1997

COMPASS OWNERS HANDBOOK

ORIGINAL (HARD COPY)

DO NOT SEND OUT

COMPASS

MOTOR HOMES

OWNERS HANDBOOK

CONTENTS

NOTE: The information contained in the handbook relates to all Compass Motorhomes although individual model specifications will vary.

INTRODUCTION

Whether new to motorcaravanning or experienced, welcome to the ever growing band of people who choose to spend their leisure time with a Compass motorhome.

Laid out in this booklet you will find the information required to answer most of your queries and guide you over many years of motorcaravanning.

Remember, like a motor car, your Compass motorhome is a road going vehicle which will require a small amount of regular service and maintenance. Your Compass dealer will be pleased to guide you as to your motorhome's service requirements.
It is important that if service or replacement parts are required,you always quote the motorhome Serial Number and model type to your dealer.

NOTE: It is important that you read and retain all other literature relevant to component parts and items of equipment supplied in conjunction with his handbook.

HAPPY MOTORCARAVANNING

Your motorhome at a glance.

Model .....

Serial No. .....

Key No. .....

Ex-Works Weight. .....

Type. .....

Chassis No. .....

Date of purchase. .....

Max. Laden Weight. .....

This handbook is produced by Compass Caravans Limited, and gives only a generalisation of hints and points of interest to the Compass range.

This handbook only relates to the accomodation element of the motorhome. For all details relating to the base vehicle, consult the manufacturers manual..

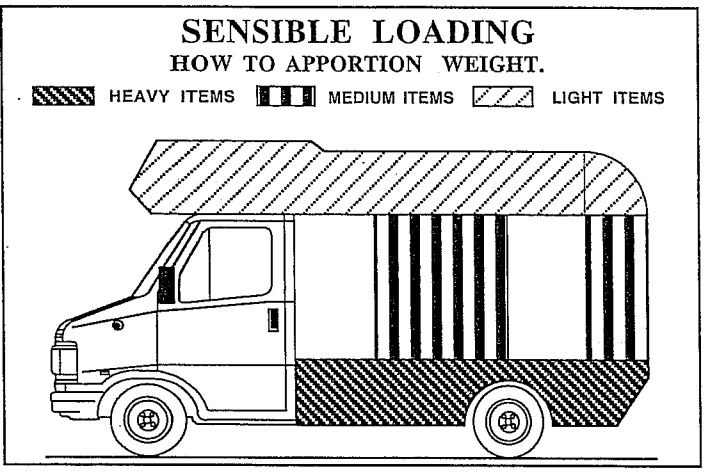
PREPARING FOR THE ROAD

Your Compass Motorhome. (Terms explained)
Ex works weight:
The weight of your motorhome as it leaves the factory, as new with standard fixtures and fittings, plus an allowance for driver and 90% fuel.

Maximum authorised laden mass
The maximum weight of the vehicle when fully laden for use on the road.

Payload or Load margin
The load margin (payload), this represents the difference between the ex works weight and the maximum authorised laden mass. It shows the maximum weight which can be loaded into your motorhome, covering items such as food, crockery, cutlery, clothing, bedding, gas cylinders, etc.

Loading:
It should be noted that even weight distribution is a major factor in making your motorhome an easy and pleasant vehicle to drive. Care should therefore be taken in balancing the load, ensuring that heavy items are well spaced and are in as low a position as possible, for example, low cupboards and bed boxes.



Roof Loading:
All Compass Motorhomes have a specially designed roof rack system fitted or available as an optional extra. The roof of each motorhome is strengthened to accommodate the roof rack, however, the strengthened area only relates to that contained within the roof rack rails, and to step beyond this area may cause damage to the roof. The roof rack are is capable of withstanding the average persons weight e.g. 12 stone/76 kgs.

Static roof loading or top box loading should be limited to a maximum of 75 kgs, or the limit set by the top box manufacturer, which ever is the lower figure.

Roof loads should be evenly distributed and securely fastened, but care must be taken to not over-tighten straps or ropes to the point where roof rails or brackets may become distorted, particularly as during braking and cornering, forces exerted by straps or ropes are greatly increased. It is also worth noting that when carrying heavy or large objects on the roof, the vehicles handling may change due to the resultant displacement of the centre of gravity and the increased area exposed to the wind.

Calypso Roof Loading:
On the Calypso model the roof loading area extends only to the roof light, to step beyond the roof light line may damage the roof and cause personal injury.

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

1. Close and secure all cupboards and drawers and check any loose articles.
2. Close and secure all windows and roof lights.
3. Check that gas cylinders are securely fastened and turn off all gas appliances, also ensure that the gas locker door is securely fastened.
4. Switch off 240 volt supply at source, disconnect mains cable and store in an appropriate place.
5. Check that the battery is secure and that the battery box lid is fastened.
6. Remove any external fresh water connections etc.
7. Make sure any heavy articles are stored in accordance with the loading procedure. (How often has the start of a holiday been spoilt by a container emptying its contents onto the motorhome floor). Tables should also be made secure.
8. Lock the motorhome exterior door (remember to take out your keys).
9. Check your external rear view mirrors and adjust if necessary.
10. Check that all corner steadies are wound up and that, if a step is used, it is put away before moving off.

Highway Care:

Speed Limits: (UK)
Where a lower limit is not in force your motorhome may be driven at 70mph on dual carriageways and motorways.

It is advisable to reduce speed.

■ In high or crosswinds ■ Downhill ■ In poor visibility.

High Sided Vehicles:
Extra care should be taken when passing or being passed by high sided vehicles. As much space as possible should be given between vehicles to avoid air buffeting. It is also worth noting that when climbing, a 10% loss of power with a petrol engine and slightly less with a diesel engine should be expected for every 1,000 metre gain in height. A good reserve of power is therefore necessary for driving up gradients at altitude.

Courtesy and Safety:
Be considerate to other road users and remember everything takes a little longer than normal motoring.

Refrigerator:
It is recommended that 12 volt electric operation is used only when the motorhome is in motion. Note; electrical relays will only allow the refrigerator to operate on the 12V vehicle battery when the vehicle engine is running.

Changing a wheel:
1. Remove the hub cap by prising from the wheel rim.

2. Use the wheel brace to slacken off the wheel nuts on the wheel to be changed.

3. Position the scissor jack under the jacking point. See base vehicle handbook.

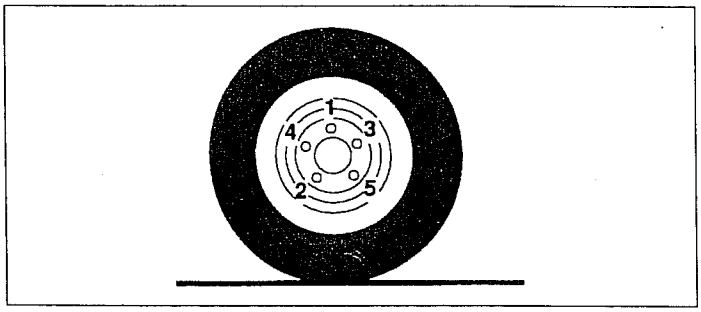
4. Apply the handbrake and chock the wheel diagonally opposite the wheel to be removed.

5. Jack up the motorhome until the wheel to be removed is just clear of the ground.

6. Remove the wheel nuts and subsequently the wheel.

7. To fit the spare wheel reverse the above procedure.

8. Tighten all five wheel nuts equally in accordance with the diagram.



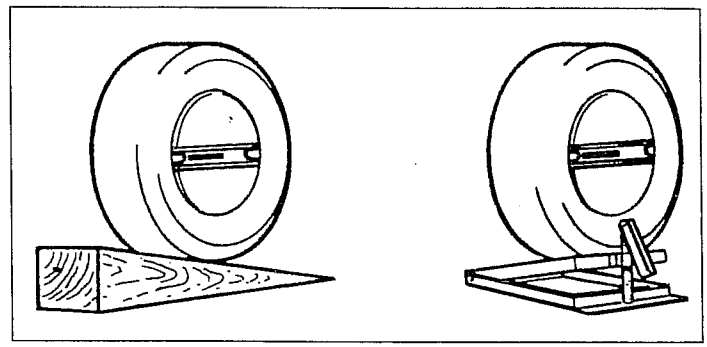
Bicycle Racks:

Following the recent trend toward the fitting of bicycle racks to the rear panel of motorhomes we should like to point out the weight distribution problems associated with such fitments.

We would advise you to carry a maximum of 75 kgs. on the bicycle rack provided this does not exceed the bicycle racks own weight limit. The motorhome must also be balanced to take into account the new weight distribution. Weight must be distributed evenly.

Siting Your Compass Motorhome:

When siting your Compass Motorhome please keep to the roadways unless otherwise directed. Obey the speed limit; It should be noted that the speed limit is generally 10 mph. Only a person in possession of a current driving licence may drive on the site. It is also worth remembering that stopping distances on grass are considerably greater than on tarmac.
Park the motorhome on the most level, suitable pitch available. If possible ensure that any slope of the ground is along the length of the vehicle and not the width. Lower the corner steadies until they lightly touch the ground a further one or two turns on each steady should then given the necessary support required. If the ground is soft use a wooden block, corner steady siting pad or similar support under each corner steady to prevent the corner steady from sinking into the ground. If the ground slopes across the width of the motorhome and it cannot be avoided, then the level should be made by running the lower wheels onto a ramp (i.e. a wooden wedge) or levelling device.



It should also be noted that it is important to level your motorhome so that the refrigerator will operate properly and efficiently.

Your Compass motorhome is fitted with an adjustable roof light. This can be angled according to wind and rain direction . Never travel with the roof light open.

Gas
Ensure all gas appliances are turned off before turning the gas on at the main cylinder. See operation of appliances (gas).

Gas tap positions
When the red tap head is in line with the gas line the tap is open and gas will be fed to the unit. If the tap is part of a row of taps and the unit feed pipe is at 90° to the tap body then the tap is deemed open when the red tap head is in line with the main tap body.

When a multiple tap or manifold tap system is fitted the tap is open and gas is supplied to the appliance when the tap head is in line with the gas pipe.

Electric's - 12V and 240V
For operation of 240 volt supply refer to motorhome equipment (electric) otherwise proceed as follows. Switch on 12 volt operating panel, selecting auxiliary battery supply or main vehicle supply, then refer to operation of appliances (electrical) for further instructions regarding individual items. With regard to the Electrolux refrigerator, it is recommended that 12 volt electric operation is used only when the vehicle is in motion.

Water
Ensure that the fresh water tank is full or has been recently topped up. If the tank is completely empty the system will require priming. See below.

Water System:

The fresh water system on your Compass motorhome is filled via an external, lockable filler cap situated on the off-side of the motorhome. It is advised that you fill the water tank with a hose manufactured from non-toxic materials so as to prevent any tainting of the water. To assist the filling and priming of the water system it is advised that the 12 volt switch on the control panel is switched off and that the cold water taps are all open. When the tank is full, close all cold water taps and switch on the 12 volt circuit. Start priming the system by slowly opening all the cold water taps until the water flows from each, then switch off the taps. It must be remembered that the Carver Cascade water heater will require two gallons (9 litres) of water to fill it, if it has been drained. To fill the water heater you must open all hot water taps until water flows from each tap, the 12 volt system must also be switched on during this process to allow the pump to function. The water system is operated via a pressure sensitive water pump. Once the tap has been turned on the water pump will have been activated, then the rate of water flow will be governed by how far the tap is turned. The water tank should be topped up after the water system has been primed. Also remember to fully turn off hot and cold water taps after use as damage may be caused to the water pump if run in a dry condition. The fresh water tank is drained via a drain cock on an extension pipe clipped to the motorhome valance. It is also recommended that a proprietary brand of sterilizing fluid is used for the cleaning of the water system prior to and after each season or at least once a year. The water system is "flushed" (cleaned) by priming and draining the system with the above mentioned sterilizing fluid. Please remember that the water system should be drained if the vehicle is not in use over the winter months. Extreme care must be taken with all water systems in winter conditions.

Water Level Indicator:
The water level indicator is provided to give an indication of the fresh water level in the onboard tank. By pressing the associated button a reading will be given. The reading can vary with the hardness of the water used and an adjustment screw is provided for the calibration of the gauge should it be required.

Waste Water Drainage:
Connected to all waste water tanks is a flexible extension pipe with a control tap. This is clipped to the motorhome valance in a place related to the waste water tank's position. When it becomes necessary to empty the tank or tanks, the pipe should be unclipped and directed towards a specified waste water point. The control tap is then opened to empty the tank's contents, the tap should always be closed after emptying the tanks.

Warning:
Ensure that waste water tanks are emptied at regular intervals, as failure to do so may cause the system to back fill and flow into the shower tray. Clean out and sterilize the tank when you are not going to use the motorhome for an extended period.

Shower Operation:
The shower is operated by a pressure sensitive water pump. The flow of water is governed by how far open the taps are. The hot and cold taps are then used as mixer taps to gain the required temperature. Always ensure that the taps are turned fully off to avoid running the pump in a dry condition as this could seriously damage the pump.

Tap Unit Operation
The operation of a tap unit is exactly the same as that outlined in the shower unit operating instructions. Also always ensure that the taps are turned off COMPLETELY when not in use.

Tap units fitted to some motorhomes operate as follows;
One tap head serves as a switch which allows the water pump to operate whilst the other tap head is a hot/cold mixer.

Water tank capacities are shown in the motorhome specification sheet towards the rear of this handbook.

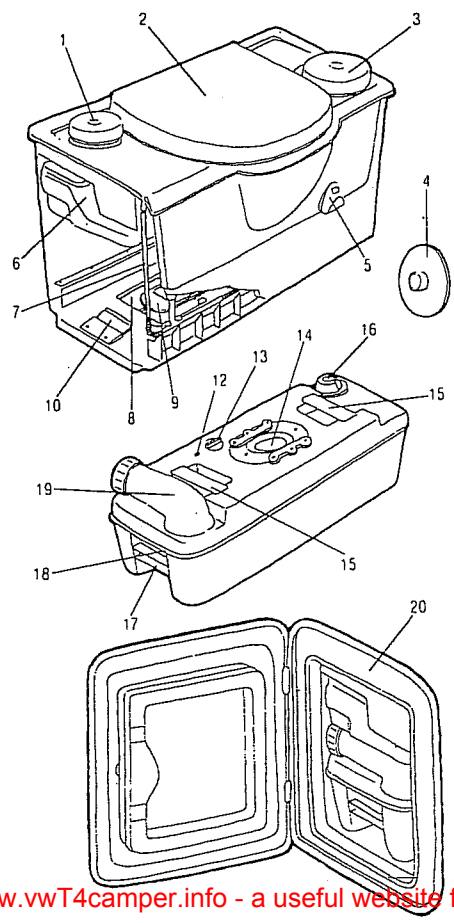
THETFORD CASSETTE TOILET OPERATING INSTRUCTIONS

Cassette Toilet Operating Instructions

Features (Fig 1.)

1. Flush and valve blade opener knob - opens and closes valve blade. Also adds water to bowl by means of an electric pump.
2. Removable seat and cover.
3. Toilet tissue storage compartment - keeps tissue clean and dry.
4. Toilet tissue wall mount bracket.
5. Waste level indicator - indicates when Cassette is full.
6. Water fill funnel-swings out for ease of filling fresh water tank.
7. Drain tube assembly also level indicator for the fresh water tank.
8. Toilet fluid storage compartment.
9. Drip tray - collects drops from bowl when holding tank is out.
10. Cassette retainer clip - holds holding tank in locked position.
11. Cassette safety sensor switch, cuts flush off when Cassette is out (not shown, see exploded view).
12. Automatic holding tank vent - vents Cassette before valve blade is opened.
13. Valve bleed opener.
14. Cassette valve blade.
15. Upper carrying handles - makes carrying and emptying easy.
16. Air release valve - ensures smooth emptying without splashing.
17. Lower carrying handles.
18. Hand grip.
19. Rotating pour out spout - makes emptying the cassette easy and convenient.

Fig 1



Introduction.

The new Thetford Cassette Toilet design is functional and incorporates modern sculpted styling with home-like features, making it aesthetically compatible with a motorhome bathroom decor. The unit is an integral part of the motorhome bathroom.

The Cassette Toilet is constructed of high quality plastics for durability and has a high gloss finish that is easy to clean and maintain. The unit consists of two sections, a permanently installed toilet system and a slide-out waste holding tank - the CASSETTE.

The toilet section includes a seat and cover, flush and valve blade opener knob, toilet tissue compartment and holder, waste level indicator, built-in fluid storage compartment, a drip tray, a fresh water tank, a drain tub assembly also level indicator for the fresh water tank.

