INTRODUCTION

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 MOTORHOME USER 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.

HAPPY TOURING!

IMPORTANT - PLEASE QUOTE THE BASE VIN (VEHICLE IDENTIFICATION NUMBER) IN ALL CORRESPONDENCE WITH YOUR DEALER OR SWIFT GROUP LIMITED, THIS CAN BE FOUND 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.

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

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

WARRANTY INFORMATION

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, the manufacturer of Swift Group motorhomes and have absolutely no authority to bind the manufacturer by any express or implied undertaking or representation.

All motorhomes (other than the engine, chassis cab and associated parts referred to in this handbook which are subject to the relevant chassis manufacturer's warranty) have a 3 year SuperSure manufacturer's warranty from the date of purchase (or hire purchase), which is subject to a chargeable annual service and inspection being carried out at an authorised Swift Group Service Centre.

During the warranty period, subject to the exclusions set out in this section of the handbook, the manufacturer, Swift Group Limited, will repair (or at its option, replace) all defective parts of the motorhome. For any engine, chassis cab and associated parts warranty issues please contact your local Fiat Agent.

The manufacturer will honour the warranty until 36 months from the date of sale, provided that the motorhome has been serviced annually within 90 days before or 60 days after each anniversary of the original date of sale. The third service must, however, be carried out before the expiry of the 36 month period from the original date of sale.

In the first 12 months the warranty will cover:

Faults arising from a manufacturing defect but not those which are a result of normal wear and tear or those which relate to replacement light bulbs and leisure battery.

Also not covered under the first year are faults resulting from accidental damage or damage caused by misuse of any component part of the motorhome.

In the years two and three the warranty will cover:

1. All original components of the motorhome including permanently fitted equipment forming part of the manufacturer's original specification.
2. Water ingress and body delamination

Specific exclusions to Supersure Warranty during Years 2 and 3

- Glass including heat shields, sink lids, mirrors.
- Paintwork including all exterior paint, heat shields, heater cases and all other painted surfaces.
- Decals, mirror transfers, resin badges.
- GRP/ABS wheel spats and skirts.
- Soft furnishings including upholstery, curtains, pelmets.
- Carpets, lino and floor coverings including door mats, shower mats.
- Work surfaces, tables, and flaps.
- Wallboards, ceiling boards and all other interior décor finishes.
- Window catches, stays and associated fittings.
- Blinds and flyscreens including door, Heki and other rooflights.
- All hinges, catches, knobs, stays and handles (interior and exterior).
- Adjustment of external doors and lockers.
- Truma heater.
- Glen Dimplex cooking appliances.

- Replacement of bulbs, fluorescent tubes, fuses and electrical connections including 12n and 12s plugs, high level brake lights and bulb contacts.
- Adjustment and natural movement of internal doors, flaps and furniture.
- Audio equipment including radios, speakers, aerials and associated parts.
- Corner steadies.
- Microwave
- TV
- 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.

General terms applying to all three years of the warranty period

The motorhome is not covered for:-

- The failure of a component for reasons of fair wear and tear.
- Damage resulting from accidents.
- Misuse of any component.
- Normal deterioration, corrosion, intrusion of foreign or harmful bodies, lack of servicing or negligence of any person other than the Swift Group Limited 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.

The warranty will be invalidated if the motorhome has been neglected, misused, modified or for hire or reward. The motorhome will be deemed to have been neglected if it has not been serviced and maintained as stated in this handbook.

If any repairs are identified as being necessary during an Annual Service, the motorhome must be made available to an authorised Swift Group Service Centre within 6 weeks for the work to be carried out. All new motorhomes must be registered with the Swift Group Ltd within 6 weeks of purchase as new.

The warranty only applies to motorhomes purchased and used within the UK, and for continuous journeys abroad of no longer than 90 days per journey.

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.

The benefit of this warranty may be transferred to a new owner if the motorhome is sold, provided that the motorhome has been serviced by an authorised Swift Group Service Centre in accordance with the requirements of this handbook, and details of the change of ownership have been supplied to Swift Group using the change of ownership form set out in this handbook. Failure to notify Swift Group of a change of ownership within 14 days of such a change will invalidate the warranty.

Warranty

This warranty only applies to motorhomes purchased in the UK.

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.swiftleisure.co.uk

Your Warranty Explained

Your Swift motorhome has a three year SuperSure Manufacturer's Warranty. The items covered during years one, two and three vary, and are clearly explained on pages 2 and 3 of this booklet.

Your dealer should fully explain the terms of the warranty, which is also subject to annual service requirements, at the time of the official handover of your product.

Please sign this form to say that you have had the details of the warranty and the annual service arrangements fully explained.

Signing this document in no way affects your statutory rights under the Sale of Goods Act.

Signed .....Date .....

Motorhome Details

IMPORTANT Enter all your motorhome details on this page (see specification handbook).

Registration Number	
Serial Number	
Chassis Number	
Delivery Date	
Key Number	
Overall Length	
Overall Width	
Maximum External Height	
Mass in Running Order	
User Payload	
Maximum Technical Permissible Laden Mass	
Tyre Size	Front: Rear:

Supplied and Pre-delivery Inspection by:

Service History	
Signed/Dealer	Date

Assistance

WHAT TO DO IF YOU REQUIRE ASSISTANCE

Congratulations on purchasing a Swift product. 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 Supercare, please quote your name, postcode and build number of your motorhome.
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.

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 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.

NB. 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.

Just as the engine/gearbox/roadwheels need regular servicing by your chassis dealer, so there are components in your conversion that need regular maintenance by your motorhome dealer.

These include the gas and electrical systems and the seals in the bodywork. Your dealer will complete the record in this handbook to show that the work has been carried out.

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.
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. Roof lights.
15. Furniture hinges/stays etc.
16. Exterior locks and hinges.
17. All internal vents.
18. Seals.
19. Blinds and fly screens.
20. Blown air heating and gas fire systems.

THE MOTORHOME CODE

Motorhome Code

CODE OF CONDUCT

CAMP SITES

Arrivals
Report to reception immediately on arrival.

Vehicle Movement
Keep to roadways unless otherwise directed.

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

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

Park correctly as advised on your pitch. Where possible leave 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.

When travelling, 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 shown overleaf.

Motorhome Code

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.

PREPARING FOR THE ROAD

BEFORE MOVING OFF

Check:

- gas cylinders and all gas operated appliances have been isolated, including fridge, water heater, oven and space heater.

Note: If LPG en-route heating is installed only isolate the fridge, oven and stand alone water heater.

- gas cylinders are correctly positioned, secured and turned off unless using en-route heating.
- 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.
- exterior step (where fitted) is retracted/folded in.

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.

The entrance door must be closed before the central locking is activated.

Failure could result in being locked out of the vehicle if the keys are left inside.

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 with 90% fuel / fresh water / gas capacity and standard fixtures and fittings, in compliance with European Directive 92/21/EEC (Masses and Dimensions).

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 Maximum Technically Permissible Laden Mass of this motorhome be exceeded.

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

Notes:
(i) When measuring the noseweight it is important that the trailer is loaded.

(ii) 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 20.

LOADING OF VEHICLE

WARNING: LOADS MUST NOT BE EXCEEDED.

THE DRIVER IS RESPONSIBLE FOR ARRANGING THE LOADS SO THAT THEY COMPLY WITH THE TECHNICAL WEIGHT LIMITS OF THE SPECIFIC MOTORHOME MODEL.

SEE SPECIFICATION HANDBOOK.

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: 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.

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 VIN (Vehicle Identification Number) plate located under the bonnet on the front cross member, and also on the Swift Manufacturers plate situated on the bulkhead directly behind the front driver/passenger seat.

WARNING: Turn off all gas appliances while the vehicle is in motion. If an en-route heating system is fitted isolate all appliances except the heater.

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/or minimum 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.

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, dry wipe 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 soles.

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 for tyre pressure information. This may also be displayed in the driver's door aperture.

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 when the vehicle is in motion.

SEAT BELTS AND LEGISLATION

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


Fig. 1

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.

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.

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 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 Table' in your specification handbook). This table 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:

i) Do not exceed the motorhome gross vehicle train weight.

ii) Do not exceed the maximum front & rear axle loads on the motorhome.

iii) Ensure the motorhome front axle load is never less than 40% or more than 70% of the total weight.

iv) 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.

v) The limit for towing an un-braked trailer is 750kg (based on VIN plate not actual weight), this applies to a towed car.

vi) 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).

vii) 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.

'EN ROUTE'

REMOVAL OF SPARE WHEEL ON ALKO CONVERSION:

Caution: 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

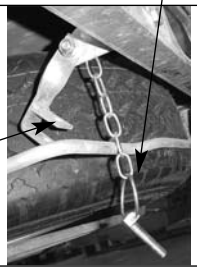


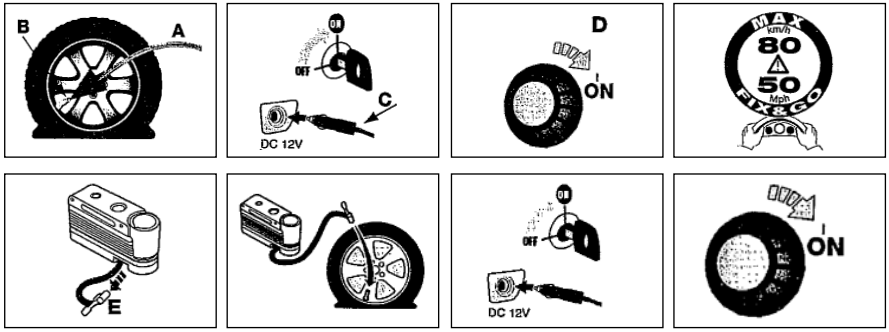
Fig. 3

Fig. 4

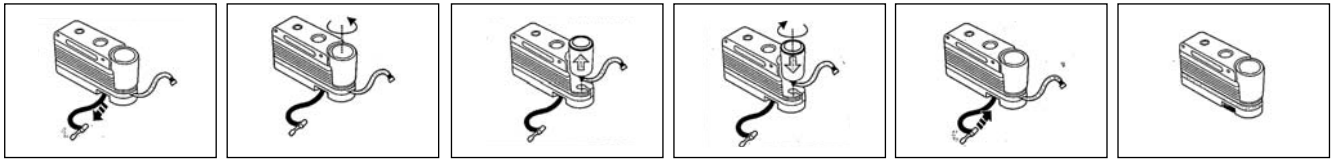
FIX & GO AUTOMATIC

CAUTION: BEFORE USE PLEASE READ THE USER INSTRUCTIONS SUPPLIED WITH YOUR FIX & GO REPAIR KIT

For tyre repair



For pressure restore only



Disconnect the clutch

Turn the empty canister on the left

Lift

Introduce new canister and turn right

Connect canister to the clutch

Insert the transparent tube into a suitable space

CAUTION:

- **The bottle contains ethylene glycol.**
- **Contains latex: may provoke allergic reaction.**
- **Harmful if swallowed.**
- **Irritant to eyes.**
- **May provoke sensitisation after inhalation and contact**
- **Avoid contact with eyes, skin and clothes. In case of contact, rinse immediately with plenty of water. In case of swallowing, do not provoke vomit, rinse your mouth and drink a lot of water, consult a physician immediately.**
- **Keep out of the reach of children.**
- **The product must not be used by asthmatics.**
- **Do not inhale fumes/ vapour during insertion and suction.**
- **Should there be allergic reactions, consult a physician immediately.**
- **Keep the bottle in a suitable place, away from heat sources.**
- **The sealing liquid has an expiry date. Replace the sealing liquid once the date expires.**

- **Do not leave bottle and sealing liquid in the environment.**
- **Dispose of them in compliance with the provisions of the national and local regulations.**

Do not operate the compressor for longer than 20 consecutive minutes, Danger of overheating.

The tyre repair kit is not suitable for permanent repairs, the repaired tyres must be used only temporarily. The sealing liquid is effective at temperatures between - 20° C and + 50° C. It is possible to repair a hole up to a maximum diameter of 4 mm in the tread and shoulder of the tyre

CAUTION: If the compressor stops due to over-heating, allow the compressor will cool down for a few minutes, push the RESET button on the side of the compressor to restart.

It is not possible to repair any damages to the side walls of the tyre. Do not use the repair kit if the tyre is damaged. Should there be damages to the wheel rim a repair is not possible.

Do not remove foreign bodies from the tyre.

Wear the protection gloves supplied with the tyre repair kit

1. Pull the hand brake. Unscrew the can from the tyre valve, take A flexible filling tube and screw the B ring nut on the tyre valve (Fig1).
2. Make sure that the D switch of the compressor is on the 0 position (off), re-start the vehicle engine, insert the C plug into the nearest socket (Fig 2) and start the compressor by putting the D switch on the 1 position (on) (Fig 3).Inflate the tyre to a Pressure of 4 bar. In order to have a more accurate reading, it is advisable to check the pressure value on the gauge when the compressor is off.
3. If a pressure of at least 3 bar is not reached in 10 minutes disconnect the power socket and compressor from the valve, then move the vehicle forward/ rearward for about 10 meters or so as to better distribute the sealing liquid inside the tyre, reconnect the compressor and inflate the tyre.
4. If a pressure of 3 bar at least is not reached in 10 minutes do not restart driving because the tyre is too damaged and the repair kit can not guarantee a safe repair; Consult a Fiat. Customer Service Centre
5. If the tyre has been inflated to a pressure of 4 bar, restart driving immediately.

Apply the self adhesive label in a position that may be clearly seen by the driver (Fig 4), so as to signal that the tyre has been treated with the repair kit. Drive carefully

especially when turning. Do not exceed 80 Km/h (50 Mph). Do not accelerate or brake abruptly,

6. After driving for about 10 minutes, stop and check the tyre pressure again, remember to pull on the hand brake.
7. **If the pressure has fallen below 3 bar, do not carry on driving: Fix & Go cannot guarantee the proper tightness because the tyre is too damaged. Consult a Fiat. Customer Service Centre**
8. If a pressure of at least 3 bar is detected, inflate to the correct pressure (with engine off and hand brake on) resume driving to a fiat Service Centre
9. Keep on driving very carefully and go to the nearest Fiat. Customer Service Centre
10. **Attention** in the case of different tyres from those furnished with the new vehicle, it is possible that a repair may not to be possible: In case of substitution of the tyres, it is advisable to adopt those approved by Fiat. Consult a Fiat. Customer Service Centre

The compressor can be used to inflate tyres normally (without sealing liquid) . Disconnect the rapid connection placed on the side of the compressor (Fig.5) and connect it to the tyre valve; in this way the sealant container will be separated from the compressor and the sealing liquid will no be injected.

NOTE should you need to deflate the tyre, connect the rapid connection E to the tyre valve and push the suitable button positioned in the middle of the switch on the compressor.

SAFETY & SECURITY

FIRE

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

IN CASE OF FIRE

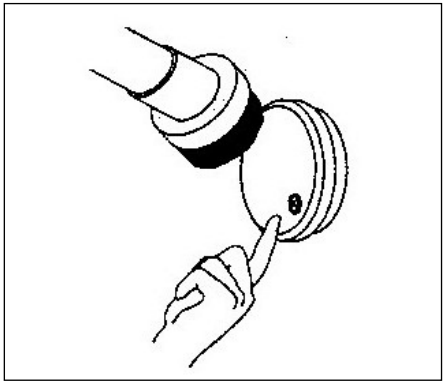
1. Get everyone out of the motorhome as quickly as possible using whichever exit is the quickest, including windows. Do not stop to collect any personal items.
2. Raise the Alarm. Call the Fire Brigade.
3. Turn off the gas supply valve if it is safe to do so.
4. Turn off the electricity supply at supply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

SMOKE ALARM

This is approved by The National Caravan Council. The NCC requires that all new vehicles sold by its members are fitted with a smoke alarm featuring an alarm silence facility.

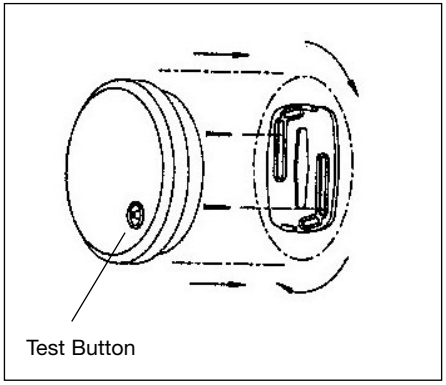
Maintenance

Test the smoke alarm every week, e.g. when doing the vacuuming, by pressing the test button for at least 10 seconds. The alarm signal is a penetrating, rapidly pulsating signal. The alarm sounds as long as the test button is pressed or there is smoke in the



detector. When the alarm goes off, always check carefully to see that there is no fire and never remove the battery from the alarm except when changing it!

Always test the alarm immediately after a long period of absence. Under the test button, there is a red control lamp which twinkles once a minute. This shows that the battery is correctly connected. If the alarm does not sound when testing, the battery must be replaced. The alarm should be dusted and cleaned regularly with a slightly damp cloth. In connection with annual battery change or when required, e.g. false alarm, clean and vacuum the alarm carefully using a soft brush.



Removing and Replacing the Alarm

Carefully twist the alarm anti-clockwise.

Replace as diagram above.

Battery Replacement

The battery lasts approximately one year. About a month before the battery is completely flat, the alarm emits a short signal once a minute, this is the signal that the battery needs changing. The alarm works as normal during this time.

The battery should be 9 Volt batteries GP 1604,S,A, Eveready 522,216, Duracell MN1604. Always test the alarm after changing the battery.

WARNING: Ensure that batteries are correctly installed. Positive terminal to positive contact (marked +), negative terminal to negative contact. Reversing a battery in its compartment will immediately drain the battery and could damage the smoke alarm.

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.

CARBON MONOXIDE ALARM

WHERE A CARBON MONOXIDE ALARM HAS BEEN FITTED, READ THE FULL USER INSTRUCTIONS PROVIDED WITH THE UNIT AS USER INSTRUCTIONS VARY.

What to do if the alarm sounds

If the alarm sounds:
Call the emergency services.

Immediately move to fresh air-outdoors or by an open door/ window. Do a head count to check that all persons are accounted for? Do not re-enter the nor move away from the open door/ window until the emergency services have arrived and the vehicle has been aired out. The alarm returns to its normal condition.

Never restart the source of a CO problem until it has been fixed.

NEVER IGNORE THE ALARM

NEVER REMOVE THE BATTERY WITHOUT REPLACING.

CO ALARMS DETERIATE WITH AGE AND MUST BE REPLACED NO LATER THAN EVERY 5 YEARS

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.

MAINTAINANCE

The alarm should be cleaned using a vacuum or soft brush.

No detergents should be used to clean the casing

FIRE EXTINGUISHER

It is recommended that a 1kg (2lb) minimum capacity dry powder fire extinguisher be carried inside your caravan at all times.

When using a dry powder extinguisher it is suggested that the caravan 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.

Safety & Security

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

FIRE

In case of fire

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

Fire Extinguishers

It is recommended that a 1kg (2lb) minimum capacity dry powder fire extinguisher complying with the requirements of ISO 7165 be carried inside your motorhome at all times and a fire blanket be kept next to the cooker.

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

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. The low level ventilators are positioned underneath the oven housing. Some models in the doorway stepwell.

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

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's requirements there should be no modifications made which may result in reduced ventilation levels.

WARNING: Do not obstruct ventilation.

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.

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 eg matches, drugs etc.

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 base vehicle 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 or prevent 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.

ARRIVAL AT SITE

Arrival at Site

Note: Check and observe site regulations.

POSITIONING THE MOTORHOME

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. B) or proprietary ramps are ideal for this purpose.

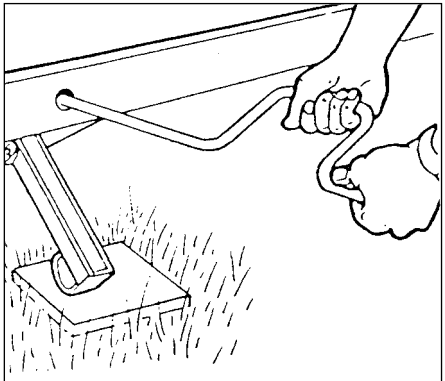


Fig. A Winding the Corner Steady

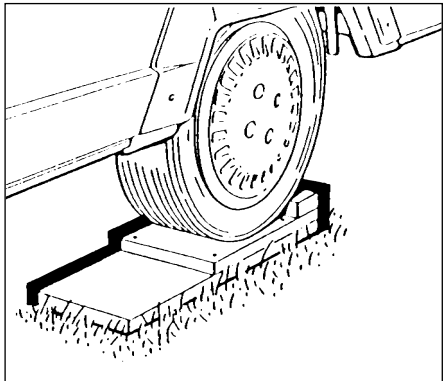


Fig. B Stepped Levelling Board

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.

CONNECTING SERVICES

Connecting Services

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

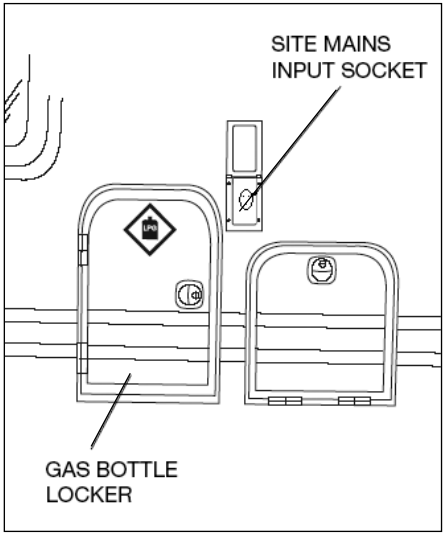
Before making connections of any description to the motorhome ensure ALL equipment is turned off.

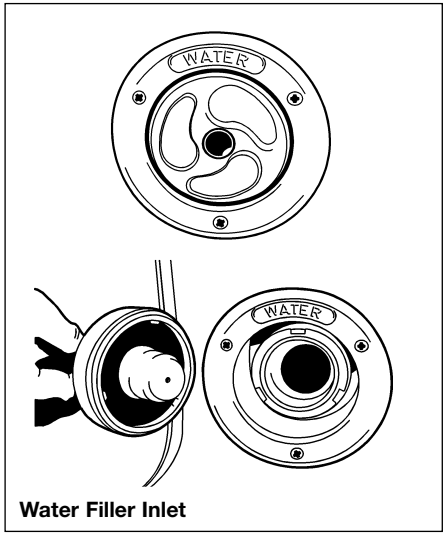
WATER SYSTEM

Fresh water system

(i) 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.

(ii) 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 non-toxic materials (preferably food quality material).



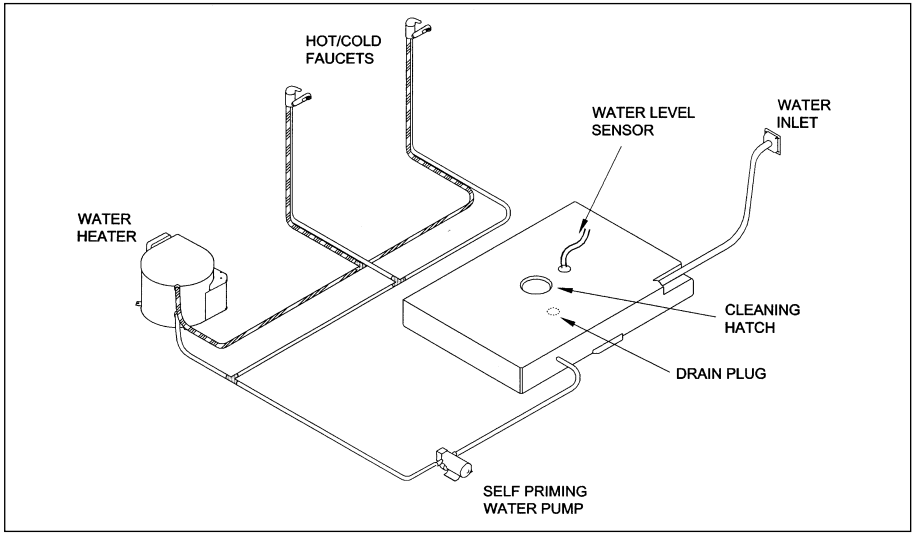


Water Filler Inlet

(iii) The fresh water tank may be drained via a plug in the base of the tank, accessible via the cleaning hatch.

(iv) The fresh water system is pressurised by a pump which will continue to operate until it senses a pre-set pressure in the system.

WARNING:
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.



Waste water system

(i) The waste water holding tank is secured underneath the chassis of your motorhome and is gravity fed.

(ii) In order to eliminate unpleasant odours as much as possible, only smooth bore pipes are used. These are fitted with waste traps under the floor which should be cleaned periodically by unscrewing the lid and flushing with clean water. However, should the waste water tank be overfilled, then 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 (iii).

(iii) The waste water gauge shows when the tank is empty, half full or full, 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.

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 2.2 gal/ 10 litre or 2.6 gal/ 12 litre (dependant upon model) of water to fill it. To do this open all hot water taps (except shower) until water comes from the taps. Top up fresh water tank after priming the water system.

Please ensure all taps are fully turned off when not in use.

We recommend the use of Milton 2 sterilising fluid for cleaning and sterilising the water tank and system.

An explanatory leaflet is available from: The Milton Food Hygiene Advisory Service, Whitehall Lane, Egham, Surrey, TW20 9NW

GUIDANCE ON CLEANING PORTABLE WATER TANKS AND THE WATER SYSTEM IN TOURING AND MOTOR CARAVANS

The water systems, and in particular storage tanks, in Caravans or 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 Caravan or 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 (e.g. Milton for 15 minutes).
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:

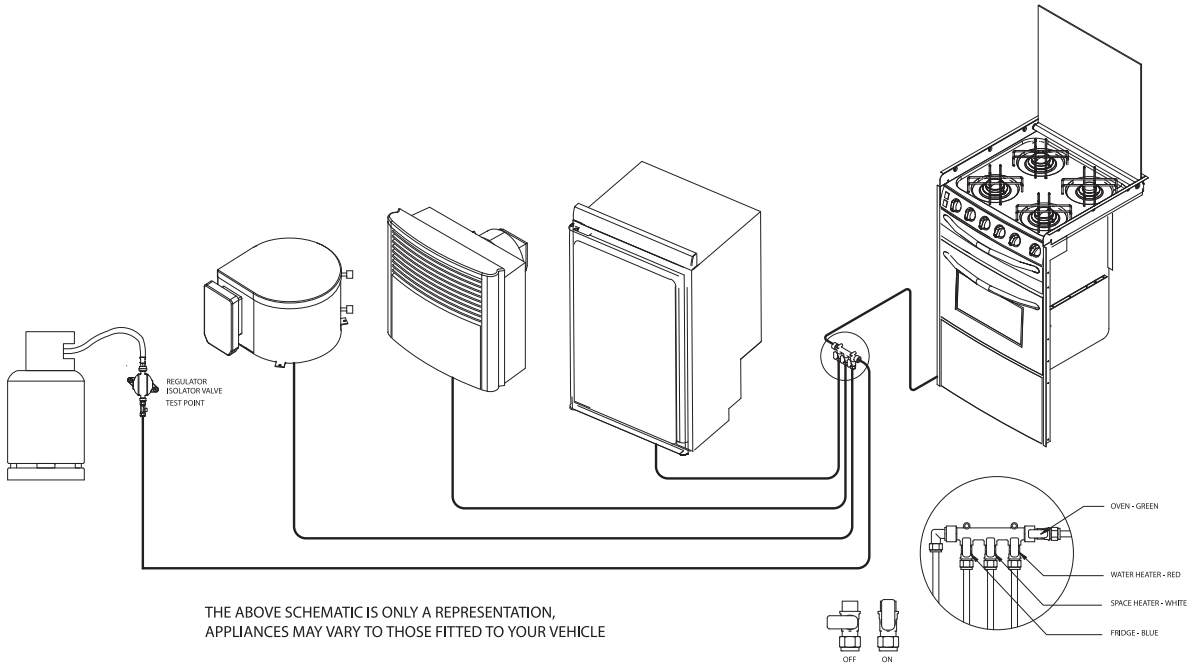
1. Drain down the system (open all taps to allow air in, enabling the system to drain quickly).
2. Remove any water filters fitted, and replace with a short length of hose or empty filter cartridge (this will ensure the filter is not affected by the disinfectant/ sterilant solution).
3. Fill the system by using the pump 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.
7. Replace the filter.

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

This guidance has been prepared with the kind co-operation and assistance of The Environmental Health Department of The Borough Council of King's Lynn and West Norfolk.

WARRANTY

Products are guaranteed from the date of purchase against defects in materials and workmanship. If the unit proves faulty, return it to your supplier with proof of purchase and purchase date. Please note that frost damage is not a valid warranty claim. The manufacturer retains the right to repair or replace the unit. The manufacturer cannot be held responsible for claims arising from incorrect installation, unauthorised modification or misuse of the product. The above does not affect your statutory rights.



Typical gas schematic drawing

GAS

GENERAL INFORMATION

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

Unless en-route heating has been installed, make sure that heating and cooking appliances and the gas cylinders are switched off before you move the vehicle.

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.

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

Regulator
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 either 1.2 kg/H or 1.5kg/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.

Note: Unless en-route heating has been installed the regulator valves should always be in the 'OFF' position when driving.

Standard regulator

en-route regulator

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

LPG bottle 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 bottles.

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 bottle.

Ensure that there is a constant rise in the flexible gas hose between the gas bottle 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.

WARNING: Ensure hoses do not become entangled in door mechanism.

TYPES OF GAS

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

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

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

Propane
Propane is supplied in red, or partly red bottles 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 caravanning.

GAS SAFETY ADVICE

WARNING: If you smell gas or suspect a leak and if it is safe to do so, isolate the gas appliances and turn off the gas bottles at the regulator. Evacuate the vehicle 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.

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

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 vehicle should be evacuated and qualified personnel consulted.

b) Always turn off the gas cylinder valve or inlet to the vehicle when the appliances are not in use.

c) Never use gas appliances without adequate ventilation.

d) Avoid naked lights when connecting or changing a cylinder.

e) Check the flexible hose frequently.

