Dear owner

Thank you for deciding to buy one of our new motorhomes.

We are sure you will enjoy many happy hours in it and we hope the information and hints in this handbook will heighten your enjoyment.

The handbook has been designed to give you a general guide to the care, use and maintenance of your motorhome. Whether you are a new or an experienced motorhomer the hints will help to protect your investment.

The information contained will answer most of your queries, but if there are any aspects which are not covered please consult your appointed dealer. We would suggest you make a note of your dealers name and contact information below.

Dealer Name:

.....

Telephone Number:

.....

E-mail:

.....

VIN:

.....

Throughout the season, specifications and equipment details contained within this handbook may change. Please refer to our online handbooks (www.swiftgroup.co.uk) for the most up-to-date version of your handbook.

Customers should note that all motorhomes are supplied with two handbooks, the User Handbook which contains general information for the use and care of your product and the Technical Handbook, which contains technical information, weights and dimensions of your product.

Swift Talk

Swift Talk is the new central forum for the Swift community online. A place for all those united in their love of caravanning, motorhomes, holiday homes and touring in general, to share their experiences, meet new friends and find out a world of information on how to enjoy their touring lifestyle.

The site is packed full of features that actively encourage members, not only to liaise with the Swift Group via the forums, but also interact with each other through publishing their own content, uploading and sharing photos and video, and even posting their own blogs for the community to follow.

Swift Talk is the first place to learn about new product launches, events and Swift Group news, it's also the first place customers can go to as a quick reference to frequently asked questions or to actively take part in the forums; providing valuable feedback on Swift Group products and customer service.

The new online community can even be used to create your own groups, perfect for Owners' Clubs, dealers and exhibitors to attract new members, publicise and build awareness for upcoming events, rallies and shows.

Anyone who owns, uses, or is thinking of buying a Swift Group caravan, motorhome or holiday home, or would just like to be part of the growing Swift community is actively encouraged to sign up, create their own content, and start talking!

Just visit www.swift-talk.co.uk and become part of a unique online experience.

CONTENTS

Motorhome Warranty

All the illustrations and descriptive matter in this handbook are intended to give a general idea of the motorhome. Changing market and supply situations and our policy of continuous product development may prevent us from maintaining the exact specifications detailed in this handbook. We therefore reserve the right to alter specifications as materials and conditions demand.

Dealers are not agents of Swift Group Limited ("Swift") and have absolutely no authority to bind the manufacturer by any express or implied undertaking or representation.

Your Coach-built motorhome has four warranties:

Base Vehicle Warranty – provided by either Fiat or Peugeot

Your vehicle is a coach-built motorhome which utilises either a Fiat or Peugeot base vehicle. Swift takes a flat bed chassis supplied by either Fiat or Peugeot and adds the coach-built habitation part of the motorhome. Either Fiat or Peugeot provide a manufacturer's warranty for the base vehicle as supplied to Swift by them. For any issues with the base vehicle warranty please contact your local commercial Fiat/Peugeot dealer. This Motorhome Warranty does not cover any parts of your motorhome that are covered by the Fiat or Peugeot manufacturer's warranty. Your base vehicle warranty is subject to the terms and conditions contained in the Fiat or Peugeot handbook supplied with the base vehicle and the vehicle must be serviced in accordance with Fiat or Peugeot requirements.

SuperSure Warranty – provided by Swift

For all parts or fittings of your coach-built motorhome other than the habitation body shell and the Fiat/Peugeot base vehicle, Swift will repair (or at it's option, replace) any defective parts or fittings for 3 years from the date of purchase (or hire purchase) subject to conditions, terms and exclusions below.

Body Shell Warranty – provided by Swift

Swift will repair (or at its option, replace) any defects with the habitation body shell for 6 years from the date of purchase (or hire purchase), subject to the conditions, terms and exclusions below.

Extended Body Shell Warranty – provided by Swift

For the first owner, Swift will repair (or at its option, replace) any defects with the habitation body shell for 10 years from the date of purchase (or hire purchase), subject to the conditions, terms and exclusions below.

The SuperSure Warranty, the Body Shell warranty and/or the Extended Body Shell Warranty provided by Swift do not cover any parts of the motorhome that are covered by the Fiat or Peugeot warranty.

Conditions for the SuperSure, Body Shell and Extended Body Shell Warranties

1. You must ensure that the habitation part of your coach-built motorhome has an Annual Service (see clause 2 below) within 90 days before or 60 days after each anniversary of the original date of purchase. In order to preserve your SuperSure Warranty the third Annual Service must, however, be carried out before the expiry of the 36 month period from the original date of purchase. In order to preserve your Body Shell Warranty, the sixth Annual Service must be carried out before the expiry of the 72 month period from the original date of purchase. In order to preserve your Extended Body Shell Warranty, the tenth Annual Service must be carried out before the expiry of the 120 month period from the original date of purchase. If you have not performed an Annual Service then Swift will not be obliged to perform any work under the applicable warranty. Original VAT invoices must be retained as proof that Annual Service have been carried out.
2. The Annual Service on the body shell and habitation area must be carried out in accordance with the requirements in this handbook. You will be responsible for any charges made for an Annual Service. If the Annual Service is performed by an authorised Swift Group Service Centre then Swift warrants that the Annual Service has been performed correctly. If the Annual Service is performed by an unauthorised

repairer or service centre then the Annual Service has not been performed in accordance with the requirements in this handbook and/or work has been performed on your motorhome that is defective or faulty, then Swift will not be obliged to perform any work under this Warranty (insofar as it relates to defective or faulty work or defective Annual Service).

3. All new motorhomes must be registered with Swift within 6 weeks of purchase as new.

4. The benefit of the SuperSure and Body Shell Warranties may be transferred to a new owner if the motorhome is re-sold, provided that the motorhome has been serviced in accordance with the requirements of this handbook, and details of the change of ownership have been supplied to Swift using the change of ownership form set out in this handbook as soon as reasonably practicable after the change.

5. The benefit of the Extended Body Shell Warranty is non transferable to new owners and applies only to the original registered keeper of the vehicle.

6. If any repairs are identified as being necessary to the body shell or habitation areas during an Annual Service or otherwise, Swift will only pay for Warranty work performed by an authorised Swift Group Service Centre. The motorhome must be made available to an authorised Swift Group Service Centre within 6 weeks of the date the repair need was identified for the work to be carried out. The cost of transporting, towing or moving the motorhome by any means to or from the place of repair is the responsibility of the owner.

7. The SuperSure, Body Shell and Extended Body Shell Warranties only apply to motorhomes purchased and used primarily within the UK, which means that the motorhome is not used for continuous journeys outside of the UK of longer than 90 days per journey. Please refer to the Fiat or Peugeot handbook for use of the base vehicle outside the UK.

Terms

8. The Body Shell Warranty and Extended Body Shell Warranty covers any defect with the panels and seams of the coachbuilt habitation part of the motorhome. This includes body leaks, delamination of panels or floor, water ingress through any permanently sealed seam joints. NB: The Extended Body Shell Warranty is non transferable and only applies to the original registered owner.

9. In the first 12 months the SuperSure Warranty will cover any defect other than those specified in the Exclusions below.

10. In the years 2 and 3 the SuperSure Warranty will only cover any defect with the following components:

    - Water system; heater, fresh water tank, water pump, water gauges, taps and shower heads;
    - Heating system and components;
    - Main proprietary items (for example fridge, toilet, cooker);
    - Auxiliary electrics; and/or
    - Windows (excluding window furniture and blinds).

In years 2 and 3, any defect specified in the Exclusions will not be covered.

Exclusions

11. Swift shall not be liable under the SuperSure, Body Shell and Extended Body Shell Warranties for any defect related to or arising from the following:

    - The failure of a component for reasons of fair wear and tear;
    - Damage resulting from freezing, fire, over-heating or accidents (whether caused by the user or a third party);
    - Misuse of any component;
    - Normal deterioration, corrosion, intrusion of foreign or harmful bodies, lack of servicing or negligence of any person other than Swift which causes stoppage of or impairment to the function of any component of the motorhome;

- Replacement of parts which have reached the end of their effective working life because of age and/or usage;
- Cleaning or adjustment of any assemblies;
- Cosmetic finishes to kitchen sinks, cooker tops, vanity units, shower trays; and/or
- Routine maintenance items which are part of the annual service including lubricants, rubber gas hose, the cleaning of the heater and fridge flues, the replacement of gas jets, the resealing and/or replacement of shower room sealant, and the adjustment and lubrication of locks.

12. In addition to the exclusions above, in year 3 of the SuperSure Warranty Period, Swift Group Limited shall not be liable under this Warranty for any defects related to:
    - Pullout awning
    - External Omni-step
    - Omni-vent roof-light
    - GRP sheet material

Swift shall also not be liable under the SuperSure, Body Shell and Extended Body Shell Warranties if the Motorhome has been neglected, misused, modified or used for hire or reward or if the identification marks (chassis/VIN numbers) have been removed or defaced. The motorhome will be deemed to have been neglected if it has not been serviced and maintained as stated in this handbook or any repairs being identified as necessary at an Annual Service or by a Swift Group Service Centre have not been carried out in a reasonable time.

You have legal rights under UK law governing the sale of consumer goods. This Warranty does not affect your legal rights.

The name and address of the Warranty provider is:

Swift Group Limited, Dunswell Road, Cottingham, East Yorkshire, HU16 4JX

To make a claim under this Warranty, contact the Swift Group Service Centre which supplied your motorhome. Alternatively, details of your nearest authorised Swift Group Service Centre can be obtained by contacting the Swift Group Customer Care Department on 01482 875740, or enquiring on the website www.swiftgroup.co.uk

Change of ownership

There is a £50 administration fee to transfer the remainder of any 3 year 'Supersure' warranty' and the 6 year 'Body Shell' warranty, details of how to do this can be found at the rear of this handbook.

The 'Extended 10 Year Body Shell Warranty' is non transferable.

What to do if you require assistance

Congratulations on purchasing your new motorhome. We are confident that you will enjoy many happy holidays. However, should you have an enquiry or require assistance with a problem, we hope that this guide will be of assistance to you.

If you have a problem, or enquiry with regards to your new motorhome, please follow these steps:

1. Check the Owners Handbook, paying particular attention to the fault finding advice at the back of the book.
2. Contact your supplying dealer for assistance.

If you need to contact the Swift Group, please be aware of the following:

1. When contacting Swift Customer Care, please quote your name, postcode and VIN (Vehicle Identification Number). This can be found at the bottom of the front windscreen, on the plate on the front cross member within the engine compartment and on the Swift manufacturers plate situated on the bulkhead directly behind the front driver/ passenger seat.
2. In most instances, the Customer Care Team will involve your dealer in resolving the issue you are experiencing.
3. If you are contacting the company by email, letter or fax, the Customer Care Team will respond to you within five working days from the date of receiving the correspondence.
4. If you are calling the Customer Care Team, please avoid where possible, Mondays and lunch times.
5. Please be aware that the Swift Group cannot send parts direct from the factory. In all cases, without exception, your dealer must place the order for you.

Supplier contacts

A number of Swift Group suppliers manage their own Technical and Warranty related queries. Where a customer has a question relating to a product manufactured by a company listed below, we would advise that the first contact should be directly with them.

Sargent Electrical Services
Unit 39, Tokenspire Business Park, Beverley,
East Yorkshire, HU17 0TB

Phone: 01482 678981
Fax: 01482 678987
E-mail: support@sargentltd.co.uk

AL-KO Kober Limited
South Warwickshire Business Park
Kineton Road, Southam,
Warwickshire, CV47 0AL

Fax: 01926 818562
Email: mail@al-ko.co.uk

Truma UK Ltd.
Park lane, Dove Valley Park,
South Derbyshire, DE65 5BG

Phone: 01283 586020
Fax: 01283 586029
technical@trumauk.com

Thetford Ltd.
Unit 19, Oakham Drive,
Parkwood Industrial Estate,
Rutland Road, Sheffield, S3 9QX

Phone: 0114 273 8157
Fax: 0114 275 3094
Email: infogb@thetford.eu

Alde International (UK) Ltd
Huxley Close, Park Farm South,
Wellingborough, Northants NN8 6AB

Phone: 01933 677765
Fax: 01933 674975
Email: info@alde.co.uk

Dometic (UK) Ltd
Dometic House, The Brewery,
Blandford St Mary, Dorset, DT11 9LS

Phone: 0844 626 0133
Email: technical@dometic.co.uk

Motorhomes - annual service/ inspection record

In order to comply with the warranty, you must have your motorhome inspected and serviced by an authorised Swift Group Service Centre at least once per year.

It is important that the Owner's Handbook is stamped on the appropriate page by the authorised Swift Group Service Centre. Failure to do this will invalidate the warranty and the transfer of the warranty on the change of ownership.

The inspection should take approximately two to four hours and will cover the areas dealt with in the annual service check list. Any areas requiring service and/or maintenance will be highlighted by your dealer and we recommend that you authorise any necessary work to be carried out.

Note: It is essential, to validate the warranty, that an annual inspection be carried out by an authorised Swift Group Service Centre covering the items listed.

1. Damp and lamination test.
2. Chassis and chassis to body security.
3. Corner steadies.
4. Motorhome step.
5. Road lights, wiring and reflectors.
6. Internal lights and 12V DC system.
7. Water heater - gas and 230V AC (if fitted).
8. Hob, grill and oven.
9. Refrigerator 230V AC, 12V DC and gas.
10. Gas system.
11. Water pump, taps and water system.
12. Mains 230V AC system.
13. Windows and fittings.
14. Smoke alarm and battery.
15. Carbon Monoxide detector and Battery
16. Roof lights.
17. Furniture hinges/stays etc.
18. Exterior locks and hinges.
19. All internal vents.
20. Seals.
21. Blinds and fly screens (if fitted).
22. Blown air heating and gas fire systems

SERVICE INSPECTION

Annual service / inspection record stamps Motorhome model: ..... Year: ..... Chassis VIN:	**1st service** DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.
2nd service DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.	**3rd service** DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.
4th service DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.	**5th service** DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.
6th service DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.	**7th service** DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.

8th service DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.	**9th service** DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.
10th service DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.	**11th service** DATE: DEALER'S STAMP We certify that an annual service has been carried out in accordance with the handbook.

Code of conduct

Camp sites

Arrivals

Report to reception immediately on arrival.

Vehicle Movement

Keep to roadways unless otherwise directed.

Adhere to speed limits. Note that these are generally 10 mph. (Remember that the stopping distance on grass is considerably greater than on tarmac.)

Only a person in possession of a current driving licence may drive on the site.

Park correctly as advised on your pitch. Where possible leave 20 feet of free space around your vehicle.

Use of Site Appliances

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

Ensure that all fresh water taps/connections are turned off after use.

Have care and consideration when using all facilities (toilets and showers etc) and leave clean and tidy. Young children should be supervised.

Waste Disposal

If the vehicle is not fitted with a waste water tank, a suitable receptacle should be placed below all waste water outlet pipes. Do not let these containers overflow. Dispose of all waste water where instructed. Empty effluent from chemical toilets where instructed.

To avoid possible damage to sewage purification works, only approved chemical fluids must be used. Under no circumstances should coal tar, phenol or caustic-based fluids be used.

Disposable napkins and similar bulky items must not be put into chemical closet emptying points but should be wrapped in a polythene bag and placed in the container provided. Place all litter in containers marked for the purpose.

Noise

Do not make excessive noise.

Children should be restrained from making excessive noise.

Flying kites and model aircraft and the use of items like catapults or air-guns, as well as ball games, should not be permitted among, or close to other vehicles.

Musical instruments, record players, radios and televisions should not be used to the inconvenience of other people on the site.

Open and close doors quietly.

Power generators must be adequately silenced and used with consideration.

Dogs and other Pets

All dogs and other pets should be kept under control.

Unless permission has been granted, no animal should be allowed loose on the site and leads must not exceed 10ft.

No animals should be allowed in the shower/ toilet blocks.

Do not let dogs foul the site.

Fire Precautions

Adhere to and take note of fire precautions noting the whereabouts of the fire points.

⚠ **WARNING:** Provide one dry powder fire extinguisher of an approved type or complying with EN3, of at least 1kg capacity, by the main exterior door and a fire blanket next to the cooker.
Familiarise yourself with the operating instructions on your fire extinguisher and the local fire precaution arrangements.

When using a dry powder extinguisher it is suggested that the motorhome be evacuated until the powder has settled, to avoid inhalation.

Unless permission has been granted, barbecues should not be used. If permission is given, consideration should be given to the annoyance that can be caused to other users of the site.

Open fires are not allowed.

Awnings and Tents

Awnings and tents should only be used when permission has been obtained.

When on grass and staying for more than a few days, the ground sheet and/or side flaps of awnings should be periodically raised in order to avoid damage to the ground.

Departure

Leave the pitch clean and tidy.

On leaving, check out with reception paying the required fees.

Wild camping

Camping away from licensed sites, without the permission from the land owner or his agents, is not allowed in the United Kingdom.

When permission has been granted, all aspects of this Code should be adhered to.

On no account should:

a. Litter be disposed of other than in the receptacles provided.

b. Water be allowed to escape from the vehicle.

c. Chemical toilets be emptied except into the disposal places agreed with the land owner.

d. Washing or similar be hung outside the vehicle.

Parking

Motorhomes should only be parked in approved places.

When using the facilities of a motorhome, care and consideration should be given to those around them.

Driving

Before moving off, elevated rooflights and aerials should be lowered and correctly secured, and top hinged windows closed. Likewise all doors and access lockers for gas containers and chemical toilets must be properly secured.

Exterior steps should be properly retracted and secured.

When the vehicle is in motion it is compulsory for all front seat passengers and rear seat passengers to wear seat belts, where fitted.

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

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

⚠ **WARNING:** When refuelling or on a ferry ensure the gas system is fully isolated at source.

Handbooks (chassis & converter)

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

The separate chassis manufacturer handbook refers to your motorhome chassis and base vehicle including care and maintenance.

Environment

Care and consideration should be taken to protect the environment.

Observe the Country and Coastal Codes.

The Country code

Enjoy the countryside but respect its life and work.

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

1. Guard against all risk of fires. Hay and heathland catch alight easily and once ablaze are very difficult to put out. **Remember: fire spreads quickly.**
2. Fasten all gates.
3. Keep your dog under proper control.
4. Keep to the paths across farm land.
5. Avoid damaging fences, hedges and walls.
6. Leave no litter.
7. Safeguard water supplies.
8. Protect wildlife, wild plants and trees.
9. Go carefully on country roads.
10. Respect the life of the countryside.

The Coastal code

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

Disturbance may mean DEATH.

Do not trample about, or move rocks unnecessarily.

Do not frighten seals or seabirds.

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

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

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

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

Do not pull up seaweeds unnecessarily.

Make your visit instructive - not destructive.

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

Observe by-laws and be considerate to others.

National Trust property and Country Parks have regulations to protect the wildlife. Follow these and the Country and Coastal Codes.

Before moving off

Check:

- gas cylinders are correctly positioned, secured and turned off unless using en-route heating.
- all gas operated appliances have been isolated, except the en-route heating system if fitted.
- loose articles including luton ladder are stowed securely. Do not stow tins, bottles or heavy items in overhead lockers.
- all lockers and cupboard doors are closed and secured.
- main table is stored or locked in its transit position.
- fridge is on 12V operation and door lock is set.
- 230V mains input socket flap is securely closed.
- all drain taps are closed.
- tyre pressures and wheel nuts.
- rear corner steadies are raised.
- exterior roof rack ladder is raised and secured.
- all windows/doors/rooflights are closed and secured.
- TV aerial is lowered and locked into position (where fitted).
- exterior step (where fitted) is retracted /folded in.
- Ensure exterior service locker is closed and locked (where fitted).

Special attention must be taken to ensure all top hinged windows as well as the Luton windows and rooflights are closed when in transit. All units should be fully closed and latched to prevent damage. The motorhome exterior door should also be locked.

⚠ **WARNING:** Large and/or voluminous items should be stored securely before travelling.

⚠ **WARNING:** Vehicles over 3m high have a maximum vehicle height label affixed to the drivers sunblind. When planning your route take your vehicle height into consideration.

Central locking

The central locking will not activate unless the cab doors are closed. It will however activate with the habitation door open. The habitation door lock will then engage when the door is closed leading to the possibility of being locked out of the vehicle, if the keys are left inside. It is therefore essential that the habitation door is closed before the central locking is activated. To open the habitation door when locked, pull the internal door handle twice.

Motorhome terms

Mass in Running Order:

This is the mass of the motorhome as stated by the manufacturer, i.e. ex works weight including the driver, 90% fuel capacity, LPG at 100% capacity and standard fixtures and fittings, in compliance with European Regulation No.1230/2012 (Masses and Dimensions).

The mass in running order contains provisions for the masses of liquids and gases (see technical book for details).

Note: If you travel with water in the fresh water tank or waste tank, the payload will be reduced accordingly

Note: Quoted MRO is subject to tolerance, due to weight variation of materials used in Motorhome construction.

Maximum User Payload:

The maximum allowable weight to be put into the motorhome whilst it is being driven. This is made up of 4 sections:

Personal effects, conventional load, optional equipment and essential habitation equipment.

The Maximum User Payload is the difference between the Maximum Technically Permissible Laden Mass and the Mass in Running Order.

Personal Effects:

Those items which a user can choose to carry in a motorhome and which are not included as Essential Habitation Equipment or Optional equipment.

Conventional Load:

A mass allowance for each designated passenger seat.

Optional Equipment:

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

Essential Habitation:

A mass allowance for liquids in systems not accounted for within the MRO.

Maximum Technically Permissible Laden Mass:

The maximum weight for which the motorhome is designed for normal use when being driven on a road, laden.

This mass takes into account specific operating conditions including factors such as the strength of materials, loading capacity of tyres etc.

⚠ **WARNING:** Under no circumstances should the axle loadings or the Maximum Technically Permissible Laden Mass of the motorhome be exceeded.

Nose weight of Towed Trailers:

The static mass of the trailer towing device on the rear of the towing vehicle.

Notes:

1. When measuring the noseweight it is important that the trailer is loaded.
2. The trailer is intended to be towed slightly nose heavy. The nose weight can be adjusted by distribution of the load. The nose weight should be approximately 7% of the actual laden weight (but not greater than the hitch capacity) and at the same time suit the motorhome requirements.

See ‘Advice on Towing’ page 25.

Loading of vehicle

⚠ **WARNING:** The driver is responsible for arranging the loads so that they comply with the technical weight limits of the specific motorhome model.

Correct weight distribution is an important factor in ensuring your vehicle is well balanced and easy to drive. It is therefore necessary to load your motorhome carefully making sure all heavy articles are evenly distributed and are preferably placed in the lower lockers or bed boxes.

⚠ **WARNING:** The two longitudinal bars fitted to the roof are there for styling purposes and should not be used for load carrying unless cross bars are fitted.

⚠ **WARNING:** Do not travel with televisions or microwaves in overhead lockers unless the appliance was supplied fitted to your motorhome by the manufacturer.

Although it is essential to ensure that the total weight of your motorhome does not exceed the stipulated Maximum Technically Permissible Laden Mass, (MTPLM), it is important to remember that the front and rear axles also have individual maximum weights which must not be exceeded.

See your Technical Handbook for MTPLM and maximum axle loads.

Note: To ensure adequate road holding the load on the front axle, under all conditions, must not be less than 40% or more than 70% of the total weight.

Ensure you distribute the payload equally on each side of the vehicle to avoid an imbalance.

These weights, together with the MTPLM, can be found on the Statutory plate adhered to the bulkhead behind the right hand cab seat.

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

Large storage areas

The large storage areas provided in some motorhome layouts are designed solely for the purpose of carrying personal possessions, these areas must not be used;

- as a habitation area (eg living, sleeping or cooking).
- to carry passengers, animals or livestock.
- for the installation (or use) of any LPG gas operated appliances, (unless supplied fitted by the manufacturer).
- for carrying LPG gas bottle cylinders.
- to carry any flammable liquids, unless properly stored, sealed and secured.
- for the operation of an electrical generator.
- in such a way that the load exceeds the MTPLM and maximum axle loads.

Care must be taken to ensure that exterior doors are closed, locked and that all possessions are properly stored and secured before setting off on any journey.

Roof loading

Some motorhome roofs can be fitted with a roof rack (optional).

A maximum load of 50kgs can be evenly distributed on the roof rack system.

This figure MUST NOT be exceeded.

Note: When loading the roof rack, make sure the load is spread evenly and do not allow sharp objects to come into contact with the roof surface.

Note: Ensure items loaded on the roof rack do not act as a sail (i.e. deck chairs).

⚠ **WARNING:** Do not apply excessive load to the rear suspension of your motorhome or allow the vehicle to reverse with the roof rack access ladder in the down position, touching the ground. This may cause excessive strain on the ladder fixing points.

The roof areas, up to the over cab section, are capable of withstanding an average person's weight (13 stone or 82.5kg).

Note: Do not walk on the over cab section.

⚠ **WARNING:** The roof may become slippery in adverse conditions, wipe dry before attempting to walk on roof section. Extreme care should be taken to avoid falling from the vehicle.

⚠ **WARNING:** When walking on the roof, deck type shoes should be worn – not leather sole

Tyres

If a wheel or tyre fitted to a wheel is changed any replacement must be of the same type of construction and size.

The law requires that the tyres and pressures must be suitable for the use to which they are being put. The minimum tread depth must be 1.6mm throughout a continuous band comprising the centre three-quarters of the breadth of the tread and around the

circumference of the tyre.

Please refer to base vehicle manufacturer's handbook (Fiat, Peugeot or AL-KO AMC conversion handbook) for tyre pressure information.

This may also be displayed in the driver's or passenger's door aperture.

Motorhome Tyre Specifications

You should note that your Motorhome is fitted with "Camper Tyres". Camper tyres meet a specific "CP" (Camping Pneu) standard for tyres on Motorhomes. The Camper tyres on a Motorhome (unlike a commercial van) are designed to carry a significantly higher load for the majority of their life and even when stationery for greater periods of time unlike a van which typically loads and unloads. As a result Camper tyres have stiffened side walls to withstand the increased payloads and pressure on them, this extra reinforcement also gives better vehicle stability on the rear with the heavier rear axle loads typical on a Motorhome. The tyres are also designed to improve mileage (wear) and offer better grip off road.

When replacing your tyres we only recommend the fitment of CP or Camper Tyres.

Tyre Pressures

The motorhome tyre pressures noted in the Technical book are the pressures stated by Fiat for your vehicle calculated in a fully laden condition. If you are not running fully laden, reduced pressures could be used but please seek clarification from the Tyre manufacture.

Dedicated travelling passenger seating

Seat belts are fitted to all travelling seats. Travelling seats are designated by the manufacturer and vary according to the layout you have purchased. Each seat is homologated i.e. tested to all relevant safety requirements. NEVER travel in or attempt to install a seatbelt to a non-designated seat.

⚠ **WARNING:** Side facing seats are designed for habitational use only, not for use when the vehicle is in motion.

Seat belts and legislation

Designated driver and passenger seats are fitted with seat belts and MUST be worn.

Children, aged up to 3 years of age, must wear an appropriate child restraint suitable for their age and weight. Children from 3 years of age and up to 135cm (4'5") in height, or 12 years of age, whichever is reached first must use a restraint suitable for their age.

Children over 135cm (4'5") in height or aged 12 or 13 years must wear a seat belt.

Note: It is the legal responsibility of the driver To ensure children aged up to 14 years old are suitably restrained. For passengers aged 14 and over, it is their responsibility (not the driver) that a seat belt is worn.

Fig 1

Designated passenger seats within the habitational compartment of your motorhome are identified (fig. 1). Seat belts are fitted for your safety and must be worn unless a 'Certificate of Exemption from Compulsory Seat Belt Wearing' is held. This Certificate must be produced if asked for by the Police – seat belt offences can result in a fine.

Child seats

Choosing/Buying

Go to a reputable retailer such as Halford's, Mothercare, Toys R Us, John Lewis etc. Most reputable retailers will have trained child seat advisers on site and will offer a fitting service. Ask the advisor to fit various seats to the vehicle. Once a correctly fitting seat has been

installed, satisfy yourself on its suitability for your child and the vehicle before buying as it is important to use a correctly fitting seat in your motorhome.

⚠ **WARNING:** The child seat you use in your car may not be suitable for mounting on a motorhome seat.

Choose the right seat for your child's height and weight.

Ensure it has an official approval mark (usually the United Nations 'E' mark). The current UN standards is Regulation 44.03

Never fit or use a second hand car seat. It could have been damaged and may not meet modern standards. The fitting instructions may also be missing.

Positioning/ Fitting

Dependant upon the child seat type, the most suitable position for the child seat to be fitted may be the front passenger seat of the cab (NOTE airbag advice below) or the window seat of the forward facing rear seat, the isle seat in the rear is not a recommended position, advice should always be taken from the retailer on the suitability and security of the seat in the motorhome.

Read and follow the child seat manufacturer's instructions for fitting the seat.

All Swift Motor homes are fitted with inertia reel seat belts, however, the child seat must be tight in the adult seat. Push all your weight into the child seat as you tighten the belt.

Keep a copy of the child seat fitting instruction in the motorhome for easy reference.

Any doubts, ask an advisor to show you how to correctly install the seat.

Airbag

Never fit a rear-facing child restraint in a seat with an active airbag in front of it.

Forward-facing child restraints should be positioned as far back from the airbag as possible. Check the base vehicle handbook.

Three point seat belts

This section refers to the seat belts located in the habitation area of your motorhome.

Fastening the seat belt:

Insert tongue into buckle; a positive 'click' indicates correct assembly.

Releasing the seat belt:

Press the red release button, the tongue will be ejected from the buckle.

- The belt is designed for use by one person and must not be put around a child seated on a person's lap.
- The belt is suitable for restraining most child seats and boosters.
- The belt should at all times be adjusted and used in accordance with the instructions. No excessive slackness should be present.
- Once installed the diagonal should pass across the centre of the shoulder and the buckle should lie just on or below the hip.
- Avoid twisting the webbing during use. Webbing must not be allowed to chafe against sharp edges.
- Do not make alterations or additions to the belt.
- Belts that have been cut, frayed, damaged or stressed through impact should be replaced. After impact the motorhome anchorage points should also be checked.
- To clean use warm soapy water only.
- Periodic inspection of the installation will ensure reliability of the seat belt.

Driving licence

Licences issued to drivers who passed their car driving test before 1st January 1997 include categories B+E and C1+E which gives them entitlement to drive motor vehicles up to 7500kg MTPLM.

Drivers who passed their test on or after this date have category B entitlement only, which restricts the entitlement to motor vehicles with up to 8 passenger seats and an MTPLM

of up to 3500kg with trailers up to 750kg MTPLM (4250kg combined) or larger trailers providing the combination of the trailer and towing vehicle does not exceed 3500kg and the MTPLM of the trailer does not exceed the unladen weight of the towing vehicle.

Drivers who passed their test on or after the 1st January 1997 will need to take an additional test(s) to gain the B+E and C1+E entitlement.

A number of Swift Group motorhomes have an MTPLM greater than 3500kg, therefore you must check you have the correct driving licence entitlement for the vehicle you drive.

Vehicle classifications

Motorhomes up to 3500kg MTPLM are P/LGV (Private Light Goods Vehicles), motorhomes with an MTPLM over 3500kg and up to 7500kg are P/HGV (Private Heavy Goods Vehicles). These are used in defining MOT classifications and vehicle excise duty (road tax) classifications.

Advice on towing

The towing capability of each motorhome differs depending on the specific chassis and engine types, (see 'Towing Capabilities' in your specification handbook).

This takes account of the maximum front and rear axle loadings as well as the minimum front axle loading in two conditions, MRO and MTPLM condition.

Towing in these, and any other condition requires sensible loading and distribution of payloads to ensure the requirements of the towing capability table are met.

When towing, the demands on both the vehicle and driver increase. A trailer reduces manoeuvrability, the ability to climb hills, acceleration and braking capacity and makes the vehicle handle and corner differently.

It will also increase the fuel consumption of the vehicle.

Always brake in good time. Special care must be taken when descending gradients. Change down before going down a steep hill so the engine can act as a brake. Ensure that the towing vehicle tyre pressures are correct and adjusted for full load conditions and that the trailer tyre pressures are as recommended by the trailer manufacturer. Regularly check the operation of trailer brakes and lights.

For maximum stability, when loading the trailer ensure that the loads are properly secured during transit. Position loads so that most of the weight is placed close to the floor and, where possible, immediately above or close to the axle(s). Where the load can be divided between trailer and tow vehicle, loading more weight into the vehicle will generally improve the stability of the combination. After loading the trailer, check that the nose weight and axle loads are in accordance with the manufacturer's recommendations, also check the rear and front axle loads on the motorhome. When calculating the laden weight of the trailer, remember to include the weight of the trailer PLUS THE LOAD.

Note: Towing regulations vary from country to country. It is very important to ensure that national regulations governing towing weights and speed limits are observed (refer to the relevant national motoring organisation for information). The stated maximum permissible towing weights refer to the vehicle's design limitations and NOT to any specific territorial restrictions.

Notes:

1. Do not exceed the motorhome gross vehicle train weight.
2. Do not exceed the maximum front & rear axle loads on the motorhome.
3. Ensure the motorhome front axle load is never less than 40% or more than 70% of the total weight.
4. Motorhomes with an MTPLM up to 3500kg which have European Type approval can only be fitted with a type approved towbar complying to 94/20/EC or ECE R55.
5. The limit for towing an un-braked trailer is 750kg (based on VIN plate not actual weight), this applies to a towed car.

6. A car dolly with a car with a GVW over 750kg in place is considered as two trailers, these are legal for use for recovery but under the Road Traffic Regulations Act 1984 the combination is limited to 40 mph on motorways and dual carriageways and 20 mph elsewhere. A car dolly is not legal for transportation (there is a very specific difference between recovery and transportation. Recovery is defined as the removal of a broken down vehicle to a place of safety).
7. The maximum permitted vehicle combination length is 18.75m, however any combination must ensure compliance with the turning circle requirements of Construction and Use regulations 1986 & 97/27/EC.

European Touring

Please note there are a number of requirements placed on a driver when driving on European roads. Carrying a warning triangle, high visibility jacket, first aid kit and spare bulb is now compulsory in many EU states but some EU countries are now introducing further regulations such as carrying a breathalyser kit and not being able to use satellite navigation systems with speed camera warnings.

We would advise customers to check on the many web-sites available to ensure you are carrying the correct equipment when touring in those EU countries.

Cruise control

The driver of the vehicle should always remain seated and in control of the vehicle when cruise control has been engaged. Never leave the driving seat for any reason when the vehicle is underway.

Removal of spare wheel on ALKO conversion:

⚠ **WARNING:** Exercise care when lowering the wheel and frame due to its weight.

Removal

a. Spare wheel in the stowed position (Fig. 1).

b. Remove the securing pins (a) from the supports (b) at each side of the spare wheel carrier frame (c) (Fig. 2).

c. Lift the wheel carrier frame (c) slightly and move the frame supports (b) forward and clear of the carrier frame (Fig. 3).

d. Lower the carrier frame and wheel to the ground (Fig. 4).

e. Remove the spare wheel.

Replacement

Replacement is a reversal of the removal procedure. Ensure the securing pins (a) are correctly located in the frame supports (b).

Fig.1

Fig.2

Fig.3

Fig. 4

Removal of Fiat / Peugeot spare wheel:

a. the ground should be flat and adequately firm.

b. turn the engine off and engage the handbrake.

c. engage first gear or reverse.

Removal

a. wheel restraining device screw (fig 1) – rear right side of vehicle

b. use the extension and wrench provided to operate the wheel restraining device screw (fig 2).

c. when the wheel is fully lowered (fig 3) and the restraining device screw can turn no more, use the wrench to pull the wheel out (fig 4).

d. loosen the knob and remove the support to release the wheel (fig 5 & 6).

Fig. 1

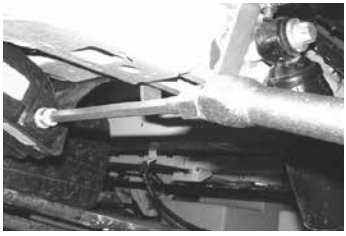


Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Replacement

Replacement is a reversal of the removal procedure.

⚠ **WARNING:** Exercise care when handling the wheel due to its weight.

Fire

Note: Your attention is drawn to the notice affixed inside the wardrobe advising on fire precaution, ventilation and what to do in case of fire.

In case of fire

1. Get everyone out of the motorhome as quickly as possible using whichever exit is the quickest, including windows. Do not stop to collect any personal items.
2. Raise the Alarm. Call the Fire Brigade.
3. Turn off the gas supply valve if it is safe to do so.
4. Turn off the electricity supply at supply point.

Model- SI 601 smoke alarm operation

Normal condition

The red LED on the front should flash once every 40 seconds to show the alarm is active.

Low Battery Condition

⚠ **WARNING:** Your smoke alarm requires a battery with a sufficient capacity of power to operate correctly. This must also be correctly installed.

Should your smoke alarm enter a low battery condition, the unit will emit an audible 'chirp' once every 40 seconds. When this occurs you must replace the battery immediately. Your smoke alarm will continue to warn of this low battery condition for at least 7 days, however, failure to change the battery after this time would mean your smoke alarm has insufficient power to alert you in a real fire situation.

Battery replacement

⚠ **WARNING:** Only the following batteries can be used for replacement. Use of a battery other than those recommended below may have a detrimental effect on the detector's operation. Use of a lithium (long-life) battery could provide power for 10 years under normal operating conditions, meaning there is no need for an annual battery change.

Note: The alarm cover can not be installed without a battery fitted.

Note: Upon delivery the battery may be fitted with a protective cover. Please ensure this is removed before use.

Carbon-Zinc type:

Eveready Energizer 1222;
Gold Peak 16045 (UL).

Alkaline Type:

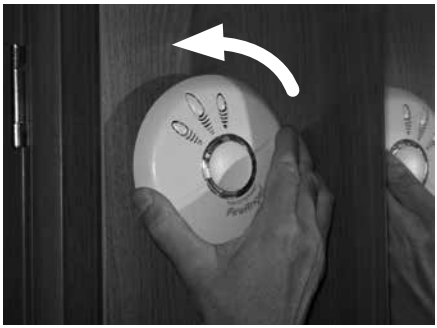
Energizer 522; Duracell MN 1604; Duracell 9V

Ultra; Energizer 9V Ultra+; Gold Peak 1604A.

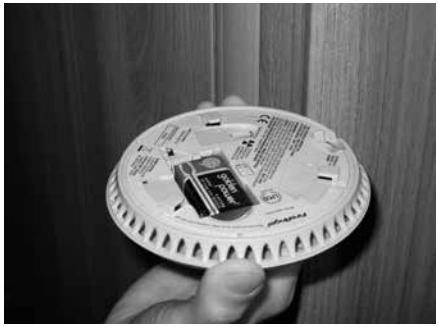
Lithium (long life) type:

Ultralife U9VL

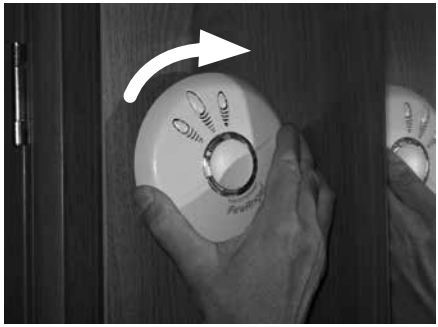
1. Remove the alarm from its mounting plate by turning anti-clockwise



2. Remove the existing battery and replace with a new battery. From the list on this page, making sure that the positive and negative connections are in the correct position. If unsure see the alarm user manual.



3. Replace the alarm on its mounting plate, lining up the large central vent on the front of the alarm, with the 'X' that is moulded into the plastic on the mounting plate (if unsure see page 13 of the alarm user manual). Ensure the unit is securely fitted.



4. Test your alarm as explained in the next section 'Alarm Test'.

Alarm test

1. Press the test button in the centre and release.

2. The unit will emit a loud (85dB at 3 meters) alarm for around 5 seconds and stop automatically.

3. The red LED on your alarm will flash rapidly during the audible signal.

FIRE ALARM

Note: The test button accurately tests the alarm's smoke sensing circuit, there is no need to test your alarm with smoke. If your smoke alarm fails to give an audible test signal, please refer immediately to the troubleshooting guide at the end of the user manual supplied.

⚠ **WARNING:** Test your smoke alarm at least once per week.

Your smoke alarm has been designed to be as maintenance - free as possible and although the unit requires only battery maintenance for its entire life, there are several things you must do to keep it working properly.

⚠ **WARNING:** our smoke alarm is a sealed electrical device and no attempt should be made to open the case. Attempting to open the case will invalidate your Warranty.

Cleaning

As a minimum your smoke alarm should be cleaned once every 3 months using your vacuum cleaner fitted with the soft brush attachment.

⚠ **WARNING:** Your smoke alarm may false alarm when it is being cleaned using a vacuum cleaner.

⚠ **WARNING:** Do not use solvents or cleaners on your smoke alarm, as they may cause damage to the sensor or circuitry. The unit can be wiped with a slightly damp cloth.

⚠ **WARNING:** The electronic test button provides a full test of the unit's functionality. DO NOT try to test the alarm with a naked flame, as this may present a potential fire hazard.

⚠ **WARNING:** Never use portable cooking or heating equipment other than electric heaters that are not of the direct radiant type, as it is a fire and asphyxiation hazard.

