



Quality

Redefined

lity

2019 Owner's Handbook



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.

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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 consult THE CARAVAN TOWING GUIDE, which is based on the recommendations of the NCC, and a copy of which is in the information pack provided with this caravan.

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
- 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.

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.

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.

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).

YOUR CARAVAN

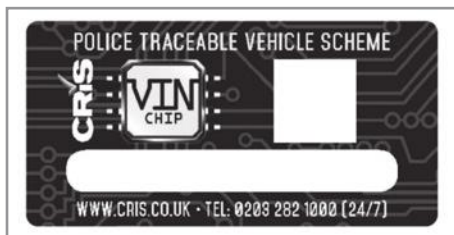
Three electronic RFID chips containing the individual identity of your caravan are concealed within the caravan and can only be read by using a specially programmed RFID scanner.

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

Window Lozange



Master Window Label



Gas Bottle Locker Warning Label



PHANTOM TRACKING SYSTEM

The Phantom Tracking System where fitted, enables the 24 hour Phantom Monitoring Centre to pinpoint the location of the caravan through a GPS system.

Details of the vehicle and contact information will have to be registered with Phantom UK.

The unit will alert if the caravan has moved out of its “shield” area and is activated if it detects motion for 90 seconds at >15mph.

Installing the “MYPHANTOM” app or going onto the website, will provide information as to the vehicle battery voltage, and warnings via SMS can be set.

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

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, 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 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

The Vision and Pastiche are fitted with the Holzhauser one piece door and VIP models are fitted with Seitz exterior doors. 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

GETTING STARTED

Please refer to the NCC Caravan Towing Guide contained in your information pack prior to your first outing.

TOWING CODE

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 EWTVA, 2007/46/EC (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 – (MiRO)

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;
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 MIRO 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 (miro) 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 MiRO 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 100kg 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 CODE

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:

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

⚠ 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).

POWER TO WEIGHT RATIO:

No hard and fast rules can be stated but here is a general guide.

- Conventional petrol engines with a capacity up to approximately 1500cc should be adequate for towing a caravan weighing around 85% of the kerb weight of the towing vehicle.
- Above 1500cc such engines should manage a caravan weighing up to 100% of the kerb weight of the towing vehicle and still give adequate performance.

Note: The towing vehicle manufacturer's limit is, in some cases, less than the kerb weight.

Vehicles with automatic transmission may need an oil cooler fitting or the SAE rating of the gearbox oil increasing when towing.

The advice of the vehicle manufacturer should be sought.

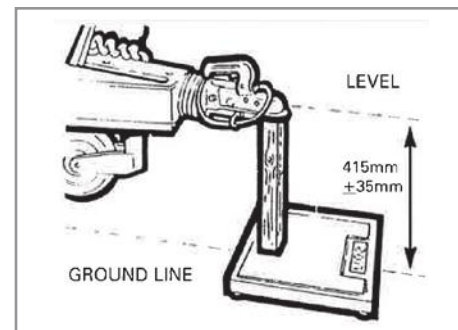
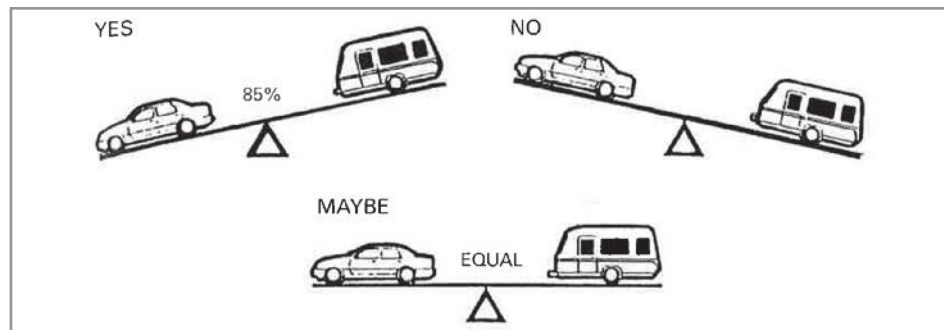
MEASUREMENT OF NOSE WEIGHT:

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

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)



In order to be able to tow a caravan a driver must hold a Category B licence. Those car drivers who passed their tests prior to 1 January 1997 would have automatically obtained Category B + E. However, anyone who passed their test after 1 January 1997 will need to take a further test in order to obtain a Category B + E if they wish to tow a car and caravan combination whose train weight exceeds 3,500kg, or up to 4,250kg if the caravan is less than 750kg or if the caravan's Maximum Technically Permissible Laden Mass exceeds the unladen weight of the car.

Note: The unladen weight of a car is normally less than the kerbside weight.

If you are unsure contact the DVLA at Swansea for further details.

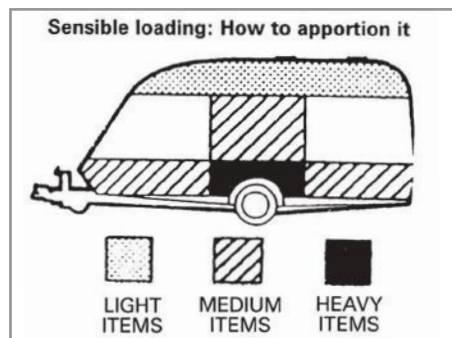
Compulsory third party insurance cover is required by the Road Traffic Act for a caravan and this is normally provided by the towing car insurance policy, but it is essential that you ensure your car policy is not invalidated by towing.

Do not forget to take out separate insurance cover on the caravan and contents.

LOADING AND DISTRIBUTION OF WEIGHT

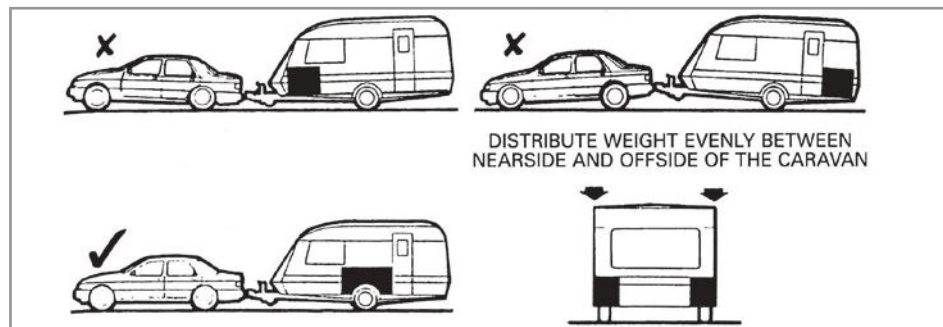
Under no circumstances should the MTPLM of this caravan be exceeded.

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.



PREPARING FOR THE ROAD

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.

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.

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
(Towball 385mm +/- 35mm).
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 consult the Caravan Towing Guide which is available from the NCC.

⚠ 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.

PREPARING FOR THE ROAD

⚠ 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.

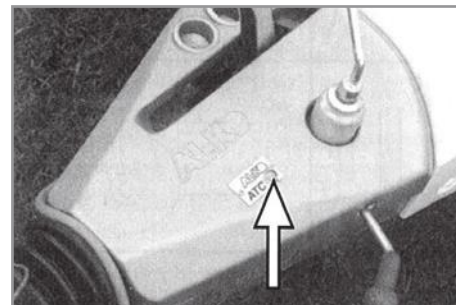
If the LED does not change to GREEN, then ATC is not functioning correctly. For details of what to do in this case, see the provided table on page 15.

⚠ 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.

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

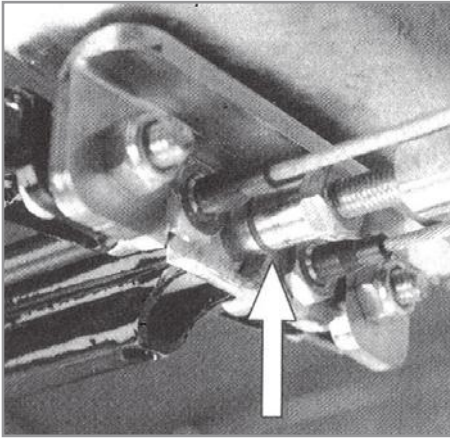


TROUBLESHOOTING

Should you experience a fault with ATC, the LED light on the fairing will change colour. Therefore, refer to the table on page 15 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).

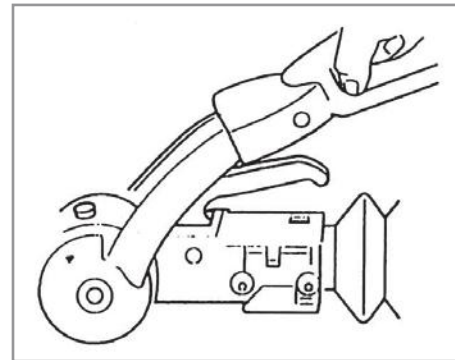
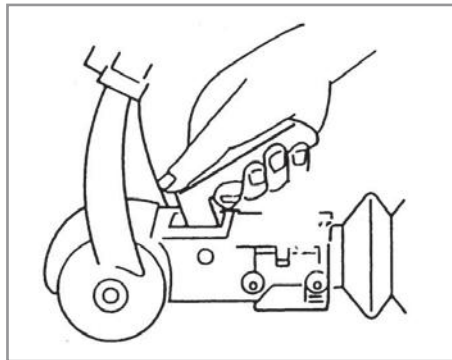
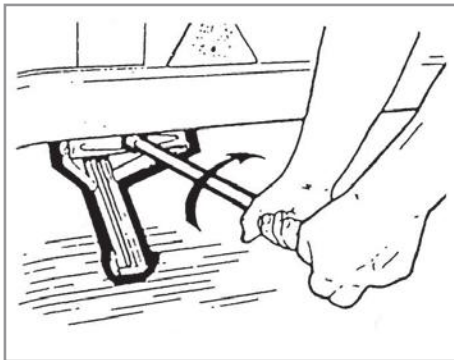
If no red line is visible, ATC is not active and can be driven. However, we recommend that you contact AL-KO at the earliest convenience.

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

Contact AL-KO or a specialist workshop.

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.



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.

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

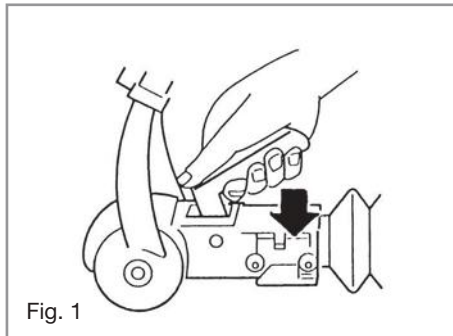


Fig. 1

- 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)**
- 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 coupled to your

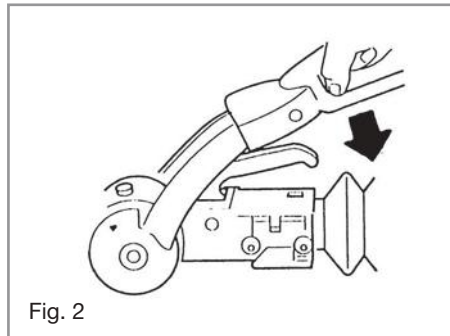


Fig. 2

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.

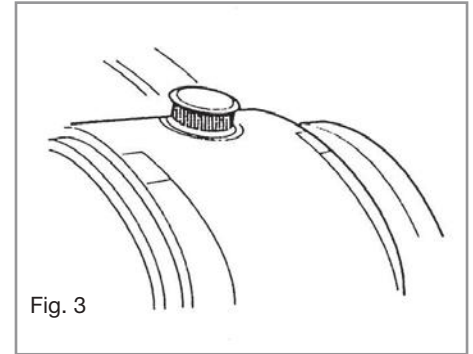


Fig. 3

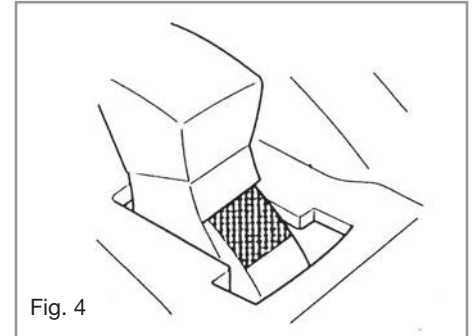
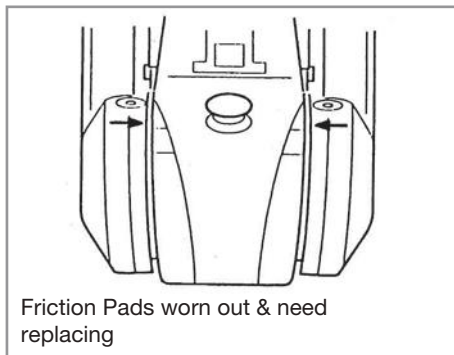
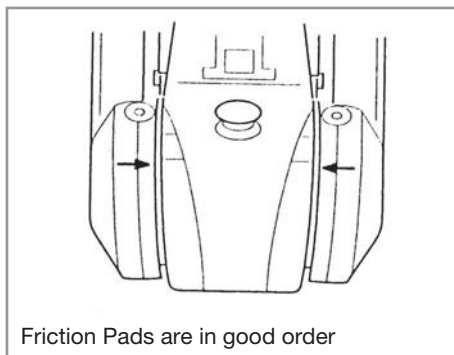


Fig. 4

PREPARING FOR THE ROAD



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

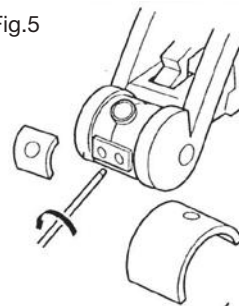
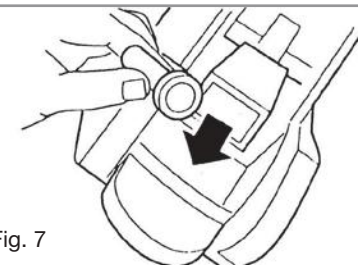


Fig.6



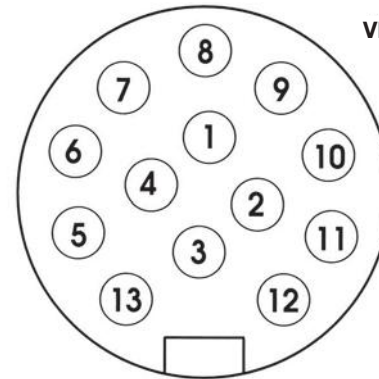
Fig. 7



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 adaptors but have it rewired and a 13 pin Jaegar socket fitted. (Ensuring the car socket is wired in accordance with the drawing below).



VIEWED FROM REAR

PIN NO	COLOUR	DESCRIPTION
1	Yellow	Left Flasher
2	Blue	Fog Hazard Light
3	White	Return for 1,2,4,5,6,7 & 8
4	Green	Right Flasher
5	Brown	Right Tail Light
6	Red	Stop Lights
7	Black	Left Tail Light
8	Orange	Reverse Lights
9	Brown/Blue	Car +
10	Brown/Red	Fridge
11	White/Green	Return for 10
12	NOT USED	
13	White/Blue	Return for 9

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:

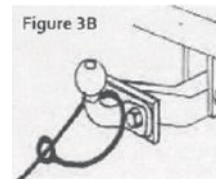
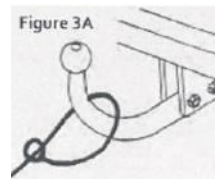
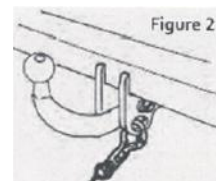
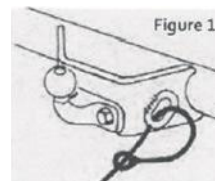
Either: a) Pass the cable through the attachment point and clip it back on itself (Fig. 1)

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.

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.

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

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

*The limit for older vehicles is 200 mm

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).

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?

PREPARING FOR THE ROAD/TOWING AND DRIVING

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 14)?
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.

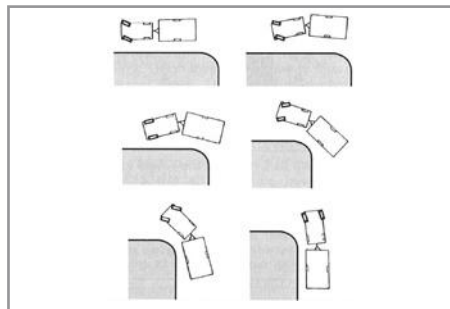
Do not bump kerb with caravan wheels. When passing other vehicles allow more than normal clearance for driving solo. Allow longer to get up speed to pass.

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 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.

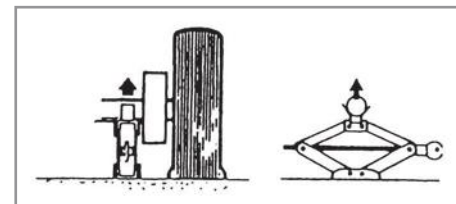
CHANGING A WHEEL

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.

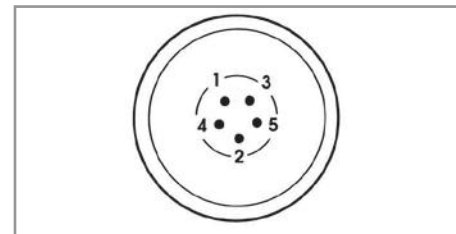
6. Now slide the carrier out of the locating holes on the chassis and rest the nearside on the floor.
7. Reach into the centre of the spare wheel and remove the clamping sleeve and the retaining wheel nut. Remove spare wheel from carrier.
8. Use your wheel brace to slacken off the wheel bolts on the 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 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.

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.

TOWING AND DRIVING/SAFETY AND SECURITY

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.

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.

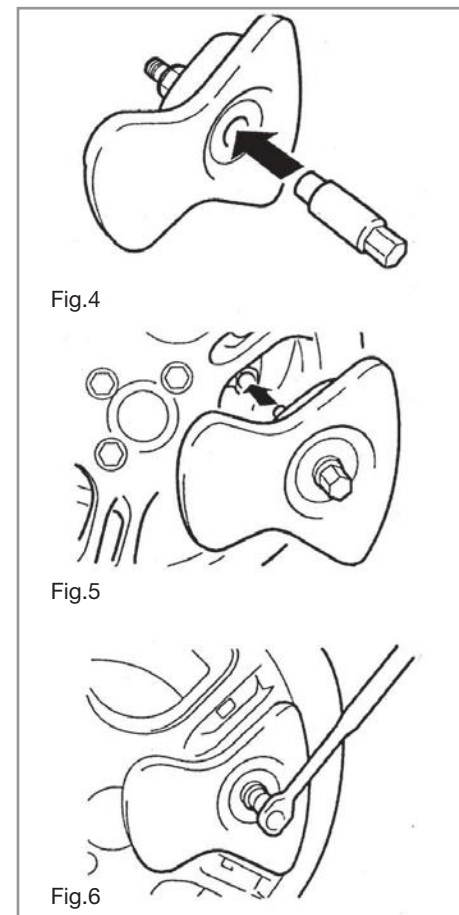
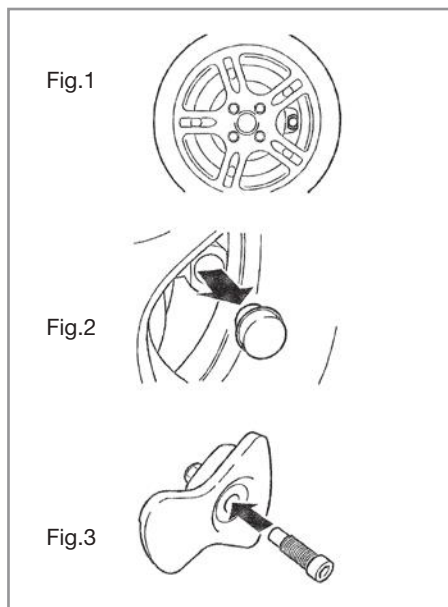
ADDITIONAL SECURITY

VIP and Laser models come as standard with the AL-KO Secure wheel clamping device. While Vision and Pastiche 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)**



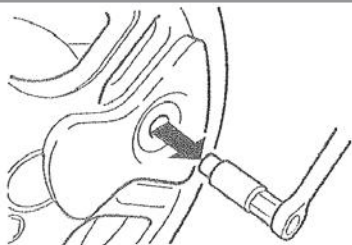


Fig.7

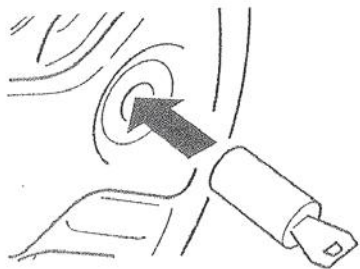


Fig.8



Fig.9

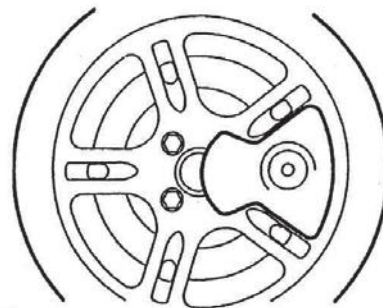


Fig.10

- 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.

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.

UNHITCHING

Apply the caravan handbrake.

Disconnect the breakaway cable.

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

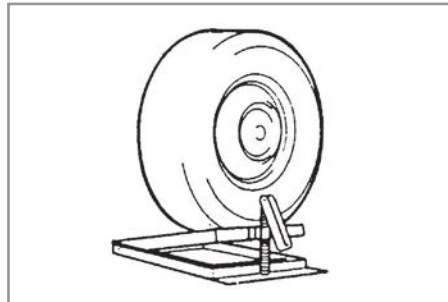
Unclamp and lower the jockey wheel to the ground.

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.

ARRIVAL AT SITE/CONNECTING SERVICES - WATER

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 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.

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.

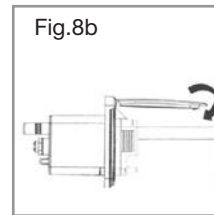
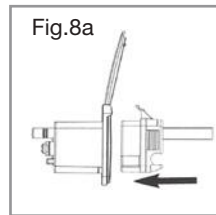
CONNECTING YOUR PLUG AND PUMP KIT

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 close the lid to lock into place see Fig. 8a & 8b below.



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).

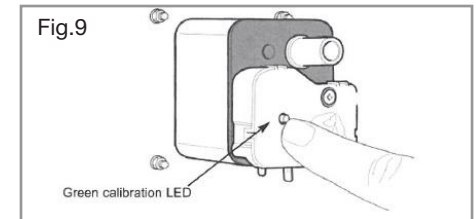
Step six - After trapped air has been expelled, by following Step five, water will flow from the open outlet.

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

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.9)



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.