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

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

h) Always seek advice when in doubt.

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.

Always read individual appliance instructions

VENTILATION

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

Roof-mounted 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.

CHANGING GAS CYLINDERS

The following procedure should be adopted:

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

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

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

d) Make firm gas-tight joints. Any leaking vapour will smell. If a leak is suspected after changing gas cylinders and opening valve, test by brushing with soapy water around the joints. Bubbles will form if vapour is leaking. **Never use a naked flame.**

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

f) Gas cylinder valves are of various designs depending on the type of cylinder and the use for which it is intended and it is essential that the correct pressure regulator with the correct pressure setting and capacity for the installation is used in accordance with manufacturer's instructions.

g) In the case of a connection on the pressure regulator which relies upon a sealing washer(s) to maintain a gas-tight joint, it is essential to check that the washer is present, is sound and is correctly positioned prior to making the connection. Where the connection relies on a metal to metal seating or bull nose connection to obtain a gas-tight joint it is essential that the mating surfaces are clean and undamaged. In no case should a damaged valve or connection be used.

h) Where connections are designed to be tightened with a spanner, it is essential that a spanner of the correct size is used and that the union is firmly tightened, hand tightness is not sufficient. When self-sealing valves are incorporated in a gas cylinder, connections should be made in accordance with the manufacturer's instructions and tools should not be used.

LEAKS
Action to be taken in the event of a suspected leak:

a) If a gas leak is suspected, close the gas cylinder valve or other valve at the inlet to the vehicle. Do not operate electrical switches. Open all doors and windows to disperse any gas escape.

b) The strong unpleasant smell of LPG will enable the general area of the leak to be detected. Check that gas is not escaping from an unlit appliance. In the case of a leak, close cylinder valve(s) and call a competent installer to rectify the fault.

c) If a leaking gas cylinder cannot be stopped, remove the cylinder to a safe place in the open air in an upright position away from drains and any source of ignition.

FIRE
Precautions and actions to be taken:

a) A fire extinguisher of adequate size and preferably of the dry powder type should be available.

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

c) Cool with water all gas cylinders that cannot be removed.

d) As soon as possible remove cylinders adjacent to the fire to a safe place in order to gain access to the seat of the fire.

CONNECTION

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

Gas bottles must be fully located, seated at the base of the bottles and restrained by the strap provided in the dedicated compartment position.

Straps are positioned to suit 6kg, 7 kg 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 vehicle is turned off.

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

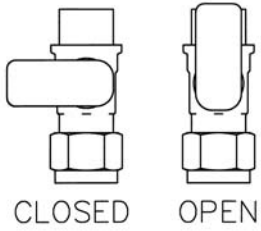


Fig. A

RED	-	Water Heater/ Combination Boiler
WHITE	-	Space Heater
BLUE	-	Fridge
GREEN	-	Oven

EN-ROUTE HEATING

Some motorhomes are equipped with an LPG en-route heating system. The en-route heating system is installed with extra safety features from a standard habitation installation.

WARNING WHEN RE-FUELLING YOUR MOTORHOME, SWITCH OFF THE HEATER AND CLOSE THE CYLINDER VALVE.

SAFETY FEATURES

- SecuMotion Drivesafe Regulator
- Gas flow monitor
- Hose rupture protection is installed.

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

OPERATING INSTRUCTIONS

Taking into operation

- Close all LPG appliance shut off valves except the heater
- Open gas remote switch if present.
- Open the cylinder's valve. (1)
- Firmly press the green reset button on the high pressure hose. (2) Release button slowly

- Hold depressed the gas-flow monitor's green button on the gas-pressure regulator for about five seconds (repeat if necessary). (3) Release button slowly
- Start the gas-burning devices if desired.

If the gas cylinders are closed, SecuMotion may switch off after an extended period of no usage.

Changing a gas cylinder

Please use the included screwing tool to attach and remove the high pressure hoses. It will help you generate the necessary tightening torque and will prevent damage to the screw fittings, which may otherwise result from using an improper tool.

Residual gas: No smoking! No open flames!

- Close the empty gas cylinder’s valve
- Remove the high pressure hose from the gas cylinder and remove the slip-on adaptor, if present.
- Attach the high pressure hose to the full gas cylinder and apply the slip-on adaptor, if present.
- Open the full cylinder's valve.
- Press the hose-break safety device and the gas-flow monitor (see:Taking into operation).

Anytime after making changes, check the hose connection to the cylinder valve for leaks (see: Checking for leaks in the high pressure area).

Exchanging hoses

Please use the included screwing tool to attach and remove the high pressure hoses. It will help you generate the necessary tightening torque and will prevent damage to the screw fittings, which may otherwise result from using an improper tool.

Close the gas cylinder's valve.

- Remove the high pressure hose from the gas cylinder (or from the slip-on adaptor) and from the regulator inlet.
- Screw the desired high pressure hose onto the regulator inlet and onto the cylinder (or onto the slip-on adaptor).

Open the gas cylinder's valve.

- Press the hose-break safety device and, if necessary, the gas-flow monitor (see: Taking into operation).

When changing hoses, make sure that the gasket inside the hose connection is installed properly and undamaged.

We recommend replacing the gasket every time you replace a hose. Anytime after making changes, check the hose connections to the cylinder valve and to the inlet of the SecuMotion gas-pressure regulator for leaks (see: Checking for leaks in the high pressure area).

Checking for leaks in the high pressure area

A trained technician must check the low pressure area for leaks. In addition, we recommend that the person responsible for operating the gas system check the high pressure area for leaks after every cylinder or hose replacement.

In particular, the screw fittings on the gas cylinder valve and on the regulator inlet should be checked for leaks with the proper tools, such as a leak-finder spray according to DIN EN 14291.

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

WARNING: IF YOU SMELL GAS OR SUSPECT A LEAK AND IT IS SAFE TO DO SO, ISOLATE THE HEATER AND TURN OFF THE GAS BOTTLES AT THE REGULATOR. EVACUATE THE VEHICLE AND VENTILATE. SEEK PROFESSIONAL ADVICE AS TO THE CAUSE OF THE LEAK

SERVICE AND REPAIRS MUST ONLY TO BE CARRIED OUT BY A COMPETENT SERVICE ENGINEER.

THERMAL INSULATION AND HEATING

Your vehicle has been designed to achieve a thermal insulation and heating level for specific climatic conditions when tested according to the procedure in EN1646-1. The classifications are as follows:

GRADE 1
A vehicle with an average thermal transmittance (u) that does not exceed 1.7w/(m^2k).

GRADE 2
A vehicle with an average thermal transmittance (u) that does not exceed 1.7w/(m^2k) 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 vehicle with an average thermal transmittance (u) that does not exceed 1.2w/(m^2k) and which can achieve an average temperature difference of at least 35k between inside and outside temperatures when the outside temperature is -15°C.

ELECTRICITY

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

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

INSTRUCTIONS FOR ELECTRICITY SUPPLY

On arrival at site

1. Before connecting the motorhome installation to the mains supply, check that:
   (a) the mains supply is suitable for your installation and appliances, i.e. whether it is AC or DC and whether it is at the correct voltage and frequency, and
   (b) your installation will be properly earthed. Never accept a supply from a socket outlet or plug having only two pins, or from a lighting outlet.
   (c) any residual current device (earth leakage circuit breaker) in the mains supply to the vehicle has been tested within the last month.

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

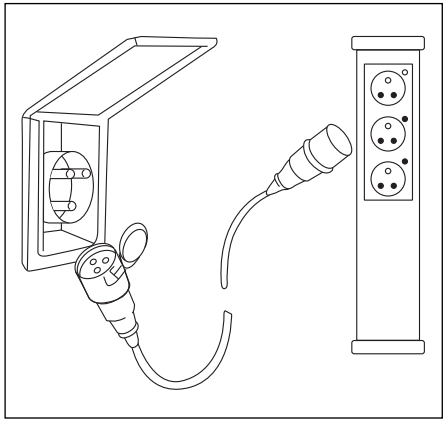
2. **MAKE SURE THAT THE SWITCH AT THE SITE SUPPLY POINT IS OFF.**
3. Lift the cover of the electricity inlet provided on the vehicle, and insert the connector of the supply flexible cable.
4. Remove any cover from the socket outlet provided at the site supply point, and connect the plug at the other end of the supply flexible cable to this. Switch on the main switch at the site supply point.

On leaving site

5. Switch off the main switch at the site supply point and remove the flexible cable connector replacing any cover fitted.
6. Disconnect the flexible cable from the vehicle.

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

For vehicles that are generally left unused for long periods in the open it is strongly advised that the mains installation is inspected periodically to ensure that it is safe to use. The IEE Wiring Regulations recommend that mains installations in caravans/motorhomes



are re-inspected every 3 years. An annual inspection by a qualified person is recommended (see list below) who should sign and issue a periodic inspection report.

Suitably qualified persons acceptable to the SMMT/NCC to sign and issue Inspection and Completion Certificates should be one of the following:

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

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

NICEIC
Vintage House
37 Albert Embankment
London SE1 7UJ
Telephone: 0207 564 2323

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

ECA
Esca House
Palace Court
London W2 4HY
Telephone: 0207 313 4800

ECA of Scotland
23 Heriot Row
Edinburgh EH3 6EW
Telephone: 0131 225 7221

IN CASE OF DIFFICULTY CONSULT AN APPROVED ELECTRICAL INSTALLATION CONTRACTOR (WHO MAY BE THE LOCAL ELECTRICITY COMPANY). IT IS DANGEROUS TO ATTEMPT MODIFICATIONS AND ADDITIONS YOURSELF. LAMPHOLDER-PLUGS (BAYONET CAP ADAPTORS) SHOULD NOT BE USED IN ANY CIRCUMSTANCES.

OVERSEAS CONNECTION

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

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

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

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

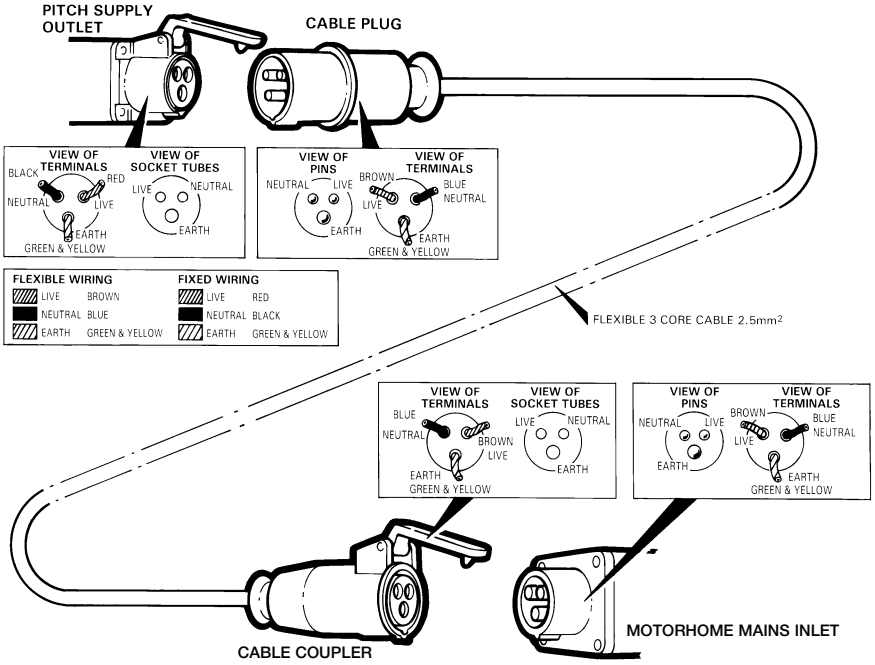
If electrical polarity indication is not included in your vehicle electrical equipment, it is useful to have a means of checking polarity of the mains supply, especially when touring overseas.

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

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

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

WIRING OF CONNECTING CABLE AND MOTORHOME MAINS INLET



WARNING

IT IS ESSENTIAL THAT CONNECTIONS ARE MADE EXACTLY AS SHOWN. IF TERMINAL MARKINGS ARE NOT IN ACCORDANCE WITH THE DIAGRAM THEY MUST BE IGNORED. IF IN DOUBT CONSULT A QUALIFIED ELECTRICIAN.
THE LEGAL LENGTH OF THE MAINS INLET CABLE IS 25 ± 2 meters. WHEN IN USE IT MUST BE FULLY UNCOILED AND PROTECTED FROM TRAFFIC.

230V MAINS ELECTRICAL EQUIPMENT POWER CONSUMPTION

Please note:
It is possible that the 230V mains electrical equipment may not all operate simultaneously. A typical UK caravan/motorhome 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 output with your site operator.

Similarly loadings on each circuit breaker within the vehicle should be observed

A label positioned close to the MCB's will identify which appliances within the vehicle are fed from which MCB. Consulting the table (Typical Appliance Consumption Figures) in conjunction with this label, will give an indication of which appliances can, and cannot, (site supply allowing), be operated simultaneously.

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

TYPICAL APPLIANCE CONSUMPTION FIGURES

	230 Volt		12 Volt		LP Gas
Appliance/ Item	**Watts**	**Amperes**	**Watts**	**Amperes**	**grams/hour**
Dometic Refrigerator	135 W	0.6 amp	Only when driving		11 g/h
Thetford Refrigerator	140 / 200 W	0.6 amp / 0.9 amp	Only when driving		14 / 21 g/h
Ultraheat Space Heater	500 W	2.2 amp	12 W	1.0 amp	30 to 280 g/h
	1000 W	4.3 amp	12 W		
	2000 W	8.5 amp	12 W		
Ultrastore Water heater	850 W	3.7 amp	Not applicable		120 g/h
C6002 Combination Boiler	1800 W	7.8 amp	71W	Max 5.9 amp	170 - 490 g/h
Combi 4 Combination Boiler	2000 W	8.5 amp	67W	Max 5.6 amp	160 - 320 g/h
Combi 6 Combination Boiler	2000 W	8.5 amp	67W	Max 5.6 amp	160 - 480 g/h
Cooker Hotplate 1	Not applicable		Not applicable		161 g/h
Hotplate 2	Not applicable		Not applicable		110 g/h
Hotplate 3	Not applicable		Not applicable		73 g/h
Hotplate 4	800 W	3.5 amp	Not applicable		Not applicable
Grill	Not applicable		Not applicable		117 g/h
Oven	Not applicable		Not applicable		125 g/h
Battery Charger 250w	440 W	1.9 amp	Not applicable		Not applicable
Battery Charger 300w	500 W	2.2 amp	Not applicable		Not applicable
Lighting 12V (based on 10 W bulb)	Not applicable		10 W	0.8 amp	Not applicable
Water pump	Not applicable		48 W	4 amp	Not applicable
Radio/ CD player	Not applicable		12 W	1.0 amp	Not applicable
15" LCD TV	345 W	1.5 amp	43W	3.6amp	Not applicable
Cooker Hood	Not applicable		30 W	2.5 amp	Not applicable
Dometic Air Conditioning unit	1200 W	5.25 amp	Not applicable		Not applicable
Sharp Microwave (factory fit)	1200 W	5.3 amp	Not applicable		Not applicable

Note: These are approximate figures for guidance only.

ELECTRICAL SYSTEMS

MOTORHOME BATTERY

It is recommended that a good quality leisure battery is always in circuit when the system is in use.

A deep cycling rechargeable heavy duty 12v battery should be used to provide power for lights and other electrical appliances.
A proprietary brand leisure battery with a minimum 85amp - 110 amp capacity is recommended.

Note: 85amp - 110 amp batteries and above should be checked dimensionally before purchasing, to ensure fitment within the battery compartment, as brands vary in size.

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 at all times.

The battery should be positioned in its compartment, which is vented to the outside, and be properly secured before travelling.

WARNING: 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.

Under normal circumstances it should not be necessary to remove the battery other than for routine inspection of terminals and "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 strip connector. It is recommended that the fuse rating fitted in this location does not exceed 40 amps.

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:

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

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

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

Please note the auxiliary battery supplied with your motorhome may not be fully charged and should be charged for a minimum of 24 hours before use.

FAULT FINDING

1. **Mains supply**
   If mains supply is not available when mains switch and MCBs are switched on, check supply at site distribution and/or mains lead and connections.
2. **Earth faults or MCB tripped**
   See RCD/MCD Section.
3. **Charger switch fails to illuminate**
   Check mains supply as for No.1 and 2.
4. **Battery discharged or not charging with charger on**
   Check battery terminals.
5. **12V distribution circuit failure**
   Check and replace relevant DC output fuse as required.
6. Consult the manufacturers regarding any further difficulties, in particular those related to mains voltage section.

7. There are no user-serviceable or replacement parts in the consumer unit. All service of this nature should be referred to the manufacturers.

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.

SOLAR PANEL CONNECTION POINT

A connection point has been included in the motorhome electrical harness to take a 12v supply from an aftermarket solar panel (or similar device), to the motorhome leisure battery. The supply is direct to this battery, and so is not isolated / controlled by the habitation area control panel. The solar connection point does not provide charge to the vehicle engine / traction battery.

The solar panel must provide a fused and regulated output in order to connect to this point. The connection point can be found in close proximity to the battery box.

A kit of parts is available from your motorhome supplier which provides the mating half of the connection point. (The White rectangular connector found inside the motorhome is a two way JST-LP type connector). For further assistance in identifying the connection, wire colours leading to the connector are detailed in the wiring schematic in your motorhome specification handbook.

MAINS UNIT

This acts as the main switch for the motorhome allowing isolation of all circuits. It forms part of the Power System along with the Transformer/Charger Unit (if fitted).

The mains unit replaces the conventional fusebox. Similar, but larger ones are often fitted in new houses.

The unit gives both overload (MCBs) and earth leakage protection (RCD) for the electrical supply in your motorhome.

For normal operation all switches on the unit need to be in the ON position. The small switches on the unit are known as MCBs (miniature circuit breakers).

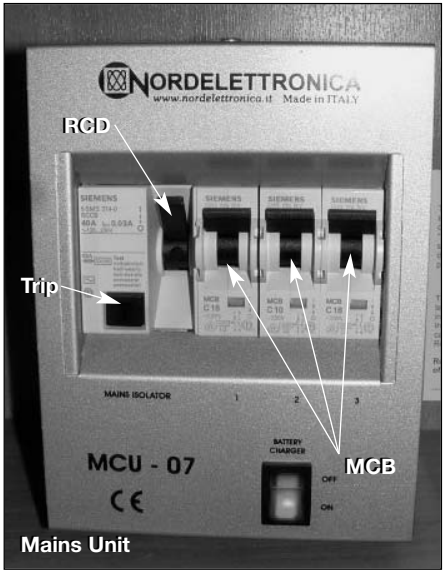
These take the place of the conventional fuse but are more convenient.

Note: Having too many appliances switched on at the same time will trip the MCBs. This is a safety measure. (For appliance ratings, see mains consumption).

In the event of a fault the MCB ‘trips’ ie automatically moves to the OFF position.

After elimination of the fault the MCB can be re-set by switching to the ON position, (against the spring pressure in an upwards direction).

If an earth fault develops or a person touches a live piece of equipment the leakage of current to earth should immediately operate



Mains Unit

the RCD (residual current device) and ‘trip’ the main switch, to the OFF position.

This switch is only re-settable after elimination of the fault.

To re-set, operate the switch as for MCBs.

Periodically the RCD should be checked by operating the test button marked ‘T’. The unit should immediately switch to the OFF position. If the unit does not switch off then a qualified electrician should be consulted.

Electrical Systems

If the unit does switch off, the test is complete and the switch can be re-set restoring the supply back to normal.

Add together the current ratings for each electrical appliance you wish to use simultaneously and ensure the total does not exceed the relative MCB ratings. You will find the table on page 52 a useful guide to typical values.

Depending upon model, switches on the front of the consumer unit can be used to switch off 230v supplies to the charger, or, space heater, water heater and charger.

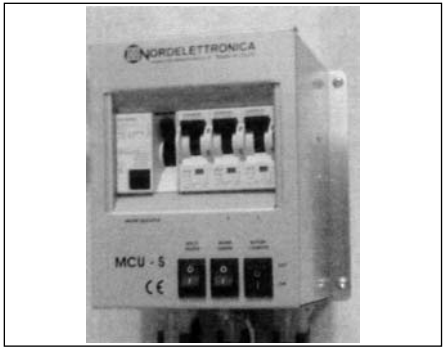
Care is needed if a Truma Ultrastore water heater is fitted. If a 230v supply is introduced to the water heater when that water heater is empty, there is a possibility that the 230v element within the appliance will overheat and the water heater will go into a failsafe mode. The 230v supply to the Ultrastore will then need to be switched off, and the element be allowed to cool, before the Ultrastore will function again. We recommend that the switch marked water heater is left in the off position unless water is present in the water heater.

12V POWER SYSTEM

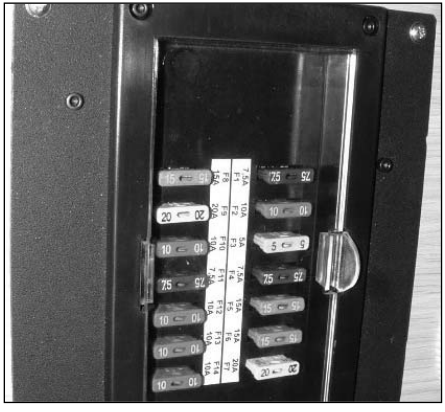
Note: The connection of the battery charger to the mains supply is in accordance with the Regulations for Electrical Installations 16th Edition (IEE Wiring Regulations) BS 7671:1992.

The Power System is, supplied fitted in a convenient position and comprises:

(a) Mains Unit



(b) Control Unit 12V NE184



(c) Charger/ Transformer Unit

TRANSFORMER/CHARGER UNIT

The transformer/charger unit has important safety features:

- Overload protection
- Short circuit protection
- Reverse battery polarity protection

The unit has been designed not only to operate as a battery charger, but also for use as a power supply, should a 12V DC battery not be present in circuit. It is, however, recommended that a good quality leisure battery is installed.

CONTROL PANEL NE183.03

CONTROLS (MODEL/RANGE SPECIFIC):

Key with warning light to turn the PUMP on and off

The pump does not work when the control panel is off or the engine / alternator is running.

Key for turning AWNING LIGHT on and off.

The awning light also goes on automatically for 30 seconds in the following cases:

– when the signal coming from the vehicle 3-button keyfob

The key on the control panel has priority over the 2 situations described above.

The awning light does not work when the control panel is off or the engine / alternator is running and the keyfob signal is not active.

Key for turning ENTRY LIGHT on and off.

The entry light also goes on automatically for 30 seconds in the following cases:

– when the signal coming from the vehicle 3-button keyfob

The key on the control panel has priority over the 2 situations described above.

The entry light works also when the engine / alternator is running.

The entry light does not work when the control panel is off and the keyfob signal is not active.

Key for turning INTERIOR LIGHTS on and off.

The interior lights do not go on when the control panel is off and if the engine / alternator is running.

Press this key to access the possibility to power services with the CHASSIS battery (red led on). Services are normally powered by the leisure battery (red led off). To protect the chassis battery from discharging the system switches back to the leisure battery in the following conditions:

– if the chassis battery voltage drops below 11.75V

– when the vehicle ignition is ON

– when the control panel is off

Press this key to turn on the control panel. In stand-by mode (without active controls) the NE183 control panel with the NE184 fuse holder unit consumes a total of approx. 60 mA.

Hold this key down to turn off the control panel, reducing total consumption to just 13,5mA.

If the leisure battery voltage drops below 10V for over 2 minutes the control panel turns itself off.

STEP:
Press the “step out” key to bring the step out until it reaches the end of its run or it stop immediately if it comes up against an obstacle.

Press the “step in” key to take the step back until it reaches the end of its run or comes up against an obstacle.

The step works also when the control panel is off, in this case the panel switch On for the time necessary to do the action. When the leisure battery and the battery charger is not available, the system switch itself to the chassis battery.

The step goes back in automatically when the engine / alternator is starting.

When the step is out and the engine is running the buzzer on the fuse holder shunt sounds until the step is fully closed

When the step is out the relative icon ( ) appears on the control panel display.

FRESH WATER TANK HEATER (IF FITTED):
This function is enabled when the level of fresh water in the tank is greater or the same as ¼ (if there is an analogue probe, greater or the same as 20%). Tank heating does not work when the control panel is off. If the engine / alternator is running it works also with the control panel off.

WATER HEATER, SPACE HEATER:
These functions are enabled when the control panel is ON.

The Water Heater. goes OFF when the engine / alternator is running.

These functions do not work when the control panel is off.

AIR CONDITIONING OUTPUT:
This output is enabled when the control panel is ON and the engine is not running.

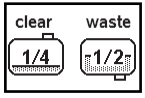
COUPLER RELAY:
When the the engine / alternator is running the coupler relay connect the leisure battery to the chassis battery, in this way the alternator can charge both batteries.

FRIDGE:
When the engine / alternator is running the fridge relay is energized, ensuring a supply of 12V energy to the fridge.

HOB – TV:
These functions are constantly supplied with 12V, except when the control panel is off.

VIEWING:
The main screen always shows the internal (and external temperatures, if there is an outdoor temperature probe), the time and date. When there is a mains supply the display shows the icon (⚡). If a fuse burns out on the NE184 fuse holder control unit, the display shows the icon (⇦).

Press this key once to view the water level in the fresh water tank



(0, 1/4, 2/4, 3/4 and 4/4) and the level of the waste tank (0, 1/2 and 2/2). If there is an analogue probe the tank level will be shown in linear mode, and not by level, from 0 to 100%. Three lines (---) will

display in case of wrong sequence connection from the tank sensor.

The screen displays remain active for approx. 30 seconds.

Press the key twice to view the voltage for the leisure and chassis batteries.

The screen displays remain active for approx. 30 seconds.

Press the key three times to view the leisure battery charge/discharge current, or the

chassis battery charge/discharge current if the (⇦) function is enabled.

There is charge current when the arrow points towards the battery; there is a

discharge current when the arrow is pointing in the other direction.

The screen displays remain active for approx. 30 seconds.

Display contrast can be adjusted by turning the white pin on the back of the panel.

PROGRAMMING:
Hold down this key for over 3 seconds to enter the programming menu. Use the arrow keys to change page. Press the enter key (⏎) repeatedly to enter the page and select the value to be changed. The arrow keys are used to increase or reduce the selected value, whereas the cancel (©) key is used to quit the function and save the figure.

The following pages are available:

– Regulation of date and time

– Regulation and enabling of clock alarm. When the clock is enabled, the main screen shows the icon (🔔). The clock will sound for 30 seconds; press any key to stop it.

– Enabling of tank alarms: fresh water tank empty, waste tank full. When this happens a buzzer is generated and at the same time the display shows the tank viewing window.

The tank alarm does not work with the control panel off or the engine / alternator running..

– Enabling of flat leisure and chassis batteries. Whenever the leisure or chassis battery drops below the limits for over 30 seconds a buzzer is generated and at the same time the display shows the viewing window for battery voltage. The battery alarm does not work with the control panel off or the engine / alternator running.

– Enabling of key beeper.

– Programming dimmer level of the LED; after 50 seconds without any operation on the

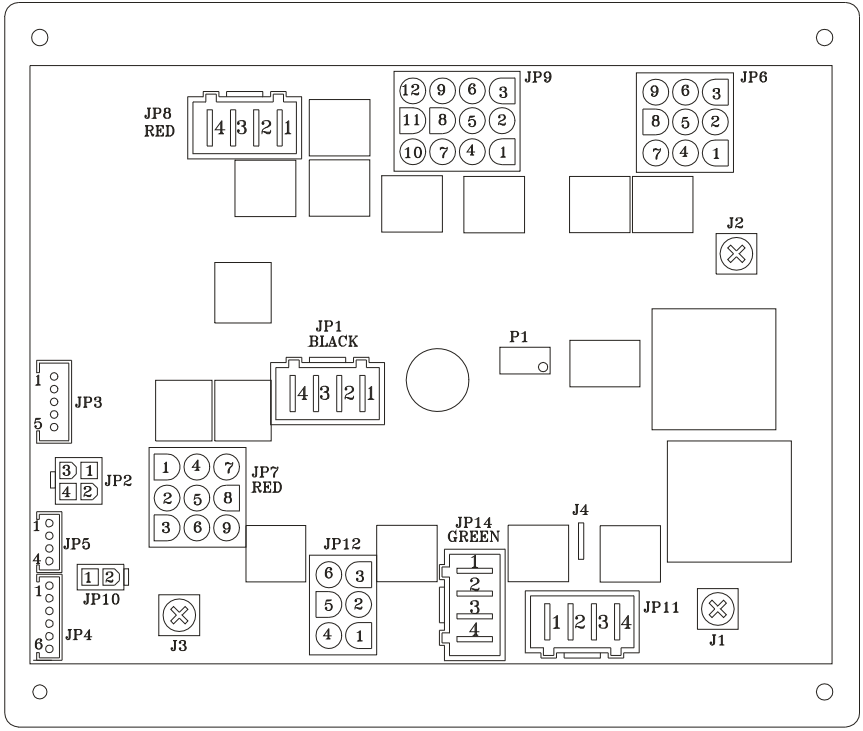
Panel all the LED light will be reduced. At any press the light come On again.