⚠ **WARNING:** Appliances such as cookers must not be used for heating.

Fire Extinguisher

It is recommended that a dry powder fire extinguisher be carried inside your motorhome at all times.

When using a dry powder extinguisher it is suggested that the motorhome be evacuated until the powder has settled, to avoid inhalation.

A fat pan fire should not have a fire extinguisher aimed at it. It should be smothered with a fire blanket.

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

Escape paths

It is important that you do not block escape paths to emergency exits with obstructions or hazards.

Children

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

Ventilation

All motorhomes comply with BS EN 721. The ventilation points on your motorhome are fixed points of ventilation which are required by the European Standards.

All motorhomes have ventilation at high level and low level which have been calculated to suit the individual needs of your motorhome.

High level ventilation is achieved by means of the roof lights and washroom roof ventilators (where applicable). The low level ventilators are positioned under sink units.

Under no circumstances must these vents be blocked or obstructed.

It is advised that fixed ventilation points are checked and cleaned (if necessary) on a regular basis using a small brush and a domestic vacuum cleaner.

Additional night time ventilation is obtained by releasing the window catches and placing them in the second groove. Note the windows are not sealed from rain in this position.

As the ventilation levels are calculated to suit each model requirements no modifications should be made which may result in reduced ventilation levels.

⚠ **WARNING:** Do not obstruct ventilation.

Security

Motorhome theft:

The theft of a motorhome can occur in the most unlikely circumstances; from a motorway service area or even an owner's driveway. Secure all windows and doors when your motorhome is unoccupied even if only for a short length of time.

VIN (Vehicle identification Number)

Record your motorhome VIN which can be found on the lower edge of the base vehicle front windscreen and the plate located on the front cross member under the bonnet.

Make a note of these numbers in the space provided at the front of this handbook and make a separate note of the numbers to keep safe at home.

Additional security

Consider fitting any device which might deter intrusion by thieves. Customers are advised to identify their motorhome with a method for subsequent identification if other forms of identification have been altered or removed.

Free crime prevention advice about securing your motorhome, 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.

Tracker

Tracker battery powered retrieve unit

Your vehicle is fitted with a 'TRACKER Battery Powered Retrieve' unit. This is a self contained security device which has been positioned discreetly within the vehicle during the manufacturing process. There are numerous fitting positions for the device, the locations of which are kept secret and known only to TRACKER and the Swift Group.

This unit has a self contained battery, which has a minimum five year life. The unit draws no power from the vehicle battery or leisure battery. This unit is a tracking device only and is not an alarm.

The tracking device requires an active subscription to be in place with TRACKER. Your vehicle is supplied with a free 3 month subscription (from date of purchase), which is activated once you have registered your details with TRACKER (normally your dealer would do this with you at the time of collection of your new vehicle). If you chose not to register your device the unit is not activated and the vehicle can therefore not be tracked in the event of theft. At the end of the free 3 month subscription period your subscription will end. Owners can however choose to either subscribe to TRACKER for a further 12 months at £60 per year or for a period of five years

from date of purchase at £199. The TRACKER unit subscription cannot be subscribed to for longer than five years from the date of purchase and a new TRACKER unit would need to be installed and registered separately after the five year period has elapsed.

If in the unfortunate event your vehicle is stolen you should;

- Notify the police immediately.
- Contact TRACKER and confirm to them that your vehicle has been stolen and provide a police crime number.
- TRACKER will then activate the tracking device in your vehicle.
- The police can then track the vehicle using VHF tracking technology from the tracking computers inside police vehicles and aircraft.
- Once located TRACKER will inform you.

The device works in some (but not all) European countries (further details of which can be obtained from TRACKER). http://www.TRACKER.co.uk/

TRACKER's telephone number is:
0845 602 2356

CO alarm

Fireangel CO-9D Carbon Monoxide Alarm

⚠ **WARNING:** Please read the full user instructions provided.

Carbon monoxide

Known as the silent killer, Carbon Monoxide is an invisible, odourless and tasteless gas.

What are the symptoms of carbon monoxide poisoning?

Early symptoms of carbon monoxide (CO) poisoning can mimic many common ailments and may easily be confused with flu or simple tiredness. Symptoms to look out for include:

- tiredness
- drowsiness
- headaches
- giddiness
- nausea
- vomiting
- pains in the chest
- breathlessness
- stomach pains
- erratic behaviour
- visual problems

Anyone with these symptoms should immediately turn off all appliances and seek medical attention.

What to do during an alarm

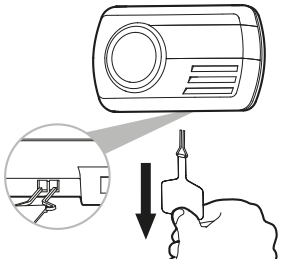
- Keep calm and open the doors and windows to ventilate the caravan.
- Stop using all fuel burning appliances and ensure, if possible, that they are turned off.
- Evacuate the caravan leaving the doors and windows open.
- Do not re-enter the caravan until the alarm has stopped. When exposed to fresh 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 Gas Safe registered.

Power Pack Activation

See diagram below

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 by taping it to page 22 of the CO-9D user manual.

When the detector is activated the screen will display all of the icons, then after a few seconds will show the current CO level. The power indicator LED below the symbol will also flash green once every minute to indicate that the detector is receiving power from the power pack and is fully operational. A symbol will also flash briefly on the LCD screen approximately once every minute.



Test the sounder, power pack and circuitry by pushing the centre of the Test/Mode 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. You'll notice that the display will switch to temperature mode, this is explained later in the manual, press button again to return to the CO display. 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.

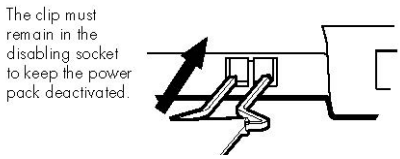
⚠ **WARNING:** Prolonged exposure to the sounder in close proximity to your ears may damage your hearing.

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:** Prolonged exposure to extreme high or low temperatures may reduce the life of the power pack.

Power Pack Deactivation

Your CO-9D is portable making it ideal for taking with you on holiday. You will need to deactivate your detector when traveling or even when storing e.g when decorating. Fitting is reverse of removal. To deactivate the detector the two ends of the metal clip must be inserted into the corresponding holes in the disabling socket located on the underside of the detector (see image). You can ensure that the product is disabled by pressing the test button- If there is no sound from the sounder then the clip has been fitted correctly.



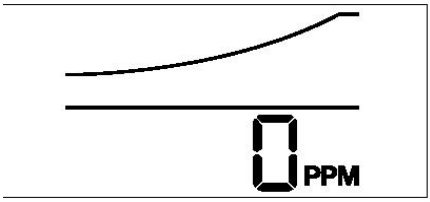
Note: If the disabling tab is no longer available then the clip can be replicated by opening out a thin metal paper clip into a U-shape.

Operating Features

Standby Mode

The alarm can display two views when in normal standby mode, the current level of CO or the current room temperature in degrees centigrade (ºC). When the alarm is showing the

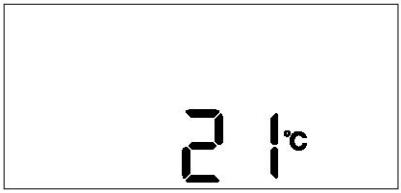
current CO Level you will see something similar to the following.



FireAngel's unique digital read out displays the amount of CO that the sensor is detecting shown in parts per million (PPM). It is designed to indicate levels from 10PPM to 999PPM.

Note: Ambient background levels between 0PPM and 10PPM will show as 0PPM

When the alarm is showing the current temperature you will see something similar to the following.



In both modes you will notice a symbol appear briefly in the top left hand corner of the screen once every minute. This is an additional indication to show you that the alarm is operating as well as the flashing green LED.

To switch between CO and temperature view, simply press the Test/Mode button briefly. The unit will also sound when pressing the button to switch between the two display modes.

You will also notice that when switching between modes the display will change slightly, this is because the alarm is displaying the Peak Level CO reading that it has recorded in the last 4 weeks, please see the following peak level reading feature section for further description.

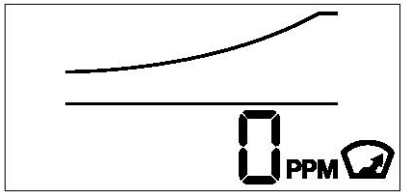
Note: If the alarm is in temperature view and detects CO it will automatically switch back to CO display mode.

Power pack, sounder and circuitary test

Pressing the Test/Mode button will also test the power pack, sounder and circuitry of the alarm. The unit will sound and the alarm LED below will illuminate red. You should perform this test once per week.

Peak Level Reading feature.

The alarm will record the highest reading of CO that it has detected in the last 4 weeks. This information is useful if your alarm has sounded so you can see the highest level of CO detected during that time. It is also useful to check periodically to see if a readable level of CO has been detected for a short time, but not long enough to trigger a full alarm. The peak level reading is shown briefly every time you press the Test/Mode button and will look something like the image below.

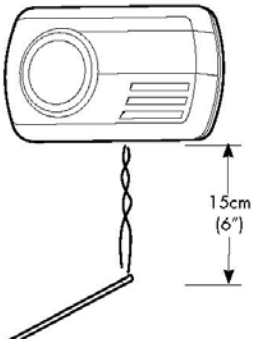


Note: It is possible and quite normal for the peak level to remain at 0ppm, i.e. this simply means that the alarm has not detected any CO in the last 4 weeks.

The Peak Level reading will be reset to 0ppm whenever a Sensor Test is carried out. (See the next section for Sensor Test).

Sensor Testing

⚠ **CAUTION:** Sensor testing should only be performed by a responsible adult.
This test should only be performed once a month. Excessive testing will shorten the life of the power pack.



Note: We suggest the use of an incense stick or cigarette as the way in which these products burn produces a readable localised amount of CO. A readable level of carbon monoxide will not be given off by other sources of smoke, for example an extinguished candle or match.

Step 1: If the alarm is wall mounted unhook it from the fixing screws.

Step 2: Hold the Test/Mode button down until the spanner icon appears in the bottom left hand corner of the screen and the bar graph 'scans' from left to right. This indicates the alarm is in sensor test mode where the sampling rate of the sensor has increased and the alarm can be tested using a known source of CO.

Step 3: Light an incense stick or cigarette using a match or lighter. Extinguish the lighter, or put out the match and place it into a dish of water.

Step 4: Hold the incense stick or burning cigarette 15cm (6 inches) below the detector, so that the smoke goes into the holes at the bottom of the detector. As the smoke gets into the alarm the display will show the amount of CO being detected. When the level of CO in the sensor reaches 50ppm the alarm will sound a single alarm cycle, this confirms that the sensor is working correctly and is the end of the sensor test. The alarm will return to normal standby mode.

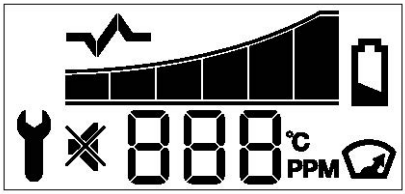
Step 5: Put out the incense stick or cigarette by placing it into a dish of water. Ensure that all flames have been extinguished.

Note: If the level of CO in the sensor doesn't reach 50ppm then the Sensor Test mode will time out and finish automatically after 3 minutes. Even if the level doesn't reach 50ppm, as long as the display shows a reading of CO then you can be confident that the alarm is working correctly. If you have any questions about testing the sensor please contact the FireAngel technical support team

Understanding the Product's Indicators

Digital Display

The LCD screen has many icons with one or more being shown at any one time.

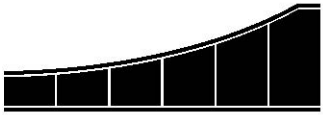


Bar Graph to show early build up of CO.

To understand the role of the product indicators please refer to section 'Carbon Monoxide and how it can affect your family' on page 3 of the CO-9D User Manual. The alarm has a bar graph which mimics the way CO levels build up in the blood stream. The response times of the alarm are determined by the European Standard BS EN 50291:2001 so the alarm will only sound when it has detected CO for a prescribed length of time, the higher the level of CO the quicker the alarm must sound. However with FireAngel's CO-9D there is an early visual warning that CO is present. When CO is first detected the alarm indicates it's presence by displaying the level on the screen in parts per million (ppm). If CO continues to be present additional bars will

appear on the graph. When the graph is full

(i.e. the 6th segment is shown the unit will sound a loud audible alarm (85 dB at 1m (3 feet)) and the Alarm LED below the symbol on the front of the detector will flash red once every second.



The Alarm will sound

- Between 60 and 90 minutes when exposed to a minimum of 50ppm of CO.
- Between 10 and 40 minutes when exposed to a minimum of 100ppm of CO.
- Within 3 minutes when exposed to a minimum of 300ppm of CO.

Alarm silence

It is possible to temporarily silence the alarm up to two times if the level of CO that triggered the alarm is less than 200ppm. After ventilating the property you can temporarily silence the alarm by pressing the Test/Mode button, the alarm will stop and the silence mode symbol will appear on the screen. The silence mode will last for up to 3 minutes. If the CO level remains too high the alarm will trigger again or if the level of CO rises above 200ppm then the detector will automatically re-enter alarm mode. If the level of CO has fallen to a satisfactory level the silence mode icon will disappear, the unit will exit alarm mode and the segments of the bar graph will slowly disappear as the CO in the sensor clears.

Alarm in absence:

If the Peak level reading symbol is showing on the screen but there is no full alarm sound and you are not pressing the test button, then your detector is warning that it has detected Carbon Monoxide in your absence. Immediately vacate the premises and seek medical attention for anyone suffering the effects of CO poisoning (headache, nausea). Treat this as a serious warning. Call a qualified technician and have the problem investigated and rectified immediately.

Error signal

Err The unit continuously checks the settings of its sensor and circuitry. If any of these settings
are found to be incorrect, the detector will emit a single chirp once per minute and the display will show “Err” for error and an error code,cycling between “Err”and the particular
error code.

Low power pack signal

If the power pack becomes low then the detector will emit a single chirp once per minute and the low power pack icon will flash on the screen.

⚠ **IMPORTANT:** A single chirp once per minute together with an error signal 14 or low power pack warning does NOT mean that the detector has detected carbon monoxide.

If you experience an error condition or low power pack warning and the product is still within warranty then contact FireAngel 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 operational life of the sensor is seven years, for this reason, the detector should be replaced after seven years from the date of installation.

FireAngel Technical Support Line

9.00am – 5.00pm, Monday – Friday

Telephone: 0800 141 2561
(1-800 523171 in EIRE)

e-mail: technicalsupport@fireangel.co.uk

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 (see above).
- Perform the Sensor Test once every month (See p39).
- 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 painting, wall papering, or performing any other 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 Fireangel 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 this owner's manual to ensure that you know what actions to take in the event of an alarm.

What to do during an alarm

Within 3 minutes when exposed to a minimum of 300ppm of CO.

- Keep calm and open the doors and windows to ventilate the property.
- Stop using all fuel burning appliances and ensure, if possible, that they are turned off
- Evacuate the motorhome leaving the doors and windows open.
- Do not re-enter the motorhome 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 gas safe registered.

Note: If the level of CO in the sensor doesn't reach 50ppm then the Sensor Test mode will time out and finish automatically after 3 minutes. Even if the level doesn't reach 50ppm, as long as the display shows a reading of CO then you can be confident that the alarm is working correctly. If you have any questions about testing the sensor please contact the technical support team

Disposal

Waste electrical products should not be disposed of with regular household waste. Please recycle where facilities exist. Check with your local authority, retailer or manufacturer for recycling/disposal advice as regional variations apply. The power pack should be deactivated before disposal. To do this, insert the two ends of the metal clip on the end of the disabling tab back in to the socket located on the underside of the detector.
If the disabling tab is no longer available then the clip can be replicated by opening out a thin metal paperclip into a U-shape. You can also return your carbon monoxide detector to Fireangel for disposal. For return address contact Fireangel Technical Support. Please include a note confirming the product is being returned for disposal.

Technical Information

Detector Specifications: Model CO-9D
Sensor Type: Electrochemical
Sensor Life: 7 Years
Alarm Sound Level: 85dB at 1 metre (3 feet)
Power Pack Life: 7 years (Life of product)
Temperature Range: -10ºC (14ºF) to 40ºC (104ºF)
Operating Humidity Range: 30 - 90% RH
Weight: 120 grams (4.23oz)
Certified to: BS EN 50291:2001
This FireAngel carbon monoxide detector is designed to continuously monitor for CO. Its response times meet the requirements of BSI standard BS EN 50291:2001.

⚠ **WARNING:** DO NOT ATTEMPT TO OPEN - DO NOT BURN

⚠ **WARNING:** APPARATUS CONFORMING TO THIS STANDARD MAY NOT PROTECT PEOPLE WHO ARE AT SPECIAL RISK FROM CARBON MONOXIDE EXPOSURE BY REASON OF AGE, PREGNANCY OR MEDICAL CONDITION. IF IN DOUBT, CONSULT YOUR DOCTOR.

A CARBON MONOXIDE DETECTOR IS NOT A SUBSTITUTE FOR A SMOKE ALARM OR A COMBUSTIBLE GAS DETECTOR.

REPLACE UNIT AFTER 7 YEARS OF OPERATION.

7 Year Warranty

FireAngel Ltd warrants to the original purchaser that its enclosed carbon monoxide alarm be free from defects in materials and workmanship under normal residential use and service for a period of 7 (seven) years from the date of purchase. Provided it is returned with postage paid and proof of purchase date, FireAngel Ltd hereby warrants that during the 7 (seven) year period commencing from the date of purchase FireAngel Ltd, at its discretion, agrees to replace the unit free of charge. The warranty on any replacement CO-9D alarm, will last for the remainder of the period of the original warranty in respect of the alarm originally purchased – that is from the date of original purchase and not from the date of receipt of the replacement product. FireAngel Ltd reserves the right to offer an alternative product similar to that being replaced if the original model is no longer available or in stock. This warranty applies to the original retail purchaser from the date of original retail purchase and is not transferable. Proof of purchase is required.

This warranty does not cover damage resulting from accident, misuse, disassembly, abuse or lack of reasonable care of the product, or applications not in accordance with the user manual. It does not cover events and conditions outside of FireAngel Ltd's control, such as Acts of God (fire, severe weather etc.). It does not apply to retail stores, service centres or any distributors or agents. FireAngel Ltd will not recognise any changes to this warranty by third parties.

FireAngel Ltd shall not be liable for any incidental or consequential damages caused by the breach of any expressed or implied warranty. Except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness for a particular purpose is limited in duration for 7 (seven) years.

This warranty does not affect your statutory rights. Except for death or personal injury, FireAngel Ltd shall not be liable for any loss of use, damage, cost or expense relating to this product or for any indirect, or consequentia loss, damages or costs incurred by you or any other user of this product.

SAFETY AND SECURITY

Positioning the motorhome

Note: Check and observe site regulations.

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

(Remember that the stopping distance on grass is considerably greater than on tarmac.)

Only a person in possession of a current driving licence may drive on the site.

Selecting a pitch

Do not pitch in such a position that your motorhome will obstruct others coming in.

Try to choose an area which is dry, reasonably level and preferably with a hard base.

If you have no alternative but to pitch on a slope try to ensure that you are facing down the slope, for when you leave.

Levelling the motorhome

Levelling must be carried out in both directions for the refrigerator and other equipment to function correctly. Stepped levelling boards (Fig. A) or proprietary ramps are ideal for this purpose. Levelling pads or boards should be used under the steadies where the ground is soft or uneven.

Fig. A Stepped levelling board

Fig. A Winding the corner steady

Lower the rear corner steadies (if fitted) until they are in firm contact with the ground (Fig. A). DO NOT use the steadies as a jack, they are only a means of stabilising the rear of the motorhome. Levelling pads or boards should be used under the steadies where the ground is soft or uneven.

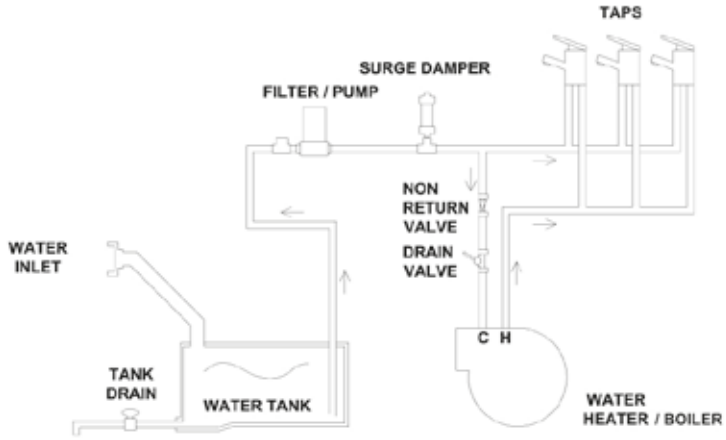
Awnings and Tents

Awnings and tents should only be used when permission has been obtained. When on grass and staying for more than a few days the ground sheet and/or side flaps of awnings should be periodically raised in order to avoid damage to the ground.

Water system - Introduction

All Swift Group motorhome water systems have been designed around a pump fitted within the motorhome. This pump draws water from an under floor or internal water tank, to provide water pressure within the water system, whenever it is switched on and water is available.

The schematic below shows the basic configuration of the water system:



When power is supplied to the pump, it will draw water from the water tank, and pump it to the motorhome taps, shower and water heater.

The pump is fitted with its own pressure switch, and the pump will continue to pump water, until the pressure of water on the output of the pump reaches a pre-set level. For this pressure to be achieved, the taps must be closed.

When the taps are opened, water will leave the tap via the spout, and the pressure in the pipes between the pump and the taps will reduce. Because of this reduction in pressure, the pressure switch on the pump will switch back on and the pump will again run to pump more water.

Close to the pump, the water under pressure is split into two paths:

1. Through blue water pipes routed directly to the cold connection of each tap.
2. To the water heater.

Water from the pump enters the bottom of the water heater. Once the water fills the water heater (typically 10 litres), water then leaves the water heater via a connection at the top of that water heater. This water, which is still under pressure, then routes to the hot connection of each tap via the red pipes.

To winterise the system please see separate details later in this handbook.

Fresh water system

1. All fittings, including the holding tank, water pipes, taps and connections are of food quality material (to BS6920) and therefore, should not affect the quality of the water used. It is recommended however, that the system is flushed through twice before it is used for the first time, and always cleaned/ flushed after it has stood unused for a period of time (eg over the winter period). Care has been taken (using smooth bore pipes etc) to eliminate as many water traps as possible.
2. When filling the fresh water system remember to check that the water source is suitable for use as drinking water and, if you are using a hose pipe or water carrier, that it is also made from nontoxic materials (preferably food quality material).
3. The fresh water tank may be drained either via a plug in the base of the tank accessible via the cleaning hatch or by the drain tap situated externally below the side skirts, or internally inside the furniture (model specific).

Escape fresh water tank showing central cleaning hatch

Kon-Tiki Drain valve

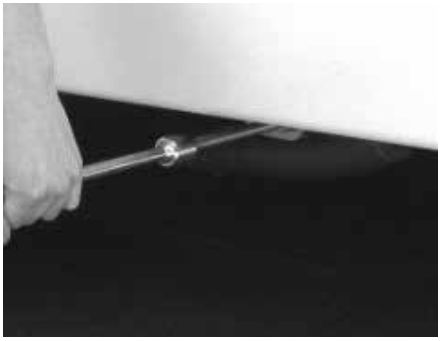
External view of suspended valve

Rotating valve bracket

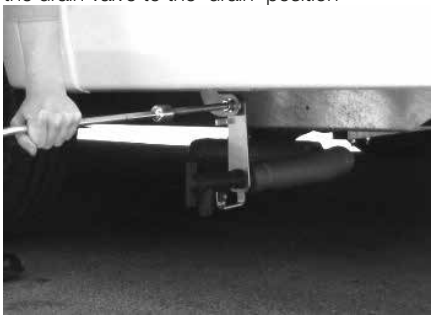
When fitted, a rotating valve bracket moves an external drain tap from upper (stowed) to lower (drain tank) positions. The bracket should always be in the 'stowed' position before starting any journey. To use the rotating valve bracket follow the steps below:

1) Locate the rotating valve bracket

2) Connect the corner steady winder (or 19mm socket) to the head of the bracket



3) Rotate the bracket clockwise to lower the drain valve to the ‘drain’ position



4) Open the drain valve to empty the tank

Once the tank has drained, close the valve and rotate the bracket anti-clockwise to return it to the ‘stowed’ position.

⚠ **WARNING:** The fresh water system is pressurised by a pump which will continue to operate until it senses a pre-set pressure in the system.
If the fresh water tank is completely empty the pump will be unable to pressurise the system and will operate continuously. In this situation it is essential that, in order to avoid damage to the pump, it is switched off using the pump isolator switch on the distribution panel until such time as the water tank has been filled.

Lockable water filler inlet

Fresh Water Tank

Your motorhome is fitted with a water tank filled from the outside via a lockable water filler cap. When filling, use a hose manufactured from non toxic material, to prevent tainting of the water. Remember, if the water heater has been drained it will require 10 litre (0.2 gal) of water to fill it.

External 12v Fill Socket

Depending on specification your motorhome may be fitted with an external 12v socket which can be used to attach an external 12v tank filling pump.

Tank heaters

Depending on specification, your motorhome may be fitted with 12v tank heaters, designed to prevent or reduce instances of freezing water in fitted water tanks.

If tank heaters are fitted, a button marked

'Frost Protect' will be present on the control panel above the entrance door (see page 75). Turn this feature on when the external temperatures are low, and the tank heaters will then turn on and off automatically.

Before heating each tank the system will check that the water level in each tank is at the 1/4 level or higher (the heaters will not operate if the tank is 'empty'). If the water level is appropriate, the heaters will then switch on and off based on the temperature as measured by sensors within the tank. The approximate temperatures that the heater use to switch on and off, are:

Heater(s) switch ON if the temperature in the tank falls below +5 degrees C.

Heater(s) switch OFF if the temperature in the tank then rises to above +10 degrees C.

The fresh and waste water tank heaters can operate independently, for instance use of frost protect feature while the fresh tank is full, but waste tank is empty, would only result in the operation of the fresh tank heater. Please note that the heating elements use a 12V supply, and if used without a mains hook up and charger operating, then leisure battery power consumption will be increased (see consumption table on page 69 for more information.)

Priming the Water System

1. Close the water tank drain valve or re-fit the drain bung. (Model specific)
2. Fill the water tank with water.
3. Close the water heater drain valve (see boiler instructions in the fitted equipment section)
4. Open all the taps except the shower tap. Mixer taps should be opened in the central position so that both the hot and cold pipes are purged of air. Ensure the tap spouts are over the sinks.
5. Turn on the pump using the button on the control panel (See pump button in paragraph 2.5 of the Electrics section).
6. Turn each tap off in turn as and when the air is expelled and the water runs smoothly from each tap. Move the mixer taps to hot and then cold to check that the air is out of both the hot and cold pipes before turning them off.
7. Whilst holding the shower head down towards the shower drain, open the shower tap and shower head tap until all the air is expelled and the water runs smoothly. Turn the shower taps off.
8. Top up the fresh tank with water.

Please note that priming the system will automatically fill the water heater with water.

Holding the shower head towards the drain, open the shower tap until water flows freely.

Please ensure all taps are fully turned off when not in use (except when winterising).

Note: All tanks are fitted with a breather which acts as an overflow. Overfilling a tank will result in water being expelled from the overflow outside the vehicle.

Cleaning water system

Clean the water system at the start and end of the season with sterilising fluid.

Sterilising

When cleaning the water system at the start or the end of the season it is advisable to use a suitable sterilising fluid available from your motorhome dealer.

Flush the system thoroughly to remove the effective fluid traces.

When water is first introduced, or the water supply in the internal tank, runs out, air will be present in the pipework. It is important that every tap is run to remove any air in the system before, for instance, the shower is used. Air left in pipework local to a tap can act as an accumulator and affect the ratio of hot and cold water flowing from other taps or shower mixers in the system.

CLEANING WATER SYSTEM

System care

Allowing water to freeze in the system may result in damage to the pump and plumbing system.

Non-Toxic antifreeze for potable water may be used with Truma pumps. Follow manufacturers recommendations.

Do not use automotive antifreeze to winterize potable water systems.

These solutions are highly toxic and may cause serious injury or death if ingested.

Sanitising

The water systems, and in particular storage tanks, in motorhomes 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 motorhome each time, even if you boil or filter all water you use for drinking.

Separate Water 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 in the container, swirled around, then emptied out.
4. The container should then be totally filled with water containing an appropriate 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 prepared wipe impregnated with a 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.

For Systems:

1. Drain down the system (open all taps to allow air in, enabling the system to drain quickly).
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 water system with a disinfectant/ sterilant solution (check that the solution at full strength appears at all taps/showers). Allow to stand for the recommended period of time.
4. Drain the system completely.
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.

Suitable sterilising chemicals are available from your motorhome dealer, accessory shop, chemist or home-brew shops. It is not, however, recommended to use bleach or sodium metabisulphite.

Sterilising

Do not use products that contain aggressive agents for sterlising the water system. Always use products designed for stainless steel tanks available from your motorhome dealer.

Note: Never use the water heating system when disinfectant/sterilising fluid is present. Doing so may damage the system.

Waste water system

1. The waste water holding tank is secured underneath the chassis of your motorhome and is gravity fed.
2. In order to eliminate unpleasant odours as much as possible, only smooth bore pipes are used.

However, should the waste water tank be overfilled, it is possible the waste water will backfill the drain pipes until it eventually appears in the shower base. In order to prevent this, please take note of part 3.

3. The waste water gauge shows the level of the tank in quarter or half increments, it is therefore, recommended that the waste water tank is checked on a daily basis, emptying when required. This is done by opening the valve located just beneath the side skirt on the exterior of the Motorhome or by turning the handle located inside the vehicle at floor level behind the rear axle, usually found in bed box or wardrobe base (model dependant).

It should be emptied either directly, or via a waste water container (not supplied) into a designated waste water area.

The waste tank drain valve will be situated externally below the motorhome skirt, or within the motorhome furniture. (model specific)

See p43 fresh tank details for further information

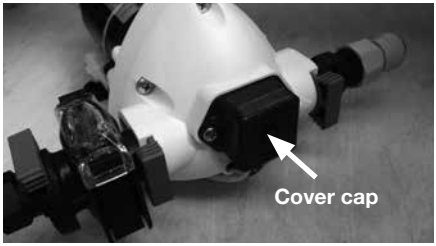
Pressure switch

The purpose of a pressure switch is to monitor the pressure on the outlet side of the pump. When a tap is closed, and the pump continues to run, there is an increase of pressure in the system, and when that pressure reaches a pre-set limit, the pressure switch will turn the pump off.

Pressure switch adjustment

Pressure Switch Adjustment, Truma/Flo-Jet pump. (Normally Grey upper section with White lower section/valve housing)

- All of the Truma/Flo-Jet pumps used by Swift are pre-set at 28psi + / -3psi.
- To further adjust the pressure switch setting, a cover cap must be first be removed from the end of the pump to reveal a pressure adjusting screw, as shown in the photos. A maximum of 1/4 turn clockwise or anti-clockwise, from the factory setting, is advised. Turning the screw clockwise 1/4 turn will increase the pressure switch cut-out pressure, turning the screw anti-clockwise will reduce the pressure setting.
- Please note a second screw mounted below the cover cap is set in position with threadlock, this should not be disturbed.



The pump may have to be removed to gain access to the adjusting screw. Drain the water system before removing the pump.

To remove the pump pull the blue taps at right angles to the pipe work and lift the pump out.

Troubleshooting

Pump will not start, when the tap is opened:

- Check fuse(s).
- Check power source(s), and ensure there is sufficient voltage to run the pump.
- Ensure 'pump' LED is illuminated.
- Using a multi-meter, ensure there is power at the pump. If not, refer to your dealer as there maybe damaged cabling or a fault with the fusebox.
- Is the pump hot? If so, allow to cool before retrying.
- Has the vehicle been stored over winter? was it correctly winterised? If no, the pump may have frozen, causing permanent damage.
- The pressure switch may need adjusting. (See pressure switch paragraph in this section for how to do this)

Pump runs, but will not pressurise system (i.e. no or little water being discharged from taps) - Not Pulsing:

- Ensure that there is water in the fresh water tank.
- Check in-line filter is free from debris and correctly fitted.
- Ensure water system has been primed correctly, (see priming the water system page 51), and there are no air-locks present.
- Ensure there are no restrictions in the plumbing.
- Using a multi-meter, ensure there is power at the pump. If not, refer to your dealer as there maybe damaged cabling or a fault with the fusebox.
- Ensure the inlet side of the pump is watertight and not allowing air into the system.
- Using a multimeter check that the voltage is between 10 and 14.5 volts. If not, refer to your dealer.

Pump continues to run (for more than 5 seconds) after taps are closed or pump turns on for no reason:

- Check for leaks on the high pressure side of the pump.
- Ensure water system has been primed correctly, as per the handbook, and there are no air-locks present.
- Ensure the pump is securely mounted.
- Ensure the piping on the high pressure side of the pump is in good condition (not blowing or deforming).
- The pressure switch may need adjusting. (See pressure switch paragraph in this section for how to do this)

Noisy or rough operation

- Check for leaks on the high pressure and low pressure side of the pump.
- Ensure that all pipes (especially those within 150mm of the pump) are not touching any furniture.
- Ensure the pump is securley mounted

Pump rapidly cycles (switches on or off) or water pulses from taps, including temperature pulsing:

- Check for leaks on the high pressure and low pressure side of the pump.
- Ensure there are no restrictions in the plumbing
- The pressure switch may need adjusting. (See pressure switch paragraph in this section for how to do this)

Water level sensor & cleaning

Principle

The sensor, fitted to Swift Group motorhomes are pre-fitted to water tanks, and link to the control unit, via a pre-fitted wiring harness. The sensors, which consist of a number of stainless steel rods or probes, at different lengths, are immersed in the fresh or waste water, and use the conductivity of water, between the probes, to provide a reading to the control unit.

The sensors are 'digital', in that while the conductivity (resistance) value can vary, the fusebox will register any conductivity between the reference probe and the various different length probes, indicating water present.

Normally, even if the rods are dirty, and providing the rods have not bridged by a foreign object, a circuit will still be delivered back to the control unit and a water level displayed.

Sensor cleaning

The first step, in case of fault diagnosis, is to clean the sensor rods. False water level readings at the control unit can be caused by calcium build-up or foreign objects within the tank bridging the probes. (Especially with waste tanks).

To clean sensor:

⚠ **WARNING:** Only use food safe plastic mesh scourers, which are suitable for domestic use, for cleaning the sensor studs.

1. Remove the sensor from the tank
2. Check the probes for build up of contamination
3. Use clean soapy water
4. Place scourer in water to dampen
5. Apply scourer to the sensor probes with limited pressure
6. Rub sensor probes removing contamination
7. Swill sensor probes with fresh clean water
8. Replace sensor into tank.

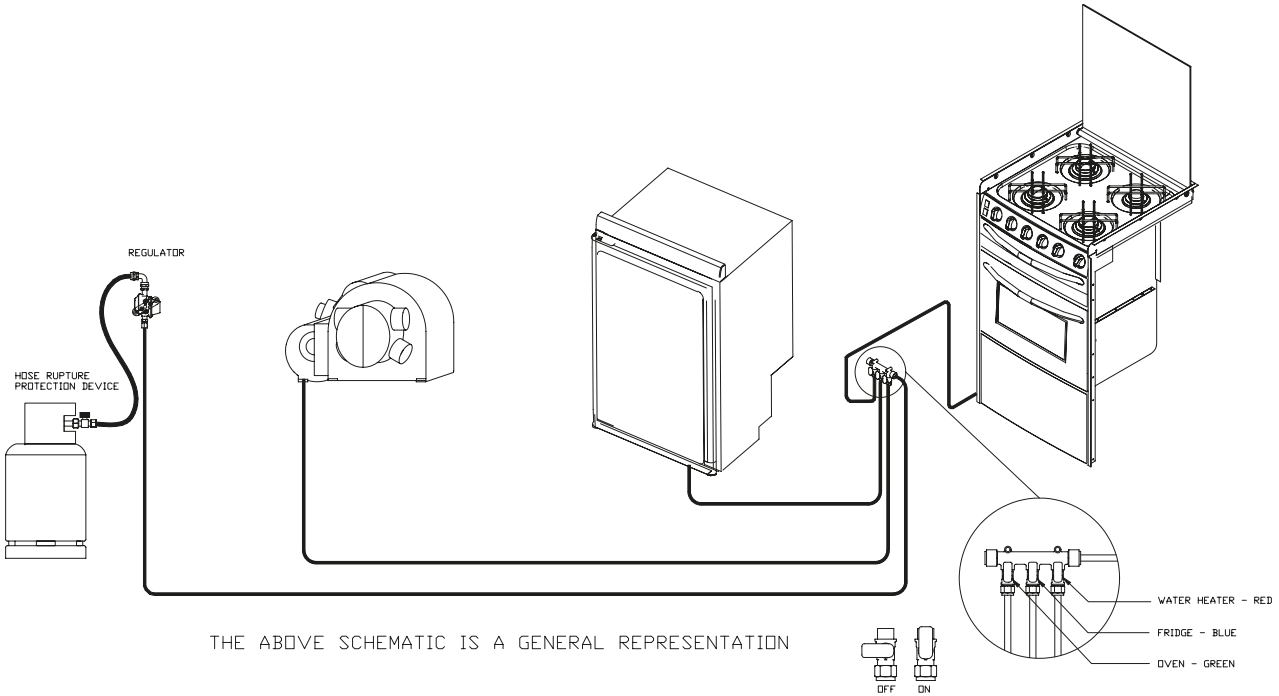
Water

Fault	Cause	Remedy
Water not flowing from any tap when operated but pump runs	Freshwater tank empty	Check
	Pump wired in reverse	Check wiring, refer to pump manufacturers instructions
	Pipe inlet or outlet pipe disconnected	Check connections
	Pump pipes restricted by kinking	Check pipes run
	Blockage in pump inlet or outlet pipe	Check, starting inside freshwater tank
	Blocked pump filter	Dismantle and clean filter. See pump manufactures instructions.
	Air leak in suction line to pump	Check condition of pipe and pipe joints between the water tank and the pump.
	Frozen pipes	
Pump does not run	Pump incorrectly wired	Refer to pump manufacturers instructions
	Pump fuse blown	Check wiring connection and then replace with fuse of correct rating
	Battery disconnected	Check connections
	Pump seized or overheated	Refer to pump manufacturers servicing instructions
	Pressure pump sensing switch may have failed	Refer to pump manufacturers servicing instructions
	Contacts may be faulty	Check contacts in plug and socket are clean and making contact
	Wiring connections may be faulty	Check wiring connections
Water flows from cold tap but not from hot	Blockage in hot pipeline	Disconnect pipes and inspect
	Heater inlet or outlet pipes kinked preventing flow	Check and re-route if necessary.
	Hot tap failed or blocked	Disconnect and inspect
	Heater non-return valve jammed	Seek service attention

Water

Fault	Cause	Remedy
Water flows from hot tap but has reduced flow from cold	Cold water pipe kinked preventing flow	Check and re-route if necessary
	Blockage in cold pipe line	Disconnect pipes after 1st connector and check up to tap
	Cold tap not connected	Refer to installation instructions
	Cold tap failed or blocked	Disconnect and inspect
Reduced flow from both hot and cold taps	Battery condition low causing pump to run slowly	Check battery state of charge, refer to electrical supply note
	If new taps have been fitted they may be restricting flow	Disconnect and check that they have at least 1/4" (6.3mm) bore
	Pump needs servicing	Refer to pump servicing instructions
	Partially blocked pump filter or in-line filter, if fitted	Dismantle and clean if necessary
	Pump outlet pipe kinked restricting flow	Check and re-route if necessary
	Water leak	Check all water connections
Reduced flow from either tap	Pipe kinking restricting flow	Check and re-route if necessary
	Bore size difference in taps	Use taps of equal bore size
If pump motor runs steadily and will not stop	Battery voltage may be too low (below 10.5 volts)	Check that there is water in the container Adjust switch and/or re-charge battery Check all connections in pipework

Typical gas schematic drawing with Combi or Alde Boiler



THE ABOVE SCHEMATIC IS A GENERAL REPRESENTATION

Gas

General information

Gas Cylinders

Bottled Liquified Petroleum Gas (LPG) is the most convenient portable source of fuel for your vehicle.

The gas cylinder, cooking and heating appliances should be isolated when travelling unless your motohome is fitted with en-route heating.

Regularly check flexible gas hose, joints and connections for tightness. Finally make sure that each gas appliance is working efficiently to the recommendations of the appliance manufacturers.

The LPG system should be inspected by a competent person.

Only use gas cylinders that are located within their dedicated position within the gas bottle housing, never extend the hose - hose lengths must not exceed 400mm.

Your vehicle is supplied with a wall mounted gas regulator plumbed inside the gas bottle compartment. The regulator and all appliances work at a harmonised 30mb pressure, which work with Butane and Propane gas.

Pressure regulation system in this vehicle has a fixed working pressure of 30 mbar with a flow rate of 1.2 kg/H and complies with the requirements of EN 12864 annex D.

We do not recommend the use of an inline LPG BBQ with the 1.2kg/H regulator when other LPG appliances are in use.