The unique Cassette section is located underneath the toilet and is removed for emptying from outside the motorhome through an access door. A rotating pour-out spout, automatic holding tank vent, air release valve, valve blade, carrying handles and hand grips are incorporated into the Cassette.

Other features include a safety sensor switch that guards against adding water to the bowl without the Cassette in proper position.

Preparing for use. (Fig 2.)

1. Open access door on the side of the motorhome and swing out the fresh water fill funnel.
2. Fill fresh water tank using a hose or jerrycan until water funnel level reaches neck. Tank capacity is 15 litres. During use the drain tube works as a level indicator for the fresh water tank. Aqua Rinse may be added to improve cleaning of bowl and flushing of unit.
3. Replace cap. Swing water fill funnel inward until it touches side of water tank.
   NOTE: 150ml of water will remain in fill bottle when fresh water tank is empty.
4. Next add Aqua Kem to Cassette for controlling odours as follows.
5. Depress retaining clip.
   Remove Cassette by pulling straight out. When Cassette hits stop, tilt downward slightly and remove (Stop for safety when Cassette is full).
6. Position tank vertical and swivel pour out spout upwards.
7. Remove cap. Remove deodorant from storage compartment. Add 100ml of Aqua Kem or 120ml of Aqua Kem Bio through pour out spout. Add small amount of water through spout to cover tank bottom. Replace cap and pour out spout to its original stored position. Note: As an alternative, deodorant can be added to the Cassette through the valve blade opening. Hotter weather or longer retention time may require addition of more Aqua Kem.
8. Slide the Cassette, pour out spout facing outside, into the Caravan through the access door. Never force insertion or removal of the Cassette tank as damage to the system can occur.
9. Make sure the Cassette is secured by the retaining clip. Close and lock access door.

THETFORD CASSETTE TOILET OPERATING INSTRUCTIONS CONTINUED

peration

LUSHING

0. Before using the toilet we advise adding some water to the bowl by pressing down the flush knob. this avoids marking the bowl. The water will stop flowing when the knob is released.
1. To flush after use press the flush knob down while turning in anti-clockwise direction. The turning motion opens the valve blade, emptying the toilet bowl. This procedure results in the best bowl rinse and most efficient use of water. After flushing, turn the knob in a clockwise direction to close the valve blade. The toilet can also be used with the valve blade open, which allows the waste to go directly into the holding tank.

OILET TISSUE

2. Toilet tissue is stored in the specially designed storage compartment that helps keep the tissue clean and dry. Tissue can also be suspended on a tissue holder using the special wall mount bracket, if required.
3. To replace tissue, remove tissue from compartment by pulling up on tissue cover. Hold bottom of tissue holder in one hand and cover in the other, and turn in opposite directions until you hear a click. Then pull apart. Place tissue on holder, insert prongs of cover into holder. Hold cover and holder and twist in opposite directions until locked. Aqua soft toilet tissue is recommended for best results.

Emptying the Cassette

The Cassette capacity is 20 litres and should be emptied when the waste level gauge indicator goes from green to full red. The gauge does not begin to move from green to red until the tank is over half full.

CAUTION: Do not allow Cassette to become overfilled.
To empty Cassette be sure that the valve blade is in the closed position.

14. Open the access door on side of motorhome.
    Depress retainer clip pull Cassette until it stops, tilt and remove Cassette
15. Carry the Cassette using the lower carrying handle, pour out spout up, to a normal household type toilet or other authorized disposal point. Set Cassette in vertical position on the ground and rotate pour out spout upwards.
16. Remove spout cap. Grasp unit by upper carrying handle nearest to pour out spout.
    Place other hand on upper rear hand grip to that the air relief valve button can be depressed with thumb while emptying, to ensure smooth outflow of tank contents.
    When empty, rinse tank and valve blade area with water.

NOTE: Depress air release valve button only when pour out spout is pointed downwards.

17. After preparing for use, slide the Cassette back into the motorhome. Check to make sure that theretaining clip secures the tank in a locked position. The pour out spout end of the tank should be visible through the access door opening. Add water to the fresh water tank as outlined in the "preparation for use" section then close and lock access door.

Cleaning and Maintenance

No routine maintenance is required on the Thetford Cassette Toilet. The use of Aqua Rinse helps clean and protect the toilet bowl, valve blade and seal during flushing. Do not use strong household detergents or cleaners with chlorine, solvent or acid contents, as they will damage valve seals.

Empty Cassette and rinse tank with clear water. Use a mild soap to clean toilet bowl, seat and cover, as well as exterior of toilet unit and Cassette. Replace tank inside motorhome.

NOTE: Pour out spout and vent plug can be removed. Seals should be greased if necessary with acid free vaseline.

Winterizing/storage.

The Thetford Cassette Toilet is easily winterized for storage or cold weather use.

18. Empty the fresh water tank using the drain tube/fresh water tank level indicator. Pull level indicator/drain tube down from top plug position outward through door opening to drain water from tank.
19. Empty the water fill funnel by pulling the bottle away from the tank. Remove small water cap at fill bottom, allowing water to drain from water funnel.

NOTE: do not tighten caps, this helps in keeping unit dry.

COLD WEATHER USE.
To prevent freezing during cold weather use, add anti freeze to the fresh water tank. Use a non-toxic (propylenglycol) type of anti-freeze. Refer to chart on container to obtain level of protection.

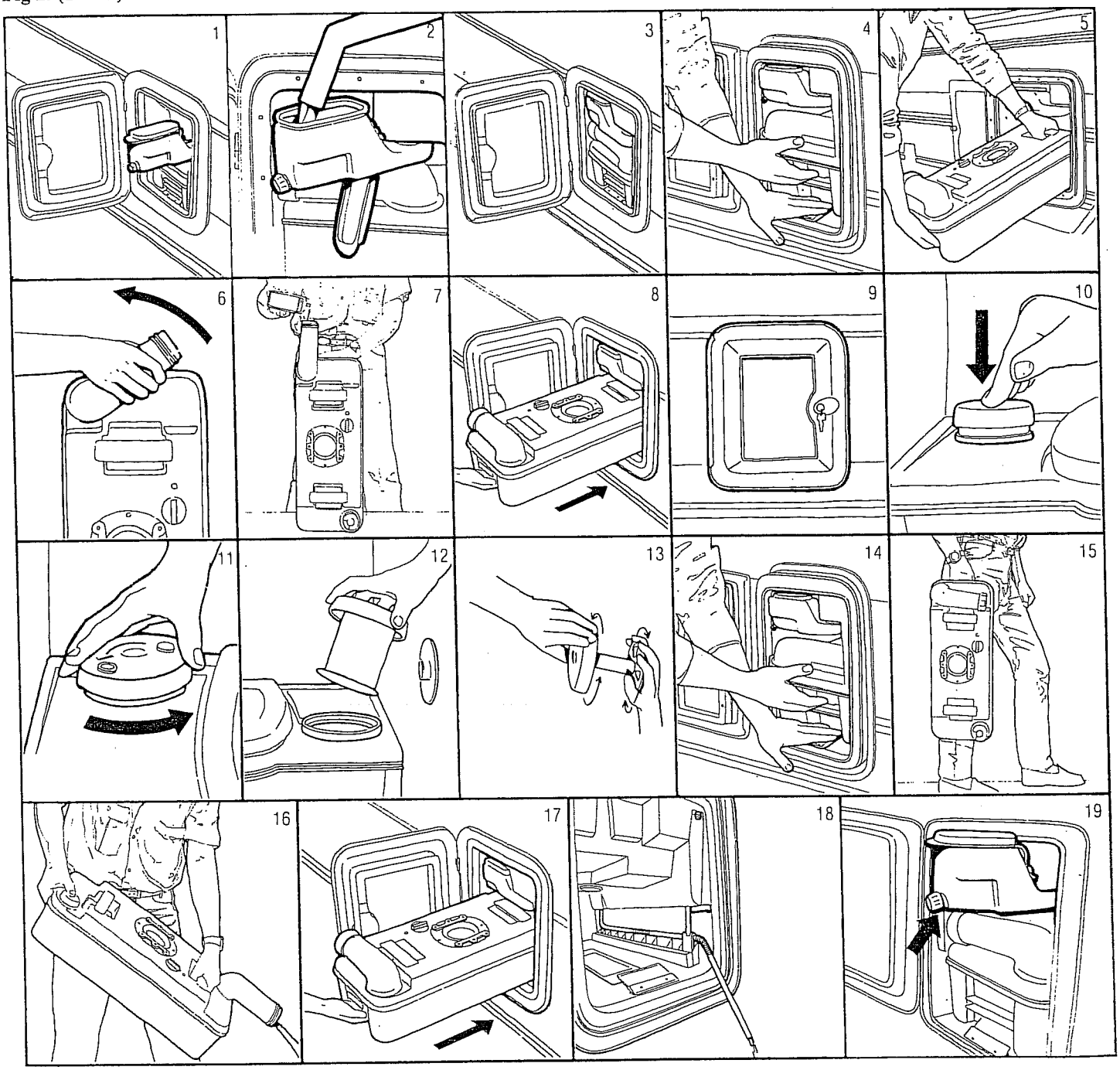
HIGH ALTITUDE AND HOT WEATHER USE.
With large temperature difference and changing heights during driving, overpressure can build up in the holding tank. To depressurize your tank continuously, we recommend to keep the flush knob about 10 degrees in the direction of the arrow.

It is advisable to empty the Cassette before driving your motorhome.

This product is supplied by:
THETFORD (AQUA) PRODUCTS LTD., Centrovell Estate, Caldwell Road, Nuneaton, Warwicks CV11 4UD.

THETFORD CASSETTE TOILET

Fig 2. (1 – 19)



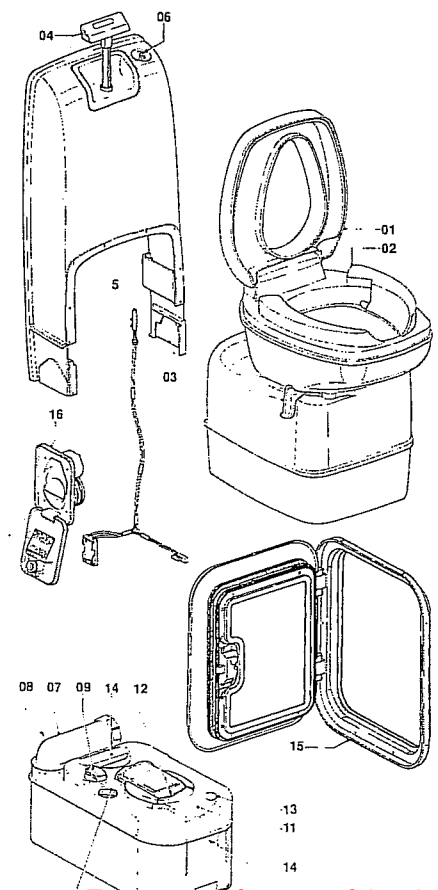
THETFORD CASSETTE TOILET OPERATING INSTRUCTIONS (C – 200 CW)

Cassette Toilet Operating Instructions (C - 200 CW)

Features (Fig 1.)

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
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.

Fig 1



Introduction.

The unit is an integral part of the motorhome bathroom and consists of two sections, a permanently installed toilet system and a slide out waste holding tank.

The toilet section of the C - 200 CW includes a rotatable bowl, removable seat and cover, a console with a flush handle, a built in flush-watertank and a waste level warning indicator. Underneath the bowl, the valve blade handle is located.

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 you optimal hygiene.

The model identification can be found on the identification label (see exploded view).

Preparing for use. (Fig 2.)

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 the 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 50ml of Aqua Rinse. Aqua Rinse results in a better flush and improves the hygiene of the toilet. Then fill the water tank with fresh water using a jerrycan or a hose. Tank capacity is 7 litres (fig. 7).

THETFORD CASSETTE TOILET OPERATING INSTRUCTIONS CONTINUED

Operation

8. Turn the bowl into the most comfortable position (fig. 8).

9. Before using the toilet it is recommended to flush some water into the bowl by lifting and pressing down the flush handle (fig. 9).

10. After use open the blade by turning the blade-handle anti clockwise (fig. 10).

11. To flush, lift the flush handle and press it down (fig. 11). After flushing close the blade by turning the blade handle clockwise.

    The toilet may also be used with the valve blade open, which allows the waste to pass directly into the holding tank.

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 then 15 litres of waste.

Caution:
Do not allow the holding tank to become overfilled. See trouble shooting section for emergency emptying procedure.

12. Open the 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 authorized 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 anti-clockwise. 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° anti-clockwise 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 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.

Winterizing/Storage
The Thetford Cassette C - 200 CW is easily winterized for storage.

Place appropriate size container under the drainplug. Empty the fresh water tank by taking out the drainplug (fig. 15). When the tank is empty lift and press down the flush handle a few times to empty the pump. Empty the holding tank and clean the unit as described above. Clean the seals and grease them after drying (see CLEANING and MAINTENANCE).

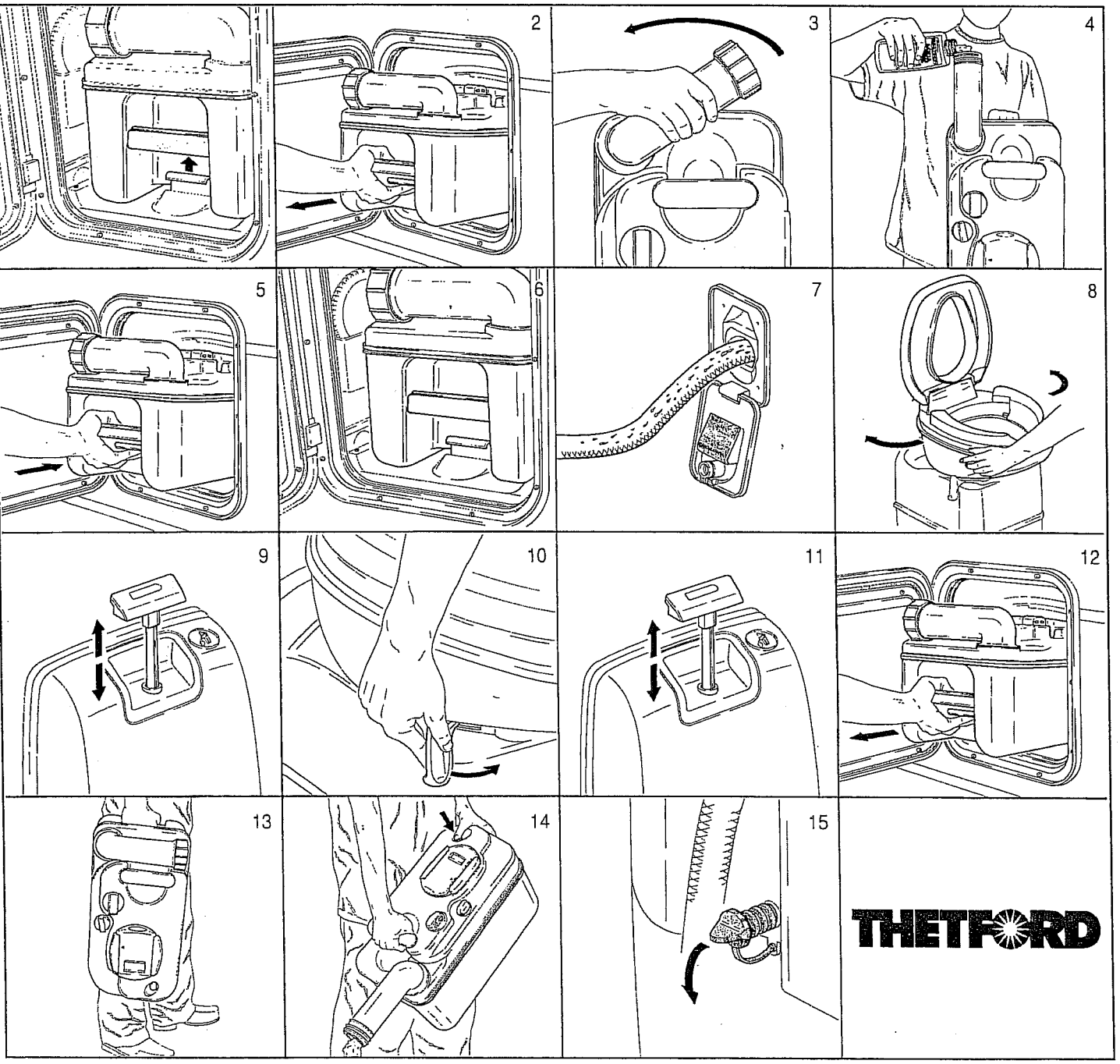
Leave the blade of the holding tank open. Do not replace cap on the pour out spout, to ventilate the holding tank. (Also grease the seal of the pour out spout cap)>

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 CASSETTE TOILET (C - 200 CW)

Fig 2. (1 – 19)



SHUR FLO

PRESSURE SENSITIVE WATER PUMP

WINTERIZING YOUR MOTORHOME WATER SYSTEM

Satisfactory winterizing requires draining the water from the entire water system. Because of the check valve mechanism built into the pump blowing the lines will not remove the water from the pump and tank. For the best results in removing all the water from your water system, follow the four steps below.