The SYSTEM NE183-NE184 provide some information about typical fault:

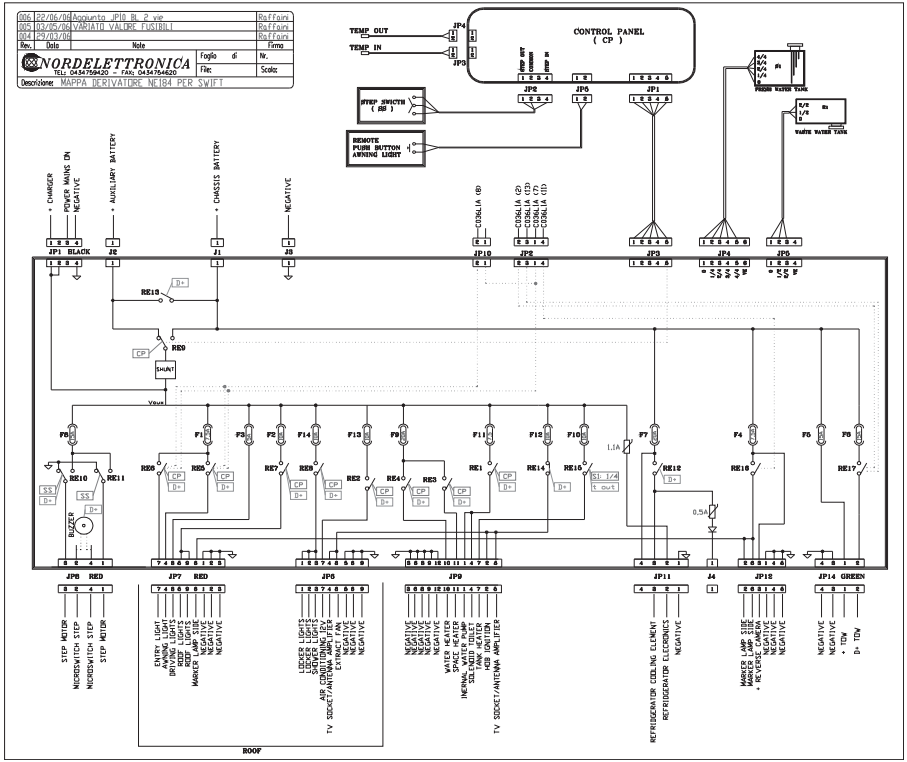
- DATA CONNECTION. If the connection between the panel and the fuse holder is not active.

MEMORY BATTERY:
On the back of the NE183 control panel there is a buffer battery (LITHIUM 3V CR2032) to maintain the time and various programming functions if 12V energy supply for the PCB fails.

FUSE HOLDER UNIT NE184.02



CONTROL PANEL NE183/CONTROL UNIT 12V NE184



Electrical Systems

Once connected to a 230V mains supply and switched on, its operation is fully automatic.

When used as an alternative DC power supply, with no battery in circuit, the unit will supply a suitable output for use with pump, lighting, TV, radio etc.

The facility for drawing 12V supply from the cab battery is intended for standby situations only, and care should be taken not to run the cab battery too low, some models feature cab battery protection circuitry.

If the cab battery has been used on site, then the engine driven alternator will recharge both it and the leisure battery whilst travelling.

However, once the cab battery is fully charged, the alternator will supply a trickle charge only to the leisure battery.

CONTROL PANEL NE183

CONTROLS (MODEL/RANGE SPECIFIC):

ON / OFF:
Press this key to turn on the control panel. In stand-by mode (without active controls) the NE183 control panel with the NE184 control unit consumes a total of approx. 39mA. Hold this key down for over 3 seconds to turn off the control panel, reducing total consumption to just 13.5mA. If the leisure battery voltage drops below 10V for over 2 minutes the control panel turns itself off.

PUMP:

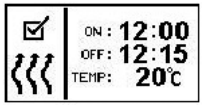
Key with warning light to turn the PUMP on and off. The pump does not work when the control panel is off or if the engine is running.

AIR CONDITIONING (IF FITTED):

Key with warning light to turn the AIR CONDITIONING UNIT on or off. The air conditioning unit does not work when the control panel is off or if engine is running.

SPACE HEATER:

Press this key to access manual operation of SPACE HEATING. The manual operation screen will remain active for 5 seconds. When manual operation is enabled the relative icon ( ) is shown on the main screen with the symbol ( ). Hold down the heating key for over 3 seconds to enter the programming page for automatic operation. From this screen press the Enter ( ) key repeatedly to enable and disable heating, programme the time for turning on and off. Use the arrow keys to increase and decrease the value selected and the cancel key ( ) to quit. When automatic operation of heating is enabled the main screen shows the relative icon ( ) and the time for turning on and off.



When the heating is on the relative warning light above the key goes on. The heating does not work when the control panel is off or if engine / alternator is running.

WATER HEATER:

Key for turning WATER HEATING on and off. When water heating is enabled the main screen shows the relative icon ( ) with the manual operation symbol ( ). Hold down this key for over 3 seconds to enter the programming page for automatic operation of water heating. From this screen press the Enter ( ) key repeatedly to enable and disable water heating and programme the time for turning on and off. Use the arrow keys to increase and decrease the selected value and the cancel ( ) key to quit. When automatic operation of water heating is enabled the main screen shows the relative icon ( ) and the time for turning on and off.

When water heating is operating, the relative warning light above the key goes on. Water heating does not work when the control panel is off or engine / alternator is running.

AWNING LIGHT:

Key for turning AWNING LIGHT on and off. The awning light also goes on automatically for 15 minutes in the following cases:

- when the ignition key is removed
- when the rear door is opened / closed
- when the cab door is opened

The key on the control panel has priority over the 3 situations described above. The awning light does not work when the control panel is off or the engine is running.

Electrical Systems

ENTRY LIGHT:

Key for turning ENTRY LIGHT on and off. The entry light also goes on automatically for 15 minutes in the following cases:

- when the ignition key is removed
- when the rear door is opened / closed
- when the cab door is opened

The key on the control panel has priority over the 3 situations described above. The entry light works also with the control panel off and the engine / alternator running. The entry light goes off automatically if the voltage of the leisure battery drops below 10V for more than 3 min.

INTERIOR LIGHTS:

Key for turning INTERIOR LIGHTS on and off. The interior lights do not go on when the control panel is off or if the engine is running.

ROOF LIGHTS:

Key for turning ROOF LIGHTS on and off. This key does not work if the interior lights are off.

CAB BATTERY:

Press this key to access the possibility to power services with the CAB battery (red led on). Services are normally powered by the leisure battery (red led off). To protect the cab battery from discharging, the system switches back to the leisure battery in the following conditions:

- if the cab battery voltage drops below 11.75V

- when the vehicle ignition is ON

- when the control panel is off

When the the engine is running the leisure battery is connected to the cab battery, in this way the alternator can charge both batteries.

FRESH WATER TANK HEATER (IF FITTED):
This function is enabled when the level of fresh water in the tank is greater or the same as ¼ (if there is an analogue probe, greater or the same as 20%). Tank heating does not work when the control panel is off. If the engine is running it works also with the control panel off.

FRIDGE:
When the engine / alternator is running the fridge relay is energised, ensuring a supply of 12V energy to the fridge.

HOB - TV:
These functions are constantly supplied with 12V, except when the engine is running and the control panel is turned off.

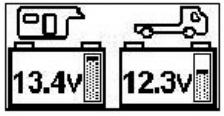
VIEWING:
The main screen always shows the internal and external temperatures (if there is an outdoor temperature probe), the time and date if at least one of the 2 heating functions is disabled. If there is a mains supply the display shows the icon (⚡). If a fuse burns out on the NE184 fuser holder control unit, the display shows the icon (⇔).

Fresh / Waste Water Level:

Press this key once to view the water level in the fresh water tank (0, 1/4, 2/4, 3/4 and 4/4) and the level of the waste tank (0, 1/2 and 2/2). If there is an analogue probe the tank level will be shown in linear mode, and not by level, from 0 to 100%.The screen displays remain active for approx. 30 seconds.

Battery Voltage:

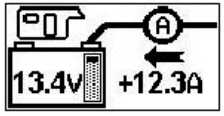
Press the key twice to view the voltage for the leisure and cab batteries. The screen displays remain active for approx. 30 seconds.



Battery Charge / Discharge:

Press the key three times to view the leisure battery charge / discharge current, or the cab battery charge / discharge current if the (⬭) function is enabled.

There is charge current when the arrow points towards the battery; there is a discharge current when the arrow is pointing in the other direction. The screen displays remain active for approx. 30 seconds.



Display contrast can be adjusted by turning the white pin on the back of the panel.

PROGRAMMING:

Hold down this key for over 3 seconds to enter the programming menu. Use the arrow keys to change page. Press the enter key (↵) repeatedly to enter the page and select the value to be changed. The arrow keys are used to increase or reduce the selected value, whereas the cancel (©) key is used to quit the function and save the figure. The following pages are available:

- Regulation of date and time
- Regulation and enabling of clock alarm. When the clock is enabled, the main screen shows the icon (⏶). The clock will sound for 30 seconds; press any key to stop it.
- Enabling of tank alarms: fresh water tank empty, waste tank full. When this happens a buzzer is generated and at the same time the display shows the tank viewing window. The tank alarm does not work with the control panel off or the engine running.
- Enabling of flat leisure and cab battery alarm. Whenever the leisure or chassis battery drops below 10V for over 30 seconds a buzzer is generated and at the same time the display shows the viewing window for battery voltage. The battery alarm does not work with the control panel off or the engine running.

- Enabling of key beeper.

- Programming automatic space heating (this can be done directly with the ( ) key).

- Programming automatic water heating (this can be done directly with the ( ) key).

CONTROL PANEL BATTERY:
On the back of the NE183 control panel there is a buffer battery (LITHIUM 3V CR2032) to maintain the time and various programming functions if 12V energy supply for the PCB fails.

GENERATOR GUIDELINES

Your motorhome can be used with a generator provided these guidelines are met:

- Lack of regular servicing can be the cause of most generator problems, gensets under 2kW are mainly dependent on engine speed for output frequency and voltage. Poor or no servicing may cause the engine speed governor to run the genset to fast. Therefore, frequency and output voltage can rise above the specification of the machine data plate i.e. 230V at 50Hz. This may cause damage to electrical/electronic equipment (such as battery chargers).
- A generator should always run for a few minutes prior to connection with the motorhome electrics, to allow it to warm up and the output to settle to a steady level.
- The AC output of generators is often derived from an AC alternator, rectified to DC then inverted back to AC. In essence this means the output sinewave may not run sophisticated electronics efficiently. Some of the new wave of gensets are more sophisticated in their production of a sinewave output and are more suited to run electronic equipment.
- If in doubt consult your genset dealer or manufacturer for advice.

EQUIPMENT DETAILS

Equipment Details

The instructions covering fitted equipment to your vehicle were correct at the time of going to print. Owners handbooks are updated annually and we take great care to try and ensure their accuracy. However, the Swift Group Limited cannot accept responsibility for any changes that may be made in specification or operating instructions to the equipment described in this section after the time of going to press.

Every care is taken to ensure that the information provided in this handbook is correct and easy to understand.

Separate manufacturers' leaflets on many of the components are also included in the Owner's Pack provided with this vehicle and we recommend that you compare the instructions in the handbook with the component manufacturers literature, to ensure the information provided is as accurate as possible.

If you are in any doubt as to how to operate the equipment in your vehicle, please contact the component manufacturer's service department on the telephone number shown on their component leaflet. If you remain in any doubt, please contact the Swift Group Supercare customer care service department on 01482 875740.

Equipment Specification
For details on type of equipment fitted in your vehicle, please refer to the Sales Brochure or Dealer.

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

NOTICE: In the interest of safety, replacement parts for an appliance shall conform to the appliance manufacturer's specifications and should be fitted by them or their authorised agent.

Note: Operation of heater and water heater using control panel timers.

The controls on the motorhome control panel are model specific, and this relates particularly to the space and water heating systems fitted in the motorhomes. The automatic operation/timer function on the control panel disable and enable the 12v supply to the Truma Combi boiler, Truma Ultraheat or Truma Ultrastore.

If a Combi boiler is fitted, only one set of controls (water heater) are used, as use of the Combi as a space heater would automatically heat any water contained within the appliance. In addition to enabling and disabling the 12v supply to the appliance via the control panel, the Truma controls are used to select operating mode (see Truma instructions later in this handbook or separate Truma instructions for more details). In this way it is possible to set 230v operation of the Combi using the Truma controls, and then using the automatic control feature of the control panel enable this 230v operation to begin and/or end at pre-determined times. ensure the 'water heater' switch on the consumer unit and the settings on the Truma controls are in the correct positions before setting the timer on the control panel.

If a Truma Ultrastore is fitted the control panel enables/disables the 12v supply used or gas ignition. 230v operation of the Ultrastore is not affected by the control panel. in this way it is possible to use the control panel to determine a time at which gas heating of water within the Ultrastore will start and end. Ensure the Truma control for gas operation of the Ultrastore is set correctly and that the Ultrastore has a gas supply present/the boiler will ignite, before setting the timer on the control panel.

If a Truma Ultraheat is fitted the control panel enables the 12v supply used for the air distribution fan. 230v and gas operation of the space heater are not affected by the control panel, however the start and end time for operation of the air distribution fan

can be pre-determined by the automatic control feature of the control panel. Position the fan control on the top of space heater casing, to automatic or manual operation, before setting the timer on the control panel.

THE TRUMA ULTRASTORE WATER HEATER

OPERATING INSTRUCTIONS

Note: Refer to Control Panel NE183 Operating Instructions with regard to Water Heater operation.

Attention: Before using for the first time, it is essential to flush the entire water supply through with clean warm water. Always mount the cowl cap when the water heater is not being operated! Drain the water heater if there is a risk of frost! **There shall be no claims under guarantee for damage caused by frost!**

Filling the Truma Ultrastore with water

e = Lever position "Closed"

f = Lever position "Drain"

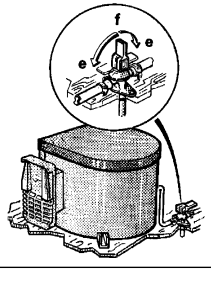


Fig. 1

1. Check that the safety/drain valve in the cold-water intake is closed. Lever should be in the horizontal position, position (e).
2. Open the hot tap in the bathroom or kitchen with pre-selecting mixing taps or single lever fittings set to hot.
3. Switch on power for water pump (control panel). Leave the tap open to let air escape while the water heater is filling. The heater is filled when water flows out of the tap.

   Residues of frozen water can prevent filling if there is a frost. The water heater can be defrosted by switching on the heater for a short period (max 2 mins). Frozen pipes can be defrosted by heating the room.

Note: If just the cold water system is being used, without water heater, the heater tank is also filled up with water. In order to avoid damage through frost, the water contents must be drained by actuating the safety/drain valve, also when the heater has not been used. As an alternative, two shut-off valves, resistant to hot water, can be fitted in front of the cold and hot water connection.

Draining the water heater

1. Disconnect power for water pump (control panel).
2. Open hot water taps in bathroom and kitchen.
3. Open safety/drain valve: Lever in vertical position, position (f).
4. The water heater is now drained directly to the outside via the safety/drain valve. Check that the water contents have been completely drained (10 litres).

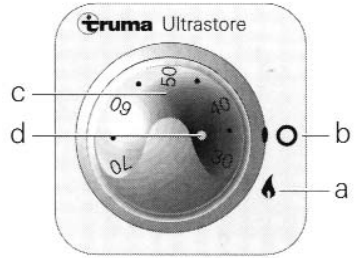
Gas operating instructions

Attention: Never operate the water heater without water in it!

If the wall cowl is positioned close to an opening window (or hatch) - in particular directly under it - it must remain closed when the water heater is in use (see warning plate).

1. Remove cowl cover.

Equipment Details



a = Rotary switch "On" "Gas operation"

b = Rotary switch "Off'"

c = Rotary knob for temperature selection (illuminated by green lamp "Operation")

d = Red indicator lamp "Failure"

2. Open gas cylinder and open quick-acting valve in the gas supply line.
3. Switch the water heater on at the rotary switch (a) of the control panel, and the green monitor lamp will light up. Set the desired water temperature at the rotary knob (c) (steplessly adjustable from about 30°C to 70°C).
4. If there is air in the gas supply line, it may take up to a minute before the gas is available for combustion. If the appliance switches to “Failure“ during this period, switch off the appliance - wait 5 minutes - and switch on again!

Switching off (gas operation)

Switch off the water heater at the rotary switch (b).

Drain the water heater if there is a risk of frost!

If the water heater is not to be used for a longer period, mount cowl cover (non-observance of this point can lead to the function of the appliance being impaired through water, dirt or insects), close quick-acting valve in the gas supply line and close the gas cylinder.

There shall be no claim under guarantee if this point is not observed.

Always remove the cowl cover prior to operating the water heater!

Red indicator lamp "Failure"

The red indicator lamp (d) lights up if there is a failure.

The reason for such an indication is, for example - cowl cover fitted, no gas available or air in the gas supply system, triggering of the excess temperature monitor etc.
To unlock, switch off the appliance, wait 5 minutes, and switch on again.

In event of faults, always contact Truma Service on Tel: 01283 511092.

Electrical Operating Instructions

Switch the electric supply on at the fuse spur marked Water Heater, normally in the wardrobe.

Note: The water temperature cannot be selected, automatic temperature limitation at approx. 70°C. For a faster heating up period the appliance can be simultaneously operated with gas and electrical power.

Note: The water tank in the Truma-Ultrastore is made of high quality food-proof stainless steel VA.

Use wine vinegar for de-scaling the water supply. Allow the product to react and then thoroughly flush out the appliance with plenty of fresh water. To sterilise the water we recommend "Certisil- Argento". Other products, particularly those containing chlorine are unsuitable.

In order to avoid the proliferation of micro-organisms, heat the Ultrastore to 70°C at regular intervals.

Do not use the water as drinking water!

Important Operating Notes

1. If the cowl is positioned close to an opening hatch (window), keep this closed during operation. See warning plate. Always mount the cowl cover if the heater is not being used. Non-observation of this point can lead to the function of the appliance being impaired through water, dirt or insects.

2. The guarantee will be invalidated if this point is not observed. Always remove the cowl cover prior to operating the water heater!
3. If there is a defect in the electronics, return the control Printed Circuit Board well padded. If you fail to pack it correctly the guarantee will be invalidated. Only use original Truma Ultrastore control PCBs as spare parts.
4. If just the cold water system is being used, without water heating, the header tank becomes more vulnerable to frost damage. Accordingly the contents should be drained by operating the safety/drain valve. This also applies when the vehicle is in storage.

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

1. Repair jobs are only to be carried out by an expert.
2. The following would invalidate the guarantee:
   a. Any alteration to the appliance (including cowl)
   b. The use of non-Truma spare parts/accessories
   c. Non observance of the operating instructions.
3. The operating pressure for the gas supply is 30mbar and must correspond to the operating pressure of the appliance (see name plate).
4. Do not operate the water heater when refuelling the vehicle and when in the garage.
5. During the initial operation of a brand new appliance (or after it has not been used for some time), a certain amount of fumes, and a slight smell, may be noticed for a short time. Remedial action is to immediately run the heater at maximum output and to ensure adequate room ventilation.
6. If the burner makes an unusual noise or if the flame lifts off, it is likely that the regulator is faulty and it is essential to have it checked.

Technical Data

Water contents:	10 litres
Water pressure:	up to max. 2.8 bar
Type of gas:	Liquid Gas (propane or butane)
Operating Pressure:	30mbar
Rated thermal output:	1500W
Gas consumption:	120g/h
Heating time to approx. 15°C to approx 70°C:	
Gas operation:	approx. 34 mins
Electrical operation:	approx. 45 mins
Gas and electrical operation:	approx. 25 mins
Power consumption 12V	
Ignition:	0.17A
Heating Up:	0.08A
Standby:	0.04A
Power consumption 230V	
Heating Up:	(3.7A) 850W
Weight (empty):	6.7Kg

THE TRUMA S 3002 P & S 3002 AUTO SPACE HEATER

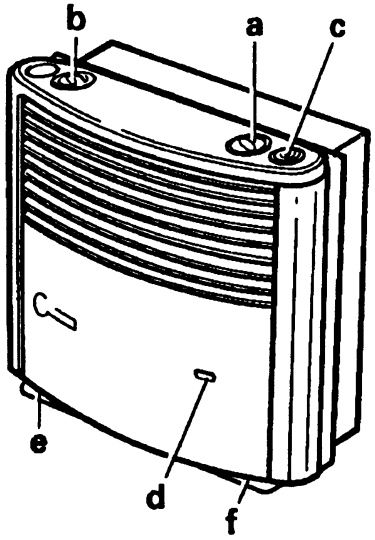
INSTRUCTIONS FOR HEATERS FITTED WITH AUTOMATIC IGNITOR OR PIEZO IGNITOR

Note: Refer to Control Panel NE183 Operating Instructions with regard to Water Heater operation.

Switching On

1. Open the valve on the gas cylinder. Open quick-acting valve in gas supply line.
2. Turn control knob to thermostat setting 1-10 and press it down as far as the stop. At the same time keep operating the piezo ignitor rapidly until the flame ignites.
3. Keep the control knob depressed for a further 10 seconds to allow the safety pilot to operate.
4. (Piezo only) Watch through the flame window for another 10 seconds to make sure that the flame does not go out through air in the supply pipe (caused by the valve being closed or changing the cylinder).

Attention: Always wait at least 2 minutes before attempting to re-ignite, otherwise there is a risk of blowbacks (misfiring). This also applies if a working heater goes out and has to be re-lit.



a = Control knob
b = Integrated control panel for Trumavent fan TEB
c = Piezo ignitor or automatic ignitor
d = Flame observation window
e = Name plate (remove casing)
f = Thermostat probe

In the case of left-handed installation, the parts are arranged on the other side.

Automatic Ignitor

Prior to first ignition, make sure that the batteries have been inserted (see changing the batteries).

Thermostat

Set the required room temperature at the control knob (numbers 1-10). For an average room temperature of approx. 22°C we recommend setting:

3-5 Without the Trumavent Fan (switched on)

4-8 With the Trumavent Fan

Switching Off

Set control knob to "0". If turning off for a long period of time, close the quick-acting valve in the gas supply line. Close valve of gas cylinder.

Important Operating Notes

1. If the gas supply line is filled with air, it may take up to a minute before the gas becomes available for combustion. During this time depress the control knob and continuously operate the piezo ignitor until the flame ignites.

2. You will have to find out the exact thermostat setting yourself, depending on how much heat you need.

3. Repairs are only to be carried out by a competent service engineer.

Attention: A new O-ring must always be installed after dismantling the exhaust duct.

4. Any alteration to the appliance (including exhaust duct and cowl) or the use of spare parts and accessories, which are important to the function of the heater and which are not original Truma parts, as well as the non-observance of the installation and operating instructions, will lead to the cancelling of the guarantee and exclusion of liability claim.
5. During the initial operation of a brand new appliance, a certain amount of fumes and a slight smell may be noticed for a short while. Remedial action is to immediately run the heater at maximum output and to ensure adequate room ventilation.
6. In winter, before switching on the heater, remove all snow from the cowl.
7. Inspect the exhaust duct and all connections at regular intervals and always whenever there is a blowback (misfire). It is essential that the exhaust duct is installed so that it slopes upwards over its whole length and is securely fixed with several clamps. Never place any object on the exhaust duct, since this could result in damage. The exhaust duct connection to both the heater and the cowl must be firm and well sealed. Do not operate heaters with incorrectly fitted or damaged exhaust ducts.
8. Never allow the warm air outlet on the heater to be obstructed in any way. For instance never hang washing on or in front of the heater to dry. Misusing your heater in this way could cause serious damage from overheating. Do not place flammable objects near the heater. Please follow these guidelines in the interest of your own safety.
9. If the burner makes an unusual noise or if the flame lifts off while burning, it is likely that the regulator is faulty and it is essential to have it checked.
10. Cleaning (with switched off appliance): It is recommended that at least once a year, before the heating season starts, you remove any dust that has collected on the heat exchanger base plate.

Technical Data:

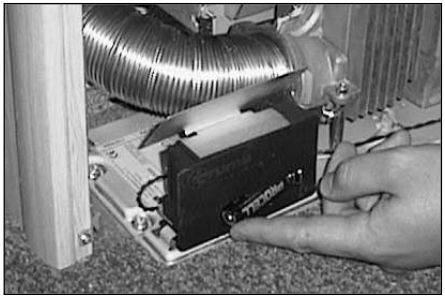
Type of gas:	Liquid gas (propane/butane)
Operating pressure:	30mbar
Rated thermal output:	3400W
Gas consumption:	30-280 g/h
Operating voltage:	1.5V
Power consumption:	50 MA (ignition) 0.01 MA (monitoring)
Product Indent.	No: CE-0085AP0325

CHANGING OF BATTERIES

Changing the Batteries on the Automatic Ignitor

Only change the batteries with the heater switched off.

Always insert new batteries at the beginning of the heating season.



Remove front of heater retaining screw, located through centre of black grill. Unclip front of heater, slide up battery cover to reveal battery. Change the batteries. Observe plus/minus.

Only use temperature resistant (+70°C), leak-proof Mignon round cells (LR 6, AA, AM 3, Art. no. 30010-23600). Other batteries could lead to malfunctions!

TRUMA ULTRAHEAT ADDITIONAL ELECTRIC HEATING FOR TRUMATIC S 3002

Function description

Truma-Ultraheat is an additional 230V electric heater for the LPG heater models Trumatic S 3002/S 5002.

Heater operation is basically possible with gas only, electricity only or simultaneously with electricity and gas.

When using simultaneously the electrical unit will switch itself off before overheating occurs as a result of the stronger gas burner.

When using electricity only we recommend to set the fan control on position 3 (manual or auto), remembering to set the output level to 2000W (ensure that the fuse protection for the power supply of the camp site is sufficient).

If more than 2000W are required (heating up/cold temperatures) you must refer back using gas operations as the 230V electrical operation is a secondary heater only.

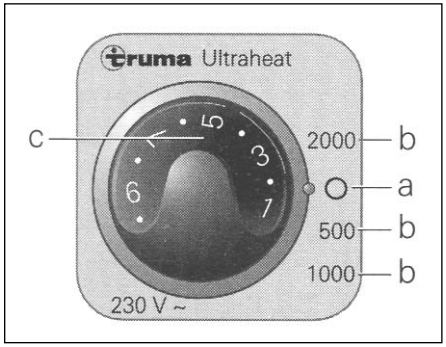
The electric heater can also be operated without the Trumavent fans.

WARNING: Due to the design, the heater front case will become hot during operation. The operator is obliged to ensure that due care is taken to protect third parties (small children in particular).

OPERATING INSTRUCTIONS

Before operating the heater for the first time it is essential to observe the operating instructions, enclosed with the heater.

Control panel with thermostat



a = Rotary switch "Off"

b = Rotary switch "On"
power settings:
500 - 1000 - 2000 W

c = Rotary control knob for room temperature (illuminated by green indicator lamp "operation")

Switching On

Attention: Before switching on, ensure that the fuse protection for the power supply of the campsite is sufficient for the selected power setting (b) (see Technical Data).

Important: The electric feed line for the caravan must be fully unwound from the cable drum.

1. Switch the electric supply on at the fuse spur marked Water Heater, normally in the wardrobe.
2. To switch on, turn the rotary switch to the desired output level (b).
3. Set rotary control knob (c) to the desired room temperature.

The thermostat setting on the operating element (1-9) must be determined individually depending on the heating requirement and the type of vehicle. For an average room temperature of about 23°C, we recommend a thermostat setting of about 6 -8.

Switching off

Switch the heating system off at the rotary switch (a).

IMPORTANT OPERATING NOTES

1. Repairs may only be carried out by an expert.
2. The heater's hot air outlet should under no circumstances be blocked. Never hang clothes or similar in front of or on top of the heater to dry. This could cause serious damage to the heater as a result of overheating. Do not place inflammable materials near the heater! Please observe these instructions for your own safety.

3. The performance of the room thermostat will be affected if temporarily covered or obstructed.
4. When operating a brand-new heater for the first time (or after it has been idle for a lengthy period) you may temporarily notice a slight smoke and smell. We advise running the heater at full power and thoroughly ventilating the room.
5. Any modifications to the appliance or the use of spare parts and accessories important for operation which are not original Truma parts, or non-observance of the instructions for installation and use will result in the guarantee becoming invalid and no liability will be assumed.

   Furthermore the approval for operating the appliance will become invalid and in some countries also the approval for operating the vehicle.

TECHNICAL DATA

Power supply: 230 V ~, 50 Hz

Power consumption at power setting:
500 W: 2.2 A
1000 W: 4.5 A
2000 W: 8.5 A

Weight: approx 2kg

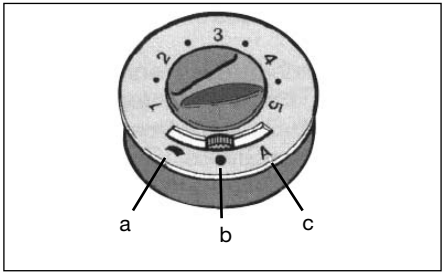
The mains element on the space heater is designed for supplementary heating. It is not recommended to run alongside the gas for prolonged periods of time.

TEB FAN

Always observe the operating instructions prior to starting!

The vehicle owner is responsible for the correct operation of the appliance.

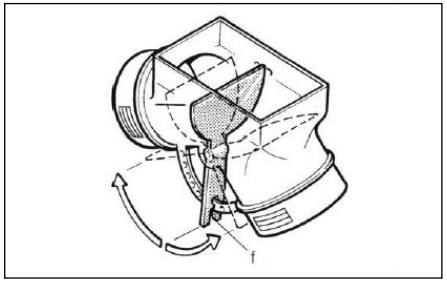
Repairs are only to be carried out by an expert!



a = Manual control
(e.g. for ventilation) Adjust desired output at the control knob.

b = Off
(or automatic operation/ heating with heaters Trumatic S 3002 K and S 5002 K)

c = Automatic operation
(Heating) The output steadily adjusts to the respective heat emission of the heater. The maximum output can be limited at the control knob, as required. The regulating between this value and slow running is carried out automatically.



The quantity of air can be individually adjusted at the air flap (f), for warm air distribution.

In centre position 50% of the warm air is distributed to each outlet.

Use the fan duct with 72 mm and if the fan ducts are of different lengths or on sides with a greater heat requirement. This means that the air output can be used to the full on this side. By adjusting the air flap (f) the quantity of air can be increased individually. This means that the air out-put on the other side is reduced.

If the air output drops or the operating noise increases, the fan impeller wheel may be severely soiled.

Cleaning

(with switched off appliance!) We recommend removing dust which has collected on the heat exchanger and base plate of the heater and on the impeller wheel of the Trumavent fan, once a year before the heating season starts. Clean the impeller wheel carefully using a brush or tooth brush.