CONNECTING SERVICES - WATER

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

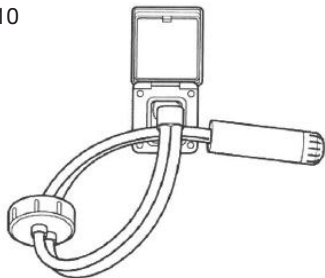
The Watermaster® is now installed and ready for use. During normal use you will only need to recalibrate if you use a different pump. Simply repeat the steps above to calibrate a new pump.

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. 10). The plug must always be removed before moving the caravan/motorhome.

Fig.10



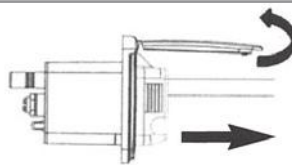
REMOVING THE PUMP

Step one - Lift the lid to unlock the plug (See Fig. 11).

Step two - Pull out plug from socket using hand grip (See Fig. 11).

Step three - Shut lid.

Fig.11



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.

During the winter when the caravan is not in use, it is advisable to remove the filter to avoid any retained water within the filter freezing.

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.

OPERATION OF THE WATER SYSTEM

After the waste connections have been made, all the taps have been closed, the water heater drain tap and the hot and cold drain taps closed, check also that your external container is full, and the pump submerged.

1. Switch on the 12v master switch.
2. Turn on the pump at the switch panel.
3. The pump will run for a short time as it is priming the system.
4. Open a cold tap and leave open until there is a good flow of water.
5. Close that tap and carry out the same operation on the remaining cold taps.
6. Repeat this operation with the hot taps until there is a good flow. This will take longer as your water heater will be filling.

WHALE ON BOARD SYSTEM (Where fitted)

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

This includes a self-contained 38 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

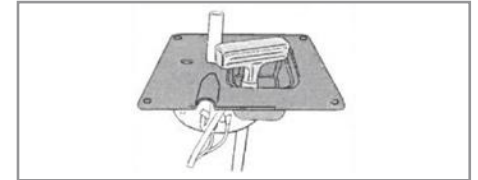
As submersible pump system see Control Panel Instructions.

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.

Problem	Possible Causes	Potential Solution
Pump fails to turn on	Loose wiring connection Pump circuit has no power. Blown fuse. Pressure switch failure. Defective motor.	Remake a sound connection. Replace fuse/reset. Reset pressure switch using manufacturer's instructions. Replace pump.
Float switches fail to operate.	Loose wiring connection. Defective switch.	Remake a sound connection. Contact Whale Support.
Tank leaking from drain plug	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 163).

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.

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 30mbars for LPG installations in touring caravans across Europe. Your caravan 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: 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.

TYPES OF GAS: BUTANE

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

⚠ 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.

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.

- 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.

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.

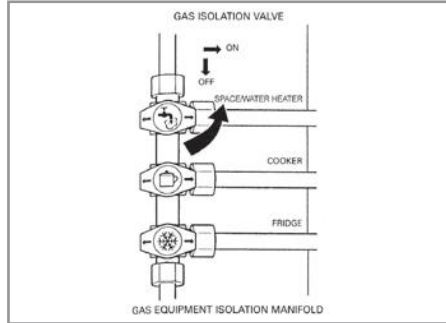
Care should be taken that any additional equipment or appliances are installed in accordance with the appliance/equipment manufacturers and Coachman's instructions (e.g. air conditioning, satellite dish, fuel cells etc.)

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:

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

Full cylinders

- i. Remove plastic protector from cylinder.
- ii. Place cylinder in gas locker.
- iii. 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.
- iv. Connect retaining strap.
- v. 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

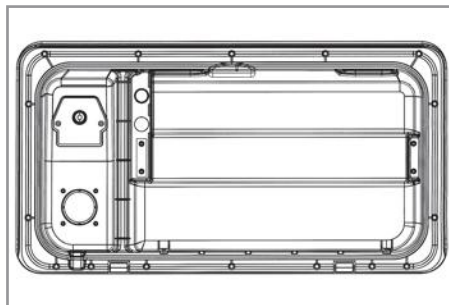
1. Before connecting the caravan installation to the mains supply, check that:

- (a) 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.
- (b) 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.

- (c) 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.

2. MAKE SURE THAT THE SWITCH AT THE SITE SUPPLY POINT IS OFF AND THAT ALL ELECTRICAL EQUIPMENT IN THE CARAVAN IS SWITCHED OFF.



3. Remove any cover from the electricity inlet provided on the caravan and insert the connector of the supply flexible cable.

4. Remove any cover from the socket outlet provided at the site supply point, and connect the plug at the other end of the supply flexible cable to this. Switch on the main switch at the site supply point.

Note: 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.

On leaving caravan site

5. Reverse the procedure described in Paragraph 3 and 4 above.

⚠ 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 outlet 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.

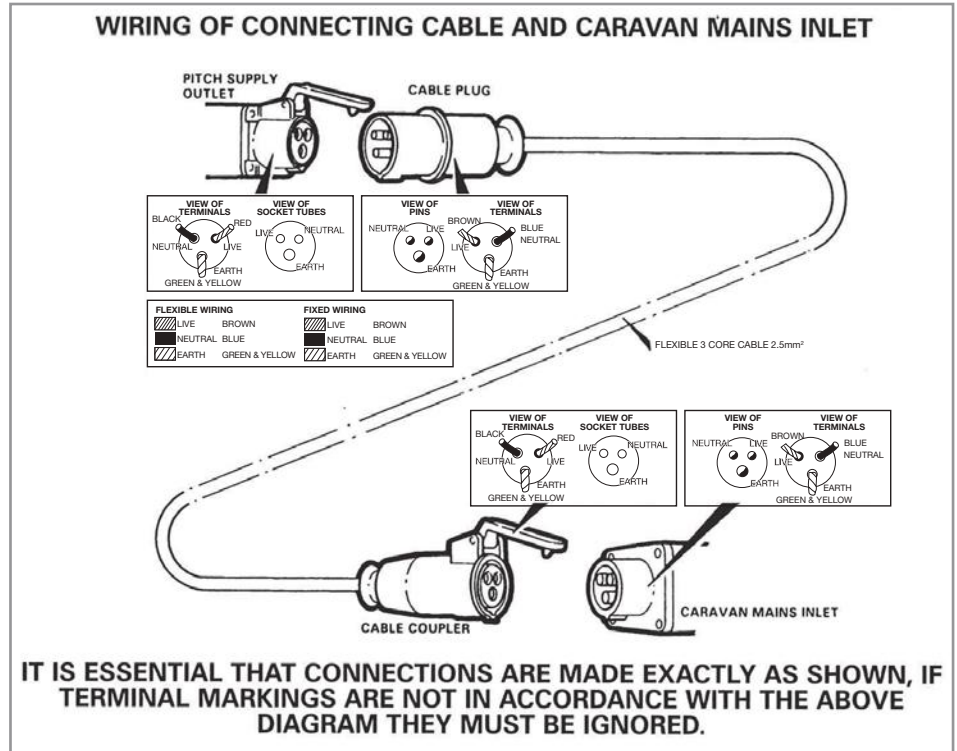
The only certain way of making equipment safe is to unplug it.

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

CONNECTING SERVICES - ELECTRICITY

supply it may trip the site circuit breaker. Please check the available mains output with your site operator.

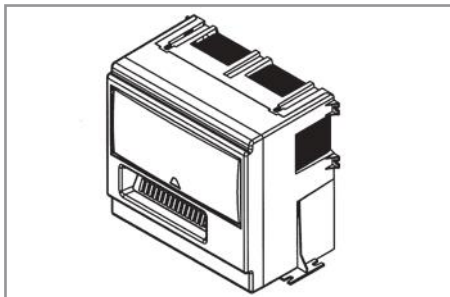
The following items need to be added together if used simultaneously.

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: 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.

⚠ 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.

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 Thetford 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.

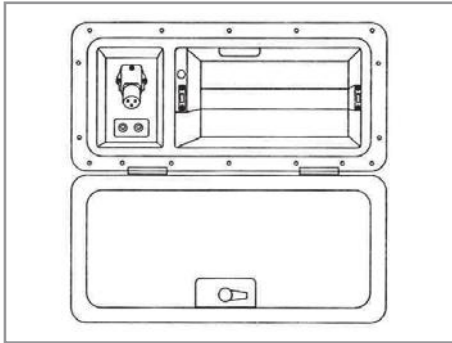
There are several; proprietary makes of equipment to check the polarity of mains supply. This equipment is useful, mostly for mains connection when overseas.

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.

⚠ 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.

CONNECTING SERVICES - ELECTRICITY

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.

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)



- Pump ON/OFF Switch/Pump Run Indication
- Master 12 volt ON/Off Switch
- 12 volt Lighting Switch
- Voltmeter Switch
- Awning Light 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
- Vehicle battery voltage
- Leisure battery current
- Vehicle battery current
- Load current
- Mains current
- Solar current
- Internal temperature
- External temperature
- Water level

- Waste level
- Battery source
- Pump source

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
- Switch over the battery supply from Leisure to Vehicle
- Charge the Vehicle battery when a mains 230V connection is present
- Control Whale Space/Water heating systems
- Calibrate water/waste probes

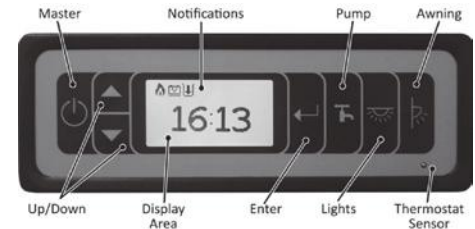
The Seattle control panel also has optional audio and visual warnings for:

- Battery overvoltage/current alarms
- Battery under voltage alarms

- High solar current alarm
- Communication error
- Empty water tank
- Full waste tank
- Thermistor faults
- Whale space/water heater alarms
- Fuse blown alarms




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

Function Buttons:



CONNECTING SERVICES - CONTROL PANEL

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.

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

Lights Button:

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

NOTES: 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.

NOTES: 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.

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






MAIN PAGE DESCRIPTIONS:

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



Main Page – Clock Display:

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  for 3 seconds until the hours being to flash.
2. Keep pressing  or  to change the hours
3. Press  to set the hours, the minutes will now flash
4. Keep pressing or to change the minutes
5. Press  to set the minutes and finish setting the time

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.

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

Vehicle Battery Voltage Display Page:

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

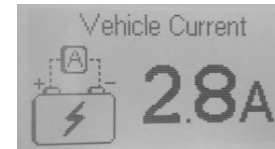
To increase the accuracy of the battery voltage reading, switch the “Master Switch” off, this will reduce the load and give a better indication of the batteries voltage level.

NOTES: See the “Notifications” section in the User Settings to enable/disable the high and low voltage notifications for the Vehicle 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.

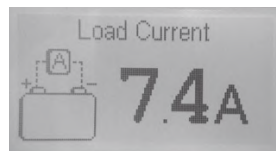
NOTES: See the “Notifications” section in the User Settings to enable/disable the high Leisure Battery load notifications

Vehicle Battery Current Display Page:

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

NOTES: See the “Notifications” section in the User Settings to enable/disable the high Vehicle Battery load notification

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.

NOTES: 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.

NOTES: 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.

NOTES: See the “Notifications” section in the User Settings to enable/disable the High Solar 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. Pressing the  button when on this page will change the temperature readout to degrees Fahrenheit.

External Temperature Display page:







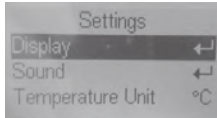
This page displays the external temperature, it is measured by a sensor placed on the outside of the van (usually on the underside). The temperature is displayed on screen in degrees Celsius by default. Pressing the  button when on this page will change the temperature readout to degrees Fahrenheit.






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.







- 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.


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 14.5V

VBat Low Volt:

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


VBat High Volt:

Pressing the  button enables/disables the Vehicle Battery High Voltage notification. Disabling this will no longer inform the user when the Vehicle Battery Voltage goes above 14.5V


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 Vbat Load:

Pressing the  button enables/disables the High Vehicle Battery Load notification. Disabling this will no longer inform the user when the Vehicle Battery 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.


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.

NOTES: 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.

CONNECTING SERVICES - CONTROL PANEL






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.

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 14.5V (Default value)
	High Vehicle Battery Voltage Warning	Displays when the Vehicle Battery Voltage is higher than 14.5V (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)
	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.

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

TRUMA COMBI (where fitted)

The Truma Combi is a warm air heater with integrated hot water boiler.

The primary power source is gas with a secondary source of 230V electric. For room heating the combi can work on dual fuel.

The burner operates fan-supported, which ensures trouble-free function. The unit also has heating elements for electrical operation. The unit is unsuitable for use as an instantaneous water heater.

In **winter operation** the heater can be used to heat the room and simultaneously warm water. If only warm water is required, select **summer operation**.

3 different energy selections are available for operating the unit.

- **Eas operation only**
Propane/Butane for autonomous use
- **Electrical operation only**
230V for use on camp site
- Or gas and electrical operation - **mixed operation** only possible in winter mode

Winter Operation

In winter operation, the unit automatically selects the required power setting according to the temperature difference between the

temperature set on the control panel and the current room temperature. When the boiler is filled, the water is automatically heated as well. The water temperature depends on the selected operational mode and the heater output.

All 3 energy selection options can be used for winter deployment but if the ambient temperature is below 6°C mixed operation or gas only is recommended.

With gas operation the unit automatically selects the output level that is required.

For **electrical operation** depending on the fuse protection at the camping site, power of 900W (3.9A) or 1800 (7.8A) can be manually selected.

Note: If more output is required (e.g. heating up or low outside temperatures) gas or mixed operation should be selected so that enough heating power is always available.

With mixed energy operation selected, the 230 V electric supply is prioritised over the gas operation if the heat requirements are low (i.e. to maintain the room temperature). The gas burner is only in operation when there is a greater requirement for heat. The gas burner is also switched off first during the heating operation when heat requirements reduce.

Summer Operation (Boiler operation only)

Gas operation or 230V electrical is used for hot water preparation. The water temperature can be set to 40C or 60C.

With **gas operation** the water is heated at the lowest burner setting. Once the water temperature is reached, the burner switches off.

Depending on the fuse protection at the camping site, power of 900W (3.9A or 1800W (7.8A) can be manually selected for **electrical operation**.

Mixed operation is not possible. With this setting the unit automatically selects electrical operation. The gas burner is not enabled.

Airflow (where fitted)

This heating system requires that the airflow be balanced by the operator to get the desired heating distribution.

The reason for this is simple, in that the airflow will try to travel down the path of least resistance to the vents adjacent to the unit at the front of the caravan, resulting in a reduced flow to the rear.

This airflow can be easily balanced by using the butterflies in the blown air outlets to optimise the flow to different parts of the caravan.

Hot water and showering

Unlike the Truma Ultrastore you will not achieve the best out of your combi by putting the hot water on and leaving it on.

To obtain the best out of your combi you will need to do a small degree of planning and choose one of the following options

Option 1 - Timer

If you like to shower in the morning or the evening you can set the timer to deliver hot water when you really want it.

In winter mode and with water temperature set to 60° set the timer for approximately 1 hour before showering.

Option 2 - Manual control

Hot water is set to 40° as standard then approximately 10 – 15 minutes before showering you should switch to 60° for a power boost.

Reheat for a follow on second shower

The quickest water reheat times can be gained by having the water set to 60° temperature and showering approximately 10 minutes after the temperature setting stops flashing on the LCD control panel.

Safety Instructions

The use of upright gas cylinders from which gas is **taken in the gas phase** is mandatory for the operation of gas regulators, gas equipment and gas systems. Gas cylinders from which gas is taken in the liquid phase (e.g. for fork lifts) must not be used, since they would result in damage to the gas system.

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

- Extinguish all open flames
- Open windows and door
- Close all quick-acting valves and gas cylinders
- Do not smoke
- Do not activate any electric switches
- Ask an expert to inspect the entire system.

Repairs may only be carried out by an expert!

Guarantee claims, warranty claims and acceptance of liability will be ruled out in the event of the following:

- Modifications to the unit (including accessories).

- Modifications to the exhaust duct and the cowl.
- Failure to use original Truma parts as replacement parts and accessories.
- Failure to follow the installation and operating instructions,

It also becomes illegal to use the appliance, and in some countries this even makes it illegal to use the vehicle.

The gas supply's operating pressure (30 mbar) must be the same as the unit's operating pressure (see type plate).

Liquid gas systems must comply with the technical and administrative regulations of the respective country of use (e.g. EN 1949 for vehicles in Europe). The national legislation and regulations (e.g. DVGW Work Sheet G 607 for vehicles in Germany) must be observed.

In Germany, the gas system must be retested every 2 years by a liquid gas specialist (DVFG, TÜV, DEKRA). The test must be confirmed on the respective test certificate (G 607).

The vehicle owner is always responsible for arranging the inspection.

Liquid gas equipment may not be used when refueling, in multi-story car parks, in garages, or on ferries.

During the initial operation of a brand new appliance (or after it has not been used for some time), a slight amount of fumes and smell may be noticed for a short while. It is a good idea to heat the device up several times in summer operation (60°C) and to make sure that the area is well ventilated.

Heat sensitive objects such as spray cans or flammable liquids may not be stored in the same compartment where the heater is installed because, under certain conditions, this area may be subject to elevated temperatures.

Only pressure regulating equipment that complies with EN12864 (in vehicles) with fixed output pressure of 30 mbar may be used for the gas system. The flow rate of the pressure control device must correspond to at least the maximum consumption of all devices installed by the system manufacturer.

We recommend the gas pressure control systems Truma SecuMotion/MonoControl CS for vehicles and the gas pressure control systems Truma DuoComfort/DuoControl CS for dual-cylinder gas systems.

At temperatures of around 0°C or less the gas pressure regulator and the changeover valve should be operated using the EisEx regulator heater.

Controller connecting hoses that meet national regulations must always be used in the respective country for which the equipment is destined. These hoses must be checked regularly for brittleness. Winter-proof special hoses must always be used if the equipment is operated during the winter.

Pressure regulating equipment and hoses must be replaced with new ones no more than 10 years after the date of manufacture (every 8 years if used commercially). This is the responsibility of the operator.

Important operating notes

The integrity and tight fit of the exhaust gas double duct must be checked regularly, particularly at the end of long trips. Also check the mounting of the appliance and the cowl.

Following a blow-back (misfire) always have the exhaust gas system checked by an expert.

Always keep the cowl for the exhaust duct and combustion air intake free of contamination (slush, ice, leaves etc.).

The hot air outlets and the recirculated air intake opening must be free so that the unit does not overheat. The integrated temperature limiter blocks the gas supply when the unit becomes too hot.

Operating Instructions

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

The installer or vehicle owner must apply the yellow sticker with the warning information, which is enclosed with the appliance, to a place in the vehicle where it is clearly visible to all users (e.g. on the wardrobe door)! Ask Truma to send you stickers, if necessary.

Directive 2004/78/EC stipulates that a safety shut-off device is required if caravans are being heated while driving.

The Truma gas pressure control systems SecuMotion/MonoControl CS satisfy these requirements.

Before using for the first time, it is essential to flush the entire water supply system through with clean water. If the heater is not being used, always drain the water contents if there is a risk of frost. There shall be no claims under guarantee for damage caused by frost!

Materials in the device which come into contact with water are suitable for use with drinking water (see manufacturer declaration <https://www.truma.com/uk/en/service/truma-manuals-instructions.html>)

TRUMA CONTROL PANEL

OPERATING INSTRUCTIONS

Safety Instructions

- The device may only be operated if it is in perfect working order.
- Arrange for malfunctions to be rectified immediately. Only rectify malfunctions yourself, if the remedy is outlined in the troubleshooting information in these operating instructions.
- Do not repair or modify the device!
- Only allow the manufacturer or its customer service to repair a faulty device.

Important Note

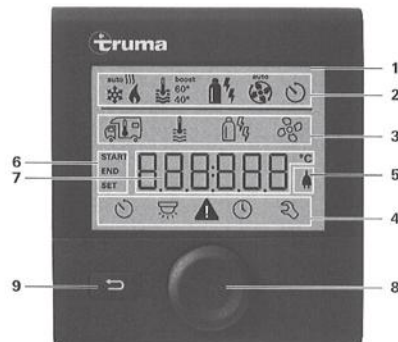
If the power supply to the systems is interrupted for longer than 20 minutes, the time and date need to be entered again.

If the Truma Combi heater is connected to the control panel Truma CP plus, the heater can no longer be switched via a ZUCB timer.

Intended Use

The control panel Truma CP plus serves to control and monitor a Combi heater and/or a Truma air conditioning unit. The device is designed for installation in caravans and motor-caravans.

Display and Control Elements



- 1 = Display
- 2 = Status line
- 3 = Menu line (above)
- 4 = Menu line (below)
- 5 = Display of mains voltage 230V (shore power)
- 6 = Display timer
- 7 = Settings/values
- 8 = Control knob/push button
- 9 = Back button

The control knob/push button (8) is used to select menus in the lines (3 + 4) and configure the settings. These are shown via a display (1) with a lighted background. Pressing the Back button (9) takes the user back out of the menu again.

Control knob/push button

The control knob/push button (8) is used to select and change set values and parameters; these can be saved by clicking the control knob/push button. Selected menu items will flash.



Turn to the right (+)

- Menu is paged from left to right.
- Increase values

Turn to the left (-)

- Menu is paged from right to left.
- Reduce values.



Clicking

- Accept (save) a selected value.
- Select a menu item, change to the setting level



Press (3 seconds)

- Main switch function ON/OFF

Back Button

Pressing the Back button (9) takes the user back out of the menu again and discards the settings. This means that the previous values are retained.

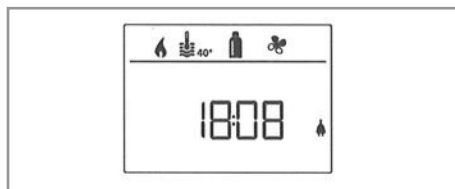
CARAVAN EQUIPMENT

Functions

The functions in the menu lines (3, 4) of the control panel can be selected in any sequence. The operating parameters are shown in the status line (2) or the displays (5, 6).

Start/stand-by screen

After connecting the control panel to the power supply, a start screen is shown after a few seconds.



If no entry is made within a few minutes, the standby screen is automatically shown again. The display shows the time and current room temperature alternately.

Switch on/return to setting level

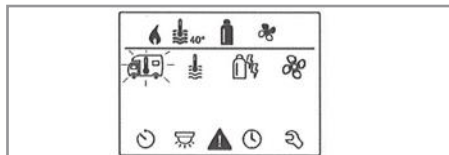
- Press the control knob/push button for longer than 3 seconds.

or the

- Back button.

The display shows the setting level. The first symbol flashes.

Previously set values/operating parameters become active again after the system is switched on.