1. Drain the water tank through the drain on the tank.

2. Now drain the lines by opening the lowest outlet or drain in the system.

3. Remove the outlet hose on the pump. Turn the pump on, allowing the pump to pump out any remaining water . . about a cupful. A towel or rag can be used to catch the water. Should you wish to blow the lines out with air, apply the airline to the system where the outlet hose has been removed. Be sure all valves are open.

4. Having removed the water from the system, attach the pump hose now . . . or later. The system is now winterized.

Please see water heater instructions for winterisation of water heater.

CHECK OUT PROCEDURE

Examine the installation. Is it complete . . . Are the clamps tight . . . Are there any kinks in the hose . . . Is the fuse good . . . etc?

Use a fully charged battery or 12 volt DC converter of at least 10 amp capacity.

INITIAL OPERATION

1. Fill the tank with water

2. Open all taps . . . Hot and Cold

3. Switch pump to "On" position. Allow time for the hot water tank to fill. Shut off each tap as flow becomes steady and free of air. Shutting off the last tap should cause the pump to shut off.

To check for leaks we recommend a positive pressure check with a pressure gauge. A drop in pressure with all taps off will indicate a leak in the system. Correct all leaks no matter how small.

TROUBLE SHOOTING

Any or all of the following problems can be caused by loose pump head screws.

Motor does not operate

Is the battery charge too low? Are the wires disconnected? Is the switch in the "on" position? Is the fuse good? Is the pump head frozen? If so, place a lamp bulb near the pump to thaw.

Pump runs but water does not appear

Is there water in the tank? Are there kinks in the hose? Is air leaking into the inlet hose or fittings? Is the inlet line clogged? To check, remove the outlet hose and try again. If water flows the problem is further on in the system.

Motor runs but water sputters

Indicates air getting into the lines. Check hose and clamps on the input side of the pump. Restart and allow air to clear from the lines and hot water tank.

Pump cycles (rapid on/off)

Cycling of the pump is normal if the flow of water is restricted to less than the flow capacity of the pump. For example, a tap partially opened. Under these conditions the pump will cycle on and off in a rhythmic interval.

Abnormal Cycling

If the pump cycles on and off when all taps are closed, something is wrong. Most likely there is a leak somewhere. Check taps for dripping. Correct any leak no matter how small.

If no leak can be detected, shut off the pump. Remove the output line. Insert a cap or plug in the open end. You can make a plug from a barb fitting with a cap tightly screwed on the threads.

If a threaded fitting, use a cap or plug. Either way there must be **no** leak. Turn the pump switch on. The pump should come on, run for a few seconds and shut off. If the pump remains off the problem is **not** the pump. The problem is in the system. If however, the pump goes on and off there may be a problem in the pump. There may be an internal pump leak which allows water to escape from the high pressure area back into the low pressure inlet area causing the pump to cycle. This may be caused by a valve held open by a foreign particle or by a crack in the casting.

Pump does not shut off

The wall switch may be used for temporary control of the pump. A low battery may be the cause. Voltage should be 10.25 volts or more to the pump. Low voltage may provide energy enough for the motor to run but not enough for it to reach shut off pressure. Also the switch mechanism may be stuck. Try tapping the switch cap on the end of the pump with the handle of a screwdriver.

Should you be unable to isolate the problem, contact Shurflo for professional help. Or your nearest Compass dealer.

OPERATION OF MOTORHOME EQUIPMENT (GAS)

.P.G. is short for Liquified Petroleum Gas, the two gases in ommon use being Butane and Propane. Calor, Shell and amping Gaz are proprietary names and can apply to either gas.

n all cases the cylinder contents are in liquid form under ressure from the gas above it, and the pressure is only ependent on the type of L.P.G. and its temperature.

Vhen gas is supplied the pressure in the cylinder is slightly educed and the liquid "boils off" to restore the balance. This ction cools the liquid and the cylinder, and condensation or ven frost may sometimes be observed on the outside of the ylinder. The cylinder when in use is always cooler that the rrounding air, so allow plenty of circulation in cool weather nd do not cover the cylinder with a "cosy".

utane

utane is supplied in the U.K. in green or blue cylinders. These ave a male left hand threaded connection except for Camping az which has a special female right hand thread. The Calor 7kg nd 15kg cylinders have a special clip-on connection. Most ontinental cylinders have a male left hand thread similar to, but ot identical with, U.K. butane. Carver Duomatic butane egulators will satisfactorily fit directly onto continental male readed cylinders. Other U.K. regulators will screw on but may ot seal properly and should only be used on U.K. cylinders.

utane ceases to gas off effectively at about 1°C (34°F) and as rawing off the gas cools the contents, it is unsuitable for iotorhome use at temperatures under 2°C (35°F).

ropane

ropane is supplied in red, or partly red, cylinders which have a emale left hand thread connector. This same connection is used n Scandinavian countries, but in Germany or Austria propane is upplied in cylinders with a male connector.

ropane continues to "gas off" down to - 40°C (-40°F) and is nerefore suitable for all winter motorcaravanning.

The Regulator

The regulator is a governing device which reduces the internal ottle pressure to one that will suit the equipment in the van. This pressure is usually expressed in millibars (mbar). The usual ressures in the U.K. are 28 mbar (11 inches water gauge) for utane and 37 mbar (14 inches water gauge) for propane.

Warning

ome industrial L.P.G. appliances operate at high pressure and equire a "high pressure" regulator. This often has an adjusting andle on it.

UNDER NO CIRCUMSTANCES SHOULD SUCH A REGULATOR BE USED ON MOTORHOME APPLIANCES.

If you smell gas

TURN OFF THE GAS SUPPLY AT THE CYLINDER AND SEEK SERVICE ATTENTION.

L.P.G. Installation (Gas)

GENERAL SAFETY PRECAUTIONS.

Heating and all other gas supplied equipment, are to be completely extinguished before the motorhome is moved and are not to be used when the motorhome is in motion. Portable gas heaters should not be used in a motorhome. It is recommended that the 12v electric operation (not the gas) is used for the refrigerator when the motorhome is in motion.

Fire extinguishers (if fitted)

It is strongly recommended that at least 4.5 litres or 1 gallon minimum capacity water type , or a 1kg or 2lb minimum capacity powder fire extinguisher be carried inside your motorhome in an easily accessible position, which conforms to BS 5423.

Extinguishers containing vapourising liquids should not be used by a person inside the motorhome or from outside whilst other persons are in the motorhome. Dry powder extinguishers will deal with fat or electrical fires. Water type extinguishers should not be used for this type of fire.

In case of fire:

1. Get everyone out of the motorhome.
2. Turn off the gas container valve.
3. Raise the alarm - call the fire brigade
4. Attack the fire.

Your fire extinguisher should comply with B.S. 5423 and we recommend that a fire blanket is kept close to the cooker.

Fire Precautions

* Children should not be left alone in a motorhome or any other dwelling.
* Means of escape - make sure you know the location and operation of the escape windows and hatches. Keep escape routes clear.
* Combustible materials should be kept clear of all heating and cooking appliances.
* Make yourself familiar with the fire precaution arrangements on the site.

Note: Gas regulator(s), L.P.G. cylinder(s) and fire extinguishers are not supplied by the motorhome manufacturer. Hire or purchase of this equipment is usually arranged through your dealer.

GAS SUPPLY CONTINUED

Gas Equipment
The L.P.G. installation in your Compass motorhome is connected via 8mm diameter copper pipe system to up to five principal items of equipment: 1. a hob unit; 2. a grill and possibly an oven; 3. a space heater; 4. an Electrolux refrigerator; and 5. a Carver Cascade water heater.

It is important that you read all the instructions and operational details contained within this book which appertain to the aforementioned gas appliances that are fitted as standard or optional equipment in your motorhome. It is also important to read and retain for reference any additional literature that may be supplied in conjunction with this handbook which also may be relevant to the above mentioned equipment.

General Hints on Gas Installation
(a) Gas line connection and compression fittings should be occasionally checked for tightness, (preferably by your Compass dealer).

(b) Gas Pressure Regulator. A gas pressure regulator must be fitted to the outlet of the gas cylinder(s) to provide the appropriate working pressure. Your gas supplier should be in a position to advise as to the correct type of regulator. 11inch (28cm) WG for butane, 14inch (37cm) WG for propane.

Safety Hints on Gas Installation
(a) Avoid naked lights and do not smoke when changing a gas cylinder.

(b) Regularly check the condition of the flexible hose connecting the gas supply from the regulator to the motorhome connection. Check the expiry date on the hose also.

(c) Never look for a leak with a match, always use a soap solution or equivalent when checking connections. If a leak is evident
"GET A PROFESSIONAL TO HAVE A LOOK AT IT."

(d) L.P.G. is heavier than air therefore in the event of a leak, it will concentrate at floor level.

(e) If keeping cylinders outside protect against frost if possible.

Awning Spaces–L.P.G. Appliance Exhaust
Tests carried out by the National Caravan Council's Technical Committee have established that pollution from refrigerators is negligible when venting into awning spaces. There is very little danger of pollution from appliances of higher capacity providing motorhome owners are aware of the basic facts and use the appliances sensibly. Some appliances may produce sufficient exhaust to pollute awning spaces, so from a general comfort and hygiene point of view, if the awnings are totally shut up , you are recommended to allow some fresh air circulation in the awning space when such appliances are in use.

GENERAL SAFETY PRECAUTIONS

L.P.G. Installation (Gas)
REFER TO OPERATION OF GAS EQUIPMENT.

Ventilation
All ventilation complies with BS 4626, 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 for corrosion. Flues should be replaced if any sign of perforation is found. Ensure that the replacement is of an approved type.

Fitting of Additional Equipment
Your authorised Compass dealer must always be consulted first before any additional equipment is fitted to your motorhome, especially if the additional equipment being fitted relates in some way to the structure of your Compass motorhome.

NEVER ALLOW MODIFICATIONS OF ELECTRICAL OR L.P.G. SYSTEMS AND APPLIANCES EXCEPT BY QUALIFIED TRADESMEN.

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.

The safe use of LPG in caravans and non-permanent dwellings

A.1 General. Propane and butane are stored in cylinders as liquids under pressure. When the pressure is released, i.e. when the cylinder valve is opened, the liquid boils and gas is evolved. Both gases are heavier than air and any leaking gas will tend to collect at a low level. The gas has a strong and unpleasant smell which enables leaks to be easily detected. The gas is highly flammable and a small quantity of gas in air can form an explosive mixture. Cylinders shall be used and stored always in a **vertical position** with the valve uppermost.

A.2 Safe usage. To avoid accidents the following fundamental advice should be carefully read before using gas appliances or changing gas cylinders.

a. Always read and follow the user and maintenance instructions provided by the manufacturers of gas equipment. Should any soot accumulate on pans, fire radiants, etc. or any smell be produced, consult a competent installer on the correct maintenance and adjustment of burners.

b. **Never check for gas leaks with a naked flame.**

c. Always turn off the gas cylinder valve(s) or inlet to the Motorhome or other dwelling when gas appliances are not in use.

d. Never use gas appliances without adequate ventilation. All gas appliances require a plentiful supply of fresh air for correct operation. Fixed ventilators or air inlets should not be stopped up. Where practicable, turn off all appliances before retiring to bed, preferably at the cylinder or inlet to the caravan or other dwelling.

e. Unless the appliance incorporates automatic ignition, when lighting an appliance always make sure you apply a lighted match or taper to the burner before turning on the gas.

f. If any appliance is disconnected for repair, maintenance, etc. ensure that the gas line is capped off.

g. If taps are stiff to operate or appear to be a source of leakage, call in a competent installer to rectify. LPG taps require a special grease.

h. Always seek advice when in doubt.

A.3 Routine checking. It is essential to check the installation as follows.

a. Flexible hoses and tubing should be regularly inspected and replaced when signs of cracking or other deterioration appears. After replacement ensure that the ends are well secured and leak tight.

b. Check the complete gas installation on a Motorhome for soundness at least once per annum and as necessary according to usage.

A.4 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 plastics 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 the manufacturer's instructions.

g. In the case of a connection on a pressure regulator or gas appliance 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.

A.5 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 premises. 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.

A.6 Fire. Precautions and action 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 is likely that the leakage can be stopped by closing the cylinder valve or that the cylinder can be speedily removed.

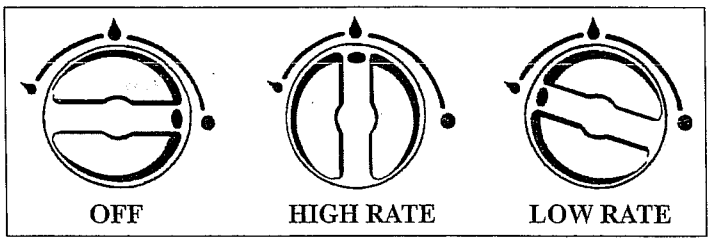
c. Cool with water all gas cylinders which cannot be removed.

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.

HOB UNIT (SPINFLO LTD)
USERS INSTRUCTIONS

OPERATION

a) Burners – Each burner is controlled individually and may be monitored by a flame failure sensing device. The respective knob positions are shown in Fig. 1 as follows:-



To light the burner, depress and turn the knob anti-clockwise to the full rate position, apply a light to the burner or press the ignition button if fitted. On models with the flame sensing device it is necessary to hold the knob depressed during ignition and for approximately fifteen seconds after the burner has lit to allow the probe to reach temperature. Should the flame go out when the knob is released, the procedure should be repeated holding the knob depressed for slightly longer.

If required the knob can be turned further anti-clockwise to the simmer position.

To turn the burner off, rotate knob fully clockwise until the dot on the knob lines up with the dot on the facia.

The burners on this appliance have fixed aeration and no adjustment is required.

Depending on the gas being used, the burners should flame as follows:-

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

Butane – Normally on the initial lighting, a small amount of yellow tipping will occur and then slightly increase as the burner heats up.

Although each burner will support pans from 10 to 22cm, care should be taken not to overload the appliance as reduced performance may result.

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

(b) Grill – Although the grill does heat up quickly, it is recommended that a few minutes preheat be allowed. The grill pan should be left in position to protect the base lining.

Burner – It is normal for the flames on this burner to develop yellow tips as it heats up, particularly on Butane.

The grill pan trivet can be reversed to give a choice of grilling height.

If the grill compartment has a door, it must be left open while the grill is in use.

SAFETY

It is important that ordinary safety precautions be observed in the use of this appliance.

1) When cooking, keep children away from the vicinity. Turn pan handles inwards so they cannot be caught accidentally.
2) Never leave fat or oil unattended on the hotplate.
3) When finished, check that all controls are left in the off position.
4) This appliance must not in any circumstances be used as a space heater.
5) If fitted in a touring caravan or motor van, all burners should be extinguished when the vehicle in which the appliance is installed is moving. It is preferred that the cylinder valve to the appliance be turned off.

LEAKS

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

Extinguish naked lights including cigarettes and pipes. Do not operate electrical switches. Open all doors and windows to disperse any gas escape.

Butane/Propane gas is heavier than air; any escaping gas will therefore collect at a low level. The strong unpleasant smell of gas will enable the general area of the leak to be detected. Check that the gas is not escaping from the appliance.

Never check for leaks with a naked flame, leak investigation should be carried out using a leak detector spray or soapy solution.

MAINTENANCE

This appliance needs little maintenance other than cleaning. All parts should be cleaned using warm soapy water.

Do not use abrasive cleaners, steel wool or cleansing powders. When cleaning the burner ring it is essential to ensure that the holes do not become blocked.

The control knobs are a push fit and can be removed for cleaning. They are interchangeable without affecting the sense of operation.

On units fitted with battery spark ignition, when the time taken for spark generation becomes extended, the battery should be renewed with a suitable make of long life battery.

