc. which could be affected by damp conditions. Clean the caravan inside and out as detailed in the previous section.

- IT IS RECOMMENDED THAT MOISTURE CAPTURE CONTAINERS ARE PLACED WITHIN YOUR CARAVAN** to aid against the effects of condensation and that these are emptied regularly.

- Drain off the water system. (See previous section).

- Leave all taps open to allow any residue to expand if frozen.

- Hang the hose for the shower to allow all residue water to drain.

- Drain and sterilise the toilet. (See previous section).

- Ensure all windows, roof lights and doors are correctly fastened and locked. Check fixed ventilation apertures are not obstructed.

- Open all the cupboard doors to allow air to circulate.

- Ensure that the alarm PIR's view of the caravan interior is clear and not obscured by items stored on the floor.

- Check that the site you have chosen to store the caravan is open, fairly high and dry and if possible not exposed to gales etc. If this proves impossible it is recommended that the caravan chassis is anchored to the ground.

- Ventilate the caravan regularly during storage period (this is most important when a caravan cover is fitted). N.B. Caravan covers must be of a breathable material.

Jack up the caravan (use bottle or screw jack, do NOT use the corner steadies) so that the wheels are clear of the ground. Support the caravan axle with wooden blocks, axle stands or similar so that when the jacks are removed the wheels remain clear of the ground. Lower the corner steadies to 'just' site the caravan. Cover the tyres to prevent deterioration.

Release the handbrake. Rotate the wheels at regular intervals to maintain wheel-bearing lubrication. Grease the over-run and shroud in a waterproof protective cover. Grease must not be used if an AKS or similar stabiliser is fitted.

Switch off 12 volt supply.

SECURITY: Lowering and locking the corner steadies and removing the wheels reduces the risk of caravan theft.

NOTE: Do not work under the caravan unless the corner steadies are down and the axle is supported.

Should the caravan be stored for a prolonged period of time it is strongly recommended that the caravan is fully serviced before the commencement of use. Your dealer will ensure that your caravan is safe, secure and ready for your enjoyment.

NOTE: Caravans stored for any length of time should not have the handbrake applied. Ideally the wheels should be removed and the caravan placed on winter

Maintenance

wheels and the handbrake released. The hitch head should be checked to see that it is fully extended and that there is no load on the braking system.

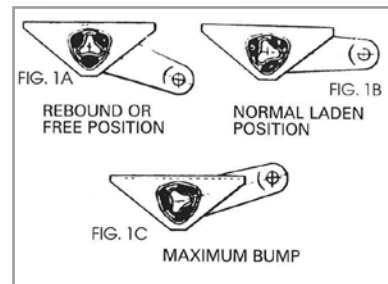
Maintenance – AL-KO Lightweight Chassis

AL-KO Galvanised Chassis

Hot dip galvanising offers high corrosion protection by forming a barrier layer through reaction with the atmosphere. This will be apparent by the chassis members changing to a light grey colour. During winter periods or storage where there is insufficient air circulation or heavy moisture, a soft porous, light grey oxidation layer may form. This is known as 'White Rust' and should NOT be confused with rust.

The Axle

The AL-KO rubber suspension axle has been designed for new standards of spring comfort and is maintenance free.



Three rubber elements are contained within a hexagonal axle tube. These provide suspension and have inherent damping characteristics.

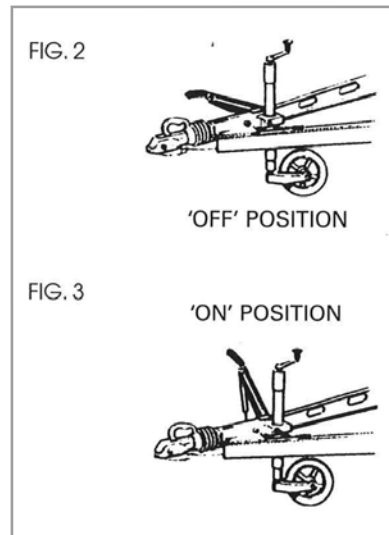
Figures 1(A), (B) and (C) show the deformation of the rubber elements at the extremes of suspension movement.

The axle is designed to ride with the suspension drop arm at, or slightly below, the horizontal position.

Suspension shock absorbers

All Coachman caravans are fitted with AL-KO Octagon Shock Absorbers to provide increased damping characteristics and to improve road holding.