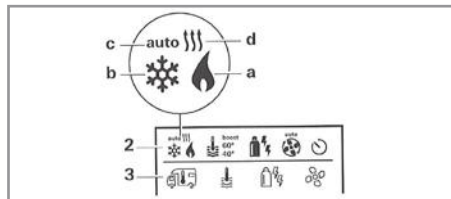


Switch off

- Press the control knob/push button for longer than 3 seconds.

Change the room temperature

- Use the control knob/push button to select the symbol in menu line (3).
- Click to change to the setting level.
- Depending on the connected device, use the control knob/push button to select between the heater or air conditioning unit.
- Use the control knob/push button to select the required temperature.



- Click the control knob/push button to confirm the value.

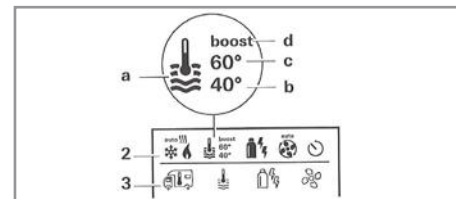
Heater

Settable temperature arranger 5 – 30 °C (1 °C steps)

a = heater* - Heater is switched on.

Change the warm water level

- Use the control knob/push button to select the symbol in menu line (3).
- Click to change to the setting level.
- Use the control knob/push button to select the required level.
- Click the control knob/push button to confirm the value.



a = Boiler* - Warm water boiler is switched on.

b = 40° - Warm water temperature 40° C

c = 60° - Warm water temperature 60° C

d = boost* - Targeted, fast heating of the content of the boiler (boiler priority). The water temperature is kept at the

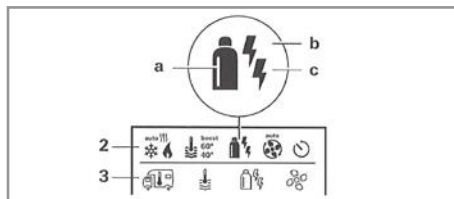
higher level (around 62° C) – Not Combi Diesel. Once the water temperature is reached, the room is heated again.

*This symbol will flash until the required water temperature is reached.



Select power type

- Use the control knob/push button to select the symbol in menu line (3).
- Click to change to the setting level.
- Use the control knob/push button to select the required power type.
- Click the control knob/push button to confirm the value.



Symbol	Operating Mode	Power type
a	Gas/Diesel	Gas/Diesel
b	EL 1	Electro
b + c	EL 2	Electro
a + b	Mix 1 *	Gas/Diesel + Electro
a + b + c	Mix 2 *	Gas/Diesel + Electro

*Mixed mode

Special aspects in the mixed mode

Interruption of the power supply 230 V

Combi Gas

The heater automatically switches to the gas mode. As soon as the 230 V power supply is reconnected, the heater automatically switches back to the mixed mode.

Combi Diesel

The heater goes to malfunction. Switch the heater off and on again on the control panel. In case of a longer interruption, switch to the "Diesel" power type.

Malfunction in the combustion process (e.g. lack of fuel)

Combi Gas

The heater automatically switches to the electro mode. If the heater should operate in the mixed mode again, the cause of the malfunction needs to be rectified.

Switch the heater off and on again on the control panel.

Combi Diesel

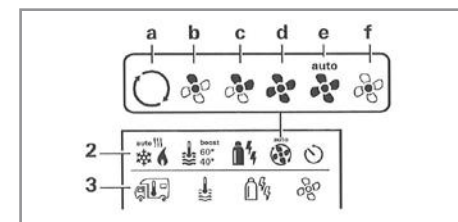
The heater goes to malfunction. Switch the heater off and on again on the control panel. In case of a longer interruption switch to the "Electro" power type.



Select Fan level

When the heater/air conditioner unit is connected.

- Use the control knob/push button to select the symbol in menu line (3).
- Click to change to the setting level.
- Use the control knob/push button to select the required fan level.
- Click the control knob/push button to confirm the value.



Symbol	Operating mode	Description
HEATER COMBI		
-	Off	Fan is switched off.
a	Vent	Circulating air, if no device is in operation. 9 speed levels can be selected.
b	Eco	Low fan level.
c	Mid	High fan level. (Only Combi Gas).
d	High	Fast heating of the room. Available, if the difference between the selected and current room temperature is > 10 °C.
AIR CONDITIONING UNIT		
-	Off	Fan is switched off.
a	Vent	Circulating air, if no device is in operation
b	Eco	Low fan level.
c	Mid	Only available in cooling mode.
d	High	Highest fan level.
e	Auto	Automatically selects cooling or heating mode and the fan level.
f	Night	Only Aventa Comfort: very quiet fan operation by lowering both fans.

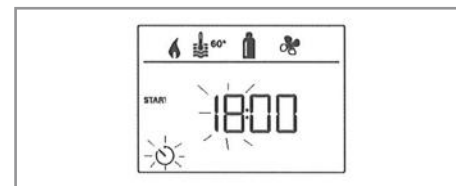
Set Timer

- Use the control knob/push button to select the symbol in menu line (4).
- Click to change to the setting level.

If the timer is activated (ON), the timer in the menu is shown as deactivated (OFF).

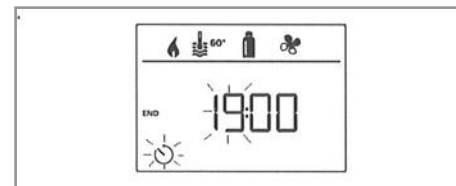
Enter start time

- Use the control knob/push button to set the hours, then the minutes.



Enter end time point

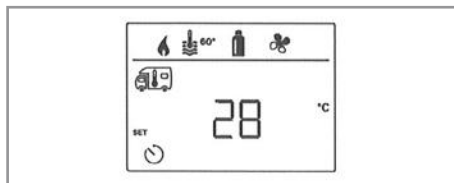
- Use the control knob/push button to set the hours, then the minutes.



If the start/end times are exceeded when entered, the operating parameters are only taken into consideration when the next start/end times are reached. Until then, the operating parameters set outside the timer remain valid.

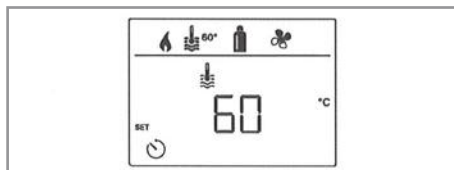
Set the room temperature

- Click to change to the setting level.
- Use the control knob/push button to select the required room temperature.
- Click the control knob/push button to confirm the value.



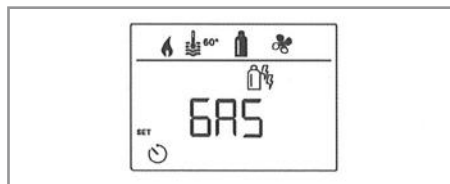
Set the warm water level

- Click to change to the setting level.
- Use the control knob/push button to confirm the value.



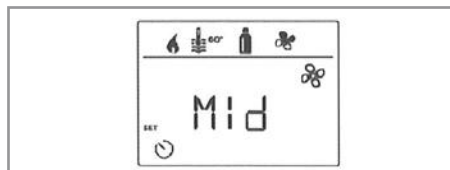
Select power type

- Click to change to the setting level.
- Use the control knob/push button to select the power type.
- Click the control knob/push button to confirm the value.



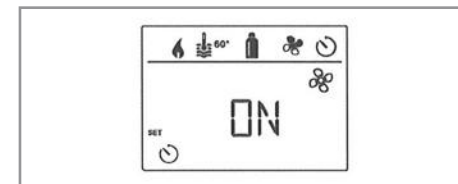
Select fan level

- Click to change to the setting level.
- Use the control knob/push button to select the required fan level.
- Click the control knob/push button to confirm the value.



Activate the timer (ON)

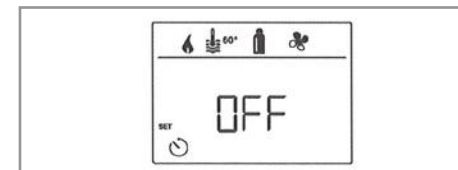
- Click to change to the setting level.
- Use the control knob/push button to activate the timer (ON)
- Click the control knob/push button to confirm the value.



The timer remains active, even for several days, until it is deactivated (OFF)

Deactivate the timer (OFF)

- Click to change to the setting level.
- Use the control knob/push button to deactivate the timer (OFF)
- Click the control knob/push button to confirm the value.



SWITCH LIGHTING ON/OFF

Available when an air conditioning unit is connected.

Aventa Comfort or Aventa Eco

- Use the control knob/push button to select the symbol in menu line (4).
- Click to change to the setting level.
- Use the control knob/push button to select the required function.

ON - Switch lighting on.

OFF - Switch lighting off.

- Click the control knob/push button to confirm the value.



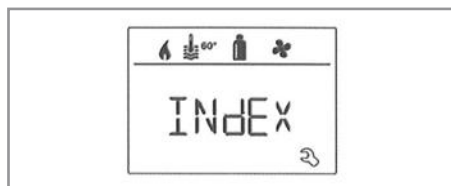
Set time



- The hour display flashes.
- Use the control knob/push button to set the hours (24 h mode).
- After clicking the control knob/push button again, the minute display will flash.
- Use the control knob/push button to set the minutes.
- Click the control knob/push button to confirm the value.

SERVICE MENU

Query the index status of a connected device.



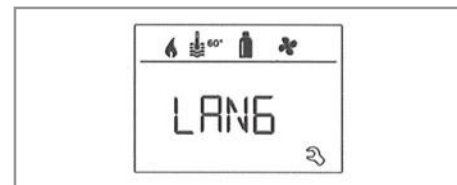
Change the background lighting of the control panel.

There are 5 background lighting levels to choose from.



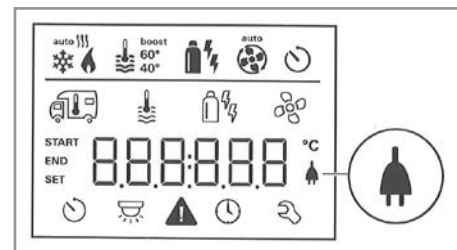
Change language

Select the required language from those available (e.g. English, German, French, Italian)

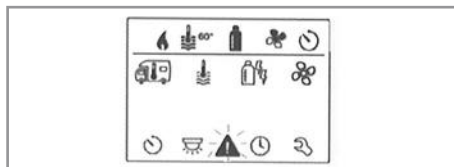


Display mains voltage 230V.

The symbol indicates that 230V mains voltage (shore power) is available.



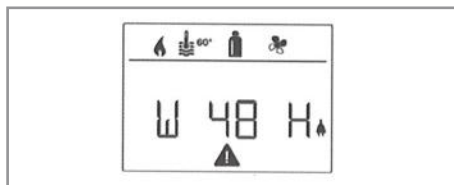
⚠ WARNING: In the event of a warning, a warning symbol appears to indicate that an operating parameter has reached an undefined status. In this case, the affected device continues to run. As soon as the operating parameter returns to the set range, this symbol will turn off automatically.



Read out the warning code.

- Use the control knob/push button to select the symbol.
- Click the control knob/push button.

The current warning code is shown.
The cause of the warning can be identified and rectified via the error list.



Cause rectified/return to setting level

- Click the control knob/push button.

Cause not rectified/return to setting level.
Press the Back button.

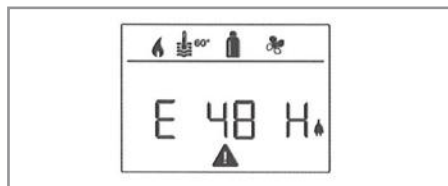
In this case, the warning is not acknowledged on the control panel and the warning symbol remains. The control panel and the warning symbol remains. The control panel remains in the warning symbol remains in the warning status.

Devices connected to the control panel can be operated.

MALFUNCTIONS

In the case of malfunctions, the control panel immediately jumps to the menu level "malfunction" and shows the error code of the malfunction.

Cause remedied/return to setting level.



- Click the control knob/push button.
- The respective device is restarted.

If the cause is not remedied, the malfunction will occur again and the control panel will jump again to the menu level "malfunction".

Cause not remedied/return to setting level.

- Press the Back button.

In this case, the malfunction is not acknowledged in the control panel and the warning symbol remains. The device remains in the malfunction status. Other devices connected to the control panel can be operated.

TECHNICAL DATA

Display LCD, monochrome

Dimensions (L x W x H) 92 x 103 x 40 mm

Operating temperature range -25 °C bis + 60 °C

Storage temperature range -25 °C bis + 70 °C

Interface TIN-Bus

Power Supply 8V – 16.5V

Power Consumption MAX. 60 mA
(100% background lighting)
6.5 mA – 7 (Stand-by)

Quiescent current consumption 3 mA (off)

Weight 110 g

CE The right to effect technical modifications is reserved!

Maintenance

This device is maintenance-free. Use a non-abrasive damp cloth to clean the front. If this proves inadequate, use a neutral detergent.

Disposal

The device must be disposed of in compliance with the administrative provisions of the respective country in which it is used. The national regulations and laws (in Germany these are e.g. the End-of-Life Vehicle Regulations) must be observed.

CARAVAN EQUIPMENT

Error Code	Cause	Remedy
# 17	<ul style="list-style-type: none"> - Summer mode with empty water container - Warm air outlet blocked. - Circulated air intake blocked. 	<ul style="list-style-type: none"> - Switch device off and allow to cool. Fill boiler with water. - Check each of the outlet openings. - Remove the blockage from circulated air intake.
# 18	<ul style="list-style-type: none"> - Gas pressure regulator frozen. - Too much butane in the gas cylinder. 	<ul style="list-style-type: none"> - Use the regulator heating (EisEx). - Use propane, (Butane is unsuitable for heating, especially at temperatures below 10 °C).
# 21	<ul style="list-style-type: none"> - Room temperature sensor or cable faulty 	<ul style="list-style-type: none"> - Please contact Truma Service.
# 24	<ul style="list-style-type: none"> - Potential under-voltage battery voltage too low. 	<ul style="list-style-type: none"> - Charge battery
# 29	<ul style="list-style-type: none"> - Heating element for Frost Control has a short circuit. 	<ul style="list-style-type: none"> - Disconnect the heating element plug on the electronic control unit. Replace heating element.
# 41	<ul style="list-style-type: none"> - Electronics are blocked. 	<ul style="list-style-type: none"> - Please contact the Truma Service.
# 42	<ul style="list-style-type: none"> - Window above the cowl is open (window switch). 	<ul style="list-style-type: none"> - Close the window.
# 43	<ul style="list-style-type: none"> - Over-voltage > 16.4V. 	<ul style="list-style-type: none"> - Check the battery voltage and voltage sources e.g. the charger.
# 44	<ul style="list-style-type: none"> - Under-voltage battery voltage too low, 10.0V. 	<ul style="list-style-type: none"> - Charge battery. Replace any old batteries.
# 45	<ul style="list-style-type: none"> - No 230V operating voltage. - Faulty 230V Fuse. - Overheating protection has triggered... 	<ul style="list-style-type: none"> - Reconnect the operating voltage 230V. - Replace the 230V fuse. - Reset the overheating protection. Allow the heating to cool down, remove the connection cover and press the reset button.
#112	<ul style="list-style-type: none"> - Gas cylinder or quick-acting valve in the gas line. 	<ul style="list-style-type: none"> - Check the gas supply and open the valves.
#212	<ul style="list-style-type: none"> - Combustion air intake or exhaust outlet closed. 	<ul style="list-style-type: none"> - Check the openings for soiling (snow, ice, leaves etc..) and remove.
#255	<ul style="list-style-type: none"> - No connection between the heater and the control panel. 	<ul style="list-style-type: none"> - Please contact the Truma Service.
	<ul style="list-style-type: none"> - Control panel cable faulty. 	

If these steps do not rectify the malfunction, please contact the Truma Service.

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.

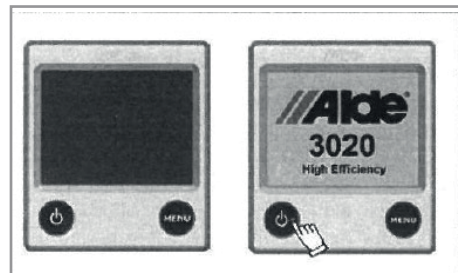
Warning Quick Start Guide – 3020 Colour Touch

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



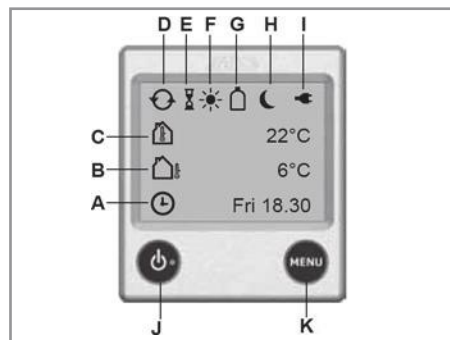
1. Both the control panel and boiler are off.
2. To start the system, press the Power button on the control panel. The Splash Screen is displayed and green LED is lit. The boiler will now start with the previously saved settings (factory settings by default).

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.

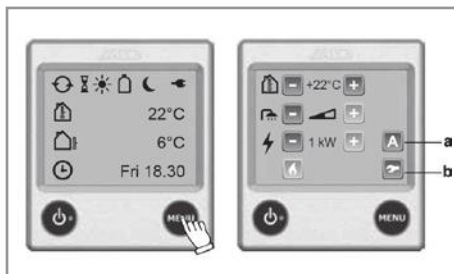
NB: If Standby Screen is set to “Dark” in Backlight settings, the Standby Screen will not be displayed, the screen will be dark unless touched.



- 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.
- 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.

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.



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.

TROUBLE SHOOTING

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.
- 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

Your caravan is fitted with a refrigerator/freezer combination, details of which are in your manufacturer's instruction manual.

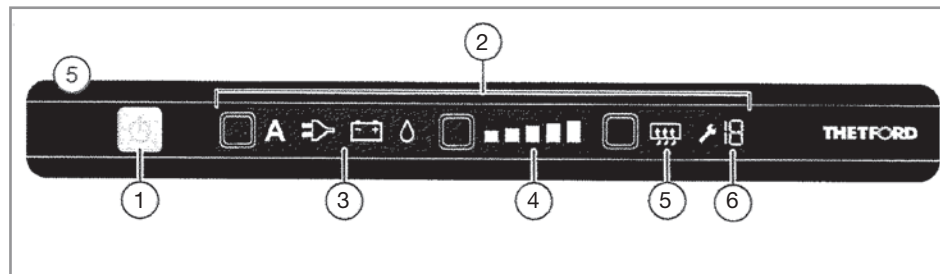
For full operational instructions for your particular fridge, refer to refrigerator manufacturer's instructions usually found in the instruction pack.

⚠ 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.

DISPOSAL

⚠ 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.

THETFORD REFRIGERATOR OPERATION



For 12V wiring arrangement, refer to Technical Data.

The refrigerator is not suitable for the proper storage of medications.

CONTROL PANEL WITH LCD TOUCHSCREEN

1. On/off switch
2. Touchscreen
3. Symbols sources
4. Cooling level indicators
5. Symbol (anti condensation)
6. Error code.

INTRODUCTION

Before operating and using this refrigerator we advise you to read the Thetford manual completely. Keep this manual in a safe place for future reference.

For the latest version of the manual please visit www.thetford-europe.com.

USE SAFELY

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

⚠ WARNING: If you smell gas: Directly close the valve of the gas bottle, extinguish any naked flames, do not switch on any electrical devices or lighting, open the windows and leave the room. Then contact the Customer Service Department in your country or holiday location.

⚠ WARNING: If you smell a pungent odour from the cooling system: Switch off the refrigerator, extinguish any naked flames, provide sufficient ventilation through vents, windows and doors. Then contact the Customer Service Department in your country or holiday location.

⚠ WARNING: This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

⚠ WARNING: Do not allow children to play with or hide in the appliance. Children can become trapped and possibly suffocate. Do not allow children to clean or perform maintenance on the appliance without supervision.

MAINTENANCE

- Make sure that installation, electrical connection, maintenance and periodical inspection of the gas system will be done by a qualified technical person, according to Thetford's instructions (www.thetford-europe.com) and local safety rules;
- Never open or damage the cooling system at the back of your refrigerator. The cooling system is pressurised and contains substances that are harmful to your health;
- Never attempt to repair parts of the gas system, the gas flue or electrical components yourself. The repairs may only be done by a qualified party.

Please contact the Customer Service Department for further support and addresses;

- Before carrying out any kind of maintenance or cleaning, switch off your refrigerator;
- Never expose the refrigerator to rain.

USE OF GAS

- The refrigerator only runs on liquid gas (propane, butane or a mixture both of these). It does not run on natural gas or coal gas;
- Only use gas which is mentioned on the serial label inside the refrigerator;
- It is recommended to use an additional filter when operating on Liquefied Petroleum Gas (LPG);
- Make sure the type and position of the gas bottle meets the latest technical regulations;
- Change the gas bottle in open air and out of reach of any possible source of ignition;
- Never obstruct the ventilation openings in the gas bottle storage location;
- Keep flammable material away from the refrigerator;
- Do not use gas to power your refrigerator in the vicinity of petrol stations or while driving.

FOOD

- Respect the expiry date printed on the packaging of food;
- Defrosting, cleaning or maintenance of the refrigerator can shorten the preservability of food.

SWITCH ON REFRIGERATOR

To secure optimal performance, level your vehicle before operating the refrigerator.

We advise to clean the inside of the refrigerator properly, before using your refrigerator.

To switch on the refrigerator, push the on/off switch and hold it for 1 second, as illustrated. A light in the on/off switch will turn green.

After 10 seconds the settings will dim. The green light indicates the refrigerator is still in function.



To check the settings push the confirmation button. The last selected settings will light up.

For optimal performance, switch on the refrigerator 8 hours before placing food.

SELECTING SOURCE






After switching on the refrigerator, push the confirmation button and hold it for 2 seconds. The symbols for the sources light up and start to blink.

Choose the desired source by pushing the arrow buttons.

Confirm your choice with the confirmation button.

Sources

-  220v 240v The refrigerator is powered by the mains.
-  12v The refrigerator is powered by the battery of your vehicle.
-  Gas The refrigerator is powered by the gas connection of a gas bottle.

Always use the gas connection or mains voltage to start up and cool. Operating on 12V is only effective while the engine of the vehicle is running.

The performance of the refrigerator, when operating on 12V, is dependent on the thickness and length of the wiring and the overall installation of the vehicle.

To secure optimal performance, deactivate the start/stop system on your vehicle if present.

If the refrigerator is powered by a gas connection, make sure that the control panel is powered from the battery or AA batteries.

When selecting gas, the flame should be ignited within 30 seconds. If the system fails, restart the refrigerator and select the gas source again.