SPARK IGNITION

The spark system (if fitted) may be either from battery or 12v DC supply. Batteries are integral, 1.5 type MN 9100, and located below the operating button.

Where 12v supply is required, a suitable connection from the vehicle supply should be made to the appropriate terminals. It is recommended that an in-line fuse 100mA be fitted to the supply.

SPINFLO CARA GLASS FRONTED OVEN
USERS INSTRUCTIONS

ntroduction

he Spinflo built-in oven has been designed and tested to meet ie specified cooking requirement. This guide has been prepared o assist users to use and maintain the unit which should give iany years of satisfactory service.

mportant

his appliance is suitable for use on liquid petroleum gas (LPG) nly and should not be used on any other gas. The following gas ressures should be used:-

PROPANE	37mbar
BUTANE	28mbar

IGHT THE OVEN (Initial lighting)

Remove all accessories and packing materials that may be in the ven. Wipe off any marks with a damp cloth.

With the control tap depressed and turned to maximum apply a ighted taper or match to the burner. Hold the tap depressed for pproximately 20 seconds after the burner has lit. If the burner oes out repeat the procedure holding the tap depressed for lightly longer.

This appliance is fitted with a flame failure device (FFD) so if or any reason the flame goes out, the gas supply to the oven urner will be shut off.

For models fitted with spark ignition the procedure is similar except that the burner can be ignited by depressing the ignition utton located on the fascia. It should be noted that burner gnition can only be carried out with the door fully open.

USING THE OVEN

1 Ensure gas cylinder is connected and turned on. In the event of a gas smell turn off at cylinder and contact supplier.

2 Remove all accessories and packing that may be in the oven and clean the interior before using it for the first time. Use soap and water and rinse carefully.

3 To light: Open door, push in the control knob and turn to gas mark 9. Hold a lighted match or taper to the burner and push the control knob in and hold. The burner should ignite and the control knob should be held in for 10-15 seconds before release.

For models fitted with spark ignition the procedure is similar except that the burner can be ignited by depressing the ignition button located on the fascia. It should be noted that burner ignition can only be carried out with the door fully open.

4 If the burner goes out, repeat procedure holding control knob in for slightly longer.

5 Place the oven shelves in the required positions and close the door. Set control knob to approximately gas mark 5 and heat the oven for about 20 minutes to eliminate any residual factory lubricants that might impart unpleasant smells to the meals being cooked.

6 To turn off: turn the control knob until the dot on the control knob is aligned with the dot on the control panel.

7 Flame Failure Device (FFD): The oven burner is fitted with a flame sensing probe which will automatically cut off the gas supply in the event of the flame going out.

8 Oven shelves: the oven shelves have been designed to allow good circulation at the rear of the oven and are also fitted with a raised bar to prevent dishes or trays making contact with the back of the oven. To remove shelf, pull forward until it stops, raise at front and remove.

Do's and don'ts

DO	read the user instructions carefully before using the oven for the first time.
DO	allow the oven to heat before using for the first time, in order to expel any smells before the introduction of food.
DO	clean the oven regularly.
DO	remove spills as soon as they occur.
DO	always use oven gloves when removing food shelves and trays from the oven.
DO NOT	allow children near the cooker when in use.
DO NOT	allow fats or oils to build up in the oven trays or base.
DO NOT	use abrasive cleaners or powders that will scratch the internal surface of the oven.
DO NOT	under any circumstances use the oven as a space heater.

SPINFLO CARA GLASS FRONTED OVEN
USERS INSTRUCTIONS (CONTINUED)

Temperature control

The temperature in the oven is controlled by a thermostatic gas tap and is variable over the range 100°C to 250°C. Approximate temperatures for the settings on the control knob are shown in the table below. The temperatures indicated refer to the centre of the oven, and at any particular setting the oven will be hotter at the top and cooler towards the base. The variation between top to centre, and centre to bottom is approximately equivalent to one Gas Mark.

Good use can be made of the temperature variation in that several dishes requiring different temperatures may be cooked at the same time. In this way maximum benefit can be obtained from the gas used to heat the oven. Care should be taken not to overload the oven, adequate spacing being used to allow free circulation for heat.

GAS MARK	APPROX. TEMP. F.	C.		
1/4 - 1/2	265-275	130-135	very cool	meringues
1	285	140	cool	stewed fruit
2	300	150	cool	rich fruit cake
3	330	165	warm	baked custards
4	355	180	moderate	Victoria sandwich
5	385	195	fairly hot	whisked sponges
6	410	210	hot	shortcrust pastry
7	430	220	hot	bread, scones
8	445	230	very hot	puff pastry
9	465	240	very hot	quick browning

Cooking guide

The baking tray and roasting tin provided are the largest that should be used in this size oven. Larger items may well affect the circulation and heat distribution. Best results will be obtained by following the shelf positions in this guide.

It is not necessary to preheat the oven, but advisable for a range of dishes. The oven is capable of full temperature in approximately 15 to 20 minutes.

Most cookery books give detail of the shelf positions and gas mark settings for each recipe. If in doubt about a recipe you intend to use, study the recipe carefully, then find a similar dish in our guide and use our shelf position and gas mark setting recommendation. Shelf positions are from the top down.

When roasting with aluminium foil care must be taken that the foil does not impair circulation or block the oven flue outlet.

Dish	Gas Mark	Shelf Position	Cooking Time
Scones	7	2	8-15 mins.
Small Cakes	5	2	15-25 mins
Victoria Sandwich	4	2	20-30 mins.
Very rich fruit cake	2	2	approx. 1 hour per 500g/1lb
Puff	8	2	15-30 mins.
Flaky	7	2	15-30 mins.
Shortcrust	6	2	15-55 mins.
Shortbread Fingers	3	2	25-30 mins.
Ginger Nuts	5	2	12-16 mins.
Rice Pudding	2	3	1 3/4 2 hours
Baked Custard	3	3	50 mins. - 1 hour
Fruit Crumble	5	3	30-40 mins.
Beef	3	3	25 mins./500g plus 25 mins.
	7	3	15 mins./500g plus 20 mins.
Pork	3	3	30 mins./500g plus 35 mins.
	7	3	25 mins./500g plus 25 mins.

CARVER 1800 SC AND 1800SC AUTO MOTORHOME HEATER USER INSTRUCTIONS

General Description

Carver motorhome heaters are completely room-sealed units based on a well proven and extremely efficient heat exchanger consisting of a pair of internally and externally finned aluminium die castings.

The gas burner is situated at the bottom of a vertical passage which permits complete combustion of the gas before meeting the exchanger surfaces. The combustion products travel along the top horizontal section and then downwards through further galleries while transferring their heat to the motorhome. They are kept moving by the thermal drive of the rising column of hot gases from the flame.

The flue outlet of the heater is at the bottom of the heat exchanger thus ensuring that the majority of the heat is extracted from the combustion products before they leave the heat exchanger. The combustion path is completely sealed from the living space, all of the products of combustion being discharged through the underfloor flue.

Control and adjustment of the heater is by the gas control knob mounted on the top of the heater. Incorporated in the gas control is a flame failure device, so that if for any reason the burner flame is extinguished, the heater will automatically go to fail-safe shutdown.

1800SC Ignition is by piezo spark operated by pressing the control knob downwards. The piezo igniter is mounted integrally in a housing on the control rod, 1800SC AUTO is a ignition/re-ignition unit which activates as soon as the knob is turned to the "⎍" position and remains active at all other knob positions until turned off. The ignition unit is powered by the 12v D.C. supply, or 9v D.C. battery.

Please read these cautions before using the heater

This heater has an underfloor flue and requires unrestricted air entry beneath the motorhome or vehicle into which it is fitted. A minimum of three sides of the vehicle must be open at all times. This is to allow for the products of combustion to be dispersed from the heater. If there is a possibility of the sides becoming blocked by snow etc. then the heater must not be used.

The heater MUST NOT be operated while refuelling or when the vehicle is in a confined space such as a garage.

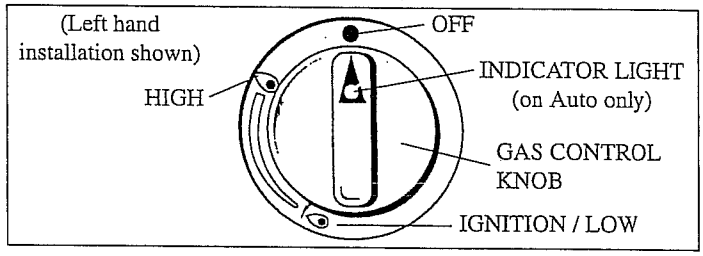
Always wait 3 minutes before attempting to relight the heater after switching off or the heater going to fail safe shut down.
Do not obstruct the gap at the bottom of the heater or the outlet grille slots.

Heaters (as with all other gas appliances) MUST be switched off and the gas cylinders turned off when the caravan is in motion.

Aerosols and highly inflammable materials MUST NOT be stored in compartments behind, or adjacent to the heater.

When the heater is first used it is recommended that you open a window or door and turn the temperature setting to maximum for one hour. This will allow odours to escape.
Note:- if the odours persist contact your local dealer.

To Light and adjust the heater



1. Before Lighting the heater

1.1 Ensure that the gas is turned on at the cylinder.

2. Lighting the 1800SC Heater

2.1 Turn the gas control knob fully anti-clockwise to the "⎍" position and then press firmly downwards. A click will be heard as the igniter operates to light the burner.
2.2 Continue to hold the gas control knob down whilst checking through the viewing window on the lower half of the case that the burner is alight. It may require several operations of the igniter to light the burner.
2.3 After the burner has lit, continue to hold the gas control knob down for 30 seconds. This is to operate the flame supervision device within the gas control.
2.4 The control knob can now be adjusted to the required comfort setting between the ignition/Low and the High positions as marked on the top of the heater.
2.5 If the burner fails to remain alight or if it is extinguished for any reason, the heater will shut down to a safe condition. After shut down, always WAIT 3 MINUTES before attempting to relight the heater.

3. Lighting the 1800SC Auto Heater

3.1 Press the control knob down and rotate to the "⎍" position, maintaining downwards pressure. The igniter will be heard to operate with a continuous "ticking" noise and the indicator will illuminate. Maintain the downwards pressure until the burner is seen to light while checking through the viewing window on the lower half of the case. After the burner has lit continue to hold down the knob for a further 30 seconds. This is done to operate the flame supervision device within the gas control. The indicator will go out. The knob can now be released and the pilot burner will remain alight.To operate the main burner, turn the knob further anticlockwise and set it at the desired position between high and low. If the burner fails to remain alight or if it is extinguished for any reason, the heater will shut down to a safe condition. A continuous "ticking" noise will be heard as the Auto igniter continues to operate, until the knob is turned off. After shut down, always WAIT 3 MINUTES before attempting to relight the heater.

4. Turning off the heater

4.1 Turn the gas control knob fully clockwise to the "off" position

Annual Service

As with all gas appliances it is recommended that this heater be serviced annually by an approved Compass dealer only.
If you have any problems with this heater seek the advice of your nearest authorised Compass dealer.

For further information please refer to the Carver booklet supplied in your documents wallet with this handbook.

CARVER 3600 STC AND 3600 STC AUTO MOTORHOME HEATER USER INSTRUCTIONS

General Description

Carver motorhome heaters are completely room-sealed units based on a well proven and extremely efficient heat exchanger consisting of a pair of internally and externally finned aluminium die castings.

The gas burner is situated at the bottom of a vertical passage which permits complete combustion of the gas before meeting the exchanger surfaces. The combustion products travel along the top horizontal section and then downwards through further galleries while transferring their heat to the caravan. They are kept moving by the thermal drive of the rising column of hot gases from the flame.

The flue outlet of the heater is at the bottom of the heat exchanger thus ensuring that the majority of the heat is extracted from the combustion products before they leave the heat exchanger. The combustion path is completely sealed from the living space, all of the products of combustion are discharged through an insulated stainless steel flue pipe to a roof mounted terminal.

The heater is controlled by a knob mounted on the top of the heater case which operates a thermostatic gas control valve. Incorporated in this valve is a flame failure device, so that if for any reason the burner flame is extinguished, the heater will automatically go to safe shut down.

Ignition of the 3600 STC is by manually operated piezo spark generator, 3600 STC AUTO by an automatic ignition/reignition unit which activates as soon as the knob is turned to the "⚡" position, and remains active at all other knob positions until turned off. This automatic ignition unit is powered by the motorhome 12v D.C. supply, or 9v D.C. battery.

The indicator on the control knob will illuminate when the appliance is first operated and will go out when the burner is alight or when the appliance is switched off.

Please read these cautions before using the heater

The heater MUST NOT be operated while refuelling or when the vehicle is in a confined space such as a garage.

The heater MUST NOT be used if the flue has been damaged. The products of combustion pass through the flue ducting to the roof cowl, therefore any damage to the flue could affect your safety. Make sure the outlet from the cowl on the roof is not obstructed in any way, such as by snow or articles blown against it. DO NOT place objects that are likely to damage the flue against it. Avoid hanging wet clothes, etc. against the flue ducting. The heater has an underfloor air intake requiring unrestricted air entry beneath the caravan or vehicle into which it is fitted. A minimum of three sides of the vehicle around the underfloor intake to the heater must be open at all times. This is required to maintain good combustion and the efficiency of the heater. If there is a possibility of the sides becoming blocked by snow etc, then the heater must not be used. The blockage must be cleared before further use of the heater.

Always wait 3 minutes before attempting to light the heater after switching off or the heater turning itself off.

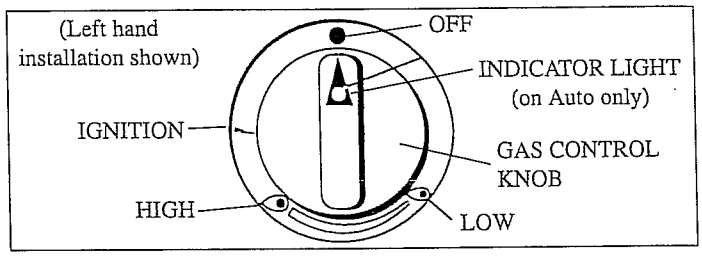
Do not obstruct the gap at the bottom of the heater or the outlet grille slots.

When the caravan is in motion the heater (as with all gas appliances) MUST BE SWITCHED OFF and the gas cylinders turned off.

Aerosols and highly inflammable materials MUST NOT be stored in compartments behind, or adjacent to the heater.

When the appliance is in use the flue ducting becomes hot. No plastics, fabrics or aerosols must be placed near the ducting.

To Light and adjust the heater



1. **Before Lighting the heater**
   Ensure that the gas is turned on at the cylinder.

2. **Lighting the 1800SC Heater**
   Turn the gas control knob fully to the "⚡" position and then press firmly downwards. A click will be heard as the igniter light the burner. It may be necessary to operate the igniter several times. Check through the viewing window on the lower half of the case that the pilot burner is alight. After the burner has lit continue to hold the gas control knob down for 30 seconds. This is to operate the flame failure safety device within the gas control. The control knob can now be released and the pilot will remain alight. To operate the main burner turn the knob anticlockwise and set at the desired position between High and Low. If the burner fails to remain alight or if it is extinguished for any reason, the heater will shut down to a safe condition. After shut down, always WAIT 3 MINUTES before attempting to relight the heater.

3. **Lighting the 3600 STC Auto Heater**
   Press the control knob down and rotate to the "⚡" position, maintaining downwards pressure. The igniter will be heard to operate with a continuous "ticking" noise and the indicator will illuminate. Maintain the downwards pressure until the burner is seen to light while checking through the viewing window on the lower half of the case. The indicator will go out. After the burner has lit continue to hold down the knob for a further 20 seconds. This is done to operate the flame supervision device within the gas control. The knob can now be released and the pilot burner will remain alight.To operate the main burner, turn the knob further anticlockwise and set it at the desired position between high and low. If the burner fails to remain alight or if it is extinguished for any reason, the heater will shut down to a safe condition. A continuous "ticking" noise will be heard and the indicator light will illuminate as the Auto igniter continues to operate, until the knob is turned off. After shut down, always WAIT 3 MINUTES before attempting to relight the heater.

4. **To adjust the room temperature**
   Turn the Gas Control Knob to the setting that gives the required comfort level. The main burner will 'cycle' on and off automatically as required by the thermostat to maintain the set temperature, the pilot will always remain alight.

5. **Turning off the heater**
   Turn the gas control knob fully clockwise to the "●" position

Annual Service

As with all gas appliances it is recommended that this heater be serviced annually by an approved Compass dealer only.
If you have any problems with this heater seek the advice of your nearest authorised Compass dealer.