Operation of breaking system (Figs 2 and 3)



Forward braking

In the free position, with the handbrake fully forward in the OFF position, the drawshaft of the overrun device is fully extended and the shoes are clear of the drum.

As the towing vehicle brakes, or starts to drive downhill, the drawshaft of the overrun device is depressed toward the unit being towed. This action imparts linear motion to the main shaft of the overrun device which is transmitted via the overrun lever, brake rod and Bowden cable to the expanding clutch. This mechanism forces the leading brake shoe and by reaction, the trailing shoe outwards into contact with the drum.

Friction between the brake shoes and the drum creates a tendency for both shoes and the expanding clutch to move in the direction of forward rotation until they abut the adjuster box. This ensures that both shoes remain in the braking position.

Reversing

When the towing vehicle reverses, the drawshaft is pushed backward, moving the overrun device through its full travel. This movement is transmitted in the normal manner to the expanding clutch.

The clutch forces both shoes into contact with the drum. Initial friction between these creates a tendency for the shoes and the expanding clutch to move in the direction of the wheel rotation i.e. reverse. This movement imparts pressure to the spring-loaded auto-reverse lever, causing it to collapse. Thus, friction between the shoes and drum is almost eliminated, allowing the trailer to reverse in concert with the towing unit.

Slight forward movement of the chassis will allow the coiled spring to reassert itself, enabling the reverse lever to recover to its normal position. Normal braking is then immediately available.

Parking

The AL-KO parking brake system incorporates a patented device for added safety when parking on a reverse-sloping site or steep hill.

The AL-KO parking brake system comprises a handbrake lever mechanism actuating a Bowden cable, which operates a brake unit assembly, contained within the wheel hub.

AL-KO's unique parking brake system requires a source of stored energy to lock the wheel brakes should the trailer start to move after it has been uncoupled from the towing unit.

This energy source is provided by a spring cylinder acting as an energy store.

Wheels and tyres

Wheels

The AL-KO chassis is supported on road wheels fitted with pneumatic tyres. The size of wheel and type fitted to the chassis is dependent upon the load to be towed.

Maintenance

Maintenance

Each chassis is provided with an adjustable jockey wheel, which is clamped inboard directly to the overrun device. The jockey wheel provides stabilisation and is fitted with a solid tyre.

Spare wheel chassis mounted

Each Coachman caravan has a unique AL-KO Group spare wheel carrier mounted on the chassis under the caravan.

The carrier is of extra strong, lightweight construction and is easy to operate. Detailed operating instructions are included under the heading "Changing a Wheel" on page 31.

Tyres

Please refer to Technical Data Handbook for information regarding wheel and tyre sizes.

Pressures

It is customary for tyre manufacturers to mark tyres with load and inflation data. **This information relates to the use of the tyre on cars. This is not the operating**

or maximum pressure when used on a caravan.

Please refer to the technical supplement for information regarding tyre pressures.

It is dangerous to drive with under inflated tyres. The pressures (cold) recommended by the manufacturer should be adhered to.

Pressure checks, including those on the spare tyre, should be made with the tyres cold and using an accurate pressure gauge. The checks should be carried out before each journey and at regular intervals during storage.

Tyre ware and damage

The legal requirements for tread depth on motor vehicles' tyres applies also to caravans. Similarly, it is not permitted to mix cross-ply and radial tyres on the same axle. A redundant tyre must be replaced by one of the same size and construction.

Wheels should be balanced and changed round occasionally to equal wear and prolong the life of the tyres. A tyre should be renewed if a blister, rupture or cut

exposing the casing is detected. If the tyre has suffered violent impact (e.g. against a kerb), it should be examined by a specialist as soon as possible.

As from April 1987 the speed limit in the UK when towing a caravan was raised from 50mph to 60mph where permitted.

Recommended lubricants

Mobilgrease MP is recommended for all greasing routines. A good all-purpose oil is recommended for general use.

AL-KO Group EURO-AXLE

Description

Retaining the well-proven AL-KO group Hexagonal rubber independent suspension, the specific features of the AL-KO group Euro-Axle are:

- Bolted on wheel brakes
- Adjustable toe-in and camber (factory only)
- Strengthened stub axle. Sealed for life bearing unit

- Octagon Shock Absorbers

In addition the backplate has a 'gold' coloured, zinc passivated finish.

All Euro-Axles can be positively identified by the axle date plate.