Motorhomes with external barbeque point

Models equipped with an external barbeque point can be used to power any gas appliance suitable for the gas used in the motorhome, at the working pressure shown on the label in the barbeque outlet box. Please note when using the outlet that the fitted regulator will allow a maximum of 1.5kg per hour of gas to be taken from the gas bottle. Therefore the consumption of gas from both the appliances within the motorhome and the appliance connected to the barbeque point cannot exceed a total of 1.5kg per hour at any one time. If you are in any doubt please consult your dealer for advice. To use point proceed as follows:

1. Fit male tail connector from despatch kit to your barbeque or appliance ensuring a gas tight joint. The work should be carried out by a competent person; if in any doubt consult your dealer.
2. Open box lid by pulling tab on bottom edge and lifting, while pressing on centre of flap.
3. Insert tail connector on appliance into female coupling, twist to engage and lock.
4. Open gas locker on motorhome, ensure gas bottle tap is open and supply is connected to regulator.
5. Light and operate appliance to its instructions.

Please note that you cannot open the gas supply until the nozzle has been inserted. In the interest of safety all external hose lengths should be kept to a minimum and attachments secured correctly.

⚠ **WARNING:** Care should be taken when using the external barbeque point. Never barbeque next to an awning or tent.

⚠ **WARNING:** The motorhome barbeque point should only be used as an outlet point for gas, never connect a gas bottle direct to the outlet.

⚠ **WARNING:** Unless en-route heating is in use the LPG cylinder valve should be closed when driving.

Gas Hoses

High-pressure hoses or pigtails as they are called must be used with the new style regulator.

High-pressure hoses incorporate a safety shut off valve for the use of the en-route heating system

LPG cylinder i.e. Propane, Butane, BP and Camping Gaz cylinders all have unique bottle adaptor connections. It is important to check

you have the correct hose and adaptor to suit your gas cylinders.

Push on hoses are no longer permitted under the latest regulations.

The new high-pressure hoses have threaded connections and must be securely attached to the regulator and to the gas cylinder.

Ensure that there is a constant rise in the flexible gas hose between the gas cylinder outlet and the regulator elbow.

⚠ **WARNING:** Inspect flexible gas hose(s) regularly for deterioration and renew as necessary with the approved type, in any case no later than 5 years after the date of manufacture marked on the hose.
When replacing the en-route hose ensure the new hose incorporates a safety shut off valve (Hose rupture protection).

⚠ **WARNING:** Ensure that the high pressure hose is not excessively twisted or under stress when connected to the LPG cylinders and regulator.

⚠ **WARNING:** Always ensure the gas supply is isolated at the LPG cylinder (and not at the regulator) whilst the vehicle is in storage for any period. It is important to ensure that the high pressure gas hose has a continuous rise from the bottle cylinder to the regulation to allow any condensate to fall back into the gas bottle cylinder.

Cylinder compartment

All cylinder compartments have four plastic mouldings per cylinder position fitted to the floor of the compartment that are designed to fit both steel and BP Gas Light cylinders. Two straps are provided for retaining the bodies of the cylinders at mid to high level.

Types of gas

Propane

Propane is supplied in red, or partly red cylinders which have a female left hand threaded connector.

Scandinavian countries use the same connector.

Germany and Austria supply propane with a male connection.

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

Note: Swift recommend that 6kg CalorLite propane gas bottles are used.

Butane

Butane is supplied in the U.K. in green or blue cylinders.

All these have a male left hand thread

EXCEPT for Camping Gaz which has a special female right hand thread and Calor 7kg and 15kg and aluminium bottles which have a special clip-on connection.

Continental cylinders usually have a male left hand thread similar to but not identical with U.K. butane.

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

Note: A hose suitable for use with propane has been supplied with your motorhome. For en-route systems only.

En-route heating

Swift Group motorhomes are equipped with an LPG en-route heating system. The en-route heating system is installed with additional safety features.

⚠ **WARNING:** When re-fuelling your motorhome, switch off the heater and close the cylinder valve.

Safety features

- MonoControl CS regulator incorporating a crash sensor which stops the gas flow in the event of the motorhome being involved in a traffic collision.
- Gas flow monitor
- Hose rupture protection is installed.

The full system is Homologated in compliance with European Directive 2001/ 56/ EC,

Operating instructions

Priming the gas system

- Open the cylinder's valve. (1)
- Firmly press the hose rupture protection (green button) on the high pressure hose. (2) If necessary (e.g. if the regulator has been knocked when replacing a LPG cylinder) press the green reset button on the regulator. (3)
- Start the gas-burning devices if desired.

Note: The regulator should be replaced no more than ten years after manufacture.

Changing a gas cylinder

Please use the correct size spanner for the gas hose connectors as this will prevent damage to the screw fittings and ensure that the fitting is tightened sufficiently.

- Close the empty gas cylinder's valve
- Remove the high pressure hose from the gas cylinder.
- Attach the high pressure hose to the full gas cylinder.
- Open the full cylinder's valve.
- Press the hose-break safety device

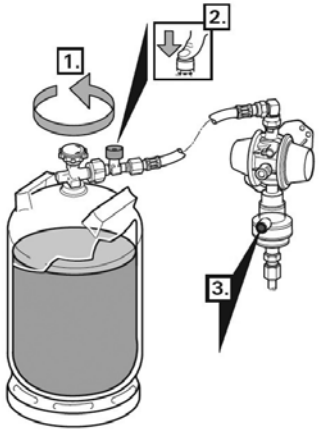
Check the hose connection to the cylinder valve for leaks.

⚠ **WARNING:** To ensure the safe working of the en-route heating any replacement high pressure hoses must be of the same type as originally fitted. They must have the safety valve to ensure that the gas does not leak out in the event of damage to the gas pipe work in the event of a traffic collision.

⚠ **WARNING:** When travelling using the en-route system all other LPG appliance shut off valves must be in the closed position including the fridge, cooker, water heater etc.

Note: It is dangerous and illegal to operate other LPG appliances whilst travelling

Note: Service and repairs must only be carried out by a competent service engineer.



Gas safety advice

⚠ **WARNING:** If you smell gas or suspect a leak or in the event of a fire and if it is safe to do so, isolate the gas appliances and turn off the gas bottles at the regulator. Evacuate the motorhome and ventilate. Seek professional advice as to the cause of the leak.

Facts about LPG

- LPG is not poisonous.
- Bi-products are harmless.
- There is danger if all air and oxygen were excluded.
- (Ventilation holes must be kept clear at all times).
- LPG has been given a smell by the manufacturers in order to identify leaks.

Awning Spaces LPG Appliance Exhaust

There is no danger of pollution of an enclosed awning space by the LPG exhaust from a refrigerator venting into it, as awning spaces are generally well ventilated.

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

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

General Safety Notes

In the event of leaks in the gas system or if there is a smell of gas:

- Extinguish all naked flames.
- Do not smoke.
- Switch off the appliance and gas cylinder.
- Open the windows.
- Do not operate any electrical switches.
- Have the entire system checked by an expert.

Precautions

a. Never look for a leak with a match. Always use a soap solution or its equivalent when testing connections. Do not operate any electrical apparatus whatsoever, especially light switches. If the leak is not obvious, the motorhome should be evacuated and qualified personnel consulted.

b. Avoid naked lights when connecting or changing a cylinder.

c. Check the flexible hose frequently.

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

e. Keep bottle gas containers outside (and protected against frost). If they must be kept inside make sure they are well away from heat.

⚠ **WARNING:** Do not use appliances with a different working pressure to 30mbar.

⚠ **WARNING:** Maintain adequate spacing of combustible materials from sources of heat.

⚠ **WARNING:** Do not use independent portable gas appliances inside the vehicle. Cookers shall not be used as heaters.

⚠ **WARNING:** A BBQ point inlet valve, if fitted, must only be used for the connection of portable LPG appliances.

Always read individual appliance instructions

Connection

Ensure that the gas regulator hose is correctly connected to the gas cylinder in gas bottle compartment and that the hose connection is tight.

Gas cylinders must be fully located, seated at the base of the bottles and restrained by the straps provided in the dedicated compartment position. Straps are positioned to suit 6kg, 7kg and 13kg bottles.

⚠ **WARNING:** If using cylinders other than those recommended, the user must ensure these are adequately supported, ventilation openings must not be obstructed and the cylinders must not cause damage to other fixtures and fittings located in the compartment.

Open ended gas hoses must always be protected from dirt and insects.

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

All gas equipment is supplied through a Gas Manifold System which has individual isolation taps for each appliance (Fig A), as follows:

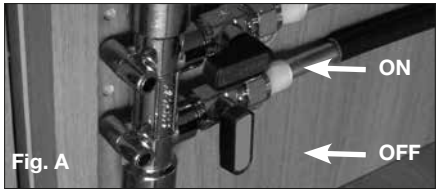


Fig. A

RED - Water Heater / Combination boiler

WHITE - Space Heater (if fitted)

BLUE - Fridge

GREEN - Oven

Ventilation

All ventilation complies with BS EN 721 and vents should not be obstructed in any manner as this could lead to insufficient fresh air. In this case the confined atmosphere becomes depleted of oxygen which could lead to dangerous levels of carbon dioxide (CO_2) build up leading to the risk of asphyxiation.

The risks of carbon monoxide (CO) build up, which is a colourless, odourless and tasteless gas, will also be reduced with ventilation. Carbon monoxide is produced from incomplete combustion and should the CO detector be activated the cause of the incomplete combustion must be investigated prior to reusing the appliance in question.

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.

THERMAL INSULATION HEATING

Thermal insulation heating

Your motorhome has been designed to achieve a thermal insulation and heating level for specific climatic conditions when tested according to the procedure in EN1646-1. See the motorhome technical book for the classification of your motorhome.

All Swift Group motorhomes achieve a Grade 3 classification.

The classifications are as follows:

Grade 1

A motorhome with an average thermal transmittance (u) that does not exceed 1.7w/(m2k).

Grade 2

A motorhome with an average thermal transmittance (u) that does not exceed 1.7w/(m2k) and which can achieve an average temperature difference of at least 20k between inside and outside temperatures when the outside temperature is 0°C.

Grade 3

A motorhome with an average thermal transmittance (u) that does not exceed 1.2w/(m2k) and which can achieve an average temperature difference of at least 35k between inside and outside temperatures when the outside temperature is -15°C.

Gas

Fault	Cause	Remedy
Hob does not light	No gas	Check level of gas in cylinder Check gas cylinder valve is on Check gas taps are on
	Air in pipe	Purge system Refer to hob manufacturers instructions
Oven does not light	No gas	Check level of gas in cylinder Check gas cylinder valve is on Check gas taps are on
	Air in pipe	Purge system Refer to oven manufacturers instructions
BBQ	No gas	Check level of gas in cylinder Check gas cylinder valve is on Check gas taps are on
	Over gassed Air in pipe	Turn off appliance, wait 2 minutes and try again Purge system
Fridge does not light	No gas	Check level of gas in cylinder Check gas cylinder valve is on Check gas taps are on
	Air in pipe	Purge system Refer to fridge manufacturers instructions
Combination Heater does not light	No gas	Check level of gas in cylinder Check gas cylinder valve is on Check gas taps are on
	Air in pipe	Purge system Refer to water heater manufacturers instructions

The electrical system

General Information

It is strongly advised that the mains installation is inspected periodically to ensure safe use. The IET (BS7671) wiring regulations recommend that mains installations in motorhomes are re-inspected every 3 years or annually if the van is used frequently. The National Caravan Council lists the qualifications necessary to perform this inspection, but an NICEIC approved contractor is probably the first choice.

On arrival at the campsite

- Check the suitability of the supply, is it AC or DC, is the voltage and frequency correct.
- Ensure that there is a proper earth (3 pin socket outlet).
- If in doubt consult site staff.
- Make sure that the supply from the site is switched off.
- Make sure that the charger switch on the PSU is switched off.
- Lift the cover on the electricity inlet on the motorhome, and insert the connector on the flexible supply cable.
- At the site supply point, connect the other end of the supply cable to this using the socket provided.
- Switch on the main switch at the site supply point.

Note: It is good practice to test the RCD (Residual Current Device) in the PSU before switching on. There is a test button on the RCD to test the lever, put the lever in the up position (on) before testing.

Note: As with the RCD it is good practice to check the Miniture Circuit Breaker (MCB) in the PSU. Switch all to the on position (lever up). If any do not stay up then there is a fault.

On departure from the campsite

- Switch off supply from the site, disconnect the cable at both ends.
- Switch off RCD.

Note: Never use a mains supply lead whilst coiled. Always uncoil the full length before connecting to the supply and remember to protect the cable from traffic.

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

Overseas connection

- Connection to a mains voltage overseas requires particular attention.
- Overseas supplies can be of reverse polarity.
- Reverse polarity results in equipment not necessarily being isolated when turned off, reverse polarity indicator on the PSU will light in the event of reverse polarity.
- The only sure way to make equipment safe is to unplug it.
- It is useful to have a means of checking polarity when overseas.
- If it can be achieved then connect live to live, and neutral to neutral to achieve full electrical protection.

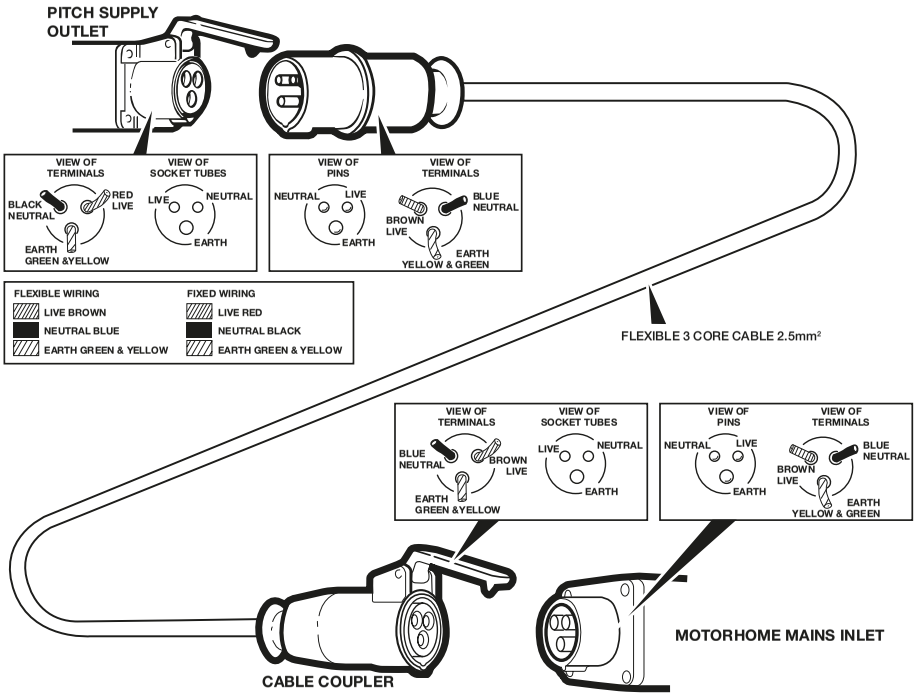
⚠ **WARNING:** Never allow modifications of electrical or LPG systems and appliances except by qualified persons.

230V mains electrical equipment power consumption

Note: It is possible that the 230v mains electrical equipment may not all operate simultaneously. A typical UK site mains hook up point provides a maximum output of 10 amps and on some continental sites the available output may be as low as 5 amps. If your loading exceeds the site supply it may trip the site circuit breaker. Please check the available mains supply with your site operator.

Similarly loadings on each circuit breaker within the motorhome should be observed. A label positioned close to the MCB's (Miniture Circuit Breakers will identify which appliances within the motorhome are fed from which MCB. Consulting the typical appliance consumption figures table in conjunction with this label, will give an indication of which appliances can, and cannot, (site supply allowing), be operated simultaneously.

Wiring of connecting cable and motorhome mains inlet



The legal length of the mains inlet cable is 25 ± 2 metres. When in use it must be fully uncoiled and protected from traffic.

Typical appliance consumption figures

Appliances	230V		12V		LP GAS
	Watts	Amperes	Watts	Amperes	Grams/hour
Dometic Refrigerator	190 W	0.8 amp	Only when driving		16 g/h
Truma Combi 4kW Heating system	900/1800 W	3.9/7.8 amp	13 W	1.1 amp (avg)	320 g/h
Truma Combi 6kW Heating system	900/1800 W	3.9/7.8 amp	13 W	1.1 amp (avg)	480 g/h
Alde Heating System	1050/2100/3150 W	4.6/9.1/13.7 amp	12 W	1.0 amp	245-460 g/h
Microwave (factory fit)	1270 W	5.5 amp	Not Applicable		Not Applicable
Cooker - Hob burners	Not Applicable		Not Applicable		70-161 g/h
Cooker - Electric Hotplate	850 W	3.7 amp	Not Applicable		Not Applicable
Grill	Not Applicable		Not Applicable		117 g/h
Oven	Not Applicable		Not Applicable		125 g/h
Battery Charger	690W	3.0 amp	Not Applicable		Not Applicable
Omnivent	Not Applicable		2W - 86W	0.2amp - 7.2 amp	Not Applicable
Powered bed mechanism	Not Applicable		Max 240W	Max 20 amp	Not Applicable
Powered skylight	Not Applicable		Max 120W	Max 10 amp	Not Applicable
12v LED lights (each, depending on size of light)	Not Applicable		0.4w - 6.1W	0.05 amp - 0.5 amp	Not Applicable
Water tank frost element (Winter pack)	Not Applicable		30 W	2.5 amp	Not Applicable

Note: These are approximate figures for guidance only, and are subject to changes in specification. The figures show energy consumption when an item or appliance is operating - ie. a light is illuminated, or a heating system is providing space heating or water heating. Appliances which feature LCD or illuminated control panels can have a low current consumption when in stand by mode, or have a constant low current draw in the background to run their displays and electronics systems - these figures are typically 0.4 amps or less, for each applicable item. These electronic items can in most cases be switched off individually, or, use of the System Shutdown button on the power supply unit isolates all of these items.

SERVICES

EC400 Series Power control system

1. Introduction

This section of the handbook will guide you through the operation of the electrical system. Further technical details are contained in section 3 or in the supporting dealer technical manual available from www.sargentltd.co.uk

For the safe operation of all electrical equipment within your Leisure Vehicle it is important that you read and fully understand these instructions. If you are unsure of any point please contact your dealer / distributor for advice before use.

The system has a number of key components that you will need to be familiar with before attempting to use the system, these are:

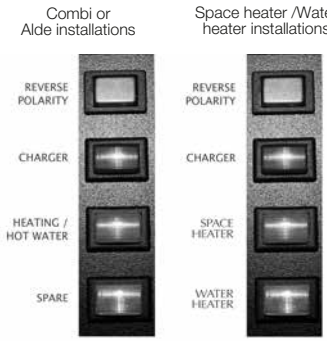
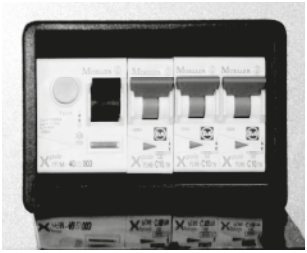
- **The EC400 series Power Supply Unit (PSU)** - a combined mains consumer unit and 12V controller located in the front locker or bed box area. The EC400 series of power supply units include horizontal units and vertical units, further details are contained later in this document.
- **The EC400 series Control Panel (CP)** - a remotely located user control panel used to turn circuits on and off and to display battery and water tank information. This panel uses simple straight forward controls and reliable data communication to the PSU.

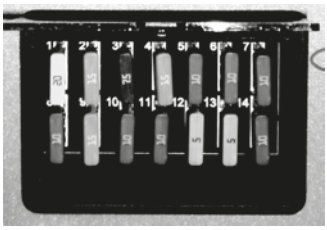
2. Using the System

The PSU is located in the front offside locker area or front bed box in motorhomes.

2.1 Power Supply Unit - Models

A number of different PSU versions are used within the system. The operation of each model is very similar and is detailed below.

230V Components	
	Red indicator – Reverse polarity indicator, lights up when the 230V supply polarity is reversed.
	Green push switch – Charger switch, this switch turns the 12V battery charger on or off. “In” is on “out” is off.
	Amber push switch – Space heater switch, this switch turns the 230V supply to the space heater / combination heater / central heating system on or off. In is on out is off.
	Clear push switch – Water heater switch, this switch turns the 230V supply to the separate water heater on or off. In is on out is off. **Note, If the vehicle contains a combined space & Water heater (Alde or Truma Combi) then this button is not used.**
	Black lever switch, far left – Residual Current protection Device (RCD) and main 230V on / off switch.
	Yellow button, far left – RCD test button.
	Red lever switches, right – 3 x 10A Miniature Circuit Breakers (MCB). Please note that installations with a 3KW Alde heating system will have 2 x 10A and 1x16A MCB’s.

12V Components	
	Black push switch, far left – System shutdown switch, this switch turns the power control system on or off. In is on out is off.
	Yellow push button, top right – Select button, this button is used to scroll through the display items on the LCD screen**.**
	Red push button, bottom right – Set button, this button is used to change the setting of the displayed item on the LCD screen.
	12V DC circuit protection fuses. Fuse number 1 is top left; Fuse number 14 is bottom, right. See section 3.5 for full fuse allocation details.

2.3 Activating the System

The EC400 system has a shutdown feature that should be used when the vehicle is in storage or is not being used for long periods of time. This allows the leisure electronics to be turned off when not required to save battery power. When in the off state the alarm and tracking system supplies are still active, most other supplies are turned off.

Before using the system please ensure the shutdown switch is in the system on position (button in).

2.4 Connecting to the Mains 230V supply and Safety checks

For your safety it is IMPORTANT that you follow these connections instructions each time your Leisure Vehicle is connected to a mains supply. This section assumes that the system is complete and that a Leisure battery has been installed (see 3.4).

a. **Ensure suitability of the Mains Supply.** Your Leisure Vehicle should only be connected to an approved supply that meets the requirements of BS7671 or relevant harmonised standards. In most cases the site warden will hold information regarding suitability of supply. If using a generator you also need to comply with the requirements / instructions supplied with the generator.
Please note that some electronic generators may not be compatible with your leisure system. Further generator operational information is contained elsewhere in this manual.

b. **Switch the PSU internal Power Converter OFF.** Locate the green 'Charger' power switch on the PSU and ensure the switch is in the off position (button out) before connection to the mains supply.

c. **Connect the Hook-up Lead**.
Firstly connect the supplied hook-up lead (orange cable with blue connectors) to the Leisure Vehicle and then connect to the mains supply.

d. **Check Residual Current Device operation.** Locate the RCD within the PSU and ensure the RCD is switched on (lever in up position). Press the 'Test' button and confirm that the RCD turns off (lever in down position). Switch the RCD back to the on position (lever in up position). If the test button failed to operate the RCD see section 3.10.

e. **Check Miniature Circuit Breakers.** Locate the MCB's within the PSU (adjacent to the RCD) and ensure they are all in the on (up) position. If any MCB's fail to 'latch' in the on position see section 3.10.

f. **Turn the PSU ON**. Locate the black 'Shutdown' button and ensure it is in the on position (press button in). Locate the green 'Charger' switch on the PSU and turn to the on position (press button in). The charger switch will illuminate when turned on.

g. **Check correct Polarity**.
Locate the 'Reverse polarity' indicator on the PSU and ensure that the indicator is NOT illuminated. If the indicator is illuminated see section 3.10.

h. **Check operation of equipment**.
It is now safe to operate the 12v and 230v equipment.

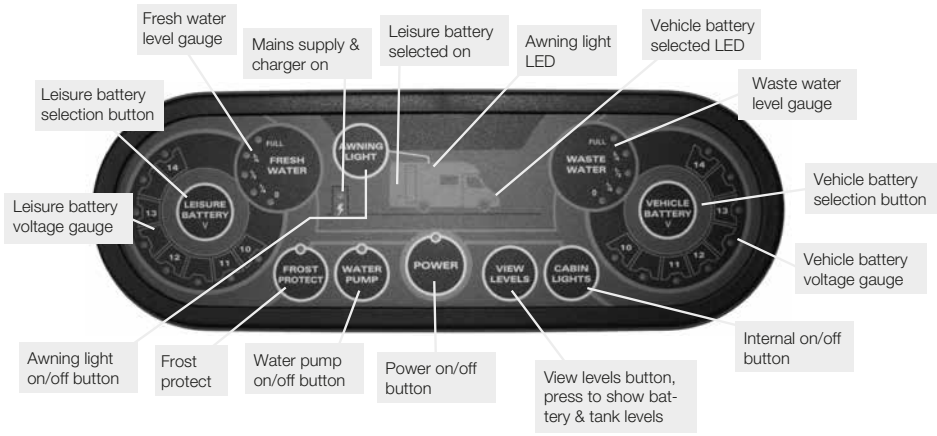
2.5 Control Panel - Component Layout

Depending on your type of vehicle (caravan or motorhome) the control panel will vary in specification.

Not all features are present in all vehicles. Please refer to the following diagrams to identify your control panel.

Motorhome Control Panels

EC467



EC462

2.6 Control Panel Operation

- **Power Button.** Press the power button to turn the leisure power on. Press the button again to turn the power off. The adjacent LED will illuminate when the power is on, and also thevoltage of the selected battery will be displayed on the voltage gauge.
- **Pump Button.** With the power on, press the pump button to turn the water pump on. Press the button again to turn the pump off. The adjacent LED will illuminate when the pump is on, and also the level of the water tank will be displayed on the water gauge.
- **View Levels.** To display the battery voltage levels and the water tank levels on the control panel gauges, press the levels button. The display will remain illuminated for 10 seconds. It is possible to lock the display 'on' to allow continuous display. This can be achieved by pressing and holding the view levels button for 2-3 seconds until you hear a beep. To turn this locked feature off, either press and hold the view levels button again for 2-3 seconds or turn the power off and back on.
- **Battery Select.** By default, the leisure battery is selected as the power source if no mains supply is present, or as the battery to be charged when the mains supply is available. To change the selected battery, press the vehicle battery select button. The selected battery is indicated by the LED's situated to the front (vehicle) or rear (leisure) of the motorhome logo
- **Mains on indication.** When connected to a 230v supply the LED with a "lightning strike" shown will be illuminated.

- **Charging when the vehicle engine is running.** When the vehicle engine is running both the vehicle battery and the leisure battery LED's will flash in unison to indicate that they are connected together and are being charged by the vehicle.
- **Cabin Lights Button.** For motorhomes, with the power on, press the cabin lights button to turn the main lighting supply on or off.
- **Awning Light Button**. For motorhomes, with the power on, press the awning light button to turn the awning light on or off.
- **Frost Protect Button.** For motorhomes if / when fitted, with the power on, press the frost protect button to turn on the water tank heating system. The adjacent LED will illuminate to show that the tank heating system is on.

2.7 Operation while driving

The EC400 system is designed to shutdown parts of the system while the engine is running. This is to meet Electro Magnetic Compatibility (EMC) regulations and to ensure the safe operation of the caravan or motorhome. This is indicated by the two battery LED's flashing together.

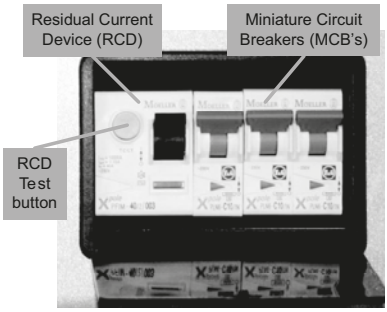
Please ensure the system shutdown switch on the PSU is in the "on" (button in) position before driving (see 2.3). This will ensure the electronic system is active and will therefore be able to control the charging process, supply the refrigerator and monitor other system circuits.

On motorhomes if / when fitted, designated 12v sockets, en-route reading lights and en-route heating will remain operational while the engine is running.

3. System Technical Information

The following section provides further technical information relating to the electrical system. You can also access the supporting technical manual from www.sargentltd.co.uk

3.1 Residual Current Device & Miniature Circuit Breakers



The Residual Current Device (RCD) is basically provided to protect the user from lethal electric shock. The RCD will turn off (trip) if the current flowing in the live conductor does not fully return down the neutral conductor, i.e. some current is passing through a person down to earth or through a faulty appliance.

To ensure the RCD is working correctly, the test button should be operated each time the vehicle is connected to the mains supply (see section 2.4)

The Miniature Circuit Breakers (MCB's) operate in a similar way to traditional fuses and are provided to protect the wiring installation from overload or short circuit. If an overload occurs the MCB will switch off the supply. If this occurs you should investigate the cause of the fault before switching the MCB back on.

The following table shows the rating and circuit allocation for the three MCB's

MCB	Rating	Output wire colour	Description
1	10 amps	White	230v Sockets
2	10 amps	White (Yellow for heater	Extra 230v Sockets / Space Heater
2	16 amps	Yellow	Alde heating (EC470 PSU Only)
3	10 amps	Black (Blue for water heater)	Fridge / Water Heater / 12v Charger (internally connected)

3.2 Battery Charger

The EC400 system incorporates an intelligent three-stage battery charger / power converter. During stage 1 the battery voltage is increased gradually while the current is limited to start the charging process and protect the battery. At stage 2 the voltage rises to 14.4V to deliver the bulk charge to the battery. When the battery is charged, the voltage is decreased at stage 3 to 13.6V to deliver a float charge to maintain the battery in the fully charged state. The charger can be left switched on continuously as required.

The battery charger / power converter also provides power to the leisure equipment when the mains supply is connected. This module supplies DC to the leisure equipment up to a maximum of 25 Amps (300 Watts), therefore the available power is distributed between the leisure load and the battery, with the leisure load taking priority as per the following example:

Lesiure Load	Available power for battery charging
5A	20A
10A	15A
15A	10A
20A	5A

⚠ **WARNING:** Under heavy loads the Charger case may become hot. ALWAYS ensure the ventilation slots have a clear flow of air. Do not place combustible materials against / adjacent to the Charger.

3.3 Smart Charging

On EC468 and EC469 PSU's, the system incorporates a smart charge feature, which monitors both leisure and vehicle batteries and automatically adjusts and directs the charger power (and solar power if a solar panel is installed) to maintain the leisure and vehicle batteries at an optimal level.

3.4 Leisure Battery

a. Type / Selection

For optimum performance and safety it is essential that only a proprietary brand LEISURE battery is used with a typical capacity of 75 to 120 Ah (Ampere / hours). A normal car battery is NOT suitable.

This battery should always be connected when the system is in use. The PSU is configured to work with standard lead acid leisure batteries, and in most cases is also compatible with the latest range of Absorbed Glass Matt (AGM) batteries. Before fitting non-standard batteries please check that the charging profile described in 3.2 is suitable for the type of battery by referring to the battery documentation or battery manufacturer.

Some vehicle installations can cater for two leisure batteries connected in parallel. In these cases it is recommended that two identical batteries are used.

The battery feed is fitted with an inline fuse between the battery and the electrical harness, and is usually located immediately outside the battery compartment or within 500mm of the battery. The maximum rating of this fuse is range specific, at either 30A or 40A per battery.

b. Installation & Removal

Always disconnect the 230v mains supply and turn the PSU green charger switch to the off position (button out) before removing or installing the battery.

When connecting the battery, ensure that the correct polarity is observed (black is negative [-] and red is positive [+]) and that the terminals are securely fastened. Crocodile clips must not be used.

⚠ **WARNING:** Explosive gases may be present at the battery. Take care to prevent flames and sparks in the vicinity of the battery and do not smoke.

c. Operation / Servicing

Under normal circumstances it should not be necessary to remove the battery other than for routine inspection of the terminals and "topping up" of the battery fluid where applicable. Please see instructions supplied with the battery.

Note: Do not over discharge the battery. One of the most common causes of battery failure is when the battery is discharged below the recommended level of approximately 10v. Discharging a battery below this figure can cause permanent damage to one or more of the cells within the battery.

To prevent over discharge, the EC400-450 system incorporates a battery protect circuit that warns the users and then disconnects the batteries when they fall below set values.

If the power is turned on and the leisure battery level falls below 9V a warning beep will be heard and the leisure battery gauge 10V LED will flash. To cancel the warning, press the levels button.

If the power is turned on and the vehicle battery level falls below 10.9V a warning beep will be heard and the vehicle battery gauge 10V LED will flash. To cancel the warning, press the levels button.

These warnings will not be repeated unless the power switch is turned off and on again. This is to ensure the warning does not become a nuisance.

Battery	Voltage cut off	Action after cut off	Notes
Vehicle	10.9v	Battery selection is changed from Vehicle battery to Leisure battery. If the leisure battery is below 9v then a further warning will occur (see below).	This cut off level is designed to protect the vehicle battery from over discharge. The 10.9v level ensures there is sufficient power in the battery to run the vehicle electronics and start the vehicle. This cut off only applies to power drawn from the battery by the leisure equipment; it will not protect the battery if you leave vehicle circuits switched on, such as the road lights.
Leisure	9v	Power is turned off	This is an emergency cut off level to protect the battery from severe damage. You should not rely on this cut off level during normal operation, but manage your power consumption to a discharge level of 10v. This cut off only applies to power drawn from the battery by the leisure equipment that is controlled by the control panel power switch; it will not protect the battery from discharge by permanently connected equipment.

3.5 12 Volt DC Fuses

⚠ **WARNING:** When replacing fuses always replace a fuse with the correct value. NEVER replace with a higher value / rating as this could damage the wiring harness. If a replacement fuse 'blows' do not keep replacing the fuse as you could damage the wiring harness. Please investigate the fault and contact your dealer.

The following table shows the fuse allocation for the 15 fuses fitted to the PSU. Please note that fuses are dependant on PSU versions, so not all fuses may be present.

Fuse	Rating	Fuse colour	Description
1	20 Amps	Yellow	* Motorhome Fridge 12V
2	15 Amps	Blue	* Motorhome Towing
3	7.5 Amps	Brown	* Motorhome Marker Lights
4	15 Amps	Blue	* Motorhome Fridge D+
5	10 Amps	Red	Extractor Fans / Heating Systems
6	10 Amps	Red	12V Sockets / TV Amp / ***Radio
7	10 Amps	Red	Front Internal Lights
8	10 Amps	Red	Water Pumps / Toilet
9	15 Amps	Blue	* Electric Step
10	10 Amps	Red	* Motorhome Tank Heaters
11	10 Amps	Red	** Auxiliary Supplies
12	5 Amps	Tan	Electronics / Fridge / Alarm
13	5 Amps	Tan	Oven Ignition / * Water Heater
14	10 Amps	Red	Rear Internal Lights
15	25 Amps	Clear	Charger (fitted internally to PSU)

* Where Applicable / When Fitted

** Motorhome Awning / Entry lights / Map lights / Enroute Heating / Compressor Fridge / Travel Skts

*** Motorhome Bathroom lights

3.6 Solar Charge Management

EC468 and EC469 PSU's incorporate a built-in solar charge management feature, which will control the input from a separate solar panel and regulator. Depending on the charge state of the batteries, the solar power will be directed to the required battery, and continuously monitored to ensure optimum operation. For this system to operate intelligently, the shutdown button should be left switched on. If the shutdown button is turned off then the solar panel will charge the vehicle battery only.

3.7 System Status and Configuration display

On the 468 & 469 PSU, the unit contains an LCD display and two control buttons that allow system information to be viewed or settings changed.

Press the top yellow 'select' button to change the item being viewed. Press the bottom red 'change' button to change the setting. Both buttons work on a continuous loop, so if you want to return to an item or setting keep pressing the button until the required item is reached. The EC468 and EC469 PSU's also contain a status display unit that can be used to view system information. Press the top yellow 'select' button to change the item being viewed.

3.8 Water System Operation

The control panel pump button operates the internal (onboard) water pump. This pump will draw water from the internal (onboard) water tank.

The system also incorporates a separate powered water inlet that can be used with an external filler pump to fill the internal (onboard) water tank.

The water tanks (fresh & waste, where fitted) incorporate a level warning feature to warn the user when the fresh water level drops below 25% or when the waste water level reaches 100%. If the water pump power is turned on and the fresh water level drops to below 25% a warning beep will be heard and the fresh gauge empty LED will flash. To cancel the warning, press the levels button.

If the water pump power is turned on and the waste water level rises to full (100%) a warning beep will be heard and the waste gauge full LED will flash. To cancel the warning, press the levels button. These warnings will not be repeated unless the water pump power switch is turned off and on again. This is to ensure the warning does not become a nuisance.

3.9 Frost Protection

On vehicles fitted with water tank frost protection, the control panel frost protect switch can be used to turn the feature on or off.

With protection on, the system monitors the tank water temperature and water level and will control the tank heaters accordingly. If the fresh or waste water levels are less than 25% the appropriate heater will be turned off to prevent overheating or damage to the element.

There are two types of system employed, both working in a very similar way. One system uses heaters with built-in thermostats; the other uses separate temperature probes in the tank. Both types switch on at 4-5°C and off at 8-10°C

3.10 Electric Step Operation

On vehicles fitted with an electric step, this is operated by a button near the entry door. Press and release the button to move the step in or out. One press of the button will move the step out, a further press will move the step in again. If the engine is started the step will move in automatically, after a short warning buzzer. If this operation fails due to an obstacle a buzzer will sound continuously to warn that the step is still out, and therefore requires your attention.

3.11 Warnings and Alerts

If the vehicle engine is started whilst the motorhome is connected to the 230v supply, a warning beep will be heard. This is to warn you to remove the 230v supply before driving away.

When the vehicle engine is running both the vehicle battery and the leisure battery LED's will flash in unison to indicate that they are connected together and are being charged by the vehicle.

Step operation, if the engine is started with the step in the out position, the step will move in automatically, after a short warning buzzer. If this operation fails due to an obstacle a buzzer will sound continuously to warn that the step is still out, and therefore requires your attention.

Low water level and waste tank, if the fresh water level drops to below 25% a warning beep will be heard and the fresh gauge empty LED will flash. To cancel the warning, press the levels button. If the waste water level rises to full (100%) a warning beep will be heard and the waste gauge full LED will flash. To cancel the warning, press the levels button.

Low voltage warning and cut off, if the power is turned on and the leisure battery level falls below 9V a warning beep will be heard and the leisure battery gauge 10V LED will flash. To cancel the warning, press the levels button. If the power is turned on and the vehicle battery is selected (being used) and the level falls below 10.9V a warning beep will be heard and the vehicle battery gauge 10V LED will flash. To cancel the warning, press the levels button.

3.12 Common Fault Table

Fault	Possible Cause	Proposed Fix
No 230 volt output from PSU	Connecting lead between the site and Leisure Vehicle not connected	Check and connect lead as per 2.4C
	RCD switched off	Reset RCD as per 2.4D
	RCD not operating correctly	Check supply polarity; if the RCD continues to fail contact your Dealer as there is probably an equipment or wiring fault.
	MCB switched off	Reset MCB by switching OFF (down position) then back ON (up position), if the MCB continues to fail contact your Dealer as there is probably an equipment or wiring fault.
	No or deficient supply from site	Contact site Warden for assistance
	Other fault	Contact your Dealer
Reverse Polarity light is illuminated on PSU	Mains Supply reversed?	The reverse polarity light is designed to illuminate when the Live and Neutral supply has been reversed / crossed over. If the light illuminates there is a problem with the site supply or the cable connecting the supply to your vehicle. The light is designed to work on UK electrical supplies (where the neutral conductor is connected to earth at the sub station). If you are using your vehicle outside the UK this light may illuminate when no fault exists. In these cases consult the site warden for advice.

3.12 Common Fault Table

Reverse Polarity light is illuminated on PSU	Generator being used	'The Reverse Polarity warning light is on when using my Generator'. This is a normal side effect when using some types of generator. Instead of connecting the neutral conductor to earth, some generators centre tap the earth connection making both neutral and live conductors 110v above earth. This 110v difference causes the neon polarity indicator to illuminate. In most cases it is still safe to use the generator, but please consult the generator handbook for further information.
Control Panel Problems	Control Panel has no display	Check batteries and fuses, turn PSU shutdown switch and charger switch on and ensure mains supply is connected. Check control panel connecting lead at PSU and behind Control Panel. Contact your Dealer
	12v Power turns off	Battery protect feature has operated to protect the Vehicle battery and or the Leisure battery. See 3.4C Engine has been started, all equipment has been disconnected to meet EMC requirements. See 2.7
	Control Panel locked / erratic function	Observe control panel handling instructions Control panel software may have crashed. Reboot control panel by turning off the PSU isolate switch. Wait 30 seconds then turn the switch back on.

No 12 volt output from PSU	No 230v supply	Check all above
	Charger not switched on	Turn charger switch on, switch will illuminate
	Battery not connected and / or charged	Install charged battery as per 3.4
	Power button on control panel not switched to on	Turn power on at control panel
	Battery flat / Battery fuse blown	Recharge battery, check fuses, check charging voltage is present at battery
	Fuse blown	Check all fuses are intact and the correct value fuse is installed as per fuse table
	Equipment switched off / unplugged	Check equipment is switched on and connected to the 12v supply
	PSU overheated / auto shut-down operated	Reduce load on system. Allow PSU to cool down. PSU will automatically restart when cool.
	Other fault	Contact your Dealer
Pump not working	Fuse blown	Replace fuse with correct value as per fuse table.
	Pump turned off	Turn pump on by pressing the pump button at the control panel.
	Setting incorrect	Both the internal and external pump feeds are controlled from the control panel. To alter the setting of the pump switch see section 3.8 Ensure the setting matches your desired requirement.