Butterfly Outlet

Blown air ducts

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

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

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.

TRUMATIC C 6002 EH

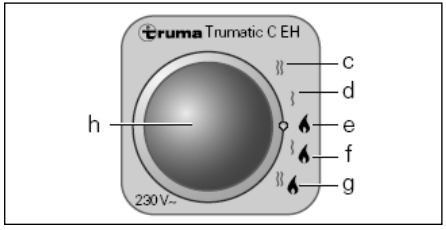
Always observe the operating instructions and 'Important operating notes' prior to starting!

Note: Refer to Control Panel NE183 Operating Instructions with regard to Heater operation

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 through with clean warm water. If the heater is not being used, always drain the water contents if there is a risk of frost! **There shall be no guarantee claims for damage caused by frost!** Also drain the water prior to repair or maintenance work on the vehicle (in the workshop!) as the electrical safety/drain valve opens when the appliance is switched dead!

POWER SELECTOR SWITCH



c = Electric operation 230 V, 1800 W

d = Electric operation 230 V, 900 W

e = Gas operation

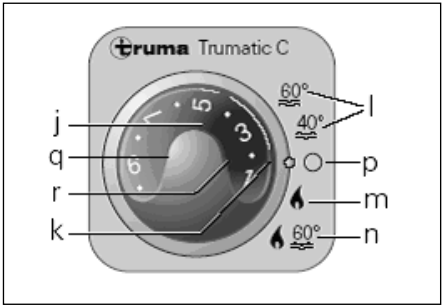
f = Mixed operation*
(gas and electricity, 900 W)

g = Mixed operation*
(gas and electricity, 1800 W)

h = Yellow 'electric mode' indicator lamp.

* Winter mode only! In summer mode the unit automatically selects electric operation at the preselected electrical power of 900 W or 1800 W.

CONTROL PANEL



j = Rotary switch for room temperature
(1 – 9)

k = Green 'Operation' monitor lamp

l = Summer mode
(water temperature 40°C or 60°C)

m = Winter mode
(heating without hot water requirement)

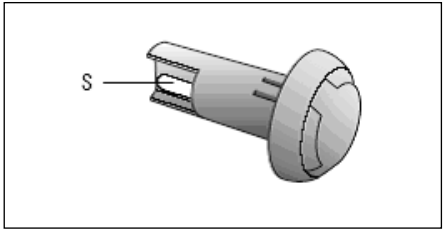
n = Winter mode
(heating with hot water requirement)

p = Rotary 'Off' switch

q = Yellow 'Boiler heating phase' monitor lamp

r = Red 'Fault' monitor lamp

ROOM THERMOSTAT



s = Room temperature sensor

To measure the room temperature, an external room temperature sensor (s) is located in the vehicle. The location of the sensor is determined individually, depending on the vehicle type.

The thermostat setting on the operating element (1 – 9) must be determined individually depending on the heating requirement and the type of vehicle. For an average room temperature of about 23°C, we recommend a thermostat setting of about 6 – 8.

TAKING INTO OPERATION

Before start-up the following must be checked:

1. Is the cowl free? Remove all covers.
2. Are the gas cylinder and the quick-action stop valve in the gas pipe open?
3. Is the fuse protection for the 230 V power supply at the camping site adequate for the selected output (900 W or 1800 W)?
4. Has the power supply cable for the motorhome been fully unwound from the cable reel?

Note: Heating is always possible in all operating modes (gas, electric and mixed operation) without restrictions, with or without water.

Summer mode (hot water only)

1. Select required type of operation at power selector switch (gas or electrical operation).

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

2. Set rotary switch to summer mode (l) 40°C or 60°C at control unit. The green 'On' indicator lamp (k) and the yellow water heating indicator lamp (q) on the control unit illuminate when the equipment is switched on. During electrical operation the yellow indicator lamp (h) at the power selector switch also illuminates to indicate 230 V operation. When the selected water temperature has been reached (40°C or 60°C) the equipment switches off and the yellow control lamp (q) goes off.

Winter mode

Heating WITH hot water requirement

1. Select required type of operation at power selector switch (gas, electrical or mixed operation).
2. Move rotary knob (j) on the control panel to desired thermostat setting (1 – 9) for room temperature.
3. Move rotary switch on the control panel to 'n'. The green 'On' indicator lamp (k) and the yellow water heating indicator lamp (q) on the control panel illuminate when the equipment is switched on. During electrical operation the yellow indicator lamp (h) at the power selector switch also illuminates to indicate 230 V operation.

   Depending on operating mode (gas, electrical or mixed operation) and power requirement (temperature difference between selected and current room temperature) the unit automatically selects the necessary power setting of up to 7800 W.

   The unit gradually reduces the power until the selected room temperature is reached. If this temperature has been reached but the water still has to be heated, the circulation fan switches off and the water continues to be heated to a temperature of 60°C at the lowest power setting.

Note: The water can be heated to up to 80°C depending on the heating power that is required to achieve the room temperature. The yellow indicator lamp (q) indicates the hot water heating phase and goes off when the water temperature is reached (60°C).

Heating WITHOUT hot water requirement

1. Select required type of operation at power selector switch (gas, electrical or mixed operation).
2. Move rotary knob (j) on the control panel to desired thermostat setting (1 – 9) for room temperature.
3. Move rotary switch on the control panel to ‘m’. The green ‘On’ indicator lamp (k) on the control panel illuminates when the equipment is switched on. During electrical operation the yellow indicator lamp (h) at the power selector switch also illuminates to indicate 230 V operation.

   In this operating position the yellow indicator lamp (q) only illuminates at water temperatures of less than 10°C!

   Depending on operating mode (gas, electrical or mixed operation) and power requirement (temperature difference between selected and current room temperature) the unit automatically selects the necessary power setting of up to 7800 W.

   When the selected room temperature has been reached, the heater switches off (independent of the water temperature).

Note: The water is automatically heated as well if the boiler has been filled. The water temperature can reach up to 80°C depending on the power and the duration of the heating.

Switching off

Move rotary switch on the control panel to ‘p’ to switch off.

The fan can continue to run after switching off in order to utilise the residual heat.

Note: In order to prevent unintentional overloading of the power supply when resuming operation, it is advisable to set the unit to gas operation at the power selector switch after switching off.

Always drain water contents if there is a risk of frost!

If the appliance is not to be used for a prolonged period, close the quick-acting valve in the gas supply line and turn off the gas cylinder.

Gas operation fault

If a fault occurs during gas operation the red indicator lamp (r) on the control panel illuminates.

Possible causes can be found in the troubleshooting list.

Unlocking takes place by switching off and then switching on again. If a fault shut-off occurs during mixed operation (e.g. because of empty gas cylinder) the heater continues to run using electricity.

Electrical operation fault

If a fault occurs during electrical operation the yellow indicator lamp (h) on the power selector switch goes off.

Possible causes can be found in the troubleshooting list.

If the 230 V power supply is interrupted for short periods during operation the heating will resume as normal.

Filling the water heater

1. Manually close the safety / drain valve (Fig. A)

2. Switch on power for water pump.
3. Open hot water taps in kitchen and bathroom, (set preselecting mixing taps or single-lever fittings to ’hot’). Leave taps open until the water heater has forced out air and filled up with water and water is flowing out of the taps.

Note: If just the cold water system is being operated, without using the water heater, the heater tank also fills up with water. In order to avoid damage by frost, the water contents must be drained by operating the safety/drain valve, also when the water

heater has not been used. As an alternative, two shut off valves, resistant to hot water, can be fitted in front of the cold and hot water connection.

WARNING: 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

1. Interrupt power for water pump (via control panel).
2. Open hot water taps in kitchen and bathroom.
3. Open safety/drain valve: lever in the vertical position (Fig A)

The water heater content is now emptied to the outside through the safety/drain valve. Place a bucket beneath the outlet to check whether the water content has completely drained away (12 litres!). **There shall be no guarantee claims for damage caused by frost!**

MAINTENANCE

The water container used is made of stainless steel, which is foodstuff-compatible.

Use wine vinegar for descaling the water heater, this being introduced into the appliance via the water supply. Allow the product to react and then thoroughly flush out the appliance with plenty of fresh water. To sterilise the water we recommend 'Certisil-Argento'. Other products, particularly those containing chlorine are unsuitable.

To avoid infestation by micro-organisms, the boiler must be heated to 70°C at regular intervals (only possible in winter operation). Do not use the water as drinking water!

Fuses 12 V

The 12 V fuses for the device are located on the electronic control unit (12). The fine-wire fuse must only be replaced by a fuse of the same design.

F1: 6.3 A, slow-acting

F2: 1.6 A, slow-acting

Fuses 230 V

The fuses and power connection cables must always be replaced by experts!

WARNING: Disconnect all poles of the unit from the mains before opening the housing containing the power electronics.

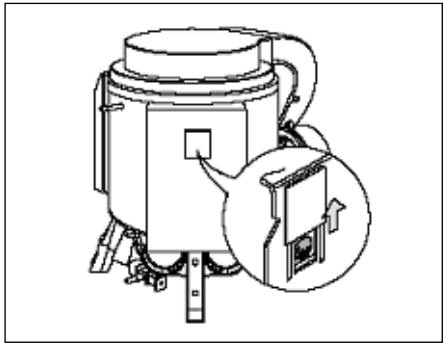
The 230 V fuse of the unit is in the power electronics (13) on the unit.

This fine fuse must always be replaced with a fuse of the same type.

10 A, slow-acting, cut-off delay '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 trigger the overheating protection.



To reset the overheating protection, let the heater cool down, slide cover on power electronics (13) upwards and push in the red button.

IMPORTANT OPERATING NOTES

Warning: Repairs may only be carried out by an expert!

- A new O-ring must always be installed after dismantling the exhaust duct!

- Always use original Truma spare parts for maintenance and repair work!

1. 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.
2. Following a blow-back (misfire) always have the exhaust gas system checked by an expert!
3. Always keep the cowl for the exhaust duct and combustion air intake free of contamination (slush, ice, leaves etc.).
4. The liquid gas burner operates fan-supported, which ensures trouble-free function even when on the move. National restrictions must be observed with regard to operation when on the move.
5. The installed temperature limiter shuts off the gas supply if the appliance becomes too hot. Therefore do not shut the warm air outlets and the opening for the returning circulating air.

TECHNICAL DATA

Type of gas:
Liquid gas (propane/butane)

Operating pressure: 30 mbar

Water contents: 12 Litres

Heating up time from approx. 15°C to approx. 60°C:

Summer-/gas operation: approx. 35 min.

Summer-/electrical operation (1800 W): approx. 45 min.

Winter mode: approx. 60 min. upward (depending on the heat output)

Water pressure: max. 2.8 bar

Rated thermal output:

Liquid gas: 2000 W, 4000 W, 6000 W

Electrical: 900 W, 1800 W

Gas consumption: 170 - 460 g/h

Air delivery volume
max. 287 m3/h (free-blowing without warm-air duct)

Current input at 12 V:

Heater + water heater: 0.2 – 5.9 A

Heating up of water heater: 0.4 A

Stand-by: 0.001 A

Current input of electrical safety/drain valve at 12 V: 0.035 A

Current input of 230 V:

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

Weight: approx. 18.7 kg (without water contents)

ABG test mark:
S 301

Declaration of conformity:

The Trumatic C 6002 EH heater has been tested by the DVGW and complies with the EC gas device directive 90/396/EEC, the EMC directive 89/336/EEC, the low voltage directive 73/23/EEC and the associated EC directives, standards and technical specifications. The CE product identification number for EU states is: **CE-0085AS0122.**

TROUBLE-SHOOTING

FAULT	CAUSE	RECTIFICATION
Gas operation		
No control lamp lights up when the system is switched on (winter and summer mode).	- No supply voltage. - Device fuse or vehicle fuse defective.	- Check battery voltage (12 V). - Check all electrical plug connections. - Check device fuse (see Maintenance). - Check vehicle fuse.
The green indicator lamp comes on when the equipment is switched on, but the heater is not operating.	- The temperature setting on the control panel is lower than the room temperature. - Open window above cowl (window switch).	- Select higher room temperature at the control panel. - Close window.
The red monitor lamp flashes after the heating system has been switched on.	- Battery voltage is too low < 10.5 V.	- Charge battery.
About 30 seconds after the heating has been switched on, the red monitor lamp lights up and remains steady.	- Gas cylinder or quick-closure valve in the gas line is closed. - Air feed interrupted.	- Check gas feed. - Check cowl for possible coverage. - If being used on boats, open the deck cowl.
Heating switches to fault mode after an extended period of operation.	- Hot-air outlets blocked. - Gas pressure regulator iced up. - Butane content in the gas cylinder too high.	- Check individual outlet apertures. - Use de-icing system controller (Eis-Ex). - Use propane (at temperatures below 10°C in particular, butane is unsuitable for heating purposes).

TROUBLE-SHOOTING

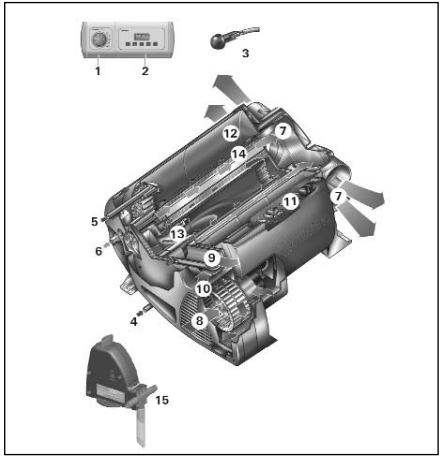
FAULT	CAUSE	RECTIFICATION
Electrical operation 230 V		
The green indicator lamp on the control panel illuminates when the unit is switched on, the yellow indicator lamp on the power selector switch does not illuminate and the heating does not become warm.	- No supply voltage. - Device fuse defective. - Overheating switch has triggered.	- Check 230 V supply voltage and fuses. - Check device fuse (see Maintenance). - Reset overheating switch (see Maintenance).

TROUBLE-SHOOTING

FAULT	CAUSE	RECTIFICATION
Water supply		
When the heating system is switched off, the electrical safety/drain valve opens.	- Outside temperature below 4°C.	- Switch the heating on (at temperatures of about 4°C and below the drain valve will open automatically).
- The valve remains open even after the heating has been switched on.	- No 12 V power supply at the drain valve.	- Check 12 V supply voltage and fuses.
The electrical safety/drain valve will no longer close.	- Outside temperature below 8°C.	- Switch the heating on (without heating operation, the drain valve will not close again until temperatures above 8°C have been reached).
- The valve remains open even after the heating has been switched on.	- No 12 V power supply at the drain valve.	- Check 12 V supply voltage and fuses.
Water dripping from the electrical safety/drain valve.	- Water pressure too high.	- Check pump pressure (max. 2.8 bar). If connected to a central water supply (rural or urban connection), a pressure reducer must be used, which will prevent pressures higher than 2.8 bar entering the boiler.

If these measures do not lead to the rectification of the fault, in principal we would ask you to contact Truma After Sales Service.

TRUMA COMBI 4 / COMBI 6



1 Control panel
2 Time switch ZUCB (Accessories)
3 Room temperature sensor
4 Cold water connection
5 Hot water connection
6 Gas connection
7 Hot air outlets
8 Circulating air return line
9 Waste gas discharge
10 Combustion air infeed
11 Electronic control unit
12 Water container (10 litres)
13 Burner
14 Heat exchanger
15 FrostControl (safety/drain valve)

FUNCTION DESCRIPTION

The liquid gas heater 'Truma Combi' is a warm-air heater with integrated hot water boiler (10 litre volume). The burner operates fan-supported, which ensures trouble-free function even when on the move.

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.

– **In summer operation**, the water contents are heated in the smallest burner stage. Once the water temperature is reached, the burner switches off.

– **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.

At a temperature of approximately 3° C at the automatic FrostControl safety/drain valve, the valve will open and drain the boiler.

The unit is not suitable for use as a flow heater.

SAFETY INSTRUCTIONS

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

– extinguish all open flames

– open windows and door

– close all quick-acting valves and gas cylinders

– do not smoke

– do not activate any electric switches

– ask an expert to inspect the entire system!

REPAIRS MAY ONLY BE CARRIED OUT BY AN EXPERT!

Any modifications to the unit, including accessories, exhaust duct, and cowl, or the use of spare parts and accessories that are important to the operation of the system that are not original Truma parts and failure to follow the installation and operating instructions will cancel the warranty and indemnify Truma from any liability claims. It also becomes illegal to use the appliance, and in some countries this even makes it illegal to use the vehicle.

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

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

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

The vehicle owner is always responsible for arranging the inspection.

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

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

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

Only pressure regulating equipment that complies with EN 12864 (in vehicles) with fixed output pressure of 30 mbar may be used for the gas system. The flow rate of the pressure control device must correspond to at least the maximum consumption of all devices installed by the system manufacturer.

For vehicles, we recommend Truma's SecuMotion gas pressure regulator; for the two-cylinder gas system we also recommend the Truma DuoComfort changeover valve.

At temperatures below 5° C, the gas pressure regulator or the changeover valve should be used with EisEx regulator heating.

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

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

DO NOT USE THE BOILER WATER AS DRINKING WATER!

Important operating notes

If the cowl has been placed near or directly beneath an opening window, the device must be equipped with an automatic shut-off device in order to prevent operation with the window open.

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 warm air outlets and the openings for circulation air return must be unobstructed so the unit will not overheat. The integrated temperature limiter blocks the gas supply when the unit becomes too hot.

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

The Truma SecuMotion gas pressure regulator meets this requirement.

NOTE: If the Truma SecuMotion gas pressure regulator is not installed, the gas cylinder must be closed while driving and warning signs must be in place in the gas cylinder protection box and near the control panel.

The safety shut-off device is also recommended for safety reasons if motorhomes are being heated while driving.

OPERATING INSTRUCTIONS

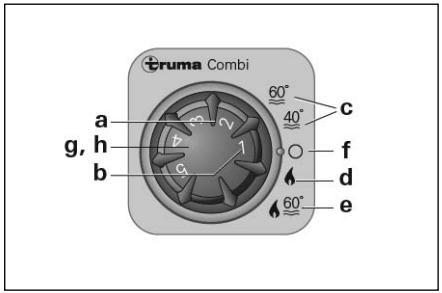
Always observe the operating instructions and 'Important operating notes' prior to starting! The vehicle owner is responsible for the correct operation of the appliance.

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

Before using for the first time, it is essential to flush the entire water supply through with clean warm 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!

GAS OPERATION
(heating and hot water)



a Rotary switch for room temperature (1 – 5)

b green LED lit ‘Operation’ green LED blinking ‘after-running’ is active in order to reduce the unit’s temperature

c Summer operation
(water temperature 40° C or 60° C)

d Winter operation (heating without water temperature monitoring or with drained water system)

e Winter operation (heating with water temperature monitoring)

f Rotary ‘Off’ switch

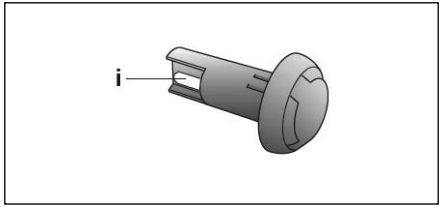
g Yellow LED lit ‘Boiler heat-up phase’

h Red LED lit, red LED blinking ‘Failure’

The LEDs are visible only when the unit is switched on.

ROOM THERMOSTAT

i Room temperature sensor

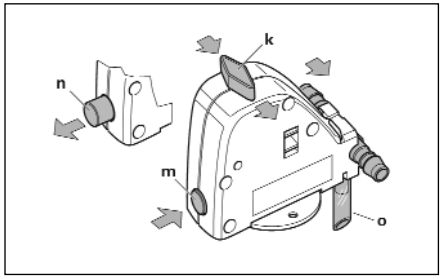


To measure the room temperature, an external room temperature sensor (i) is located in the vehicle. The location of the sensor is determined individually by the vehicle manufacturer, depending on the vehicle type; consult the operating instructions for your vehicle for further details.

The thermostat setting on the control panel (1 – 5) must be determined individually depending on the heating requirement and the type of vehicle. For an average room temperature of about 23° C, we recommend a thermostat setting of about 4.

FROST CONTROL
(safety/drain valve)

FrostControl is a currentless safety/drain valve. When there is a danger of frost, it automatically drains the contents of the boiler through a drainage muff. If excessive pressure is present in the system, pressure will be automatically intermittently equalised through the pressure relief valve.



k rotary switch position ‘Operation’

m push button position ‘Closed’

n push button position ‘Drain’

o drainage muff (led outside through floor of vehicle)

Closing the drain valve

Check if the rotary switch is set to ‘Operation’ (position k), meaning that it is parallel to the water connection and engaged.

It can be manually closed with the push button (position m) and then the boiler filled only when the temperature at the drain valve is above approximately 7° C.

Close the drain valve by activating the push button. The push button must engage in position (m) ‘closed’.

Truma can provide a heating element (part no. 70070-01) as an accessory; it is inserted into FrostControl and warms it up to about 10° C when Combi is switched on. Then, after a short time, you can fill up the boiler regardless of the

temperature in the installation compartment.

Automatic opening of the drain valve

When the temperature is below approximately 3° C at the drain valve, the drain valve will open automatically, the push button moves out (position n) and the water in the boiler drains out through the drainage muff (o).

Manual opening of the drain valve

Turn the rotary switch by 180° until it engages, whereby the push button moves out (position n). The water in the boiler drains out through the drainage muff (o).

The FrostControl drainage muff (o) must be free of contamination (slush, ice, leaves, etc.) at all times so the water can drain out easily! No warranty given for frost damage!

TAKING INTO OPERATION

Heating operation is basically possible without restriction with or without water content.

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

Turn on gas cylinder and open quick-acting valve in the gas supply line.

SUMMER OPERATION
(boiler operation only)

Move the rotary switch on the control panel to position (c – summer operation) 40° C or 60° C. The green (b) and yellow (g) LEDs light up.

After reaching the set water temperature (40° C or 60° C), the burner will switch off and the yellow LED (g) will be extinguished.

WINTER OPERATION

Heating with water temperature monitoring

Set the rotary switch to the operational setting ‘e’. Set the rotary switch (a) to the desired thermostat setting (1 – 5). The green LED (b) for operation is lit and simultaneously indicates the position of the selected room temperature. The yellow LED (g) indicates the water’s heat-up phase.

The unit automatically selects 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 set on the control panel has been reached, the burner switches back to the lowest stage, and heats the water content to 60° C. The yellow LED (g) will be extinguished after the water temperature is reached.

Heating without water temperature monitoring

Set the rotary switch to the operational setting ‘d’. Turn the rotary switch (a) to the desired thermostat setting (1 – 5). The green LED (b) for operation is lit and simultaneously indicates the position of the selected room temperature. The yellow LED (g – water’s heat-up phase) will be lit only when the water temperature is below 5° C!

The unit automatically selects the required power level according to the temperature difference between the setting on the control panel and the current room temperature.

After reaching the room temperature set on the control panel, the burner will switch off. The warm-air fan will continue to run at a low speed as long as the blow-out temperature (on the unit) is higher than 40° C.

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

Set the rotary switch to the operational setting ‘d’. Turn the rotary switch (a) to the desired thermostat setting (1 – 5). The green LED (b) for operation is lit and simultaneously indicates the position of the selected room temperature. The yellow LED (g) will be lit only when the temperature of the unit is below 5° C!

The unit automatically selects the required power level according to the temperature difference between the setting on the control panel and the current room temperature. After reaching the room temperature set on the control panel, the burner will switch off.

SWITCHING OFF

Use the rotary switch to switch off heater (position f). The green LED (b) goes off.

If the green LED (b) blinks after switching off, then the unit’s after-running is active in order to reduce the unit’s temperature. This will end after a few minutes and the green LED (b) will go off.

ALWAYS DRAIN WATER CONTENTS IF THERE IS A RISK OF FROST!

If the appliance is not to be used for a prolonged period, close the quick-acting valve in the gas supply line and turn off the gas cylinder.

Red LED 'Failure'

The red LED (h) will be lit if there is a failure.

Please consult the Trouble-Shooting list for possible causes.

Reset (failure reset) the unit by switching it off and back on.

If the window switch is opened, the heating unit will stop operating and the red LED (h) will blink. Once the window switch is closed, the heating unit will continue operation and the green LED (b) will be lit continuously.

Filling the water heater

Check if the rotary switch for the drain valve (FrostControl) is set to 'Operation', meaning that it is parallel to the water connection and engaged.

When the temperature at FrostControl is below about 7° C, first switch on the heater to warm the installation compartment and FrostControl. After several minutes, when the temperature at FrostControl is above 7° C, the drain valve can be closed.

Close the drain valve by pushing the push button until it engages.

Switch on power for water pump (main switch 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 it was not operated. As an alternative, two shut off valves, resistant to hot water, can be fitted in front of the cold and hot water connection.

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.

Turn the rotary switch on the drain valve (FrostControl) by 180° until it engages, whereby the push button moves out and the drain valve opens.

The boiler is now drained directly to the outside via the drain valve. Place a bucket beneath the outlet to check whether the water content has completely drained away (10 litres). 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!

The water container used is made of stainless steel, which is foodstuff-compatible.

Use wine vinegar for descaling the water heater, this being introduced into the appliance via the water supply. Allow the product to react and then thoroughly flush out the appliance with plenty of fresh water. For sterilisation purposes we recommend 'Certisil-Argento'; other products (especially those containing chlorine) are unsuitable and may damage the unit.

To avoid micro organisms colonising the water in the boiler, heat the water to 70° C at regular intervals (at least once per year).

Move the rotary switch on the control panel to position (c – summer operation) 60° C. The green (b) and yellow (g) LEDs light up.

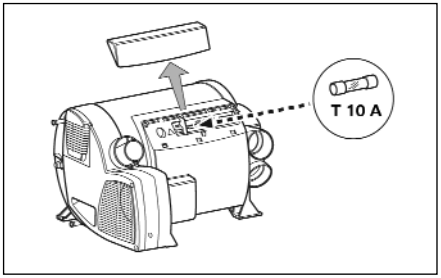
Once the water in the boiler has reached a temperature of 60° C, the burner will switch off and the yellow LED (g) will go out. The unit must stay switched on for at least 30 minutes and no warm water may be removed. The residual heat in the heat exchanger will heat the water up to 70° C.

Equipment Details

FUSES

The unit's fuse is located on the electronics under the connection cover. Replace the unit's fuse only with an identical fuse.

Device fuse: 10 A – slow – (T 10 A)



DISPOSAL

The liquid gas heater must be disposed in accordance with the administrative stipulations of the respective country in which it is used. National regulations and laws (in Germany, for example, the Altfahrzeug-Verordnung (old vehicle directive) must be observed.

In other countries, the relevant regulations must be observed.

TECHNICAL DATA

determined in accordance with EN 624 or Truma test conditions

Type of gas
Liquid gas (propane / butane)

Operating pressure
30 mbar (see type plate)

Water contents
10 litres

Heating up time from approx. 15° C to approx. 60° C
Boiler approx. 20 minutes (measured according to EN 15033) Heater + boiler approx. 80 min.

Water pressure
max. 2.8 bar

Rated thermal output (automatic output levels)
Combi 4: 2000 / 4000 W
Combi 6: 2000 / 4000 / 6000 W

Gas consumption
Combi 4: 160 – 320 g/h
Combi 6: 160 – 480 g/h
Readiness-heat power requirement Combi 4 / Combi 6: 5.2 g/h

Air delivery volume (free-blowing without hot-air pipe)
Combi 4: with 3 hot-air outlets max. 249 m^3/h with 4 hot-air outlets max. 287 m^3/h
Combi 6: with 4 hot-air outlets max. 287 m^3/h

Current input at 12 V
Heater + boiler
Combi 4: Short-term max. 5.6 A
(average power consumption 1.1 A)
Combi 6: 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

Weight (without water contents)
14.5 kg

Declaration of conformity

The Truma Combi has been tested by the DVGW and complies with the gas equipment directive (90/396/EEC) and the other applicable EC directives. The following CE Product Ident. No. is available for EU countries Combi 4 / Combi 6: CE-0085-BS0085.

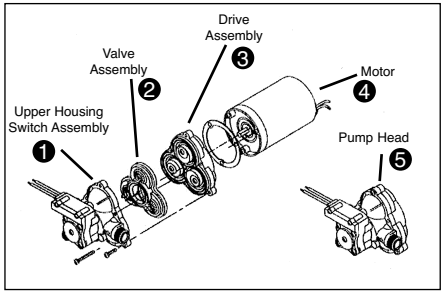
The heater complies with heater directive 2001/56/EC and supplements 2004/78/EC and 2006/119/EC and bears the type approval number
Combi 4: e1 00 0193
Combi 6: e1 00 0194.

The heater complies with the interference suppression directive 72/245/EEC for vehicle engines with annexes 2004/104/EC, 2005/83/EC and 2006/28/EC and bears type approval number:
e1 03 5020.

The heater complies with EMC directive 89/336/EEC and low voltage directive 73/23/EEC.

For troubleshooting a fault please refer to page 14 of the Truma Combi 4 / Combi 6 Operator Manual.

SHURFLO PUMP AND ACCUMULATOR ASSEMBLY



SHURFLO RV FRESH WATER PUMP

INSTALLATION AND OPERATION

Shurflo's patented RV Fresh Water Pumps for drinking water were developed to delivery smooth, consistent flow at all ranges of operation, while drawing low current. The balanced diaphragm design incorporates precision ball bearings for long life. Each motor is equipped with an integral thermal breaker and all units are CE approved. RV fresh water pumps are enclosed to prevent incidental moisture from entering; however, they are not intended for environment where splashed water is present. When installed correctly, RV Fresh Water Pumps provide years of quiet operation.

General Information

Shurflo water pumps meet the essential health and safety requirements and are in conformity with the EU EMC directive 89/336/FEC as specified in EN 55014 (1993).

Shurflo realises that in many instances our pump is being installed as a replacement pump within an existing system. The following guidelines should be considered to achieve optimum pump operation.