Important note

The toe-in and camber is factory set and must not be altered.

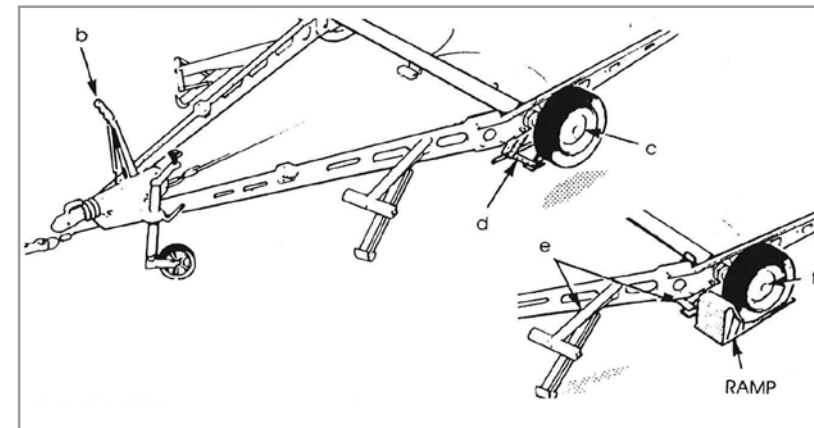
Braking System adjustment must be carried out by an Approved Dealer.

AL-KO braking system adjustment

This must only be undertaken by an Approved Dealer.

Changing a wheel (see section "Towing and Driving")

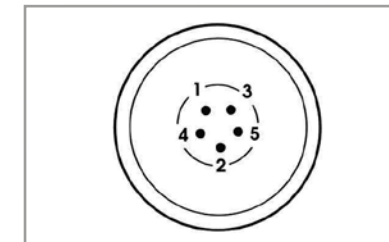
Before fitting a new wheel, examine it for distortion or other damage. Ensure that all mating surfaces are clean and dry, including bolt seats.



ALWAYS USE THE CORRECT BOLTS TO SECURE THE WHEEL. THERE ARE UNIQUE BOLTS FOR ALLOY WHEELS AND UNDER NO CIRCUMSTANCES SHOULD ANY OTHER BOLTS BE USED WITH ALLOY WHEELS.

Alloy wheel bolts are stamped with 10.9 and may be used with steel wheels.

A corner steady brace is not to be used for the next step.



- Fit the new wheel and refit the wheel bolts.

Maintenance

Servicing

WARNING – Ensure the wheel is of the same construction and size with the one that has been removed

Tighten all bolts equally in the order shown in the diagram.

Torque settings are:

Steel Wheels 88Nm (65lbsft)

Alloy Wheels 130Nm (96lbsft)

Please note with alloy wheels you should first tighten all the bolts to 85Nm (63lbsft) then go round again in the sequence shown and increase the torque from 85Nm (63kbsft) to 130Nm (96lbsft).

- Raise the corner steadies. Take the weight of the caravan onto the jack and remove the axle stands or ramping boards.
- Lower the caravan to the ground.

Jacking

Under no circumstances should the corner steadies be used to jack up the unit.

When it is necessary to jack up use a bottle, screw or scissor type jack with axle shaped head. Place the jack plate under the axle tube as near as possible to the main chassis member.

Lubrication

Lubricate the Jockey Wheel
Lightly oil the wheel axle and screw thread.

Lubricate the Brake Linkage
Lightly oil all moving parts.

Lubricate the Corner Steadies
Lightly oil the screw and pivot pins.

For more information concerning the chassis and under gear please refer to the AL-KO handbook contained within your document wallet.

Servicing

It is a condition of warranty that your caravan is serviced once a year by a competent Service Centre. Proof of this will be required in the event of a warranty claim.

The Coachman warranty does require that servicing must be carried out within 90 days either side of the anniversary of the purchase date for interim years but before the anniversary date on the final year and must include a full damp check

Your caravan also requires servicing at least once a year for safety, efficiency and to protect the investment you have made. Whether the caravan is used for short trips or continental long range touring, regular servicing is necessary and will ensure continued enjoyment of your caravan.

Dealers will carry out your annual servicing using the latest techniques and equipment (a list of the items to be inspected, tested and adjusted appears in your Warranty and Service Handbook and at the rear of this guide), and will complete the service document as proof of regular maintenance.