3.13 Contact details

Sargent Electrical Services Limited, provide a technical help line during office hours. Please contact 01482 678981 if you require technical help. For out of hour support please refer to the tech support section of the Sargent web site www.sargentltd.co.uk

4.Technical Data & Approvals

4.2 Motorhome Equipment -
EC460,465,468,469,470 PSU & EC461,462,466,467 Control Panel

Outline Specification		
INPUT 230v	230 Volts / 0 to 16 Amps	+ / - 10%
OUTPUT 230v	RCD protected, 3 x MCB outputs of 10A Separate switched channels for water heater, space heater and charger EC470 2 x 10A MCB Outputs & 1 x 16A MCB Output (Alde systems only)	
INPUT 12v	2 x 20A battery inputs via 2 x 4 way connectors	
SOLAR INPUT	1 x Dedicated solar panel input (20 to 100W panel) via a 2 way connector	
OUTPUT 12v	25A total output via multiple switched channels protected by 14 fused outputs	
CHARGER	Input 220-240 Volts AC +/- 10%, Frequency 50 Hz +/- 6%, Current 3A max. DC Output 13.6 to 14.4 Volts nominal, Current 25 Amps max (300 Watts). Overall size (HxWxD) 50 x 250 x 135mm	Fixing centres 128*128mm 1.2kg
Signal INPUT	4 x Fresh water level, 4 x Waste water level, 1 x Engine running, plus multiple vehicle connections	Fresh water negative sensed Waste water negative sensed
Data IN / OUT	CANBUS Data communication and power to Control Panel via 6 way connector	
IP rating	IP31	
Operating temperature	Ambient 0 to 35°C PSU case temperature with full load 65°C Max	Automatic shutdown and restart if overheated / overloaded

Dimensions		
EC468, EC469 PSU	Overall size (HxWxD) 315 x 195 x 150mm Clearances 75mm above, 50mm left & right	Weight 2.9 Kg
EC462, EC467 Control Panel	Overall size (HxWxD) 87 x 250 x 15mm Cut-out size (HxW) 70 x 233mm	Fixing centres 130*75mm Weight 114 g

4.3 Approvals

System: BSEN 1648-1, BSEN1648-2 compliant, BS7671: 2008 compliant

Residual Current Device: RCD 40A 30mA trip to BS EN 61008

Miniature Circuit Breakers: MCB's type C 6000A breaking capacity to BSEN 60898

Electro Magnetic Compatibility (EMC) directive 2004/108/EC Certificate CE20071224-1

Integrated Charger: BS EN 60335-1/2.29, 2006/95EC, IEC61000-3.2/3:1995, 1.

Low Voltage Directive: 2006/95EC TUV-014900-A1, EN55022, Class B, EN55024/ Level 2

12V Operation of Electrical Items

Most appliances within your product are designed to function when supplied with a 12V feed, either from a leisure battery or the on-board charger.

However, customers should note that some items may have limited functionality when the battery is in a lower voltage state (i.e. circa 10V). The Swift Group makes every effort when specifying components to operate at low voltages, but is not responsible if a component fails to work at lower voltages.

Components that are typically affected by low battery voltage include, but are not limited to, the pump, the radio and some lights which require higher voltages for start-up.

Motorhome battery

⚠ **WARNING:** Use precaution when removing or replacing the battery, as batteries contain acid liquids which can cause severe injuries and damage when handled incorrectly. Refer to the cleaning and maintenance section. Please also take into consideration when manoeuvring a battery, that the weight may be in excess of 20kg**.**

Your motorhome has been fitted with one or two leisure batteries depending on size of vehicle and expected electrical loads. The battery will be housed in one of three ways:

Within a floor mounted compartment

Within a side mounted compartment

Retained beneath the drivers seat

Floor mounted and side mounted compartments are designed to hold the battery securely and to contain any electrolyte (acid) spillage. Under floor compartments are sealed from the habitation compartment and a breather pipe is fitted to ensure any build up of explosive gases (hydrogen) is vented to the outside. If a breather pipe is fitted it is important to ensure that any replacement batteries are also fitted with a breather pipe. The battery or batteries should only be positioned in the appropriate compartment, and be properly secured before travelling.

Note: The batteries fitted to your motorhome in floor mounted or side mounted compartments must be kept upright.

When a leisure battery has been factory installed below the driver's seat, the battery type used is specific to that installation, and is of a type (Sealed AGM) that allows a battery to be installed in a vertical or horizontal orientation. Due to the construction of this type of battery, it is not necessary to vent the battery to the outside, and there is no requirement to check and maintain electrolyte levels.

Note: If an AGM battery is replaced, it must be replaced by an equivalent AGM battery which is suitable for a horizontal installation, and does not require venting to the outside.

It is recommended that a good quality leisure battery is always connected when the motor home electrical system is in use. Leisure batteries are a deep cycling rechargeable heavy duty 12v battery designed to provide power for lights and other electrical appliances. It should be remembered that batteries suitable for the electrical demands of a motorhome differ in design from those for use with a car, and whilst the system may operate with a car battery it is strongly recommended that only a rechargeable leisure type battery, maintained in good condition, is used. The battery should be kept topped up (charged) at all times. If two leisure batteries are fitted additional care is needed, as one battery deteriorates this can reduce the lifespan of the other.

Replacement batteries should be a proprietary brand leisure battery with a minimum 80 amp - 110 amp capacity. Replacement batteries should be checked dimensionally before purchasing, to ensure fitment within the battery compartment, as brands vary in size.

⚠ **WARNING:** When connecting the battery, ensure that the correct polarity is observed (black is negative and red/brown is positive) and that the terminals are securely fastened.

Under normal circumstances it should not be necessary to remove the battery other than for routine inspection of terminals and (for non-AGM batteries) 'topping up'.

⚠ **WARNING:** Explosive gases may be present at the battery. Take care to prevent flames and sparks in the vicinity.

Your motorhome has been fitted with an in-line fuse between the battery terminal and the power supply unit. Do not use a higher rated fuse as this may cause damage to your motorhome.

⚠ **WARNING:** Switch off all appliances and lamps before connecting or disconnecting the battery. Smoking is prohibited around the battery compartment.

To preserve the life of your leisure battery and charger please observe the following:

1. Do not leave all 12v lights powered at the same time as this will drain your leisure battery more rapidly.

2. If all 12v lights must be powered together, ensure the battery is 'in-circuit' and that the battery charger is turned on.

3. For optimum performance use the transformer/charger unit with a leisure battery attached.

Please note the auxiliary battery or batteries supplied with your motorhome may not be fully charged and should be charged for a minimum of 24 hours before use. Battery performance may be affected by a number of things such as ambient temperature, age, state of charge etc.

Cleaning and maintenance

(Floor mounted battery compartment)

• Use protective clothing and glasses when handling a leaking battery, and avoid direct contact to the skin, eyes and respiratory organ.

• Should a battery leakage occur, please act according to the instructions supplied by the manufacturer of the battery. Act with caution as caustic substances are present in the battery.

• Always remove the battery and the power cable before carrying out any maintenance of the product.

• Before removing the clamps switch off all appliances.

• Use a soft cloth or sponge and a non-acid/ abrasive detergent when cleaning the Battery Box and Soft Tray.

• To check if any acid is present in the Soft Tray (non-AGM batteries), simply press it softly. A strong smell from the Soft Tray may also indicate spilled acid. The battery can be filled again with acid collected from the Soft Tray. Always treat spilled battery acid as hazardous waste. Dispose of spilled battery acid according to the local and national regulations.

• At the beginning of each season or extensive travelling, check the Soft Tray for faults and replace if necessary.

• The cleaning of the Battery Box and Soft Tray should only be done after all power sources have been switched off, in order to prevent a hazardous situations.

Side opening battery box

The Battery Box is intended to accommodate an auxiliary battery in your motorhome. The Battery Box has a CE socket to connect to a 230 V power supply.

⚠ **WARNING:**
• Use precaution when mounting the battery, as batteries contain acid liquids which can cause severe injuries and damage when handled incorrectly. Refer to the instructions on the battery.
• No smoking is allowed in the area of the Battery Box!
• Please note that the CE socket has a max of 16 amp.

• This product meets the latest version of the EN 1648 part 1 and 2 standard.

Before placing the battery inside the Battery Box, the battery should be placed in either the battery bag or the Soft Tray and rested on the ground adjacent to the Battery Box. Carefully connect the electrical wires (the red cable attaches to the + pole and the black cable to the - pole of the battery).

Note: Note: Incorrect connection of the cables will cause a short circuit with potential hazardous consequences.

After mounting the terminals, lift the battery together with the Soft Tray into the middle of the Battery Box compartment. Push the battery to the back of the Battery Box. The battery is secured by a strap (figure A). When attaching the 230 volt cable on the CE socket,

the maximum recommended thickness of the cable is 10 mm. When closing the door, the attached cable is to be fed through the slot in the door.

The maximum battery size that can be fitted is 225mm high (including terminals) x 175mm deep x 353mm wide. The depth and width dimensions include the rim around the bottom used for securing the battery.

Note: Batteries that are not foot mounted, i.e. without a rim can still be fitted, but check first that they will fit within the battery box and can be secured before purchasing.

Figure A

Cleaning and maintenance

(Side mounted battery compartment)

• Use protective clothing and glasses when handling a leaking battery, and

Avoid direct contact to the skin, eyes and respiratory organ.

• Should a battery leakage occur, please act according to the instructions supplied by the manufacturer of the battery. Act with caution as caustic substances are present in the battery.

• Always remove the battery and the power cable before carrying out any maintenance of the product.

• Before removing the clamps switch off all electrical and gas appliances.

• Use a soft cloth or sponge and a non-acid/ abrasive detergent when cleaning the battery box, soft tray or bag.

• To check if any acid is present in the soft tray or bag, simply press it softly. A strong smell from the soft tray may also indicate spilled acid. Always treat spilled battery acid as hazardous waste. Dispose of spilled battery acid according to the local and national regulations.

• Before the camping season or extensive travelling, check the soft tray for faults and replace if necessary.

• The cleaning of the battery box and soft tray should only be done after all power sources have been switched off, in order to prevent a

hazardous situations.

Solar panel connection point or Solar panel fitment

Depending on specification, a solar panel connection point, or a solar panel and regulator, will be installed in the motorhome.

Solar Panel Connection Point

If a connection point only has been included in the motorhome harness, a solar panel using the provision must provide a fused and regulated output. From the provided connection the supply is taken to the EC400 power supply unit. This facility is designed to be used with a maximum solar panel size of 100 watts – if a solar panel (or panels) of output greater than 100 watts are required, please contact Sargent Electrical Services or the Swift Group for further advice.

Solar charge directed to the power supply unit can then be distributed to the leisure battery, vehicle battery, or each battery in turn. For further details of selecting which battery receives the solar charge, please see the EC400 series instructions. Please note that solar charge can only be directed to both batteries in this way if the System Shutdown button is ON – if System Shutdown is OFF, any available solar charge will be directed to the vehicle battery only.

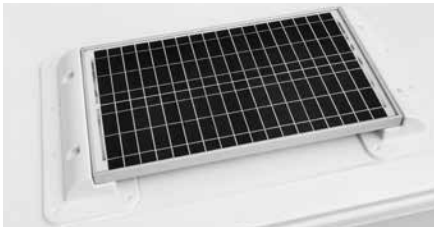
Solar panel installations should be undertaken by trained technicians who are familiar with the systems involved. Particular care should be taken when making connections to solar panels, which can generate high voltages ahead of a regulator when exposed to light. Depending upon the specification of the motorhome, the connection point will be presented in one of the following formats:

1. Solar panel connection point with EC400 series control panel and related power supply unit. In these installations two way connectors will be present close to the leisure battery, and/or at a high level within furniture (i.e. within a wardrobe, either visible or behind a removable cover). The output from a regulator, rated to suit the chosen solar panel, should be connected to this point.
2. Solar panel connection point -with EC400 series control panel and related power supply unit, and with roof mounted solar panel connection point. On some models, in addition to the connections detailed above which take a regulators output to the power supply unit, an additional harness and external connection box has been fitted. The intention of this link harness is to provide an electrical route between the inside of the motorhome body, and a solar panel installation on the roof of the motorhome.

The external connection box will be located towards the front of the motorhome roof, and within this connection box is a two way weatherproof connector, to which a solar panel or panels can be connected directly. Then, within a high level furniture locker, relatively close to the external connection box, two connectors will be found and this is where a regulator should be installed / connected. The first connector is the other end of the link harness from the roof mounted connection box, and this should be connected to the input connections of a solar panel regulator. The second connector should be connected to the output from the regulator, and this connection takes the output from the regulator to the power supply unit.

A Brown and Blue pair of wires will feature in the link from the roof providing the input, with a Red and Black pair of wires taking the regulator output to the power supply unit.

Factory fitted Solar Energy System



Depending on specification, your motorhome may be fitted with a solar panel of up to 120W, and if a solar panel is fitted then a suitable solar regulator will also be installed. This solar panel and regulator may provide additional

SOLAR PANEL

12v power whenever sunlight is available to the panel, and this will be directed to the EC400 power supply unit. Conditions allowing, and depending on the settings chosen in the EC400 power supply unit, the system can keep the leisure battery and vehicle battery 'topped up' during storage, and will provide a daily boost to the leisure battery when camping without a mains 230V supply.

Regulator operation

The regulator operates automatically, turning on and off as required to charge and operate. When the solar panel is exposed to a source is exposed to a source of sunlight the regulator tarts to operate. When the voltage from the panel reaches a usable level, the Panel Output LED will flash indicating that the battery is being charged (see battery charging above). If insufficient power is being generated by the solar panel the regulator will turn off. The regulator checks the solar panel output every 30 seconds and turns on/off as required. On overcast days when the solar panel output is minimal the regulator can still deliver a small charge, and in this mode the LED's are not illuminated to conserve power.

Control Panel

When the solar panel is operating the leisure battery voltage display on the control panel will increase, however this does depend on the amount of load placed on the system and the amount of power being generated by the solar panel at that time.

Battery charging

If a leisure battery is fitted and requires charging the Charge Status LED will illuminate. Depending on the state of charge of the battery this LED will illuminate red for bulk charge (14.4V output) or green for float charge (13.6V output). It may take a few hours to several days to charge the battery depending on its state of charge. When the battery is fully charged the regulator will turn off to prevent overcharging of the battery. If the mains charger is turned on to charge the leisure battery this can also cause the solar panel regulator is to tun off.

Power Supply Unit

The PSU does not need to be switched on (shutdown button in) for the solar panel to charge the battery, but if the PSU has an LCD display then this can be used to see the increase in battery voltage as the solar panel charges the battery. During storage the PSU should be shutdown (shutdown button out).

Maintenance and cleaning

The solar panel will require cleaning periodically in order to maintain the performance of the panel. A caravan, car shampoo or simple soap can be used, but do not use abrasive cleaners.

Accessory harnessing

Alarm Power Supply

A connection exists within the motorhome harness, which can be used as a power supply for an alarm or tracking system. For security reasons, information regarding this is not published; please contact your dealer for further information.

Satellite Power Supply

Dependant on specification, in many motorhomes a power supply harness is included for use with roof mounted satellite systems. This power supply is terminated in a 4-way connector marked 'SATELLITE', and carries 12v positive, 12v negative, and a signal which can be used to detect when the vehicle engine is running. (The engine run signal is required by some systems to automatically retract satellite dishes.

In addition, on Kon-Tiki and E700 models which have a decoder / receiver position. At this position an additional 230v socket is present for use with a decoder / receiver, and a 12v supply is present (2-way connector, 12v positive and 12v negative), which can be used with an inverter (not supplied) to power a decoder/receiver when a mains supply is not available.

Tow Bar Connection

The addition of tow bar electrics requires an electronic interface, to prevent problems with road lighting on the base vehicle. At the rear of the motorhome, a power supply is included in the motorhome harness for use with a tow bar interface. Please ask your dealer about the tow bar and tow bar harness kit that is available for use with this connection.

Generator usage

Caution should be used before connecting a generator to your motorhome.

⚠ **WARNING:** Never start or stop the generator while electrical loads are connected and switched on. Start the engine, let it stabilise, then connect the electrical load. To stop engine, disconnect the electrical load and let engine stabilise before switching off.

Whilst some generators use invertor technology, others use a more basic principle to generate the 230v supply. Preference should be to choose a generator which produces a consistent sinusoidal wave form with accurate voltage control.

The reverse polarity warning light may illuminate when using a generator. This is a normal side effect when using some types of generator. Instead of connecting the neutral and live conductors 110v above earth. This 110v difference causes the neon polarity indicator to illuminate.

In most cases it is safe to use a generator, but please consult the generator handbook for further information.

Habitation relay

Habitation relays are fitted to motohomes by manufacturers to comply with the following legislation:

1. The Road Vehicles (Construction and Use) Regulations 1986 Regulation 60 - Radio interference suppression
2. Council Directive 72/245/EEC of June 20, 1972 amending for the purpose of their adaptation to technical progress, relating to the radio interference (electromagnetic compatibility) of vehicles and Council Directive 2007/46/EC on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers.

HABITATION RELAY

A habitation relay must be fitted by manufacturers, safe guarding the consumer, the purpose of the relay is to disable non-homologated appliances/components whilst the vehicle is in transit.

Unintentional electromagnetic energy can be created by non-homologated devices within the habitation compartment, which could cause a malfunction of the base vehicles electronic systems/components, including safety critical items such as air bags, ABS braking etc.

In your motorhome the habitational relay is within the EC400 / 450 power supply unit.

The Swift Group recommends that electrical fault finding is undertaken by a trained Technician familiar with the systems involved. The basic checks below are therefore limited to items that can be checked without the use of tools etc. If in any doubt please consult a Swift dealer.

Power Supply	
Fault	**Remedy**
No 230v output from PSU	See Sargent EC400/EC450 information
No 12v output from PSU	See Sargent EC400/EC450 information
Reverse Polarity light illuminated	See Sargent EC400/EC450 information
Control Panel Problems	See Sargent EC400/EC450 information

Appliance Not Operating	
Fault	**Remedy**
Error code or fault light displayed on appliance (eg fridge LCD display)	Check appliance specific information for next steps
No display at appliance controls	Check power supplies are available (electric hook up, charger operating, battery in good state of charge). Majority of appliances will not be operational when engine is running. Ensure control panel is ON. Check appropriate fusing in Power Supply unit

Internal Lighting	
Fault	**Remedy**
Lighting not operational	Check power supplies are available Check control panel is ON, and that CABIN LIGHTS button has been pressed Locate furniture mounted switches, where appropriate Check fuses on Power Supply Unit Determine if light is LED or Tungsten / Halogen bulb, or Fluorescent tube – check and replace bulb if appropriate

Road Lighting	
Fault	**Remedy**
Dashboard warning light illuminated / groups of road lights inoperative	Check all bulbs are located correctly in bulb holders (especially those recently replaced). See bulb replacement information in Service Book If Tow Bar fitted check trailer lighting / disconnect trailer to determine if this is the cause of the fault. Check fuses in Fiat dash for main road lighting (see Fiat handbook for details of which light groups are fused) Check fuse in Power Supply Unit for auxiliary marker lights (Amber side markers, Luton / upper rear markers)

VLM Fusebox Rio/Esprit

Depending on specification, your motorhome may be fitted with a secondary VLM-4 fusebox, which is designed to work in conjunction with the Fiat / Peugeot base vehicle. The secondary VLM-4 fusebox allows the base vehicle to function with the LED rear lights and still inform the user if the directional indicators are functioning or not, via the base vehicle dash.

If a towed trailer is attached to this motorhome then the VLM-4 fusebox will still allow the status of the vehicle directional indicators to be relayed to the user along with informing the user if the directional indicator on the towed trailer are functioning correctly.

Electric Step Operation (When fitted)	
Fault	**Remedy**
Step will not automatically retract with engine start	Check fuses in Power Supply Unit. Check mechanical condition of step – clean / lubricate if appropriate. Check other functions that are linked to the running of the vehicle engine (i.e. fridge 12v operation). If these are also inoperative contact dealer.
Step does not respond to furniture switch	Check fuses in power supply unit Check mechanical condition of step – clean / lubricate if appropriate. It is possible to link the operation of the step to the lock/ unlock commands from the central locking keyfob. If this feature is enabled on your motorhome, check if operation of the step via the central locking keyfob is possible. To enable / disable the keyfob feature contact your dealer.

Power Supply	
Fault	**Remedy**
Fresh water level sensor gives incorrect readings	Use floor hatch within motorhome to access top of water tank, remove sensor (4-screws) and clean probes If problems persist, dealer assistance required for further fault finding.
Waste water level sensor gives incorrect	If possible, from below motorhome remove level sensor from top of waste tank, and clean probes. Alternatively, clean waste tank internal surfaces by flushing through with water or cleaning agent. If problems persist, dealer assistance required for further fault finding.

Battery Discharge	
Fault	**Remedy**
Leisure battery discharging earlier than anticipated	If appropriate to battery, check condition and top-up battery fluid if required Have condition of leisure battery checked by dealer or tyre/exhaust/battery specialist If motorhome is not in use, ensure 'SYSTEM SHUTDOWN' button on Power Supply Unit is being used to isolate all circuits If motorhome is in use, see consumption table in handbook – are several items perating simultaneously / is total load likely to cause discharge. Check charger is operational when mains hook up is present, and that the charger is allowed sufficient time to replenish battery / batteries.
Vehicle battery discharging earlier than anticipated	If appropriate to battery, check condition and top-up battery fluid if required Have condition of leisure battery checked by dealer or tyre/exhaust/battery specialist If motorhome is not in use, see base vehicle handbook section headed 'periods of inactivity'. Consider use of vehicle battery isolator If motorhome is in use, Power Supply Unit configured to charge / maintain both leisure and vehicle batteries. (Contact dealer for further assistance if unsure)

Audiovisual Equipment	
Fault	**Remedy**
Rear view camera system inoperative when reversing (if fitted)	Check if camera system can be switched on manually, using power button on rear view mirror.
	Check Reverse Lights are operational on rear of motorhome. (Check base vehicle fuses if reverse lights are inoperative.)
Rear view camera system inoperative whether moving forward or reversing (if fitted)	Check fuses in habitation area fusebox (Power Supply Unit)
Radio switches off intermittently	Radio will not remain on indefinitely when vehicle ignition is switched off. Please see below or the Fiat / Peugeot handbook.

Cab radio - timer Settings

On all vehicles fitted with a Fiat / Peugeot radio, the amount of time the radio will stay on can be altered. To do this please follow the instructions below:

Radio VP1

Procedure for setting radio switching off time after ignition-off.

1. Switch on the radio
2. Press MENU to access the menu.
3. Select SYSTEM SETTINGS and press OK.
4. Scroll to POWER OFF and tick the POWER OFF with 180min. Delay.
5. Press OK
6. Press MENU on the display.

With 180 showing on the display, the setting is complete and the radio will remain on for 3 hours.

Radio VP2

Truma Combination Boiler

The Truma Combination Boiler has been designed to run on gas or electric power and the optimum performance is obtained when used in **dual fuel mode, that is running on gas and electric at the same time.**

Running in dual fuel mode has the following benefits:

- Fastest possible heat up time, the 2KW gas burner combines with a 1.8KW electric element to provide 3.8KW of energy to heat your hot water and warm your motorhome.
- The intelligent heat management system automatically senses when the water and room are nearing the required temperature and then automatically turns off your gas burner and operates solely electric power, conserving your gas.
- As hot water is used or the room cools the Truma combination heater will continue to operate on electric only until a point where the demands necessitate that additional gas power is required. An example for such a demand could be for instance if the exterior door was left open and the room temperature dropped by 10 degrees in the space of a few minutes, in this case the intelligent heat management system would decide that the best way to get the room back to the required temperature would be to use both gas and electric at the same time.

Operating the Truma Combination system on electric or gas only will result in longer heat up times for hot water and the room temperature in comparison to operating on dual fuel.

Operating on electric only may not in all cases maintain a comfortable room temperature especially in colder conditions.

The intelligent heat management system operation in dual fuel mode and allow the Truma Combination boiler to prioritize the electric power source over your gas, which all conserve your gas supply.

Truma Digital Timer Control

Depending on the specification of your motorhome, the Truma CP-Plus controller may be fitted to control the operation of the Truma Combi appliance.

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.

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

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.

For clarity only the instructions relevant to combi heating are included in this guide. Instructions relevant to air conditioning should be requested if an appropriate air conditioner is fitted.

Display and control elements

1 - Display

2 - Status line

3 - Menu line (above)

4 - Menu line (below)

5 - Display of mains voltage 230 V (shore power)

6 - Display timer

7 - Settings / values

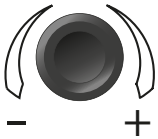
8 - Control knob / push button

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.

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.

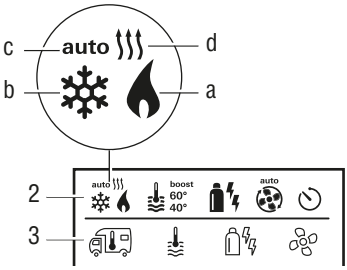
Note: Previously set values / operating parameters become active again after the system is switched on.

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 range 5 - 30 °C
(1 °C steps)

a = heater * – Heater is switched on.

Air conditioning unit (not normally fitted)

Settable temperature range 16 - 31 °C (1 °C steps)

b = cool *
(Air conditioning unit is switched on)

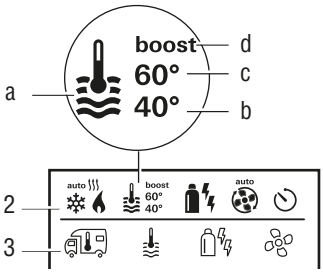
c = auto
(Air conditioning unit is set to automatic)

d = hot
(Air conditioning unit is in heating mod.)

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

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)

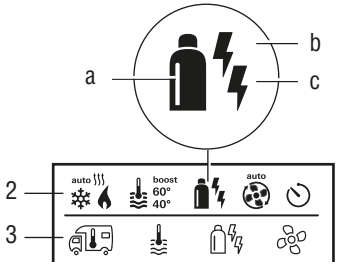
c = 60°
(Warm water temperature 60 °C)

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	Gas
b	EL 1	Electro
b + c	EL 2	Electro
a + b	Mix 1*	Gas + Electro
a + b + c	Mix 2*	Gas + 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.

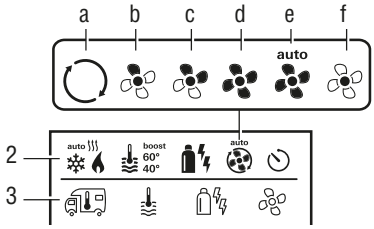
Malfunction in the combustion process (e.g. lack of fuel): Combi Gas

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.

Select fan level

When the heater / air conditioning 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
–	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.

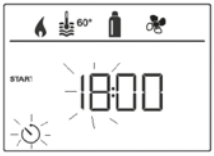
Set timer

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

Note: 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.



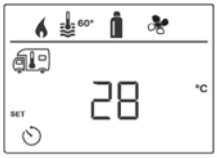
Enter end time point

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

Note: 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.

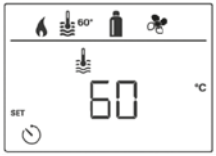
Set the room temperature

- 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.



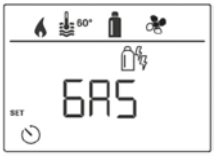
Set the warm water level

- Click to change to the setting level.
- Use the control knob / push button to select the required warm water level.
- Click 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.

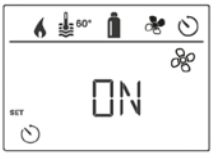


Select fan level

- 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.



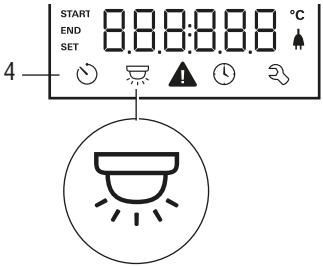
Note: The timer remains active, even for several days, until it is deactivated (OFF).

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 if an air conditioning unit is connected



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

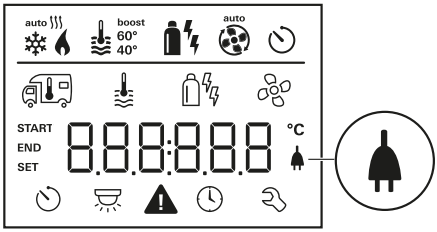
There are 5 background lighting levels to choose from.

Change language

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

Display mains voltage 230 V

The symbol indicates that 230 V 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

Note: In this case, the warning is not acknowledged on the control panel and the warning symbol remains. The control panel remains in the warning status. Devices connected to the control panel can be operated.

Malfunctions

In the case of a malfunction, 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.

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

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.

TRUMA FAULT FINDING

SYMPTOM	CAUSE	RECTIFICATION
Gas operation		
When switching on, the heater does not operate.	• No 12 V supply voltage.	• Check the power supply (operation voltage min. 10.5 V). • Check the water heater fuse (refer to mainanance “Fuses”).
	• Window open.	• Close any windows above the cowl.
When switching on, the heater does not operate and the red lamp lights up after approx. 30 secs.	• Cowl cover fitted.	• Remove cowl cover and / or clear any obstruction.
	• No gas supply.	• Check gas valves and gas bottle.
	• Incorrect gas pressure.	• Check gas valves and gas bottle.
	• Air in the gas supply.	• To unlock (and purge air), switch off the appliance, wait 5 minutes, and switch on again.
Heater operates for a prolonged time and then the red lamp lights up.	• Over temperature thermostat operated.	• Check water content, refill if required (close drain valve). • To unlock, switch off the appliance, wait 5 minutes, and switch on again.
Electrical operation		
When switching on, the heater does not operate.	• No 230 V supply voltage. • Over temperature thermostat operated.	• Connect the motorhome to the site supply and / or check residual current circuit breaker. • Check water content, refill if required (close drain valve). • The electrical heating element is fitted with an excess temperature cut-out. In event of a fault, switch off at the control panel, wait 10 minutes, then switch on again.
	• Too slow warm-up in position 850 W	• Please contact the Truma Service.
Water supply		
Water drips from the safety/ drain valve.	• Water pressure to high.	• Check water pressure (max. 2.8 bar), use a pressure reducer when connected to central water supply.
When opening the cold water tap, hot water tap comes out.	• Hot water flows back through the cold water supply.	• Fit a no-return valve in the cold water supply (refer to installation instructions “Water connection”).

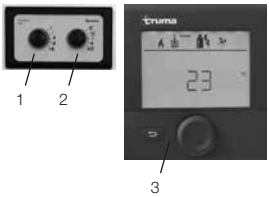
If fault persists please contact the nearest Truma Service (see Truma Service Booklet or www.truma.com).

Troubleshooting instructions (Combi Gas heater)

Error code	Cause	Remedy
#17	• Summer mode with empty water container • Warm air outlet blocked • Circulated air intake blocked	• Switch device off and allow to cool. Fill boiler with water • Check each of the outlet openings • Remove the blockage from the circulated air intake
#18	• Gas pressure regulator frozen • Too much butane in the gas cyclinder	• Use the regulator heating (EisEx) • Use propane (Butane is unsuitable for heating, especially at temperatures below 10°C
#21	• Room temperature sensor or cable faulty	• Please contact the Truma Service
#24	• Potential under-voltage battery voltage too low <10.4V	• Charge battery
#29	• Heating element for FrostControl has a short circuit	• Disconnect the heating element plug on the electronic control unit. Replace heating element
#41	• Electronics are blocked	• Please contact the Truma Service
#42	• Window above the cowl is open (window switch)	• Close the window
#43	• Over-voltage > 16.4V	• Check the battery voltage and voltage sources eg. the charger
#44	• Under-voltage battery voltage too low < 10.0V	• Charge battery. Replace any old batteries
#45	• No 230V operating voltage • Faulty 230V fuse • Overheating protection has triggered	• 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	• Gas cyclinder or quick-acting valve in the gas line closed	• Check the gas supply and open the valves
#212	• Combustion air intake or exhaust outlet closed	• Check the openings for soiling (snow, ice, leaves etc) and remove
#255	• No connection between the heater and the control panel • Control panel cable faulty	• Please contact the Truma Service

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

Truma Combi 4E/6E



1. Control panel
2. Power selector switch
3. Digi-plus controller (see previous section)
4. Room temperature sensor
5. Cold water connection
6. Hot water connection
7. Gas connection
8. Hot air outlets
9. Recirculated air intake
10. Waste gas discharge
11. Combustion air infeed
12. Electronic control unit
13. Water container (10 litres)
14. Burner
15. Heat exchanger
16. Power electronics
17. Heating elements 230V
18. Overheating switch 230V

For details of the Digi-plus Combi Controller (3) see previous section, this section refers to operation of the combi with separate control panel (1) and power selector switch (2).

Function description

The liquid gas heater Combi E is a warm-air heater with integrated hot water boiler (10 liter volume). The burner operates fan-supported, which ensures trouble-free function even when on the move. The unit also has heating elements for electrical operation.

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 options are available for operating the unit.

- gas operation only Propane / Butane for autonomous use
- electrical operation only 230 V for stationary use on camp sites
- 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.

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

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

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 operation, 230 V electrical operation is preferred if the power requirement is low (e.g. for maintaining the room temperature). The gas burner is not enabled until the power requirement is higher, and is the first to switch off during heat-up operations.

Summer operation (boiler operation only)

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

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 900 W (3.9 A) or 1800 W (7.8 A) 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.

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.

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.

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 openings 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.

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!

Taking into operation

Heating is possible without restrictions with gas, electrical and mixed operation, with or without water.

Check to make sure the cowl is unobstructed. Be sure to remove any covers that may be present.

⚠ **WARNING:** Care should be taken to ensure adequate ventilation of the flue at all times. It is inadvisable to inhale exhaust fumes.

For operating on gas turn on gas cylinder and open the shut off valve at the manifold.

For operating on electric operate the heater / heating system heater switch on the power supply unit. See page 73.

Summer operation (boiler operation only)

Mixed operation (gas and electrical) is not possible in summer mode. With this setting the unit automatically selects electrical operation with a preselected power setting of 900 W or 1800 W.

Winter operation

- **Heating with water temperature monitoring**
  The device automatically selects the required power setting in accordance with the temperature difference between the temperature selected on the control panel and the current room temperature. When the room temperature selected on the control panel is reached, the heater switches back to the smallest setting and heats the water to 60 °C. Once the water temperature is reached, the heater switches off and the yellow LED (p) goes out. The warm air fan can continue to run in order to cool the unit (after-run).
- **Heating without water temperature monitoring**
  The device automatically selects the required power setting in accordance with the temperature difference between the temperature selected on the control panel and the current room temperature. Once the room temperature selected on the control panel has been reached, the heater switches off. The warm air fan continues to run at slow speed until the outgoing air temperature (on the unit) has fallen to 40°C or less.
  If the boiler is filled, the water will automatically be heated at the same time. The water temperature is then dependent on the heating output being given off, and the duration of heating required to reach the desired room temperature.
- **Heating with drained water system**
  Depending on the operating mode, the unit will automatically select the required power level according to the temperature difference between the setting on the control panel and the current room temperature. Once the room temperature selected on the control panel has been reached, the heater switches off. The warm air fan continues to run at slow speed until the outgoing air temperature (on the unit) has fallen to 40°C or less.

Filling the water heater

Switch on power for water pump (main or pump switch).

Open hot water taps in kitchen and bathroom, (set preselecting mixing taps or single-lever fittings to “hot”). Leave the fittings open for as long as it takes for the boiler to displace the air and fill up, and the water to flow without interruption.

If just the cold water system is being operated, without using the water heater, the heater tank also fills up with water. To avoid frost damage, the boiler must be drained through the drain valve, even if the boiler was not operated.

When connecting to a central water supply (rural or city mains), a pressure reduction valve must always be installed to prevent pressures above 2.8 bar from developing in the water heater.

Draining the water heater

Switch off power to water pump (main or pump switch).

Open hot water taps in kitchen and bathroom.

In order to check the water that is flowing out, place an appropriate container (capacity 10 litres) beneath the drain valve.

Open the drain valve which is situated next to the boiler by lifting the yellow handle into the vertical position.

Check whether all of the water in the boiler (10 itres) has been drained into the container via the drain valve.

There shall be no claims under guarantee for damage caused by frost!

Maintenance

Only original Truma parts may be used for maintenance and repair work! Materials in the device which come into contact with water are suitable for use with drinking water (see manufacturer‘s declaration: www.truma.com / downloads / manufacturer‘s declaration).

Bio-film, deposits and limescale must be removed using chemicals to protect the unit from infestation by microorganisms.

Only chloride-free products must be used in order to prevent damage to the unit.

The effectiveness of the use of chemicals to combat microorganisms in the unit can be increased by heating the water in the boiler to 70 °C at regular intervals.

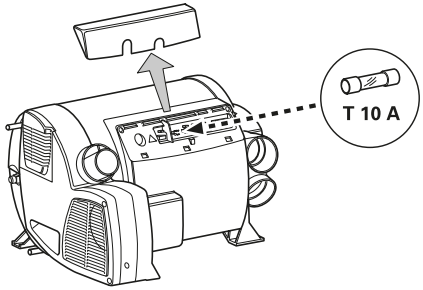
The unit must stay switched on for at least 30 minutes and no warm water may be removed. The residual heat in the heat exchanger will heat the water up to 70 °C.

Fuses 12 V

The fuse is in the electronics beneath the connection cover.

Replace the unit’s fuse only with an identical fuse.

Device fuse: 10 A – slow – (T 10 A)



Fuses 230 V

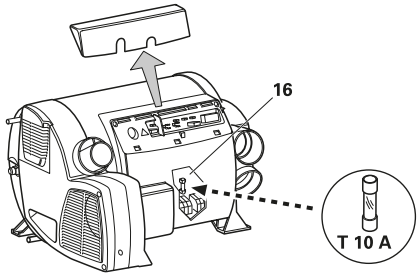
The fuse and the power supply lines must only be replaced by an expert!

The unit must be disconnected from the mains

(all poles) before opening the electronic housing lid.

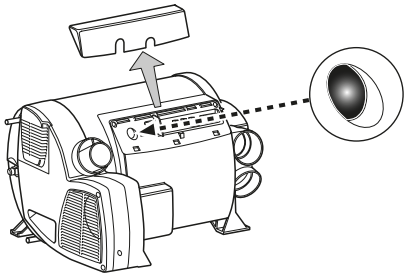
The fuse is in the power electronics (16) beneath the electronic housing lid.

This fine fuse must always be replaced with a fuse of the same type: 10 A, slow, interrupting capacity “H”.



Overheating protection 230 V

The 230 V heating facility has a mechanical overheating switch. If the 12 V power supply is interrupted during operation or during the after-run period, for example, the temperatures within the unit could activate the overheating protection.



To reset the overheating protection, allow heater to cool, remove connection cover and press red reset button.

Technical data

Determined in accordance with EN 624 or Truma test conditions

Device category

$I_{3\ B/P}$ in accordance with EN 437

Type of gas
Liquid gas (propane/butane)

Operating pressure
30mbar (see type plate)

Water contents
10 litres

Heating up time from approx 15°C to 60°C
Boiler approx 20 minutes (measure according to EN15033)
Heater + boiler approx 80 min

Water pressure
max 2.8 bar

Rated thermal output
(automatic output levels)

Gas operation
Combi 4 E: 2000 W / 4000 W
Combi 6 E: 2000 W / 4000 W / 6000W

Electrical operation
Combi 4 E / Combi 6 E: 900 W / 1800 W

Mixed operation (gas and electrical)
Combi 4 E: max. 3800 W
Combi 6 E: max. 5800 W

Gas consumption

Combi 4 E: 160-320 g/h
Combi 6 E: 160-480 g/h

Readiness-heat power requirement Combi 4 E / Combi 6 E:
Gas operation 5.2 g/h

Air delivery volume
(free-blowing without hot-air pipe)

Combi 4 E:
with 3 hot-air outlets max. 249 m3/h
with 4 hot-air outlets max. 287 m3/h

Combi 6 E:
with 4 hot-air outlets max. 287 m3/h

Current input at 12 V
heater +boiler

Combi 4 E: Short-term max. 5.6 A (average power consumption 1.1 A)
Combi 6 E: Short-term max. 5.6 A (average power consumption 1.3 A)
Heating up of boiler: 0.4 A
Stand-by: 0.001 A
Heating element FrostControl (optional): maximum 0.4 A

Troubleshooting

Fault	Cause	Rectification
After switching on (winter and summer operation) none of the controls are operational.	- No operating voltage. - Device fuse or vehicle fuse defective.	- Check 12 V battery voltage, charge if necessary. - Check all electrical plug connections. - Check the unit or vehicle fuse and replace if necessary (see fuses).
The unit is switched on, but the heater does not operate.	- The temperature setting on the control panel is lower than the room temperature.	- Select higher room temperature at the control panel.
After operating for a longer period of time, the heater switches to failure.	- Summer operation with empty water tank. - Hot-air outlets blocked. - Recirculated air intake blocked. - Gas pressure regulator iced up - Butane content in the gas cylinder too high.	- Switch device off and allow to cool. Fill boiler with water. - Check individual outlet apertures. - Remove blockage from recirculated air intake. - Use regulator heating (EisEx). - Use propane (at temperatures below 10 °C in particular, butane is unsuitable for heating purposes).
Fan continues to run after controls switched off	- Unit was switched off during failure. After-running is active in order to reduce the unit's temperature. - After-running is active in order to reduce the unit's temperature.	- After-running will switch off after a few minutes. Only at that time will a failure reset be possible (switch off and then back on). - No failure. After-running will switch off after approximately 5 minutes.
When the device is switched on in electrical operation, the heater does not heat up.	- No 230 V operating voltage. - 230 V fuse defective. - Overheating protection has activated	- Check 230 V operating voltage. - Check 230 V fuse and replace if necessary. - Reset overheating protection. Allow heater to cool, remove connection cover and press reset button.