For safety reasons it is not possible to ignite the flame within 15 minutes after driving.

CARAVAN EQUIPMENT

From about 1000m above sea level problems of a physical nature can occur when lighting the gas. This does not mean that the refrigerator is not working properly.

SELECTING COOLING LEVEL



After switching on the refrigerator, push the confirmation button and hold it for 2 seconds.



The symbols for the sources start to blink. Push the confirmation button again.



The cooling level indicators start to blink. Use the arrow button to choose the desired cooling level.



Confirm your choice with the confirmation button.



Your refrigerator meets the climate class SN requirements according to EN ISO 15502:2005 at an ambient temperature 10°C to 32°C.

We advise to set the refrigerator on cooling level 3, with an ambient temperature between 15°C and 25°C. A higher temperature needs a higher cooling level, a lower temperature a lower level.

To improve the cooling performance of your refrigerator in high temperatures, Thetford advises to install the Ventilator Kit. It helps to detract the warm air quicker to the vents. The Ventilator Kit is suitable for all Thetford refrigerators.

CONTROL OF OPTIONAL EXTRAS

Anti condensation



present on refrigerator model B & C1

To prevent the control panel from condensation, the anti-condensation function is automatically switched on. Only switch off this function when little energy is present.

Push both arrow buttons together at once and hold them for 2 seconds, as illustrated. The symbol 'anti-condensation off' will light up on the control panel. To switch on the function again, push both arrow buttons for 2 seconds once more.



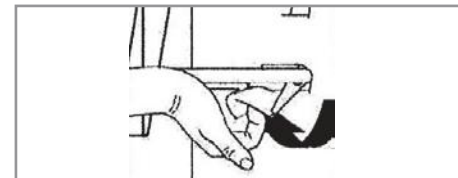
When your refrigerator runs on AA batteries, anti- condensation is switched off automatically.

USE OF REFRIGERATOR COMPARTMENT

You can organise your refrigerator as desired by moving the storage shelves and door bins in height.

Make sure the door can still be closed after reorganising shelves and bins.

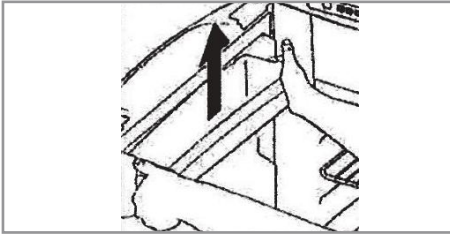
Moving storage shelves



Turn the plastic clamp on the right side of the storage shelf upwards, as illustrated. Lift the right side of the storage shelf upwards, as illustrated. Lift the right side a bit, and move the storage shelf to the desired position.

First place the left side of the storage shelf in the refrigerator wall, then the right side in the corresponding groove. Turn the plastic clamp downwards. Your storage shelf is fixed again.

MOVING DOOR BINS



Push the door bin out of the locking with both hands, as illustrated. Place the door bin back in the desired position and push it back on the locking. The door bin is fixed again.

Organising food

After a minimum of 8 hours of cooling, the food can be placed in the refrigerator. Do not completely cover the cooling fins with food, to preserve an optimal performance of the refrigerator. Make sure air can still circulate around the fins.

To prevent your refrigerator from ice-formation, always cover liquid products, let warm products cool down before placing them in the refrigerator and don't open the door longer than necessary.

To reduce the cooling time, store only pre-cooled food in the refrigerator.

To prevent the food from drying out or your refrigerator from odours, store food separately in closed boxes.

USE OF FREEZER COMPARTMENT

You can use the freezer compartment to keep food frozen or to make ice cubes with the special delivered tray.

⚠ WARNING: Never keep carbonated liquids in the freezer compartment.

⚠ WARNING: If the refrigerator has to perform for a longer period in internal vehicle temperature below 10°C, a constant regulation of temperature in the freezer compartment can't be guaranteed. The temperature can increase and the food may defrost in the freezer compartment.

Making ice-cubes

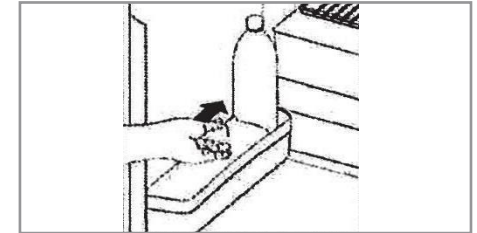
Fill 2/3 of the ice cube tray with water and put the tray in the freezer compartment. Make sure you only use drinking water.

⚠ WARNING: Never eat ice cubes or popsicles directly out of the freezer compartment. This can cause burn wounds.

To speed up the process, make ice cubes at night, when the refrigerator has more capacity. Place the ice cube tray in an empty freezer on the bottom and the back.

WHILE DRIVING

Never operate the refrigerator by gas while driving.



Make sure all products in your refrigerator can't move while driving. Secure the bottles in the door with the bottle retainer and secure all food on the storage shelves.

Door lock



When you close and press the door of the refrigerator, the door locks automatically. While driving this door lock also secures the door.

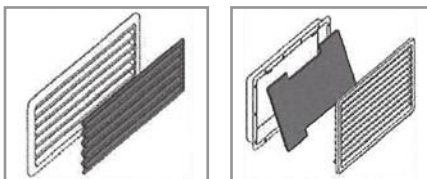
CARAVAN EQUIPMENT

Some models have an extra security lock on the bottom of the refrigerator. To be sure the door will not open while driving, push the black security lock over the pin on the door.

⚠ WARNING: Never let children play or hide in the refrigerator. Children can be trapped and possibly suffocate.

WINTER USE

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



This cover will protect your refrigerator against too cold air and makes sure the refrigerator will still perform optimally.

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

CLEANING

It is important to regularly clean the refrigerator for optimal performance. Clean the inside with a soft cloth and mild household cleaner. Use a wet soft cloth for

the outside of the refrigerator. Make sure the vents on the outside of the vehicle are always dust-tight.

⚠ WARNING: Never clean your refrigerator with soap or aggressive, caustic or soda-based cleaning agents.

⚠ WARNING: The loose parts of the refrigerator are not suitable for the dishwasher.

⚠ WARNING: Water through the vents may damage your refrigerator. Therefore install winter covers before washing your vehicle.



SWITCH OFF REFRIGERATOR

Before defrosting the refrigerator or storing your vehicle, switch off the refrigerator. Push the on/off switch, as illustrated, and hold it for 2 seconds to switch off the refrigerator. All lights will go out.

DEFROSTING

A layer of ice on the cooling fins will decrease the cooling capacity and durability of your refrigerator. Therefore your refrigerator is provided with an automatic defrost system, which prevents ice formation.

Despite this system, it is also possible to manually defrost your refrigerator on occasion. Remove all food, wrap it tightly in newspaper and put it on a cold place or in an insulated bag. Then open the doors. Put dry towels in the refrigerator to catch the remaining water. When the refrigerator is defrosted, thoroughly dry the in-side.

⚠ WARNING: Do not speed up the defrosting process by removing the ice layer with force or sharp objects or by using a hairdryer.

STORAGE

If you do not expect to use your refrigerator for a longer period, it is important to thoroughly empty, defrost and clean the complete refrigerator. Then install the winter cover over the vents, to protect your refrigerator during storage.

To prevent odours and mould in the refrigerator, keep all doors open during storage.

Rotate the hook at door lock 45 degrees and lock it in place by using the strike plate, as illustrated.

⚠ WARNING: Make sure the gas taps of the gas bottle are closed during storage.

⚠ WARNING: Water through the vents may damage your refrigerator. Therefore install winter covers before washing your vehicle.

QUESTIONS

If you require further information or have any questions about your refrigerator, please visit the Thetford website www.thetford-europe.com. If you still have questions, contact the Customer Service Department in your country or your holiday location

For correct and efficient support, please ensure all relevant product type information is available refer to Thetford handbook.

Troubleshooting

In case of a problem an error code on the control panel can light up. When error codes 1, 2, 4, 5, 8, 9, 12 or 13 are visible, directly contact your dealer or a Thetford Service Centre.

3 The refrigerator does not work on gas:

Check that the gas bottle is not empty - check if the valve of the gas bottle and all shut-off valves are open - switch the refrigerator off and on again - try to run the refrigerator on another power source.

6 The refrigerator does not work on 12V:

Make sure the engine is running - try to run the refrigerator on another power source.

7 The refrigerator does not work on 12V:

Make sure the engine is running - try to run the refrigerator on another power source.

10 The refrigerator does not work on 230V:

Check if the mains is available - try to run the refrigerator on another power source.

11 The refrigerator does not work in AUTO mode:

Check if the sources are connected - try to run the refrigerator manually on a power source.

18 All symbols on the control panel light up:

Wait a few seconds until the refrigerator starts normally.

FAQ

What can I do, when the refrigerator does not start?

Check if you switched on the refrigerator according to the instructions, if the vehicle stands level or if there is an available energy source to start the refrigerator with. If none of this is the case, please contact your dealer or Thetford Service Centre.

The refrigerator does not cool sufficiently, what can I do?

Check that the vents aren't covered or blocked from the outside, if the refrigerator stands level, if the highest cooling level of the refrigerator is selected, if the door of the refrigerator still closes properly or if there is not too much ice on the cooling fins. If none of this is the case, please contact your dealer or a Thetford Service Centre.

All lights on the control panel are blinking, what should I do?

Please contact your dealer or a Thetford Service Centre.

No winter cover is supplied with my refrigerator is this correct?

The winter cover is an accessory for your refrigerator, which you can purchase at your dealers.

Spare Parts

Original Thetford spare parts are available through your own Dealer or an authorised Thetford Service Centre.

WARRANTY

Thetford BV offers the end users of its products a three-year guarantee. In the case of malfunction within the warranty period, Thetford will replace or repair the product at its discretion. In this case, the costs of replacement, labour costs for the replacement of defective components and /or the costs of the parts themselves will be paid by Thetford.

1. To make a claim under the guarantee, the user must take the product to his dealer or an authorised Thetford Service Centre (www.thetford-europe.com). 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.
5. 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; - 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.

6. The guarantee is only valid for Thetford refrigerators that are built in a caravan.

Thetford is not liable for any loss and/or damage caused directly or indirectly by use of the refrigerator.

DOMETIC REFRIGERATOR OPERATION

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.

- 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.

ELECTRICAL OPERATION

12V voltage (on-board power supply)

⚠ WARNING: The refrigerator should only be used in 12VDC-operation while the vehicle's engine is running, otherwise the on-board battery would be discharged in a few hours!

MAINS POWER (230V)

⚠ WARNING: This option should only be selected where the supply voltage of the connection for power supply corresponds to the value specified on the data plate. Any difference in values may result in damage to the appliance.

REFRIGERATOR OPERATION

GAS OPERATION (LIQUID GAS)

- The refrigerator must be operated using liquid gas (propane, butane) (no natural gas or town gas).
- When using LPG gas, please consider that the burner needs cleaning at shorter intervals due to the gas combustion method (2-3 times per year recommended).
- In Europe, gas operation is permitted while travelling only on the condition that the gas system of the vehicle is equipped with a hose rupture protection. The national regulations of the respective country must be observed.
- For physical reasons, gas ignition faults could occur starting from an altitude above sea level of approx. 3280ft /1000m **(No malfunction!)**
- On the initial refrigerator start-up, or after a cylinder change, air may be trapped in the gas line. To purge air from the gas lines, switch on the refrigerator and any other gas appliances (e.g. stove) for a short time. The gas ignites without delay.
- Each refrigerator with manual ignition is equipped with an automatic flame safety valve which interrupts the gas supply automatically after approx. 30 seconds when the flame has extinguished.

⚠WARNING: As a basic rule, gas operation is prohibited in petrol stations!

Prior to starting the refrigerator in gas mode:

- Open the gas cylinder valve
- Open the shut-off valve for gas supply to the refrigerator.

STORING PRODUCTS IN THE COOLING COMPARTMENT

- Switch the refrigerator on approx. 12 hours before filling it.
- Always store pre-cooled foods in the refrigerator. Make sure that the food is well cooled when it is bought and also when transporting it. Use insulated cooling bags.
- Open the refrigerator door only for a short period of time when removing products.
- Products must be packed – best of all in closed containers, wrapped in aluminium foil or similar – and stored separately from each other, in order to prevent drying out or odours.
- Allow foods that have been warmed up to cool down before storing.

- Avoid storing products in the refrigerator that could emit volatile flammable gasses.
- Do not overfill the storage grids and compartments to prevent obstructing the internal air circulation.
- Maintain a clearance of approx. 10mm between chilled products and post-evaporator (“cooling fins”).
- Do not expose the refrigerator to direct sunlight. Please bear in mind that the temperature inside a closed vehicle increases sharply if exposed to sunlight and that this can reduce the efficiency of the refrigerator.
- Ensure that air circulation of the cooling unit is not obstructed. Keep the ventilation grilles free from obstructions.

Storing products in the freezer compartment

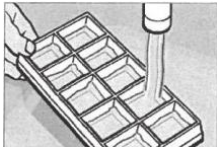
- Do not keep carbonated drinks in the freezer.
- The freezer compartment is suitable for making ice-cubes and short-term storage of frozen food. It is not suitable as a means of freezing foods.

When ambient temperatures are lower than +10°C and the refrigerator is exposed to these temperatures for extended periods of time, an even regulation of freezer temperature cannot

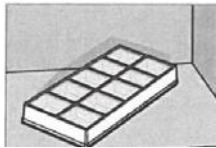
be guaranteed for system related reasons. This can cause the temperature in the freezer to rise and the stored food to melt.

MAKING ICE CUBES

Ice cubes are best frozen overnight. At night the refrigerator has less work to do and the unit has more reserves.



1.Fill the ice cube tray with drinking water.



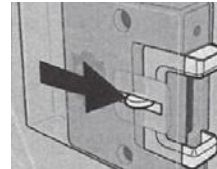
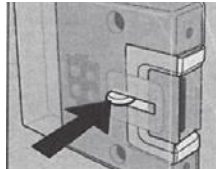
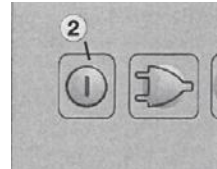
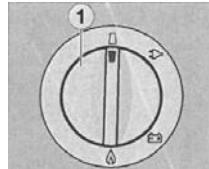
2.Place the ice cube tray in the freezer compartment.

⚠ WARNING: Only use drinking water!

⚠ WARNING: The layer of ice must never be removed forcibly, nor may defrosting be accelerated using a heat source.

SHUTTING OFF THE REFRIGERATOR

- For battery igniter models, set energy selector switch (1) to position "OFF". The appliance is switched off.



- Switch off MES and AES models by pressing button (2). Keep button (2) pressed for 3 seconds. The display disappears and the appliance is fully switched off.
- Release the locking mechanism of the door lock by pushing it and shift it to the front. If the door is shut in this position, a small gap is nevertheless kept open to prevent formation of mildew.
- If the refrigerator is to be taken out of service for an extended period of time, close the onboard shut-off valve and the cylinder valve.

DEFROSTING

As time goes by, frost builds up on the fins inside the refrigerator. A layer of frost thicker on one side may occur and does not represent a malfunction. When this layer of frost is about 3mm (0.118 inches) thick, the refrigerator should be defrosted.

- Switch off the refrigerator, as described in the section Shutting off the refrigerator.
- Remove all food and the ice cube tray.
- Leave the refrigerator door open to allow air to enter and prevent formation of mildew.
- After defrosting (freezer compartment and fins free of frost), wipe both the cooling compartments dry with a cloth.

Note: Water thawing in the main compartment of the refrigerator runs into an appropriate container at the back of the refrigerator. From there the water evaporates. Place a cloth in the freezer compartment and in the cooling compartment to collect excess water before defrosting.

⚠ WARNING: The layer of ice must never be removed forcibly, nor may defrosting be accelerated using a heat source.

REFRIGERATOR OPERATION

TROUBLESHOOTING

Failure: The refrigerator does not cool sufficiently.

Possible cause	Action you can take
<ul style="list-style-type: none">- Inadequate ventilation to the unit.- Thermostat setting is too low.- The condenser is heavily frosted.- Too much warm food has been stored inside within a short period of time.- The appliance has been running for only a short period of time.- Ambient temperatures are too high.	<ul style="list-style-type: none">- Check that ventilation grilles are not covered.- Set thermostat to a higher level.- Check that the refrigerator door closes properly.- Allow warm food to cool down before storage.- Check whether the cooling compartment works after approx. 4-5 hours.- Regularly remove ventilation grilles.

Failure: The refrigerator does not cool in gas operation mode

Possible cause	Action you can take
<ul style="list-style-type: none">- Gas cylinder empty.- Is the upstream shut-off device open?- Air in the gas pipe.	<ul style="list-style-type: none">- Change gas cylinder.- Open shut-off device.- Switch off the appliance and start again. Repeat this procedure 3-4 times if necessary.

Failure: The refrigerator does not cool in 12V operation.

Possible cause	Action you can take
<ul style="list-style-type: none">- On-board fuse defective.- On-board battery is discharged.- Engine not running.- Heating element defective (Please also refer to failure indication).	<ul style="list-style-type: none">- Fit new fuse.- Check battery, charge it.- Start engine- Please inform the Dometic Customer Service

Failure: The refrigerator does not cool in 230V operation

Possible cause	Action you can take
<ul style="list-style-type: none">- On-board fuse defective.- Vehicle not connected to mains supply voltage.- AES: Gas operation despite connection to the mains supply voltage?- Heating element defective (please also refer to failure identification).	<ul style="list-style-type: none">- Fit new fuse.- Make a connection to a mains power supply.- Appliance switches to gas operation due to insufficient mains supply voltage (automatically switches back to 230V operation).- Please inform the Dometic Customer Service.

Information on failure display and trouble-shooting

- Refrigerators with an electronics system (MES, AES) indicate the occurrence of a malfunction by the LED or display flashing.
- If a malfunction occurs the indicator LED "Failure" (8) flashes simultaneously. In the case of AES models an acoustic alarm sounds.

Before notifying the authorised Service Centre, please check whether:

- The instructions in section "Operating the refrigerator" have been observed.
- The refrigerator stands level.
- It is possible to operate the refrigerator with any available power source.

Status indicators



MES














- ① = Button ON/OFF
- ② = Energy selector switch 230V AC
- ③ = Energy selector switch GAS
- ④ = Energy selector switch 12V DC



AES

- ⑤ = Selector switch "AUTOMATIC"
- ⑥ = Temperature level button
- ⑦ = Temperature level display
- ⑧ = Fault LED / GAS FAULT reset button

Operation with on-board 12V power supply

Indicator			Fault	Remedy
②		Flashing + acoustic signal 20s	230V mode: “230V” not available or voltage too low	Check mains power connection, mains voltage, fuse
⑧				
④		Flashing + acoustic signal 20s	12V mode: “12V” not available or voltage too low	Check 12V connection, on-board battery, fuse
⑧				AES: Check D+ signal
③		Flashing + acoustic signal 20s	GAS/Automatic mode: Flame not ignited	Check gas supply (gas bottle, gas valve)
⑧				Press the (8) button after clearing the fault
Acoustic signal, 15s, at 2 minute intervals			Interior light is switched on	Close door, check door contact
②		Flashing + acoustic signal 20s	230V mode: 230V heating element is defective	Arrange replacement of 230V heating element, contact customer service
⑦				
④		Flashing + acoustic signal 20s	12V mode: 12V heating element is defective	Arrange replacement of 12V heating element, contact customer service
⑦				
⑦		Flashing	Temperature sensor without contact or defective	Contact customer service
③		Flashing + acoustic signal 20s	Burner defective or cooling unit defective	Check burner, burner nozzles, if necessary contact customer service and arrange replacement
⑦				

REFRIGERATOR OPERATION

DOMETIC RM8555 EXPLANATION OF OPERATING CONTROLS:



- ① = Power **ON/OFF** switch
- ② = Energy selector button 230V AC
- ③ = Energy selector button GAS
- ④ = Energy selector button 12V DC
- ⑤ = Selector button "AUTOMATIC"
- ⑥ = Temperature level selection
- ⑦ = Temperature level display
- ⑧ = Indicator LEF failure / Reset button
GAS FAILURE

Switching ON/OFF

- Switch ON by pressing button (1), 2s
- Switch OFF by pressing button (1), >2s

Manual operation

- Select energy source with buttons (2,3,4)
- Set temperature step by pressing button (6)

Automatic operation

- Change over to "Automatic" with button (5)

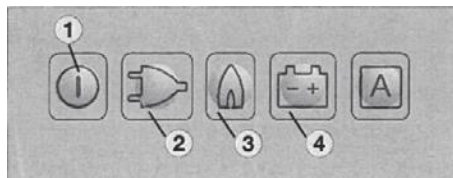
Automatic energy selection (if available)

Sequence of priority:

- 1) Solar (12V DC)
- 2) 230V AC
- 3) 12V DC
- 4) Liquid gas

- Set temperature by pressing button (6)

RM 8XX5 MODELS



AES appliances

(Manual + automatic energy selection)

Manual operation

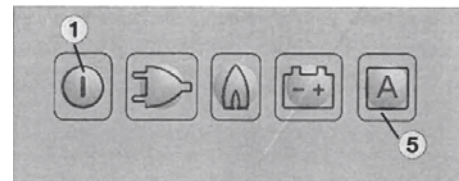
To start the refrigerator, press button (1) for **2 seconds**.

The refrigerator starts with the last selected type of energy.

230V operation: Press button (2) 

12V operation: Press button (4) 

Gas operation: Press button (3) 



AUTOMATIC OPERATION

To start the refrigerator press button (1) **V**for 2 seconds.

The refrigerator starts with the last selected type of energy.

AUTOMATIC OPERATION:

Press button (5) : A

Upon switching on, the electronics **automatically** select one of the three possible energy types: **230V – 12V – liquid gas**. The control electronics automatically ensure that the refrigerator is supplied with the optimum source of energy in each respective case.

Sequence of priority: 1) Solar (12V DC)

2) 230V AC

3) 12V DC

4) Liquid gas

If sufficient mains voltage is available (more than 195V), this power source is selected as prime option. If a solar system capable of powering the refrigerator is installed, the solar 12V supply takes priority.

The 12V operation is otherwise only effective while the engine is running.

According to the sequence of priority the electronics selects **GAS** as an energy source on if both of the electrical energy sources are not available.

Manual operation is possible at any time.

Refuelling while in AES mode operation

In order to prevent unintended switching to gas operation during refueling, the electronic system starts gas operation of the refrigerator after the motor has been turned off for 15 minutes. During this period the appliance is ready for operation ("stand-by"). The temperature level LEDs do not light then while all other indicators remain active.

⚠ WARNING: The use of unshielded flames is prohibited in petrol station environments.