As with motor vehicle service documents, not only will the proof of regular servicing enhance your caravan's resale value but in the unlikely event of any defect appearing at some later date it is vital that service

Servicing

history can be identified. We suggest service invoices are retained with this guide.

Additionally, but most importantly, regular service is a requisite of the Guarantee and will preserve your rights under the warranty.

Parts

In the interest of safety, replacement parts for an appliance shall conform to the appliance manufacturers' specification and should be fitted by him, or his authorised agent.

Mains electrics

It is recommended that you have your mains electric system inspected by an NICEIC approved contractor every 3 years.

Customer services

Should you require any replacement parts for your caravan it is necessary that you contact the dealer from whom you purchased the caravan or any authorised

dealer and give the following information, which will help in identifying the required component.

- Model of caravan.
- VIN number.
- Description of fault plus sizes if cupboard doors, mirrors, windows wheels & tyres etc. are required.

ALL PARTS MUST BE ORDERED AND SUPPLIED THROUGH YOUR APPOINTED DEALER.

The dealer can then order them from the factory or direct from the supplier for appliances detailed overleaf where the original supplier undertakes warranty.

All the illustrations and descriptive matter in this guide are intended to give a general idea of the caravan. Changing market and supply situations may prevent the manufacturer from maintaining the exact specifications and details in this handbook and we therefore reserve the right to alter specifications and materials as conditions demand.

Dealers are not agents of the manufacturer and have absolutely no authority to bind the manufacturers by any express or implied undertaking or representation.

Repairs

Should you be unfortunate enough to suffer an accident with your caravan, you should contact your dealer.

The cost of transporting, towing or moving the caravan by any means to or from the place of repair is the responsibility of the owner.

The manufacturers will also undertake to supply certain specialist repairs with the necessary spare parts. In this case, your selected repairer must contact the AFTER SALES DEPARTMENT with all enquiries.

Coachman genuine parts and procedures must be used at all times.

Servicing

Service Documents

Touring caravans - annual service record

Your caravan needs servicing at least once a year.

Whether you use your caravan for short journeys or for touring at home or abroad, regular servicing will help ensure that you can enjoy it to the full.

The annual service offered by your dealer will include the following work and it is our recommendation you have your caravan serviced to this standard annually.

The dealer will complete the record in this guide to show the work has been carried out.

Section (A) Chassis

1. Brakes/lights
2. Suspension
3. Axles and hubs
4. Tyres and pressures
5. Wheel bolts

6. Towing hitch and overrun device
7. Jockey wheel
8. Breakaway cable
9. Corner steadies
10. Check wheel carrier and grease sliding joints.
11. Lubrication
12. Operational check

Section (B) Exterior

1. Exterior panels
2. Windows
3. Rooflights
4. Entrance door/door locks
5. Wheel boxes
6. Mouldings
7. Gas bottle and locker
8. Ventilation
9. Paintwork
10. All seals, mouldings etc.
11. Reflectors
12. Graphics

Section (C) Interior

1. Wall panels
2. Furniture
3. Curtains/blinds/flyscreens
4. Bedding/seating
5. Carpet
6. Door and drawers
7. All hinges and catches
8. Ventilation
9. Hoses and sink plugs
10. Hot water system
11. Cold water system
12. Window hinges and stays
13. Cassette toilet
14. Shower
15. Shower tray
16. Central heating
17. Damp test

Section (D) Electrical

1. All interior lights/road lights
2. Water pump and switches

Servicing/Warranty

Care Warranty

Your caravan is covered by a 3 year warranty. To activate this warranty your selling dealer must forward the signed and completed Registration Form contained in the Service,Warranty and Technical Data Manual within one week of purchase. It is a condition of this warranty that a service and safety check is carried out by your caravan dealer at least once every year (12 months from the date of purchase), within the period 90 days before to 90 days after the anniversary of the purchase date for interim years but BEFORE THE ANNIVERSARY ON THE FINAL YEAR in accordance with the National Caravan Council recommendations. For further information please read your policy documents in your Service,Warranty and Technical Data Manual.

If you have a "Warranty" problem

We sincerely hope you will never have cause to complain about your caravan. However, if things do go wrong, the course

of action for you is to contact your dealer and explain the difficulty you are having. We are confident they will do their utmost to resolve the problem to your complete satisfaction.

The dealer from whom the caravan is purchased is liable for warranty repairs.

Any other approved dealers may carry out work on a caravan at his own convenience or discretion, but is not obliged to do this.