For further information please refer to the Carver booklet supplied in your documents wallet with this handbook.

ATWOOD 3400 SPACE HEATER

Operation
The following information must be carefully observed. Any deviation could possibly result in an unsafe condition.

Important:

* The space heater must NEVER be used during vehicle refuelling or when the motorhome is stored in closed premises, or in motion.
  Fresh air must always be freely available to the combustion air inlet.
* Model AT3400 is designed for use with LP gas only. Do not operate on any other type of gas. Make sure the model to be installed is the correct one for the motorhome pressure regulator setting.
* NEVER place objects on or hanging from the hot air grille, such as clothes, that will obstruct the hot air from leaving the heater. Also, do not place any flammable objects near the heater.
* It is recommended that the control knob be set no higher than 5 when the optional ventilator fan is not in use. Higher settings will increase the risk of a contact injury due to the hot grille.

1. Make sure the gas bottle and any gas shut-off valves in the line are turned on.
2. The gas control knob (14), is located under the small cover at the top of the grille. In the event the heater has not been used for a while, the gas line may need to be purged of air. Depress the gas control knob slightly and rotate it to the * symbol. This will start the electronic igniter. Depress the knob down completely. This will allow gas flow so the burner can be lit. Once the flame is sensed, the igniter will turn off.
   After the burner is lit keep the knob depressed for about 30 seconds. This allows the thermocouple to heat up and hold the safety valve open.
   Release the knob, the burner should stay lit.
   VERY IMPORTANT: The knob should freely spring back up to its original position after it is released. If this is not the case, turn the knob OFF to the o position and call a qualified service person.
3. If the burner fails to light WAIT 5 MINUTES before relighting. Repeat the above step until the burner is lit. There is a window at the base of the heater to view the flame and spark igniter.
4. Set the control knob to the desired setting (1-7).
5. To shut off, turn the control knob to o symbol.

MAINTENANCE
IMPORTANT: Service or maintenance must be performed at least once a year and only by persons qualified to do so. Improper maintenance can cause the heater to operate ineffectively or possibly create an unsafe condition.

* The burner assembly (15) should be inspected at least once a year to make sure it is clean and free from corrosion or foreign material that would inhibit its performance. This would be especially true for spiders or other insects that can build nests in the burner area. If necessary, use a soft tool or toothbrush to clean the burner ports and/or orifice (16).
* Inspect the air intake assembly (3) at least once a year and eliminate any obstructions.
* The exhaust vent (12) must be inspected regularly for any obstructions and/or damage. It must be secured with clamps to prevent movement.
* Replace the 9 VDC battery on an annual basis.

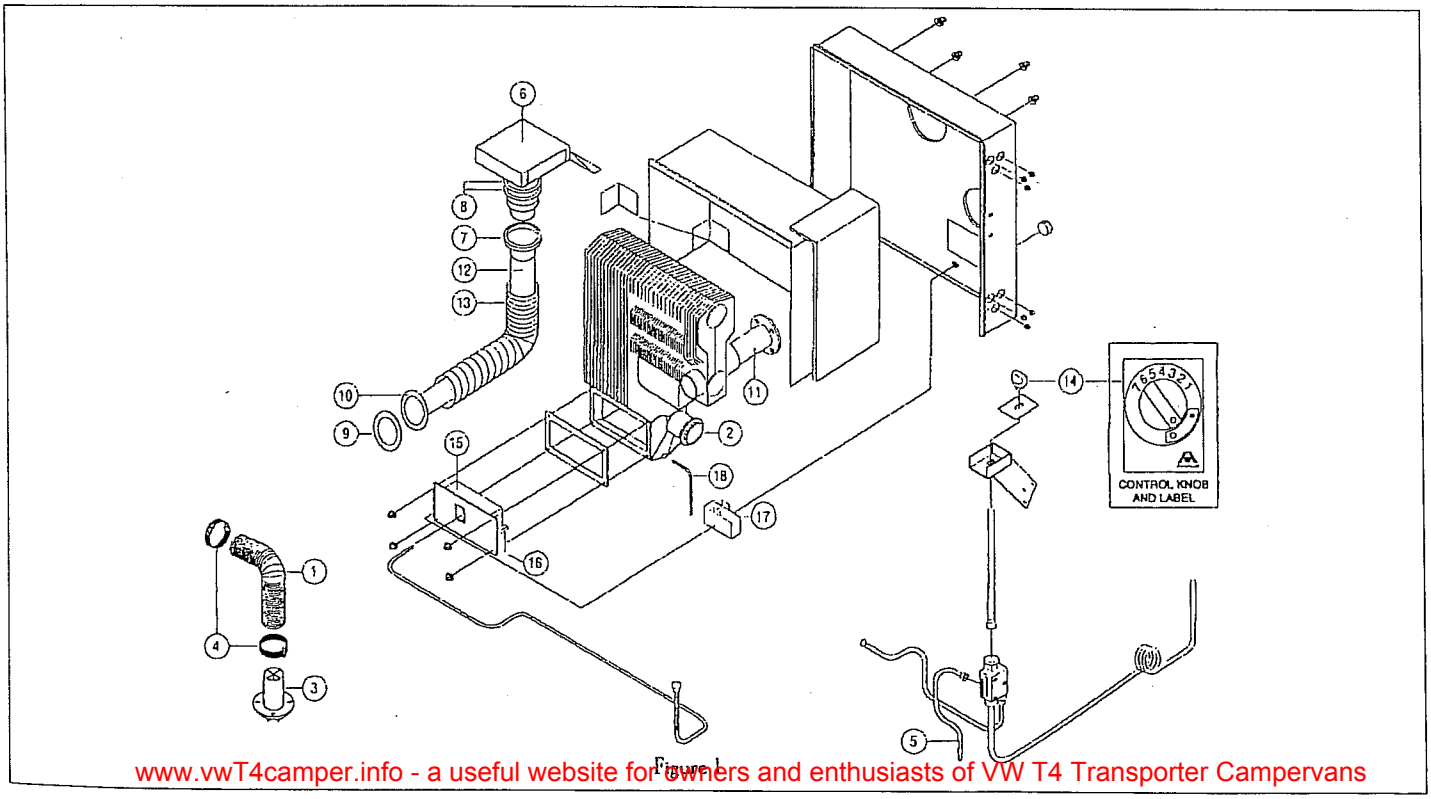


Figure 1

CARVER FAN MASTER
BLOWN AIR SYSTEMS

1. General Description

The Fanmaster is an automatically controlled fan designed to distribute warm air through ducts to outlets positioned around the motorhome.

All the functions of the Fanmaster are controlled by a remote wall mounted controller.

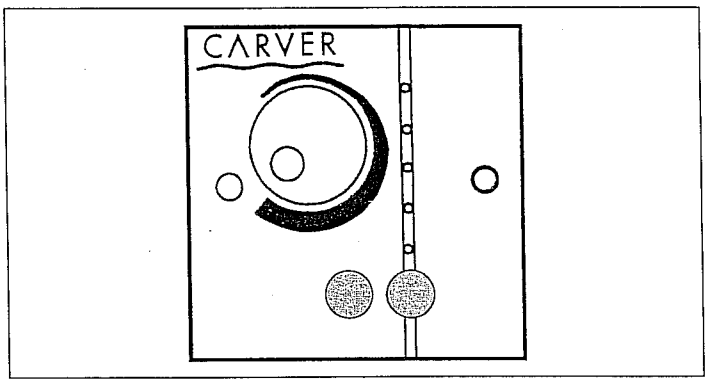
The air is heated either by the Fanmaster's own integral electric elements or by the Carver gas fired heater on which the Fanmaster is mounted, but not by both at the same time.

The built in elements are automatically or manually switchable between 0, 1kW and 2kW and require a 230v AC mains supply drawing a maximum of 8 amps at 2kW. The fan requires a 12v DC supply and will take 1.5A at a maximum speed.

When using electric heating the caravan temperature is regulated by the thermostat on the controller but when using gas heating the temperature is controlled by the gas heater thermostat. In summer the fan may be operated without any heat input to distribute cool air.

The duct outlets are generally of the butterfly type and may be operated or closed by rotating the serrated disc and the direction of flow controlled by twisting the butterfly in its housing. One outlet on each leg of the duct layout must be kept open.

2. Controller Operation



2.1 The controller contains a thermostat, an On/Mode Select button, an Off button and 5 lights showing which mode is selected. (Fig 1)

2.2 The Fanmaster is switched on by pressing the "On/Select" button once. The indicator light will show mode 1 selected, flash for a few seconds and then remain steady. When the light is steady the Fanmaster is working in the indicated mode. Subsequent operation of the On/Select button will sequentially change the mode from 1 to 2 to 3 to 4 to 5 and then back to 1. If the On/Select button is kept pressed then the modes will automatically change in sequence and the lights will flash whilst this happens. When the required mode is selected removal of the finger will stop the progression, the light will flash for a few seconds and then remain steady showing that the Fanmaster is operating in the selected mode.

2.3 The thermostat on the remote controller ONLY operates when electric heating is selected. Movement clockwise increases the selected temperature.

2.4 To switch the Fanmaster off press the OFF button once. All the lights will go out.

3. Description of Operation

3.1 **Gas Auto Fan. Mode 1**

When this mode is selected the Fanmaster distributes the heat produced by the Carver gas heater. This heater must be turned on independently, and the motorhome temperature is controlled by the gas heater thermostat.

The Fanmaster speed tracks the temperature of the air being drawn into it from the gas heater, when this is high the Fanmaster runs fast to distribute the heat around the motorhome. When the motorhome temperature approaches the comfort level set on the heater thermostat, the gas input to the heater is reduced and the Fanmaster slows down to avoid producing cool draughts. When the heater thermostat calls for more heat, the gas input to the heater increases, the air being drawn into the Fanmaster gets hotter and then the fan speed rises to match it.

This mode may be used without a mains electric hook-up.

3.2 **Gas Slow Fan. Mode 2**

When this mode is selected the Fanmaster runs continuously at low speed to distribute the heat from the Carver gas fired heater, for this mode the Carver heater would normally be set at a low rate for background or overnight heating.

3.3 **Fan. Mode 3**

In this mode the Fanmaster runs continuously at maximum speed. It can be used to maintain maximum air circulation whilst heating on gas only, or to circulate air without heating in summer.

3.4 **Electric Auto Fan. Mode 4**

In this mode the Fanmaster runs at maximum speed with the integral 2kW electric element operating. When the comfort level set on the Fanmaster control is achieved the electrical input is reduced to 1kW and then the fan speed is reduced. If the temperature continues to rise the element is switched off but the fan continues to run on low speed. A drop in temperature will reverse the sequence.

This mode would be used for a quick warm-up and complete automatic control of the electric space heating where the site supply is adequate. See note 3.6.
A mains hook-up is needed for this mode and the maximum current will be approximately 8 amps.

CARVER FAN MASTER
BLOWN AIR SYSTEMS (CONTINUED)

3.5 **Electric Slow Fan. Mode 5**

When this mode is selected the Fanmaster runs continuously at low speed and the 1kW element is energised. When the comfort level set on the Fanmaster control is achieved the element is switched off but the fan continues to run.

This mode would be used to maintain the motorhome temperature or for overnight heating and requires a mains hook-up.
The maximum current will be approximately 4 amps.

3.6 **Note:**

If you suspect that your mains hook-up is inadequate to supply the 8 amps required for Electric Auto Fan (Mode 4) in addition to your existing mains load, then for the initial warm-up use the Carver gas heater on a high setting and the Fanmaster on Gas Auto Fan (Mode 1). When comfortable change to Electric Slow Fan (Mode 5) and turn the gas heater off.

Typical mains current consumptions are:-

Carver Cascade 2 GE Water Heater	2.8A approx.
Travelling Kettle	3.2A approx.
Battery Charger	1.0A approx.
Portable Colour Television	0.3A approx.
60W Light Bulb	0.3A approx.
Fanmaster on Electric Auto Fan	8.3A approx.
Fanmaster on Electric Slow Fan	4.2A approx.

The normal mains supply to UK pitches is rated at 16A but some sites have only a 10A capability.

4. Safety

4.1 To prevent over heating of the electric elements at least one warm air outlet must be open at all times.

4.2 If all outlets are closed or blocked the over-heat trip will operate and switch off the heating elements. If this happens, your thermal cut-off will operate and switch off the heating elements. If this happens, open the outlets, wait for the elements to cool down and reset the trip by pressing the reset on the Fanmaster rear cover.

4.3 If the Fanmaster is switched off when hot and then restarted immediately there may be a delay before heating recommences.

4.4 Make sure that clothing etc. is kept clear of the back of the heater.

4.5 Ensure that the electrical cables of the Fanmaster are not strained or damaged.

4.6 It is not good practice to run on Gas Slow Fan, Mode 2 with the gas heater on a high setting.

4.7 Because of the control method, using electric and gas heating simultaneously will not give warm-up time and is not recommended.

5. Servicing

5.1 The Fanmaster requires no routine servicing but it is recommended that, in common with mains electric installation in the motorhome, it is checked annually for earth continuity and insulation resistance.

5.2 In order to ensure that your Carver heater continues to operate effectively, you will need to arrange for it to be serviced at least once a year by a competent and trained service engineer.

5.3 Similarly, you will need to call in for service if, at any time, you experience difficulties with the heaters performance. There are a number of Dealers throughout the country who can give you this facility and they are listed in the Carver leaflet. If however, it is impractical to use them, you are recommended never to try to deal with the problem yourself but to turn off the gas to the heater, preferably at the cylinder, and to call your nearest Compass dealer for advice.
He can then arrange for a competent engineer to deal with your problem.

5.4 The reason for this advice is that by law no one is permitted to deal with the installation and servicing of gas appliances unless he is competent to work within the Gas Safety and Use Regulations 1990. Carvers provide special training facilities for their own staff and Dealer staff to make sure that you have available at all times competent engineers to deal with your requirements.

CASCADE RAPIDE & CASCADE GE RAPIDE MOTORHOME WATER HEATERS OPERATION INSTRUCTIONS

General Description

The Cascade Rapide and Cascade GE Rapide are storage water heaters with a 9 litre (2 gallon) or 6 litre (1.3 gallon) capacity.
The heater is installed through the wall of the motorhome with only the flue cowl visible.
All the gas operational parts are contained within a single module which can easily be removed by a competent gas fitter from the outside of the caravan.

Control of the gas operation of the Cascade Rapide and Cascade GE Rapide is made from the wall mounted remote controller inside the motorhome. On the front are the indicator lights which show the state of the heater. The lights on this controller do not show that mains electricity is being used.

The Cascade GE Rapide requires the use of mains electricity which can be used as an alternative to the gas operation or used with the gas to facilitate a faster warm-up. The immersion element can be used on 220 to 240 volt 50Hz and is rated at 780 and 900 watts respectively. The mains operation should be via a double pole switched outlet with a contact gap of at least 3mm in each pole fused at 5 amp.

The thermostat for the mains electric and gas operation is not adjustable and is set to give a water temperature of approximately 70°C.

Two safety features are included on the Cascade Rapide these being:

1) A pressure relief valve which opens if the internal pressure exceeds 3 bar (44 p.s.i.) then closes when the pressure drops.
2) A fusible plug located behind the cowl. If the temperature rises too high this plug melts and sprays water onto the burner thus causing the heater to close down.

The Cascade GE Rapide in addition to the above safety features also incorporates a resettable high limit thermostat. (This is the red button on the rear of the heater. To reset, push the button).

Cautions

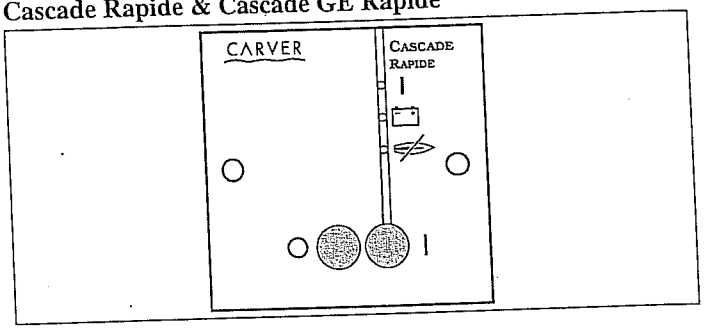
The Heater MUST NOT be operated while refuelling or when the vehicle is in a confined space such as a garage.
Aerosols and highly inflammable materials MUST NOT be stored in compartments behind, or adjacent to the heater.
The water heater flue cowl is located on the outside of the motorhome and must not be obstructed in any way. During winter caravaning do not use if the cowl is likely to become blocked with snow.
Always wait 3 minutes before attempting to relight the heater after switching off or at the heater going to fail-safe shutdown.
Water heaters (as with all gas appliances) should be switched off and the gas cylinders turned off when the caravan is in motion.