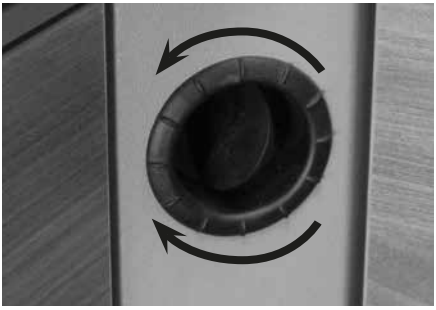
If these measures do not remove the failure, please contact the Truma Service Centre.

BLOWN AIR OUTLETS

Butterfly outlets

The butterfly plate may be opened or closed to control the quantity of air and may also be twisted around to control direction.

For uniform distribution, outlets nearest the heater should be closed more than those further away.



Blown air

The air ducting outlets are generally of the butterfly type and may be opened or closed by adjusting the butterfly valves. Twisting the disc in its housing directs the flow in the direction required.

Some outlets do not feature butterfly valves and must remain fully open.

One outlet on each leg of the air ducting layout must be kept open at all times. Under no circumstances should the air ducting outlets be blocked.

Alde 3020 - 113 Colour Touch Operating Instruction

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.

1. Starting the system

i. Both the control panel and boiler are off.

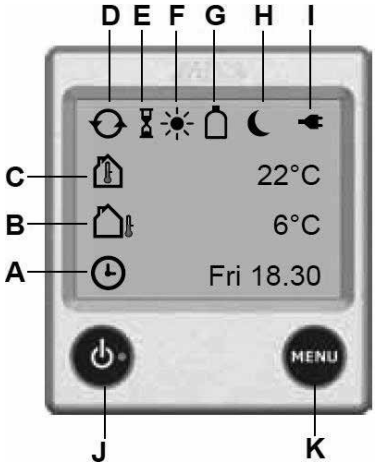
ii. To start the system, press the Power button on the control panel. The Splash Screen is displayed and green LED is lit. The boiler will now start with the previously saved settings (factory settings by default).

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

2. Standby screen

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

Note: 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
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. Circulation pump
Central heating circulation pump is active.

E. Delayed start
Delayed Start/Cycle is enabled.

F. Day mode
Day Mode active.

G. Gas cylinder status
Gas Cylinder Status. Full/empty and active EisEx shown. (Additional accessories required).

H. Night mode
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.

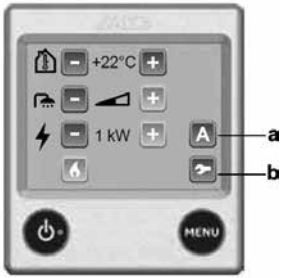
J. Menu button
Press to access Main Menu from Standby Screen or Settings Menu.

3. 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.

i. Standby Screen. Press MENU button.

ii. Main Menu.
a. What's Activated Menu
b. Settings Menu



Desired Room Temperature

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

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

Note: 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.

Tip! 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.

Note: 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.

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

ii. 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.

iii. 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.

iv. 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.

i. 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.

ii. Adjust by pressing Plus or Minus button.

Max current draw from 230 V supply is 4.5 A on 1 kW, 9 A on 2 kW, 14 A on 3 kW. 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.

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

Use both gas and electric heating for best performance.

4. 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.

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

5. 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.

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

ii. Press down arrow, until Reset button is displayed.

iii. Press the Reset button to proceed

Setup expansion tank pump

To use the 12 V circulation pump in the expansion tank, you must set it up. This is not a default factory setting.

Note: Under factory settings, the system will use the 12 V inline circulation pump by default.

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

ii. Press down arrow, until Circulation Pump button is displayed.

iii. Press Circulation Pump button, select Expansion Tank Pump to proceed.

Setup Antimicrobial function

To actively kill Legionella, setup 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.

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

ii. Press down arrow, until Antimicrobial button is displayed.

iii . Press Antimicrobial button to proceed.

6. Maintenance

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

Note: Consider removing the Alde control panel over winter, if the vehicle is to be kept in storage and is susceptible to damp.

Trouble shooting

Any error messages will be displayed on the Standby Screen. Error messages can be cleared by switching off 12 V 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 12 V supply to the boiler, it should be above 12 V.
- Check the 12 V 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 1 cm 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.
- It should be 1 cm 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”

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

“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**

Alde Heat Exchanger

The Kon Tiki range of motorhomes is fitted with an Alde heat exchanger, which transfers heat from the engine of the motorhome (when available) to the heating system in the habitation area of the motorhome.

The diagram below shows a typical heating circuit, with the heat exchanger highlighted. The heat exchanger provides a link, via a series of plates, between the engine coolant fluid from the base vehicle, and the glycol fluid in the Alde heating circuit: At no time though do these two fluids mix, so the levels of each fluid must be maintained separately.

To use the Heat Exchanger

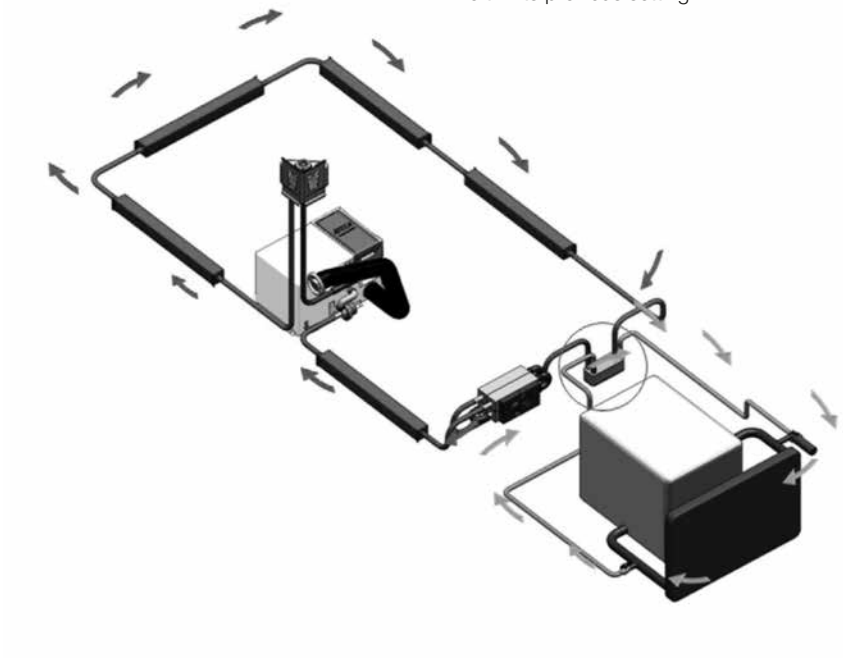
The Alde heating system must be switched on, while the motorhome engine is running, to use the heat exchanger. The following settings on the Alde control panel are suggested:

Turn Alde heating system ON using power button at bottom left of panel

Press MENU button at bottom right of panel

Using the MINUS (-) and PLUS (+) touch screen settings on the top row of the panel (Thermometer symbol) to select a desired room temperature.

During en-route use the water temperature setting on the second row of the touch screen (Shower symbol) is not relevant, and can be left in its previous setting.



Alde Compact 3020

⚠ **WARNING:** Alde can accept no liability whatsoever for damage or injury resulting from failure to observe these instructions.

Specific Use

These instructions are approved for the Alde 3020 Compact HE boiler fitted in caravans, motorhomes or buildings in accordance with CE 0402 no. SC0653-13, and have the E5 mark for installation in vehicles in accordance with ECE R122, no. 00 001 and R10, no. 04 166, for use in central heating and hot water systems.

The boiler is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and/or knowledge, unless they have been given instruction or are supervised.

The term “specified use” also covers observance of the operating and installation instructions.

The Alde 3020 Compact HE boiler must be installed or repaired by a competent person in accordance with current local regulations.

In the unlikely event that your boiler develops a fault, switch off the boiler and contact Alde, or your dealer or installer.

Operating and installation instructions for the Alde control panel are supplied separately.

The owner is always responsible for maintenance and arranging inspection.

Boiler Design

The boiler’s internal heat exchanger consists of three concentric cylinders; the combustion chamber, the central heating cylinder and the hot water cylinder.

The combustion chamber is made from aluminium, and is divided into two halves by a baffle plate, with the burner head located in the top half, and the flue gases venting through the bottom half.

The combustion assembly is fixed to the end of the internal heat exchanger. It consists of the burner, combustion fan, gas valve, air intake and exhaust ducts, and gas line.

Two electric heating elements are sealed inside the central heating cylinder, one for 1 kW, one for 2 kW.

Gas Heating

When gas heating is set to on, the combustion fan starts to revolve. Once the correct speed is achieved (in rpm), a signal is sent to the PCB for the burner to be lit. The gas valve opens, passing gas, and the ignition module on the PCB generates sparks at the electrode on the burner head.

When the burner ignites, a flame supervision device signals the ignition module to cease sparking. The burner fires until the boiler or room thermostat reach the setpoint.

Should the burner flame out unexpectedly, the FSD detects this and attempts to reignite (for about 10 seconds), before shutting down and raising a fault code.

Note: Listen carefully to the ignition sequence of the boiler. You should hear the whirl of the combustion fan, the clunk of the gas valve and the tick-tick of the ignition module.

Electric Heating

When electric heating is set to 1, 2 or 3 kW, relays on the PCB trip, feeding the 230v supply to the electric heating elements. These are controlled by the same programme as the gas heating.

Domestic Hot Water

The combi-type boiler automatically produces hot water. Heat is emitted from the central heating cylinder into the hot water cylinder. If the hot water cylinder is empty, the air is heated but no damage can result.

Note: 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 will still have hot water.

⚠ **WARNING:**

- The boiler must not be switched on if there is no heat transfer fluid (HTF) in the system.
- Always drain down the freshwater system if there is risk of frost; in winter, for example. You may continue to use the boiler with no freshwater in the system, as required; no damage can result
- Always replace the HTF in accordance with the antifreeze product's lifespan. . If in any doubt, replace the HTF after 2 years.
- Only sterilise the freshwater system with a product suitable for stainless steel.
- Do not place stowage in the boiler compartment.
- Do not position awnings, tents or other enclosures around the flue terminal.
- Do not obstruct the flue. Be careful not to flood the flue when washing the vehicle.
- The gas heating must not be used when refuelling the vehicle at the service station or related facility.

Domestic Hot Water

Being a combi-type boiler, the Alde 3020 Compact HE has an integrated, stainless steel hot water cylinder that holds approximately 8.4 litres of freshwater.

The boiler can produce around 12 litres of 40°C warm water per 30 mins (at a cold water temperature of 10°C). If only the electric heating is used, this capacity is slightly reduced.

The hot water should not be used for drinking or cooking.

Always flush out the hot water cylinder before use, especially when it has stood empty for some time. Any steriliser products should be suitable for use with stainless steel. Avoid steriliser products containing sodium hyperchlorite, for example, as these will cause severe corrosion damage to the hot water cylinder. Read the product label or contact the product manufacturer for details.

When the hot water cylinder is in continuous use, it should be drained and refilled once a month. This recreates the air cushion in the hot water cylinder that absorbs pressure surges.

Tip! If continuously using the hot water cylinder in a hard water area, fit an inline scale inhibitor to minimise the effects of limescale.

Target hot water temperature is greater than 50°C in normal operation, to prevent the growth of Legionella. Over 50°C , the hot water will be heated to the maximum achievable temperature at the time. This allows the hot water to achieve disinfection temperatures, and increases warm water performance.

If scalding hot water temperatures are a concern – such as with the young, elderly or infirm – thermostatic mixing valves (TMVs) can be fitted, and may be required by local regulations.

⚠ **WARNING:** Always drain down and completely empty the hot water cylinder when there is risk of frost, unless the vehicle is explicitly stated to be self-winterising by the vehicle manufacturer.

Failure to drain the hot water cylinder when there is a risk of frost may result in frost damage, and is not covered under warranty.

Draining Freshwater

1. Switch off the water pump.

2. Open all water taps, showers, etc.

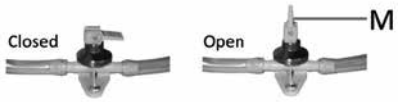
3. Open the safety/drain valve by lifting the yellow tab (Fig 1 [M]), or by turning the blue knob (Fig 1 [K]) 90°.

4. The system will drain directly below the vehicle through the clear plastic hose on the safety/drain valve. Check that all water has emptied out (7–10 litres). Leave the valve in the open position until the next time the hot water cylinder is used.

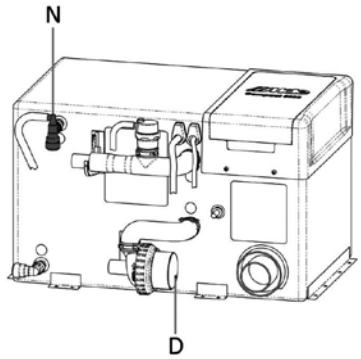
Note: Check that the red breather valve (Fig 1[N]) is allowing air to enter the hot water cylinder, when it is being drained, and that the clear plastic hose is not obstructed.

Figure 1

Open the manual safety/drain valve



Opening the safety/drain valve



Heat Transfer Fluid

The central heating system is filled with heat transfer fluid (HTF), a solution of 50% ethylene glycol antifreeze and 50% water.

The antifreeze manufacturer will have a maximum water hardness recommendation. Read the product label or contact the product manufacturer for details.

Note: For re-filling Alde recommends antifreeze meeting VAG G12++ or G13 specification, and deionised water (0 ppm).

50:50 ethylene glycol antifreeze and water will protect against frost down to -35–37 °C. A refractometer and/or hydrometer can be used to measure the strength of the antifreeze solution.

Corrosion protection will vary depending on the lifespan of the antifreeze. Read the product label or contact the product manufacturer for details.

⚠ **WARNING:** Always replace the HTF in accordance with the antifreeze product's lifespan. If in any doubt, replace the HTF after 2 years.

The corrosion inhibitors found in ethylene glycol antifreeze may not be cross-compatible. When topping up or replacing the HTF, ensure the new antifreeze is compatible with the current antifreeze product. Read the product label or contact the product manufacturer for details.

⚠ **WARNING:** As a rough guideline, blue and red antifreeze products are not compatible with each other, but VAG G12++ and G13 spec antifreeze (purple/magenta) is compatible with both.

Failure to fill with suitable HTF may result in severe damage to your Alde system, and is not covered under warranty.

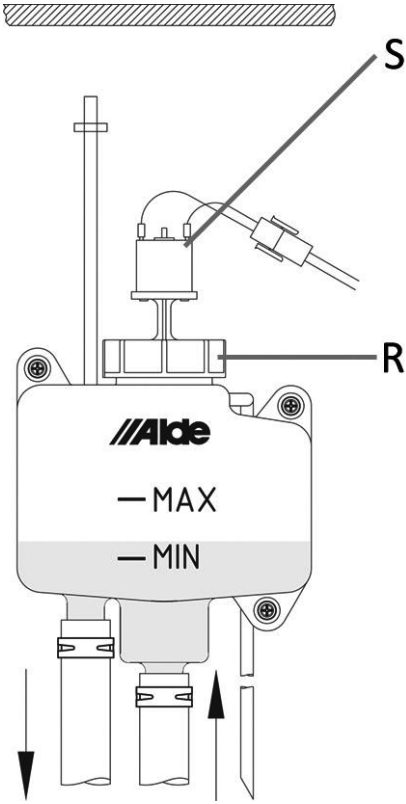
Filling

The central heating system is filled with HTF through the expansion tank, either by hand, or using the Alde service pump. Any containers used for handling or storing the HTF should be checked first, and must be visibly clean to avoid introducing contaminants or foreign objects into the system.

Alde recommends using the Alde 1900-811 or 839 twin-motor service pump to fill the system.

To fill the system by hand, unscrew the expansion tank cap (Fig 2 [R]), and lift the circulation pump (Fig 2 [S]) out of the tank (if applicable). Carefully pour the HTF into the tank, and repeat until the fluid level is about 1 cm above the MIN mark when cold.

Figure 2



Central Heating

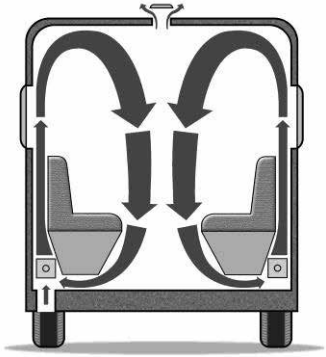
The boiler is set to an upper limit temperature of 85°C, i.e., the temperature of the heat transfer fluid (HTF) as it circulates around the pipes, radiators, convectors, et al.

To ensure the best performance from hydronic heating, air must be able to circulate freely around the back of the furniture (Fig 3). Air vents, cut into the top and bottom of the furniture must be unobstructed by carpets, cushions, or stowage, etc.

The full length of a convector should be ventilated for best performance.

Note: Use gas and electric heating simultaneously for the best performance. The boiler will only use as much energy as is needed, and is 93% efficient on a SEBDUK based test.

Figure 3



Bleeding Air

The HTF will contain some air. This is unavoidable. Air bubbles can also be introduced when the system is filled.

In a newly-filled central heating system, you will need to bleed air from the bleed points to ensure best performance. There is an automatic air bleed valve on the boiler. There is also an air vent on the expansion tank.

The installer should fit bleed points elsewhere

in the system, especially where the pipes step up and down, and on radiators and towel rails. Air will accumulate at these high points and become trapped.

Note: Contact the dealer or installer for details on where the bleed points are in your system, and how to access them.

To bleed the system, set the desired temperature to 30°C and select gas heating on the control panel.

If fitted set the 12v inline circulation pump on the side of the boiler to speed 5 (Fig 1 [D]),by turning the blue speed dial clockwise, on the face of the pump motor. NB: Speed is not adjustable if using the 12 V circulation pump fitted in the expansion tank.

After 10 mins, set the pump back to its normal running speed (2 for a caravan, 3 for a motorhome).

Now power off the Alde 3020 Compact HE boiler completely, making sure that the circulation pump is not active.

Follow the flow pipe from the boiler, and bleed the system at each bleed point.

If Alde bleed points have been fitted, these are metal bleed screws mounted on black EPDM rubber connectors (Fig 4). Have a cloth in hand. To open, turn the screw anticlockwise between thumb and forefinger. Air will hiss out. When fluid trickles out, close the bleed screw and mop up fluid with the cloth.

Fig 4

Move on to the next bleed point and repeat, until all bleed points have been tended to.

Air Lock

If enough trapped air accumulates at one point, an air lock can result and prevent the circulation of hydronic heating.

A ramp or steep slope can be used to raise one end of the vehicle, causing the trapped air to shift around the system. Repeat the full bleed procedure. A caravan can be slowly and carefully tilted to reproduce this effect.

To clear a stubborn air lock in under 15 minutes, an Alde-certified service agent can use the Alde 1900-811 or 839 twin-motor service pump.

230v ELECTRIC

The Alde 3020 Compact HE boiler has two 230 V electric heating elements, outputting 1050 W and 2100 W, or 3150 W combined, and drawing 5 A, 9 A, and 14 A respectively (rounded).

230v breakers, fuses, fused spurs and isolator switches should be rated for 16 A.

Before using electric heating, check the current limit on the electric supply you are hooking up to.

- 6 A limit, only use 1 kW electric heating.
- 10 A limit, use 1–2 kW electric heating.
- 16 A limit, use 1–3 kW electric heating.

Note: If the electric supply has unstable voltage, the amperage will also fluctuate.

LPG

LPG (liquefied petroleum gas) has two main variants, propane and butane gas. The gas heating in your Alde 3020 Compact boiler can use propane or butane gas as fuel. Many LPG fuels contain a mixture of propane, butane and other additives.

BS 5482 Part 1 states, “For butane cylinders, satisfactory service might not be obtained at temperatures of less than 10°C; the most suitable temperature range is from 13 to 30°C. For temperatures less than 13°C, the use of propane should be considered.”

For this reason, Alde recommends using propane gas for all year round gas heating.

LPG cylinders contain both gas and liquid forms. When the cylinder is filled, high pressure transforms the gas into liquid. The liquid reverts to gas when the valve on the cylinder is opened.

LPG is a flammable gas. It can be a fire and explosion hazard if stored or used incorrectly. Store cylinders vertically and securely, to prevent them from toppling.

Do not mount your LPG cylinder horizontally or use liquid phase gas cylinders. Liquid–gas explosion may result. Read the product label or contact product manufacturer for details.

LPG is heavier than air. Should a gas leak occur, floor vents in a caravan or motorhome should allow the gas to escape from the vehicle. For this reason, always ensure floor vents are unobstructed.

⚠ **WARNING:** The boiler compartment contains the gas connection, floor vents and the flue hoses. Do not place stowage in the boiler compartment.

In the event of a gas leak, or if you smell gas:

- Extinguish all naked flames
- Open all doors and windows
- Close all gas valves, including the valve on the cylinder.
- Do not smoke.
- Do not operate any electrical appliances or switches.
- Arrange for immediate inspection of the gas system by a competent person in accordance with current local regulations.

LPG from the cylinder is reduced in pressure by a regulator, and is supplied to the boiler at low pressure (30 mbar). Never use an unregulated high pressure supply.

Where oil and dirt in the gas supply are a concern, gas filters should be fitted to prevent blockage of the boiler gas valve.

Gas heating must not be used whilst driving your vehicle unless a safety shut-off device is fitted to the gas system. Current local regulations must be adhered to.

Flue

The burning of LPG produces CO^2 (carbon dioxide), a non-toxic, asphyxiant gas.

Exhaust flue gas can cause possible burns and poisoning. Avoid inhaling exhaust flue gas.

⚠ **WARNING:**
Do not position awnings, tents or other enclosures around the flue terminal.

Air supply is essential for clean combustion. The air intake is located in the flue terminal. For best performance, the flue terminal should be well vented. If leaving the gas heating unused for a period, ensure the flue terminal is covered to prevent pest animals nesting in the flue.

⚠ **WARNING:**
Do not obstruct the flue. Be careful not to flood the flue when washing the vehicle.

⚠ **WARNING:** Air is sucked into the combustion chamber via the air intake. The gas heating must not be used when refuelling the vehicle at the service station or related facility.

Maintenance

There is no manufacturer's service requirement for the Alde 3020 Compact boiler itself. Current local regulations must be adhered to. The installation of the boiler should be inspected annually for gas safety.

LPG hoses should be regularly checked for signs of damage and should be replaced, at maximum, after 3 years of use.

Bleed air from the system when newly filled, when the vehicle has been standing unused for a period, and before departing on holiday.

The fluid level in the expansion tank should be about 1 cm above the MIN mark when cool. The heat transfer fluid (HTF) should be topped up if below this level, to prevent a break in circulation. Only top up with compatible HTF.

Never leave the system empty of HTF.

⚠ **WARNING:** Always replace the HTF in accordance with the antifreeze product's lifespan. If in any doubt, replace the HTF after 2 years.

Failure to maintain the condition of HTF may result in frost and/or corrosion damage, and is not covered under warranty.

When the hot water cylinder is in continuous use, it should be drained and refilled once a month. This recreates the air cushion in the hot water cylinder that absorbs pressure surges.

Winter

When camping in the winter, always ensure the flue terminal remains unobstructed by snow and ice. Extensions for roof flue terminals, and condensate spouts for side flue terminals are available from Alde.

Check the strength of the heat transfer fluid (HTF) with a hydrometer and/or refractometer. It should measure 50% ethylene glycol antifreeze, or -35-37°C.

The central heating can still be used with no freshwater in the system. The air in the hot water cylinder is heated but no damage can result.

⚠ **WARNING:** Always drain down and completely empty the hot water cylinder when there is risk of frost, unless the vehicle is explicitly stated to be self-winterising by the vehicle manufacturer.

If camping in temperatures below -10°C, consider carrying spare parts in the event of an emergency. Alde recommends a 12v circulation pump for the expansion tank (with cabling), a PCB, and 4–5 litres of ready to use antifreeze. These spare parts should be kept well insulated and in the warmest part of the vehicle; for example, in the wardrobe, near to the expansion tank pipes.

If storing the vehicle for winter, ensure the flue terminal is covered to prevent pest animals nesting in the flue.

If using the light duty 12v circulation pump in the expansion tank, do not leave the central heating on over winter, even with a low desired temperature set.

Note: Air the vehicle over winter without wearing out the light duty pump. Use the programmable Alde control panel to automatically heat the vehicle for 24 hours, once a week.

Trouble-Shooting

The Alde control panel will display any error messages. See the Operating and Installation Instructions supplied separately.

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.

The boiler will not ignite on gas

- Check the gas cylinder is full. Try a different gas cylinder, ensuring it is propane gas.
- The system may not need to use gas heating, if also using electric heating.
- The fluids in the boiler may already be at operating temperature.

The boiler will not heat on 230 V electric

- Check that any 230v isolator switches are on (they will often have an LED indicator).
- Check the 230v supply to the vehicle.
- The fluids in the boiler may already be at operating temperature.

No hot water

- Check that hot water ignore is not activated on the Alde control panel.
- Check that constant pumping is not activated on the Alde control panel.
- Check for other conflicting settings on the Alde control panel.
- Check the freshwater supply and water pump.

No central heating

- Bleed the system of air.
- Check the fluid level in the expansion tank.
- Check that the circulation pump is responding.
- Check that hot water boost is not activated on the Alde control panel.
- Use gas and electric heating.
- Check that vents in the furniture are not obstructed.
- Check the condition of the heat transfer fluid.
- Most vehicles will reach a comfortable temperature within an hour, in non-extreme conditions.

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

WARRANTY

Alde undertakes to rectify any manufacturing defect or early component failure through normal use that occurs within 12 months of the installation date.

If your Alde boiler develops a fault, your first action should be to contact your dealer or installer, as they will be familiar with your installation and vehicle, and how to make a claim under warranty.

Alde International (UK) Ltd Huxley Close Park Farm South Wellingborough Northamptonshire NN8 6AB

Tel. 01933 677764
www.alde.co.uk

Dometic absorption refrigerator

Guide to these operating instructions

Before you start using the refrigerator,please read the operating instructions carefully.

These instructions provide you with the necessary guidance for the proper use of your refrigerator. Observe in particular the safety instructions. Observation of the instructions and handling recommendations is important for dealing with the refrigerator safely and for protecting you from injury and the refrigerator from damage. You must understand what you have read before you carry out a task.

Keep these instructions in a safe place close to the refrigerator so they may be referred to at any time.

Copyright protection

Warranty

Warranty arrangements are in accordance with EC Directive 44/1999/CE and the normal conditions applicable for the country concerned.

For warranty or other maintenance, please contact our customer services department.

Any damage due to improper use is not covered by the warranty. The warranty does not cover any modifications to the appliance or the use of non-original Dometic parts. The warranty does not apply if the installation and operating instructions are not adhered to and no liability shall be entertained.

Limitation of liability

All information and guidance in these operating instructions were prepared after taking into consideration the applicable standards and regulations as well as the current state of the art. Dometic reserves the right to make changes at any time which are deemed to be in the interest of improving the product and safety.

Dometic will assume no liability for damage in the case of :

- Non-observation of the operating instructions
- Application not in accordance with the regulations or provisions
- Use of non-original spare parts
- Modifications and interferences to the appliance
- Effect of environmental influences, such as
  - temperature fluctuations
  - humidity

Customer services

Dometic offers a pan-European customer service network. Find your authorised customer service centre by calling the phone number indicated in the EuroService Network book, EuroService Network - which accompanies every refrigerator. You can also obtain the address information of the nearest customer service from www.dometic.com. When contacting Dometic Customer Services, please state the model, product number and serial number together with the MLC code, if applicable. You will find this information on the rating plate inside the refrigerator. We recommend that you note this data in the field provided on the front page of this operation manual.

Spare parts

Parts can be ordered throughout Europe from our customer services. Always give the model and product number when you contact the customer service! You will find this information on the rating plate inside the refrigerator.

Note: Refrigerators manufactured by Dometic GmbH are free of CFC/HCFC and HFC. Ammonia (a natural compound of hydrogen and nitrogen) is used in the cooling unit as a coolant. Non-ozone-hazardous cyclopentane is used as a propellant for manufacturing PU foam insulation.

In order to ensure that the recyclable packaging materials are re-used, they should be sent to the customary local collection system.

The appliance should be transferred to a suitable waste disposal company that will ensure re-use of the recyclable components and proper disposal of the rest. For eco-friendly draining of the coolant from all absorber refrigeration units, a suitable disposal plant should be used.

Energy-saving tips

- At an average ambient temperature of 25°C, it is sufficient to operate the refrigerator at middle thermostat setting.
- Where possible, always store precooled products.
- Do not expose the refrigerator to direct sunlight.
- Ensure that air circulation of the cooling unit is not obstructed.
- Defrosting at regular intervals saves energy (see “Defrosting”). Open the refrigerator door only for a short period of time when removing products.
- Run the refrigerator for about 12 hours before filling it.

Safety instructions

Application according to regulations

This refrigerator is designed for installation in recreation vehicles such as caravans or motorhomes. The appliance has been type approval tested for this application in accordance with the EC Gas Directive.

The refrigerator is to be used solely for storing foodstuffs.

⚠ **WARNING:** The refrigerator is not suitable for the proper storage of medication. Please observe in addition the instructions in the medication package inserts.

User’s responsibility

Anyone operating the refrigerator must be familiar with the safe handling and understand the advice in these operating instructions.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised or have been given instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance. Cleaning and user maintenance shall not be made by children.
[EN 60335-2-24, 7.12]

Protection of children when disposing of the equipment

⚠ **WARNING:** When disposing of the refrigerator, detach all refrigerator doors and leave the storage racks in the refrigerator. In this way inadvertent entrapment and suffocation is prevented.

Working upon and checking the refrigerator

⚠ **WARNING:** Work on gas equipment, exhaust system and electrical facilities must be carried out by authorised personnel only. Substantial damage to property and / or injury to persons can arise through unprofessional procedures.

⚠ **WARNING:** Never use an unshielded flame to check gas bearing parts and pipes for leakage!
There is a danger of fire or explosion.

⚠ **WARNING:** Never open the absorber cooling unit! It is under high pressure.
There is a danger of injury.

Information on coolant

Ammonia is used as a coolant. This is a natural compound also used in household cleaning agents (1 litre of Salmiak cleaner contains up to 200g of ammonia - about twice as much as is used in the refrigerator). Sodium chromate is used for corrosion protection (1.8% by weight of the solvent).

In the event of leakage (easily identifiable from the strong odour), proceed as follows:

- Switch off the appliance.
- Air the room thoroughly.
- Inform authorised customer services.

Note: For your safety it was ascertained in an expert's report that no impairment of health exists when the coolant is discharged.

Operating the refrigerator with gas

It is imperative that the operating pressure corresponds to the data specified on the rating plate of the appliance. Compare the operating pressure of the rating plate with the data specified on the pressure reducing valve of the liquid gas cylinder.

⚠ **WARNING:** Operating the appliance with gas is not permitted

- At petrol stations
- On ferry boats
- While transporting the motorhome by a transporter or breakdown vehicle.

There is danger of fire!

Leave the equipment switched off

Safety instructions when storing foodstuffs

Instructions for storing food in a refrigerator:

No refrigerator of any kind can improve the quality of the food; refrigerators can only maintain the food's quality for a short duration as from the time of storing it.

Please observe the following particular conditions for storing food in a refrigerator that is built into a vehicle:

- A change in the climatic conditions such as temperature fluctuations
- High temperatures inside the vehicle when it is closed and parked in direct sunlight (temperatures are possible up to 50°C)
- Use of the refrigerator during travel with the power supply of 12V DC
- A refrigerator built in behind a window and exposed to direct sunlight
- Storing the products too soon, i.e. shortly after starting up the appliance for use

Under these particular conditions the refrigerator cannot guarantee reaching the temperature needed for perishables.

Perishables include all products with a stipulated use-by date and a minimum storage temperature of +4°C or less, especially for meat, poultry, fish, sausages, pre-packed foods.

- Pack raw and cooked foods separately (e.g. in containers, aluminium foil, etc.).

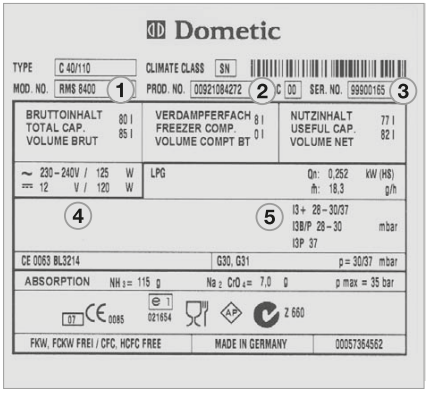
- Only remove the outside packaging of single packs if all the necessary information, e.g. the use-by date, can also be read on the single packs.
- Do not leave cooled goods outside the refrigerator for too long.
- Place the foods with the next use-by date at the front, accordingly.
- Pack away any left-over food and eat at the first opportunity.
- Wash your hands before and after handling any food.
- Regularly clean the inside of the refrigerator.

Please observe the instructions and information regarding the use-by date on the outside packaging of the food.

Please observe section “Cleaning” of this instruction.

Refrigerator rating plate

The rating plate is to be found on the inside of the refrigerator. It contains all important details of the refrigerator. You can read off from this the model identification, the product number and the serial number. You will need these details whenever you contact the customer service centre or when ordering spare parts.



1 - Model Number

2 - Product Number

3 - Serial Number

4 - Electrical rating details

5 - Gas pressure

Note: The cooling unit’s performance is influenced by ambient temperatures. Please select the medium setting for ambient temperatures between +15°C and +25°C (refer to Setting of cooling compartment temperature). The unit operates within its optimum performance range.

Dometic refrigerators work according to the absorption principle. For physical reasons, an absorption system responds slowly to changes made by the thermostat controller, by loss of cooling energy through opening the door or during storing food. The devices meet the cooling performance requirements of the Climatic Class SN acc. to EN/ISO 7371 in the temperature range of +10°C to +32°C ambient temperature.

For temperatures below +10°C, winter covers should be installed. For ambient temperatures exceeding +32°C for a longer period of time, it is recommended installing Dometic additional fan (item no. 241 2985 -00).

Description of refrigerator

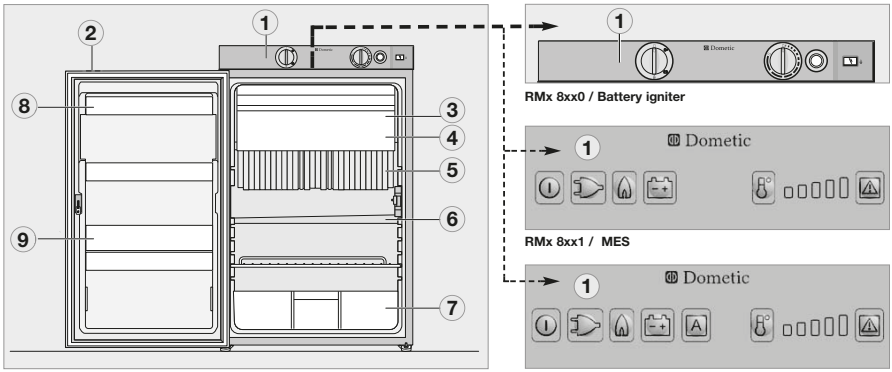


Fig. 5

1 - Operating controls

2 - Door locking button

3 - Freezer compartment (removable)

4 - Insertable grid shelf (available as option, to be used when freezer compartment is removed)

5 - Post-evaporator for cooling compartment

6 - Condensation water drain channel

7 - Vegetable bin

8 - Upper door shelf with flap, egg shelf available as option may be inserted

9 - Lower door shelf with bottle holders

Description of fridge freezer

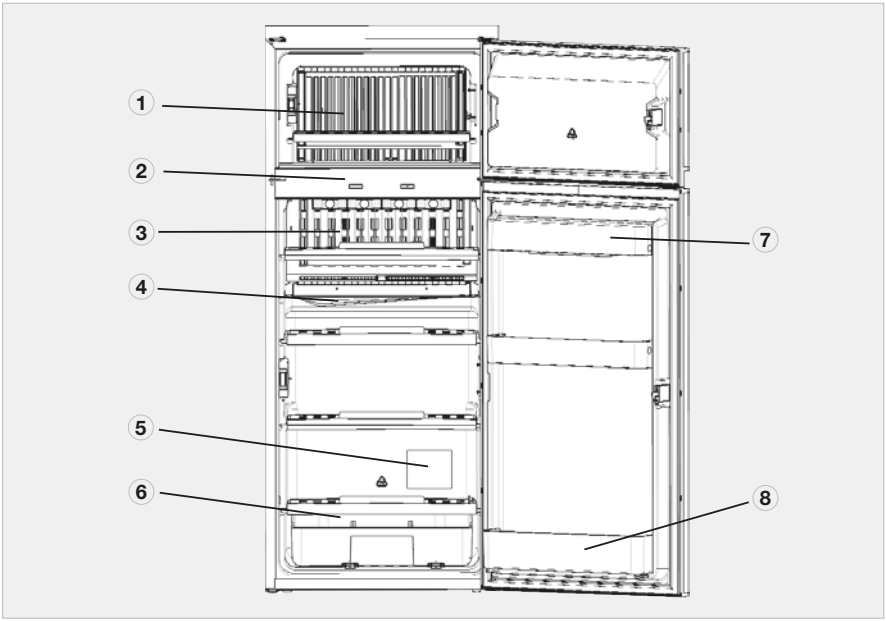


Fig. 3

1 - Freezer compartment

2 - Operating controls

3 - Post-evaporator for cooling compartment

4 - Condensation water drain channel

5 - Data plate

6 - Vegetable bin

7 - Upper door shelf with flap, egg shelf available as option may be inserted

8 - Lower door shelf with bottle holders

Manual energy selection / automatic ignition (RM 8xx1) MES

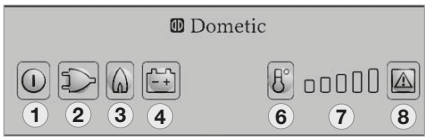


Fig. 8

1 - Power ON/OFF switch

2 - Energy selector button 230V ~

3 - Energy selector button GAS

4 - Energy selector button 12V =

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

230V AC operation

- Select “Mains voltage” by pressing button (2)
- Set temperature step by pressing button (6)

12V DC operation (vehicle’s battery)

- Select “Battery voltage” by pressing button (4)
- Set temperature step by pressing button (6)

Gas operation

- Select “Gas” by pressing button (3)
- Set temperature step by pressing button (6)

Automatic energy selection / automatic ignition (RM 8xx5) AES

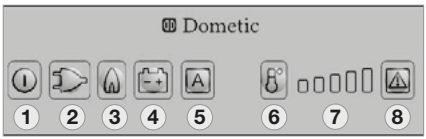


Fig. 9

1 - Power ON/OFF switch

2 - Energy selector button 230V ~

3 - Energy selector button GAS

4 - Energy selector button 12V =

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)
  Automatical energy selection (if available)
  Sequence of priority:
  1.) Solar (12V -)
  2.) 230V ~
  3.) 12V -
  4.) Liquid gas
- Set temperature step by pressing button (6)

RM 8xx1 models MES appliances (manual energy selection)

Electrical operation

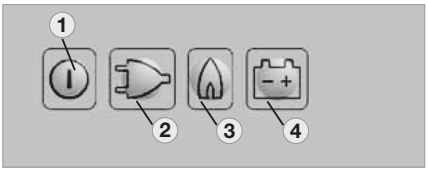


Fig. 16

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

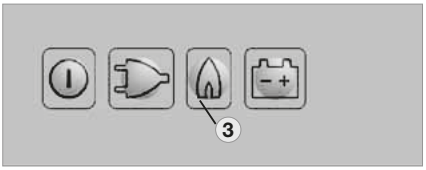


Fig. 17

Gas operation :

Press button (3) :

The ignition process is activated automatically by means of an automatic igniter.

Note: The flame extinguishes after reaching the preset cooling compartment temperature and ignites again if the cooling compartment temperature increases again. If the flame is not lit after the first ignition attempt, the automatic igniter repeats the ignition twice (duration 30 s) at time intervals of 2 minutes. If the flame is not lit afterwards, a fault is indicated.

Setting of cooling compartment temperature

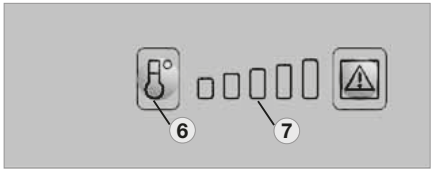


Fig. 18

Select the desired cooling compartment temperature by pressing button (6) .

The LED display (7) of the selected temperature setting is illuminated.

The scale starts with MIN position at the left LED position (small bar = highest temperature) and climbs up to MAX position at the right LED position (large bar = lowest temperature).

Note: The temperature levels do not relate to absolute temperature values.