Mounting

The pump can be at the same level or below the water tank. It may be positioned above the water tank if needed, as it is capable or a 6 ft. (1.8m) vertical prime. Horizontal inlet tubing will allow priming to 30 ft. (9m).

The pump should not be located in an area of less than one cubic foot (0.03m) unless adequate ventilation is provided. Excessive heat may trigger the integral thermal breaker and interrupt operation. When the temperature drops, the breaker will automatically reset and start the operation. The pump may be mounted in any position.

The mounting feet are intended to isolate the pump from the mounting surface; over tightening, flattening, or use of oversized screws will reduce the ability to isolate vibration/noise.

Winterising

If water is allowed to freeze in the system, serious damage to the plumbing and the pump may occur. Failures of this type will void the warranty. The best guarantee against damage is to completely drain the water system. However, non-toxic antifreeze for fresh water, available at local RV centres, may be used.

CAUTION: Do not use Automotive Antifreeze to winterise drinking water systems. Such solutions are highly toxic. Ingestion may cause serious injury or death. To properly drain the system perform the following:

Drain the water tank. If the tank doesn't have a drain valve open all taps allowing the pump to operate (15min. ON. 15 min. OFF) until the tank is empty.

Open all the taps (including the lowest valve or drain in the plumbing) and allow the pump to purge the water from the plumbing, then turn the pump OFF.

Using a pan to catch the remaining water, remove the plumbing at the pump's inlet/outlet ports. Turn the pump ON, allowing it to operate until the water is expelled. Turn OFF power to the pump once the plumbing is emptied. DO not reconnect pump plumbing. Make a note at tank filler as a reminder: "Plumbing is Disconnected".

All taps must be left open to guard against any damage.

TROUBLESHOOTING

Vibration induced by road conditions or transporting can cause plumbing or pump hardware to loosen. Check for system components that are loose.
Many symptoms can be resolved by simply tightening the hardware. Check the following items along with other particulars of your system.

PUMP WILL NOT START/BLOWS CIRCUIT

- Electrical connections, fuse or breaker, main switch and ground connection.
- Is the motor hot? Thermal breaker may have triggered; it will reset when cool.
- Is voltage present at the switch? Bypass the pressure switch. Does the pump operate?
- Charging System for correct voltage (±10%) and good ground.
- For an open or grounded circuit, or motor; or improved sized wire.
- For seized or locked diaphragm assembly (water frozen?).

WILL NOT PRIME/SPUTTERS:

(No discharge/motor runs)

- Is the strainer clogged with debris?
- Is there water in the tank, or has air collected in the hot water heater?
- Is the inlet tubing/plumbing sucking in air at plumbing connections (vacuum leak?)
- Is the inlet/outlet plumbing severely restricted or kinked?
- Proper voltage with the pump operating (±10%)
- For debris in pump inlet/outlet valves or swollen/dry valves
- Pump housing for cracks or loose drive assembly screws

PUMP WILL NOT SHUT-OFF/RUNS WHEN TAP IS CLOSED:

- Output side (pressure) plumbing for leaks, and inspect for leaky valves or toilet
- For air trapped in outlet side (water heater) pump head
- For correct voltage to pump (±10%)
- For loose drive assembly or pump head screws
- Are the valves or internal check vale held open by debris or is rubber swollen?
- Pressure switch operation/adjustment incorrect, refer to shut-off adjustment for switch

NOISY OR ROUGH OPERATION:

- For plumbing which may have vibrated loose
- Is the pump plumbed with rigid pipe causing noise to transmit?
- Does the mounting feet that are loose or are compressed too tight
- For loose pump head to motor screws (3 long screws)
- The motor with pump head removed. Is noise from motor or pump head?

RAPID CYCLING:

- Pressure switch shut-off adjustment
- Water filter/purifier should be on separate feed line
- For restrictive plumbing, flow restrictors in taps/shower heads

LEAKS FROM PUMP HEAD OR SWITCH:

- For loose screws at switch or pump head
- Switch diaphragm ruptured or pinched
- For punctured diaphragm if water is present in the drive assembly

LIMITED WARRANTY

Shurflo warrants its RV Duty Fresh Water Pumps to be free of defects in workmanship and materials under normal use, for two years beginning with the purchase date of the unit.

This warranty does not extend to any Shurflo products, which have been misapplied, improperly installed or altered outside the Shurflo factory.

Accessories & Fittings

Shurflo's warrants its accessories and fittings to be free of defects in workmanship and materials (under normal use) for one year beginning with the purchase date of the accessory or fitting.

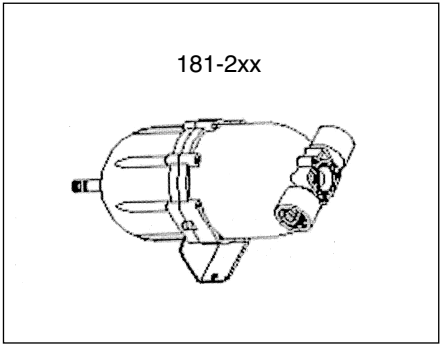
This warranty does not extend to any Shurflo products, which have been misapplied and/or improperly installed.

All Products

Shurflo is not responsible nor will it reimburse for labour necessary to remove and reinstall a pump and/or fittings and accessories if found defective.

Shurflo's obligation under this warranty policy is limited to the replacing or repairing (whichever it deems advisable) any such part, which is returned to Shurflo's factory with transportation charges pre-paid and which upon Shurflo's inspection is found defective under the terms of this warranty.

SHURFLO ACCUMULATOR



In the majority of installations the Shurflo pump is mounted with a Shurflo accumulator. The Shurflo accumulator tank is a bladder type pressure storage vessel and/or pulsation dampening device designed to hold water under pressure.
The accumulator tank provides additional water storage to assist the pump in meeting the total demands of the system. It extends pump life by eliminating pump pulsation on/off. The accumulator also makes small amounts of water available at a moments notice without cycling the pump.

To work with the 30psi pump installed, the accumulator pressure should be set at 18psi, +/- 5psi, and before installation the accumulator is factory set with a pre-charge of 20psi.

During the life of the accumulator the pre-charge pressure should not require frequent adjustment, but checking the pressure annually is advisable. The accumulator is fitted with a Schreider valve on the top of the chamber which allows the pre-charge pressure to be checked and/or adjusted. The pressure can be checked with a tyre pressure gauge, and adjustments can be made if necessary with a bicycle hand pump. Please note that the pre-charge pressure of 20psi must not be exceeded for long term storage or during system non use.

INBOARD WATER TANKS AND ON-LINE WATER SYSTEMS

Please refer to the water system schematic on page 39 with reference to these instructions. Two model specific systems are in use:

- Pressure switched systems in motorhomes with no internal water tank as already described.
- Pressure switched systems in motorhomes with an internal tank, featuring a single pump with valve arrangement to cover all water system requirements.

TO USE THE WATER TANK TO SUPPLY THE TAPS:

- Check the water level gauge on the control panel to confirm the water level within the tank.
- Switch the pump switch to the ‘ON’ position on the control panel

If the taps are closed within the motorhome the pump will run until the correct pressure is attained within the plumbing system. If any of the taps are open water will flow from those taps as soon as the pump is switched on, unless the system is being run for the first time or from a drained condition.

FLOJET AUTOMATIC WATER SYSTEM PUMP

FEATURES

Self-Priming
Dry Running
Soft Noise Absorbing Mounts
Snap-in Port Fittings
Built-in Bypass Less Pulsation
Corrosion Resistant Materials
Meets ISO 8846

SPECIFICATIONS

Motor: Permanent Magnet, Ball Bearing Totally Enclosed. CE Models are fully suppressed.

Pump: Three chamber diaphragm design Self-priming up to 9 feet suction lift; Pump able to run dry without damage

OPERATION

With pump switch off and battery fully charged, fill water tank, open all faucets, then turn pump switch on. Water will begin to flow. When the water is free of air, turn faucets off. Remember, you are filling the water heater and pipes. When all valves are shut-off, pump will stop. Should pump fail to stop, turn switch off and see the trouble shooting.

TROUBLESHOOTING

WARNING: BEFORE SERVICING PUMP, TURN OFF PUMP AND DRAIN WATER FROM SYSTEM!

Failure to prime
Motor operates, but no pump discharge
Restricted intake or discharge line
Air leak in intake line
Debris in pump
Punctured pump diaphragm (pump leaks)
Crack in pump housing

Motor fails to turn on
Loose wiring connection
Pump circuit has no power
Blown fuse
Pressure switch failure
Defective motor

Pulsating flow
Restricted pump delivery. Check discharge lines, fittings and valves for clogging or undersizing

Pump fails to turn off after all fixtures are closed
Empty water tank
Insufficient voltage to pump (low battery)
Punctured pump diaphragm (pump leak)
Defective pressure switch

Low flow and pressure
Air leak at pump intake
Accumulation of debris inside pump and plumbing
Worn pump bearing (excessive noise)
Punctured pump diaphragm (pump leaks_
Defective motor

SYSTEM CARE AND MAINTENANCE

Winterising

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 Flojet pumps. Follow manufacturers recommendations.

Do not use automotive antifreeze to winterise potable water systems. These solutions are highly toxic and may cause serious injury or death if ingested.

1. Drain the water tank (if fitted). Open tank drain valve. You may use the pump to drain the tank by opening all the faucets in the system. Allow the pump to operate until) the tank is empty. Do not operate the pump more than 15 minutes continuously
2. Open all faucets and purge the water from the plumbing system. Turn power to the pump off. Be sure that all the water from the drain lines are drained

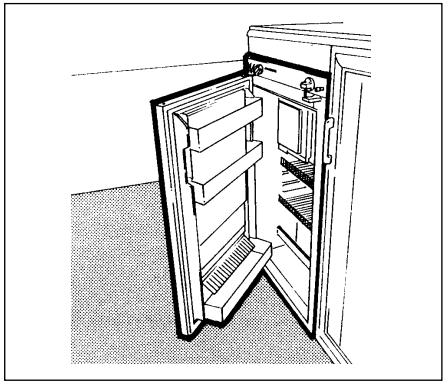
Remove quick connect inlet and outlet fittings from the pump and turn the pump on to pump out remaining water from the pump

head. Be sure to have a catch pan or a rag under the pump to prevent water from spilling. Turn the pump off once the plumbing is empty. Leave the fittings disconnected from the pump until the system is ready to be used again. Make a note on your tank filler that the plumbing is not connected.

Be sure that all faucets are left open to protect against damage to the plumbing.

Sanitising

Portable water systems require periodic maintenance to deliver a consistent flow of fresh water. Depending on use and the environment the system is subject to, sanitising is recommended prior to storing and before using the water system after a period of storage.



REFRIGERATORS

Before using your refrigerator for the first time, it is advisable to wash the interior and its accessories.

When using the refrigerator on gas ensure that the gas isolation tap is fully open by turning the knob to the vertical position. The tap can generally be found inside the sink unit or within the wardrobe (model specific). When travelling the fridge can only be Operated in the 12V mode.

Note: Before operating the refrigerator on 12V, it should be pre-cooled, together with its contents, by running it on gas or 230V for a few hours before changing over to 12V for your journey.

The current drain is approximately 7A to 14A (model specific) and power is only available when the ignition circuit is switched on. On site, only the mains electric or gas modes should be used.

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

Caution: Only use one source of energy at a time.

After initial installation, servicing or changing gas cylinders etc., the gas lines may contain some air which should be allowed to escape by briefly turning on the refrigerator or other appliances. This will ensure that the flame lights immediately.

The flame failure device will automatically shut off the gas to the burner if the flame is blown out. On electric ignition versions, the flame failure device will also shut off the gas if the burner does not re-light within about a minute of the flame being blown out.

DOMETIC ABSORPTION REFRIGERATORS

You have made an excellent choice in selecting the Dometic Absorption Refrigerator. We are sure that you will be fully satisfied with your new appliance in all respects.

The appliance, which works silently, meets high quality standards and guarantees the efficient utilisation of resources and energy throughout its entire life cycle, during manufacture, in use and when being disposed of.

Before you start to use the appliance, please read the installation and operating instructions carefully.

The refrigerator is designed for installation in leisure vehicles such as caravans or motorcaravans. The appliance has been certified for this application in accordance with EU Gas Directive 90/396/EEC.

WARNING AND SAFETY NOTICES

Warning: Never use a naked flame to check the appliance for leaks.

- Protect children!
- When disposing of the refrigerator, remove all refrigerator doors and leave the storage rack in the refrigerator. This will prevent accidental locking in or suffocation.

- If you smell gas:
  - close the locking tap of the gas supply and the valve on the cylinder.
  - open the windows and leave the room.
  - do not switch on anything electrical.
  - extinguish naked flames.
- Never open the cooling unit; it is under high pressure.
- **Work on the gas, flue system and electrical components must only be carried out by qualified service personnel.**
- It is imperative that the operating pressure should correspond to the data given on the model plate of the appliance.
- Compare the operating pressure data given on the model plate with the data o the pressure monitor of the liquid gas cylinder.
- Gas operation of the appliance is not permitted while travelling on ferries.
- Covers ensure electrical safety and must only be removed using a tool.
- The appliance must not be exposed to rain.
- The refrigerator is not suitable for the proper storage of medications.

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% of the solvent).

In the event of leakage (easily identifiable from the unpleasant odour):

- switch off the appliance.
- air the room thoroughly.
- inform the authorised Customer Service department.

WARRANTY AND CUSTOMER SERVICE

Warranty arrangements are in accordance with EC Directive 44/1999/CE and the normal conditions applicable for the country concerned. For warranty or other servicing, please contact our Dometic Service 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. Parts can be ordered throughout Europe from our Dometic Service department.

Your Service Centre contact numbers are found in the "European Service Network" booklet.

When contacting Dometic Service, please state the model, product number and serial number together with the MLC Code, if applicable. You will find this information on the data plate inside the refrigerator.

DESCRIPTION OF MODEL

Refrigerator Mobile /
Mobile Absorption Refrigerator

"L" with interior light

RM 7401 L

Last digit 1 = manual energy selection
Last digit 5 = automatic and manual energy selection

CLEANING

Before using the refrigerator, it is advisable to clean the appliance both inside and out.

- Use a soft cloth and lukewarm water with a mild detergent.
- Then rinse the appliance with clean water and dry thoroughly.
- Remove dust from the refrigerator unit at yearly intervals using a brush or soft cloth.

Warning: To avoid deterioration of materials:

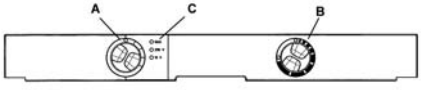
- **Do not use soap or hard, abrasive or soda-based cleaning agents.**
- **Do not allow the door seal to come into contact with oil or grease.**

Using the refrigerator

- The cooling unit is silent in operation.
- When the appliance is first put into operation, there may be a mild odour which will disappear after a few hours.
- Ensure the living area is well ventilated.
- The refrigerator will take several hours to reach its operating temperature in the cooling compartment
- The freezer compartment should be cold about one hour after switching on the refrigerator.

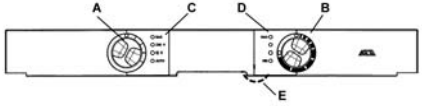
Controls

A. Manual energy selection MES (eg RM 7XX1 L)



A = energy selection switch
B = gas/electric thermostat AC/DC
C = operating displays (3 LEDs)

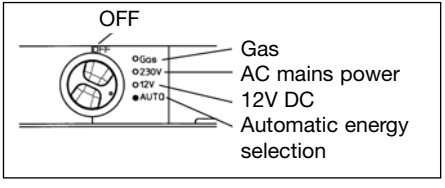
B. Automatic and manual energy selection AES (eg RM 7XX5 L)



A = energy selection switch
B = gas/electric thermostat AC/DC
C = operating displays (4 LEDs)
D = temperature setting display
E = dimmer for LED-displays
(only accessible when door opens)

Note: The refrigerator is equipped to operate on mains power, DC or liquid gas (propane/ butane). The desired power option is selected by means of energy selector switch **(A)**. Energy selector switch **(A)** has four settings: **AC** mains power, **DC** (12V), **Gas** (liquid gas), **OFF**.

Appliances with automatic energy selection have the additional setting "AUTO".

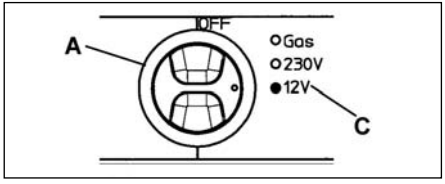


MANUAL ENERGY SELECTION

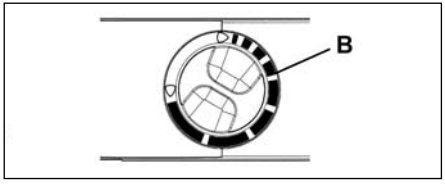
ELECTRICAL OPERATION

12V - operation (DC)

Warning: The refrigerator should only be used while the motor is running, otherwise the on-board-battery would be discharged within a few hours!



1. Set energy selector switch (A) to 12V .
2. Operating display "C", 12V lights "green". Appliance is in function.



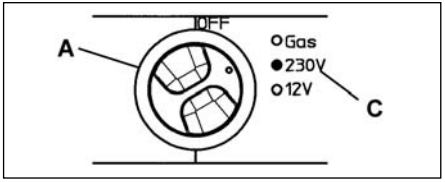
3. Use rotary switch (B) to regulate the temperature in the main refrigerator compartment.

Equipment Details

Note: If the operating display fails to light up (it lights up “red” at AES models) the device is not in operation. (See troubleshooting section).

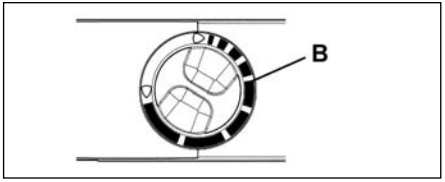
Mains power

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



1. Set energy selector switch (A) to 230V .
2. Operating display "C", 230V lights "green".

   Appliance is in function.



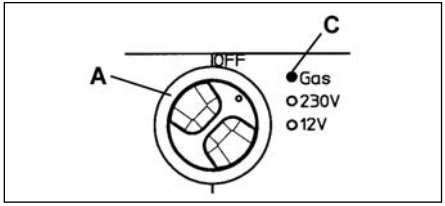
3. Use rotary switch (B) to regulate the temperature in the main refrigerator compartment.

Note: If the operating display fails to light up (it lights up "red" at AES models) the device is not in operation. (For troubleshooting see page 105)

GAS OPERATION

- The refrigerator should only be operated using liquid gas (propane, butane). Do not use town gas or natural gas.
- If the refrigerator is operated during travel using gas, the precautions stipulated by the legislation in the respective country must be taken (in conformity with the European standard EN 732).
- Operating the refrigerator with gas is not permitted during travel in France and Australia.
- As a basic rule, operation using gas is prohibited in petrol stations.

1. Open the valve of the gas cylinder
2. Open the shut-off valve to the gas supply.

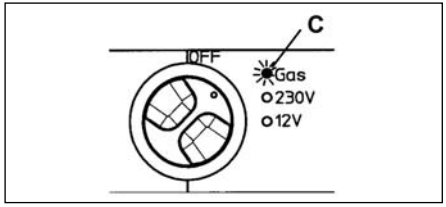


3. Set energy selector switch (A) to gas
4. Set rotary switch (B) to "MAX" position.

The ignition process is activated automatically, accompanied by a ticking sound approx. 30 sec. Upon successful ignition, the display LED (C) "Gas" lights yellow. The refrigerator is in function. Use rotary switch (B) to regulate the temperature in the main refrigerator compartment.

GAS FAULTS

In the event of a gas fault (e.g. gas cylinder empty), the operating display (C) flashes yellow.



Remedies:

Set the energy selector switch (A) to position "OFF".

1. Is there any gas in the gas bottle?
2. Is the gas bottle valve open?
3. Is the on-board shut-off valve open?
4. Set the main switch (A) to "on"

The re-ignition starts again.

If after about 30 seconds the operating display (C) starts flashing red again, the gas fault has not been cleared (e.g. air in the gas pipe).

5. Briefly switch the refrigerator off and then on again using main switch (A).

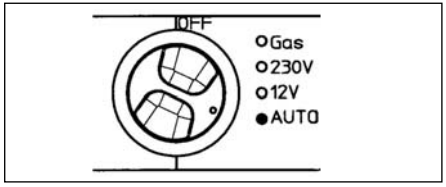
   To remove air from the gas pipes, repeat this procedure 3-4 times.

If these actions do not help, please call an authorised Dometic Service Centre.

AUTOMATIC ENERGY SELECTION (ONLY WITH RM 7XX5 L)

"AUTO"-OPERATION

RM7XX5 L - models are equipped with an "AUTO"-MATIC function.



1. Set energy selection switch (A) to position "AUTO" .

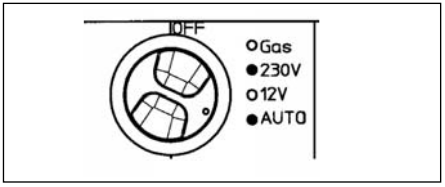
   The LED "AUTO" illuminates.

Note: Manual operation is possible at any time.

Explanations

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

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



The selected energy is displayed by the corresponding LED (i.e. 230V).

230V - operation

If sufficient supply voltage is available (more than 200V), this power source is selected as the first option (no solar-system installed).

12V - operation

12V operation should only be selected while the vehicle motor is running or there is sufficient voltage available from the solar system. This can be detected from the D+ connection of the alternator to the electronics, or from the respective signal on the solar charge regulator.

GAS OPERATION

Gas operation is selected in the following circumstances:

- No supply voltage available.
- The vehicle engine is not running.
- Supply voltage less than 200V

Refuelling Stop

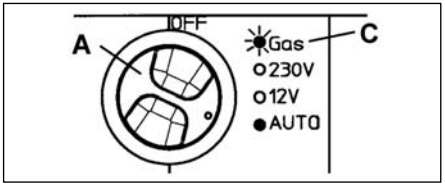
In order to prevent unintended switching to gas operation during refuelling, the electronic system starts gas operation of the refrigerator, after the motor has been turned off for 15 mins. During this time the appliance is in stand-by operation mode and only the "AUTO" LED lights up

The use of naked flames is prohibited in petrol station environments. If the refuelling stop lasts longer than 15 mins the refrigerator should be switched off at the main switch (A), or switched over to another energy type.

Equipment Details

Gas faults at "AUTO"- mode

If gas faults occur the operating LED "C" flashes yellow.



Remedies:

Set the energy selector switch (A) to position "OFF".

1. Is there any gas in the gas bottle?
2. Is the gas bottle valve open?
3. Is the on-board shut-off valve open?
4. Set the main switch (A) to "on". The ignition starts again.

If after about 30 seconds the operating display (C) starts flashing red again, the gas fault has not been cleared (e.g. air in the gas pipe).

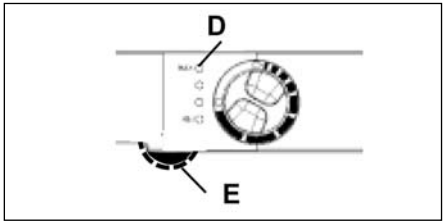
5. Briefly switch the refrigerator off and then on again using main switch (A).

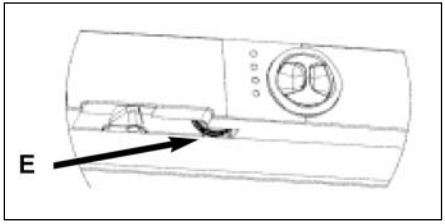
   To remove air from the gas pipes, repeat this procedure 3-4 times.

If these actions do not help, please call an authorised Dometic Service Centre.

Additional functions (RM 7XX5 L - models only)

- Temperature setting display (D) with 4 LED to indicate the selected temperature (MIN - MAX)
- LED - dimmer (E) for adjusting the brightness of the display-LED (only accessible when door opens)

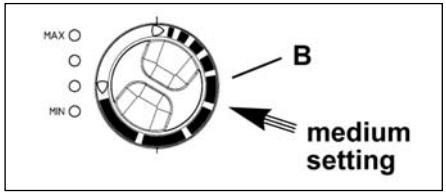




Underneath the fascia is a knurled knob for adjusting the brightness (see item E above).

Temperature setting cooling compartment

As shown, you are able to regulate the temperature of the cooling compartment, if necessary, by turning rotary knob (B).



The cooling unit's performance is influenced by ambient temperatures.

Tip: Please select the medium setting for ambient temperatures between +15°C and +25°C. The unit operates within its optimum performance range.

STORING FOOD

- Switch the refrigerator on approximately 12 hours before filling it.
- Always store food in sealed containers, aluminium foil or similar.
- Never put hot food into the refrigerator, always let it cool down first.
- Products that could emit volatile, flammable gases must not be stored in the refrigerator.
- Store quickly perishable foods directly next to the cooling fins.

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.

MAKING ICE CUBES

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

1. Fill the ice cube tray with drinking water.

   Only use drinking water!

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

DEFROSTING

As time goes by, frost builds up on the fins.

When the layer of frost is about 3mm thick, the refrigerator should be defrosted.

1. Switch off the refrigerator (see Switching Off section).
2. Remove the ice cube tray and food.
3. Leave the refrigerator door open.
4. After defrosting (freezer compartment and fins free of frost), wipe the cabinet dry with a cloth.
5. Use a cloth to mop up the water from the freezer compartment.
6. Switch the refrigerator back on again.

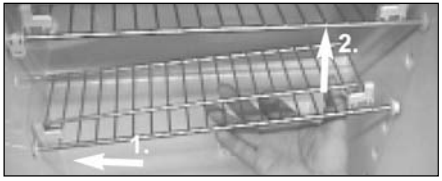
Warning: The layer of ice must never be removed forcibly, nor may defrosting be accelerated using a heat source.

Note: Water thawing in the main compartment of the refrigerator runs into an appropriate container at the back of the refrigerator. From there, the water evaporates.

POSITIONING THE STORAGE RACK

Dismantling:

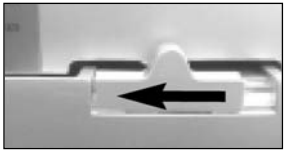
1. Loosen the front and back securing brackets.
2. Move the storage rack to the left and remove it.



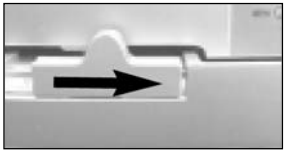
To fit the storage rack, the reverse order applies.

DOOR LOCKING

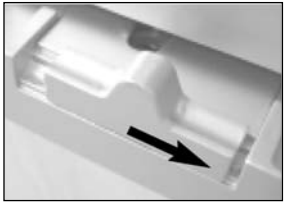
Open



Close

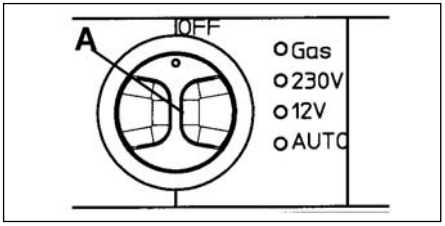


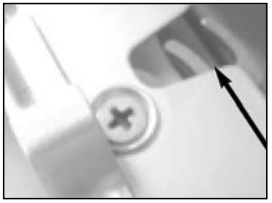
Park-position/ vent-position



SWITCHING OFF

1. Set energy selector switch (A) to position "0" (OFF). The appliance is now fully switched off.
2. Secure the door open by means of the door stop. The door will be slightly ajar. This is to prevent mould from forming inside the appliance.





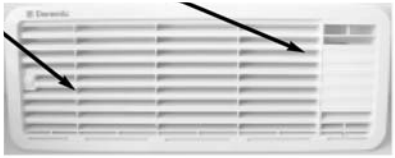
Switching off gas operation

If the refrigerator is to be taken out of service for an extended period of time, the on-board shut-off valve and the cylinder valve must be closed.

WINTER OPERATION

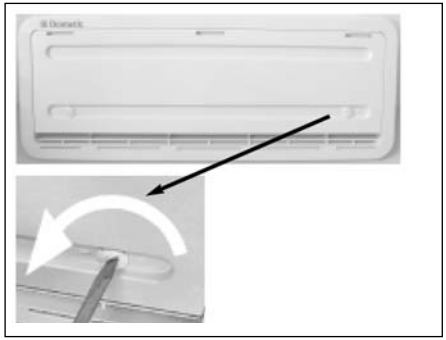
1. Check that the ventilation grills and the extractor have not been blocked by snow, leaves or similar.
2. When the ambient temperature falls below **+8°C**, the optional winter covers should be fitted. This protects the unit from excessively cold air.

Lower ventilation grille (L200)



Upper ventilation grille with flue vent (L100)

3. Affix the cover and fasten it.



Tip: It is also recommended that the winter covers should be used when the vehicle is taken out of service for an extended period of time.

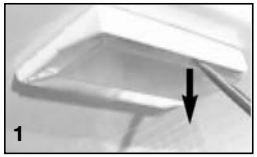
INTERIOR LIGHT

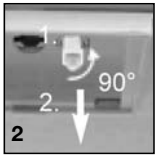
Changing the light bulbs

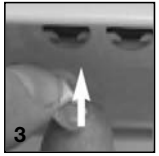
1. Remove cover.
2. Detach defective light bulb.
3. Fit new light bulb
4. Clip the cover back in place.

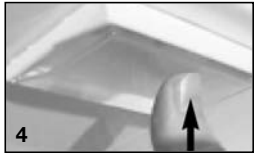
Note: For 12V DC : 1 light bulb 12V, 2W

Please contact Dometic Service Centres for replacement light bulbs.









TROUBLESHOOTING

Before calling the authorised Service Department, please check whether:

1. The instructions in the section "Using the refrigerator" have been followed.
2. The refrigerator is not tilted excessively.
3. It is possible to operate the refrigerator with an available power source

Failure : The refrigerator does not work in gas operation mode	
Possible cause	Action you can take
Gas bottle empty.	Change gas bottle.
Is the supply cut-out device open?	Open the cut-out device.
Air in the gas pipe?	Switch device off and on again 3-4 times to remove air from the gas pipe.

Note: The Seven Series refrigerator requires a constant 12 volt supply for the fridge to operate on gas. Disconnecting the leisure battery will switch off the gas operation of the fridge.