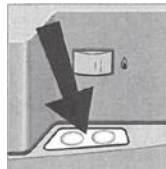
Should the refueling stop last longer than 15 minutes, the refrigerator has to be switched off or switch over to another energy type.

ADDITIONAL FEATURES (MES/AES)

- The brightness of the display reduces after a few seconds if no other buttons are pressed. The indicator lights again if a button is pressed. Press the button again to activate the required function.
- Failures are indicated by flashing of the failure indicator LED
- Should the door be kept open for too long (more than 2 minutes), an acoustic signal is initiated (pulsing whistle tone).
- Should the electronic control detect any failure, an acoustic signal will sound (pulsing whistle tone). At the same time the display starts flashing (Please refer to section Information on failure display and trouble shooting).

DOOR LOCKING

⚠ WARNING: As a basic rule, shut and lock the refrigerator before you start your journey!



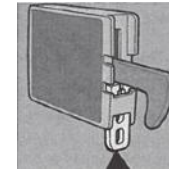
Open the door by pressing the locking button and pull open.

Shut the door again by pushing it to close. The snapping into the lock can be heard.

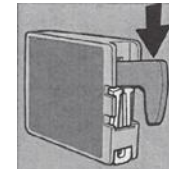
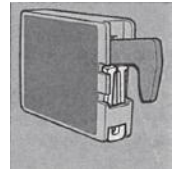
While the vehicle is parked, the locking hook may be fixed to facilitate opening of the door.

Fastening and releasing the door lock when parking the vehicle

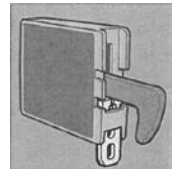
If the vehicle is parked for a longer period of time, the locking hook may be clamped by means of a lockbar. The door may now be opened by just pulling it without need of pressing the locking button.



Fastening



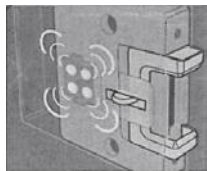
Releasing



REFRIGERATOR OPERATION

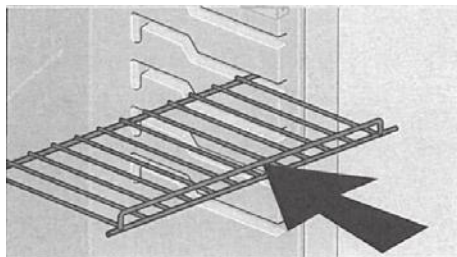
LIGHTING

The interior lighting is controlled using a door contact. Should the door be kept open for more than 2 minutes, an acoustic signal is initiated (pulsing whistle tone), **except for models with battery igniter.**



Please contact the authorised Dometic Service if a failure occurs.

POSITIONING THE STORAGE RACKS

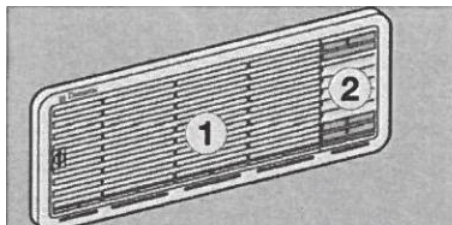


The storage racks may be pulled out by smoothly lifting them and may be positioned as desired.

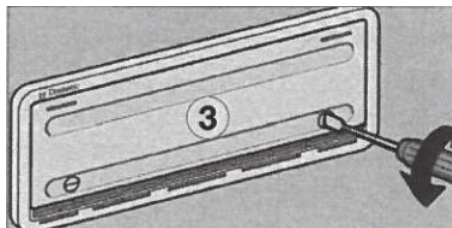
OPERATION DURING LOW OUTSIDE TEMPERATURES

Check that the ventilation grilles and the exhaust (1) duct system (2) have not been blocked by snow, leaves etc.

Cold air can restrict the performance of the unit. Install the winter covers (3) if you discover any loss of cooling performance when outdoor temperatures are low. This protects the unit against excessively cold air.



Ventilation grille LS100



Ventilation grille LS200 + winter cover

⚠ WARNING: Refrigerators up to 130l capacity*: do not install the top winter cover during gas operation.

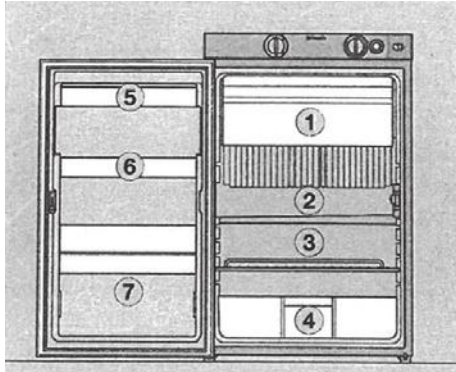
**See Technical information or information on the rating plate.*

You should also attach both winter covers if the vehicle is taken out of service for a longer period of time or while it is being cleaned from the outside.

The following ventilation grille combinations can be installed on your vehicle: **LS 100 and LS 200** or **two LS 200** for refrigerators up to 130l capacity; **two LS 300** (not shown) for refrigerators with more than 130l capacity. Pay attention to this when purchasing winter covers.

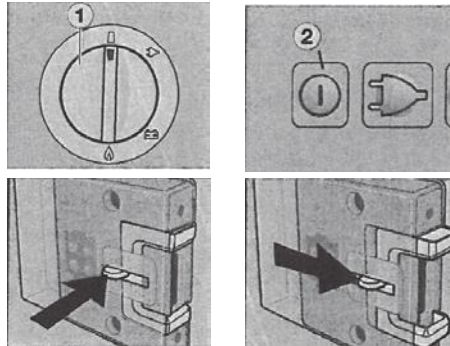
For the ventilation grille **LS 300**, Dometic provides the Winter Set **EWS 300** which can be used at very low temperatures from +5°C to -30°C.

REFRIGERATOR COMPARTMENTS



- ① **Freezer compartment:** Already frozen food (deep-frozen food)
- ② **Middle compartment:** Dairy products, convenience food
- ③ **Bottom compartment:** Meat, fish, food for defrosting
- ④ **Vegetable compartment:** Salads, vegetables, fruit
- ⑤ **Top door shelf:** Eggs, butter
- ⑥ **Middle door shelf:** Cans, dressings, ketchup, jam
- ⑦ **Bottom door shelf:** Drinks in bottles or bags

SHUTTING OFF THE REFRIGERATOR



- For battery igniter models, set energy selector switch (1) to position "OFF". The appliance is switched off.
- Switch off MES and AES models by pressing button (2). Keep button (2) pressed for 3 seconds. The display disappears and the appliance is fully switched off.
- Release the locking mechanism of the door lock by pushing it and shift to the front. If the door is shut in this position, a small gap is nevertheless kept open to prevent the formation of mildew.
- If the refrigerator is to be taken out of service for an extended period of time, close the on-board shut-off valve and the cylinder valve.

REFRIGERATOR OPERATION

DOMETIC RM 9335 - EXPLANATION OF OPERATING CONTROLS

Automatic energy selection / Automatic ignition AES (RML 9335):



- ① Power **ON/OFF** switch
- ② Energy selector button 230V AC
- ③ Energy selector button GAS
- ④ Energy selector button 12V DC
- ⑤ Selector button "AUTOMATIC"
- ⑥ Temperature level selection
- ⑦ Temperature level display
- ⑧ Indicator LED failure / Reset button
GAS FAILURE

Switching ON/OFF

- Switch ON by pressing button (1), 2s
- Switch OFF by pressing button (1), >2s

Manual operation

- Select energy source with buttons (2,3,4)
- Set temperature step by pressing button (6)

Automatic operation

- Change over to "automatic" with button (5)

Automatic energy selection (if available)

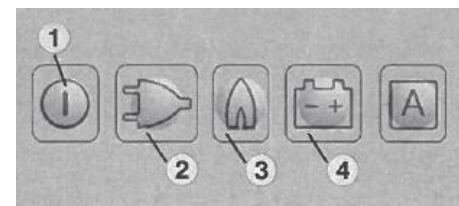
Sequence of priority

- | | |
|-------------------|---------------|
| 1) Solar (12V DC) | 2) 230V AC |
| 3) 12V DC | 4) Liquid gas |

- Set temperature step by pressing button (6)

AES appliances (Manual + automatic energy selection)

Manual operation



To start the refrigerator, press button (1) for **2 seconds**.

The refrigerator starts with the last selected type of energy.

230V operation: Press button (2)



12V operation: Press button (4)

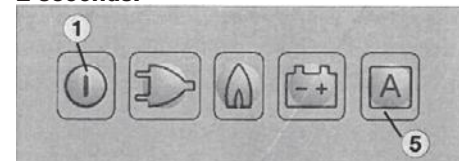


Gas operation: Press button (3)



AUTOMATIC OPERATION

To start the refrigerator, press button (1) for **2 seconds**.



The refrigerator starts with the last selected type of energy.

Automatic operation:

Press button (5): **A**

Upon switching on, the electronics **automatically** select one of the three possible energy types: **230V – 12V – Liquid gas**. The control electronics automatically ensure that the refrigerator is supplied with the optimum source of energy in each respective case.

Sequence of priority:

- 1) Solar (12V DC) 2) 230V AC
- 3) 12V DC 4) Liquid gas

If sufficient mains voltage is available (more than 195V), this power source is selected as the prime option. If a solar system capable of powering the refrigerator is installed, the solar 12V supply takes priority.

The 12V operation is otherwise only effective while the engine is running.

According to the sequence of priority the electronics select **GAS** as an energy source only if both of the electrical energy sources are not available.

Manual operation is available at any time.

Refuelling while in AES mode operation

In order to prevent unintended switching to gas operation during refuelling, the electronic system starts gas operation of the refrigerator after the motor has been turned off for 15 minutes. During this period the appliance is ready for operation ("stand-by"). The temperature level LEDs do not light then while all other indicators remain active.

⚠ WARNING: The use of unshielded flames is prohibited in petrol station environments.

Should the re-fuelling stop last longer than 15 minutes, the refrigerator has to be switched off or switch over to another energy type.

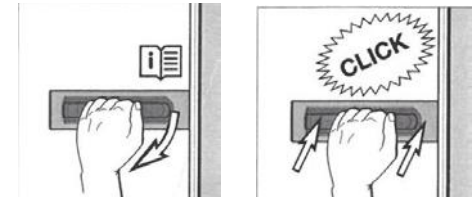
Additional features (MES/AES)

- The brightness of the display reduces after a few seconds if no other buttons are pressed. The indicator lights again if a button is pressed. Press the button again to activate the required function.
- Failures are indicated by flashing of the failure indicator LED
- Should the door be kept open for too long (more than 2 minutes), an acoustic signal is initiated (pulsing whistle tone).
- Should the electronic control detect any

failure, an acoustic signal will sound (pulsing whistle tone). At the same time the display starts flashing (Please refer to section Information on failure display and trouble shooting).

DOOR LOCKING

⚠ WARNING: As a basic rule, shut and lock the refrigerator before you start your journey!



Open the door by pressing the locking button and pull open. Shut the door again by pushing it to close.

The door is correctly closed for operation while travelling when you hear a clear "click". Ensure you hear this noise.

⚠ WARNING: Do not open the refrigerator door too far. The door can be damaged if it is opened too far.

REFRIGERATOR OPERATION



Note: Door opening limit available as option

LIGHTING

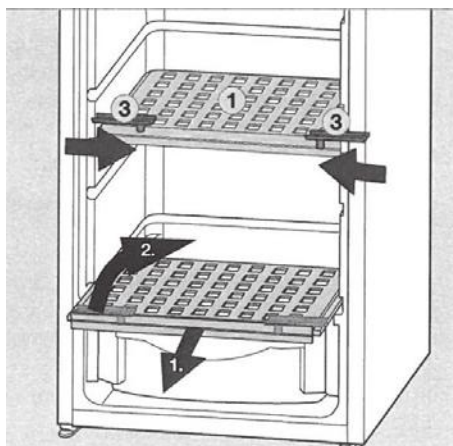
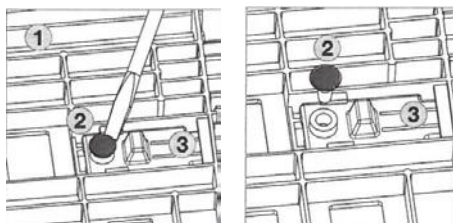
The interior lighting is controlled using a sensor. Should the door be kept open for more than 2 minutes, an acoustic signal is initiated (pulsing whistle tone), except for models with battery igniter.

Storage racks and door shelves

The central storage racks (1) are secured. In this way inadvertent entrapment and suffocation of children is prevented, if the storage racks are removed. To protect children, it must be avoided to create space for children in the cooling compartment.

If it is necessary to remove these storage racks (1) e.g. for cleaning, first loosen the locking pins (2) as shown, with a suitable screwdriver. The storage racks may be pulled out by loosening the two locking devices (3) underneath. For loosening, pull the slider to the middle, for fastening pull them sideways.

Put in place the locking pins (2) after removing the storage racks.

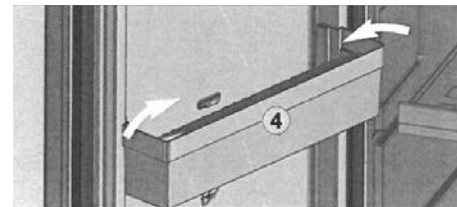


⚠ WARNING: Remove the central storage racks for cleaning only! Place and lock the storage racks in the same place afterwards.

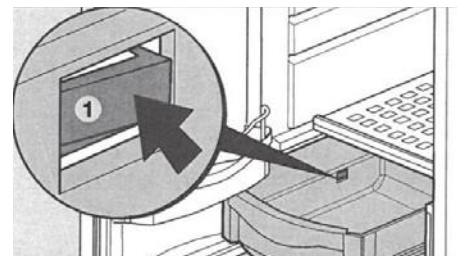
Thus children have no space to become entrapped in the refrigerator.

DOOR SHELVES

Maximum four door shelves (4) can be installed into the door. To remove the shelves, press slightly together at the sides and replace them in mountings at the required place again.



REMOVING THE CRISPER



Removal

- Pull out the vegetable bin up to the end stop.
- Press in the end stop (1) in both slide rails.
- Remove the vegetable bin.

Installing

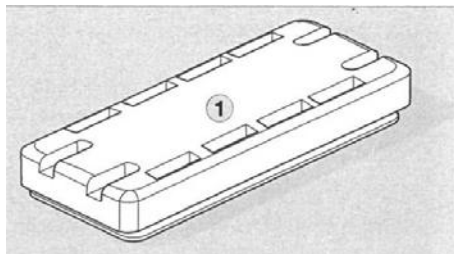
- Insert the vegetable bin in the rails and push it in completely
- After the engagement, the vegetable bin is secured against being pulled out completely again.

The vegetable bin can be pulled out at a 90° angle when opening the door.

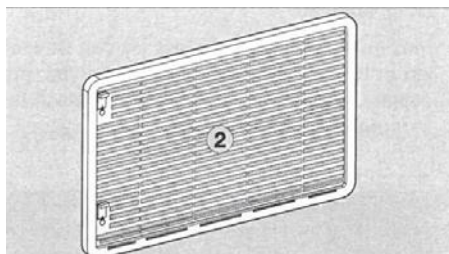
Operation during low outside temperatures

Check that the ventilation openings (1 and 2) have not been blocked by snow, leaves or similar.

Cold air can restrict the performance of the unit. Install the winter covers (3) if you discover any loss of cooling performance when outdoor temperatures are low. This protects the unit against excessively cold air.

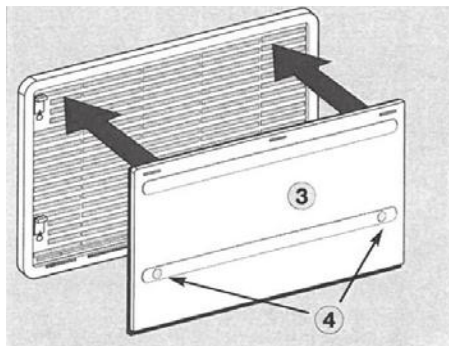


1. Roof exhaust



2. Ventilation grille LS 330

Installing the winter cover



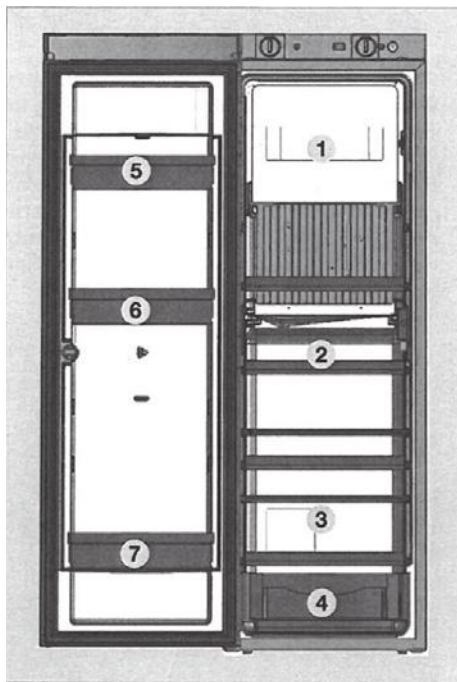
3. Winter cover

4. Fixed screws

You should also attach the winter cover if the vehicle is taken out of service for a longer period of time or while it is being cleaned from the outside.

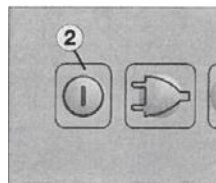
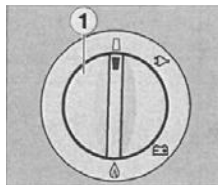
REFRIGERATOR OPERATION

REFRIGERATOR COMPARTMENTS



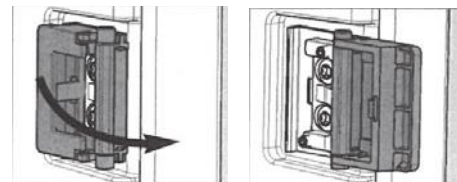
- ❶ Freezer compartment: Already frozen food (deep-frozen food)
- ❷ Middle compartment: Dairy products, convenience food
- ❸ Bottom compartment: Meat, fish, food for defrosting
- ❹ Vegetable compartment: Salads, vegetables, fruit
- ❺ Top door shelf: Eggs, butter
- ❻ Middle door shelf: Cans, dressings, ketchup, jam
- ❼ Bottom door shelf: Drinks in bottles or bags

SHUTTING OFF THE REFRIGERATOR



- For battery igniter models, set energy selector switch (1) to position "OFF". The appliance is switched off (Fig 41).
- Switch off MES and AES models by pressing button (2). Keep button (2)

pressed for 3 seconds. The display disappears and the appliance is fully switched off.



- Unlock the catch of the door lock by pulling and folding forward. If the door is shut in this position, a small gap is nevertheless kept open to prevent the formation of mildew.
- If the refrigerator is to be taken out of service for an extended period of time, close the on-board shut-off valve and the cylinder valve.

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.
- 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.

REFRIGERATOR OPERATION

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.

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 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.

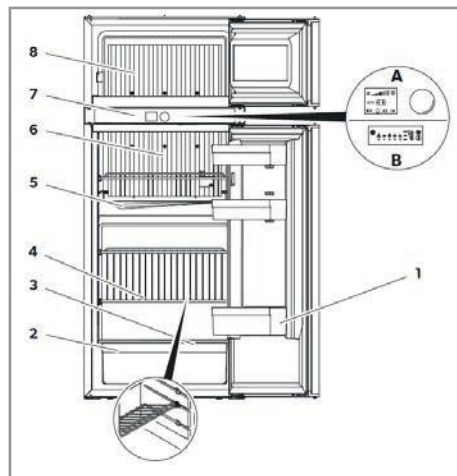
The electronic control ensures that the refrigerator temperature is kept constant and as little power as possible is consumed.

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 selfsufficient 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 A: RMD10.5T and RMD10.5XT B: RMD10.5 and RMD10.5X
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 

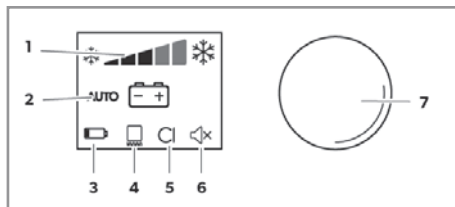
Switching off the acoustic signal for error messages and warning messages

- 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.

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).
- 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)

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.

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 “Safe operation” on page 90

- 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

REFRIGERATOR OPERATION

OPERATING WITH AC POWER SUPPLY

⚠ WARNING:
Observe the safety instructions in chapter “Safety when operating with AC power” on page 90.

⚠ 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:
Observe the safety instructions in chapter “Safety when operating with AC power” on page 90.

⚠ 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 

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 94). 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.


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: Beware of injury
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.

REFRIGERATOR OPERATION

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.

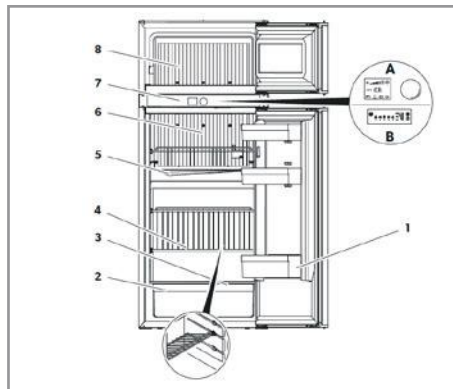
NOTES ON STORING FOOD

⚠ 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



⚠ 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.

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.
- Put a cloth in the ice compartment and the refrigerator to absorb any excess water.

REFRIGERATOR OPERATION

- 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 99).
- 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.

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.
With gas operation: The refrigerator does not work.	The gas cylinder is empty	Replace the gas cylinder.
	The gas valve is closed.	Twist the valve open.
	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.
In automatic mode: The refrigerator is being operated with gas although it is connected to the AC mains.	The mains voltage is too low.	The refrigerator changes to AC power supply automatically as soon as the mains voltage is sufficient again.

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.

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	Door left open	Warning	Close the door.

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.

⚠ WARNING:

Have the refrigerator checked by a specialist if you have not used the vehicle for a long time.

- 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.

REFRIGERATOR OPERATION

WARRANTY

The statutory warranty period applies. If the product is defective, please contact the manufacturer's branch in your country or your retailer.

For repair and guarantee 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

Type plate

Inside the refrigerator you can see the type plate of the refrigerator. There you can see the model name, product number and serial number. You will need this information whenever you contact the customer service or order spare parts:

The diagram shows a rectangular type plate with the following fields and callouts:

- 1: Points to the 'MOD. NO.' field.
- 2: Points to the 'PROD. NO.' field.
- 3: Points to the 'SER. NO.' field.
- 4: Points to the 'TYPE' field, which contains 'C 4010'.
- 5: Points to the 'CLIMATE CLASS' field, which contains 'M.C.'.
- 6: Points to the 'SHG' field.