Annual Service

As with all gas appliances it is recommended that this heater be serviced annually by a Carver approved dealer only.
Frost and sterilising see separate note.

If you have any problems with this water heater seek the advice of your nearest Carver approved dealer.

Gas Operating Instructions
Cascade Rapide & Cascade GE Rapide



1. Before Switching On

a. Ensure that the gas is turned on and that the system is full of water i.e. water flows from the hot taps.
b. Check that the 12 volt supply is connected and switched on. DO NOT use a battery charger as the only source of supply.

2. To Light The Heater

a. Press the ON button
b. A continuous green light indicates that the heater is working satisfactory.

3. To Switch The Heater Off

a. Press the OFF button

4. The Lights Indicate

a. GREEN The heater is working satisfactory.
b. GREEN & YELLOW The DC voltage is below the 10.5 volts that is required to operate the heater. Recharge the battery.
c. GREEN & RED The heater has failed to ignite or that heater has gone to safety shut down. This is usually due to failure of the gas supply or air is in the gas system after fitting a new cylinder. Switch the heater off and WAIT 3 MINUTES before attempting to relight the heater. If air in the system is the problem several attempts may be necessary before the heater ignites.

Mains Electricity Operating Instructions Cascade GE Rapide

Ensure that the motorhome is connected to the site mains and the supply is adequate. (The Immersion heater uses approx 3.75 amps.)

1. To Switch On

Switch on the isolation switch. If it is the illuminated type the light should indicate that the heater is working.

2. Thermostat

The thermostat can not be adjusted and is pre-set to approx 70°C.

3. Over Temperature

IMPORTANT

If the mains electric supply to the heater is switched on but the heater is not working the over temperature thermostat may have operated. *This can be due to:*

a. Switching the heater on without water in the tank. Always check the heater is full of water before switching on.
b. Failure of the normal operating thermostat.
Manually reset the over temperature thermostat by pressing in the button in the centre of the electrical connection box. If the operating thermostat has failed the over temperature thermostat will again trip out. If this occurs **DO NOT USE THE IMMERSION HEATER AND CONSULT YOUR CARVER DEALER.**

WATER HEATER PRECAUTIONS

OST PRECAUTIONS

PORTANT

ring periods when the water heater is likely to freeze (e.g. en the motorhome is stored during the winter) it MUST be ned to prevent damage.

fast drain the system proceed as follows:

Park the motorhome on level ground.

Ensure that the gas and electric supplies are turned off.

Open all hot and cold taps and shower heads if fitted.

Remove drain plug and store in a safe place in motorhome (e.g. kitchen sink).

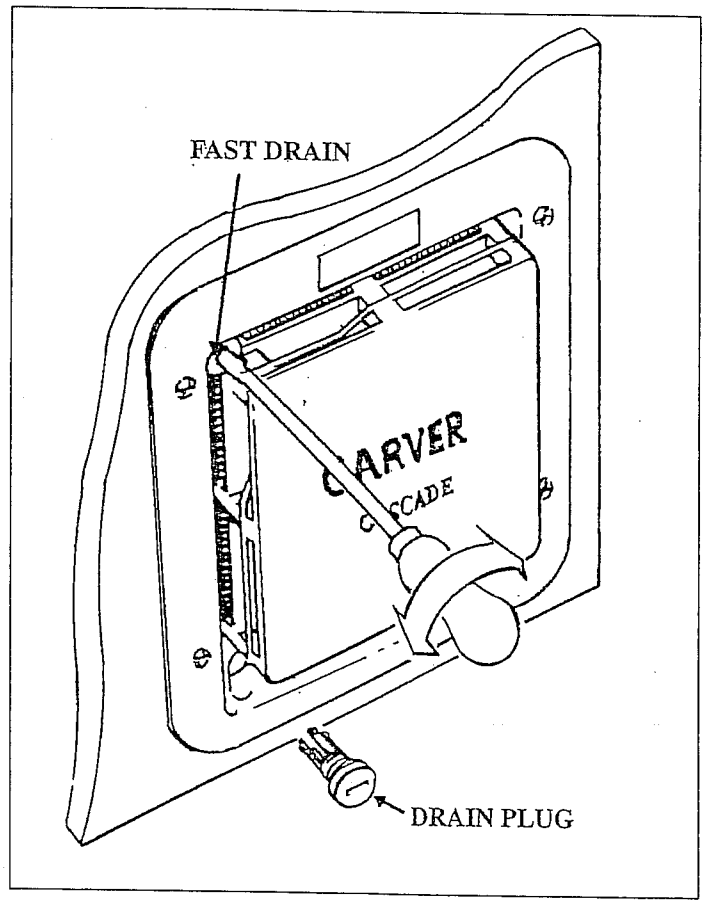
Using a flat bladed screw driver, turn the fast drain 90°

water system will now drain - this is likely to take 5 minutes. nember that at least 9 litres (2 gallons) of water should drain n the system.

the start of the season insert the drain plug and sterilise the tem by using a sterilising fluid.

NOT USE DOMESTIC BLEACH, CAMDEN TABLETS SODIUM METASULPHIDE.

a Crystal Water System is fitted, remove the filter and refit y the end cap of the filter or in the case of an inline filter a e may be inserted to bridge the gap, as the carbon filter uces the effectiveness of the sterilising agent. It is ommended to fit a new filter at the start of each season).



ATWOOD CONFORT 3 WATER BOILER
OPERATORS INSTRUCTIONS

Attention:

- In several countries the regulations in force forbid the use of gas appliances while the vehicle is moving or when it is stopped in closed premises (garages etc.).
- Before lighting the unit, ensure that the heater is filled with water.
- When the unit is not used, drain the heater and all water pipes completely if there is risk of frost.

Note: When new, the unit could give off a slight amount of smoke and bad smell, due to the material used in manufacture.

REMOTE CONTROL PANEL

References:

TM	-	Room thermostat		
DE	-	Ventilation switch		
		(ice)	=	Winter
		O	=	Off
		(Sun)	=	Summer
A	-	Hot Water Switch		
		(lap)	=	On
		O	=	Off
DV	-	Fan speed switch		
		(fan)	=	Full speed
		(1/2 fan)	=	Slow speed
LV	-	Green LED	=	Burner on
LR	-	Red LED	=	Safety cut-out (solenoid valve closed, burner off)

WINTER OPERATION
Heating + Hot Water

HEATING

1) Ensure that the heater is filled with water, by checking that water comes out of a hot water tap.
2) If the unit is provided with the Option of Summer Ventilation (components ref: 115-116-117-118-119-120), position the air flow diverters by pulling the knob (117) The upper level (118) must be vertical, the lower level (118) must be horizontal.
3) Set the ventilation switch (DEI) to the winter position (ice).
4) Set the room thermostat (TM) at the desired temperature.
5) Select the appropriate air flow/fan speed by setting the switch (DV) to position (fan) or (1/2 fan).

In this position, the electronic controls will automatically ignite the heater. The red LED will light up for an instant, then the green LED, which indicates that the burner is working. In the event of the red LED (Safety Cut-out) remaining lit, reset the switches (DEI) and (IA) in the position (O) and repeat the procedure to facilitate the arrival of gas at the burner. If, after the third attempt, the burner does not light, check that none of the taps on the gas supply line are closed. Wait ten minutes before switching on again.

Note: In the heating position, the room thermostat controls the operation of the fan, switching it on or off according to the chosen temperature.

RESET

The unit is provided with a device to reset from the remote control. If the red LD (Safety Cut-out) remains lit, turn the switches (DEI) and (IA) on the remote control to position "O" and repeat the ignition. Should the unit shut off again (Safety Cut-out), check if the tank is full of water and read troubleshooting instructions.
Should the unit still not start, call the Service Centre.

HOT WATER

During winter operation, there is always sanitary hot water, nevertheless, it is advisable to set the switch (IA) to the on position (lap).

SUMMER OPERATION
Hot water or Hot water + Ventilation.

HOT WATER

1) Ensure that the heater is filled with water, by checking that water comes out of a hot water tap.
2) Set the hot water switch (IA) to the on position (lap). The red LED will light up for an instant, then the green LED, which indicates that the burner is working. This green LED remains lit until the water reaches the preset temperature.
   In the event of the red LED (Safety Cut-out) remaining lit, reset the switches (DEI) and (IA) in the position (O) and repeat the procedure to facilitate the arrival of gas at the burner. If, after the third attempt, the burner does not light, check that none of the taps on the gas supply line are closed. Wait ten minutes before switching on again.

RESET

The unit is provided with a device to reset from the remote control. If the red LD (Safety Cut-out) remains lit, turn the switches (DEI) and (IA) on the remote control to position "O" and repeat the ignition. Should the unit shut off again (Safety Cut-out), check if the tank is full of water and read troubleshooting instructions. Should the unit still not start, call the Service Centre.

SUMMER VENTILATION (OPTIONAL)

1) If the unit is provided with the Option of Summer Ventilation (components ref: 115-116-117-118-119-120), position the air flow diverters by pulling the knob (117) The upper level (118) must be horizontal, the lower level (118) must be vertical.
2) Set the ventilation switch (DEI) to the summer position (sun).
3) Select the appropriate air flow/fan speed by setting the switch (DV) to position (fan) or (1/2 fan).

Note: In this position, the fan always remains on. For more efficient summer ventilation, it is advisable to avoid the use of the "water heater function".

SWITCHING OFF

1) Set the switch (DEI) to position O.
2) Set the switch (IA) to position O.

DRAINAGE

Attention: When the unit is not used, drain the heater and all water pipes completely if there is risk of frost.

1) Switch off the pump.
2) Open the drainage tap (137). At the same time, open a hot water tap.
3) Wait for a few minutes and then open the air bleed valve (2) to facilitate complete emptying.
4) At the end of the operation, remember to close the drainage tap (137) and the air bleed valve (2).

ATWOOD CONFORT 3 WATER HEATER
OPERATORS INSTRUCTIONS

ELECTRIC WATER HEATING 220-240V
(Only applicable to units having this Option)

temperature of the water heater using the electrical heater is variable. To operate the Water Heater on the mains electric ply:

Check that the heater is full of water.

Ensure that the vehicle is connected to the site electrical supply and that the supply is adequate, the electric heater uses approximately 5A.

Switch on the mains electrical isolation switch. The illuminated light will indicate that the supply is on and that the heater is working.

Over Temperature Thermostat

The heater is filled with a safety over limit thermostat (159) that operates if the heater is used without water or failure of the operating thermostat (160).

If this occurs:

1. Isolate the heater from the mains electrical supply.
2. Remove the cover of the mains electrical box (157) on the heater.
3. Press the red button located on top of the over limit thermostat (159).
4. Replace the cover.

If this fault re-occurs without reason then consult your Atwood Dealer.

INSTRUCTIONS FOR LOCATING FAILURES AND BREAKDOWNS

blem	Cause	Remedy
ctronic ignition does not spark.	No current Possible blown fuse in the electronic panel (28) or in the remote control (108) Faulty ignition transformer	Check the power supply Replace the fuse with one of the same amperage and have the system checked by a specialised technician to find the cause. Replace the electronic panel (28)
burner does not switch on red (safety cut-out) lit	No Gas Wrongly positioned ignition electrode (27) Faulty solenoid valve (24) Battery voltage to low (solenoid valve does not open)	Check that the gas tap is open and that gas arrives Position it correctly Check or replace Charge battery
burner lights normally but s off after a few seconds	Exhaust pipe obstructed Faulty check electrode (26) Faulty electronic board (28)	Check exhaust pipe Replace the electrode (26) Replace the electronic board (28)
gas burner burns weakly or egularly	Obstructed nozzle Insufficient gas pressure Partially obstructed exhaust pipe	Check and clean nozzle Check gas bottle and regulator Check and clean the exhaust pipe.
id air comes from the outlets ing the winter	Wrongly positioned air flow diverters	Set the levels (118) in the correct position
air comes out of the outlets	Ventilation switch DEI off Outlets closed or obstructed	Switch on Open the outlets or free them of any foreign bodies

ANUFACTURERS WARRANTY CONDITIONS - The unit is covered by one year's guarantee from the date of purchase of the appliance or the registration date of the vehicle in which it is installed.

he guarantee is liable for all manufacturing faults and defective components.

Ve strongly advise to have all repairs on the unit carried out by our authorised service centre.

portant - The guarantee does not cover installation errors, tampering or boiler damage caused by frost.

Fig. 1

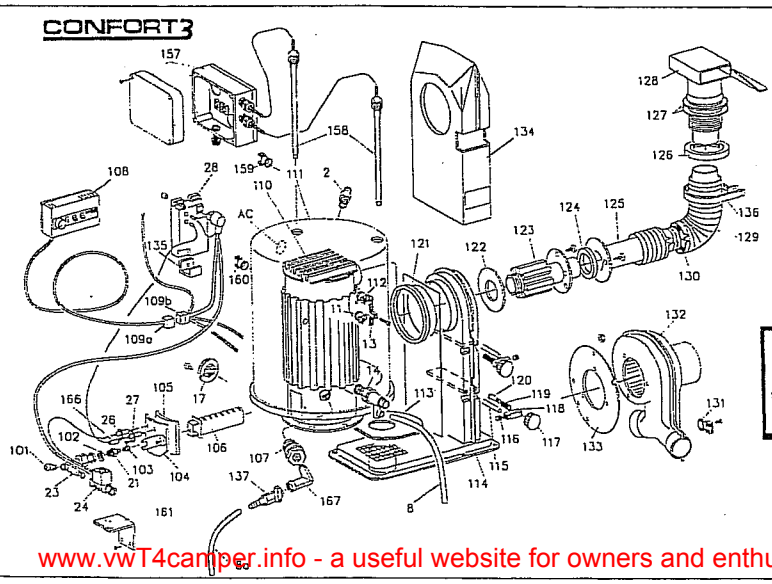
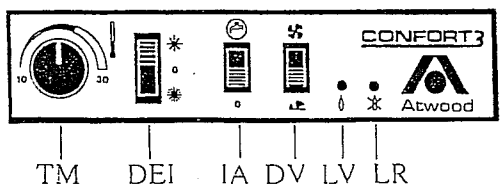


Fig. 2



OPERATION OF MOTORHOME EQUIPMENT

ATWOOD JOLLY BOILER
OPERATORS INSTRUCTIONS

Attention:

- In several countries the regulations in force forbid the use of gas appliances while the vehicle is moving or when it is stopped in closed premises (garages etc.).
- Before lighting the unit, ensure that the heater is filled with water.
- When the unit is not used, drain the heater and all water pipes completely if there is risk of frost.

REMOTE CONTROL PANEL

Position 0	=	Water heater off
Position 50	=	Water heater on, set at 50°C
Position 70	=	Water heater on, set at 70°C
Lit green LED	=	Open soleniod valve, burner working
Unlit green LED	=	Burner off, water at preset temperature
Lit red LED	=	Safety cut-out (solenoid valve closed, burner off)

TO LIGHT

1) Make sure that the water heater is filled with water. To do this, make sure that water comes out of a hot water tap.
2) Open the gas.
3) Bring the control knob to the desired temperature (50°C or 70°C).

In this position, the electronic controls will automatically ignite the heater. Should the red LED remain lit (Safety Cut-out) bring the control knob back to position (O). Repeat operation several times in order to facilitate gas flow to the burner. If, after the third attempt, the burner does not light, check that none of the taps on the gas supply line are closed.
Wait ten minutes before switching on again.
Once the burner is alight, this will bring the water to the desired temperature.
The green LED of the remote control panel (138) indicates when the burner is working.

RESET

The unit is provided with a device to reset from the remote control. If the red LED (Safety Cut-out) remains lit, turn the switch on the remote control to position "O" and repeat the ignition. Should the unit shut off again (Safety Cut-out), check if the tank is full of water and read troubleshooting instructions. Should the unit still not start, call the Service Centre.

SWITCHING OFF

Turn the control knob to position "O"

DRAINAGE

Attention: When the unit is not used, drain the heater and all water pipes completely if there is risk of frost.

1) Switch off the pump.
2) Open the drainage tap (137). At the same time, open a hot water tap.
3) Wait for a few minutes and then open the air bleed valve (2) to facilitate complete emptying.
4) At the end of the operation, remember to close the drainage tap (137) and the air bleed valve (2).