Failure : The refrigerator does not work on 12V	
Possible cause	Action you can take
On-board fuse defective.	Fit new fuse.
On-board battery discharged.	Check battery, charge it.
Engine not running.	Start engine.

Failure : The refrigerator does not work on 230V	
Possible cause	Action you can take
On-board fuse defective.	Fit new fuse.
No connection to supply voltage.	Establish power connection.
AES: gas operation despite connection to the supply voltage?	Appliance switches to gas operation due to insufficient supply voltage (automatically switches back to 230 V operation)

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.
The thermostat setting is too low.	Turn the thermostat to a higher setting.
There is too much ice on the condenser.	Check that the refrigerator door seals when shut.
Too much warm food put inside.	Let food cool down first.
Appliance running for a short time.	Wait several hours, check again.

MAINTENANCE

- Works on gas components and electrical installation may only be carried out by authorised personnel. We recommend to contact your Dometic Service Centre.
- EN 1949 stipulates that the appliance´s gas equipment and its associated fume system must be inspected after installation and a certificate issued.

  Afterwards a qualified technician must inspect according to EN 1949 every two years and a certificate issued.

It is the user's responsibility to arrange for inspections after purchase.

- It is recommended that the gas burner be inspected and cleaned as necessary at least once a year. We recommend maintenance following an extended shutdown of the vehicle.

PRODUCT LIABILITY

Product liability of Dometic GmbH does not include damages which may arise from faulty operation, improper alterations or intervention in the equipment, adverse effects from the environment such as changes in temperature and air humidity, which may impact the equipment itself or the direct vicinity of the equipment or persons in the area.

ENVIRONMENTAL HINTS

Refrigerators manufactured by Dometic GmbH are CFC-free.

Ammonia (a natural compound of hydrogen and nitrogen) is used in the cooling unit as a coolant. The non-ozone-hazardous cyclopentan is used as a propellant in the manufacture of the PU foam insulation.

DISPOSAL

In order to ensure that the recyclable packaging materials are re-used, these should be sent to the usual 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 approx. 25°C, it is sufficient to operate the refrigerator at the middle thermostat setting (for both gas and mains voltage).
- Where possible, always store goods that have previously been cooled.
- Do not position the refrigerator in direct sunlight.
- Constant circulation of air must be supplied to the refrigerator unit.
- Defrost regularly.
- Open the door only for a short time when removing goods from the refrigerator.
- Run the refrigerator for about 12 hours before filling it.

THETFORD ABSORBER REFRIGERATORS

This user information is for N80, N90, N98, N100, N104, N109, N112, N115, N145, N150, N175 & N180 models of Thetford absorption refrigerators. It explains how to use your refrigerator correctly and safely. Read the manual carefully before using the refrigerator for the first time to obtain a quick overview of how to operate and use the refrigerator.

Thetford absorption refrigerators are specially designed to store fresh and frozen food and make ice cubes in caravans and motorhomes. The control panel allows you to select the preferred energy source and cooling level. Different energy sources allow you to use your refrigerator under different conditions.

Thetford absorption refrigerators belong to category C11: gas appliances that must be installed so that the combustion area is isolated from the living space.

To find out more about how your absorption refrigerator works, visit the website at www.thetford-europe.com.

PRECAUTIONS AND SAFETY INSTRUCTIONS

Alerts

The following alerts are used in this user's manual:

Warning! 'Warning' alerts the user to the danger of damage to the product or to the user if the user fails to carry out the described procedures carefully.

Non-observance of the procedures may result in serious injury to the user or damage to the product.

Caution! 'Caution' alerts the user to the possibility of damage to the product if the user fails to carry out the described procedures carefully.

Important! 'Important' denotes supplementary information for the user and alerts the user to potential problems.

Warnings

- This refrigerator must be installed according to the manufacturer's instructions and in compliance with local and national regulations.
- Read this manual carefully before you start to use your refrigerator.
- Always consult the warnings before you perform any maintenance or gas checks.

Repairs/maintenance

- Never open or damage the cooling system. The cooling system is pressurised and contains substances harmful to health.
- Never attempt to repair gas, extractor or electrical parts yourself. They must be repaired by a qualified service engineer. Contact the Customer Service department of Thetford for a list of qualified parties.
- Always switch off the refrigerator before you perform any kind of maintenance or cleaning.

Use

- Never cover the ventilation grills in the walls of a caravan or motorhome. Good ventilation is essential for the correct working of the absorber system.
- Water in the ventilation grating can result in damage to the refrigerator. Therefore, we advise that you put the winter cover over the ventilation gratings prior to washing your vehicle.
- Never expose the refrigerator to rain.
- Never operate the refrigerator by gas while driving. If a road accident results in fire, there is a risk of explosion.

What to do if...

- **You smell gas:**

- close the valve of the gas bottle;
- extinguish any naked flames;
- do not switch on any electrical devices or lighting;
- open the windows and leave the room;
- contact the Customer Service department of Thetford.

- **You suspect a leak in the cooling system:**

- switch off the refrigerator;
- extinguish any naked flames;
- provide sufficient ventilation;

- contact the Customer Service department of Thetford.

ABOUT YOUR REFRIGERATOR

Your refrigerator has a cold space and a freezer compartment. After starting up the refrigerator, allow it to cool for at least eight hours before placing any food in it.

Cold space

The cooling fins are located on the inside of your refrigerator. The absorption system uses the cooling fins to withdraw heat from the refrigerator. Therefore, never place plastic or paper over the cooling fins. Air must be able to circulate freely through the refrigerator so that heat can be extracted.

Important! Do not cover the cooling fins at the back of the refrigerator with plastic or paper. The refrigerator cools optimally when air is allowed to move freely through the refrigerator.

To limit frosting on the cooling fins:

- always cover liquid foods before placing them in the refrigerator;
- always let hot food cool before placing it in the refrigerator;
- never keep the refrigerator open longer than necessary.

Fitting racks

Inside your refrigerator there are two or three storage racks. You can adjust the racks to a convenient height by means of a simple click system:

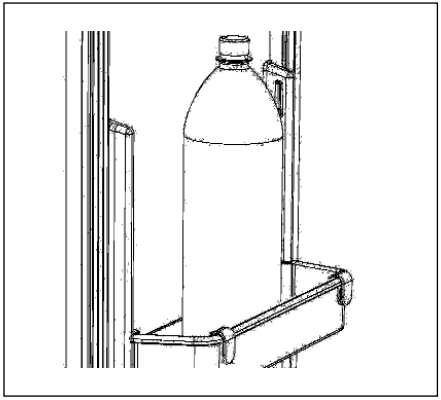
- click the plastic bracket to the right short side of the rack;
- turn the bracket into the horizontal position and insert the rack tipped in a sloping position into the refrigerator;
- place the short side without bracket into one of the grooves on the left wall of the refrigerator;
- place the short side with bracket in the corresponding groove on the right wall of the refrigerator;
- turn the bracket downwards to fix it into the groove.

To move a rack, turn the bracket upwards and remove the rack. Place the rack at the required height in the way described above.

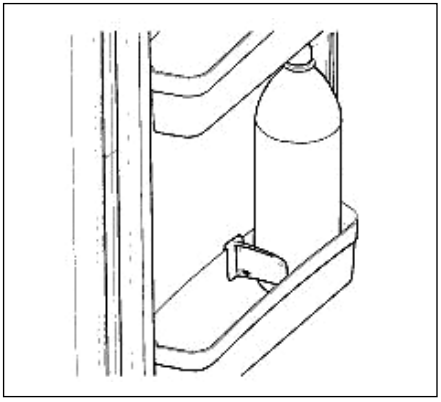
Securing products for driving

The fitting racks in your refrigerator have a system for you to secure products while driving. The system consists of a simple click-and-slide plastic strip.

To secure products on the rack while driving, push the plastic strip as tightly as you can against the products on the rack. In the storage space on the inside of the refrigerator door, there are two unique Thetford bottle slides (see illustration) The slides prevent bottles from sliding around during driving. Push the slide against the products in the door or place the products between the bottle slide.



Equipment Details



Freezer compartment Important!

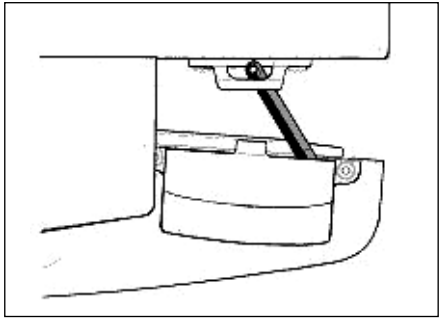
- The freezer compartment is unsuitable as a means of freezing food, the freezer will maintain the temperature of already frozen food
- Use only drinking water to make ice cubes.
- Do not place any other products in the freezer compartment when you are making ice cubes.
- Water freezes fastest with the thermostat at the highest setting.

Tip! Make ice cubes at night when your refrigerator has more spare capacity.

Door locking mechanism

The refrigerator door has an automatic locking mechanism. The door locks automatically when you press it shut firmly. This automatic locking mechanism also keeps the refrigerator door shut during driving. For some models an additional security device is fitted below the refrigerator. By pushing the locking bar over the pin when the door is closed, you can be sure that the door does not open during your journey.

If you are not going to use the refrigerator for a prolonged period of time, you can use the special storage latch of the door locking mechanism (see illustration below) to prevent odours. Rotate the hook through 90 degrees and lock it in place using the strike plate.



DELUX REFRIGERATORS OPERATION (control panel illustrations 5 and 6)

- it is recommended to clean the inside of the refrigerator before you switch it on.
- Let the refrigerator cool for at least eight hours before you place food in it for the first time.

Igniting and starting your refrigerator

Manual ignition: ILLUSTRATION 5

A = Energy source selector switch
B = Thermostat
C = Flame meter
D = Manual ignition (piezo electric ignition)

Electric ignition: ILLUSTRATION 6

A = Energy source selector switch
B = Thermostat
C = Flame meter

A. The refrigerator can be powered by the mains (230V), direct current (12V) or liquid gas. Select the energy source that you want by means of the energy source selector switch (A). The switch has four settings:
   - direct current (DC) (12V)
   - mains supply (230V)
   - gas
   - switched off

B. The thermostat controls the refrigerator temperature when the refrigerator is

powered from the mains (230 V) or gas. The refrigeration level is indicated by the dots (the bigger the dot, the colder the setting).

C. The flame meter shows whether the flame is alight. The flame is alight when the red needle of the meter moves into the green area.

D. Pressing the manual (piezo electric) starter produces a spark that ignites the flame in the burner.

Electrical operation

The refrigerator can be powered by electricity in two ways:

- DC (12V): Set the energy source selector switch (A) to the refrigerator will now be powered by the battery of your car or camper.

Important! - Always use the gas connection or mains voltage to start up the refrigerator for the first time and to cool it. Powering from the battery of your vehicle is suitable only for maintaining the temperature of the refrigerator and its contents once it has been refrigerated.

- When powered by a vehicle battery (12V) the refrigerator works without temperature control (i.e. constant operation).
- Mains voltage (230V): set the power selector switch (A) to
- Set the temperature by means of the thermostat, rotary switch (B). (The bigger the dot, the colder the setting).

Powering with gas

WARNING! - FLAMMABLE MATERIAL MUST BE KEPT AWAY FROM THE REFRIGERATOR.

- For selection of gas type, see the information plate inside your refrigerator.
- For the pressure regulator model, see the information plate inside your refrigerator.
- The type of gas container and its location must be in compliance with the most recent regulations. Ensure that the unit is installed in a location with good ventilation and make sure that the ventilation openings in the gas container storage location remain open.
- The changing of the gas container must be done outside in the open air and out of reach of any possible sources of ignition.
- It is prohibited to use gas to power the refrigerator while you are driving. If a road accident results in fire, there is a danger of explosion.
- You are strongly advised not to use gas to power the refrigerator while you are driving. If a road accident results in fire, there is a danger of an explosion
- You are strongly advised not to use gas to power the refrigerator in the vicinity of petrol stations.
- Open the valve of the gas bottle and the gas taps.
- Set the thermostat (B) to the highest level (the biggest dot)
- Set the energy source selector switch (A) to
- Ignite the gas flame:

Manual ignition

- Press the thermostat (B), and keep it depressed.
- Press the button for manual ignition several times at intervals of between 1 and 2 seconds.
- Release the thermostat when the indicator of the flame meter enters the green area. If it does not enter the green area, repeat the previous step.

WARNING! Never keep the thermostat depressed for longer than 30 seconds. If a flame does not appear, wait at least five minutes before trying again. If you fail to observe this rule, there may be an accumulation of gas creating the risk of fire or explosion.

- Set the desired refrigeration level by means of the thermostat (B). (The bigger the dot, the colder the setting)

Electrical ignition (illustration 6)

- Press the thermostat (B) and keep it depressed.
- Ignition takes place automatically. You will

hear a ticking noise. If ignition was successful, the noise will stop and the flame meter will turn green. Release the thermostat.

- If the flame goes out, ignition will be repeated automatically.
- Set the desired refrigeration level by means of the thermostat (B). (The bigger the dot, the colder the setting)

Switching off the refrigerator

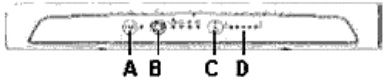
- Set the energy source selector switch (A) to ◎
- The refrigerator is now completely switched off.
- Use the special storage latch on the door locking mechanism to stop the door from closing. This prevents unpleasant odours and mould in the refrigerator.

Important! If you are not going to use the refrigerator for a prolonged period, close the valve of the gas bottle and the gas taps.

PREMIUM LCD REFRIGERATOR OPERATION (control panel, illustration 7)

- It is recommendable to clean the inside of the refrigerator before you switch on the refrigerator.
- Let the refrigerator run for at least eight hours before you place food in it for the first time.

There are two types of LCD refrigerators: Electric and Automatic. Automatic LCD are supplied with the SES system, which allows the consumer to switch the refrigerator in



A = Main switch (on/off)
B = Mode selection switch
C = cooling level switch
D = Display LED

AUTO mode which allows the refrigerator to automatically select the best power source.

Smart Energy Selection (SES)

When you start up a refrigerator equipped with Smart Energy Selection (SES) you should usually select the AUTO mode. The SES system will then automatically select the best of the three available energy sources.

The system will apply the following priority:

- mains voltage (230V)
- direct current (12V)
- liquid gas

If an energy source becomes available that has a higher priority than the source the refrigerator is currently using (e.g. if your vehicle engine is started), the system will stop using the current energy source and switch to the energy source with the higher priority.

If a fault occurs in one or more of the possible energy sources, the system will not generate an error message while an alternative energy source is still available. The SES system switches over automatically.

If none of the energy sources are available, the blue LED flashes every second and an error code is shown on the display.

Automatic modes additionally allow you to select the desired energy source manually.

Switching on the refrigerator

Important! The memory of the SES system saves every change made to the setting. Consequently, the SES system will start up on each subsequent occasion in the last-selected setting.

Illustration 7

A = Main switch (on/off)
B = Mode selection switch
C = cooling level selection switch
D = Function LED
E = LCD display
F = Divider heater switch

1. Open the valve of the gas bottle.
2. Open the taps of the gas supply.
3. Press main switch (A). The function LED will turn blue and all symbols on the LCD display will light up.

4. Use the mode selection (B) switch to select the 'Auto' function or one of the power supplies that you want. The LCD display will show the option you have selected.
5. Set the desired refrigerating cooling level by means of the cooling level selection switch (C). The LCD will show the cooling level setting you have selected.

A. Use the main switch to switch the refrigerator on and off. The function LED will turn blue. The display LCD shows the most recent settings. After 10 seconds the LCD displays backlight will go out. The function LED remains blue.

B. Press the mode selector switch and the display LCD display backlight will show the setting for 10 seconds. Pressing the mode selector switch successive times take you through the menu in the following sequence AUTO, manual DC (12V), manual gas, manual mains voltage (230V) and back to AUTO. Select either the AUTO option or one of the other power supplies that you want to use. The LCD display shows the option you have selected. If you select the AUTO option, the system will choose the most suitable power supply and the AUTO symbol and the symbol of the power supply chosen by the system will both be shown on the LCD display. Ten seconds after release of the mode selector switch, the system will switch off the LCD backlight.

C. Use the cooling level selector switch to control the temperature of the refrigerator. When you press the cooling level selector switch, the LCD backlight will light up and show the currently set temperature. Every time you press the cooling level selector switch you set the refrigerator one position cooler.

   On reaching the coldest temperature, the system will start again at the warmest temperature setting. Ten seconds after release of the cooling level selector switch, the system will switch off the LCD backlight.

D. Only the N145 and the N 150 fridges have a divider heater. By heating the metal plate between the freezer and the fridge cabinet, the divider heater prevent the ice forming when the freezer door is opened and also prevents the freezer door from freezing stuck to the metal breaker of the fridge. To save energy the divider heater can be switched off. The switch can be found on the side control panel near the latch

Powering with electricity

Powering with electricity can be selected both by the Auto mode (only Automatic fridges) and manually.

Mains voltage (230V):

This energy source will be selected if the mains voltage is greater than 200V. This power supply requires a continuous current of 12V to operate the electronic control system.

Direct current (12V):

E. The SES system will select 12V powering only if a mains voltage (230V) is unavailable, the vehicle engine is running and a voltage higher than 11V is available. If a fault occurs during electrical powering (230V or 12V), an error message will not be shown on the display as long as another energy source is available. The system will automatically switch to the available energy source that has the highest priority.

Selecting electrical power manually Mains voltage (230V):

The LED on the main switch warns you whenever insufficient voltage is available or if a fault occurs. If this happens, the LED will start flashing once per second and an error code is shown on the LED display.

When sufficient current is available again, or the fault has been resolved, the LED will emit a steady blue light again.

Direct current (12V):

- Always use a gas connection or mains voltage to start up the refrigerator for the first time and to cool it. Powering from the battery of your vehicle is suitable only for maintaining the temperature and its contents once it has been refrigerated.

The LED warns you whenever your vehicle's engine is not running, or if a fault occurs, or if insufficient voltage is available. If this happens, the LED will start flashing once per

second and an error code is shown on the LCD display.

Once the engine is running, or the fault has been resolved, or sufficient voltage is available again, the LED will again emit a steady blue light.

Note: If the refrigerator has been manually set to operate at 12V, it will not automatically switch to another energy source when your vehicle's engine is not running. In this case, the refrigerator will stop cooling.

Powering with gas

Powering with gas can be selected both by the Auto mode (only Automatic fridges) and manually.

WARNING! FLAMMABLE MATERIAL MUST BE KEPT AWAY FROM THE REAR OF THE REFRIGERATOR.

- For selection of gas type, see the information plate inside your refrigerator.
- For the pressure regulator model, see the information plate inside your refrigerator and the table in the Thetford user instructions.
- The type of gas container and its location must be in compliance with the most recent regulations. Ensure that the unit is installed in a location with good ventilation and make sure that the ventilation openings in the gas container storage location remain open.
- The changing of the gas container must be done outside in the open air and out of reach of any possible sources of ignition.
- It is prohibited to use gas to power the refrigerator while you are driving.
- If a road accident results in fire, there is a danger of explosion
- It is prohibited to use gas to power the refrigerator in the vicinity of petrol stations.

Auto mode

The system will select gas operation if:

- mains voltage (230V) is unavailable;

- the vehicle's engine is not running.

Once mains voltage (230V) is available again or the vehicle's engine is running, the system will switch to the available energy source that has the highest priority if in the Auto mode. If the refrigerator switches from 12V DC to gas operation when it is in auto mode, the system will wait for about 15 minutes before igniting the gas. During this time, however, the gas indicator lamp will come on. The delay is built in to avoid it switching to gas operation whenever you stop to refuel your vehicle. You can cancel the delay by immediately switching the refrigerator off and then on again.

If the system selects gas operation, the ignition will be activated automatically. The gas will flow to the burner and be lit by the electric ignition. If the flame goes out, the gas will immediately be lit again.

Selecting gas operation manually

If the flame cannot be lit within 30 seconds, the gas supply will stop and gas mode will be switched off. The LED will start flashing every second and an error code is shown on the LCD display.

The gas mode can be reset only if the refrigerator is switched off. If you switch the refrigerator on again and the gas mode is still not working, the LED of the manual gas mode will flash to indicate that gas is unavailable and an error code is shown on the LCD display

IMPORTANT! It is prohibited to use gas to power the refrigerator while you are driving. If a road accident results in a fire, there is a danger of explosion. It is prohibited to use gas to power the refrigerator in the vicinity of petrol stations. If it takes longer than 15 minutes to refuel your vehicle, you should switch the refrigerator off using the main switch (A).

Switching off the refrigerator

- Push the main switch (A).
- The blue LED will go out
- The refrigerator is now completely switched off.
- Use the special storage latch on the door locking mechanism to stop the door from closing. This prevents unpleasant odours and mould in the refrigerator.

N180

The N180 is the first absorption fridge with three temperature zones. A freezer compartment (up to -180 C). A normal cold section (approx 50 C) and a new cool section (approx 130 C) situated above the freezer compartment in the N180. This new cool section is ideal to store non-perishable products that are best stored in a cool place, like wine, butter, chocolate and bottled water.

MAINTENANCE

Regular maintenance is necessary to ensure the correct functioning of your refrigerator.

Cleaning

Tip! A good time to clean your refrigerator is straight after you have defrosted it.

- Clean the refrigerator with a soft cloth and mild detergent.
- Dust the refrigerator with a soft, moistened cloth.
- Use a brush or soft cloth to remove once a year any dust from the condenser at the inside of the refrigerator.

Important! Do not use soap or aggressive detergents that are abrasive or soda-based.

- The removable interior components of the refrigerator are not dishwasher proof.

Defrosting

Frost will gradually build up on the condenser of the refrigerator. You should defrost the refrigerator as soon as the frost layer is about 3 mm thick. Frost reduces the refrigerating capacity and life of your refrigerator.

- Remove the ice cube tray and all food.
- Switch off the refrigerator.
- Leave the refrigerator door open.
- Place dry towels in the refrigerator to absorb the water.
- Place trays containing hot water in the freezer compartment.
- After defrosting (when the freezer compartment and condenser are frost-free), remove the towels and the water trays and use a cloth to dry off the refrigerator.
- Switch the refrigerator on again in the way described in section 4.1/5.2 (“Igniting and starting your refrigerator”).

Important! Do not use force or sharp objects to remove frost.

- Do not try to accelerate defrosting by using (for example) a hairdryer.

Door locking mechanism

Frost will form in the refrigerator if the door is not closed properly. To determine whether the door closes properly, close the door with a piece of paper between the door and the refrigerator. Pull at the piece of paper. If you feel resistance, the refrigerator door closes properly. If you feel no resistance, the door does not close properly. Perform this test regularly on all four sides of the refrigerator door.

If you find that the door does not close properly, check whether the door locking

mechanism keeps the door properly shut.

Winter operation

If you use the refrigerator when the outdoor temperature is below 8°C, install the

Thetford vent winter/storage on the ventilation grills. The cover protects your refrigerator from excessively cold air. The winter cover is a

refrigerator accessory obtainable from your caravan dealer.

Tip! It is advisable to use the winter/storage cover if you are not going to use the vehicle for a long period of time.

IMPORTANT: Do not use the winter/storage cover in temperatures greater than 8ºC as this can damage the cooling unit at the rear of the fridge. Remove the covers & re-fit when placing the vehicle back into storage.

Maintenance of gas equipment

A qualified service engineer must maintain and inspect gas and electrical equipment. It is advisable to have this maintenance work

performed by a customer service centre. Contact the Customer Service department of Thetford for a list of qualified parties.

Important! European laws covering gas appliances and extractors prescribe observance of the following rules (which are the user's responsibility):

- appliances that run on liquid gas must be inspected before being used for the first time and every year thereafter.
- the gas burner must be cleaned at least once a year or more frequently if necessary.
- If a gas hose is used, it must be checked annually. This hose has a limited life and, thus, must be regularly replaced. Check the hose regularly for cracks, splits and ageing. If in doubt, replace the hose. Pay attention to the maximum life of the hose and replace it in time, as advised by the manufacturer or in conformance with local regulations.
- For replacement, a gas hose approved in accordance with the local regulations must be used. Position the hose so that it can rotate, is not kinked, and will allow no bends to occur.
- Due to the limited life of the gas hose, it must be installed so that replacement is possible.

Maintenance checklist

This refrigerator will give you many years of trouble-free use if you simply run through the following checklist regularly:

- keep the refrigerator clean (see section 7.1, 'Cleaning');
- defrost the refrigerator as often as is necessary (see section 7.2, 'Defrosting');
- check the door closing mechanism regularly (see section 7.3, 'Door locking mechanism');
- make sure that the ventilation grills are not blocked;
- Regularly clean the ventilation grills.

Vent screen

The vent has a vent screen to prevent bugs from entering the combustion area of the refrigerators. These vents need to be cleaned regularly to insure a good airflow. When the refrigerator performs poor because of external circumstances such as extreme ambient temperatures, the vents can be removed to improve the airflow and improve the cooling performance of the refrigerators.

Storage

If you do not expect to use your refrigerator for a lengthy period, carry out the following actions:

- Remove all food
- Switch off the refrigerator
- Clean the refrigerator as described in Section 7.1 'Cleaning'
- Shut off the gas tap to the refrigerator
- Leave the door of the refrigerator ajar using the special door closure hook (storage position)
- Place the winter protection on the ventilation grill.

TROUBLESHOOTING

If your refrigerator does not refrigerate properly or will not start, run through the following checklist. If this fails to solve the problem, please contact the TRUMA Customer Service Department in your country (see the addresses at the back of the user manual).

- Check whether you have followed the instructions in chapters 4 or 5 ("Switching on the refrigerator").

- Check whether the refrigerator is on a level surface.

- Check whether the refrigerator can be used with an available energy source.

CHECKLIST

Problem	Possible cause	Action you can take
Refrigerator will not work on gas	a) Gas bottle is empty	a) Replace the gas bottle.
Refrigerator will not work on 12V DC	a) 12V fuse is defective. b) Battery is empty.	a) Fit a new fuse (Camper- fuse box of camper. Car -fuse box of car) b) Test the battery and charge it.9.3 Problem: refrigerator will not refrigerate sufficiently
Refrigerator will not work on gas	a) Gas bottle is empty	a) Replace the gas bottle.
Refrigerator will not refrigerate sufficiently	a) Insufficient ventilation for the refrigerator. b) Thermostat set too low. c) Too much ice on the condenser. d) Too much hot food stored. e) Gas burner is dirty. f) Door does not shut properly.	a) Check whether the ventilation grills are covered. b) Increase the setting of the thermostat. c) Check whether the refrigerator door shuts properly and defrost the refrigerator. d) Let the food cool off first. simultaneously. e) Have the gas burner cleaned. f) Check the door closing mechanism.

Control panel Diagnostics

Refrigerators with a LCD control panel have a special diagnostics area which displays an error code if there is a fault.

- **Fault 1:** AC heater current is measured to be 75% below nominal current.

Action: Contact your dealer or a Thetford Service Centre.

- **Fault 2:** DC heater current is measured to be 75% below nominal current.

Action: Contact your dealer or a Thetford Service Centre.

- **Fault 3:** AC heater is ON when it should be OFF.

Action: Contact your dealer or a Thetford Service Centre.

- **Fault 4:** DC heater is ON when it should be OFF.

Action: Contact your dealer or a Thetford Service Centre.

- **Fault 5:** Senses flame when gas should be OFF.

Action: Contact your dealer or a Thetford Service Centre.

- **Fault 6:** Senses gas output terminal ON when should be OFF.

Action: Contact your dealer or a Thetford Service Centre.

- **Fault 7:** Senses gas output terminal OFF when should be ON.

Action: Contact your dealer or a Thetford Service Centre.

- **Fault 8:** AC mains supply is 20% below nominal.

Action: Your controls are in manual AC mode, but there is no power available. Check if you plugged in the 230V connection, if so the voltage supply on the 230V connection is to low, contact the power supplier.

- **Fault 9:** Gas lockout because flame fails to ignite after 30 seconds.

Action: Your controls are in manual gas mode, but the flame fails to ignite. Check if your gas cylinder is empty or if one of the shut-off valves is closed. Select another energy source. Reset the fridge 3 or 4 times in gas-mode until flame ignites. Contact your dealer or a Thetford Service Centre if problem isn't resolved.

- **Fault 10:** No "engine running" signal is present and control is in Manual DC mode.

Action: Your controls are in manual DC mode and the engine of your vehicle is not running. The refrigerator can only cool on 12V when the engine of your vehicle is running. Start the engine or select a different energy mode.

- **Fault 11:** No energy source is available and control is in AUTO mode.

Action: Your controls are in AUTO mode, but no energy source is available. Start the engine, connect the 230V supply or open the gas supply and reset the refrigerator by turning it of and on again.

- **Fault 12:** Contact your dealer or a Thetford Service Centre.

- **Fault 13:** Thermistor fails; control automatically switches to Backup mode (BOS).

Action: Check if the connector above the fin on the inside of the cabinet is correctly plugged in. If so contact your dealer or a Thetford Service Centre.

- **Fault 14:** Display Board and Power board lost communication with each other.

Action: Contact your dealer or a Thetford Service Centre.

- **Fault 18:** No fault, only lighting all LCD segments on start-up.

Action: Wait a few seconds for the fridge to start up normally.

STOVES HOBS, GRILLS AND OVENS

PLEASE READ THE MANUFACTURER'S INSTRUCTIONS BEFORE OPERATING THE APPLIANCE

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

WARNING: When using cooking or heating appliances, surfaces and handles may become hot. Care should be taken and if necessary hand protection used.

WARNING: Extra care should be taken when accessing the locker above the hob especially whilst the hob is in use. Always be aware when opening the locker door objects could fall out onto cooking pans causing injury.

BURNER IGNITION

The hotplate lid must be open for the hotplate, grill or oven burners to ignite.

The ignition should not be operated for more than 15 seconds. If, after 15 seconds the burner has not lit, stop operating the ignition, open the compartment door and wait at least 1 minute before attempting to ignite the burner.