RM 8xx5 models

Manual operation

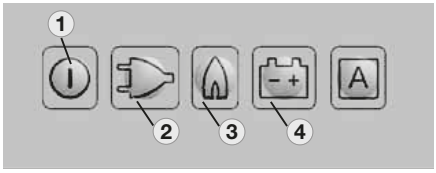


Abb. 19

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

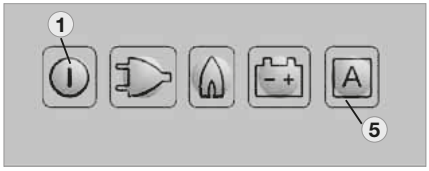


Fig. 20

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 selects one of the three possible energy types: 230V - 12V - liquid gas. The control electronics automatically ensures that the refrigerator is supplied with the optimum source of energy in each respective case.

Sequence of priority:
1.) Solar (12V -)
2.) 230V ~
3.) 12V -
4.) Liquid gas

Note: If sufficient mains voltage is available (more than 195 V), 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 energy source only, if both of the electrical energy source are not available.

Manual operation is possible at any time.

Note: For Setting of cooling compartment temperature see point “4.7.2”

Refuelling while in AES mode operation

Note: 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 refuelling stop last longer than 15 minutes, the refrigerator has to be switched off or switched 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 (for trouble-shooting, please refer to page 150).

Gas operation with internal batteries (optional)

An optional battery compartment in the electronics case for internal (self-contained) power supply of the electronics is available for the model variants RM 8xx1 and RM 8xx5 (appliances with electronics).

Battery compartment *Fig. 21*

Load the battery compartment with batteries (8 x AA 1.5 V) before operating the refrigerator. All operating modes can be selected while the on-board 12 V DC power supply is active. The internal voltage is disconnected.

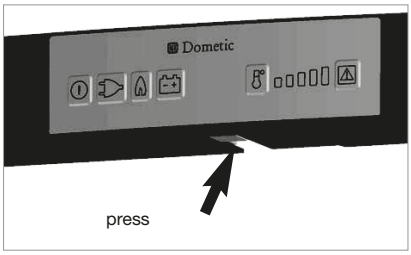
If the on-board 12 V DC power supply is not present or there is an interruption of the mains power supply during operation, the electronics automatically switch to the internal (battery) power supply.

The refrigerator can now only be operated in the gas mode. All LED indicators except the GAS LED are not lit during operation with internal batteries. The GAS LED flashes every 15 seconds.

If a button is pressed, the temperature level LEDs (7) also light. If the battery voltage is too low, an acoustic signal (whistle tone) sounds every 15 seconds. Then replace the batteries in the battery compartment.

Inserting / changing the batteries

Switch off the refrigerator, as described in section “Shutting of the refrigerator”.



Opening battery compartment *Fig. 22*

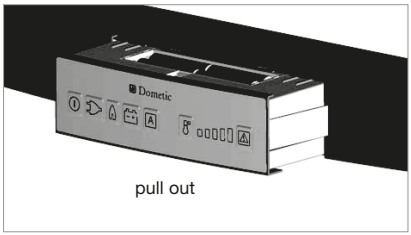


Fig. 23

Note: Batteries (8 x AA 1.5V) are not included!

⚠ **WARNING:**

- Observe the correct polarity!
- Do not connect non-rechargeable batteries to a charger.
- Remove rechargeable batteries from the battery compartment before charging.
- Avoid short circuits on the contacts in the battery compartment!
- Remove discharged batteries.
- Remove the batteries from the battery compartment if the refrigerator will not be used for a long time.
- Do not mix different types of batteries.

Explanation of operating controls Fridge / Freezer models

The control panel buttons are not accessible when the refrigerator door is closed. Open the bottom door to reach the operating buttons.

Depending on the door opening direction, there are two LEDs on the left or right edge of the control panel. The outer LED (1) indicates that the refrigerator is operational (blue). The other LED (2) lights red in the event of a fault.

Indicator LEDs *Fig. 4*

Refrigerators for self-contained (gas) operation contain two battery compartments in the control panel which are located on the left and right next to the button bar.

Operating controls without battery compartments *Fig. 5*

Operating controls with battery compartments (L, R)

Manual energy selection / automatic ignition (RMD 8xx1) MES

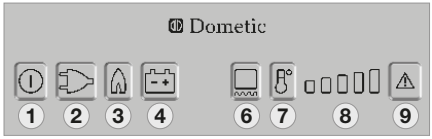


Fig. 7

1 - Power ON/OFF switch

2 - Energy selector button 230V ~

3 - Energy selector button GAS

4 - Energy selector button 12V =

6 - Frameheating

7 - Temperature level selection

8 - Temperature level display

9 - Indicator LED failure / Reset button GAS FAILURE

Switching ON/OFF

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

230V AC operation

- Select “Mains voltage” by pressing button (2)
- Set temperature step by pressing button (7)

12V DC operation (vehicle’s battery)

- Select “Battery voltage” by pressing button (4)
- Set temperature step by pressing button (7)

Gas operation

- Select “Gas” by pressing button (3)
- Set temperature step by pressing button (7)

Automatic energy selection / automatic ignition (RMD 8xx5) AES

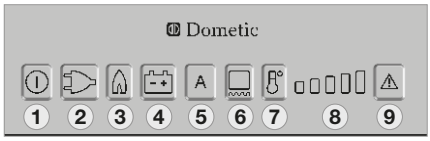


Fig. 8

1 - Power ON/OFF switch

2 - Energy selector button 230V ~

3 - Energy selector button GAS

4 - Energy selector button 12V =

5 - Selector button “AUTOMATIC”

6 - Frameheating

7 - Temperature level selection

8 - Temperature level display

9 - 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 (7)

Automatic operation

- Change over to “Automatic” with button (5) Automatical energy selection (if available) Sequence of priority:
  1.) Solar (12V -)
  2.) 230V ~
  3.) 12V -
  4.) Liquid gas
- Set temperature step by pressing button (7)

Gas operation with internal batteries (optional)

An optional battery compartment in the electronics case for internal (self-contained) power supply of the electronics is available for the model variants RMd 85x1 and RMD 85x5 (appliances with electronics).

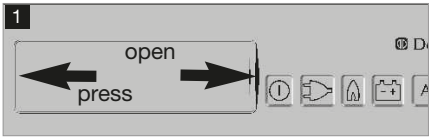
Left battery compartment *Fig. 14*

Load the battery compartment with batteries (8 x AA 1.5 V) before operating the refrigerator. All operating modes can be selected while the on-board 12 V DC power supply is active. The internal voltage is disconnected.

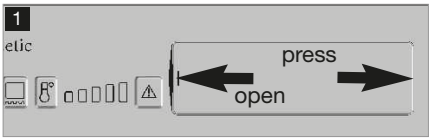
If the on-board 12 V DC power supply is not present or there is an interruption of the mains power supply during operation, the electronics automatically switch to the internal (battery) power supply. The refrigerator can now only be operated in the gas mode.

All LED indicators except the GAS LED are not lit during operation with internal batteries. The GAS LED flashes every 15 seconds. If a button is pressed, the temperature level LEDs (7) also light.

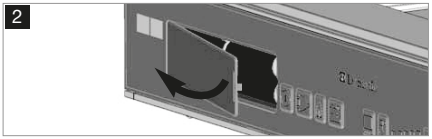
If the battery voltage is too low, an acoustic signal (whistle tone) sounds every 15 seconds. Then replace the batteries in the battery compartment.



Opening left battery compartment *Fig. 15*



Opening right battery compartment *Fig. 16*



Note: Batteries (8 x AA 1.5V) are not included!

⚠ WARNING:

- Observe the correct polarity!
- Do not connect non-rechargeable batteries to a charger.
- Remove rechargeable batteries from the battery compartment before charging.
- Avoid short circuits on the contacts in the battery compartment!
- Remove discharged batteries.
- Remove the batteries from the battery compartment if the refrigerator will not be used for a long time.
- Do not mix different types of batteries.

Frame heating

All models are equipped with a frame heating (12VDC/3,5W) around the freezer compartment. During summer months with high temperatures and humidity the metal frame may have water droplets forming. To evaporate these droplets switch on the frame heating with button (6).

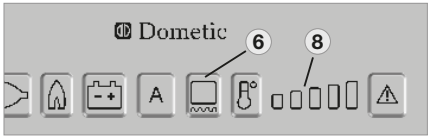


Fig. 18

The operating time of the frame heater can be set to 2 hours, 5 hours or continuous operation. After selecting the operating time using the button (6), the temperature level indicator (8) is extinguished for a short time to show the set operating time for a few seconds. The display then returns to the temperature level indicator.

Operating time: 2 hours
Press button (6) once Display

Operating time: 5 hours
Press button (6) twice Display

Permanent Operation
Press button (6) three times Display

⚠ **WARNING:** In order to prevent discharge of the onboard battery, change the frame heater from continuous operation to another operating time or switch it off.

Note: The frame heater is active for 30 minutes after switching on and then switches itself off and on again at time intervals of 5 minutes.

Refrigerator compartments

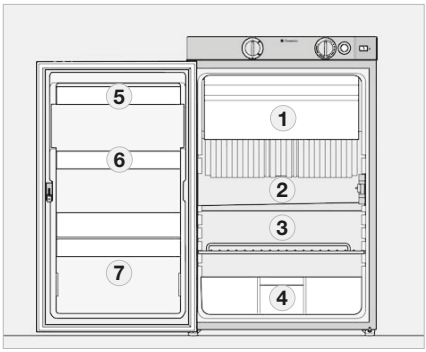


Fig. 37

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 compartment):
Drinks in bottles or bags

Removable freezer compartment

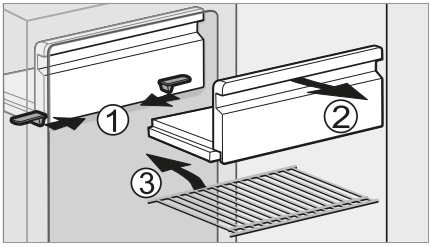


Fig. 32

To enlarge the cooling compartment, just remove the freezer compartment.

1. Unlock the freezer compartment on both sides.
2. Pull the freezer compartment out.

Store the freezer compartment safely in order to prevent damage

Note: Once the freezer compartment is removed, an additional storage rack (3.) may be installed. The storage rack is a piece of extra equipment and may be obtained from Dometic.

Door locking

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

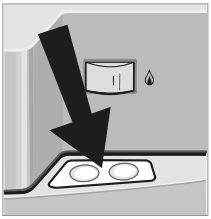


Fig. 24

Fig. 25

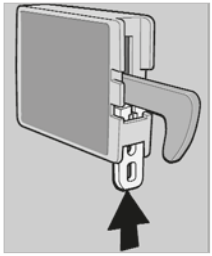
Open the door by pressing the locking button and pull open (see Fig. 24).

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 (Fig. 26-27).

Fastening and releasing the, door lock hook 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 *Fig. 26*

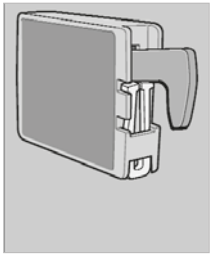
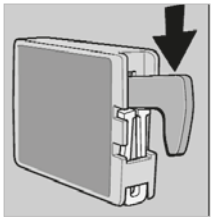


Fig. 27



Releasing *Fig. 28*

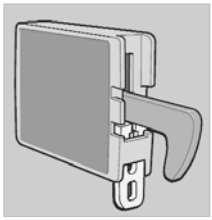


Fig. 29

Lighting

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

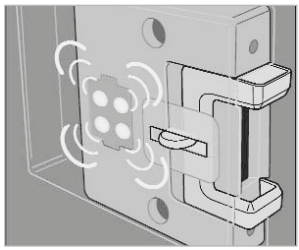


Fig. 30

Note: Please contact the authorised Dometic Service if a failure occurs.

Positioning the storage racks

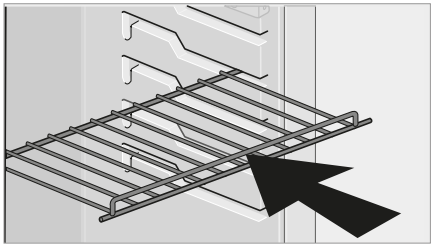


Fig. 31

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

Refrigerator compartments

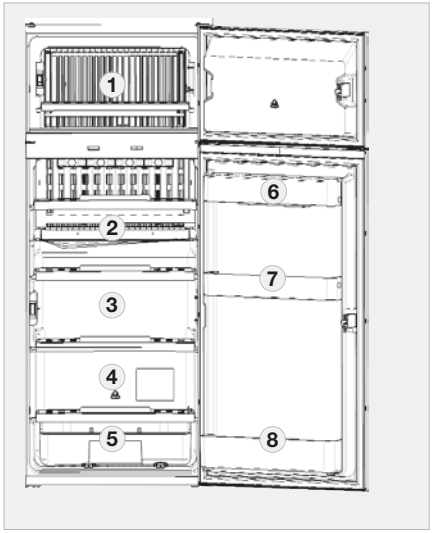


Fig. 29

1 - Freezer compartment :
already frozen food (deep-frozen food)

2 - Top compartment:
convenience food

3 - Middle compartment:
Dairy products, convenience food

4 - Bottom compartment:
Meat, fish, food for defrosting

5 - Vegetable compartment:
Salads, vegetables, fruit

6 - Top door shelf:
Eggs, butter

7 - Middle door shelf:
Cans, dressings, ketchup, jam

8 - Bottom door shelf (drinks compartment):
Drinks in bottles or bags

Shutting off the refrigerator

- Switch off the refrigerator by pressing button (1) (s. 4.5). Keep button (1) pressed for 3 seconds. The display disappears and the appliance is fully switched off .
- Release the locking mechanism (Fig. 30-31) 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.

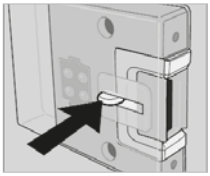


Fig. 30

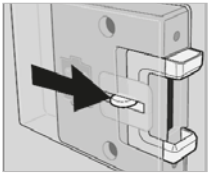


Fig. 31

- 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 0.118 inches (3 mm) thick, the refrigerator should be defrosted.

- Switch off the refrigerator, as described in section 4.14 Shutting of the refrigerator.
- Remove all food and the ice cube tray.
- Leave the refrigerator door open to allow air to enter and to prevent formation of mildew.
- After defrosting (freezer compartment and fins free of frost), wipe both cooling compartments dry with a cloth.

Storing food and making ice cubes

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 gases.
- Do not overfill the storage grids and compartments to prevent obstructing the internal air circulation.
- Maintain a clearance of approx. 5 - 10 mm 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.
- The freezer compartment is suitable for making ice cubes and for 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 goods 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.

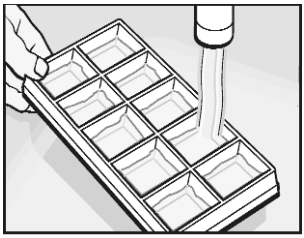


Fig. 27

1. Fill the ice cube tray with drinking water.

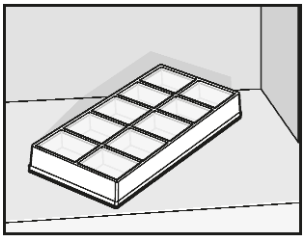


Fig. 28

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

⚠ **WARNING:** Only use drinking water!

Shutting off the refrigerator

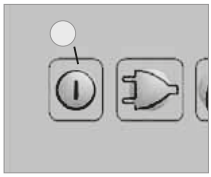


Fig. 41

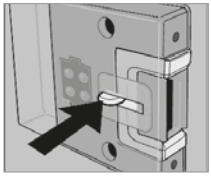


Fig. 42

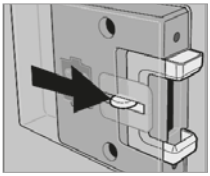


Fig. 43

- For battery igniter models, set energy selector switch (1) to position “OFF”. The appliance is switched off (Fig. 40).
- 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 (Fig. 40).
- 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.

Winter operation

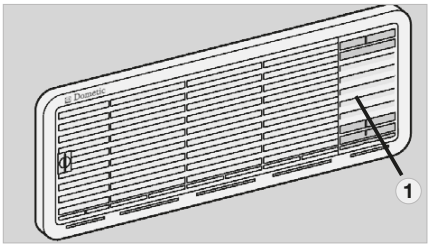


Fig. 35

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

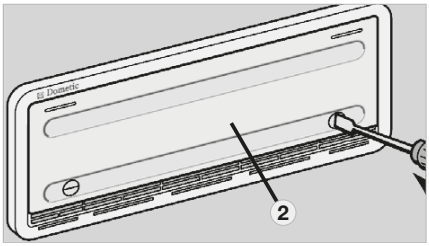


Fig. 36

When the outside temperature falls below +10°C, the winter covers should be fitted. This protects the unit from excessively cold air which could have adverse effects on the performance of the unit

Note: You should also attach the 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.

Winter operation (fridge freezer models)

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

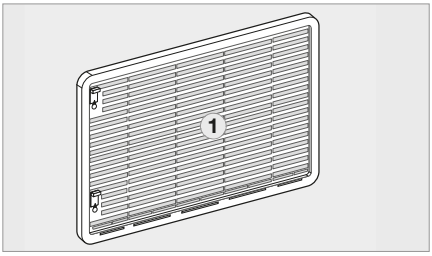


Fig. 32

When the outside temperature falls below +10°C, the winter covers (2) should be fitted. This protects the unit from excessively cold air which could have adverse effects on the performance of the unit.

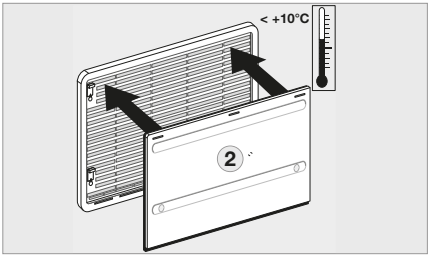


Fig. 33

You should also attach the 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.

Troubleshooting

Failure: The refrigerator does not cool sufficiently.

Possible cause	Action you can take
Inadequate ventilation to the unit	Check that the ventilation grilles are not covered
Thermostat setting is too low	Set thermostat to a higher level
The condenser is heavily frosted	Check that the refrigerator door closes properly
Too much warm food has been stores inside within a short period of time	Allow warm food to cool down before storage
The appliance has been running for only a short period of time	Check whether the cooling compartment works after approx 4-5 hours
Ambient temperatures too high	Regularly remove ventilation grilles.

Failure: The refrigerator does not cool in gas operation mode.

Possible cause	Action you can take
Gas cylinder empty	Change gas cylinder
Is the upstream shut-off device open?	Open shut-off device
Air in the gas pipe?	Switch off the appliance and start again. Repeat this procedure 3-4 times, if necessary.

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

Possible cause	Action you can take
On-board fuse defective	Fit new fuse
On-board battery displaced	Check battery, charge it
Engine not running	Start engine
Heating element defective (please refer to failure indication)	Please inform the Dometic Customer Services.

Failure: The refrigerator does not cool in 230 V operation.

Possible cause	Action you can take
On-board fuse defective	Fit new fuse
Vehicle not connected to mains supply voltage	Make a connection to a mains power supply
AES: Gas operation despite connection to the mains supply voltage?	Appliance switches to gas operation due to insufficient mains supply voltage (automatically switches back to 230 V operation)
Heating element defective (please refer to failure indication	Please inform Dometic Customer Services

Information on failure display and trouble-shooting

- Refrigerators with an electronics system (MES, AES) indicate the occurence 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 Center, 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 *Fig. 51*

1 - Button ON / OFF

2 - Energy selector switch 230 V AC

3 - Energy selector switch GAS

4 - Energy selector switch 12V DC

6 - temperature level button

7 - temperature level display

8 - fault LED / GAS FAULT reset button

Operation with on-board 12 v power supply

Indicator	Fault	Remedy
(2) and (8) flashing and acoustic signal 20s	**230 V mode:** "230V" not available or voltage too low	Check mains power connection, mains voltage, fuse
(4) and (8) flashing and acoustic signal 20s	**12 V mode:** "12V" not available or voltage too low	Check 12V connection, on-board battery, fuse
(3) and (8) flashing and acoustic signal 20s	**Gas mode:** Flame not ignited	Check gas supply (gas bottle, gas valve) Press the **(8)** button after clearing the fault
Acoustic signal, 15s at two minute intervals	Interior lighting is switched on	Close door, check door contact
(2) and (7) flashing and acoustic signal 20s	**230 V mode:** 230V heating element defective	Arrange replacement of 230V heating element, contact Customer Service
(4) and (7) flashing and acoustic signal 20s	**12 V mode:** 12V heating element defective	Arrange replacement of 12V heating element, contact Customer Service
(7) flashing and acoustic signal 20s	Temperature sensor without contact or defective	Contact Customer Service
(3) and (7) flashing and acoustic signal 20s	Burner defective or cooling unit defective	Check burner, burner nozzles, if necessary contact Customer Service and arrange replacement

Operation with batteries (internal power supply)

Indicator	Fault	Remedy
(3) and (8) flashing brightly	Flame not ignited	Check gas supply (gas bottle, gas valve) Press the **(8)** button after clearing the fault
(3) and (7) flashing brightly	Burner defective or cooling unit defective	Check burner, burner nozzles, if necessary contact Customer Service and arrange replacement
Acoustic signal at 15 second intervals	Undervoltage detection (internal batteries)	Replace batteries
Automatic switching from external to internal power supply does not function (absence of the onboard 12V power supply for the electronics)	Refrigerator does not function, gas operation not possible although the batteries are inserted	Switch off the refrigerator and start again The onboard power supply was interrupted during the starting of the gas operation **Note:** No automatic switching is performed during the ignition.

Cooker 3 burner with combined grill and oven / cooker 3 burner + electric hotplate with separate grill and oven

Burner operation

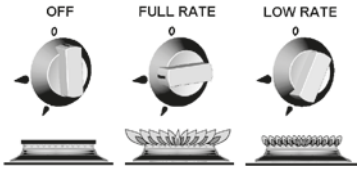


Fig. 1

Important

- Although 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:
  - Auxiliary Burner:- Ø200mm Semi-Rapid Burner:- 2x Ø200mm or 1x Ø220mm with 1x Ø180mm
  Electric Hotplate:- Ø180mm
- 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 Hotplate Gas Burners

1. Ensure gas cylinder is connected and turned on and the shut off valve at the manifold is open. In the event of a gas smell turn off at gas cylinder 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 – see Fig.1. Hold a lighted match or taper to the burner and push the control knob in and hold. It is necessary to hold the knob depressed after the burner has ignited for approximately 10 - 15 seconds, to allow the thermocouple probe to reach temperature, before releasing the knob. Should the flame go out when the knob is released, the procedure should be repeated holding the knob depressed for slightly longer.
4. 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. 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.

Operation

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 the hotplate 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 then season it.

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

⚠ **WARNING:**
- Glass lids may shatter when heated. Turn off the hotplate and allow it to cool before closing the glass lid.
- Remove all spillage 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.

⚠ **WARNING:** The use of the electric hotplate and gas hobs will generate heat. We recommend, to avoid excess build-up of heat around the cooker area, the window is left opened when cooking to allow for additional ventilation.

IMPORTANT
- Depending on specification, your appliance may be fitted with a glass lid shut-off system, which cuts off the power to all hotplate burners (gas and electric) if the lid is closed.
- Ensure the glass lid is in the open and upright position before turning on the hotplate burners.
- Not all models are fitted with the shut-off system.

Operation

⚠ **WARNING:**
- The grill must only be used with the door open.
- On combined grill and oven cookers the heat deflector below the fascia should be pulled out prior to lighting the grill. Never adjust the heat deflector position without using hand protection i.E. Oven gloves. See fig 3

On separate grill and oven cookers the grill area can get hot when the oven is in use, even if the grill is switched off.
- Care should be taken when removing pans from the grill, i.e. use of oven gloves, and by making use of the removal grill pan handle.

Important
- The grill pan supplied is multi functional, for use in grill or oven.
- The handle design allows removal or insertion whilst the pan is in use.
- Always remove the handle when the pan is in use.
- The grill MUST only be used with the door open.

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 – see Fig 1 (page 153). 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 in 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. A reversible grill pan trivet enables the correct grilling height to be achieved.

Fast Toasting	trivet in high position
Grilling Sausages	trivet in high position
Grilling Steak/Bacon	trivet in high position
Grilling Chops, etc	trivet in low position
Slow Grilling	trivet removed

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.

Important:

- The pan supplied with the appliance is multi functional, for use either whilst grilling or when using the oven.
- The handle design allows removal or insertion whilst the pan is in use.

⚠ **WARNING:** Pans must not touch the glass lid.

Note: To avoid heat build up around the hob open the kitchen window slightly to allow the heat to dissipate.

Operation

Important

- The appliance is fitted with a cooling system. The cooling fans should automatically switch on a couple of minutes after the grill and/or oven is turned on, and will remain on even after the appliance has been switched off.
- The fans should 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). 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 in 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 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. Set control knob to approximately 200°C and heat the oven for about 30 minutes 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.
5. Although the oven does heat up quickly, it is recommended that a 10 minute preheat be allowed. The oven should be up to full temperature in about 15-20mins.
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:** 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.

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 below. 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. In this way maximum benefit can be obtained from the gas used to heat the oven. Care should be taken not to overload the oven, adequate spacing being used to allow free circulation for heat.

Operation

Cooking Guidelines

Best results will be obtained by the shelf positions in this guide. It is not necessary to preheat the oven but advisable for a range of dishes. The oven is capable of full temperature in 15-20 minutes.

Most cookery books give details of the shelf positions and gas mark settings for each recipe. If in doubt about a recipe you intend to use, study the recipe carefully then find a similar dish in our guide and use our shelf position and gas mark setting recommendation.

Shelf positions are from the top down. When roasting with aluminium foil care must be taken that the foil does not impair circulation or block the oven flue outlet.

Gas Mark	Temperature (Centre - Shelf Pos. 2)	
1/4 - 1/2	265 - 275°F	130-135°C
1	285	140
2	300	150
3	330	165
4	355	180
5	385	195
6	410	210
7	430	220
8	445	230
9	465	240

Do's 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 check that controls are in the off position when finished.

Don't allow children near the cooker when in use. Turn pan handles away from the front so that they cannot be caught accidentally.

Don't allow fats or oils to build up in the oven trays or base.

Don't use abrasive cleaners or powders that will scratch the surfaces of the appliance.

Don't under any circumstances use the oven as a space heater.

Don't 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. LPG gas is heavier than air; any escaping gas will therefore collect at a low level. The strong unpleasant smell of gas will enable the general area of the leak to be detected. Check that the gas is not escaping from an unlighted appliance. Never check for leaks with a naked flame, leak investigation should be carried out using a leak detector spray.

Maintenance & servicing

Important

- 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 authorized 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.

This appliance needs little maintenance other than cleaning. 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.

Microwave oven general user instructions

Note: Always refer to the microwave operating instructions supplied with the vehicle.

Note: Take precautions to avoid possible exposure to excessive microwave energy

⚠ **WARNING:**
a. Do not attempt to operate this oven with the door open since open door operation can result in harmful exposure to microwave energy. It is important not to defeat or tamper with the safety interlocks.

⚠ **WARNING:**
b. Do not place any objects between the oven front face of the door or allow soil or cleaner residue to accumulate on sealing surfaces.

⚠ **WARNING:**
c. If the door or door seals are damaged, the oven must not be operated until it has been repaired by a competent person (1) door broken (2) hinges and latches (broken or loosened), (3) door seals and sealing surfaces.

⚠ **WARNING:**
d. It is hazardous for anyone other than a competent person to carry out a service or repair operation.

⚠ **WARNING:**
e. Liquids or other foods must not be heated in sealed containers since they are liable to explode.

⚠ **WARNING:**
f. Only allow children to use the oven without supervision when adequate instruction has been given so that the child is able to use the oven in a safe way and understands the hazards of improper use.

⚠ **WARNING:**
g. When the appliance is operated in the combination mode, children should only use the oven under adult supervision due to the temperature generated. (if provided)

Important safety guidance

⚠ **WARNING:** To prevent fire, burns, electric shock and other warnings. Listed below are, as with all appliances, certain rules to follow and safeguards to assure high performance from this oven.

Important instructions

1. Do not use the oven for any reason other than food preparation, such as for drying clothes, paper, or any other non food items or for sterilizing purposes.
2. Do not use the oven when empty, this could damage the oven.
3. Do not use the oven cavity for any type of storage, such as papers, cookbook, cookware etc.
4. Do not operate the oven without the glass tray in place. Be sure it is sitting properly on the rotating base.
5. Make sure you remove caps or lids prior to cooking when you cook food sealed in bottles.
6. Do not put foreign material between the oven surface and door. It could result in excessive leakage of microwave energy.
7. Do not use recycled paper products for cooking. They may contain impurities which could cause sparks and/or fires when used during cooking.

8. Do not pop popcorn unless popped in a microwave approved popcorn popper or unless it's commercially packaged and recommended especially for microwave ovens. Microwave popped corn produces a lower yield than conventional popping; there will be a number of unpopped kernels. Do not use oil unless specified by the manufacturer.
9. Do not cook any food surrounded by a membrane, such as egg yolks, potatoes, chicken livers, etc., without first piercing them several times with a fork.
10. Do not pop popcorn longer than the manufacturer's directions. (Popping time is generally below 3minutes). Longer cooking does not yield more popped corn it can cause scorching and fire. Also, the cooking tray can become too hot to handle or may break.
11. If smoke is observed, switch off or unplug the appliance and keep the door closed in order to stifle any flames.
12. When heating food in plastic or paper containers, keep an eye on the oven due lo the possibility of ignition.
13. The contents of feeding bottles and baby food jars shall be stirred or shaken and the temperature checked before consumption, in order to avoid burns.
14. Always test the temperature of food or drink which has been heated in a microwave oven before you give it to somebody, especially to children or elderly people. This is important because things which have been heated in a microwave oven carry on getting hotter even though the microwave oven cooking has stopped.
15. Eggs in their shell and whole hard-boiled eggs should not be heated in microwave ovens since they may explode, even after microwave heating has ended.
16. Keep the waveguide cover clean at all times. Wipe the oven interior with a soft damp cloth after each use. If you leave grease or fat anywhere in the cavity it may overheat, smoke or even catch fire when next using the oven.
17. Never heat oil or fat for deep frying as you cannot control the temperature and doing so may lead to overheating and fire.
18. Liquids, such as water, coffee, or tea are able to be overheated beyond the boiling point without appearing lo be boiling due to surface tension of the liquid. Visible bubbling or boiling when the container is removed from the microwave oven is not always present. **This could result in very hot liquid suddenly boiling over when a spoon or other utensil is inserted into the liquid.**

To reduce the risk of Injury to persons:

a. Do not overheat the liquid.

b. Stir the liquid both before and halfway through heating it.

c. Do not use straight-sided containers with narrow necks.

d. After heating, allow the container to stand in the microwave oven for a short time before removing the container

e. Use extreme care when inserting a spoon or other utensil into the container.

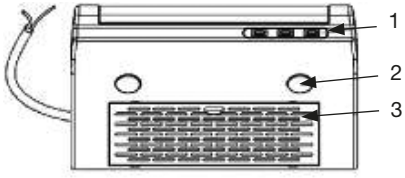
Care of the microwave

1. Turn the oven off before cleaning
2. Keep the inside of the oven clean. When food spatters or spilled liquids adhere to oven walls, wipe with a damp cloth. Mild detergent may be used if the oven gets very dirty. The use of harsh detergent or abrasives is not recommended.
3. The outside oven surface should be cleaned with soap and water, rinsed and dried with a soft cloth. To prevent damage to the operating parts inside the oven, water should not be allowed to seep into the ventilation openings.
4. If the central panel becomes wet, clean with a soft dry cloth. Do not use harsh detergents or abrasives on Control Panel.
5. If steam accumulates inside or around the outside of the oven door, wipe with a soft cloth. This may occur when the

microwave oven is operated under high humidity conditions and in no way indicates malfunction of the unit.

6. It is occasionally necessary to remove the glass tray for cleaning. Wash the tray in warm sudsy water or in a dishwasher.
7. The roller guide and oven cavity floor should be cleaned regular/y to avoid excessive noise. Simply wipe the bottom surface of the oven with mild detergent water or window cleaner and dry. The roller guide may be washed in mild sudsy water.
8. The oven should be cleaned regularly and any food deposits removed;
9. Failure to maintain the oven in a clean condition could lead to deterioration of the surface that could adversely affect the life of the appliance and possibly result in a hazardous situation.

Extractor hood 524



1 Operating panel
2 Light
3 Filter holder with grease filter

The extractor hood 524 serves to extract water vapour from cooking areas in motorhomes. The integrated halogen lamps (2) serve to illuminate the work surface.

The fan and the lighting (2) can be switched independently via the operating panel (1). At the same time. The integrated grease filter (3) prevents the extraction system from being contaminated from inside.

Note: Safety information, always refer to the user instructions provided with your motorhome.

Replacing the lamps on the extractor

Lamp type: max. 10W /12V halogen with UVStop

Always switch off the lights before replacing the lamps! The lamps get very hot during operation. There is a risk of being burnt. Wait until the lamp has cooled down.

There is a risk of injury if the lamp is broken.

Remove the remainder of the lamp using suitable tools only.

Replacing or cleaning the grease filter

Flip the front part of the grease filter downwards.

Pull it out towards you.

Remove the filter holder

You can now exchange the filter. Fix the new filter in place with the filter holder. Finally, reinstall the filter unit in the reverse order.

Always switch off the fan motor before replacing the grease filter! There is a risk of injury when reaching inside the running fan.

Replacing the grease filter

To replace the filter, proceed according to figures 8 & 9.

Flip the front part of the grease filter downwards.

Pull it out towards you.

Remove the filter holder

You can now exchange the filter. Fix the new filter in place with the filter holder. Finally, reinstall the filter unit in the reverse order.

Thetford C260CS & C260S cassette toilet

The toilet is made up of two parts: a permanently fixed part and a Waste Holding Tank that is accessible from the outside. The removable Waste Holding Tank is located under the toilet bowl and can be removed via a door on the outside of the motorhome.

Parts

a. Removable Seat and Lid

b. Swivelling Toilet Bowl

c. Blade Handle

d. Flush Button

e. Waste Holding Tank Level Indicator

f. Rotating Emptying Spout

g. Automatic Pressure Release Vent

h. Sliding Cover

i. Removable Mechanism

j. Vent Plunger

k. Pull-Out Handle

l. Wheels

m. Blade Opener

n. Access Door to Waste Holding Tank

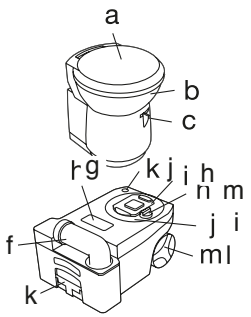
p. Electric blade opener

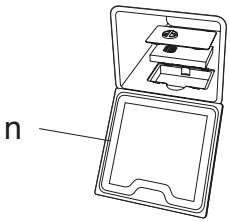
q. Electric ventilator

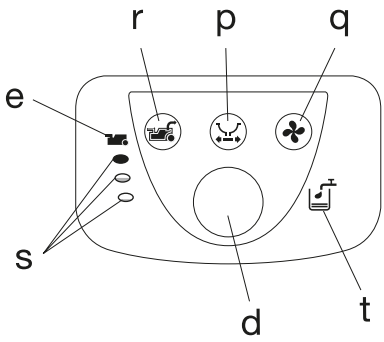
r. Waste pump-out system

s. Waste holding tank mult-level indicator

t. Flush water tank level indicator







Control panel

Preparing for use

1. Open the access door on the outside of your motorhome.
2. Remove the Waste Holding Tank by pulling the safety catch (which holds the tank in place) upwards.
3. Pull the Waste Holding Tank outward to the stop. Tip it slightly and take the tank fully out.
4. Place the tank upright and turn the rotating emptying spout upwards. The emptying spout ensures that the tank can be easily and hygienically emptied.
5. Remove the cap, with the measuring cup inside, from the emptying spout and pour the correct dosage of Thetford toilet fluid (see product label) into the holding tank. This avoids unpleasant smells and keeps the inside of the tank clean. Next add approximately 2 litres of water - enough to ensure that the bottom of the Waste Holding Tank is covered. For more information on Thetford toilet fluids, see last page of the Thetford user manual. Screw the cap back onto the emptying spout and turn back to its original position.

Note: The Emptying Spout Measuring Cap is supplied in the same packaging as the Thetford user manual.

⚠ **WARNING:** Never add toilet fluid directly via the blade or the toilet bowl as this could damage the lip seal of the Waste Holding Tank. Always pour the fluids via the emptying spout.

6. Slide the Waste Holding Tank back into its original position via the access door. Make sure that it is secured with the safety catch. Close the access door and lock it. Your Thetford toilet is now ready to use.

⚠ **WARNING:** Never use force if you cannot get the tank back into place easily. This may cause serious damage. If blockage occurs, always check if the blade handle is in the correct (closed) position.

Using the toilet

7. Turn the bowl to the desired position with the lid closed and using both hands.
8. To activate the control panel, press the flush-button once. The control panel display will stay activated for approximately 5 minutes. Run some water into the bowl by pressing the flush button again briefly.
9. The toilet may be used with the blade open or closed. To open the blade, slide the blade handle under the toilet bowl sideways. After use, open the blade (if still closed) and flush the toilet by pressing the flush button for several seconds (if necessary re-activate the control panel). Close the blade after use.

Emptying

The Waste Holding Tank has a capacity of 18 litres and requires emptying when the red light (LED) on the toilet control display lights up, when the Waste Holding Tank only has capacity for approximately 2 more litres, which is no more than two to three further uses. Make sure that the blade is closed. Open the access door located outside the vehicle, pull the safety catch upwards and remove the Waste Holding Tank.

10. Place the Waste Holding Tank in an upright position (Pull-Out Handle at the top, Wheels at the bottom). Slide the handle sideways - to the front of the tank - until it snaps out of its locked position.
11. Pull the handle up and wheel the Waste Holding Tank to an authorised waste disposal point.
12. Push the handle back into its locked position. Turn the emptying spout upwards and remove the cap from the spout. Hold the Waste Holding Tank in such a way that during emptying you can operate the vent plunger with your thumb. To empty the tank without splashing, depress the vent plunger while emptying the tank. After emptying, rinse the tank and blade thoroughly with water.

⚠ **WARNING:** Do not seriously shake the tank or use high pressure water cleaners. This may cause damage to the tank's interior.

Note: The vent plunger should only be depressed once the emptying spout is pointing downwards. Prepare the toilet for re-use if required. Slide the Waste Holding Tank into the toilet and close the access door.

Cleaning and maintenance

The toilet should be cleaned and maintained regularly, depending on the amount of use. To clean Thetford toilets, we advise using water and Thetford Bathroom Cleaner.

Note: Never use bleach, vinegar or other powerful household cleaners that contain these substances. These may cause permanent damage to the seals and other toilet components.

Toilet bowl

- Squirt Thetford Bathroom Cleaner into the toilet bowl.
- Flush the toilet bowl with water and wipe down the rest of the toilet with a damp cloth.
- Clean seat and lid The seat and lid can easily be removed: Lift the seat and lid assembly and pull the round pins (inside the assembly) outwards from the pin holes. After cleaning, replace the seat and lid by positioning the round pins in front of the pin holes and push the lid and seat downwards.
- To keep your flush water fresh and to prevent deposits from forming in your toilet bowl, add a correct dosage of Aqua Rinse in your flush water tank, if present, on your toilet.

Tip! For a really shining toilet, dry with a soft dry cloth after cleaning.

Waste holding tank

To keep your Waste Holding Tank fresh and clean, Thetford has developed a number of different toilet fluids. Thetford toilet fluids suppress smells, reduce formation of gas, promote breakdown of toilet waste and increase the life span of a mobile toilet. See page 50 of the Thetford user manual for more information. We advise a thorough cleaning of the Waste Holding Tank once each season, using Thetford's Cassette Tank Cleaner.

- Remove the removable mechanism from the Waste Holding Tank by turning it anti-clockwise and rinse it under a tap.
- Remove the cover plate from the Automatic Pressure Release Vent by prising it up using a small screwdriver. Use one hand to push the Automatic Pressure Release Vent open while holding the float of the Automatic Pressure Release Vent on the inside of the tank with the other hand. Push the float upwards, turn it 180 degrees and remove it from below. Remove the rubber seal underneath the float. Rinse the float and rubber seal under a tap. Replace the Pressure Release Vent using the same method in reverse.

The rubber seals in the toilet (the lip seal, the mechanism seal, the automatic pressure release vent seal and the cap seal) should be regularly cleaned with water and treated with Thetford High Grade Seal Lubricant. This will ensure that the seals remain flexible and in good condition. If the toilet is not to be used for any length of time, it is important to treat the seals with Thetford High Grade Seal Lubricant after cleaning.

Note: Never use Vaseline or any vegetable oil except olive oil. These may cause leakage or malfunction. The lip seal is a part of the toilet that is subject to wear. Depending upon the extent and manner of use, the seals will become less effective and will need replacing periodically.

Winter operation

You can use your Thetford Cassette Toilet as normal in cold weather as long as the toilet is situated in a heated location. If there is a risk of freezing we advise that the toilet is drained by following the instructions under 'Storage'. For environmental reasons the use of antifreeze, such as that used in car radiators, is not recommended.

Storage

It is important that you follow the instructions below if you do not expect to use your Thetford toilet for a long (winter) period.