Your caravan is supplied to you with a manufacturer's warranty guarantee that is valid for 3 years from the date of purchase as detailed in your Service,Warranty and Technical Data Manual.

3. Refrigerator
4. Distribution unit
5. Charging Unit
6. Junction box
7. Wiring and supports
8. Trailer connecting plugs
9. Overall tests ext. lights
10. Awning light
11. Electronic ignition (hob)
12. 12V/230V system where applicable

Section (E) Gas Installation

1. Hob burners
2. Oven
3. Heater
4. Fridge
5. Water heating
6. Fully operational
7. Leak tested

Section (F) Final

Road Test

Warranty & after-sales reference chart

Manufacturer administrating warranty with dealers

Appliance/ Component	Address of company providing warranty	Warranty Term	Contact number
Chassis, axle & under gear hitch, traction control and wheel lock (where fitted)	AL-KO, South Warwickshire Business Park, Kineton Road, Southam, Warwickshire CV47 0AL	36 months	01926 818500
Entertainment system	Base Systems Limited, B19 Ribble Court, Red Scar Business Park, Preston, PR2 5NJ	12 months	01772 886000
Alarm (where fitted)	Phantum Ltd, 154-156 Higher Hillgate, Stockport, Greater Manchester, SK1 3QT	24 months	0161 476 4050
Polyplastic windows	Miriad Products Limited, Park Lane, Dove Valley Business Park, Foston, South Derbyshire DE65 5BG	Optical 3 months Technical 24 months	01283 586060
Power centre/ chargers/ loom/ relays/ consumer unit control panels	BCA Leisure Limited, Unit H9 Premier Way, Lowfields Business Park, Elland HX5 9HF	36 months	01422 376977
Refrigerator	Dometic UK Limited, Dometic House, The Brewery, Blandford Dorset, DT11 9LS	36 months	0344 626 0133
Toilet, cooker and hob	Thetford Limited, Unit 6 Brookfields Way, Wath Upon Dearne, Rotherham S63 5DL	36 months	0844 997 1960
Soft furnishings	Belfield Furnishings Limited, Site 3, Furnace Road, Ilkeston DE7 5EP	36 months Fabric light fastness 12 months	0115 907 1700
Heating systems	Alde International (UK) Limited, Huxley Close, Park Farm South, Wellingborough NN8 6AB	36 months	01933 677765
Water systems	Whale, 2 Enterprise Road, Bangor, Co. Down, Northern Ireland BT19 7TA	36 months	028 9127 0531
Gas components	Whale, 2 Enterprise Road, Bangor, Co. Down, Northern Ireland BT19 7TA	36 months	028 9127 0531
Phantom Tracker (where fitted)	Phantom Ltd, 154 - 156 Higher Hillgate, Stockport, Greater Manchester, SK1 3QT	12 months	0161 476 4050
Smoke alarm	FireAngel, Vanguard Centre, Sir William Lyons Road, Coventry CV4 7EZ	36 months	0330 094 5830
Carbon monoxide alarm		84 months	
Solar panel and regulator (where fitted)	Solar Technology International Limited, Unit 6 Station Drive, Bredon, Tewsbury, Gloucestershire GL20 7HH	*See below	01684 774000
Self levelling system (where fitted)	E + P Hydraulics, 10 Elder Court, Lions Dr, Blackburn BB1 2EQ	24 months	01254 297785

*Charge controller and cable gland 24 months | *Frame integrity 120 months | *Build quality and cell performance 240 months (assumes a rate of degradation of no greater than 20% by year 20)

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COACHMAN

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Coachman Caravan Company Limited reserves the right to, and does from time to time alter technical specifications, prices and model ranges as materials, model improvements and conditions demand. Therefore can accept no responsibility for discrepancies between these and subsequent models.

All Coachman models have been certified by the National Caravan Council for compliance with stringent European Standards, British Legislation and industry set Codes of Practice, specifically relating to health and safety issues. The approval process covers the testing and inspection of critical areas of the product from fire safety, weights and dimensions to gas, electrics and ventilation.

Every Coachman caravan carries the "NCC Approved Caravan" badge. The NCC also conducts unannounced inspections at the Coachman factory to ensure continued compliance. NCC Approval gives you peace of mind that your caravan is legal and safe.

Please note: Touring caravans are designated by the model year. The model year runs from the 1st September to the 31st August.