Below these fields are three columns of volume information:

BRUTTOINHALT TOTAL CAP. VOLUME BRUT	FROSTERFACH FREEZER COMP. VOLUME COMPT BY	NUTZINHALT UPPER & L. CAP. VOLUME NET

At the bottom of the plate, there are two small boxes: 'MADE IN GERMANY' and 'BREMEN 1912'.

No.	Description
1	Model number
2	Product number
3	Serial number
4	Electrical connection value
5	Gas pressure
6	Test mark/certification

TECHNICAL DATA

No.	RMD10.5(T)	RMD10.5X(T)
Connection voltage:	230 V~/50 Hz 12 V==	
Capacity		
Gross capacity:	153 l	177 l
Net capacity/ refrigerator compartment:	124 l	142 l
Ice compartment:	29 l	35 l
Power consumption:	250 W (230 V~) 170W (12 V==)	
Energy consumption:	4.4 kWh/24 h (230 V~)	
Gas consumption:	580 g/24 h	
Climate class:	SN	SN
Weight:	40 kg	41.5 kg
Inspection/certification:		

For the current EU Declaration of Conformity for your device, please refer to the respective product page on [dometic.com](https://www.domestic.com) or contact the manufacturer directly.

Detailed information

 [dometic.com](https://www.domestic.com)

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

Coachman caravans are fitted with either a Thetford or Dometic oven, hob's and grill (model specific).

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: Before using the appliance for the first time, remove all accessories and packing in the grill and oven, including any plastic surface protection film.

Clean all surfaces with hot soapy water to remove any residual protective covering of oil and rinse carefully.

HOTPLATE OPERATION

The burners on this appliance have fixed aeration and no adjustment is required. The burners should flame as follows:

Propane - The flames should burn quietly with a blue/green colour with no sign of yellow tips.

Butane - Normally on initial lighting, a small amount of yellow tipping will occur. This then increases slightly as the burner heats up.

USING THE HOTPLATE GAS BURNERS

1. Ensure gas cylinder/supply is connected and turned on. In the event of a gas smell turn off at gas cylinder/mains and contact supplier.
2. Flame supervision: Each burner is controlled individually and is monitored by a thermocouple probe. In the event of the burner flames being accidentally extinguished, turn off the burner control and do not attempt to re-ignite the burner for at least one minute.
3. To light: Push in the control knob and turn to full rate.
4. Your hob is fitted with Spark Ignition and can be ignited by depressing the ignition button, which is located on the fascia. If the burner has not lit within 15 seconds the control knob should be released and the burner left for at least 1 minute before a further attempt to ignite the burner.
5. For simmering, turn the knob further anti-clockwise to the low rate position.
6. To turn off: Turn the control knob until the line on the control knob is aligned with the dot on the control panel. Always make sure the control knob is in the off position when you have finished using the hotplate burners.

⚠ WARNING: Each burner will support pans from 10 to 22cm. Care should be taken not to overload the appliance as performance may be reduced.

The following pan sizes are the maximum we recommend:

Electric Hotplate 180mm

Auxiliary Burner 200mm

Semi-Rapid Burner 2 x 200mm or 1 x 220mm with 1 x 180mm

When using small pans the flames should not spread beyond the base of the pan as this will reduce the efficiency of the burner.

Avoid old or misshapen pans as these may cause instability.

The lid must be opened fully prior to using the hotplate burners.

USING THE ELECTRIC HOTPLATE

Ensure the electricity is switched on. The hotplate control is numbered from 1 to 6. To turn it on, rotate the knob either clockwise or anti-clockwise to the required position. Position 1 is the coolest setting. To turn off, rotate the knob until the line or pointer on the knob lines up with the zero on the control panel.

The hotplate is a sealed construction and transfers heat through conduction. For maximum efficiency a correctly sized pan with a flat heavy gauge base should be used. Pan size should be the same or slightly larger (up to 1"/2.5cm oversize).

Before using your hotplate for the first time, we recommend that you prime and season it.

⚠ WARNING: Ensure the glass lid is open before turning on the hotplate burners.

To prime the Hotplate.

Switch 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. A non toxic smoke may occur during this process. Allow it to cool, then season.

To season the Hotplate.

First heat the hotplate for 30 seconds on a medium setting, then switch 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, then heat the hotplate on a medium setting for 1 minute. Occasional seasoning will help to maintain the Hotplate's appearance.

⚠ WARNING: Children should be supervised to ensure they do not play with the appliance.

Glass lids may shatter when heated. Turn off the hotplate and allow it to cool before closing the glass lid.

Remove all spillages from the surface of the glass lid before opening.

The glass lid has the tendency to snap shut towards the end of lowering. This is caused by the travel lock action of the hinges as it is activated.

Make sure all fingers are removed from appliance when closing the lid.

USING THE GRILL

1. Ensure gas cylinder/supply is connected and turned on. In the event of a gas smell turn off at gas cylinder/mains and contact supplier.
2. To light: Open door, push in the control knob and turn to full rate. Hold a lighted match or taper to the burner and push the control knob in and hold. The burner should ignite and the control knob should be held for 10 - 15 seconds before release. If the burner goes out, repeat procedure holding control knob for slightly longer.
3. For models fitted with Spark Ignition the procedure is similar except that the burner can be ignited by depressing the ignition button, which is located on the fascia. Ignition must be carried out with the door open and if the burner has not lit within 15 seconds the control knob should be released and the grill left for at least 1 minute before a further attempt to ignite the burner.
4. Note: the grill must only be used with the door open.
5. On first use of the grill, it should be heated for about 20 minutes to eliminate any residual factory lubricants that might impart unpleasant smells to the food being cooked. A non-toxic smoke may occur when using for the first time so open any windows and turn on mechanical ventilators to help remove the smoke.

6. Although the grill does heat up quickly, a few minutes preheat is recommended.
7. Flame Failure Device (FFD): the grill burner is fitted with a flame sensing probe, which will automatically cut off the gas supply in the event of the flame going out. In the event of the burner flames being accidentally extinguished, turn off the burner control and do not attempt to re-ignite the burner for at least one minute.
8. It is normal for the flames on this burner to develop yellow tips as it heats up.
9. Reversible grill pan trivet enables the correct grilling height to be achieved.
10. To turn off: Turn the control knob until the line on the control knob is aligned with the dot on the control panel.

Always make sure the control knob is in the off position when you have finished grilling.

⚠ WARNING: The grill area will be hot during and after use.

When removing items from the grill use oven gloves and the removable grill pan handle. The handle allows removal or insertion whilst the pan is in use.

Always remove the handle when in use.

The grill MUST only be used with the door open.

⚠ WARNING: The appliance is fitted with a cooling system. The cooling fans will automatically switch on a few minutes after the grill and/or oven is turned on, and will remain on even after the appliance has been switched off.

The fans will automatically switch off a few minutes after the appliance has been switched off, when the front of the appliance has cooled sufficiently.

A constant 12V supply is necessary at all times to ensure the cooling system operates correctly.

USING THE OVEN

1. Ensure gas cylinder/supply is connected and turned on. In the event of a gas smell turn off at gas cylinder/mains and contact supplier.
2. To light: Open door, push in the control knob and turn to full rate (240°C), (Gas Mark 9).
3. Your oven is fitted with Spark Ignition and can be ignited by depressing the ignition button, which is located on the fascia. Ignition must be carried out with the door open, and if the burner has not lit within 15 seconds the control knob should be released and the oven left for at least 1 minute before a further attempt to ignite the burner.
4. Place the oven shelf in the required position and close the door.

5. Set the control knob to required temperature. Although the oven heats up quickly, it is recommended that a 10 minute preheat be allowed. The oven should be up to full temperature in about 15 - 20 mins.
6. To turn off: turn the control knob until the line on the control knob is aligned with the dot on the control panel.
7. Shelf: the shelf has been designed to allow good circulation at the rear of the oven and is also fitted with a raised bar to prevent trays or dishes making contact with the back of the oven. To remove a shelf, pull forward until it stops, raise at front and remove.

⚠ WARNING: Before first use, heat the oven for about 30 minutes at 200°C, to eliminate any residual factory lubricants that might impart unpleasant smells to the meals being cooked. A non-toxic smoke may occur when using for the first time so open any windows and turn on mechanical ventilators to help remove the smoke.

The pans and trays supplied with this appliance are the maximum sizes recommended for use. Larger pans and trays may restrict good circulation of heat, increasing cooking times.

Always ensure food is properly cooked prior to serving.

OVEN TEMPERATURE CONTROL

The temperature in the oven is controlled by a thermostatic gas tap and is variable over the range 130°C to 240°C. Approximate temperatures for the settings on the control knob are shown in the table on page 115. The temperatures indicated refer to the centre of the oven and at any particular setting the oven will be hotter at the top and cooler towards the base.

The variation between top and centre, and centre to bottom is approximately equivalent to one gas mark. Good use can be made of the temperature variation in several dishes requiring different temperatures may be cooked at the same time.

Dos and Don'ts

- DO read the user instructions carefully before using the appliance for the first time.
- DO allow the oven to heat before using for the first time, in order to expel any smells before the introduction of food.
- DO clean the appliance regularly.
- DO remove spills as soon as they occur.
- DO always use oven gloves when removing food shelves and trays from the oven.
- DO NOT allow children near the cooker when in use. Turn pan handles

away from the front so that they cannot be caught accidentally

- DO NOT allow fats or oils to build up in the oven trays or base.
- DO NOT use abrasive cleaners or powders that will scratch the surfaces of the appliance.
- DO NOT under any circumstances use the oven as a space heater.
- DO NOT put heavy objects onto open grill and oven doors.

Leaks

If a smell of gas becomes apparent, the supply should be turned off at the cylinder.

IMMEDIATELY

- Extinguish naked lights including cigarettes and pipes.
- Do not operate electrical switches
- Open all doors and windows to disperse any gas escape.
- Never check for leaks with a naked flame, leak investigation should be carried out using a leak detector spray.
- Check the gas is not escaping from an unlighted appliance.

MAINTENANCE

This appliance needs little maintenance other than cleaning. After the unit has cooled all parts should be cleaned using warm soapy water. Do not use abrasive cleaners, steel wool or cleansing powders. When cleaning the burner ring it is essential to ensure that the holes do not become blocked. The control knobs are a push fit and can be removed for cleaning. They are interchangeable without affecting the sense of operation.

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. For service, please contact your authorised local Service Agent giving details of the model and serial number on the data badge plus date of purchase.












⚠ 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.

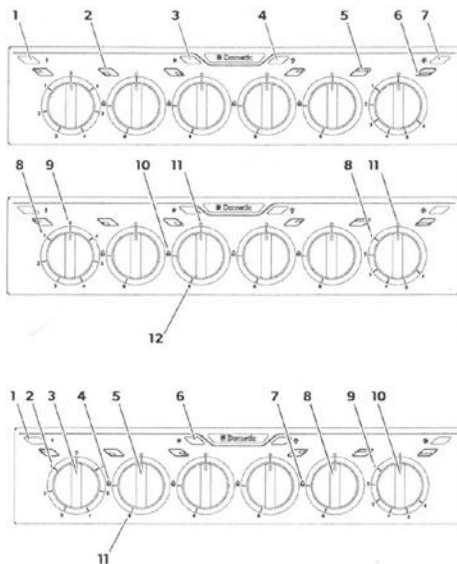
DOMETIC INSTRUCTIONS OVEN, HOB AND GRILL

Technical description

Control Panel

The following table shows all the buttons and symbols on the appliance (button and symbols may vary depending on the model).

Ref.	Symbol	Description
1		LED light indicating that the electric hot-plate is in operation
2		Indicates the control knob of a hob burner
3		Button to actuate electronic ignition
4		Button to turn on the oven light
5		Indicates the grill control knob
6		Indicates the oven control knob
7		LED light indicating that the fans are on
8	1-2-3-4-5-6	Oven or electric hotplate temperature
9		Electric hotplate turned off
10		Maximum adjustment of flame
11		Gas turned off
12		Minimum adjustment of flame



⚠ WARNING: This appliance must only be used by responsible adults.

The accessible parts may be hot during and immediately after use; do not touch them and keep children away. After cooking, return the knob(s) to the closed position(s). After use, close the main gas line tap.

⚠ WARNING: This appliance may not be used by people (including children) with impaired physical and mental capacities, or with no experience in using electrical appliances, unless they are supervised and instructed by a person who is responsible for their safety. Children must be controlled to make sure they do not play with the appliance.

⚠ WARNING: Inadequate ventilation can create hazard to the user and risk of injury.

⚠ WARNING: When cooking food for the first time, leave the oven and the grill on at maximum capacity. The oven must be kept on for at least 30 minutes and the grill must be kept on for 15-20 minutes.

Remove any liquids overflowing on the cover before opening.

⚠ WARNING: The use of a gas cooking appliance leads to the generation of heat and moisture in the room in which it is installed. Make sure to provide good ventilation in the kitchen; keep natural ventilation openings open or install a mechanical ventilation device (mechanical extractor hood).

Intense and prolonged use of the appliance may require supplementary aeration such as the opening of a window or more effective ventilation such as an increase in the power of the mechanical extractor hood.

⚠ WARNING: This warning is clearly shown on the glass cover of the hob. The glass covers may break if heated. Ignition of any of the burners (hob, oven and grill) must always be done with the cover raised, and always turn off all the burners (hob, oven and grill) and leave them to cool down before closing the cover.

Model	Heat Output										Rated Power				
	Semirapid		Auxiliary		Grill		Oven		Electric		Hotplate				
	Ø 62 mm		Ø 47 mm												
	nr.	kW	g/h	nr.	kW	g/h	nr.	kW	g/h	nr.	W	V			
CUE601PE	2	1,8	131	1	1	73	1	1,5	116	1	2	146	1	800	220
CUE601LPE															240
CUE601RPE															



Models bearing this label on the lid have a device that only allows for gas flow when the lid is fully open.

HOB

Selecting the burner

⚠ WARNING: The flame must not spread over the edges of the cookware. Place the cookware centrally on the burner, so that it is stable on the support grid.



Burner	Cookware diameter
Auxiliary Ø 47mm	From 60 to 160mm
Semirapid Ø 62mm	From 160 to 220mm

⚠ WARNING: Ignition must be done without any cookware or other object on the burners.

To generate the flame, fully press down the control knob and turn it to the large flame position.

Simultaneously push down the electronic ignition button.

Once the flame has been generated, press the knob down for a few seconds so that the flame remains lit.

⚠ WARNING: If the burner does not turn on:

- Turn the knob to the small flame position
- Proceed with manual ignition
- Check that there is gas in the cylinder.

If the device does not work, close the gas inlet and contact your dealer

Manual ignition of the hob

If the electronic ignition does not work, the manual ignition is used as a substitute.

⚠ WARNING: Ignition must be done without any cookware or other object on the burners.

To generate the flame, fully press down the control knob and turn it to the large flame position.

Simultaneously ignite the burner with a match or gas lighter.

Once the flame has been generated, press down the knob for a few seconds so that the flame remains lit.

⚠ WARNING: If the burner does not turn on:

- Check there is gas in the cylinder.

If the device does not work, close the gas inlet and contact your dealer.

Regulating the hob flame

To adjust the flame, turn the knob to the desired position.

OVEN

⚠ WARNING: The burner must only be ignited when the door is fully open.

The rack, drip pan (tray) or the pan must be positioned in the oven in a way that they are not directly in contact with the flames.

If the burner flame accidentally goes out, close the gas knob and wait a minute before relighting.

Electronic ignition of the oven

To generate the flame, fully press down the control knob and turn it from position 1 to 6.

Simultaneously push down the electronic ignition button.

Once the flame has been generated, press down the knob for a few seconds so that the flame remains lit.

⚠ WARNING: If the burner does not turn on:

- Proceed with manual ignition
- Check that there is gas in the cylinder.

If the device does not work, close the gas inlet and contact your dealer.

Manual ignition of the oven

If the electronic ignition does not work, the manual ignition is used as a substitute.

- To generate the flame, fully press down the control knob and turn it from position 1 to 6.
- Simultaneously ignite the burner with a match or gas lighter.
- Once the flame has been generated, press down the knob for a few seconds so that the flame remains lit.

⚠ WARNING: If the burner does not turn on:

- Check that there is gas in the cylinder.

If the device does not work, close the gas inlet and contact your dealer.

Regulating the oven flame

To adjust the flame, turn the knob to the desired position

Position	Temperature (approx)
1	120°C
2	150°C
3	180°C
4	200°C
5	220°C
6	224°C

As soon as the oven burner flame is turned on, it remains at the maximum flow rate in all positions of the knob and then automatically decreases to the minimum flow rate when the set oven temperature is reached.

GRILL

⚠ WARNING: The burner must only be ignited when the door is fully open.

If the burner does not light immediately, release the knob and repeat the operation after 10 seconds.

The door must always be open during operation.

Never use the grill for more than 25 minutes. The grill cannot be used as an oven.

If the burner flame accidentally goes out, close the gas knob and wait a minute before re-lighting.

Accessible parts may be hot when the grill is used, keep children away.

Electronic ignition of the grill

To generate the flame, fully press down the control knob and turn it to the large flame position.

Simultaneously push down the electronic ignition button.

Once the flame has been generated, press down the knob for a few seconds so that the flame remains lit.

⚠ WARNING: If the burner does not turn on:

- Proceed with manual ignition
- Check that there is gas in the cylinder.

If the device does not work, close the gas inlet and contact your dealer.

Manual ignition of the grill

If the electronic ignition does not work, the manual ignition is used as a substitute.

To generate the flame, fully press down the control knob and turn it to the large flame position.

Simultaneously ignite the burner with a match or gas lighter.

Once the flame has been generated, press down the knob for a few seconds so that the flame remains lit.

⚠ WARNING: If the burner does not turn on:

- Check that there is gas in the cylinder.

If the device does not work, close the gas inlet and contact your dealer.

Regulating the grill flame

To adjust the flame, turn the knob to the desired position.

Visual inspection of the flame

Depending on the type of gas used, the flame appears as follows:

- Propane (G31): Flame with blue internal pin point and clear outline
- Butane (G30): Flame with slight yellow tips when igniting the burner, these tips intensify as the burner heats.

Electric hotplate

⚠ WARNING: When the electric hotplate is turned on for the first time, or if it has not been used for some time, the absorbed humidity must be removed by turning the on the plate for 30 minutes on position 1 of the knob.

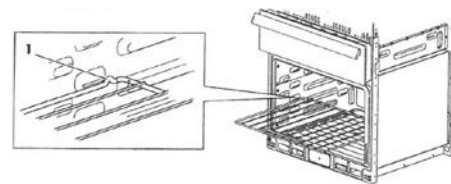
Use cookware with a flat bottom and with a diameter smaller than the diameter of the electric hotplate.

The electronic hotplate is controlled by a 7-position knob. The off position is represented by the 0 (zero), while the positions from 1-6 are used to operate the electric hotplate.

⚠ WARNING: Dry the bottom of the cookware before placing it on the electric hotplate.

When using the hotplate, do not leave the appliance unattended and make sure children are not nearby.

The scale from 1 to 6 corresponds to the increasing heat intensity generated by the electric hotplate. There is a red LED light near the knob that lights up when the electric hotplate is in operation.



The rack and drip pan have a block that prevents accidental extraction.

For a correct insertion, the blocks must be facing upwards and toward the inside of the appliance.

To extract, slightly lift the front of the rack or the drip pan.

THETFORD K1520 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.

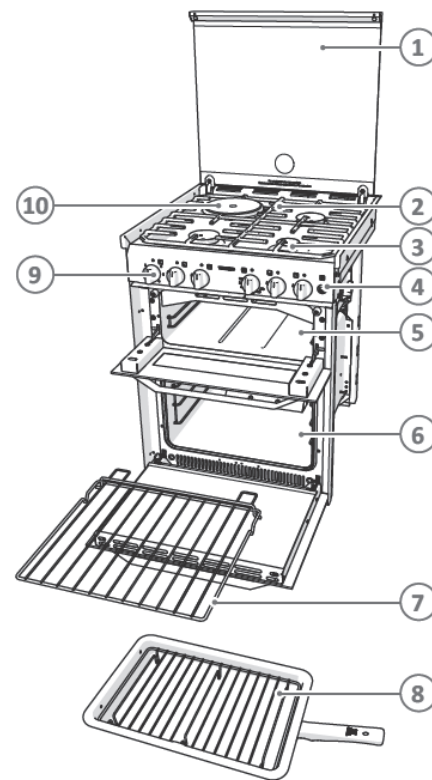
- Do not use harsh abrasive cleaners or sharp metal scrapers to clean the surface of the glass, since they can scratch the glass surface which may result in shattering of the glass.
- Remove any spillage from the glass lid before opening the lid.
- Do not shut the glass lid when the burners are lit or 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.

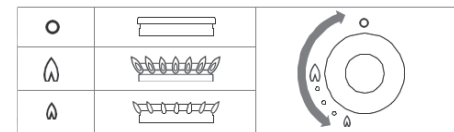
Oven shelf:

- The oven shelf allows good circulation at the rear of the oven.
- A raised bar at the rear of the shelf prevents trays or dishes making contact with the back of the oven.

- To remove a shelf, pull it forward until it stops, raise at the front and remove.
- To place a shelf in the oven, lower it at the front and slide it backward until it stops.

⚠ 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.
- For spark ignition models: Push the ignition button.

CARAVAN EQUIPMENT

- For non-ignition models: Hold a lit match or gas match to the burners.
- 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.

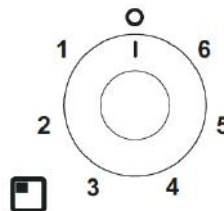
Turning off:

- 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.

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:

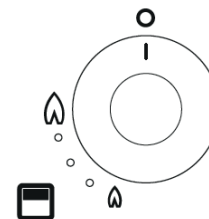
- Turn the control knob to the 0 position to turn off the hotplate.

⚠ 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).

-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.
- 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 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 oven heats up quickly, a 10 minute preheat is recommended. The oven should reach full temperature in about 15-20 minutes.

Turning off:

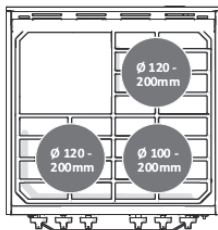
- Turn the control knob clockwise to the 0 position to turn off the oven.

⚠ WARNING:

Always make sure the control knob is in the 0 position when you have finished using the oven.

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.




The table on page 121 provides a guide to the approximate temperatures at each of the shelf positions with respect to the gas mark setting. Good use can be made of the temperature variation between the shelf positions, as several dishes requiring different temperatures may be cooked at the same time. In this way maximum benefit can be obtained from the gas used to heat the oven.