- With the vehicle fresh water tank drained, (See "Fresh Water System" on page 49 for how to drain the tank), press the toilet flush button until water stops flowing into the bowl. Close the blade. Open the access door on the outside of your motorhome and empty the Waste Holding Tank at an authorised waste dump. Follow the instructions for cleaning and maintenance. To allow the Waste Holding Tank to dry, do not place the cap back on the emptying spout of the tank.

Thetford warranty refer to the Thetford user handbook.

Cassette toilet fault finding

Fault	Remedy
Bowl does not drain when toilet is flushed. Cassette is overfilled	DO NOT REMOVE CASSETTE. While inside the motorhome turn flush knob anti-clockwise to open valve blade and leave it in the open position. Open access door on side of motorhome. Rotate pour-out spout outward. Place appropriate size container under spout cap. Remove cap carefully. Allow bowl contents to drain into container. This will lower the water level in the bowl. Replace cap and return pour-out spout to stored position. DO NOT REMOVE CASSETTE. Go inside the motorhome and turn the flush knob clockwise to close valve blade. Now, the cassette may be removed following the normal removal and emptying procedure.
Odours	Use proper amount of holding tank deodorant specified on bottle.
Soiled bowl after flushing	Partially fill bowl to cover soiled portion of bowl. Next flush will dissolve waste. Tip: Leave valve blade open during use.
No power to add water to toilet bowl	Check cassette safety sensor switch and fuse-holder for proper engagement and operation. Note: Cassette has to be removed to reach switch and fuse. Insert cassette and try adding water to toilet bowl. Toilet can be flushed manually. Add water. Add water to bowl from a separate container. Turn flush knob anti-clockwise to open valve blade. Turn clockwise to close valve blade.
Cassette cannot be removed	Check for obstacles under retaining clip. Depress retaining clip several times to check operation. Remove cassette. Flush knob and valve blade in partial open position. Close valve blade by moving knob clockwise. **CAUTION: If valve blade is open during cassette removal, severe damage to system can occur. Never force insertion or removal of the cassette tank.**
Valve blade mechanism sticks or is hard to open	Spray light film of silicone on blade.
Major unit malfunction	Contact your original Motorhome Dealer.

Thetford C400 Cassette Toilet

These operating instructions cover Thetford cassette toilet models C-402C, C-402X and C-403L. There are a few differences in the use of these models. Make sure that you follow the instructions that apply to your toilet model.

The parts and functions that are referred to by letters are illustrated in later pages.

The actions to be taken, referred to by numbers, are illustrated are also illustrated in pages 171-172.

Parts and functions C-402C and C-402X

a. Handle: opens and shuts the valve blade

b. Flush knob: when this pressed, an electric pump fills the bowl with water

c. Level indicator display: the red LED on the display lights up when the waste tank is full (C-402C and C-402X). When the flush know is pressed briefly, the display shows the level in the waste tank and the level in the water tank (C-402X).

d. Removable seat and cover

e. Cover plates

f. Storage compartment for toilet fluids (only the tall model)

g. Safety catch: holds the waste tank in place

h. Water filling tunnel: for easy filling of the water tank.

i. Cover: guarantees optimal hygiene. Opens when the waste tank is located in the toilet and closes when the waste tank is removed.

j. Removable mechanism

k. Valve blade opener

l. Valve blade / valve seal

m. Vent plunger: for emptying with splashing.

n: Upper handle

o. Automatic pressure release valve: ventilates the waste tank when this located in the cassette toilet. Avoids excessive pressure in the waste tank.

p. Pull-out handle: for easy transport of the waste tank.

q. Wheels

r. Rotating emptying spout: ensures that the waste tank can be easily and hygienically emptied.

s. Water filling extension

t. Access hatch to waste tank and water filling funnel: lockable from the outside of the vehicle.

C-402L

a. Handle: opens and shuts the valve blade.

b Flush knob: when pressed a central electric pump in the vehicle pumps water into the bowl.

c. Level indicator display: the red LED on the display lights up when the waste tank is full. When the flush knob is pressed briefly, the display shows the level in the waste tank.

d. Removable seat and cover

e. Cover plate

f. Storage compartment for toilet fluids (only the tall models)

g. Safety catch: holds the waste tank in place.

h. Cover: guarantees optimal hygiene. Opens when the waste tank is located in the toilet.

i. Removable mechanism

j. Valve blade opener

k. Valve blade / Valve seal

l. Vent plunger: for emptying without splashing.

m. Automatic pressure release vent: ventilates the waste tank when this is located in the cassette toilet. Avoids excessive pressure in the waste tank.

n. Upper handle: for easy emptying

o. Pull-out handle: for easy transport of the waste tank.

p. Wheels

q. Rotating emptying spout: ensures that the waste tank can be easily and hygienically emptied.

r. Access hatch to waste tank: lockable from the outside of the vehicle.

Introduction

The Thetford cassette toilet is a high quality product. The functional design combines modern styling and ease of use and the toilet forms an integrated part of your motorhome bathroom. The Cassette toilet is manufactured from high quality synthetic material This makes it a durable, user and maintenance friendly toilet.

The toilet is made up of two parts, a permanently fixed part and a waste tank that is accessible from the outside. The removable waste tank is located, under the toilet bowl and can be removed via a door on the outside of the motorhome.

Preparing for use

C-402C, C-402X and C-403L

1. Open the access door on the outside of your motorhome.

C-402C and C-402X

2. Rotate the waste tank emptying spout 90 degrees and remove the water filling extension (you will find it positioned beneath the handle closest to the emptying spout).
3. Rotate the waterfill funnel outwards, remove the cap and place the extension on the waterfill funnel. Add the stated amount of Thetford fresh water additive to the water tank. This ensures a better and cleaner flush and keeps the water in the flush tank fresh.
4. Fill the water tank with clean water. Warning: keep water level below the top of the water filling funnel.
5. Remove the extension and return to its original position on the waste tank.

Note: depending on the space between the door and wate tank, this extension part may also be fixed on the door with a hook. Screw the cap back onto the water filling funnel and push back inwards towards the side of the flush water tank.

Note: 150ml of water will remain in the waterfill funnel when the water tank is empty.

C-402C, C-402X and C-403L

6. Remove the waste tank by pulling the safety catch upwards.
7. Pull the waste tank outward to the stop. Tip it slightly and take the tank fully out.
8. Place the tank upright and turn the emptying spout upwards.
9. Remove the cap, with the measuring cup inside, from the emptying spout and pour the stated quantity of toilet fluid into the waste tank. This avoids unpleasant smells in the waste tank and keeps the inside of the waste tank clean. Next add approximately 2 litres of water - enough to ensure that the bottom of the waste tank is covered. Screw the cap back onto the emptying spout. Turn the emptying spout back to its original position. **N.B.** The emptying spout measuring cap is supplied in the same packaging as this manual.

⚠ **WARNING:** Never add toilet fluid via the valve blade or via the toilet bowl.

10. Slide the waste tank back into its original position via the access door.

⚠ **WARNING:** Never use force if you cannot get the tank back into place easily. This may cause serious damage.

11. Made sure that the wate tank is secured with the safety catch. Shut the access door and lock it.

Use C-402C, C-402X and C-403L

12. Run water into the bowl by pressing the flush knob briefly or open the valve blade by turning the handle anti-clockwise. Your Thetford toilet is now ready for use.
13. After us, open the valve blade (if still closed) by turning the handle anti-clockwise. Flush the toilet by pressing the flush knob for several seconds. Close the valve blade after use.

Note: Do not leave water in the bowl if toilet is not being used. This does not help to reduce unpleasant smells and only leads to flooding.

Note: To prevent clogging, we recommend using Aqua soft, Thetford's quickly dissolving toilet paper.

⚠ **WARNING:** Please do not travel with a flush water tank that is too full (we advise empty) but not filled more than half full. Do not travel with water in the toilet bowl. Failure to adhere to this notice may result in water damage to yxour motorhome.

Emptying

The waste tank has a capacity of 19 litres and must be emptied at the latest when the red light in the level display lights up. The indicator lamp will light up when the waste tank can still take about two litres, which is about three uses.

Note: Do not allow the waste tank to become too full.

Use C-402C, C-402X and C-403L

14. Make sure that the valve blade is closed. Open the access door located outside the vehicle. Pull the safety catch upwards and remove the waste tank.
15. Remove the water filling extension first to avoid it getting lost during the emptying of the waste tank.
16. Stand the waste tank upright (pull out handle at the top, wheels at the bottom). Press the handle down and move it away from the waste tank until it snaps out of its locked position.
17. Pull the handle up and wheel the waste tank to an authorised waste dump.
17. Pull the handle up and wheel the waste tank to an authorised waste dump.
18. Push the handle back. Turn the emptying spout upwards and remove the cap from the spout. Hold the waste tank by the upper handle with one hand, while placing your other hand by the rear handle so that during emptying you can operate the vent plunger with your thumb.
    To empty the tank without splashing, depress the vent plunger while emptying the tank. After emptying, flush the tank thoroughly with water. Also clean the valve blade with water.

Note: The vent plunger should only be pressed once the emptying spout is pointing downwards!

19. If required make the toilet ready for use once again. Return the water filing extension to its original position on the waste tank. Slide the waste tank into the toilet and close the access door.

Storage

It is important that you follow the instructions below if you do not expect the Thetford toilet for a long period.

Completely empty the water tank through the drain tube, which also serves as a level indicator. Take the drain tube out of the clamp and carefully pull it downwards from the upper plug. Direct the drain tube out through the access door opening to allow water to flow out. Afterwards, be sure the drain tub is placed back into the clamp first and then pushed into the upper plug.

C-403L

Drain the central water system of the motorhome.

C-402C, C-402X and C-403L

20. Open the valve blade by turning the handle on the toilet anti-clockwise. Press the blue knob until water stops flowing into the bowl. Close the valve blade.

C-402C and C-402X

21. Open the access door on the outside of your motorhome and turn the water filling funnel outwards. Remove the cap and empty the water filling funnel by turning it a quarter turn anti-clockwise.

C-402C, C-402X and C-403L

22. Remove the waste tank and empty this at an authorise waste dump. Follow the instructions for cleaning and maintenance.
23. Replace the waste tank and open the valve blade by moving the handle on the toilet to the left.

Cleaning and maintenance

The toilet should be cleaned and maintained regularly, depending on the amount of use. To clean Thetford toilets, we advise using water and Thetford Plastic Cleaner.

Note: Never use household cleaners (bleach, solvents or other powerful cleaning agents). These may cause permanent damage to the seals and other toilet components.

Toilet

- Squirt Thetford Plastic Cleaner in the toilet.
- Flush the bowl with water and wipe down the rest of the toilet with a damp cloth.

Tip! For a really shining toilet, dry it with a soft dry cloth after cleaning.

- Clean seat and lid. The seat and lid can easily be removed. Lift the lid and seat together and pull upwards. After cleaning, replace the seat and lid by positioning the round pins above the holes and then pushing the lid and seat downwards.

Waste tank

We advise a thorough cleaning of the waste tank once each season.

- Remove the mechanism from the waste tank by turning it anti-clockwise, as shown on the waste tank. Rinse the complete mechanism under a tap.
- Remove the cover plate from the automatic pressure release vent by prising it up using a screwdriver. Use one hand to push the automatic pressure vent open, while holding the float of the automatic pressure release vent on the inside of the tank with the other hand. Push the float upwards, turn the float half a turn and remove it from below. Remove the rubber seal that is under the float. Rinse the float and the rubber seal under a tap. Replace the rubber seal and float for the automatic pressure release vent in the same way.

The rubber seals in the toilet(the valve blade seal, the mechanism, seal and the automatic pressure release vent seal and the cap seal) should be regularly treated with Thetford High Grade Seal Lubricant. This will ensure that the seals remain supple and in good condition. If the toilet is not to be used for any length of time, it is important to treat the seals with Thetford High Grade Seal Lubricant after cleaning.

Note: Never use Vaseline or any vegetable oil except olive oil. These may cause leakage.

Note: The valve blade is part of the toilet that is subject to wear. Depending on the extent and manner of service, after a certain period the seal will become less effective and must be replaced.

Winter operation

You can use you Thetford cassette toilet as usual in cold weather, as long as the toilet is situated in a heated location. If this is not the case there is a risk of freezing. In that case we advise that the toilet is drained by following the instructions under ‘Storage’.

For environmental reasons the use of antifreeze, such as that used in a car radiator, is not advised.

Thetford Warranty

Thetford B.V. offers the end users of its products a three year gurantee. In the case of defects within the guarantee period Thetford will replace or repair the product. In this instance, 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 claim under this guarantee, the user must take the product to a Service Centre recognised by Thetford. The claim will be assessed there.
2. Components replaced during repair under guarantee become the property of Thetford.
3. This guarantee does not prejudice current consumer protection law.
4. This guarantee 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 be honoured:
   - 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 a Service Centre not recognised by Thetford;
   - the serial number or product code has been changed;
   - the product has been damaged by circumstances outside the normal use of the product.

Customer service

Please visit the Thetford web site if you require further information or have questions about your toilet, www.thetford.eu The information available includes frequently asked questions, problems and solution, instructions for repair, tips and a list of Thetford dealers near you. If you still have questions or remarks, please contact the Customer Service Department in your country (see the addresses at the back of this manual).

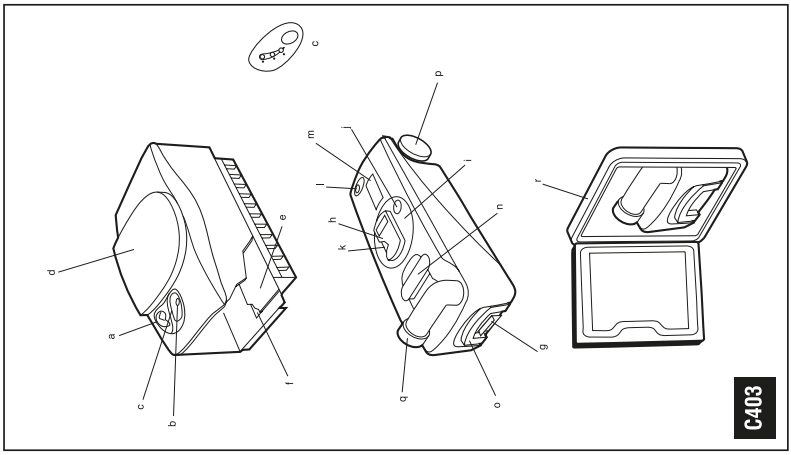
Liabilty

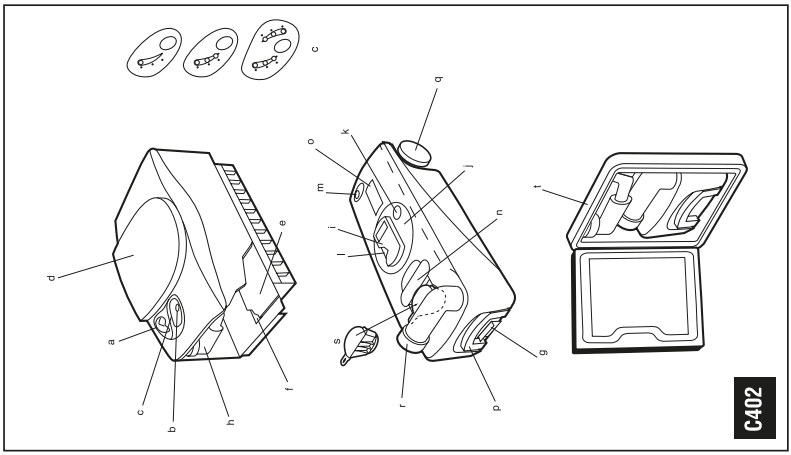
Thetford is not liable for loss and/or damage caused directly or indirectly by use of the toilet.

Flush water tank contents	Waste tank contents
15 L	19.3 L

1
2
3
4
MAX
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
MAX
20
21
22
23
24

C-402c, c-402x and c-403l models
Parts and functions
C-402c, c-402x and c-403l





Cassette toilet fault finding

Fault	Remedy
Bowl does not drain when toilet is flushed. Cassette is overfilled	DO NOT REMOVE CASSETTE. While inside the motorhome turn flush knob anti-clockwise to open valve blade and leave it in the open position. Open access door on side of motorhome. Rotate pour-out spout outward. Place appropriate size container under spout cap. Remove cap carefully. Allow bowl contents to drain into container. This will lower the water level in the bowl. Replace cap and return pour-out spout to stored position. DO NOT REMOVE CASSETTE. Go inside the motorhome and turn the flush knob clockwise to close valve blade. Now, the cassette may be removed following the normal removal and emptying procedure.
Odours	Use proper amount of holding tank deodorant specified on bottle.
Toilet tissue does not fit into compartment.	Since some tissues are supplied on larger rolls, it may be necessary to use some tissue before storing into compartment.
Soiled bowl after flushing	Partially fill bowl to cover soiled portion of bowl. Next flush will dissolve waste. Tip: Leave valve blade open during use.
No power to add water to toilet bowl	Check cassette safety sensor switch and fuse-holder for proper engagement and operation. Note: Cassette has to be removed to reach switch and fuse. Insert cassette and try adding water to toilet bowl. Toilet can be flushed manually. Add water. Add water to bowl from a separate container. Turn flush knob anti-clockwise to open valve blade. Turn clockwise to close valve blade.
Cassette cannot be removed	Check for obstacles under retaining clip. Depress retaining clip several times to check operation. Remove cassette. Flush knob and valve blade in partial open position. Close valve blade by moving knob clockwise. **CAUTION: If valve blade is open during cassette removal, severe damage to system can occur. Never force insertion or removal of the cassette tank.**
Valve blade mechanism sticks or is hard to open	Spray light film of silicone on blade.
Major unit malfunction	Contact your original Motorhome Dealer.

Windows

To open, turn knobs anti-clockwise and open catches. Swivel the window pane open to the desired position and close knobs clockwise to lock in the open position.

To close, reverse the operation.

All opening windows have two catch positions. The first position is for ventilation the second seals the window from ventilation and rain.

Acrylic (Plastic) Window Condensation

Unlike domestic double glazed windows, your motorhome windows are not vacuum sealed. Instead the double panes of acrylic plastic are fitted with a breathable plug on the inner pane.

It is possible, in weather where extremes in temperatures occur between night and day, that customer will notice condensation between the panes. The same phenomenon may also occur when washing your vehicle on a hot day.

The condensation should clear itself when the ambient conditions return to normal and the air between the panes dries. However, if this is taking a longer time than required, the breathable plug (normally located in the top corner of the window) can be removed, with a pin or sharp object, and replaced when the panes are dry. Care should be taken when doing this.

Acrylic (Plastic) Window Cleaning

The material used to produce most motorhome windows is acrylic plastic. While the acrylic used is very durable, it is able to be scratched with relative ease and therefore, care must be taken when cleaning your vehicle not to use aggressive cleaning products. Equally, care should be taken when using a drying cloth that it is clean and free from grit.

S2000/S3000 blinds (Seitz)

Rubber window seals should be cleaned periodically and talcum powder can be used to keep the profiles in good condition.

Blinds and Flyscreens

Flyscreen and blinds operate in the same manner. The flyscreen can only be 'fully up' or 'fully' down, but the blind also has an intermediate position.

To operate, pull down by holding the fingergrip(s), gently ease towards the window to locate the catches. To retract, pull down easing away from the window to release the catches and guide to the required position.

- Only operate by holding the fingergrip(s) - pulling on one side will cause uneven running and snagging.
- Do not allow the blind or flyscreen to re-coil without control.
- It is not recommended that blinds and/or flyscreens are left in the down position for long periods, or when travelling, as this can result in fatigue of the spring.

- Clean the cassette, side track and fabrics with mild detergent and water.
- Lubrication of mechanism or spring is not required or recommended.

For more detailed information, see manufacturer's instructions.

Cassette Blind and Flyscreen

Always hold the end rod in the middle. When closing blinds, slide the end rod of the flyscreen blind on to the end rod of the sun blind and engage. To open the blind push the end rods towards the darkening blind to the edge and disengage the end rods. Now move the end rod of the flyscreen back by hand - do not let it recoil.

Tensioning Seitz blinds and flyscreens
Seitz S2000 window blinds/flyscreens are pre-tensioned, it may also be necessary in the future to adjust the tension of these. Remove the left hand top corner cap. Adjust the lower screw for the blind and the higher screw for the flyscreen. Care should be taken not to over tighten the springs.

The spring in the Seitz cassette window blinds/ flyscreens are pre-tensioned. However, it may be necessary in the future to adjust the tension. The tensioning screw is positioned on the right hand top corner of the cassette. Firstly remove the plug then adjust by rotating the screw clockwise. Then replace plug.

The blinds should rewind without stopping or moving in a sluggish manner.

Windows/ Roller Blind Advice

In case of prolonged exposure to the sun roller blinds should not be completely closed as this could cause excessive heat concentration at the top of the window, due to characteristics of the glazing material the windows could be adversely affected.

Roller blinds that shade from the bottom upwards it is necessary to leave a gap of a few centimetres open at the top, this way the heat between window and blind can escape. A fly screen does not cause an obstruction.

Roller blinds that shade from the top downwards must be kept completely open, or be opened regularly to allow the heat to escape.

Keeping the windows in ventilation position allows heat to escape.

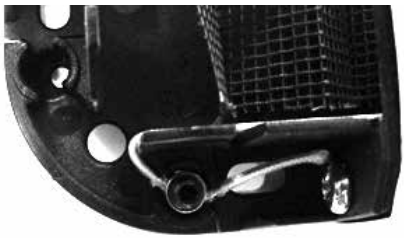
Never fully close a roller blind system when storing the vehicle or when not in use for longer periods!

Therefore for optimal window life it is recommended:-

- Blinds starting at the bottom of the window a gap should be provided for ventilation at the top with the window in its ventilation position.
- For vehicles containing blinds from the top downwards or with other types of reflective blinds / curtains, please make sure that these blinds are also ventilated or not fully closed.

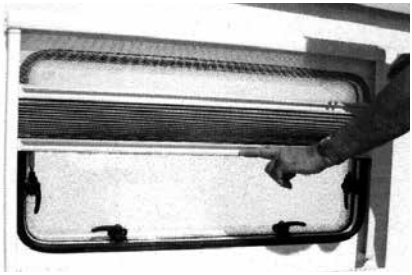
Ensure that all windows and roof vents are closed when the vehicle travels on the road.

To adjust the tension of the Horrex blind:



In each corner piece there is an cord tensioner (see photo). By unscrewing the hexagon screw, the cord can move through the cord tensioner. When you pull the cord, the tension will get higher, when you let it move back the tension will get less.

Operating instructions for blinds (Softrollo)



Closing: Grab the end bar in the middle and push the blind and flynet together or singly (blind - lower end bar) downwards until the required position is reached.

Opening: Push the end bar of the flynet and / or of the blind upwards.

Care instructions: Clean the blind only with a damp sponge. Clean on a regular basis to avoid dirt particle build up as this can damage the blind material. Use only water or with mild suds or a vacuum cleaner.

In order to avoid material fatigue, do not leave the flynet closed for a long time.

Skyview operating instructions

Safety and care instructions

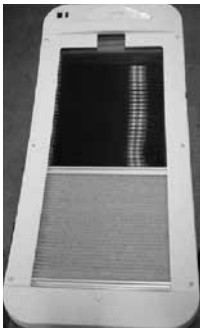
Note: Before opening the dome please check if all handles are disengaged and no objects are in the opening area of the rooflight.

To open, turn the handle anti-clockwise to the required opening position.

To close, turn the handle clockwise until the dome lies on the seal and a resistance is noticeable.

Note: Before you start your journey, close the rooflight by turning the handle to the closed position.

Please make sure that no persons or objects are in the closing area of the rooflight.



Opening/closing the blind and fly net
Pull the end rod from the recessed part and push it in a position you desire. You can adjust the incidence of light with the second operating bar.

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 screen.

Do not leave the vehicle with the roof light 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 must 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 speed recommended is 130 km/h). Do not close the blind more than 2/3 during the day (danger of heat build up). Before starting off, open the blind.

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 regulary (4 times yearly) to care for the rubber seals.

Clean the blinds only with water and mild soap suds or a vacuum cleaner.

Note: The guarantee becomes null and void if the care and safety instructions are not followed.

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 driving. Roof lights provide essential fixed levels of ventilation.

Mini Heki Rooflight

To open depress button and push bar upwards. The rooflight has two open ventilation positions and a fully open position.

The blind and flynet operate independently of each other and are engaged by connecting to each other and sliding.

Heki care instructions

Clean the blind only with a damp sponge. Clean on a regular basis to avoid dust/ dirt particle build up as this can damage the blind material. Use only water or with mild suds or a vacuum cleaner.

In order to avoid material fatigue, do not leave the flynet closed for a long time.

Roof light blind and flyscreen

The blind and flyscreen operate Independently of each other and are engaged by connecting to each other and sliding.

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 acrylic dome (tension cracks) and the winding mechanism which could arise owing to, for example, branches and other natural causes.
4. Do not step on the acrylic dome.
5. Close the roof light before starting off (check whether it is locked).

6. Do not leave the vehicle with the rooflight open (danger of burglary or from rain).
7. Do not open in strong wind or rain.
8. Before opening, remove snow, ice, dirt, etc. from the acrylic 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 acrylic dome).
11. Do not operate whilst the vehicle is moving.

Midi Heki Roof-light

With operating bar

To open, depress button and push bar to required position. The rooflight has two open ventilation positions and a fully open position.

To close, reverse the operation and then check if locked into position.

With crank

To open, rotate the crank until a resistance is noticeable during the operation.

To close, reverse the operation and then check if locked into position.

Electric version

To open, push button until desired position is reached or the electric motor switches off.

To close, reverse the operation and then check if locked into position.

Care instructions:

- Please clean the acrylic panes with the Seitz Acrylic Cleaner.
- Stains and light scratches on the acrylic pane can be removed by using the Seitz Acrylic Polish and the Seitz special polishing cloth.
- Use talcum powder (4 times yearly) to care for the rubber seals
- Clean the blinds only with water and mild soap suds
- The guarantee becomes null and void if these instructions are not followed.

Doors

In order to provide customers with the latest designs of door furniture it is possible, due to the use of natural wood, that warping may occur. This should not detract from the correct functioning of items fitted in the motorhome.

Information

During the normal travelling vehicle vibration and flexing may cause some of the furniture doors to become out of alignment.

For your convenience many hinges are adjustable.

Omnistep single step

Operation

The OMNISTEP is operated by the lever switch.

Important: when extending the step, hold the switch until the step is completely extended. Never mount the step if retracted of if not fully extended, because then the blocking is not working and the motor can be damaged.

Check if the step is retracted before departure.

Maintenance

Dirt and frost can prevent the step from operating properly. In this case the moving parts should be cleaned or defrosted.

All points of movement are layered in maintenance-free bearings.

In case of electrical failure

If the step does not retract by motor: Loosen the square connection according to fig. 5 (actions 1, 2 and 3), push the footboard in (4) and tie it to the frame.

Current drawn

5 A. When fully extended or retracted: 14-18 A

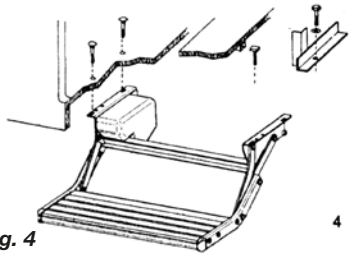


Fig. 4

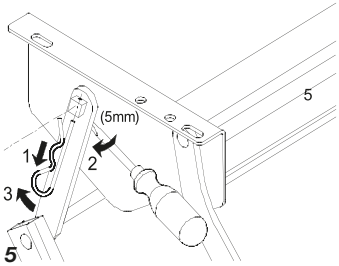
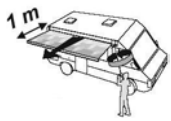
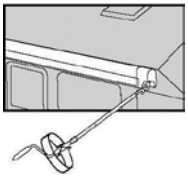


Fig. 5

Fiamma F45S/F45L side awning

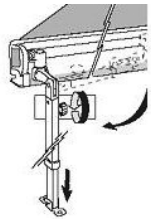


In order to avoid unnecessary strain on the awning as well as on the vehicle side, we suggest that the legs be extended about 1m from the opening.



Unscrew the leg knob to slide the leg out of its seat.

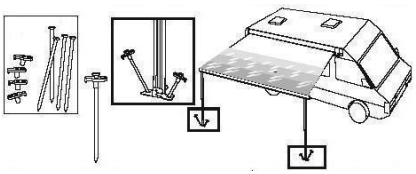
Grasp the leg near its hingejoint and pull it in a horizontal direction.



Lower the leg as shown in the figure.

After unrolling the awning completely, adjust the legs at the chosen height.

To avoid that the awning is lifted up by an unexpected gust of wind, it is necessary to secure the legs to the ground with the provided hooks. For greater safety, we strongly advise you also use some storm cords in the upper part of each support leg or anchor the awning with the Fiamma Tie-Down Kit strap.



If you want to fasten the support legs to the vehicle, put the terminals into the wall brackets. The brackets can be fixed only in reinforced points.

⚠ **WARNING:** We recommend that the awning be ground mounted only. Side mounting brackets are supplied. But in inclement weather conditions it may cause damage to the motorhome bodywork.

⚠ **WARNING:** The awning is a sun protection, please roll up your awning in case of rain, wind or snow. Alternatively lower one side of your awning, so that water can flow away and assemble the tension rafter as shown in the figure (not included for all awning lengths).

Make sure that the awning perfectly rolls up: when it is, the red indicators on the front profile ends are no longer visible. A damaged fabric does not allow the awning to perfectly roll up. Never use the awning with a damaged canopy. Wash the canopy with Fiamma BRILL.

Note: In case of problems refer to the awning user manual or contact your dealer.

Suggestions for use and maintenance for the fabric of your awning.

Fiamma fabrics are made with PVC and Polyester layers and their properties can change in certain weather conditions.

For example, if you close the awning which has been opened in the sun for a long time, wrinkles can appear on the fabric.

In low temperature, the fabric becomes less pliable and there is a risk of cracks.

Please find here a list of some practical advice for the best and long lasting use of your awning:

1. Open and close the awning in normal condition of dampness and temperature (at night or in the morning) making sure the fabric has no sharp objects on it and is clean.
2. When closing the awning after a long period in the sun, wrinkles may appear and prevent the awning closing completely. In this case the security of the awning is not compromised, as the security winch will prevent accidental opening. If wrinkles appear re-open the awning and leave in the sun for some hours and the folds will disappear. Then of course you need to re-close the awning in normal conditions (see point 1).
3. Residual damp can cause spots on the fabric. If the awning has to be closed when the fabric is damp we suggest you re-open it as soon as possible to dry.
4. We suggest you avoid using the awning below 0°C.
5. When closing the awning you should support the front bar.
6. Most of the dirt seen on the fabric will be superficial and can be cleaned with water and a cloth. Stubborn marks can be removed using a light detergent. Please do not use aggressive chemical substances and do not use high pressure cleaning tools.

Cycle racks

The Swift Group allows the fitment of a two cycle rack to our motorhomes and we have made provision for fixing blocks for this purpose.

Due to the complex nature of a cycle rack, the different models available and the need to break into the habitation box (therefore, having a potential of a leak), we suggest this modification only be carried out by a competent person, ideally, a Swift Group dealer or Authorised Repairer.

Please be aware a cycle rack can not be fitted onto a model where there is a rear escape window. Contact your dealer for clarification if your van has a rear window.

Twin lense reverse camera system

Depending on the specification of your motorhome, a reverse camera system may be installed. The system uses a pair of cameras mounted at high level on the rear of the motorhome, connected to an LCD screen which forms part of the rear view mirror, mounted on the windscreen. The two cameras give alternate views from the rear of the motorhome: A ‘close’ view, and a ‘long distance’ view.

The reverse camera system is powered whenever the vehicle engine is running.

With the vehicle in neutral, or in a forward gear, it is possible to switch the screen ON (using the power button on the mirror), and then using the V1/V2 button on the mirror switch between the two different views.

When reverse gear is selected (with the engine running) the mirror will automatically switch on (if not already on), and will display the ‘close’ image.

Solar panel use

All Swift Group products have the specific provision for the connection and use of a solar panel, even when the solar panel has not been factory fitted. Each Sargents PSU (fusebox) has a dedicated solar panel connection which allow the 12V feed from a panel to be connect to the leisure batteries.

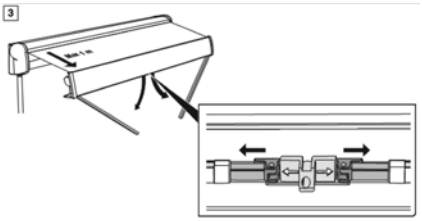
It should be noted that this connection is only designed for the use of a solar panel and has a maximum rating of 120W.

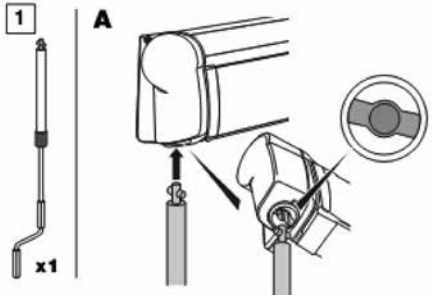
For further details see the services section of this handbook.

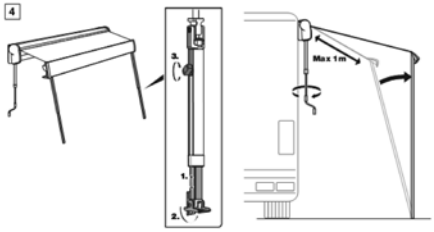
Thule Omnistor

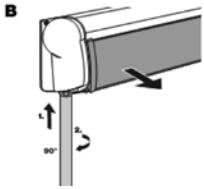
-For the mounting height of the bottom mounting brackets ask your dealer of manufacturer.

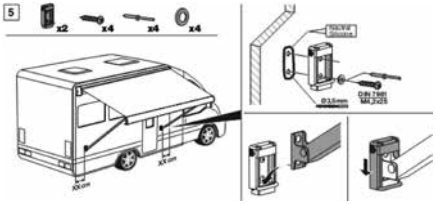
-An awning is a sun and not an all-weather protection.The awning should be closed in case of storm, snow or heavy rain fall (avoid formation of a water pocket)

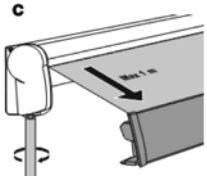


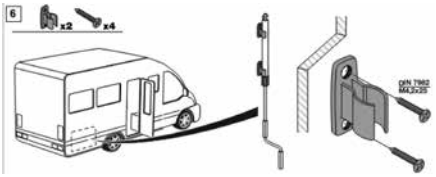


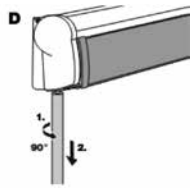












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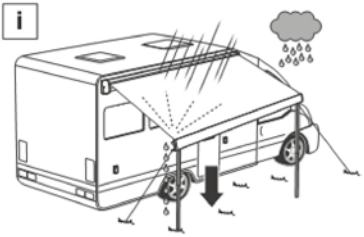

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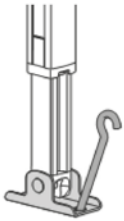
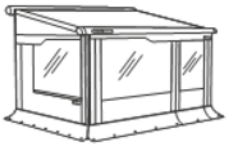
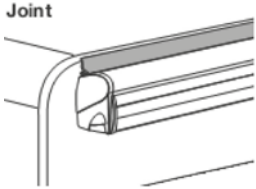


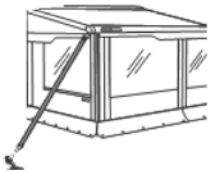
Safari-Residence



Joint



Hold Down Kit



Seat swivel (Driver/Passenger)

To turn the swivel, slide the BLACK lever rearwards and adjust to the required angle. Before driving off ensure the locking mechanism is fully secure.

Side lockers

Some models are provided with exterior access locker doors. These are suitable for storing external equipment.

Bunk and luton bed safety

Where the sleeping surface is over one metre above floor level the following notices apply.

⚠ **WARNING:** Always ensure safety boards are located before entering the bunk.

⚠ **WARNING:** Use upper bunks for sleeping only, with the provided protection against fall out in position.

⚠ **WARNING:** Care shall be taken against the risk of fall out when the upper bunks are being used by children, especially under 6 years of age, these bunks are not suitable for use by infants without supervision.

Layouts with an over-cab bed (luton bed), access may be restricted when the lower bed (model specific) is fully extended at night time.

Powered Bed Mechanism (model specific)

If fitted to your motorhome, a touch button symbol provides control for a motorised bed mechanism, allowing a bed to be adjusted between either two, or three, differing heights.

Two Position Bed Mechanism

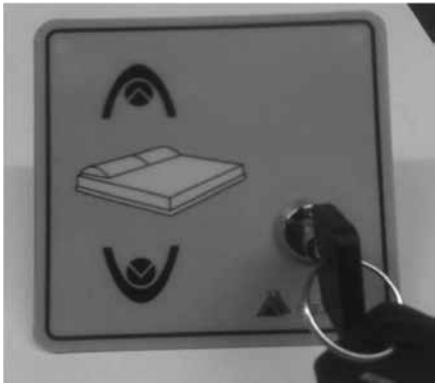
The bed is operated from a small aluminium panel with a security key and two buttons. One to move the plane of the bed upwards, the other downwards.

Insert the key into the lock and turn clockwise by 90 °.

Press the top button to lift the bed. The bed moves as long as the button is pressed.

Press the bottom button to lower the bed. The bed moves downward as long as the user holds down the button.

The lifting-bed system is equipped with two or three limit switches for protection. If for example the user holds the down button for a longer time than that required for the bed to travel its full drop then, a protection device takes over and disables the movement so as not to exit the bed from the guides and also to protect the motor.
This protection is replicated for the upward movement.



Once the bed reaches the desired position, turn the key to the OFF position, turning it to the left by 90° and remove it.

Note:
There are various types of protection.
- The key for isolation of operation
- Two or three limit switches, one high and the other low.
- Mechanical Movement

⚠ **WARNING:** The bed operating mechanism should only be operated by a responsible adult.
Take care to ensure that all persons, pets and loose items are clear of the top and underside of the bed before operating the lifting mechanism.
Do not operate the lifting mechanism with a person or heavy object on the bed.
Always remove the key when the bed lifting mechanism is not in use.

Manual Operation

The electric motor is fitted on the end with a hexagonal nut, which allows manual movement of the plane of the bed in case of insufficient voltage of the vehicle leisure battery. The bed mechanism can be operated manually, if power is disabled, simply by turning the hexagonal nut clockwise or counter clockwise, depending on the desired direction of movement.

Three Position Bed Mechanism

The bed is operated from a small aluminium panel with a security key and three buttons. One to move the plane of the bed upwards, the other two are downward buttons. The middle button can be used when the bed is in the high position to set the bed level at the middle position. The lower button will move the bed to the bottom position. The height of the middle position will suit the ladder supplied with your motorhome.

Insert the key into the lock and turn clockwise by 90°

Press the top button to lift the bed. The bed moves as long as the button is pressed.

Press the bottom button to lower the bed. The bed moves downward as long as the button is pressed.

The lifting-bed system is equipped with 2 limit switches for protection and a central position switch. If for example the user holds the down button for a longer time than that required for the bed to travel its full drop then, a protection device takes over and disables the movement so as not to exit the bed from the guides and also to protect the motor.
This protection is replicated for the upward movement.

Once the bed reaches the desired position, turn the key to the OFF position, turning it to the left by 90° and remove it.

Note:
There are various types of protection.
- The key for isolation of operation
- 2 limit switches, one high and the other low
- Mechanical Movement

⚠ **WARNING:** The bed operating mechanism should only be operated by a responsible adult.
Take care to ensure that all persons, pets and loose items are clear of the top and underside of the bed before operating the lifting mechanism.
Do not operate the lifting mechanism with a person or heavy object on the bed.
Always remove the key when the bed lifting mechanism is not in use.

Manual Operation

The electric motor is fitted on the end with a hexagonal nut, which allows manual movement of the plane of the bed in case of insufficient voltage of the vehicle leisure battery. The bed mechanism can be operated manually, if power is disabled, simply by turning the hexagonal nut clockwise or counter clockwise, depending on the desired direction of movement.

Note: The powered bed mechanism is protected by its own fuse. In the event of the motor stalling due to excessive weight on the bed or collision with an obstacle, this fuse will need to be re-set.
The fuse is located next to the bed motor or next to the bed control panel (layout specific).

Tables

Note: The free standing table legs have a positive locking mechanism. Care must be taken to ensure that, when folded, the leg which is closed first locks into the second position.

When engaging legs in down position the mechanism must be positively locked down.

⚠ **WARNING:** When erecting the free standing table, be careful to avoid trapping fingers.

Table storage

Tables stored in the table storage compartment must be securely clipped into place whilst in transit.

To avoid damage care must be taken when removing tables from their stored position.

Care of laminate tops, tables, furniture and doors

Do not use abrasives, chemically treated cloths or aggressive detergents as these may cause damage

Do not place hot objects on laminated surfaces i.e. tops, tables. Any temperatures 70°C and over will cause permanent damage.

Clean worktop surfaces, furniture and door fascias with a soft, slightly damp cloth, dry off with a soft cloth.