INSTRUCTIONS FOR LOCATING FAILURES AND BREAKDOWNS

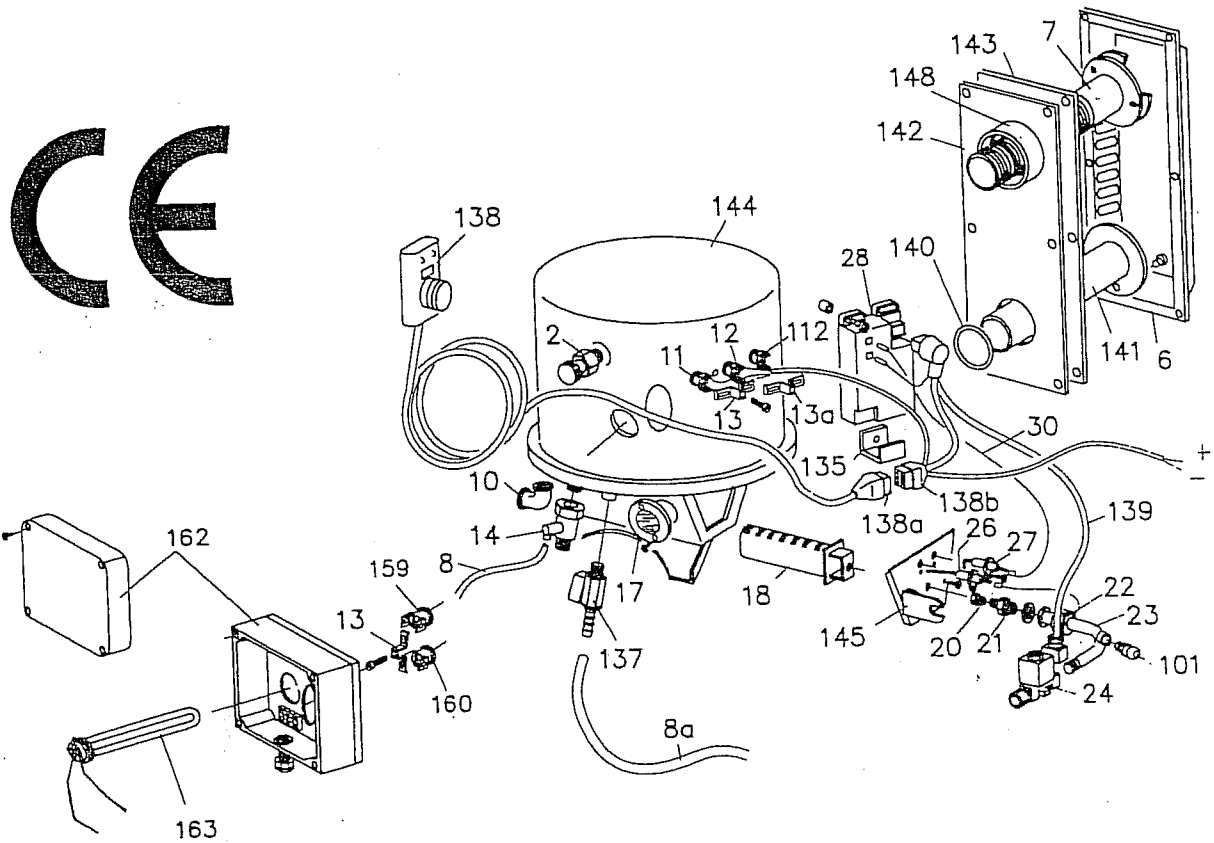
Problem	Cause	Remedy
Electronic ignition does not spark.	No current	Check the power supply
	Possible blown fuse in the electronic panel (28)	Replace the fuse with one of the same amperage and have the system checked by a specialised technician to find the cause.
	Faulty ignition transformer	Replace the electronic panel (28)
The burner does not switch on red LED (safety cut-out) lit	No Gas	Check that the gas tap is open and that gas arrives
	Wrongly positioned ignition electrode (27)	Position it correctly
	Faulty solenoid valve (24)	Check or replace
	Battery voltage to low (solenoid valve does not open)	Charge battery
The burner lights normally but goes off after a few seconds	Exhaust pipe obstructed	Check exhaust pipe
	Faulty check electrode (26)	Replace the electrode (26)
	Faulty electronic board (28)	Replace the electronic board (28)
The gas burner burns weakly or irregularly	Obstructed nozzle	Check and clean nozzle
	Insufficient gas pressure	Check gas bottle and regulator
	Partially obstructed exhaust pipe	Check and clean the exhaust pipe.

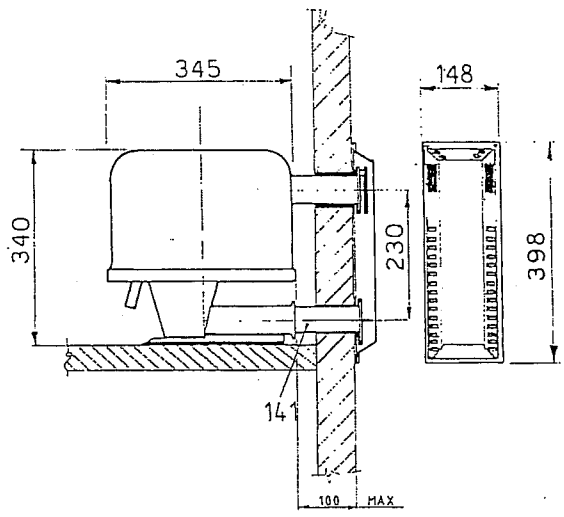
MANUFACTURERS WARRANTY CONDITIONS - The unit is covered by one year's guarantee from the date of purchase of the appliance or the registration date of the vehicle in which it is installed.

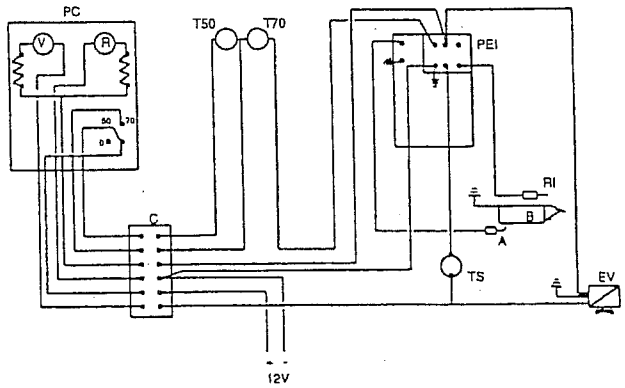
- The guarantee is liable for all manufacturing faults and defective components.
- We strongly advise to have all repairs on the unit carried out by our authorised service centre.

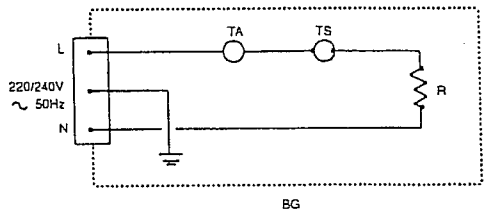
Important: The guarantee does not cover installation errors, tampering or boiler damage caused by frost.

ATWOOD JOLLY BOILER









ELECTROLUX RM4213 AND RM4271 REFRIGERATOR OPERATORS INSTRUCTIONS

Introduction

To ensure good refrigeration and economical operation, the refrigerator must be used as described in these instructions.

The refrigerator is designed for 'built-in' installation in caravans and motor caravans. The refrigerator can be operated from either Propane or Butane gas without adjustment to the appliance.

Important Information

* This product is designed to be operated by adults. Children should not be allowed to tamper with the controls or play with the product.
* Any electrical work required to install this appliance should be carried out by a qualified electrician.
* It is dangerous to alter the specifications or modify this product in any way.
* Care must be taken to ensure that the appliance does not stand on the electrical supply cable.
* Electrolux motorhome refrigerators are designed to be used specifically for the storage of edible foodstuffs only.
* There are working parts in this product which heat up. Always ensure that there is adequate ventilation as a failure to do this will result in component failure and possible food loss.
* Parts which heat up should not be exposed. Wherever possible the back of the product should be close to a wall but leaving the required distance for ventilation as stated in the installation instruction.
* Before defrosting, cleaning or maintenance work is carried out, be sure to switch off the appliance and unplug it.

SOME USEFUL HINTS

Make sure that:

* The refrigerator is not operating on 12V when the vehicle is parked, otherwise you may drain the car battery in a short time.
* Defrosting is carried out periodically.
* The refrigerator is clean and dry with the door left open when it is not in use.
* The ventilation openings are not obstructed.
* The door is secured by means of the travel catch when the motorhome is on the move.
* Only one mode of operation at a time is used to run the refrigerator.

Maintenance:
Couplings can be tested for leaks using a soap solution.
DO NOT USE AN NAKED FLAME! If there is any suspicion of damage: call for a service engineer.

In order to maintain optimum performance, it is recommended that this appliances inspected and serviced annually by a qualified person.

* The ice box in this appliance contains tubes through which the refrigerant passes. If these are punctured this would cause substantial damage and result in food loss. DO NOT USE SHARP INSTRUMENTS to scrape off frost or ice. Under no circumstances should ice be forced off the ice box. Solid ice should be allowed to thaw when defrosting the appliance.
* This appliance is heavy. Care should be taken when moving it.
* Ice lollies can cause frost burns if consumed straight from the freezer.
* Frozen food must not be refrozen once it has thawed out.
* Manufacturers' food storage recommendations should be strictly adhered to. Refer to relevant instructions.
* Do not place carbonated or fizzy drinks in the freezer as it creates pressure on the container which may cause it to explode resulting in damage to the appliance.
* Under no circumstances should you attempt to repair the appliance yourself as it may lead to injury or a more serious malfunctioning.

OPERATING INSTRUCTIONS

271 MODEL

rols

efrigerator can be run on either 240V, 12V or LP gas. ging between these modes of operation is carried out by s of the controls on the control panel shown below.

ocker switches are used to select the electric power supply, or 240V (B) and one for 12V (A).

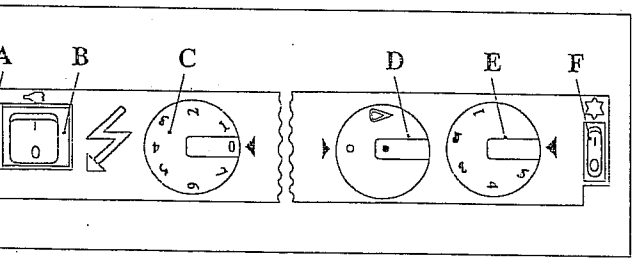
gerator temperature is controlled by a thermostat (C) when iit runs on 240V. The gas supply is turned on/off by means knob (D). When lighting the gas, one must press in the as explained further on.

gerator temperature is controlled by a thermostat (E) when frigerator runs on LP gas. Please note that the thermostat "off" position.

odel RM4271, the gas flame is electronically lit, monitored elit if necessary. For this the toggle switch (F) should be 'on' gas operation.

dicator lamp in the switch flashes when the automatic r attempts to light the burner. Otherwise this lamp is off.

ing the refrigerator



TION. Only use one source of energy at a time.

as Operation

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

art gas operation:

pen the shut-off valve of the gas bottle (check that there is ough gas). Open any on-board shut-off valve.

heck that the switches for mains and 12V are off.

have any of Models RM 4271 proceed as follows:

rn on the gas supply by pressing the (D) knob and turning to the position

t the thermostat knob (E) to the highest setting.

row on switch (F). A light in the switch should now start to sh, indicating that sparks are being generated at the burner.

6. Press the (D) button. This opens the flame failure device and allows gas to flow to the burner.
7. When the flame lights, the sparking stops automatically and the switch stops flashing, leave switch on.
8. Keep the (D) button pressed for a further 10 - 15 seconds to activate the flame failure device, then release it.

To terminate the gas operation, turn knob (D) to '●' and set switch (F) to '0'.

240V Operation

1. Turn off gas or 12 V operation when applicable.
2. Turn the knob (C) of the thermostat to its highest (coldest) position.
3. Set switch (B) to position I. The switch will light up green when the power supply is connected.

12V Operation

Only operate your refrigerator on 12V when the engine of the vehicle is running. Otherwise your battery will soon be discharged.

1. If applicable, turn off the gas operation.
2. Set the 12 V rocker switch (A) to I. The switch will light up red when the power supply is connected.

Regulating the temperature

It will take a few hours for the refrigerator to reach normal operating temperature. So we suggest you start it well in advance of a trip and if possible store it with precooled foodstuffs.

On 240 V operation the refrigerator is controlled by a thermostat and the thermostat knob (C) should be set at 3-5. If a lower (colder) temperature is desired, set the thermostat to a higher figure.

On 12 V operation the refrigerator works continuously.

On LP gas operation the refrigerator temperature is regulated by the gas thermostat (E), which should be set at 3-5. If a lower (colder) temperature is desired, set the thermostat to a higher figure.

OPERATING INSTRUCTIONS

RM 4213 MODEL

Controls

The refrigerator can be run on either 240V, 12V or LP gas. Changing between these modes of operation is carried out by means of the controls on the control panel shown below.

Two rocker switches are used to select the electric power supply, one for 240V (B) and one for 12V (A).

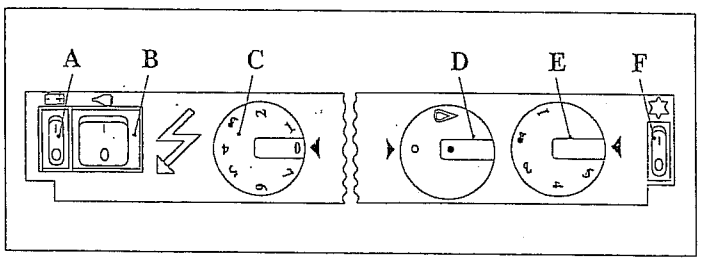
Refrigerator temperature is controlled by a thermostat (C) when the unit runs on 240V.

The gas supply is turned on/off by means of the knob (D). It also serves to select one of three different gas inputs.

The refrigerator is fitted with a safety device which automatically shuts off the supply of gas if the flame goes out. The safety device can be opened manually by depressing knob (D).

In model RM4213, the gas flame is electronically lit, monitored and relit if necessary. For this the toggle switch (F) should be 'on' during gas operation.

An indicator lamp in the switch flashes when the automatic igniter attempts to light the burner. Otherwise this lamp is off.



Starting the refrigerator

CAUTION. Only use one source of energy at a time.

LP Gas Operation

After initial installation, servicing, 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.

To start gas operation:

1. Open the shut-off valve of the gas bottle (check that there is enough gas). Open any on-board shut-off valve.
2. Check that the switches for mains and 12V are off.
3. Turn on the gas supply by pressing the (D) knob and turning it to the position
4. Set the thermostat knob (E) to the highest setting.
5. Throw on switch (F). A light in the switch should now start to flash, indicating that sparks are being generated at the burner.
6. Press the (D) button. This opens the flame failure device and allows gas to flow to the burner.
7. When the flame lights, the sparking stops automatically and the switch stops flashing, leave switch on.
8. Keep the (D) button pressed for a further 10 - 15 seconds to activate the flame failure device, then release it.

To terminate the gas operation, turn knob (D) to '●' and set switch (F) to '0'.

240V Operation

1. Turn the knob (C) of the thermostat to its highest (coldest) position.
2. Set switch (B) to position I.

12V Operation

Only operate your refrigerator on 12V when the engine of the vehicle is running. Otherwise your battery will soon be discharged.

1. If applicable, turn off the gas operation.
2. Set the 12 V rocker switch (A) to I.

Warning: Only run your refrigerator on 12V - and not gas - when in transit.

Winter Operation

Please check that the ventilation grills or the flue outlet are not blocked by snow, leaves etc.

Optional Extra

Electrolux ventilation grills A 1609, can be fitted with winter covers, model WA 111, to protect the cooling unit against cold air. The covers may be fitted when the outside temperature is below approx. 10°C and should be fitted when the temperature is below the freezing point.

We suggest that you fit the winter covers also in the case that the vehicle is laid up during the winter months.

Regulating the temperature

It will take a few hours for the refrigerator to reach normal operating temperature. So we suggest you start it well in advance of a trip and if possible store it with precooled foodstuffs.

On 240 V operation the refrigerator is controlled by a thermostat and the thermostat knob (C) should be set at 4-5. If a lower (colder) temperature is desired, set the thermostat to a higher figure.

On 12 V operation the refrigerator works continuously.

LP gas operation should always be initiated with the knob (D) at the "max" position. If the ambient temperature is above 25°C and/or the door of the refrigerator is frequently opened the knob should be left at that position. Below 25°C the knob should be set at "mid" and below 10°C at "min" to avoid temperatures below freezing in the main compartment.