⚠ 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

Table 1: Temperature zones

Gas mark				Dish
1/4 - 1/2	90°C	120°C	130°C	Meringues
1	110°C	130°C	150°C	Stewed fruit
2	120°C	140°C	160°C	Rich fruit cake, rice pudding
3	130°C	150°C	170°C	Baked custard, shortbread fingers
4	140°C	160°C	185°C	Victoria sponge
5	155°C	180°C	200°C	Whisked sponges, ginger nuts
6	170°C	190°C	215°C	Short crust pastry
7	185°C	210°C	230°C	Bread, scones, flaky pastry
8	200°C	220°C	245°C	Puff pastry
9	215°C	240°C	260°C	Quick browning

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.

CARAVAN EQUIPMENT

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.

Model Name & Series Number				
G30 G31	CAT I ₊ (28-30/37) BUTANE 28-30mbar PROPANE 37mbar	CAT I _{B/P} (30) BUTANE 30mbar PROPANE 30mbar	THETFORD	
ΣQn	Power kW (g/hr)	Model Number	Spark Ignition	
CE	Pin Number	Serial Number	Voltage ~ 50 Hz	
Country Codes 1		Country Codes 2	QC Pass	Order No

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:

- 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.

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.

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.

CLEANING AND MAINTENANCE

Cleaning the appliance

⚠ WARNING: Before cleaning, switch off the appliance, disconnect it from the mains power supply and wait for it to cool down.

⚠ WARNING: Do not use rough abrasive material or sharp metal scrapers to clean the glass oven doors as these products may cause the glass to shatter.

Do not use steam cleaners to the clean the appliance.

⚠ WARNING: Hot surfaces could be damaged if they come into contact with cold water of a damp cloth.

Do not use abrasive, corrosive, chlorine-based products, scourers or steel wool.

Do not leave acid or alkaline substances (vinegar, salt, lemon juice, etc.) on appliance surfaces.

For stainless steel surfaces and enameled parts; wash with soap and water or mild detergent, rinse and dry. Use clean sponges and cloths.

Clean surfaces with soap and water or mild detergent, rinse and dry. In particular, remove oil residues and encrusted grease.

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.

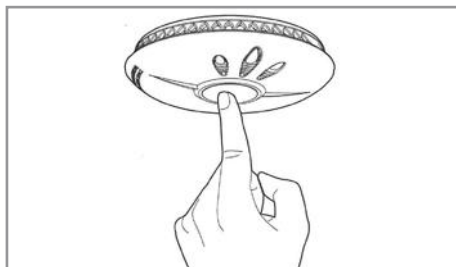
Standing time is necessary after cooking, as it enables the heat to disperse equally throughout the food.

⚠ 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 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 fuel-burning appliances or from chimneys.

⚠ WARNING:

DO NOT:

- **IGNORE ANY WARNING FROM YOUR CO DETECTOR!**
- Burn charcoal inside your home, caravan, tent or cabin.
- Install, convert or service fuel-burning 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 manufacturer's instructions.

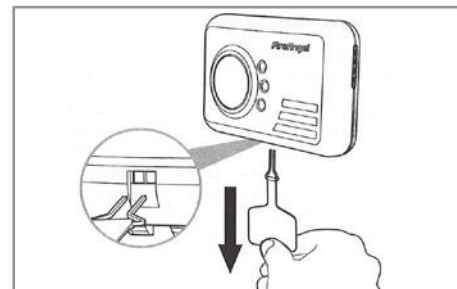
- Have appliance installations carried out by professionals (for gas appliances engineers should be registered on the Gas Safe register)
- Have your appliances checked regularly by a qualified service engineer.
- Have your chimneys and flues cleaned professionally every year.
- Make regular visual inspections 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

- a.** 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.

- b.** 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.
- c.** 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.

⚠ 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 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.
- 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

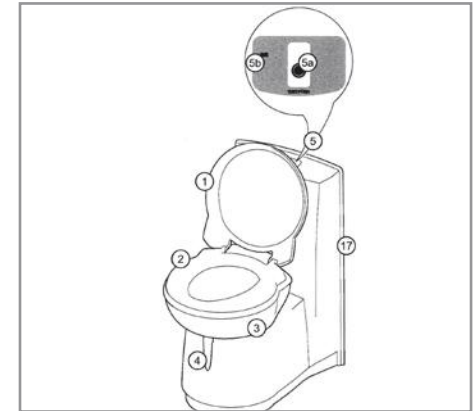
Coachman caravans are fitted with either a Thetford or Dometic cassette toilet (model specific)

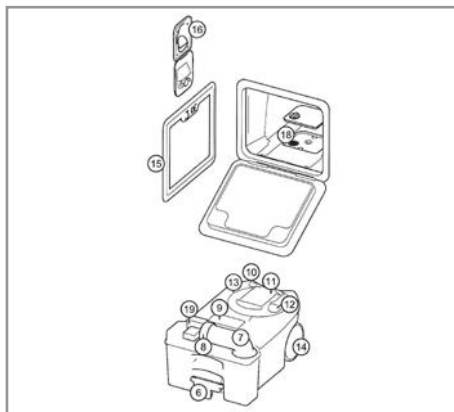
Before you put the toilet in operation please read the entire manufacturer's operating manual carefully. These manuals provide you with the necessary information for the proper use, care and servicing of the toilet.

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. (1 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.

Options

16. Waterfill door (only for C262 model).

17. Filter for electric ventilator.
18. Console with flush water tank (only for C262 model).

19. Location waste pump-out system.

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.

Before operating and using this toilet we advise you to read the Thetford manual completely. Keep this manual in a safe place for future reference. For the latest version of the manual please visit www.thetford.eu

✓ Symbols used



⚠ WARNING: (possible risk of injury or product damage).

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

⚠ WARNING: Never add toilet additives directly via the blade as this could damage the lip seal of the waste-holding tank 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.

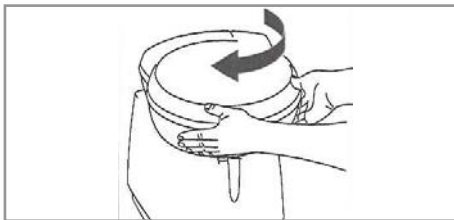
additive package. Then add ±3L of water to the waste holding tank. Fill the flush-water tank of a C262 model to the top. Thetford offers a pleasantly scented toilet flush for the flush-water tank (Aqua rinse) and a variety of waste holding products (Aqua Kem Blue, Aqua Kem Green, Aqua Kem Natural, Aqua 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 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

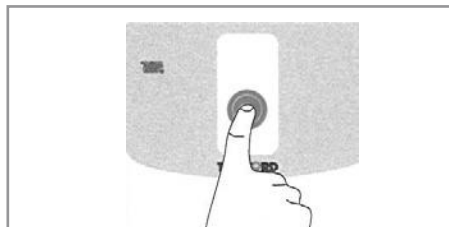
You can turn this bowl to a desired position (max ± 90). Close the cover and use both hands to rotate the bowl as illustrated.

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. 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. This activates the control panel. If no level indication light lights up, your toilet has a 1 level indication. It will only indicate a full tank. If a green level indication light immediately lights up, your 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 again.

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 traveling with anything in the 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.

CARAVAN EQUIPMENT

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

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.

5. 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.

CLEANING

Before you use the toilet for the first time, we recommend that you clean it inside and out. Use a soft cloth and lukewarm water with a mild cleaning agent. Then wash the surfaces with clean water. To prevent material changes, do not use hard, abrasive or soda based cleaning agents (scouring agents).

⚠ WARNING: Cleaning products for the toilet may not contain chlorine or alcohol!

Do not use polish for cleaning.

For regular cleaning of the toilet bowl, use a mild colourless cleaning agent.

DOMETIC

Preparing the cassette tank

Before you use the toilet for the first time:

Open the service door.

Unlock the cassette tank by pressing the lock (Fig 1) upwards.

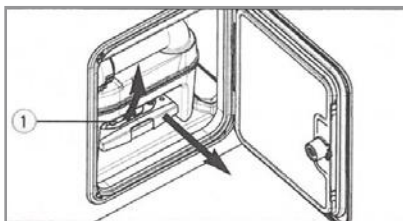


Fig.1

For convenient use and handling, the cassette slider must always be greased.

Pull out the cassette tank. When pulling out the tank, resistance has to be overcome.

When the cassette is removed, the slide handle on the toilet housing is locked. Do not pull the handle! The cassette cannot be inserted when the slider is open.

Set the cassette tank upright and turn the draining neck by approximately 90° upwards.

Avoid turning the neck more than 90°, as it otherwise can come off (Fig 2).

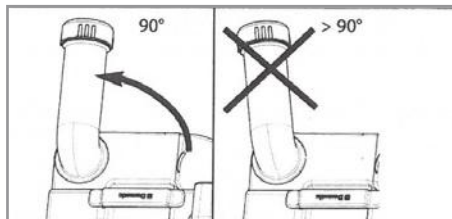


Fig.2

Remove the seal cap (Fig 3).

Attach the cap to the cassette at the location shown (Fig 4).

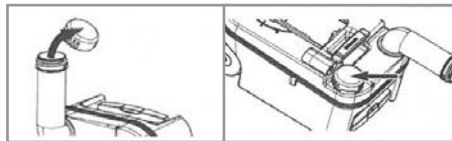


Fig.3

Fig.4

Put a Dometic Power CARE Tab through the neck into the cassette tank according to the instructions (Fig 5).

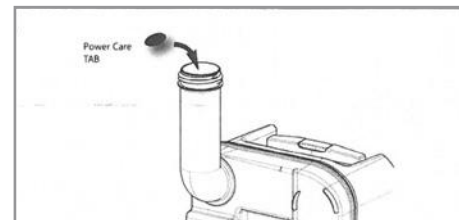
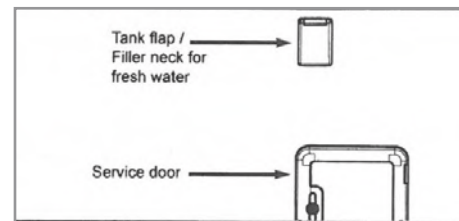


Fig.5

Ensure that the tank can be pushed in easily. Make sure that the tank does not bump into other objects or components.

Insert the cassette tank again and push it inwards as far as it will go.

The tank locks by itself upon being pushed in. Nevertheless, check that the cassette tank is securely seated.



Close and lock the service door.

Filling the freshwater tank

Fill the freshwater tank through the filler neck on the outside of the vehicle. The amount depends on the tank used (the integrated tank for models Saneo BW and Saneo CW = 7 liters).

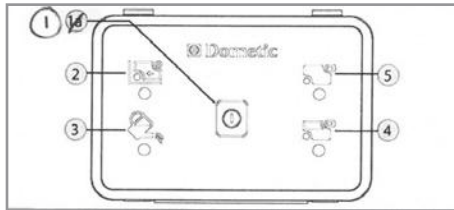


Fig.7

CONTROL AND OPERATING UNIT

To flush the toilet, press the switch (Fig 7) with a finger.

Explanation of the operating unit

Item	Description
1	"Flush" button
2	"Cassette tank removed" indicator
3	"Fill freshwater tank" indicator (Not always connected when using the on-board tank)
4	"Cassette tank 3/4 full" indicator
5	"Cassette tank full" indicator

USING THE TOILET

The toilet seat (Fig 8 1) is secured against falling in the open 90° position. With Saneo Comfort models with Autoclose, the seat lowers slowly when triggered.

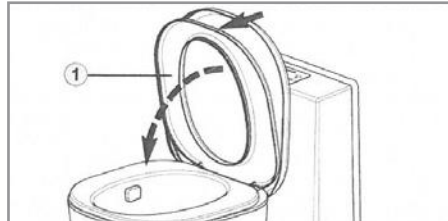


Fig.8

Before use, press the flush button (Fig 9 2) to allow some water to run into the bowl. A flushing operation is limited to 20 seconds regardless of how long the button is pressed. You may be able to hear the relay switching.

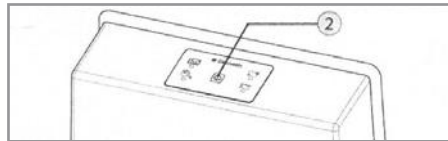
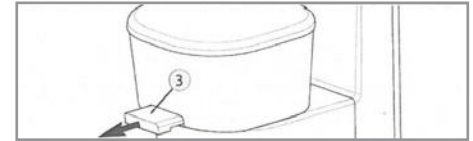


Fig.9

Pull the slider (Fig 10 3) forward.

Leave the slider open during use.



After use, press the flush button (Fig 9 2) to rinse the bowl again.

Fig.10

Close the slider (Fig 10 3)

The slider must be closed while driving, and no liquid should be above the slider.

When closing the slider, slight resistance can be felt from a distance of about 10mm from the housing. The slider is closed when the slider handle (Fig 11 3) does not protrude over the toilet housing (Fig 12). Otherwise the cassette tank cannot be removed.

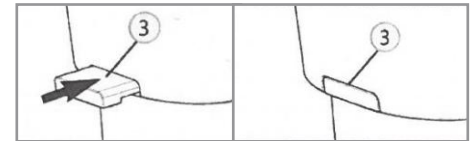


Fig.11

Fig.12

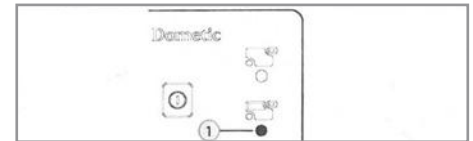


Fig.13

CARAVAN EQUIPMENT

The cassette tank has a capacity of 16l. when the indicator (Fig 13 1) lights up, the tank is $\frac{3}{4}$ full. This means the toilet can be used only a few more times.

With a $\frac{3}{4}$ filled cassette, use is only possible when the slider is open. With a tilted position (such as a lasting inclination of the vehicle), the cassette may only be $\frac{3}{4}$ full. Overflowing through the vent is possible.

DRAINING THE CASSETTE TANK

Empty the cassette tank when the level indicator LED lights up:

Remove the cassette tank as described in chapter "Preparing the cassette tank".

The cassette tank has integrated wheels and an extendible handle. To release the handle, press the button (Fig 14 1) in the middle of the handle. Pull the handle out all the way.

Bring the tank to the nearest designated disposal location.

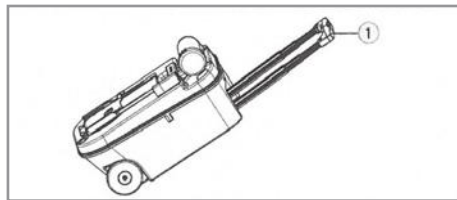


Fig. 14

⚠ WARNING: Do not shake the cassette tank vigorously.

Do not hang the cassette tank on a bicycle or other vehicle for transportation.

Do not place heavy objects on the cassette tank during transport.

This can damage the housing and rollers.

To bring the handle back to its original position, press the release button of the handle and push the handle back into the cassette.

Set the cassette tank upright and turn the draining neck upwards (Fig 15).

Remove the seal cap (Fig 16).

Attach the cap to the cassette at the location shown (Fig 17).

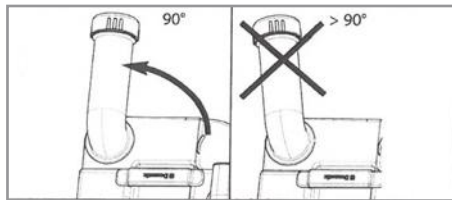
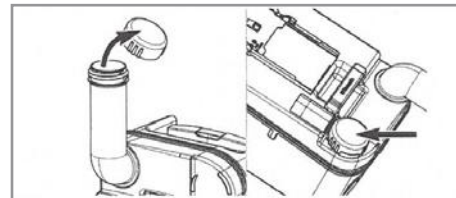


Fig. 15



Avoid turning the neck more than 90°, Fig.16 as otherwise it can come off.

Hold the cassette tank on the handle (Fig 17 2) with one hand while holding the tank with the other hand on the housing (Fig 17 3) so that you can press the vent button (Fig 17 1) while it is draining.

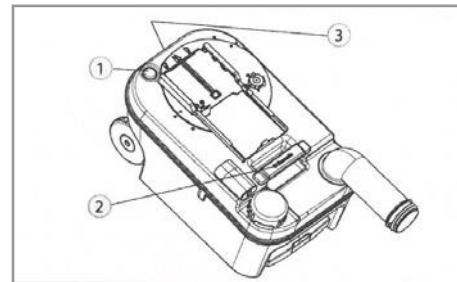


Fig. 17

Do not press the vent button until the draining neck is pointing downwards!

The tank drains steadily and without splashing.

After draining, rinse out the cassette tank carefully.

Then get the tank ready for use as described in chapter “Preparing the cassette tank” on page 18 before inserting it into the toilet.

Clear away coarse dirt from the wheels of the cassette tank to prevent scratching of the cassette housing.

Do not clean the inside of the cassette tank with a high-pressure cleaner. This can damage the float for the level indicator.

POSITIONING THE TOILET SEAT

The upper part of the toilet can be rotated out of the basic position by 180° (continuously), 90° in both directions. A limitation prevents the upper part of the console from being bumped.



WINTER OPERATION

You can also use the cassette toilet in winter, as long as the toilet and cassette tank are in a frost-free area.

If this is not the case, empty the freshwater tank, the cassette tank and the water line of the freshwater supply.

This will prevent damage by frost (chapter “Taking the toilet out of service”).

⚠ WARNING: Do not use antifreeze. These agents may damage the cassette toilet.

TAKING THE TOILET OUT OF SERVICE

Drain the freshwater tank and the water supply system completely if you are going to take the toilet out of service for an extended period of time.

- Clean the toilet carefully.
- Operate the flush button until no more water is in the pipes.
- Interrupt the power supply to the toilet.
- Then drain the cassette tank and rinse it out carefully. Clean the cassette. To allow the cassette tank to dry, do not close the outlet neck.
- Clean and grease all the seals and moving parts of the toilet and cassette tank (chapter “Maintenance”), and repeat this operation before putting the toilet back into service.

MAINTENANCE

Clean the toilet bowl regularly.

Information about **sanitary accessories** can be found on the Internet at:

www.dometic.com

Clean and grease all seals on the toilet and cassette tank regularly. In case of frequent use, perform this action monthly or after 3-5 draining of the cassette. Use grease or silicone-based spray.

We recommend:

- Grease: OKS 1110
- Spray: OKS 1111

⚠ WARNING: Inadvertent closing of the slider during cleaning and greasing can cause injury.

The cassette slider must always be greased for convenient use and better handling.



Fig. 1

CLEANING THE FLUSHING NOZZLE

Pull off the cover of the flushing nozzle (Fig 2 1) in the direction shown.

Remove any dirt or debris with a cloth or soft brush.

Reattach the cover of the flushing nozzle in the manner shown (Fig 3).

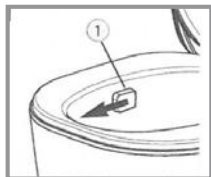


Fig. 2

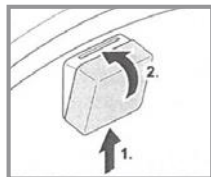


Fig. 3

Greasing the slider rods



Fig. 4



Fig. 5

Spray the rods of the slider (Fig 5 1) with silicone spray.

Greasing the slider seal

At the bottom of the toilet bowl, there are two seals that receive the slider when it is closed.

Grease this area carefully to prevent binding.



Fig. 6

Greasing the cassette seal

Remove the cassette tank and place it on a firm surface. Pull back the cover (Fig 7 1) so that the seal is accessible.

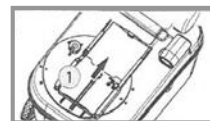


Fig. 7

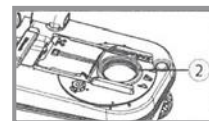


Fig. 8

Evenly grease the cassette seal (Fig 8 2) at the top with silicone-based grease. In this way the cover remains movable.

Close the cover (Fig 9).

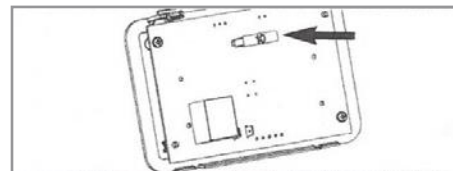


Fig. 9

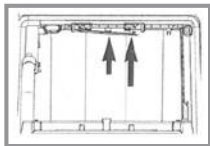
REPLACING THE FUSE IN THE OPERATING UNIT

The fuse (automotive fuse: 10A) is located on the underside.

⚠ WARNING: Switch off the voltage supply before you start!



WHAT TO DO IN CASE OF PROBLEMS

Problem	Possible cause	Remedy
Toilet no longer flushes.	Faulty fuse. Cassette not inserted. Cassette full. No power. Electronics defective. Pump defective. Solenoid valve defective. Filter of the solenoid valve is dirty.	Replace the fuse (see chapter "Replacing the fuse in the operating unit") If there are repeated failures, check the electrical connections! Replace defective parts.
Cassette tank leaks.	Seal worn.	Replace the cassette seal (see chapter "Replacing the cassette seal").
Cassette tank cannot be pushed in completely. Slider can be opened, even though the cassette has been removed.	Lower slider flange has come loose.	Press slider flange into the correct position. 
Cassette cannot be removed.	Slider is opened.	Close the slider.

Cassette does not lock in the cassette compartment.	Cassette lock is defective.	Replace the cassette lock.
Cassette can be removed although the slider is open.	The cassette locking cover is defective.	Replace the bayonet fitting unit of the cassette.
Slider cannot be opened.	Cassette not inserted.	Insert the cassette.

CUSTOMER SERVICE

Dometic offers a Europe-wide service network. Authorised customer service centers are available on the internet at www.dometic.com.

When contacting customer service, please always specify the model, product number, serial number and MLC code, if applicable. This information can be found on the type plate of the toilet.

SPARE PARTS

Spare parts can be obtained from the customer service centre of the respective county.

Information about sanitary accessories can be found on the internet at www.dometic.com.

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. See Fig 2.

*MIN = 3,7 m³ /min. (2W – 0,17 A)

*MAX = 24 m³/min. (86W – 7,20 A)

- 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 (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. 3.
- 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. 4.