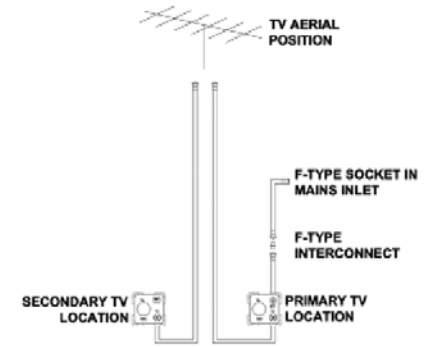
12V Reading lamp

⚠ **WARNING:** Non-LED 12v reading/ spotlamps generate high temperatures when in use, the body, lens/bulb may become very hot.
Never make directional adjustment in the direction of flammable materials i.e. Curtains, nets or blinds.

TV inlet

Depending on specification, the motorhome may be fitted with an external co-ax connection in addition to a roof mounted TV aerial. When fitted, the external co-ax connection point will be within the mains inlet enclosure.

Co-ax connection point within the mains inlet enclosure

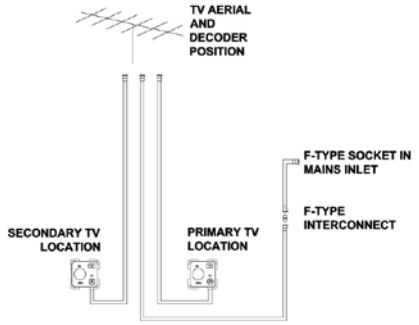


A short co-ax lead featuring a screw on co-ax connection will be present behind the Blue mains inlet connector. A co-ax cable will be fitted and connected within the motorhome, from the back of this connection, to the primary TV position within the motorhome. At the same time, further co-ax cable or cables will be fitted which route from the TV aerial position (i.e. within the wardrobe) to each of the TV positions within the motorhomes.

The primary TV position will feature a socket marked 12v, TV, and SAT. The co-ax from the external connection point will route to the socket output marked SAT, whilst the co-ax from the TV aerial will route to the socket output marked TV. At any secondary TV positions (if present) co-ax from the TV aerial will be fitted, and routed to the socket output marked TV.

An external TV aerial or site TV feed can be connected to the external connection point; signals from that connection will then be available at the primary TV position within the motorhome. As the connections are of the screw-on type, it is also possible to use this co-ax to route from an external satellite dish, for instance a tripod mounted dish, to a satellite receiver.

Co-ax connection point within the mains inlet enclosure, Satellite decoder position within the motorhome. (Kon Tiki and E700)



A short co-ax lead featuring a screw on co-ax connection will be present behind the Blue mains inlet connector. A co-ax cable will be fitted and connected within the motorhome, from the back of this connection, to the location intended for the later fitment of a satellite decoder or similar receiver.
This external connection can be used to link an external dish or signal, to the decoder / receiver position.

Upon delivery, the remaining co-ax cables installed in the motor home will be used to distribute the signal from the fitted TV aerial to the TV positions. Depending on the type of decoder / receiver, it is possible that a modulator or similar component may be required, to convert the output from the device (SCART or HDMI) into a signal that can be sent through the same co-ax cable to the TV positions within the motor home. Please ask your dealer or satellite system installer for more details, which are specific to the types of aftermarket equipment fitted.

Status 550 Digital antenna system

Travelling

Do not travel:

- with the antenna raised
- with the antenna set for vertical signals

To reduce the possibility of damage when travelling, point the antenna backwards.

The RED SPOT on the bottom of the mast indicates the front of the Antenna.

Operating the system

Firstly determine the approximate location of the nearest transmitter and whether the signals are horizontally or vertically polarised. For assistance ask your site operator or check other antennas in the vicinity.

1. Loosen the Mast Locking Collar and raise the antenna. Rotate the mast to direct the TV transmitter.

The RED SPOT on the bottom of the mast indicates the front of the antenna.

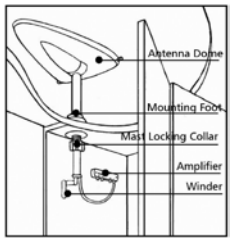
2. Should you need to receive vertically polarised signals rotate the winder, anti-clockwise to cant the antenna through 90°. The red / green indicator in the lower part of the aerial mast indicates whether the aerial is horizontal or vertical.

DO NOT use undue force on the winder.

3. Switch ON the amplifier and the LED will illuminate.
4. Check the gain control is set to maximum. For maximum rotate clockwise.
5. Tune your television into the strongest signal. You may need to adjust the direction of the mast to achieve the best picture quality.
6. Secure by tightening the mast locking collar.

Removing the antenna

1. Unplug the antenna lead from the amplifier.
2. Loosen the mast locking collar and lift off whilst feeding out the mast, coaxial cable and plug.
3. Push the blanking cap supplied into place.



⚠ **WARNING:** The blanking cap is temporary seal and is not recommended for long term use.

Technical:

Antenna dome

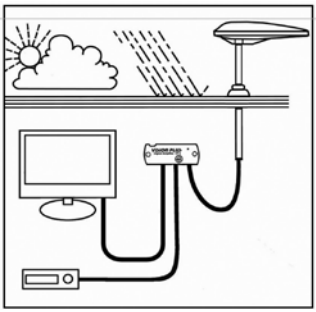
Length: 530mm
Width: 340mm

Mounting Foot

Diameter: 122mm
Height raised: 330mm
Height lowered: 150mm
No Antenna dome: 50mm

Mast: 365 mm
Amplifier: 115 x 45 x 29mm

Frequency Range: UHF 470-862 MHz
Antenna Forward Gain: 7db
Amplifier Gain - Max: 18db
Gain Adjustment - Min: 15db
Noise Figure: 2.8db
Output Impedence: 75ohms
Output: 98 dbuV
Power Supply: 12-24 VDC
Power Consumption: 55ma



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. Using the diagrams and procedures described over the page, 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 optimum reception. 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 your dealer 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 your TV fly lead with convertor 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 text isolates the amplifier by connecting your TV direct to the antenna.

Unplug the antenna from the amplifier and connect convertor 2 supplied to the plug on the cable end. Using your TV Fly lead connect the antenna directly to your TV. Tune in your 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 pixilation, 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 antennas polarity is correct, whether horizontal or vertical. Bypass the amplifier by following 'Short Hook-Up Test 1'
Poor	Moderate pixilation and sound distortion	
Medium	Minor pixilation, will not receive all channels	
Good	Stable picture, good sound quality, will receive all channels	N/A
Strong	Moderate pixilation, 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 pixilation, 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.

Shower

When using the shower, always ensure that the shower door is fully closed thus avoiding water spray on unprotected areas

Trigger shower heads

- Squeeze trigger to release water. Release trigger to stop. Twist trigger up to gain permanent water flow, lower to stop.
- Care should be taken as water may become hot temporarily when switched on until it mixes and regulates.
- Small children should be surpervised at all times when using the shower.
- We recommend unfastening the trigger shower head before travelling and storing safely to prevent it becoming detached whilst travelling.

Motorhomes with external BBQ point

Models equipped with an external barbeque point can be used to power any gas appliance suitable for the gas used in the motorhome, at the working pressure shown on the label in the barbeque outlet box. Please note when using the outlet that the fitted regulator will allow a maximum of 1.5kg per hour of gas to be taken from the gas bottle. Therefore the consumption of gas from both the appliances within the motorhome and the appliance connected to the barbeque point cannot exceed a total of 1.5kg per hour at any one time. If you are in any doubt please consult your dealer for advice. To use point proceed as follows.

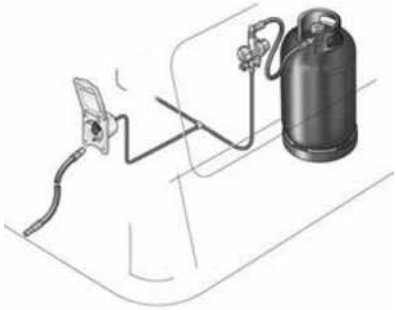
When external gas equipment is being connected, the operating pressure of the gas supply of 30 or 50 mbar must correspond with the operating pressure of the equipment that is being connected (see data plate).

The plug-in connection can only be made if the quick-acting valve is closed. The safety locking mechanism can be released by sliding back the coupling sleeve.

The coupling K-valve is designed such that the quick-acting valve can only be opened if the connection is being made via the plug-in connection. The connection is made by inserting the plug-in connection into the safety coupling.

This operation can be carried out using one hand. After uncoupling the equipment, seal off the valve opening using the protection cap.

Note: The external gas socket is only suitable for removing gas, not for feeding gas into the gas system.



⚠ **WARNING:** Care should be taken when using the external barbeque point. Never barbeque next to an awning or tent.

⚠ **WARNING:** The caravan barbeque point should only be used as an outlet point for gas, never connect a gas bottle direct to the outlet.

External shower point

The external shower point, if fitted, will be supplied with a separate shower head and hose assembly.

To connect the shower, simply align the plug with the socket and push into position.

To remove, pull the lower trigger and pull the plug from the socket.

Colour reference

The colour code for touch ups or resprays for all white Fiat/Peugeot cabs and Swift coach built habitational body components is Fiat White 249. For silver cabs the colour reference is silver metallic 611 and metallic black 632. For Fiat/Peugeot cabs other than white, contact your Fiat/Peuget dealer or obtain a colour match.

Please be aware that colours can fade over time, and therefore, if the vehicle is more than a few years old, it is suggested a colour match be obtained.

FITTED EQUIPMENT

Vehicle modifications & non-standard parts

As the owner of a Swift Group Product, you are able to make any modifications you wish, either by yourself or through a dealer, without affecting the Swift 3/6 Year Warranty.

However, please be aware that any issues, resulting directly or indirectly, from a modification or fitment of a non-standard part, will not be covered by The Swift Group Warranty.

WD40 is not recommended for external or internal use

WD40 attacks paintwork and sealants.

If a lubricant is required for Interior hinges, Sliding door tracks, Exterior door hinges, Plastic tracking etc. We recommend "Ambersil 40+" this is readily available from most DIY/ Automotive spare part retailers

Before carrying out any DIY work within the warranty period (3/6) years please check with your Swift Group dealer.

Motorhome exterior

Aluminium Panels

The stove enamelled paintwork is very durable and easy to clean owing to the high gloss properties.

Plastic Panels (GRP/ABS)

These are used for front and rear panels and, in some cases for the roof.

Cleaning

For both aluminium panels and plastic panels.

1. Wash the motorhome regularly with mild detergent. Rinse with cold water and leather off.
2. For better protection a similar coloured good quality car wax may be applied.

For sealed areas a mild soap is the best way to clean without affecting the sealant.

Acid or alkaline based cleaners or solvents should not be used.

⚠ **WARNING:** Under no circumstances use any abrasive cleaning agents or solvents on the exterior. Do not wash your motorhome with a high pressure washer as these can permanently damage the seals of your motorhome.Care should be taken as the silicon in some polishes can attack the rubber used on the exterior for seals and gaskets.

Acrylic Windows

Wash windows carefully, as you would with the paintwork of your car, do not scrub windows prior to removing surface dirt and film with a hose pipe - trapped dirt could cause scratching.

Wash with a solution of warm soapy water, windows can then be dried off with a leather.

Small scratches can be removed, consult your dealer.

Catches and stays do not require any special attention or lubrication.

Unlike domestic double glazed windows, your caravan / Motorhomes window are not vacuum sealed instead the double panes of acrylic plastic with are fitted with a breathable plug on the inner pane.

It is possible, in weather where extremes in temperatures occur between night and day, that customer will notice condensation between the panes. The same phenomenon may also occur when washing your vehicle on a hot day.

The condensation should clear itself when the ambient conditions return to normal and the air between the panes dries. However, if this is taking a longer time than required, the breathable plug (normally located in the top corner of the window) can be removed, with a pin or sharp object, and replaced when the panes are dry. Care should be taken when doing this.

Acrylic (Plastic) Window Cleaning

The material used to produce most caravan and Motorhome windows is acrylic plastic. While the acrylic used is very durable, it is able to be scratched with relative ease and therefore, care must be taken when clearing your vehicle not to use aggressive clearing products. Equally, care should be taken when using a drying cloth that it is clean and free from grit.

Condensation

What is condensation

Condensation is the process of change of water from its gaseous form (water vapour) into liquid water when it comes into contact with a surface that is cold. Condensation generally occurs when warm air cools quickly and looses its capacity to hold water vapour, and as a result water vapour condenses to form droplets.

Why condensation occurs

Condensation occurs when warm moist air meets a cold surface. The level of condensation will depend upon humidity levels, how moist the air is and how cold the surfaces are they come into contact with.

If the temperature falls below the dew point temperature, it is quite normal for condensation to occur on any material within the caravan that is cold, for example the external walls, plastic windows etc.

When condensation occurs

Condensation occurs usually in winter months, because ambient temperatures are colder (leading to cold surfaces) and windows and roof vents are opened less so the moist air cannot escape.

Where condensation occurs

Condensation will occur where warm moist air is put into the atmosphere in areas such as in bathrooms (during showering) and in kitchen areas (during cooking).

In the enclosed space of a motorhome, the moist air from the kitchen or bathroom areas will inevitably transfer to the rest of the vehicle, which in turn condenses on cold surfaces leading to visible water droplets. This issue is compounded by warm moist air being generated from normal breathing.

Condensation will also form in cold areas where air movement and ventilation is restricted (e.g. cupuboards, wardrobes, under beds, etc.)

What is important

It is important to provide ventilation and air flow, so that warm moist air can escape, or be externally cooled, and to use the heating reasonably by not making the motorhome too warm such that people perspire, as this will only serve to generate more moist air and therefore more condensation.

However, in particularly cold periods, where the external ambient temperatures are low, condensation may still form on external walls as the insulation levels may well not be thermally able to cope with the difference between the internal and external temperatures.

How can you prevent condensation

Provide ventilation so that moist air can escape.

a. Good ventilation of the vehicle when cooking or when drying clothes, footwear or pets is essential. Observe when windows begin to show signs of misting and increase ventilation by opening slightly by 1cm or opening a roof vent, as these will help, but keep the habitation door closed as much as possible to retain heat.

b. If drying damp clothes or towels, open a window to ventilate the area and allow the moist air to escape.

c. Try to make sure that the caravan is partially heated. It can take a long time for a cold caravan to warm up, so it is better to have a small amount of heat for a long period then a lot of heat for a short time.

d. After showering, keep the bathroom window or skylights open, and shut the bathroom door long enough to dry off the room.

CONDENSATION

e. Fixed ventilation is provided in the vehicle, specifically through the floor, it is important not to block these.

f. Electrical heating is dryer than gas heating, and introduces less moisture into the atmosphere. Do not use additional portable paraffin or flue-less gas heaters at all.

g. If left unoccupied and unheated for long periods of time the temperatures can soak down thermally into the entire product and become very cold. Whenever possible, put the heating on at a low level before use by pre heating in cold weather.

h. Even with reasonable ventilation it is likely if the temperature is less than 5°C and the humidity is high that condensation will occur. Ideally the temperature should be kept about 20°C when occupied.

Mould Growth

Any sign of mould growth is an indication of the presence of moisture and if caused by condensation gives warning that heating or ventilation may require improving.

New vehicles

New products take a long time before they are fully 'dried out' because of the moisture in the materials used during manufacture. While this is happening extra heat and ventilation will be required.

How can you prevent condensation

Provide ventilation so that moist air can escape.

a. Good ventilation of kitchens when washing, cooking or drying damp clothes is essential. Open the skylights or windows slightly, but keep the door closed as much as possible.

b. After showering, keep the bathroom window or skylights open, and shut the bathroom door long enough to dry off the room.

c. In all other areas provide some ventilation. Fixed ventilation is provided in accordance with BS EN 721: 1998 this is through skylights and 'Heki roof lights' in the roofs and from ventilators through the floor under cookers, doors and in bed boxes it is important not to block these.

Too much ventilation in cold weather is uncomfortable and wastes heat. All that is needed is a very slightly opened window or skylights. Opening a skylight or 'Heki; rooflights partially or windows opened to about 1cm will usually be sufficient.

Provide reasonable heating

a. Do not use portable paraffin or flueless gas heaters at all.

b. If drying damp clothes or towels, open a window enough to ventilate the area and turn on the electric element of the space heater but do not hang items over the heater.

c. Try to make sure that all areas are at least partially heated. Condensation most often occurs in unheated areas.

d. To prevent condensation, the heat has to keep room surfaces reasonably warm. It can take a long time for a cold motorhome to warm up, so it is better to have a small amount of heat for a long period than a lot of heat for a short time.

Motorhomes use only carefully selected insulation materials but unlike most rooms at home all walls are exterior walls, so they lose heat through all walls as well as the roof and floor.

Even in a well insulated motorhome with reasonable ventilation, it is likely that during cold weather (less than 10 deg C) condensation will occur. Ideally the temperature should be kept about 20°C although this is not always possible.

Mould growth

Any sign of mould growth is an indication of the presence of moisture and if caused by condensation gives warning that heating or ventilation, may require improving.

New vehicles

New motorhomes often take a long time before they are fully 'dried out' because of moisture in the materials used in the manufacture. While this is happening they need extra heat and ventilation. At least during the first winter trips and may require more heat than they will need in subsequent winters journeys. Allowance should be made for this.

Corrosion

Your motorhome has been designed and built using the corrosion resistant materials (e.g. aluminium panels, stainless steel fixings, hot dip galvanised chassis and powder coated extrusions), which if looked after will extend the life and aesthetics of the product in normal service. In certain conditions, for example, if sited for extended periods in close proximity to sea and sand spray, you may experience premature ageing and/or corrosion of the vehicle than under normal conditions.

To help prevent this, we advise regular cleaning and application of a good quality external car polish. For extended periods (where the vehicle is not in use), we recommend the use of well fitted breathable vehicle cover as protection from harsh coastal elements.

Changing Exterior Bulbs

Always replace like for like.

For individual replacement bulb specification, refer to your Service Handbook.

Motorhome interior

Follow these guidelines to ensure your investment is receiving the very best attention.

Side Walls, Roof Lining

A simple wipe over with a damp cloth and a very mild detergent is all that is needed.

Soft Furnishings

Should be vacuumed occasionally to remove grit and sand and help to keep its smart appearance over the lifetime of the upholstery. The upholstery can be cleaned with a mild, reputable upholstery cleaner. It is recommended that the curtains and pelmets are specialist cleaned only. The foam used in cushions is manufactured to meet fire regulations. It requires time to return to its normal position after prolonged use.

Leather care

Leather furniture, in a normal contract and domestic environment, requires little maintenance, although obviously leather in lighter shades will need more attention.

Regular care of leather does ensure its lasting quality and some general rules for regular cleaning and maintenance are:

- Clean the leather with a soft damp cloth taking care not to soak the leather.
- For a more thorough clean, use the Bridge of Weir Leather Cleaning and Protection kite available directly from the distribution centre.
- Do not use saddle soap, wax polishes or spray polishes.
- Do not use any product or any method of cleaning not recommended by the manufacturer.
- Avoid letting any buckles, studs and zips come into direct contact with the furniture.
- Avoid drying out the leather by taking extra care where there is heating or an open fireplace.

Note: The above cleaning instructions DO NOT apply to Nubuck Suede or any other uncoated leather.

Impala Fabric (Model specific)

The Impala fabric fitted to some Swift Group products is a luxury stain resistant durable fabric.

In most cases, wet wipes are enough to clean a stain from the fabric, however, for certain stains stronger solutions are required.

Care Instructions

General dirt and stains

1. Firstly, excess liquid should be blotted with an absorbent paper or cloth so as to remove most of the liquid from the surface. After this, rub the fabric gently with a white paper or white cloth to absorb the remaining dampness.
2. The easiest way to clean is using a wet wipe or using a clean white cloth dampened with plain water. Gently rub the area of stain using small circular motions. Do not soak the fabric in the solution as excessive soaking can cause damage. More persistent

stains may need a solution of 95% water and roughly 5% soap (a gentle washing up liquid is recommended).

3. Allow the cleaned area to dry completely and then gently brush or vacuum with a soft brush the area that was cleaned using strokes in the direction of the pile of the fabric.
4. More persistent stains may need a second treatment after allowing the fabric to dry. Stains of ballpoint pen, grease etc may not come out easily using the above treatment and cleaning with a diluted solution of ISOPROPYL ALCOHOL (sometimes known as “rubbing alcohol” available from pharmacies) using a white cloth will then usually help.

Cleaning Solutions

Please refer to the table below for the best cleaning solutions for different types of stains:

Staining agent	Clean water	95% water / 5% washing up liquid	Diluted IPA Alcohol	Wet wipes
Black ink		●	●	
Blue ink			●	
Marker pen			●	●
Coffee			●	●
Tea				●
Red wine				●
Soft drinks	●	●	●	●
Milk	●	●	●	●
Ketchup			●	
Mustard			●	
Steak sauce		●		
Soy sauce				●
Mayonnaise	●	●	●	●
Butter				●
Salad oil				●
Chocolate				●
Make-up			●	●
Face cream	●	●	●	●
Suntan Oil		●	●	●
Suntan Lotion				●
Lipstick			●	
Urine				●
Shoe Polish			●	
Engine Grease			●	

Note: Impala fabric resists most household stains. Whilst Impala fabric is resistant to and drastically reduces household stains it comes in contact with it, it may not be resistant to all liquids, chemicals or other materials whether containing toxic substances or otherwise and in particular the fabric is not resistant to bleaches, acids or other liquids or materials containing destructive or toxic substances. We therefore cannot accept any responsibility for misuse of Impala fabric by allowing such liquids, materials or substances coming into contact with it.

Further details of this material can be found on the manufacturers website: http://www.impalafabrics.co.uk/

Work Surfaces

You should not stand very hot items on any of the work surfaces, especially models with polycarbonate moulded sinks and drainers.

Cupboard Catches

It is advisable to lubricate all cupboard catches, sliding bolts and hinges from time to time. We recommend “Ambersil 40+” this is readily available from most DIY/ Automotive spare part retailers

Kitchen Equipment

All the thermoplastic parts in these areas have easy clean surfaces. To ensure long life and to prevent damage you must not use any cleaning materials at all and ensure water temperatures do not exceed 70ºC (putting cold water in first is suggested). After every use it is essential that you rinse with clean water only and wipe with a soft damp cloth. Failure to follow these simple instructions may result in premature failure or cracking which will not be covered by any guarantees (including extended warranties).

Bathroom/Shower

These products should be cleaned immediately after use. Apply a warm, mild soapy water solution with a soft cloth and rinse with clean water immediately. Abrasive materials must never be used. For stubborn stains “Thetford Bathroom Cleaner” is recommended as the use of other cleaners may harm these products, cause premature failure and will invalidate the warranty. “Thetford Bathroom Cleaner is available from most motorhome/caravan dealer shops.

Furniture

A simple wipe over with a damp cloth should be all that is required. Polishing with a proprietary brand of wax polish enhances and maintains furniture in showroom condition.

It must be remembered that because the frames of the doors are made of ash, which is a natural product, they can be affected by temperature and humidity and may bow under certain conditions. As conditions change they should revert to their original positions.

Kitchen Drainer and Cutting Board

You should not stand hot items on to the removable plastic kitchen drainer. To wash use only warm soapy water, do not use chemicals and bleach.

Changing interior bulbs

The majority of interior lights are LED, and in the unlikely event of a failure, the replacement of the whole unit is required. It is not possible to replace the "bulb" on these units.

For non LED lights remove the lens or lampshade to access the bulb.

Always replace like for like

Bulb Replacement and Type

Full details of the bulbs used with your Swift Group product can be found in your Technical Handbook. Details of how to change the various bulbs can be found within our Practical Guides, located on Swift Talk (http://www.swift-talk.co.uk/forum/topics/swift-grouppractical-manuals)/

In many applications LED lights are fitted which contain no user serviceable parts. In the unlikely event of failure of one of these lamps, the entire lamp will need to be replaced – several types of LED light are intended for semi-permanent installations using self adhesive mounts etc, and dealer assistance may be required should damage or other need for replacement occur.

Winterisation

The Swift Group recommends the following winterisation points for customers:

Servicing

Arrange (in advance) the yearly service and habitation check, if the motorhome's next service is due while the vehicle is stored.

Plumbing

Water expands as it is frozen, and so trapped water, when it expands, can damage the tap / valve /pump or pipe it is trapped within. For this reason, (in addition to reasons of hygiene), the water system should be fully drained when not in use, particularly in colder weather.

- Depending on model, open the fresh water tank drain valve to drain the tank, and leave open or remove the tank drain bung inside the tank, and leave open
- Open the drain valve (yellow handle) next to water heater, and leave open.
- Fully open all the taps and shower mixer, move mixer position to the middle, and leave all taps in the open position.
- Unscrew the shower head and shower hose, shake out remaining water and allow water to drain. It is advised to leave the shower head and hose disconnected.
- Run pump for a short time, until all water is expelled.
- After a short while the majority of water will have left the plumbing system. At this point however it is still important to ensure that the pump itself is 'dry'. During this part of the winterisation, a suitable absorbent cloth or container should be used to catch a small amount of spilled water that will result.

Disconnect the pipe work from the pump by pulling the blue quick release tabs, at either side of the pump, at right angles to the pipe work, then pulling the pipe and connectors from the pump. See Fig.1 Run the pump for a short while to expel any remaining water within the pump.

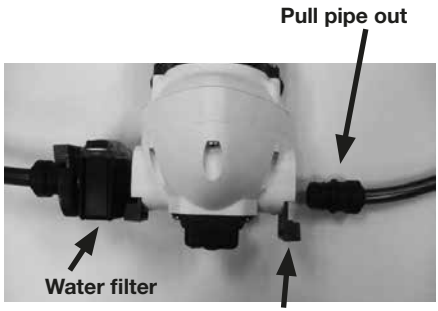


Fig.1

IThis is a good time to de-assemble and clean the pump filter. Squeeze either side of the filter housing to release the retaining tabs and pull the filter cassette out of the housing. See Fig 2

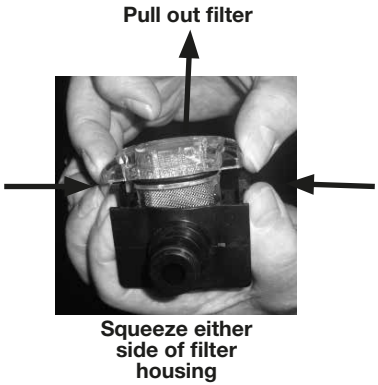


Fig.2

- Fit the cowl cover to the Truma Ultrastore, model specific.
- Open the waste tank drain valve, collecting the waste water in a suitable container, and leave open. Dispose of the waste water in a designated waste water area, clean waste pipes and tanks using a sterilising fluid. See "Waste Tank" section under services Page 53

Electrical

If vehicle is being stored while connected to 230v Mains Hook-up:

- Ensure that the leisure battery is connected and the 20A local fuse(s) is connected.
- The isolator switch on PSU should be in the 'ON' position, however. the control panel should be switched 'OFF'.
- If Alde system is installed, there is a frost protection setting, which can be used. See Alde user instruction manual.
- Vehicles can be left in this condition for extended periods, with the charger operating to maintain the battery. However, periodic maintenance and inspection is recommended, this should include the battery condition.

If vehicle is being stored not connected to 230v Mains Hook-up:

- Charge the leisure battery for 24 hours prior to placing motorhome in storage.
- Ensure the isolation button on PSU is in the 'OFF' position.
- Disconnect the negative terminal of the leisure battery or baterries.
- The battery should not be adversely affected by winter temperatures but the level of charge should be maintained to maximise the life span of the battery. This can be achieved using an automotive type battery charger as and when required.
- Disconnect the vehicle battery negative terminal. Check the charge of the battery every three months. (See Vehicle Inactivity section in the Fiat/Peugeot handbook). Alternatively put the ignition into the 'Isolation Mode'

Gas system

- Ensure the gas supply is isolated at the gas bottle, and ensure that the gas manifold taps are off.
- Check the age and condition of the high pressure gas hose and regulator, and replace if required.

WINTERISATION

Appliances

Check the battery expiry date on the smoke alarm and CO detector and replace or remove as required.

- Ensure the fridge is turned off.
- Clean the inside of the fridge.
- Prop the fridge door open, and if possible, the internal freezer compartment door for ventilation.
- Fit fridge vent winter covers (if available).
- Ensure all hob / oven / microwave surfaces are clean.
- If the motorhome is going to be left connected to 230v supply while not in use, ensure the microwave is unplugged.
- Clean the toilet and empty the cassette and lubricate the seals with an acid free lubricant such as Thetford High Grade Seal Lubricant. See Thetford toilet Users manual

Exterior (Body / Chassis)

- Ensure that all windows, skylights and access doors are closed and secured.
- Ensure all fixed ventilation points (high and low) are clear from debris and obstructions.
- Ensure the vehicle is not parked where falling debris (i.e. leaves, tree sap) could cause damage.
- Avoid leaving the vehicle parked in soft ground, long grass or a potential area where standing water may form.
- Lubricate relevant points on the chassis.

Wheels and Tyres

- Do not store in one position with partially deflated tyres. The tyre walls will suffer and do present a real danger of blow outs, especially when travelling at faster speeds than are allowed in the UK.
  The wheels should be turned every couple of weeks. If you are removing the wheels, follow the jacking procedure for changing a wheel. Check your tyres regularly for signs of age and deterioration, particularly wear, cracking and blistering. If in doubt consult a reputable tyre fitter.
- A purpose made cover maybe used, but please ensure the cover is a good fit, breathable and securely fitted.

Note: A poorly fitted cover can rub and damage the bodywork. Non-breathable covers will encourage mould to grow.

Interior (Furniture / furnishings)

- Open all lockers and internal doors, to ensure good circulation.
- Remove cushions and store them in a dry location or ensure all cushions are placed in a well ventilated area.
- Close all blinds and curtains. Customers are reminded to check the tension on blinds after storage if left closed for long periods.
- Thoroughly ventilate the motorhome by opening doors or windows periodically.
- Placing water absorbent crystals in the van during the winter months, will help reduce moisture levels and mould growth.
- We do not recommend leaving portable heaters in the van unattended.

Recomissioning the water system

Re-connect the water pump by positioning the pipe connectors into the pump housing and pushing the blue tabs into position. It is advisable, after a period on non-use, to flush the water system with a sterilising fluid such as Milton 2. Fill the fresh water tank with water and sterilising fluid (Refer to sterilising fluid instructions for the amount to use). Turn the pump on and open all the taps, ensuring that the water drains away safely to the waste tank. When the waste tank is full empty the fluid into a designated waste water area. Re-fill the tank with fresh water and flush through the system as described above; repeat this until all traces of the sterilising fluid have been flushed out. (See "priming the Water System" and "Waste Tank" sections on page 51/53)

Prepare the toilet system by adding water and Thetford fluid to the toilet waste tank. See "Preparing the Thetford Cassette Toilet for Use" on page 167.

Appliances

Before starting motor caravanning after storage, check all gas appliances and electrical points.

Note: Preferably not less than once a year, the electrical installation should be inspected and tested by a qualified electrician.

After storage it is advisable to air the Motorhome and clean throughout, especially cooking appliances and the refrigerator.

Replace the bedding if they were removed for storage.

⚠ **WARNING:** Always follow the manufacturers recommended procedures after use of fitted equipment in the Motorhome, before storing for any length of time.

Chassis and rear axle

Some models are built on Fiat/Peugeot base vehicles, the chassis of which has been converted by AL-KO. This conversion provides a hot dipped galvanised steel chassis coupled with a wide track rear axle utilising steel torsion bar suspension, imparting vastly improved stability and road holding.

AL-KO exhaust system

A standard Fiat/Peugeot exhaust system is fitted, utilising an AL-KO modified tail pipe, available through your approved dealer. A standard Fiat exhaust system is fitted to all other models, with the addition of a Swift Group tail pipe.

Caring for the environment

After many years of service you may decide that your motorhome has become beyond economic repair and should be disposed of. Please ensure that you comply with the end of life vehicle legislation and take it to an authorised treatment facility where it will be properly dealt with to minimise any negative environmental impact. The transaction will be logged at the DVLA, identifying that you are no longer the owner of the vehicle.

Water

Fault	Cause	Remedy
Water not flowing from any tap when operated but pump runs	Freshwater tank empty	Check
	Pump wired in reverse	Check wiring, refer to pump manufacturers instructions
	Pump not primed	Refer to pump manufacturers instructions
	Pipe inlet or outlet pipe disconnected	Check connections
	Pump pipes restricted by kinking	Check pipes run
	Blockage in pump inlet or outlet pipe	Check, starting inside freshwater tank
	Blocked in-line filter of pump filter	Dismantle and clean
	Air leak in suction line to pump	Check for bubbles & secure with clip
Pump does not run	Pump or tap incorrectly wired	Refer to pump/tap manufacturers instructions
	Pump fuse blown	Check wiring connection and then replace with fuse of correct rating
	Battery disconnected	Check connections
	Pump seized or overheated	Refer to pump manufacturers servicing instructions
	Pressure pump sensing switch may have failed	Refer to pump manufacturers servicing instructions
	Contacts may be faulty	Check contacts in plug and socket are clean and making contact
	Wiring connections may be faulty	Check wiring connections
Water flows from cold tap but not from hot	Feed pipe to water heater incorrectly connected to the heater outlet	Refer to installation instructions
	Blockage in hot pipeline	Disconnect pipes and inspect
	Heater inlet or outlet pipes kinked preventing flow	Check and re-route if necessary. Ensure that hose is Carver recommended type
	Hot tap not connected	Refer to installation manual
	Hot tap failed or blocked	Disconnect and inspect
	Heater non-return valve jammed	Seek service attention

Water

Fault	Cause	Remedy
Water flows from hot tap but has reduced flow from cold	Cold water pipe kinked preventing flow	Check and re-route if necessary
	Blockage in cold pipe line	Disconnect pipes after 1st Y connector and check up to tap
	Cold tap not connected	Refer to installation instructions
	Cold tap failed or blocked	Disconnect and inspect
	If a water filter is fitted, the cartridge is exhausted	Replace cartridge
Reduced flow from both hot and cold taps	Battery condition low causing pump to run slowly	Check battery state of charge, refer to electrical supply note
	If new taps have been fitted they may be restricting flow	Disconnect and check that they have at least 1/4" (6.3mm) bore
	Pump needs servicing	Refer to pump servicing instructions
	Partially blocked pump filter or in-line filter, if fitted	Dismantle and clean if necessary
	Pump outlet pipe kinked restricting flow	Check and re-route if necessary
	Water leak	Check all water connections
Reduced flow from either tap	Y' connector(s) fitted incorrectly	Refer to installation instructions
	Pipe kinking restricting flow	Check and re-route if necessary
	Bore size difference in taps	Use taps of equal bore size
If pump motor runs steadily and will not stop	Battery voltage may be too low (below 10.5 volts)	Check that there is water in the container Adjust switch and/or re-charge battery Check all connections in pipework

Gas

Fault	Cause	Remedy
Hob does not light	No gas	Check level of gas in bottle Check gas bottle valve is on Check gas taps are on
	Air in pipe	Purge system Refer to hob manufacturers instructions
Oven does not light	No gas	Check level of gas in bottle Check gas bottle valve is on Check gas taps are on
	Air in pipe	Purge system Refer to oven manufacturers instructions
Combi Boiler	No gas	Check level of gas in bottle Check gas bottle valve is on Check gas taps are on Check exhaust outlet is clear
	Over gassed Air in pipe	Turn off appliance, wait 2 minutes and try again Purge system Refer to space heater or boiler manufacturers instructions
Fridge does not light	No gas	Check level of gas in bottle Check gas bottle valve is on Check gas taps are on
	Air in pipe	Purge system Refer to fridge manufacturers instructions

Cassette toilet

Fault	Remedy
Bowl does not drain when toilet is flushed. Cassette is overfilled	DO NOT REMOVE CASSETTE. While inside the motorhome turn flush knob anti-clockwise to open valve blade and leave it in the open position. Open access door on side of motorhome. Rotate pour-out spout outward. Place appropriate size container under spout cap. Remove cap carefully. Allow bowl contents to drain into container. This will lower the water level in the bowl. Replace cap and return pour-out spout to stored position. DO NOT REMOVE CASSETTE. Go inside the motorhome and turn the flush knob clockwise to close valve blade. Now, the cassette may be removed following the normal removal and emptying procedure.
Odours	Use proper amount of holding tank deodorant specified on bottle.
Toilet tissue does not fit into compartment.	Since some tissues are supplied on larger rolls, it may be necessary to use some tissue before storing into compartment.
Soiled bowl after flushing	Partially fill bowl to cover soiled portion of bowl. Next flush will dissolve waste. Tip: Leave valve blade open during use.
No power to add water to toilet bowl	Check cassette safety sensor switch and fuse-holder for proper engagement and operation. Note: Cassette has to be removed to reach switch and fuse. Insert cassette and try adding water to toilet bowl. Toilet can be flushed manually. Add water. Add water to bowl from a separate container. Turn flush knob anti-clockwise to open valve blade. Turn clockwise to close valve blade.
Cassette cannot be removed	Check for obstacles under retaining clip. Depress retaining clip several times to check operation. Remove cassette. Flush knob and valve blade in partial open position. Close valve blade by moving knob clockwise. **CAUTION: If valve blade is open during cassette removal, severe damage to system can occur. Never force insertion or removal of the cassette tank.**
Valve blade mechanism sticks or is hard to open	Spray light film of silicone on blade.
Major unit malfunction	Contact your original Motorhome Dealer.

Owners club

The Owners Club is a completely independent organisation run for the benefit of the motorhome owners. They have numerous rallies during the year in various parts of the country. Apart from the friendliness and companionship the Club generates it is also actively engaged in charity work for those less fortunate than ourselves. The address of the Secretary of the Owners Club can be obtained from the Swift Group website.

Spares and after sales customer care

A catalogue of spare parts are available through our Swift Group Dealer Network, from door catches through to spare wheels. Please note, all parts enquiries must be directed through your dealer, as the Swift Group does not operate a direct retail service.

We endeavour to supply parts for vehicles up to 8 years old. If the original part is no longer available your dealer should be able to source a suitable alternative.

Note: Please remember to quote chassis VIN (Vehicle Identification Number) when ordering any items from your dealer. This can be found at the bottom of the front windscreen, on the plate on the front cross member within the engine compartment and on the Swift manufacturers plate situated on the bulkhead directly behind the front driver/ passenger seat.

Repair facilities

Should you be unfortunate to encounter damage to your vehicle, we have a number of approved workshops and dealerships with workshop facilities to undertake such repairs. Details of which can be found via our website: www.swiftgroup.co.uk/find-a-dealer

The enjoyment of motorhoming can be greatly enhanced by membership of one or more of the various motorhome/caravanning, motoring and holiday clubs. Here are some useful addresses:

Caravan Clubs

The Caravan Club,
East Grinstead House,
East Grinstead
West Sussex, RH19 IUA

Tel: 01342 326944
www.caravanclub.co.uk

The Camping and Caravanning Club,
Greenfields House,
Westwood Way,
Coventry,
West Midlands.

Tel: 0845 130 7631 or 024 7647 5448
www.campingandcaravanningclub.co.uk

Motoring Associations

Automobile Association (AA)
Fanum House,
Basingstoke,
Hants. RG1 2EA

Tel: 08705 448866
www.theaa.co.uk
e-mail: customer.services@theaa.com

RAC Motoring Services
RAC Motoring Services
8 Surrey St
Norwich
Norfolk
NR1 3NG

Tel: 01922 437000
www.rac.co.uk

The Society of Motor Manufacturers and Traders Limited (SMT)
Forbes House,
Halkin Street,
London SW1X 7DS
Tel: 020 7235 7000
www.smmt.co.uk

Green Flag
Tel: 0845 246 1557
www.greenflag.com

RBS Insurance
Churchill Court
Westmoreland Road
Bromley
Kent
BR1 1DP
0800 158 2493

Trade Association

NCC
Catherine House,
Victoria Road,
Aldershot,
Hampshire, GU11 1SS

Tel: 01252 318251
www.thencc.org.uk
www.motorhomeinfo.co.uk
e-mail: info@thencc.org.uk

Change of ownership

Notification of change of ownership (for second owners only)

A the new second hand owner, please notify the Swift Group of the change of ownership by completing this page and sending it to:

Customer Services
Swift Group Limited,
Dunswell Road,
Cottingham,
East Yorkshire HU16 4JX.

The transfer of ownership incurs an administration charge of £50 payable to 'Swft Group Limited'.

Upon receipt of your completed form below you will be contacted by a member of the Customer Services Team who will process your payment **(please do not send payment with this form).**

The form and payment must be received within three months from date of purchase. The transfer of the warranty will not come into effect until payment has been received.

Note: Warranties are only transferable providing the terms and conditions of the warranty have been met by the previous owner(s). Please see warranty information at the beginning of this handbook for full details. The 'Extended Body shell warranty' is a non-transferable warranty.

Details of motorhome:	Model:	
	Chassis No:	
New owner:	Name:	
	Address:	
	Email:	
	Telephone:	
	Mobile:	
	Date of purchase:	
Previous owner:	Name:	
	Address:	
	Email:	
	Telephone:	
	Mobile:	
	Date of purchase:	

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All Swift Group models have been certified by the NCC 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 motorhome carries the “NCC Approved Motorhome” badge.

The NCC also conduct unannounced inspections at the Swift factory to ensure continued compliance. NCC Approval gives you peace of mind that your motorhome is legal and safe.

All Swift Group motorhomes are European Whole Vehicle Type Approved.

This is your assurance that these motorhomes meet all European regulations, and have been constructed and conform to approved safety, environmental and manufacturing control standards.