In the event of the burner flames being accidentally extinguished, turn off the burner control and do not attempt to re-light the burner for at least 1 minute.

SPARE PARTS

When ordering spare parts, please give the following information so the appliance can be correctly identified:

1. The name of the appliance from the facia, and its colour.
2. The model number and the serial number of the appliance (from the data badge).

BE SAFE - NOT SORRY

Warning: Good ventilation is essential to the continuing safe operation of all gas appliances. Do not allow any ventilation openings to become accidentally or deliberately blocked.

Keep all flammable materials (such as curtains, furnishings, towels and clothing) away from the appliance.

Parts of the appliance may be hot during or immediately after use. Allow sufficient time for the appliance to cool after switching off.

When opening the appliance door, take care to avoid skin contact with any steam which may escape from the cooking.

Do not use aluminium foil to cover the grill pan, or put items wrapped in foil under the grill as this can create a fire hazard.

Do not use the oven with the door inner glass panel removed (glass oven doors only).

If the cooker has a storage compartment below the oven, this should only be used to store oven furniture. Do not store any flammable materials in this compartment.

When cooking with fat or oil, never leave unattended.

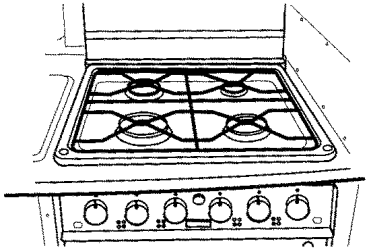
Turn pan handles inwards so they are out of reach of children and cannot be caught accidentally.

Glass lids may shatter when heated, turn off all burners before shutting the lid.

Models without ignition button: For safety reasons, we recommend the use of a hand held spark ignitor or gas lighter to ignite the burner, rather than a match or taper, which could allow burning debris to fall behind the appliance.

When you have finished cooking, check that all controls are in the off position.

Equipment Details



Stoves Hob

THE HOB

Caution:

- Do not use foil on the hob, as it creates a fire hazard
- Glass lids may shatter when heated, turn off all burners before shutting the lid
- Note: When positioning the pan support, ensure that the fingers are central to the burners (Fig 1).

Always use the most appropriate size of burner for the pan you wish to use. Use pans with a flat base of minimum 100mm/4 ins diameter, and maximum 200mm/8 ins diameter, which are stable in use. Avoid old or misshapen pans as these may cause instability.

Important: Any spillage of liquid should be cleaned away immediately to reduce the risk of fluid entering the appliance.

Ignition - Push in the control knob and turn anticlockwise to the large flame symbol. Keep the knob depressed, and press the ignition button (if fitted), or use a hand held spark ignitor or gas lighter. The knob must be held in for 15-20 seconds before releasing.

ELECTRIC HOTPLATES

Before using for the first time, prime the hotplate - switch it on without a pan to harden and burn off the coating. Use a medium-high setting for 3 - 5 minutes. A non-toxic smoke may occur.

To switch on, turn the hotplate control knob to the required setting.

The high speed hotplate ring (if fitted) is identified by its central red spot - this ring has a faster response time.

THE GRILL

- Note: The door must be open when the grill is used.
- Caution: When the grill is being used, accessible parts may be hot; young children should be kept away.
- Never cover the grill pan or grid with cooking foil, or allow fat to build up in the grill pan as this creates a fire hazard.
- Keep all flammable material away from the appliance.

To light the grill

Push in the control knob and turn anticlockwise to the large flame symbol. Keep the knob depressed, and press the ignition button (if fitted), or use a hand held spark ignitor or gas lighter. The knob must be held in for 15-20 seconds before releasing.

Detachable grill handle (if supplied)

Place the handle (shield uppermost) over the edge of the grill pan at the recess and slide along to position centrally between the two locater bumps. To remove the handle, place the grill pan down, and lift the handle slightly as you slide it along the recess.

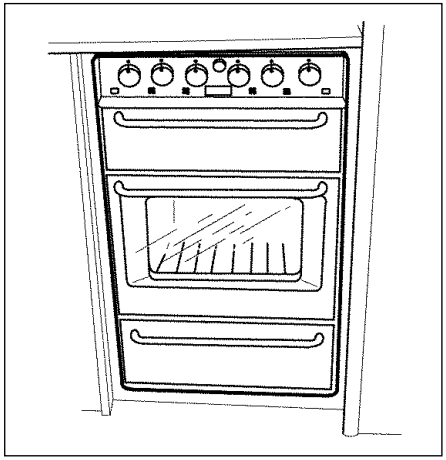
Using the grill

Push in the grill pan until it locates centrally under the grill burner

There are three different grilling positions as the trivet can be inverted to give a high or low position or it may be removed.

1. The high trivet position is suitable for toasting bread.
2. The low trivet position is suitable for grilling all types of meat.
3. With the trivet removed the food is placed directly on the base of the grill pan, eg when cooking dishes such as whole fish.

Always preheat the grill for 3 minutes for best results.



When you have finished grilling, check the control knob is in the off position

THE OVEN

Caution: When you are cooking, keep children away from the vicinity of the oven.

- **Important**: A safety device stops the ignition being used when the oven door is closed.
- Do no use foil on the oven shelves as this creates a fire hazard, and can hinder circulation of heat.
- Keep all flammable material away from the appliance.

To light the oven

1. Open the oven door and turn the control knob anticlockwise to the required gas mark. Push in and hold in the control knob, and either press the ignition button (if fitted) or use a hand held spark ignitor or gas lighter.
2. Once the burner has lit, close the oven door and hold the knob in for 15-20 seconds.
3. If the flame goes out, the flame sensing device cuts off the gas supply to the burner. To light the oven again, wait for 3 minutes then repeat the above procedure.

To turn off - Push in the control knob and turn clockwise.

Preheating
The oven must be preheated for 10 minutes when reheating frozen or chilled food, and we recommend preheating for all yeast mixtures, batters, soufflés and whisked sponges.

Using the oven
The shelf positions in the oven can be altered. If you prefer darker cooked results, cook on a higher shelf. For paler results use a lower shelf.

The cake tray and roasting tin that are supplied with this appliance are the largest which can be used for good results and even baking. Extra shelves, tins or trays can be ordered from your supplier.

Place food items on the tray and position the tray on the centre of the shelf, leaving one clear shelf position between shelves to allow for circulation of air.

CLEANING

Caution: Any cleaning agent used incorrectly may damage the appliance.

Always let the appliance cool before cleaning.

Some cooking operations generate a considerable amount of grease. This combined with spillage can become a hazard if allowed to accumulate on the appliance through lack of cleaning. In extreme cases this may amount to misuse of the appliance and could invalidate your guarantee.

Do not use caustic pastes, abrasive cleaning powders, coarse wire wool or any hard implements as they will damage the surfaces.

All parts of the appliance can be safely cleaned with a cloth wrung out in hot soapy water.

Equipment Details

Burner caps and heads

Important: Allow burners to cool before cleaning.

Caution: Hotplate burners can be damaged by soaking, automatic dishwashers (or dishwater powders/liquids), caustic pastes, hard implements, coarse wire wool and abrasive cleaning pastes.

For the burners to work safely, the slots in the burner head, where the flames burn, need to be kept clear of deposit. Clean with a nylon brush, rinse and dry thoroughly.

Clean with a mild cream cleaner eg Cif, or use a moist soapy Brillo pad.

Note: Fixed burners (if fitted): Some versions incorporate fixed burners. These burners are secured to the hob with 2 screws. Fixed burners must be cleaned whilst in position. Make sure that the gap between the burner and the hotplate does not become blocked with grease.

Glass parts (if fitted)

DOOR PANELS, FACIA PANEL, HOTPLATE LID

Do not use abrasive cleaners or polishes. Use a mild cream cleaner, eg Cif. Rinse thoroughly and dry with a soft cloth.

The inner door glass panel can be removed for cleaning. Open the door wide, hold the bottom and top edges and slide out.

When replacing the glass panel, hold it level and straight with the grooves in the door trims before sliding back in.

Painted, plastic and gold coloured parts

DOOR FRAME & HANDLES, CONTROL KNOBS

Only use a clean cloth wrung out in hot soapy water.

Vitreous enamel parts

GRILL PAN, HEATGUARD, OVEN/GRILL COMPARTMENT(S), HOB SPILLAGE WELL, PAN SUPPORTS

Use a mild cream cleaner. Look for one that has the Vitreous Enamel Council's recommendation seal, eg Cif.

Chrome plated parts (Fig 1)

GRILL GRID, SHELVES, SHELF RUNNERS

Do no use abrasives or polishes. Use a moist soap pad, eg Brillo. Shelf runners can be removed for cleaning. Grasp the runners and slide out of the hanging holes as shown in fig 1.

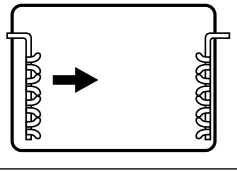


Fig. 1 Chrome Plated Parts

Stainless steel surfaces (stainless steel models only)

Only use a clean cloth wrung out in hot soapy water, and dry with a soft cloth. Do not use undiluted bleach or any products containing chlorides as they can permanently damage the steel.

Some foods are corrosive, eg vinegar, fruit juices and salt, and they can mark or damage stainless steel if they are left on the surface for any length of time. Wipe any spillage immediately.

Sharp objects can mark the surface of stainless steel but will become less noticeable with time.

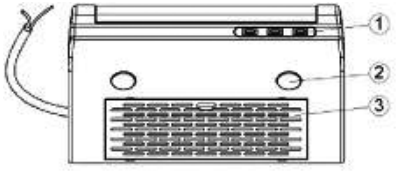
Electric hotplates

Important: Ensure that elements are switched off and cool before cleaning

For normal cleaning use a clean damp cloth. For heavy cleaning, use a clean damp cloth or scouring pad with a cream cleaner.

Follow the circular grooved pattern on the hotplate. Rinse off any cleansing agent thoroughly, then switch on to a low-medium setting for few minutes to dry. When cleaning take care to avoid the red dot on the high speed hotplate (if fitted).

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 caravans or campers. 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.

SAFETY INFORMATION,

ALWAYS REFER TO THE USER INSTRUCTIONS PROVIDED WITH YOUR MOTORHOME

Replacing the lamps

Lamp type: max. 10W /12V halogen with UV-Stop

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

Equipment Details

SHARP R209 MICROWAVE OVEN

Please refer to the appliance manufacturers handbook regarding: - OPERATION, COOKING ADVICE, AFTERCARE and GUARANTEE

WARNING: THE DOOR, OUTER CABINET, OVEN CAVITY, TURNTABLE AND DISHES WILL BECOME VERY HOT DURING OPERATION. TO PREVENT BURNS, ALWAYS USE THICK OVEN GLOVES.

ELECTRICAL CONNECTION

- Do not allow water to come into contact with the power supply cord or plug.
- Insert the plug properly into the socket.
- Do not connect other appliances to the same socket using an adaptor plug.
- If the power supply cord is damaged, it must be replaced by a Sharp approved service facility or a similarly qualified person to avoid a hazard.
- When removing the plug from the socket always grip the plug, never the cord as this may damage the power supply cord and the connections inside the plug.
- If the plug fitted to your oven is a rewireable type and in the event of the socket outlet in your home not being compatible with the plug supplied, remove the plug properly (do not cut off).
- If the plug fitted to your oven is a non-rewireable type and in the event of the socket outlet in your home not being compatible with the plug supplied, cut-off the mains plug.
- Refit with a suitable type, observing the wiring code given in 'To replace the mains plug' on page 30 of the SHARP user instructions.

IMPORTANT SAFETY INSTRUCTIONS PLEASE READ CAREFULLY AND KEEP FOR FUTURE REFERENCE

OVEN USE:

- THE OVEN IS FOR DOMESTIC FOOD USE ONLY.
- NEVER OPERATE THE OVEN WHEN EMPTY.
- DO NOT LEAVE OR STORE ANYTHING INSIDE THE OVEN WHEN NOT IN USE.
- NEVER ATTEMPT TO USE THE OVEN WITH THE DOOR OPEN. IT IS IMPORTANT NOT TO FORCE OR TAMPER WITH THE DOOR SAFETY LATCHES.
- NEVER OPERATE THE OVEN WITH ANY OBJECT CAUGHT IN THE DOOR.
- DO NOT INSERT FINGERS OR OBJECTS IN THE HOLES OF THE DOOR LATCHES OR AIR-VENT OPENINGS AS THIS MAY DAMAGE THE OVEN AND CAUSE AN ELECTRIC SHOCK.
- IF WATER OR FOOD DROPS INSIDE THE AIR VENT OPENINGS SWITCH OFF THE OVEN IMMEDIATELY, UNPLUG IT AND CALL A SHARP APPROVED SERVICE FACILITY. (SEE PAGE 34 OF THE USER INSTRUCTIONS).
- NEVER MOVE THE OVEN WHILE IT IS OPERATING.
- NEVER PLACE ANY OBJECT SUCH AS A TEA TOWEL, ORNAMENT, RECIPE BOOK ETC IN ANY OF THE AIR GAPS BETWEEN THE MICROWAVE AND THE INSIDE FACE OF THE MICROWAVE CABINET. CLEAR AIR GAPS AT THE TOP, BOTTOM AND BOTH ENDS ARE ESSENTIAL TO THE EFFICIENT OPERATION OF THE MICROWAVE.

PACEMAKER: IF YOU HAVE A HEART PACEMAKER, CONSULT YOUR DOCTOR OR THE PACEMAKER MANUFACTURER PRIOR TO OVEN USE.

ADVISORY NOTE FOR USERS OF A MICROWAVE OVEN

Microwave Ovens were originally introduced to re-heat pre-cooked pies etc. Over the years people started using them for re-heating ready made meals and now for they are used for cooking small amounts of food.

Most small microwaves, and some large microwaves, cease to cook the food when the microwave starts to overheat. This often

occurs when batches of food are cooked consecutively.

Overheating is caused by a number of factors: -

- The heat generated within the Microwave.
- The Heat generated by an adjacent Oven, Hob of Fridge/Freezer, Radiator etc.
- The Heat generated in the environment due to the heating system and/or lack of ventilation etc.
- The mounting of the microwave in a housing.

It has been proven in independent tests that even when placed on a worktop in an open household kitchen environment a microwave will switch off, or the Magnetron will reduce its output, when the microwave starts to overheat.

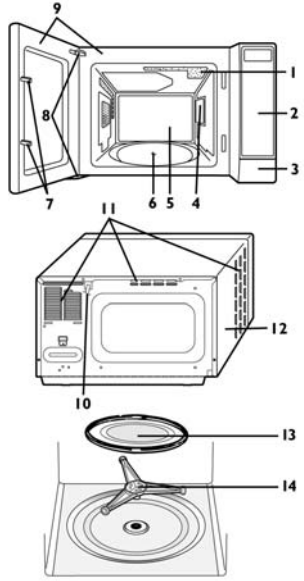
This fact is exacerbated in a Caravan or Motorhome as space is at a premium. The microwave has to be placed in a cabinet to maximize the space available for all the family activities that take place in the modern Caravan and Motorhome. The housing also secures the microwave whilst travelling.

Frequently the above results in the Microwave being mounted above an Oven/ Hob or a Fridge/Freezer.

When the Sharp Microwave starts to overheat, the magnetron automatically reduces its output but the Microwave still looks the same. The Light will stay on, the turntable will continue to rotate, the cooling fan will still operate and the timer will continue.

The above means that times quoted in recipes should be used for guidance only.

It is essential, when cooking with any microwave, that the food is examined to ensure that it is fully cooked before eating.



1. Oven lamp
2. Control panel
3. Door opening button
4. Waveguide cover (DO NOT REMOVE)
5. Oven cavity
6. Coupling
7. Door latches
8. Door hinges
9. Door seals and sealing surfaces
10. Power cord
11. Ventilation openings
12. Outer cabinet
13. Turntable
14. Roller stay

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THETFORD CASSETTE C-200 CW & C-200S (Manual) and C-200CWE & C-200CS (Electric)

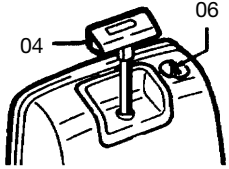
C-200 S/CS: models that are connected to the vehicle's water tank.
C-200 CW/CWE: models that have their own flush-water tank

FEATURES

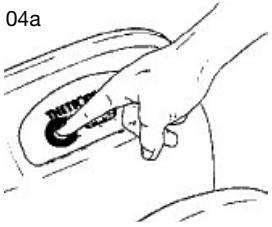
1. Removable seat and cover.
2. Rotatable bowl.
3. Valve blade handle: opens and closes valve blade.
4. Flush-handle activates the flush by lifting and pushing down the handle.

4a **C-200 CWE & CS.** Flush button: activates flush.

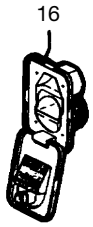
5. Power-supply for the waste-level indicator: two batteries, type: Penlite 1,5V AA alkaline.
6. Waste-level indicator: indicates when holding tank requires emptying.
7. Rotating pour out spout: makes emptying holding tank easy and convenient.
8. Upper carrying handle
9. Automatic holding tank vent: vents the holding tank when the tank is inserted in the toilet. This prevents under- or overpressure in the holding tank.
10. Valve blade opener.
11. Sliding cover: closes automatically when holding tank is taken out. Guarantees optimal hygiene.
12. Valve-blade
13. Vent button: vents the holding tank to avoid splashing while emptying.
14. Hand grip
15. Access door
16. Waterfill door



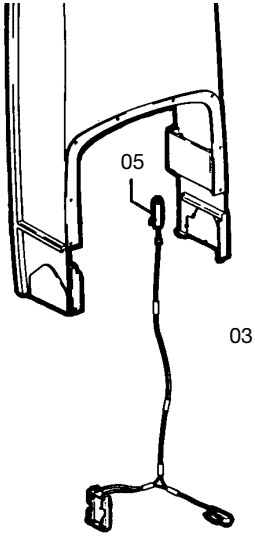
C-200 CW only

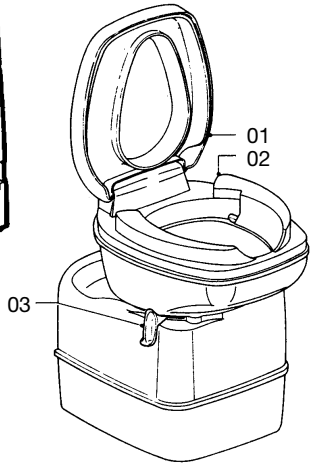


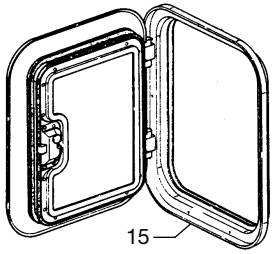
C-200 CWE only

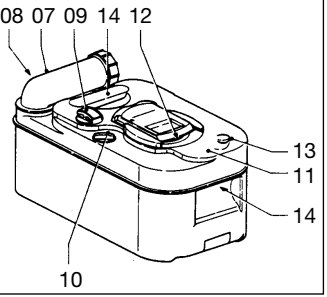


C-200 CW only









Equipment Details

CASSETTE C-200 CW AND C-200 CWE & C-200CS

The toilet section of the C-200 includes a rotatable bowl, removable seat and cover, a console with a flush handle/flush buttons, a built in flush-watertank and a waste level warning indicator. The valve blade handle is located underneath the bowl.

PREPARING FOR USE

1. Open access door pull retaining clip upwards (fig. 1).
2. Remove holding tank by pulling straight out. When holding tank hits the stop, tilt front end downwards slightly and remove (fig. 2).
3. Position tank vertically and swivel pour out spout upwards (fig. 3).
4. Remove the cap of the pour out spout. Add required quantity of toilet fluid through pour-out spout then add approx. 2 litres of water through the spout to cover holding tank bottom. Replace cap and return pour out spout to its original stored position (fig. 4).

   Note: Warmer weather or longer intervals between emptying the waste tank may require additional toilet fluid. Use only Thetford toilet fluid to achieve the best results.

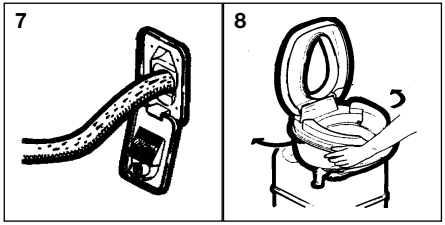
   Caution: Never add toilet fluid directly into toilet bowl.

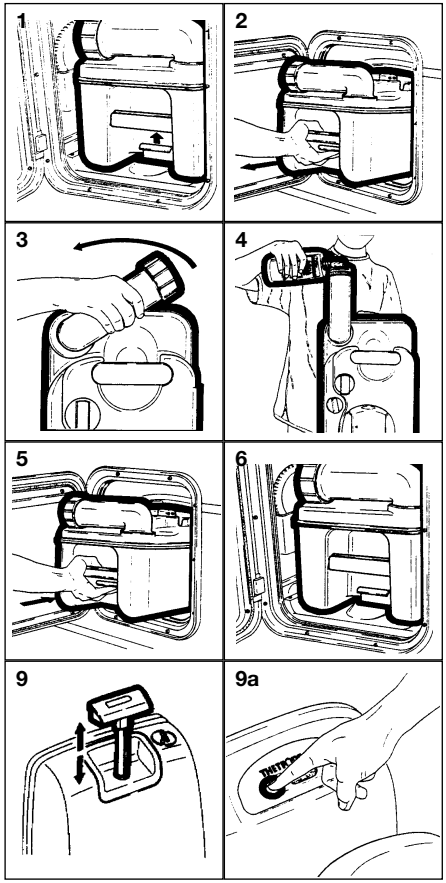
5. Slide the holding tank into position through access door (fig. 5).
6. Make sure the holding tank is secured by the retaining clip. (fig. 6).
7. Open the waterfill door and add 50 ml of Aqua Rinse. Aqua Rinse results in a better flush and improves the hygiene of the toilet. Then fill the watertank with fresh water using a jerrycan or a hose. Tank capacity is 7 litres (fig. 7).

OPERATION

8. Turn the bowl in the most comfortable position (fig. 8).
9. **C-200 CW only:** Before using the toilet it is recommended to flush some water into the bowl by lifting and pressing down the flush handle (fig. 9).

9a. **C-200 CWE & CS only:** Before using the toilet it is recommended to flush some water into the bowl by pressing and releasing the flush button (fig. 9a).





10. The toilet may be used with the blade open or closed. Pull valve handle towards you to open (fig. 10).

11. C-200 CW only: After use, open valve blade (if still closed) and flush, lift the flush handle and press it down (fig. 11). After flushing, close the blade by turning the blade handle.

11a. C-200 CWE & CS only: After use, open valve blade (if still closed) and flush, press the flush button (fig. 11a). After flushing, close the blade by turning the blade handle.

The waste holding tank is located underneath the toilet and is removed for emptying from the outside of the vehicle through an access door. A rotating pour out spout, automatic holding tank vent, air release valve, valve blade, carrying handles and hand grip are incorporated in the waste holding tank. A sliding cover guarantees optimal hygiene.

EMPTYING THE HOLDING TANK

The holding tank capacity is approx. 17 litres and the tank should be emptied when the waste-level indicator lights up. The waste-level indicator lights up when the holding tank contains more than 15 litres of waste.

CAUTION: Do not allow the holding tank to become overfilled. See trouble shooting section for emergency emptying procedure.

12. Open access door and remove the holding tank. The holding tank can only be removed when the valve blade is closed (fig. 12).

13. Carry the holding tank to a normal household type toilet or other authorised disposal point. Place the holding tank in vertical position and rotate pour out spout upwards (fig. 13).

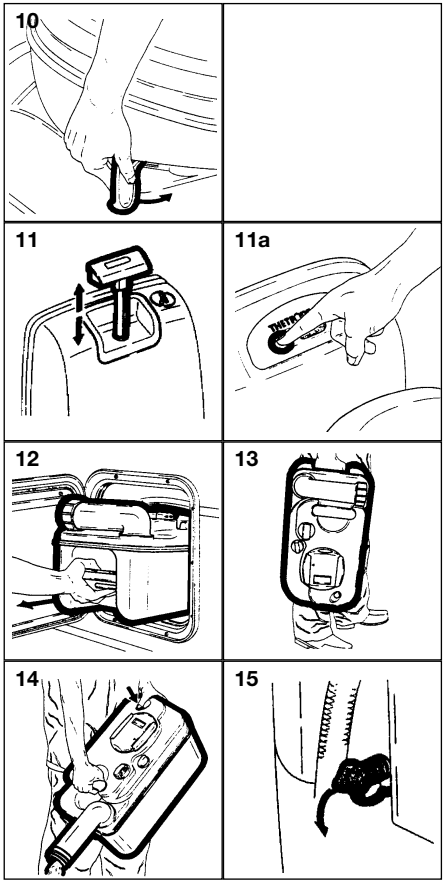
14. Remove the spout cap. Grasp unit by upper carrying handle nearest to pour out spout. Place other hand on upper rear hand grip so that vent button can be depressed with the thumb while emptying. This ensures a smooth outflow of the tank contents. (fig. 14).

    Note: Only depress the vent button when pour out spout is pointed downwards.

    Rinse the holding tank with clean water. For preparing for use again, see steps 1 to 7.

CLEANING AND MAINTENANCE

The lipseal and the seal of the automatic vent are made of rubber and therefore these parts need regular maintenance (depending on frequency of use, once or twice a month).



Lipseal: Remove the sliding cover. Open the valve-blade by turning the blade-opener knob anticlockwise. Clean the seal with water. Dry the seal and grease with silicone spray/oil or vegetable oil.

Seal of automatic vent: Turn the automatic vent 60° anticlockwise and remove gently. Clean the seal with water. Dry the seal and grease with silicone spray/oil or vegetable oil.

To clean the holding tank, empty the tank, and rinse with clean water. Use a mild soap to clean toilet bowl, seat and cover, as well as exterior of toilet unit and holding tank.

NOTE: Do not use strong household detergents or cleaners that contain chlorine, solvents or acid contents.

WINTERING/STORAGE

The Thetford Cassette C-200 CW/CWE/CS is easily winterised for storage.

Empty remaining fresh water into the bowl by activating the flush handle up and down (C-200 CW) or by pressing the flush button (C-200 CWE & CS).

Once pump has been cleared and water flow has stopped completely, release into waste tank. Remove waste tank and empty contents in normal way.

To evacuate any remaining water from the fresh water tank. place a container underneath the drainplug and remove drainplug.

When procedure has been completed replace drainplug and waste holding tank (fig. 15). Clean the seals and grease them after drying (see cleaning and maintenance).

Leave the blade of the holding tank open. Do not replace cap on the pour out spout, to ventilate the holding tank. (Also grease the seal of the pour out spout cap.)

COLD WEATHER USE

The toilet can be used in cold weather conditions provided that the toilet is in heated surroundings. If this is not the case, you can use a nontoxic antifreeze (propylene glycol) or an antifreeze such as those used in car radiators. Add the antifreeze to the water in the tank. Add the quantity specified in the instructions, paying due regard to the safety instructions.

HIGH ALTITUDE AND WARM WEATHER USE

Pressure may build up in the holding tank if the tank is not inserted while driving at high altitudes or in warm weather conditions. The automatic holding tank vent will vent the tank when there is over- or under-pressure. High temperatures may require additional Thetford toilet fluid.

THETFORD WARRANTY

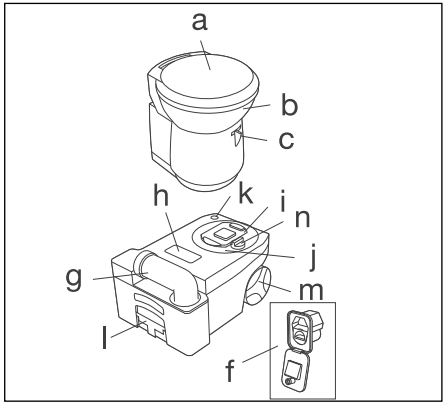
1. The Thetford Cassette is warranted for one year from the date of purchase, please fill in and return the warranty card.
2. The warranty covers replacement of defective or flawed parts and the inadequate performance of the toilet.
3. In case of a defect apply to an original dealer or Thetford Service Centre with proof of purchase.
4. Defects, which in our judgement occurred from misuse, negligence or accident, are not covered by the warranty. In addition, the warranty does not apply if the product is installed or handled improperly or if other than the prescribed toilet fluids have been used or if the product has been altered in any way or has been repaired by unqualified persons, or if the serial number and/or date has been altered or removed.
5. Should the original buyer wish to return to us parts believed to be defective, the parts should be sent prepaid. If we find the parts defective and covered by warranty, they will be repaired and returned. If warranty does not apply or has expired, a nominal charge will be made. Any transport costs are for the account of the owner.
6. Before returning product or parts they should be properly cleaned, in order to carry out inspection and repair.
7. No other warranty is given and no personal representative is authorised to make any warranty other than that is contained herein.

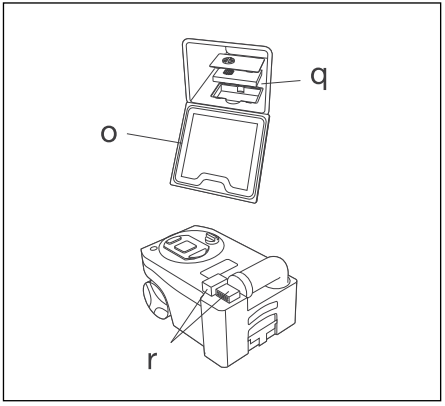
THETFORD C250 CWE & C250 CS CASSETTE TOILET

C-250 S/CS: models that are connected to the vehicle's water tank.
C-250 CW/CWE: models that have their own flush-water tank

The Thetford Cassette Toilet is a high quality product. The toilet forms an integral part of your caravan or motorhome bathroom, thanks to its functional design which combines modern styling and ease of use. The C-250 Cassette Toilet is manufactured from high quality synthetic materials which makes it a durable, user and maintenance friendly 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 caravan or motorhome. The Thetford Cassette Toilet is the solution to the sanitary problem in your caravan or motorhome!