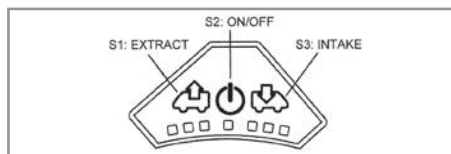




















































Fig.1

PUSH BUTTONS	LIGHTS	SPEED	Ampère	Watt
	■ ■ ■ ■ ■ ■ ■ ■	0	0,2 mA	2,4 mW
1x 	■ ■ ■  ■ ■ ■ ■	1 	0,15 A	2 W
1x  + 1x 	■ ■   ■ ■ ■ ■	2 	0,35 A	5 W
1x  + 2x 	■   ■ ■ ■ ■	3 	0,65 A	9 W
1x  + 3x 	■    ■ ■ ■ ■	4 	1,20 A	17 W
1x  + 4x 	    ■ ■ ■ ■	5 	1,70 A	24 W
1x  + 5x 	     ■ ■ ■ ■	6 	2,50 A	34 W
1x  + 5x  + 1x 	    ■ ■ ■ ■	5 		
1x  + 5x  + 2x 	■    ■ ■ ■ ■	4 		
*** *** ***				
1x 	■ ■ ■ ■ ■ ■ ■ ■	0	0,2 mA	2,4 mW























PUSH BUTTONS	LIGHTS	SPEED	Ampère	Watt
	■ ■ ■ ■ ■ ■ ■ ■	0	0,2 mA	2,4 mW
1x 	■ ■ ■  ■ ■ ■ ■	1 	0,15 A	2 W
1x  + 1x 	■ ■ ■  ■ ■ ■ ■	0	15 mA	0,2 W
1x  + 2x 	■ ■ ■   ■ ■ ■ ■	1 	0,15 A	2 W
1x  + 3x 	■ ■ ■   ■ ■ ■ ■	2 	0,30 A	5 W
1x  + 4x 	■ ■ ■    ■ ■ ■ ■	3 	0,50 A	9 W
*** *** ***				

Fig.2

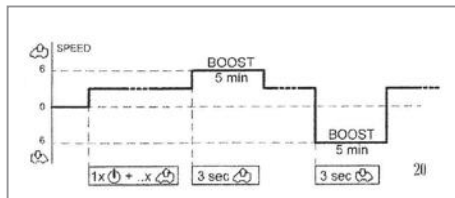


Fig.3

TROUBLE SHOOTING	
FLASHING LED's	PROBLEM
■ ■ ■ ☀ ■ ■ ■	or Tension < 11,1 V or Tension > 19,5V
☀ ■ ■ ■ ■ ■ ☀	Motor blocked
■ ■ ☀ ■ ■ ☀	Motor not connected

Fig.4

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.

THE HEKI 2 ROOFLIGHT

1. To open to the tilted position:

- Press the button in the toggle catches on either side of the dome and turn through approx. 90°.
- Grasp the metal bar in the middle, snap it out of its holder, swivel down and push the dome upwards. (Dome is held by the two gas springs after approx. 150mm).
- Swivel the metal bar towards the dome and snap into its holder.
- To close the dome, proceed with steps (a-c) in reverse order.

2. To open in the intermediate position:

- Open the toggle catches on either side of the dome.
- Grasp the metal bar in the middle, snap it out of its holder, swivel down and push the dome outwards.
(Dome is opened automatically by the two gas springs after approx. 150mm.)
- Open both black fasteners and swivel the metal bar toward the intermediate position and pull the dome down until the metal bar is stopped by the fasteners.
- To close, proceed with steps (a-d) in reverse order.

3. To open in the ventilation position:

- Open the toggle catches on either side of the dome.
- Using both hands on the two toggle catches, press the dome up about 2cm and fasten the toggle catches in the corresponding setting.
- To close, proceed with steps (a-b) in reverse order.

4. Closing the blinds:

- Pull blind across aperture using finger grip in the bar. Engage with plastic clip on the other side of the aperture.

CAUTION In extremely bright sunshine, the blackout blind must only be closed two-thirds, and the pane must be set in the intermediate position.

- Select the required position (black-out/ flyscreen) by moving both joined end rods together.

5. Opening the blinds:

- Move blind (end rod with rocker) right to the outside.
- Hold the recessed grip with one hand; with the other hand, press the rocker and move the blind back (do not let it recoil).

- Suitable for a max. of 100km/h (62.5mph) (with Seitz spoiler up to 130km/h (81mph)).
- Do not stand on the acrylic glass dome.
- Close HEKI 2 completely before moving off.
- Do not leave your caravan when HEKI 2 is open.
- Please consult your supplying dealer if you have any problems or defects.
- Remove any snow/ice or dirt before opening the roof.

Care Instructions

Clean the acrylic (glass) pane only with Seitz acrylic cleaner or soap suds and plenty of water. Use talcum to care for the rubber seals. Only use water and mild soap suds to clean the blinds. The guarantee becomes null and void if these instructions are not followed.

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"

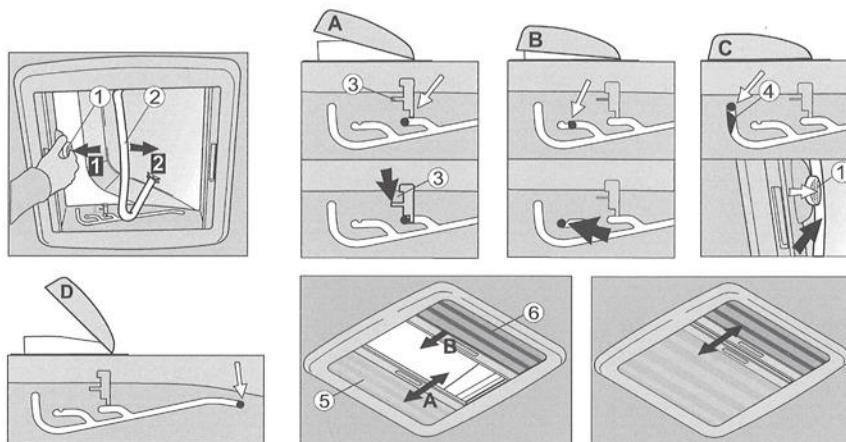
- Push the bar (2) to the marked rest position (●).
- Applying slight pressure, lead the bar (2) over the catch hook (4) left and right so that the dome is locked and the bar (2) lies on the push button (1).

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).



MICRO, MIDI + MINI HEKI ROOFLIGHT

Safety precautions:

1. Repairs should be carried out only by trained personnel.
2. Inform an approved dealer in case of defects and malfunctions.
3. 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.
4. Do not step on the dome.
5. Close the rooflight before starting off (check whether it is locked).
6. Do not leave the vehicle with the rooflight open (danger of burglary).
7. Do not open in strong wind or rain.
8. Before opening, remove snow, ice, dirt, etc. from the dome
9. Malfunctions are to be repaired by an approved dealer at once.
10. Do not use caustic detergents (danger of tension cracks in the dome).
11. Before setting off close the dome, check the locking mechanism and open the blinds.

CARE INSTRUCTIONS

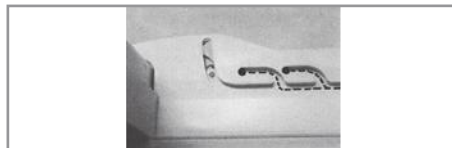
- Clean the dome with the Seitz acrylic cleaner.
- Opaque spots and light scratches on the dome can be removed with the Seitz Acrylic Polish and the Seitz special polishing cloth.
- Use talcum powder regularly (four times yearly) to care for the rubber seals supplied with versions without permanent ventilation.
- 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

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.

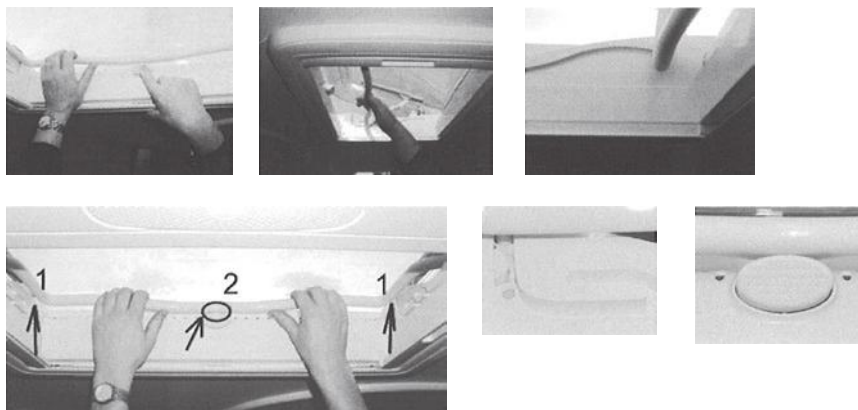


Closing the dome (Drive and rest position)

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.

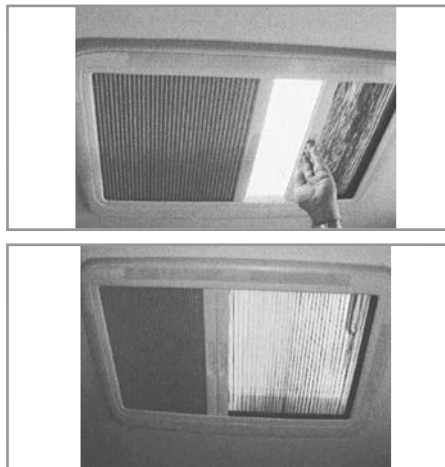
Opening/closing the blind and fly net

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).



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 roof light 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.
- Do not leave the vehicle with the rooflight open (danger of burglary and water penetration).



- Do not open in strong wind, rain or snowfall.
- 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 and check the locking mechanism.
- Avoid high speed (maximum recommended speed is 130km/h).
- Before starting off open the blind.
- Do not close the blind more than 2/3 during the day (Danger of heat jam).

Care Instructions

- Clean the dome with the Seitz acrylic cleaner.
- Opaque spots and light scratches can be removed with Seitz Acrylic polish and the Seitz Special polishing cloth.
- Use talcum powder regularly (4 times a year) to care for the rubber seals.
- Clean the blinds only with water and mild soap suds or a vacuum cleaner.

CARAVAN EQUIPMENT

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

Your caravan is fitted with a gas barbecue point.

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.

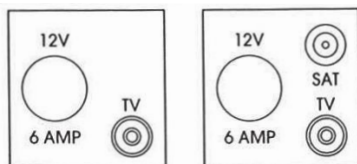
CAUTION! Do not use a gas barbecue inside the awning. **ALWAYS** use the appliance in the open air.

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.

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

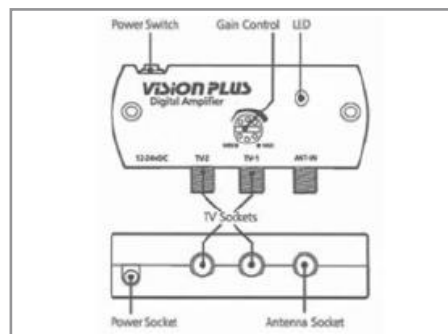
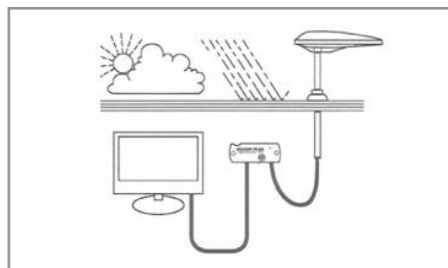
When positioning the antenna dome please allow for the following:

DO NOT TRAVEL:-

- With the antenna raised.
 - 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.



CARAVAN EQUIPMENT

- 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.

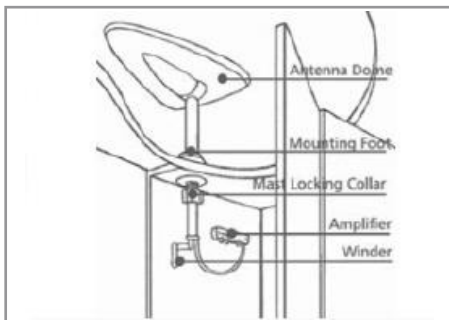
In strong signal areas you may need to reduce the gain by rotating the aontrol anti-clockwise.

REMOVING THE ANTENNA

A permanently fitted Status can be easily removed leaving only the mounting foot and rubber gaiter.

- Unplug the antenna lead from the amplifier.
- Loosen the Mast Locking Collar and lift off whilst feeding out the mast, coaxial cable and plug.
- 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.

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		

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

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.

NOTE:

With the roll out of mobile communications 4G service over the coming months a number of field trials are being conducted to validate Ofcom concerns that the 4G signal at 800Mhz may have a detrimental effect on some users of Freeview (DTT) received via an aerial.

Early signs are showing that there may be instances of interference but trials are still continuing. A body called AT800 has been set up to ensure customers will continue to receive Freeview and will co-ordinate relevant testing and the resulting information.

AT800 have a dedicated website which can be accessed for further information <https://at800.tv/>

If users do experience interference (freezing, pixilation of the picture, loss of sound) and believe that this due to the proximity of a 4G mast, then in most cases a filter can be used to block the problem, in some cases

where a filter is ineffective then AT800 can be contacted for assistance or guidance. Approved filters carrying the AT800 branding will be widely available from the high street and online.

NOTE: Any TV must be removed from the wall bracket before travelling.

MOBILE ALARM SYSTEM (Where fitted)

Introducing the new Sargent STINGER 310 series modular alarm system.

Based on new technology and a two year design process, the Stinger 310 incorporates ideas and feedback from users and experts throughout the caravan and security industries.

Designed to be modular, the system can be expanded by a forthcoming range of wired and wireless accessories.

To ensure your STINGER 310 system is operated correctly, please read all sections of these instructions before attempting to use the alarm. If you are unsure of any content, please contact your supplier in the first instance or the manufacturer direct.

OPERATION – USING THE KEY FOB

Each STINGER 310 is supplied with two key fob style radio controllers, which are used to operate the alarm system. Each key fob has four buttons which can be used as follows;



LED Torch button

Press and hold the button to use the torch for night time convenience



Arm / Disarm button

Press and release the button to arm the alarm (one beep)

Press and release the button to disarm the alarm (two short beeps)

To arm the alarm without the PIR movement sensor (if you leave pets inside etc)

Press and hold the arm button and release after you hear one beep followed by two beeps



Awning Light button

Press and release the button to turn the awning light on or off.

NOTE: Awning light control is present where the alarm is fitted (however it requires the master switch to be in the on position).



Programming Mode button

Press and hold the button for 10 seconds to access the 3 programming modes, which are indicated by series of long beeps, as follows:

One long beep - Tilt sensor sensitivity adjustment

Press the arm/disarm button to select the required setting. 1 beep = low sensitivity for windy conditions.

2 beeps = standard sensitivity (default).
3 beeps = High sensitivity.

Press the program mode button to move to the next setting.

Two long beeps - Beeper volume

Press the arm/disarm button to cycle through the 7 available volume levels. When you are happy with the selected volume, press the program mode button to move to the next setting.

Three long beeps - PIR movement detector sensitivity

Press the arm/disarm button to select the required setting/pulse count. 1 beep = high sensitivity . 2 beeps = standard sensitivity (default). 3 beeps = Low sensitivity for hostile environments.

Press the program mode button again to exit programming mode, which is indicated by one extra long beep.

OPERATION – THE PIR INTERNAL MOVEMENT SENSOR

The STINGER 310 comes complete with a 120° Passive Infra-Red (PIR) internal movement sensor that detects body movement within the vehicle.

If you are leaving pets within the vehicle the system should be armed without the PIR sensor active (see key fob arm/disarm section) to prevent your pet from triggering the alarm.

Please be aware that direct sunlight onto the PIR lens, or extremes of temperature (above 30 deg C) may affect the operation of the detector. Always ensure roof light blinds are closed if sunlight could shine directly onto the PIR.

OPERATION – THE TILT SENSOR

The STINGER 310 incorporates a new electronic tilt and motion sensor with automatic calibration and easy sensitivity adjustment from the key fob. This feature provides excellent tilt detection with no moving parts.

The tilt sensor works automatically and does not need adjustment for normal use even if you park on a steep incline. The sensitivity of the sensor can be adjusted as described in the key fob programming section.

BATTERY – SYSTEM BASE UNIT

The STINGER 310 system unit uses a special 4.8 volt Nickel Metal Hydride battery pack that supplies backup battery power to the system should the supply from the leisure battery fail or be disconnected. It is recommended that the alarm system is permanently connected to a 12 volt supply. When fully charged the battery will provide approximately 6 months stand-alone operation, depending on temperature conditions. It is recommended that this battery pack is replaced every 3 years.

Before placing your caravan in storage please ensure the caravan has had a fully charged leisure battery fitted or the mains charger switched on for at least 14 days prior to storage to ensure the internal backup battery is fully charged. It is recommended that a leisure battery remains connected to the caravan during storage.

Always dispose of old batteries in accordance with local regulations.

BATTERY – KEY FOB

The STINGER 310 key fob controllers use two lithium button cells (CR 2032) in each key fob. Please note that excessive use of the LED torch will reduce the life of the batteries considerably.

To replace the batteries, firstly remove the four cross head screws from the underside of the fob, then pull apart the two halves of the fob. Remove the used batteries from the lower half of the case, then insert the new batteries in the same manner, noting that the battery positive faces away from the green circuit board. Now reassemble the fob casing and refit the screws, taking care not to over tighten.

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.

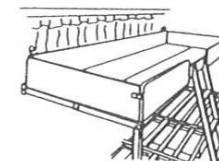
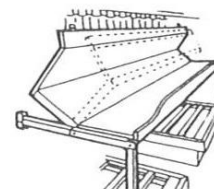
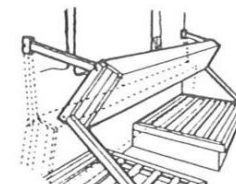
⚠ WARNING: Please ensure the adjustable feet on the bed are adjusted to touch the floor/carpet so that the bed is completely level and will not put strain onto the bed mechanism in its extended position.

NOTE:

Any failures due to strain caused by non level usage are not covered by warranty

⚠ 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.



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.

- 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.

⚠ WARNING:

- **Do not use aerosol sprays as the propellant will permanently mark cushions**
- **Do not wash curtains**
- **Do not wash or dry clean carpets**
- **Always check manufacturer's labels for any unique care instructions.**

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. 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

CARE OF YOUR CARAVAN

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.

Enamel (Black) Sink

After use always remove any plastic bowl or mat, clean the surface with soap and hot water, followed by a clean water rinse and drying with a soft cloth. More stubborn dirt or grease can be removed by using a non-abrasive cream cleaner, such as CIF. To preserve the appearance of your

appliance we recommend plastic bowls are not stored in the sink. Never use abrasive cleaners, wire wool or other cleaning pads as these will scratch the surface.

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 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.

CARE OF YOUR CARAVAN/MAINTENANCE

- 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 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.

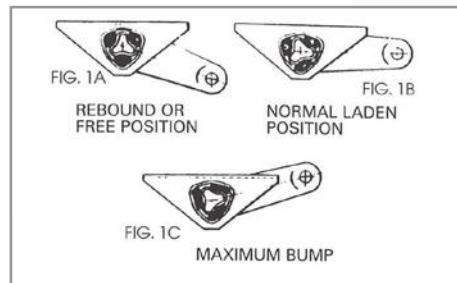
MAINTENANCE – AL-KO LIGHTWEIGHT CHASSIS

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.

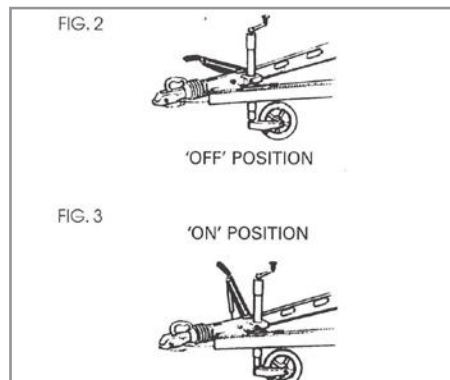
Figures 1(A), (B) and (C) show the deformation of the rubber elements at the extremes of suspension movement.

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 BRAKING 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 overrunning 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.

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 23.

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 WEAR 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.

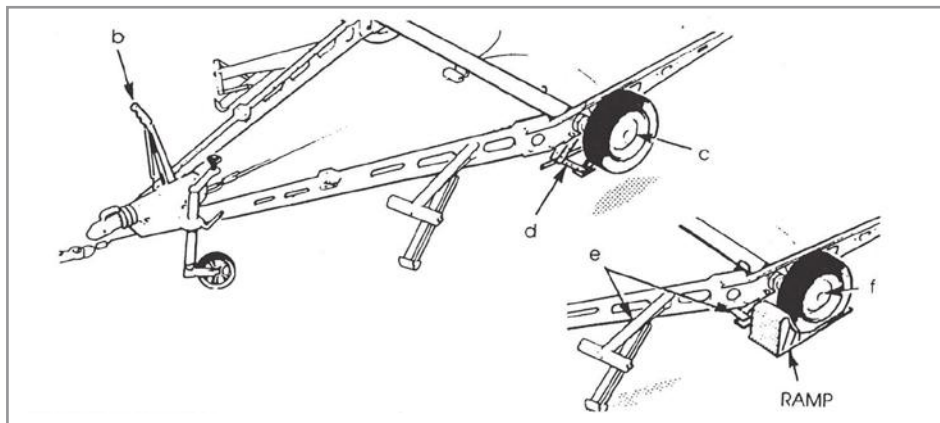
IMPORTANT NOTE

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.

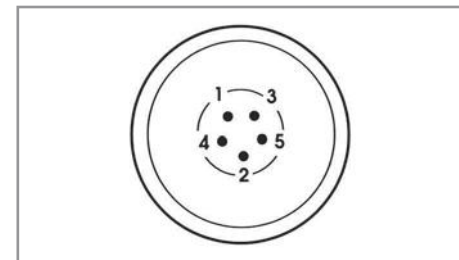


CHANGING A WHEEL (see section "Towing and Driving")

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.

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 (63lbsft) 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.

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.**

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 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.

- a) Model of caravan.
- b) VIN number.
- c) 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.

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
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

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**.

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)	Sargent Electrical Services Limited, Unit 39 Tokenspire Business Park, Woodmansey, Beverley HU17 0TB	36 months	01482 881655
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
Toilet, cooker, hob and refrigerator	Dometic UK Limited, Dometic House, The Brewery, Blandford Dorset, DT11 9LS	36 months	0344 626 0133
	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	24 months	0115 907 1700
	Leisure Furnishings Limited, Unit 4 Meadow Brookes Business Park, Meadow Lane, Long Eaton NG10 2GD	24 months	0115 946 3666
Heating systems	Alde International (UK) Limited, Huxley Close, Park Farm South, Wellingborough NN8 6AB	36 months	01933 677765
	Truma UK Limited, Park Lane, Dove Valley Business Park, Foston, South Derbyshire, DE65 5BG	36 months	01283 587900
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 (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	0800 141 2561
Carbon monoxide alarm		36 months	
Solar panel and regulator (where fitted)	Solar Technology International Limited, Unit 6 Station Drive, Bredon, Tewsbury, Gloucestershire GL20 7HH	*See below	01684 774000

*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 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.