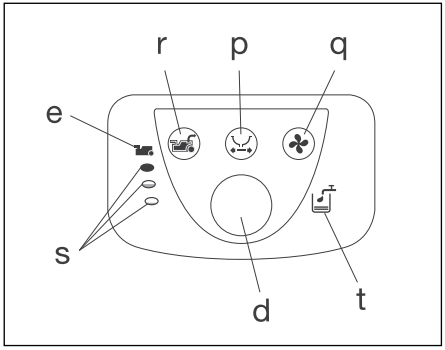
These instructions cover the C-250CWE/CS this has its own flush-water tank.

PARTS

a) Removable Seat and Lid
b) Swivelling Toilet Bowl
c) Blade Handle
d) Flush Button
e) Waste Holding Tank Level Indicator
f) Water Filling Door (only if toilet has own flush-water tank)
g) Rotating Emptying Spout
h) Automatic Pressure Release Vent
i) Sliding Cover
j) Removable Mechanism
k) Vent Plunger
l) Pull-Out Handle
m) Wheels
n) Blade Opener
o) Access Door to Waste Holding Tank

OPTIONAL FEATURES

p) Electric Blade
q) Automatic Ventilator
r) Waste Pump-Out System



s) Waste Holding Tank Multi-Level Indicator

t) Flush-Water Tank Level Indicator (only if toilet has its own flush-water tank)

CONTROL PANEL

PREPARING FOR USE (STANDARD)

1. Open the access door on the outside of your caravan or 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.

7. For toilets with own Flush-Water Tank: Open the water filling door and fill the flush-water tank with the correct dosage of Aqua Rinse. This Thetford toilet fluid keeps the flush water fresh and improves the flushing. Next, fill up the flush-water tank with clean water (approximately 8 litres) using a jerry can or hose. Your toilet is now ready to use.

PREPARING FOR USE WITH OPTIONAL FEATURES

8. Automatic Ventilator: Open the access door on the outside of your caravan and remove the Waste Holding Tank (as described above).
9. Remove the filter housing cover and if no filter is present, place a new filter into the filter housing. Peel off the sticker lids on the filter. Place back the cover of the filterhousing.

USING THE TOILET (STANDARD)

10. Turn the bowl to the desired position with the lid closed and using both hands.
11. 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.
12. 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.

IMPORTANT WARNING NOTICE! IF YOUR TOILET HAS ITS OWN FLUSH-WATER TANK, PLEASE MAKE SURE THAT YOU DO NOT TRAVEL WITH A FLUSH-WATER TANK THAT IS TOO FULL. DO NOT TRAVEL WITH WATER IN THE TOILET BOWL. FAILURE TO ADHERE TO THIS NOTICE MAY RESULT IN WATER DAMAGE TO YOUR CARAVAN OR MOTOR HOME.

USING THE TOILET WITH OPTIONAL FEATURES

13. Electric Blade: Push the electric blade button on the control display to electrically open or close the blade. In the case of failure, you can manually open or close the blade by sliding the small handle under the toilet bowl sideways.
14. Automatic Ventilator: The ventilator automatically starts when the control panel is activated (by pressing the flush button) and will automatically shut off after approximately 5 minutes. The Automatic Ventilator Indicator will flash until automatic shut-off occurs. If you want to stop the ventilator, press the Automatic Ventilator button. If you want to re-start the ventilator, press the button again (the LED will start flashing again).
15. Flush Water Tank Level Indicator (only for toilets with own flush-water tank): When the Flush Water Tank Level Indicator lights up, refill the flush-water tank, as only about 1.5 litres of water is left in the tank, which is sufficient for approximately 2 flushes.

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.

16. 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.
17. Pull the handle up and wheel the Waste Holding Tank to an authorised waste disposal point.
18. 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.

EMPTYING WITH OPTIONAL FEATURES

19. Waste Holding Tank Multi-Level Indicator: The lower lamp indicates that the Waste Holding Tank is almost empty; the middle lamp indicates that it is more than half full; when the upper lamp lights up, the tank needs emptying as it can only take 2 - 3 further uses.

Note. The Waste Holding Tank Level Indicator will flash when the holding tank is not present. In this case the toilet will not flush.

20. Waste Pump-Out System: When activating the control panel this feature automatically lights up. When the Waste Holding Tank Level Indicator illuminates, press the Waste Pump-Out button to

pump out the waste from the holding tank Into the vehicle's waste tank. The button will flash while the waste is being pumped and will stop automatically (after approximately 5 minutes) when all waste has been transferred.

If the vehicle's waste tank is full, the Waste Pump-Out light will flash rapidly and no pump-out will be possible until the central tank is emptied. (Check the level of the vehicle's waste tank on the vehicle's central console). After the Waste Holding Tank has been emptied, there will be approximately 1.5 litres of waste left in the tank. This is normal. Add 2 litres of water and a correct dosage of Thetford toilet fluids to the Waste Holding Tank.

IMPORTANT! IT IS VITAL THAT THE CORRECT AMOUNT OF TOILET FLUID IS ADDED TO ENSURE THE PROPER BREAKDOWN OF THE WASTE IN THE HOLDING TANK. ONLY USE THE SYSTEM WHEN THE TANK IS FULL. USING THE SYSTEM TOO OFTEN ON AN EMPTY TANK CAN CAUSE DAMAGE TO THE PUMP, WHICH COULD CAUSE THE SYSTEM TO FAIL.

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 46 of the Thetford user manual for more information (=matrix). We advise a thorough cleaning of the Waste Holding Tank once each season. Next to using Thetford's Cassette Tank Cleaner, the powerful cleaning agent for the periodical cleaning of the Waste Holding Tank of your toilet, we suggest the following:

- 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 prizing 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.

CLEANING AND MAINTENANCE FOR OPTIONAL FEATURES

- Automatic Ventilation: The filter of the Automatic Ventilation needs to be renewed periodically. After approximately 4 full weeks of use, the filter loses its absorption power.
- Pump-Out Waste System: To ensure optimal functionality of the Pump-Out Waste System, periodical maintenance of the tube and pump is recommended. After emptying the Waste Holding Tank completely, fill it with clean water and empty it again. This will clean the pump and the hose. Do this once every 3 weeks when on holiday. This should ensure proper operation of the system.

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.

- Activate the Control Panel by pressing the flush button. Open the blade and press the flush button until water stops flowing into the bowl. Close the blade. Open the access door on the outside of your caravan or camper 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.

21. If the toilet has its own flush-water tank, place a sufficiently large bowl under the drain tube to catch the remaining water from the flush-water tank and remove the drain plug. When no more water exits, put the drain plug on the drain tube, put it back in its original position and close the access door. If the toilet is connected to the vehicle's water tank, please follow your vehicle's instructions for draining the central water system. If your toilet is optionally featured with a Waste Pump-Out System, take out the Waste Holding Tank and completely clean it (see Cleaning and Maintenance). After cleaning, fill it with water, put it back and empty it via the waste pump-out system. Repeat this twice.

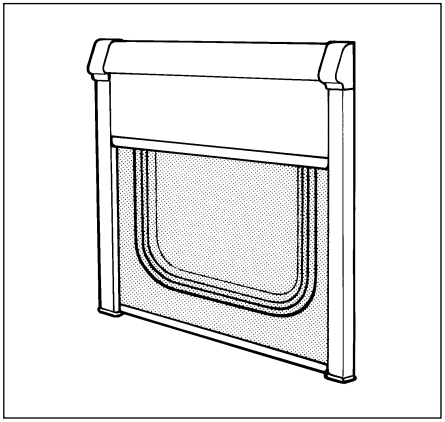
Thetford warranty refer to the Thetford user handbook.

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.



KOMFORTROLLO BLINDS (SEITZ)

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 KOMFORTROLLO 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.

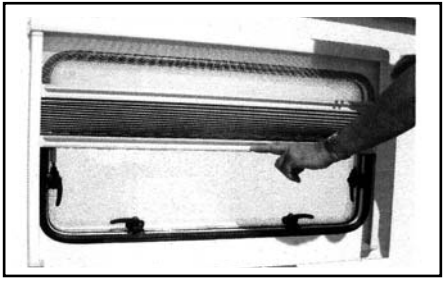
OPERATING INSTRUCTIONS FOR SOFTROLLO BLINDS

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. Use only water or with mild suds.

In order to avoid material fatigue, do not leave the flynet closed for a long time.



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.

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.

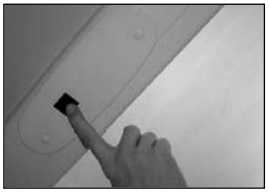
To close, reverse the operation and then check if locked into position.

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.

Blind and Flyscreen

The blind and flyscreen operate Independently of each other and are engaged by connecting to each other and sliding.

Safety precautions:

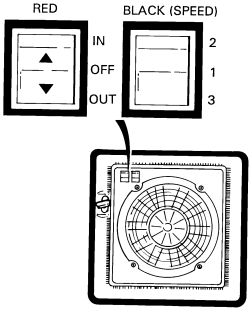
1. Repairs should be carried out only by trained personnel.

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 in 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.

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.

THE OMNIVENT (12V) ROOFLIGHT



Omnivent Rooflight

The Omnivent is a double glazed rooflight constructed from a synthetic ultra-violet screened material. Its side operating mechanism allows a completely free central opening with built-in fixed ventilation when closed.

Red Switch = Mode of Operation

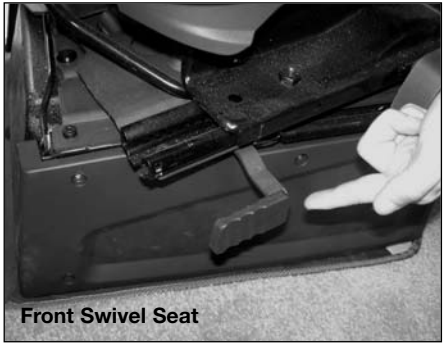
Induction (IN)
Expel (OUT)

Black Switch = Speed Control

1, 2 and 3

Omnivents give no fixed ventilation when set on induction.

SEAT SWIVEL (Driver/Passenger)



Front Swivel Seat

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

Side Locker

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.

FURNITURE DOORS

During 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.

ASH FRAMED 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 vehicle.

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.

CAUTION!
When erecting the free standing table, be careful to avoid trapping fingers.

Freestanding table mechanism

To lock the table, raise the table 45°, push clip to rail and lower table.

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.

SHOWER

When using the shower, always ensure that the shower door is fully closed thus avoiding water spray on unprotected areas.

12V READING LAMP

WARNING: 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.

OMNISTEP SLIDE-OUT STEP

OPERATION

Press the “step out” key to bring the step out until it reaches the end of its run or comes up against an obstacle. The step does not come out if the the engine is running. Press the “step in” key to take the step back until it reaches the end of its run or comes up against an obstacle. The step goes back in automatically when the engine is running. In this situation the buzzer sounds until the step is fully closed.

MAINTENANCE

Dirt and frost can prevent the step from operating properly. In this case the rails and moving parts should be cleaned or defrosted.

IN CASE OF ELECTRIC BREAK DOWN

If the step does not retract by the motor

- Remove the front plate of the step. (Fig. 1)
- Remove the connection between the footboard and the arms (with screwdriver and wrench S10). (Fig. 2)
- Slide out the footboard.
- Reinstall the front plate.

CURRENT DRAWN

- Working current: 5 A
- Blocking current, when fully extended or retracted: 14 A

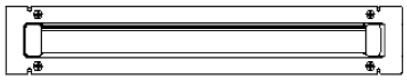


Fig. 1 Front Plate

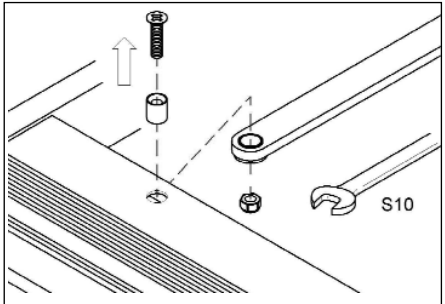


Fig. 2 Connection

OMNISTEP DOUBLE STEP

OPERATION

Press the “step out” key to bring the step out until it reaches the end of its run or comes up against an obstacle. The step does not come out if the the engine is running. Press the “step in” key to take the step back until it reaches the end of its run or comes up against an obstacle. The step goes back in automatically when the engine is running. In this situation the buzzer sounds until the step is fully closed.

Never mount the step if retracted or if not fully extended

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 BREAK DOWN

If the step does not retract by motor:

- Loosen the square connection according to fig. 2 (actions 1, 2 and 3), push the footboard in (4) and tie it to the frame (fig. 3).

CURRENT DRAWN

- 7 A. When fully extended or retracted: 19 A

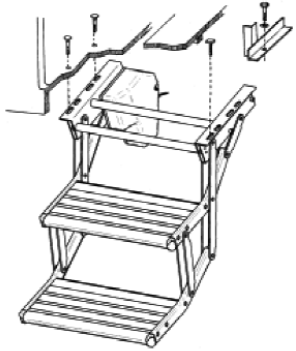


Fig. 1

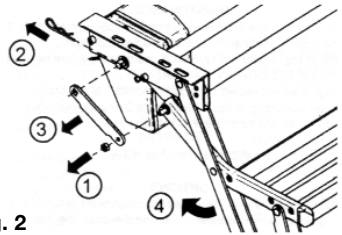


Fig. 2

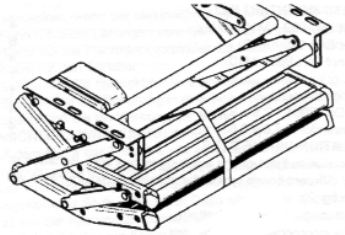
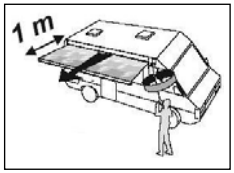


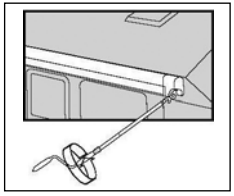
Fig. 3

FIAMMA F45i SIDE AWNING

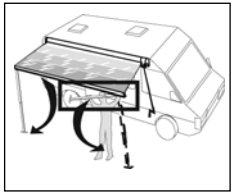
- In order to avoid unnecessary strain on the awning as well as on the vehicle side, we suggest that the legs be extended about 1m from the opening.



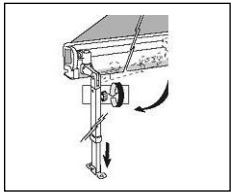
- Unscrew the leg knob to slide the leg out of its seat.



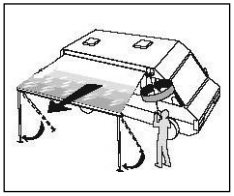
- Grasp the leg near its hinge-joint and pull it in a horizontal direction.



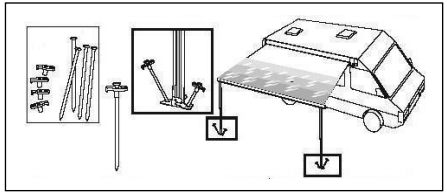
- Lower the leg as shown in the figure.



- 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.



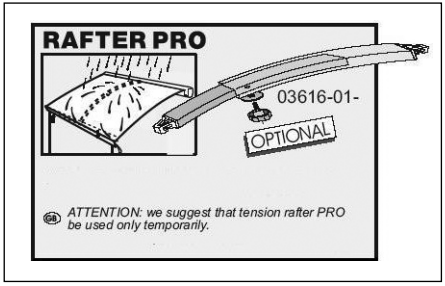
- If you want to fasten the support legs to the vehicle, put the terminals into the wall brackets. The brackets can be fixed only in reinforced points.

CAUTION: - SWIFT RECOMMEND THAT THE AWNING BE GROUND MOUNTED ONLY.

SIDE MOUNTING BRACKETS ARE SUPPLIED. BUT IN INCLEMENT WEATHER CONDITIONS MAY CAUSE DAMAGE TO THE MOTORHOME BODYWORK

CAUTION: - 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 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 freezing 0°.
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.

STATUS 530 DIRECTIONAL TV AND FM RADIO ANTENNA

(model dependant)

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 antennas in the vicinity

1. Loosen the Mast Locking Collar and Wall Bracket and raise the antenna. Turn the mast to direct the Antenna towards the TV transmitter.

   The RED spot on the bottom of the mast indicates the front of the Antenna.
2. When receiving vertically polarised signals, rotate the winder anti-clockwise to cant the antenna through 90°.
   DO NOT over tighten or use undue force on the winder.

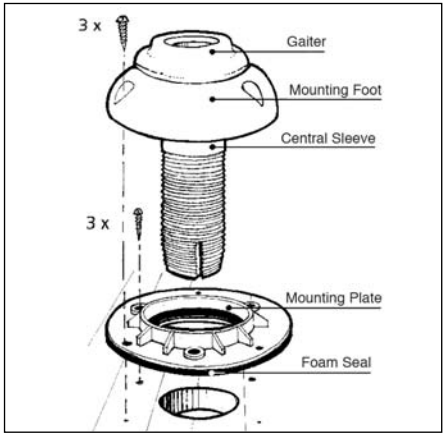
   DO NOT cant for vertically polarised signals with the TELESCOPICS EXTENDED
3. Switch ON the Power Pack and the RED LED will illuminate.
4. Check the gain control switch is set to normal – NML.
5. Tune your television to the strongest signal. You may need to adjust the direction of the mast to achieve the best quality picture.
6. Secure by tightening the Mast Locking Collar and Wall Bracket

REMOVING THE ANTENNA

A permanently fitted Status can be easily removed leaving only the Mounting Foot and rubber gaiter.

1. Unplug the antenna from the Power Pack.
2. Loosen the Mast Locking Collar and Wall Bracket and lift off whilst feeding out the cable.
3. Push the Blanking Cap supplied into place.

IMPORTANT – The Blanking Cap is a temporary seal and is not for long term use.



CD/MP3 PLAYER

Please refer to the separate instructions supplied with the head unit for details of its operation.

SATELLITE NAVIGATION

Please refer to the separate instructions supplied with this device for details of its operation.

Though depending upon the equipment fitted, for voice commands from the navigation system to be heard through the cab speakers, the function first needs to be enabled via a menu on the navigation system.

REVERSE CAMERA FUNCTION - WITH DROP-DOWN MONITOR

When fitted the reverse camera supplies a video signal to the drop-down monitor when reverse gear is selected with the engine running. The drop-down monitor will switch on and change to the correct channel automatically.

IT IS ILLEGAL FOR THE MONITOR TO BE USED WHILST TRAVELLING IN THE FORWARD DIRECTION.

REVERSE CAMERA FUNCTION - NO DROP-DOWN MONITOR

When fitted the image from the reverse camera can be viewed on the screen of the Lucca 5.2 navigation unit. To view images from the reverse camera the navigation unit must be switched on and showing a navigation map. When reverse gear is selected with the engine running the image from the camera will then be displayed.

Depending on the CD/MP3 head unit fitted, it may also be possible to hear sound from the microphone fitted to the reverse camera through the cab and roof mounted speakers. To achieve this, the head unit must be switched on and set to receive an auxiliary input - See the separate instructions supplied with the head unit for further details.

LCD TV/DVD/CD/MP3/DVB UNIT

Please refer to the separate instructions supplied with the unit for details of its operation.

With regard to Freeview TV and radio reception, please note that the number of channels available will vary according to the area, and also on the signal strength available at the location. Please ensure that the fitted directional aerial is switched on, and raised and directed toward the nearest transmitter before scanning for channels.

MOTORHOME CARE

MODIFICATIONS - DIY WORK

Owners need to be aware that carrying out DIY modifications to your caravan or motorhome may in certain instances, invalidate the warranty cover and could also affect the safety and structure of the vehicle.

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, Bottle box hinges, Exterior door hinges, Plastic tracking etc. We recommend “Ambersil 40+” this is readily available from most DIY/Automotive retailers including Halford’s

Before carrying out any DIY work within the warranty period, please check with your nearest Swift Group dealer or contact Supercare customer services on 01482 875740 for advice.

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 vehicle 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.

When cleaning sealant sealed areas, use Domestos/water.

WARNING: Under no circumstances use any abrasive cleaning agents or solvents on the exterior panels.

Care should be taken as the silicon in some polishes can attack the rubber used on the exterior for seals and gaskets.

Mouldings

Some mouldings are of anodised aluminium and will retain their lustre for a long period if no abrasive materials are used to clean them.

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.

CONDENSATION

What is condensation?

Condensation is the change of water from its gaseous form (water vapour) into liquid water. Condensation generally occurs in the atmosphere when warm air rises, cools and looses its capacity to hold water vapour. As a result, excess water vapour condenses to form droplets.

Why condensation occurs

Condensation occurs when warm moist air meets a cold surface. The risk of condensation therefore depends upon how moist the air is and how cold the surfaces of the vehicle are. Both of these depend to some extent on how the vehicle is used. In a Caravan or Motorhome with a cold outside wall, if the temperature of the wall falls below the dew point temperature, it is quite normal for condensation to occur predominantly on the external walls.

When condensation occurs

Condensation occurs usually in winter, because the Caravan or Motorhome is cold and because skylights, windows and doors are opened less and therefore the moist air cannot escape.

How condensation occurs

Condensation occurs often for short periods in bathroom and kitchen areas because of the steamy atmosphere, and quite frequently for long periods in unheated areas; it also occurs in cupboards or corners of rooms where ventilation and movement of air is restricted.

What is important

Two things are particularly important:

- To provide ventilation so that moist air can escape.
- To use the heating reasonably.

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. Use the electric element of the space heater will help, when washing, cooking, or drying damp clothes, and particularly when the windows show signs of misting up.

b) If there is no mains electric supply and therefore you cannot use the electrical element of the space heater, open the skylights or windows slightly, but keep the door closed as much as possible.

c) After showering, keep the bathroom window or skylights open, and shut the bathroom door long enough to dry off the room.

d) 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, motorhome step well, 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 opening 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 caravan or 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.

e) Caravans and Motorhomes are left unoccupied and unheated and can get very cold. Whenever possible, it is best to put the heating on at a low level before setting off on a journey in the winter to pre heat the vehicle.

f) In houses, the rooms above a heated room benefit to some extent from heat rising through the floor. In Caravans and Motorhomes this does not happen.

Caravans and Motorhomes use only carefully selected insulation materials but unlike most rooms at home they have all outside walls, so they lose heat through all walls as well as the roof and floor.

Even in a well insulated Caravan or motorhome with reasonable ventilation it is likely during cold weather if the temperature is less than 10°C that 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 Caravans and 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.

WARNING: Do not wash your Caravan or Motorhome with a high pressure washer as these can permanently damage the seals of your vehicle.

Changing Exterior Bulbs

ALWAYS REPLACE LIKE FOR LIKE

For individual replacement bulb specification, refer to your Specification Handbook.

Generally road lighting bulbs can be easily replaced by unscrewing and removing the lens from the exterior of the caravan or 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 and ensure long life. 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 are manufactured to meet fire regulations. It requires time to return to its normal position after prolonged use.

Work Surfaces

You should not stand very hot items on any of the work surfaces.

Cupboard Catches

It is advisable to lightly oil all cupboard catches, sliding bolts and hinges from time to time.

Bathroom, Shower Room and Kitchen Equipment

All the Thermoplastic parts in these areas have easy clean surfaces. To ensure long life and prevent damage you must not use any cleaning materials at all and ensure water temperatures do not exceed 70°C, (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).

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 some 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 these items. To wash use only warm soapy water, do not use chemicals and bleach.

Changing Interior Bulbs

Remove the lens or lamp shade to access the bulb.

ALWAYS REPLACE LIKE FOR LIKE

For individual replacement bulb specification, refer to your Specification Handbook.

WINTERISATION/STORAGE

This is probably an opportune moment to arrange for the Caravan or Motorhome to have its annual service at your appointed dealer.

The following applies whenever your Caravan or Motorhome is stored particularly during the winter months.

Do not park near trees or larch type fences, due to possible wind damage.

Keep any grass around the floor of the Caravan or Motorhome short, to maintain air flow and stop any possible damp getting into the Caravan or Motorhome.

It is advised that the Caravan or Motorhome is ventilated regularly throughout the winterisation /storage period, opening windows, doors and rooflights when possible.

General

For care of the vehicle battery please refer to the Fiat handbook in section 'Correct use of the vehicle' particularly 'Vehicle inactivity'.

All moving parts should be checked for free operation.

Clean all cooking appliances and refrigerator.

Lubrication should be carried out at the points illustrated in the general notes on chassis maintenance.

Charge up the on-board battery every 2 months.

Leave the refrigerator door open.

Leave furniture doors and lockers open to allow air to circulate fully.

Soft Furnishings

Clean and dust the upholstery and if possible remove before placing the Caravan or Motorhome into winter storage. Alternatively, stand the cushions on their edges to allow circulation of air.

This will reduce the possibility of dampness from condensation.

Keep curtains or blinds closed, to minimise fading of furniture.

If the blinds and/or flyscreens remain down for a prolonged period of time, re-tensioning of the springs will be necessary before re-use.

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.

Water System

Remove chopping board from bowl.

All taps should be opened. Single lever mixer taps, including the shower mixer, should have the lever moved to the central position and lifted to the open position for hot and cold.

Drain water heater:
Open yellow handle on in line valve normally adjacent to water heater. Valve is open when handle is vertical.

Drain water tanks:
Fresh tank: remove the water dump plug from inside the tank.

Waste tank: open in line valve adjacent to the tank. Valve is open when handle is in line with body of valve.

With valves and switches set as previously described to run taps from the fresh water tank, the pump can be run momentarily to assist purging the water tank and pipes.

Remove shower head. Let the shower hose drain into the shower tray and then return to holder.

The Caravan or Motorhome may be left in this condition over winter or until ready to use. It is recommended to leave the drain taps in an open position during storage. Before recomissioning the system, reverse all above actions.

Before recomissioning the system, reverse all above actions.

The Thetford Cassette toilet is easily winterised for storage.

Empty remaining fresh water into the bowl by activating the flush handle up and down or by pressing the flush button (model dependant).

Once pump has been cleared and water flow has stopped completely, release into waste tank. Remove waste tank and empty

contents in normal way.

To evacuate any remaining water from the fresh water tank, place a container underneath the drainplug and remove drainplug.

When procedure has been completed replace drainplug and waste holding tank. Clean the seals and grease them if necessary after drying, with acid free vaseline.

Leave the blade of the holding tank open. Do not replace cap on the pour out spout, to ventilate the holding tank.

Recomissioning the Water System

Fill the fresh water tank on the Thetford Cassette porta potti (model specific) using a hose or jerrycan until the water in the funnel reaches the neck. Tank capacity is 15 litres. Aqua Rinse may be added to improve cleaning of bowl and flushing of unit.

Replace cap. Swing back the water fill funnel until it touches the water tank.

Add Aqua Kem (100 ml) into the Cassette (or 120 ml if using Aqua Kem Bio) through the pour out spout. Add small amount of water through the pour out spout and replace the cap.

Close the cold taps and ensure all the drain taps are closed.

It is advisable after storage to flush the water system initially with a sterilising agent (such as Milton), and then with water repeating until the system is well flushed through.

Connect the pump.

Fill the system with water until water flows freely from the hot taps. About 2 gallons of water will be required. Close the hot taps.

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 Caravan or Motorhome and clean throughout, especially cooking appliances and the refrigerator.

Replace the bedding and wheels if they were removed for storage.

Important

Always follow the manufacturers recommended procedures after use of fitted equipment in the Caravan or Motorhome, before storing for any length of time.

CHASSIS AND REAR AXLE

Some models are built on Fiat Ducato 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 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.

USEFUL INFORMATION

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 and every third year there is a 'Works Rally' where owners have the opportunity to visit the factory. 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 Supercare (SML Ltd), Tel: 01482 875740 or from the Swift Group website.

SPARES AND AFTER SALES SUPERCARE

There are numerous items available from your dealer ranging from door catches through to spare wheels and touch-up paints. Please note that all after sales enquiries must be directed through your supplying dealer. The after sales service at the factory is geared to support our dealer network as is the service provided by appliance manufacturers.

In the interest of safety, replacement parts for an appliance shall conform to the appliance manufacturer's specifications and should be fitted by them or their authorised agents.

Note: Please remember to quote chassis number when ordering any items from your dealer.

Customer Care
Tel: 01482 875740
Fax: 01482 840082

NOTE:
The times for contacting Customer Care by telephone are:

9am to 4pm Monday to Thursday.
9am to 12.45pm Friday.

Swift Group Website
www.swiftleisure.co.uk

Swift Group email enquiry
enquiry@swiftleisure.co.uk

REPAIR FACILITIES

Should you be unfortunate enough to suffer a major accident with your motorhome it is comforting to know that we have a completely separate repair shop facility where their fully trained experts will undertake all types of major damage repair work.

Repairs of a minor nature should be referred first to your local dealer.

Useful Information

The enjoyment of your motorhome can be greatly enhanced by membership of one or more of the various 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
www.campingandcaravanningclub.co.uk

MOTORING ASSOCIATIONS

Automobile Association (AA)
Fanum House,
Basingstoke,
Hants. RG1 2EA
Tel: 0990 448866
www.theaa.co.uk
email: customer.services@theaa.com

RAC Motoring Services
RAC House,
M1 Cross,
Brent Terrace,
London, NW2 1BX
Tel: 0990 722722
www.rac.co.uk

Green Flag National Breakdown
PO Box 300,
1, Cote Lane,
Leeds, LS99 2LZ
Tel: 0345 670345

TRADE ASSOCIATION

National Caravan Council
Catherine House,
Victoria Road,
Aldershot,
Hampshire, GU11 1SS
Tel: 01252 318251
www.martex.co.uk/ncc
email: mail@martex.co.uk

The Society of Motor Manufacturers and Traders Limited (SMMT)
Forbes House,
Halkin Street,
London SW1X 7DS
Tel: 020 7235 7000
www.smmt.co.uk

Swift Group Limited, Dunswell Road, Cottingham, East Yorkshire HU16 4JX.
Tel: (01482) 875740 email: enquiry@swiftleisure.co.uk website: www.swiftleisure.co.uk

Notes

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