OPERATING INSTRUCTIONS CONTINUED

vel Catch

ke sure that the travel catch is engaged when the motorhome n the move. The travel catch at the top of the door can be set vo different positions. In one position the door is held tightly . In the other position the door is secured ajar so that the gerator can be aired when not in use.

d Storage

ays keep food in closed containers. Never put hot food in the gerator; allow it to cool first.

er keep items in the refrigerator which might give off mable gases.

temperature within the frozen and fresh food compartments be affected by location of the refrigerator, the ambient erature and frequency of door opening. It may be necessary just the thermostat setting to allow for those factors.

2-star (**) frozen food compartment is intended for the ge of frozen foods and for making ice. It is not suitable for ing items of food.

kinds of frozen food can be stored in the frozen food artment for about a month. This period of time may vary, ver, and it is important to follow the instructions on the idual packing.

sting

will gradually accumulate on the refrigerating surfaces. It not be allowed to grow to thick as it acts as an insulator and sely affects refrigerator performance.

the formation of frost regularly every week and when it is 3mm thick it will be necessary to defrost the refrigerator.

frost the refrigerator, turn it off and remove the ice tray and d items.

rozen foods should be wrapped loosely, but completely, in al layers of clean newspaper. Remember that, it the rature of frozen foods is allowed to rise unduly during ting its storage time may be shortened.

red, defrosting can be speeded up by filling the ice tray ot water and placing it in the frozen food compartment.

t try to accelerate defrosting by using any kind of heating as the plastic surfaces of the refrigerator might then be ed. Neither should any sharp object be used to scrape off .

efrost water from the cooling plate in the fresh food rtment runs from a collector channel down a tube to a drip the rear of the refrigerator where it evaporates. This does ply to the frozen food compartment which needs to be d manually. Do not re-freeze any thawed frozen food. all the ice has melted wipe the frozen and fresh food rtments dry and leave the door ajar for airing prior to re- .

ne food items back inside but wait until the refrigerator is fore making ice cubes.

ng the refrigerator

he inside of the refrigerator regularly to keep it fresh and c.

cloth in a solution consisting of a teaspoon of bicarbonate to half a litre of warm water. Wring out the cloth and use an the interior of the refrigerator and its fittings.

Never use detergents, scouring powder, strongly scented products or wax polish to clean the interior of the refrigerator as they may damage the surfaces and leave a strong odour.

The exterior of the refrigerator should be wiped clean now and again, using a damp cloth and a small quantity of detergent. But not the door gasket, which should only be cleaned with soap and water and then thoroughly dried.

The cooling unit behind the refrigerator ought to be cleaned with a brush from time to time, but make sure that the refrigerator is switched off when doing this.

If the refrigerator fails to work

Check the following points before calling a service technician:

1. That the "starting the refrigerator" instructions have been followed correctly.

2. If it is possible to start the refrigerator on any of the connected sources of energy.

3. If the refrigerator fails to work on gas, check that:
   * The gas bottle is not empty.
   * All LP-gas valves are open.

4. If the refrigerator fails to work on 12V check that:
   * The 12V supply is connected to the refrigerator.
   * The fuse on the 12V supply is intact.
   * That the 12V switch is on.

5. If the refrigerator fails to work on 240V, check that:
   * The 240V supply is connected to the refrigerator.
   * The fuse is intact.
   * That the 240V switch is on.

If the refrigerator is not cold enough it may be because

1. The ventilation is inadequate owing to objects such as wire mesh or winter covers blocking ventilation passages.

2. The evaporator is frosted up.

3. The temperature control setting is incorrect.

4. The gas pressure is incorrect - check the pressure regulator at the gas container.

5. The ambient temperature is too high.

6. Too much food is loaded at the same time.

7. The door is not properly closed.

8. More than one source of energy is used at the same time.

The sealed cooling system must not be opened, since it contains corroding chemicals under high pressure.

FAILURE TO OBSERVE THESE CHECKS AND THOSE SHOWN ON THE DOOR PANEL INSTRUCTION LABEL COULD ALL RESULT IN YOU BEING CHARGED FOR THE SERVICE CALL.

ELECTRICAL SAFETY & GENERAL INFORMATION

These safety instructions apply when mains electric is installed into any Compass motorhome. It is accompanied by a certificate of compliance signed by a qualified electrical engineer who is a member of B.I.A.B.

INSTRUCTIONS FOR CONNECTION OF ELECTRICITY SUPPLY

TO CONNECT

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

(a) the supply available at the motorhome pitch supply point is suitable for the motorhome electrical installation and appliances, and

(b) the motorhome main switch is in the OFF position.

2. Open the cover to the appliance inlet provided at the motorhome supply point and insert the connector of the supply flexible cable.

3. Raise the cover of the electricity outlet provided on the pitch supply point and insert the plug of the supply cable.

THE MOTORHOME SUPPLY FLEXIBLE CABLE MUST BE FULLY UNCOILED TO AVOID DAMAGE BY OVERHEATING

4. Switch on at the motorhome main switch.

5. Check the operation of residual current devices, if any, fitted in the motorhome by depressing the test button.

IN CASE OF DOUBT OR, IF AFTER CARRYING OUT THE ABOVE PROCEDURE THE SUPPLY DOES NOT BECOME AVAILABLE, OR IF THE SUPPLY FAILS, CONSULT THE CARAVAN PARK OPERATOR OR HIS AGENT OR A QUALIFIED ELECTRICIAN.

TO DISCONNECT

6. Switch off at the motorhome main isolating switch, switch off at pitch supply point and unplug both ends of the cable.

PERIODIC INSPECTION

Preferably not less than once every three years and more frequently if the vehicle is used more than normal average mileage for such vehicles, the motorhome electrical installation and supply cable should be inspected and tested and a report on their condition obtained as prescribed in the Regulations for Electrical Installations published by the Institution of Electrical Engineers.

IT IS DANGEROUS TO ATTEMPT MODIFICATIONS AND ADDITIONS YOURSELF. LAMPHOLDER-PLUGS (BAYONET-CAP ADAPTORS) SHOULD NOT IN ANY CIRCUMSTANCES BE USED.

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

EXTENSION CABLES. (12V)

If an extension cable (12V) is used between your Motorhome and for example a caravan, it should be noted, that to keep voltage drop to a minimum it is recommended that the extension lead should not exceed 3 metres in length and its supply and return leads should be 2.5mm squared minimum.

ZIG CP CONTROL PANELS

ıtrols

the accessory switches are clearly marked with their ctions, except the auxiliary switches. These outlets allow for a ice of equipment when the panels are fitted as standard by r motorhome manufacturer. These switches, together with r separate fuses, serve to isolate the various 12 volt outlets in r motorhome and allow you to choose which circuits you ı to use at any time.

main control switches are the "Auxiliary Battery/Vehicle ery" control and the "12 volt On/Off" control. This is on the IV panel and their operation is as follows.

tery Selector (Auxiliary Battery/Vehicle Battery)

s switch does exactly as its name implies; it allows you to ose the source of 12 volt supply to your motorhome. It is a ure of all control panels and will be found very useful, ecially when on sites without a mains supply for battery rging. The ability to utilise your vehicle battery to run your orhome accessories will allow much longer times before harging. At the same time the facility will allow you to be pendent of your vehicle by using your auxiliary battery only.

e: Permanent use of the vehicle battery only, will inevitably lt in the infuriating situation of a fully charged auxiliary ery and a motorhome which won't start!

12 volt On/Off Switch

s switch serve to isolate all 12v circuits in the motorhome and the Zig battery condition indicator. It is similar to the main uit breaker in your house, the one you turn off before you go holiday. N.B. some motorhomes which are fitted with trically controlled heating systems need to have a permanent ply to thermostats, etc. If you have such a system please k your instruction book before turning off the 12 volt supply ng periods when the motorhome is in use.

es (Zig control Panels)

he control panels are fitted with easy access fuse holders and e are fitted with standard radio quality 10A 1.25": glass s. If a fuse blows, first investigate the cause. When found ace the fuse with exactly the same type as the original. DER NO CIRCUMSTANCES ATTEMPT TO FIT A GHER VALUE FUSE THAN THE ORIGINAL. It is ortant to remember that a fuse never blows without a reason, the cause of the blowing should always be ascertained before circuit is used again. A feature of the ZIG control panels is they allow all other circuits to function normally in the event fault in one circuit.

es (BCA leisure control Panels)

es fitted to the BCA panels are standard motor accessory e fuses. The cautions above also apply to this fuse panel.

The Battery Condition Indicator

The device is fitted to all Zig control panels. Its purpose is to warn that the batteries are becoming discharged and to allow remedial action to be taken. The red light will glow when the battery voltage is below 11 volts, above this voltage the green light will glow. No harm will come to the system or the battery if the accessories are used when the red light is on, and it will be found that possibly another few days reserve of current is available after the red light first appears. A true reading will only be given when all the 12v equipment is switched off and when no charging system is in operation. The red light may come on when an appliance is switched on, this is normal - current surges cause momentary voltage drop. It is important to remember that the battery monitor is not a charging indicator. The fact that the green light is on does not mean that the battery is fully charged. even with a flat battery the green light will glow if a charging system is operating, due to the high terminal voltage present at the battery.

Battery Charging From the Mains

None of the Zig Control panels covered in this publication incorporate any facilities for battery charging. Their function is confined to the safe control of the low voltage circuits in your motorhome together with system and battery state indication. These products were however designed to be used in conjunction with the ZIG X2 AND X3 BATTERY CHARGER.

Battery Charging From the Motorhome engine

Most modern installations allow charging of the auxiliary battery when the vehicle engine is running.

The supplier of this piece of equipment is PETER EVERARD LTD., 83 Cashes Road, Cashes Green Stroud, Gloucester.

ZIG X SERIES CHARGER OPERATING INSTRUCTIONS

Please read these instructions carefully before operating the X-series charger:

Introduction

The X series charger are fully automatic battery chargers, connected to a six cell lead acid battery with a nominal voltage of 13.8 volts, the units will charge and recharge the battery by raising the terminal voltage to equal that of the output of the battery charger. As the battery voltage increases the input current from the battery charger automatically reduces until it ceases to flow, this provides fast and efficient battery charging and eliminates the possibility of over charging, unless the battery is at fault.

Warning

The charger is fitted with a safety device which provides a time delay of approximately 2 seconds to reduce the surge of inrush current when switched on. For this device to function correctly there must be an interval of 45 seconds between switching on and off.

The green indicator light will illuminate when the charger is working.

Installing the Battery

Locate the battery in the space provided and connect the RED cable to the positive terminal and the BLACK cable to the negative terminal. If blue and white cables are used BLUE is positive and WHITE is negative. Always use proper screw down or clamp on battery terminals and smear with a little petroleum jelly to prevent corrosion. Crocodile clips must never be used in a permanent situation as they deteriorate quickly and are a fire risk.

The X-series charger is designed to charge 12V lead acid type batteries, the capacity of the battery must not be less than 60 ampere hour. (The bigger the battery the better). Should the battery contain a faulty cell the terminal voltage will not rise sufficiently to switch the charger off and the battery will eventually boil dry, the most common cause of cell failure is discharging the battery below the recommended level, approximately 10V.

Safety Protection for the X-series charger

Reversed Battery Connection.

The X-series charger supply unit is fully protected against reversed battery connection. Should this happen it will be necessary to reconnect the battery leads the correct way round and also replace the 25 ampere in line fuse.

Warning: Under no circumstances should a fuse of different size or rating be fitted. Should a fuse blow for any reason the fault must be diagnosed before replacement.

N.B. If a battery is not used or is heavily discharged the load drawn by the accessories must not exceed the rated output of the X-series charger.

Your Zig power supply is designed to give you years of trouble free service it is rigorously tested and complies to the relevant British Standards and the requirements of the National Caravan Council and the Society of Motor Manufacturers and Traders for installation in caravans and motorhomes.

The X-series charger will only charge the auxiliary battery on site, irrespective of the position of the switches on the control panel.

Its dual role is as a converter which will supply 12 volts to the system, whether there is a battery installed or not.

When the vehicle is moving the vehicle battery will charge via the alternator to its fully charged condition as a priority, then the relay allows charge through to the auxiliary battery.

PMS7GC POWER MODULAR SYSTEM

duction

PMS7 Power Modular System from Plug-in-Systems Ltd is a 240v s and 12v DC power control unit, providing all the necessary res for control of the electric's in your caravan. The unit provides llowing important features:

s 240v ac-MAINS MODULE
with EARTH LEAKAGE PROTECTION (RCD)
OVER CURRENT PROTECTION (MCB'S)
REVERSE POLARITY INDICATION
lt dc - FULLY AUTOMATIC TRANSFORMER/CHARGER
with OVER CURRENT PROTECTION
SHORT CIRCUIT PROTECTION
CASCADE HEATER MODULE
with HEATER ON/OFF SWITCH
HEATER STATUS LED'S
DC LIGHTING SWITCHES
BATTERY/WATER LEVEL MODULE
with COMBINED WATER/BATTERY LEVEL METER
PUSH TO TEST SWITCH
BATTERY CHANGEOVER SWITCH
CHARGER ON/OFF SWITCH
FUSE MODULE
with 6 FUSED DC OUTPUT CIRCUITS

T DESCRIPTION

s Module

PMS7 is designed to operate on a mains supply of 207 - 253 volts aking it ideal for use with low continental voltages). The 40 amp (residual Current Device) gives protection against earth faults and acts as the main switch. The mains module also has three MCB's iature Circuit Breakers) which are basically resetable main fuses, to ct against overcurrent. Allocation of the MCB's is as follows:
1 - SOCKETS, FRIDGE & CHARGER MCB2 - FANMASTER
3 - CASCADE

rity Indicator

red neon light mounted below the mains module will illuminate if nains input to the unit has become reversed and will require ction. Note: this indicator may illuminate whilst using certain rators, this is quite normal and safe.

g a generator

n using a generator in conjunction with the PMS7 the following be observed, failure to do so may result in damage to the unit:
lways start the generator with the mains isolator in the caravan d off.
low the generator to warm up for a few minutes before energising r in the caravan, as the output voltage can be higher when cold.
heck the generator output voltage regularly to ensure it is within pecification of the PMS7 system (i.e. 230 volts +/- 10%).

sformer/Charger

PMS7 employs a fully automatic mains to 12 volt dc transformer attery charger, able to operate with a wide range of input voltages provide a stable output voltage even under load. The unit can de upto 10amps maximum, after which it will begin to shut down otect itself.

ade Module

module provides controls for the Cascade water heater fitted in caravan. The three LED's show the following:
n LED - Heater is switched on.
LED - There has been a heater fault, probably a low gas supply.
w LED - DC voltage supply is too low for the heater to operate.

Also included in this module are a pump isolation switch and pump running indicator. The pump isolation switch is used to isolate power to the water pump in the event of a pump fault or merely as a safeguard against unwanted pump operation. The red pump running indicator will light up as a warning when the water pump has been activated.
The two remaining switches in this module isolate the 12 volt lighting circuits.

Battery/water level module

This module indicates the amount of fresh water remaining in the inboard water tank and also the power remaining in the battery. Simply press the switch to the WATER position and the meter will display a level on the following scale:

Empty - 1/4 - 1/2 - 3/4 - Full

To test battery voltage simply press the test switch to the BATTERY position. Readings should be taken as follows:
Green region - Fully Charged (no charge necessary)
Yellow region - Adequate Charge (re-charge if desired)
Red region - Low Charge (turn on charger switch to re-charge)

A vehicle/auxiliary changeover switch is provided in the module and should be used in the following way:

Auxiliary position -
When in this position dc power is available from the auxiliary battery to power all 12 volt electric circuits. If the charger is switched on the auxiliary battery will be charged up via the charger/transformer unit.

Central position -
When in this position with the charger switch on, power is provided to all 12 volt circuits via the charger/transformer only. With the charger off all dc circuits are isolated.

Vehicle position -
The switch can be placed in this position should the auxiliary battery become discharged and no mains power is available.

Also contained in this module is the charger ON/OFF switch, this should illuminate when switched on, to indicate the charger/transformer is in use.

Fuse Module

Six fuses are provided in this module to protect all dc circuits, the fuse allocation is shown below. Fuses must be replaced only with the specified values.

Fuse 1 - Front roof lighting	Fuse 4 - Fan Circuits
Fuse 2 - Rear roof lighting	Fuse 5 - Water Pumps, Water sensor
Fuse 3 - 12 volt sockets, Auxiliary	Fuse 6 - Ignitions

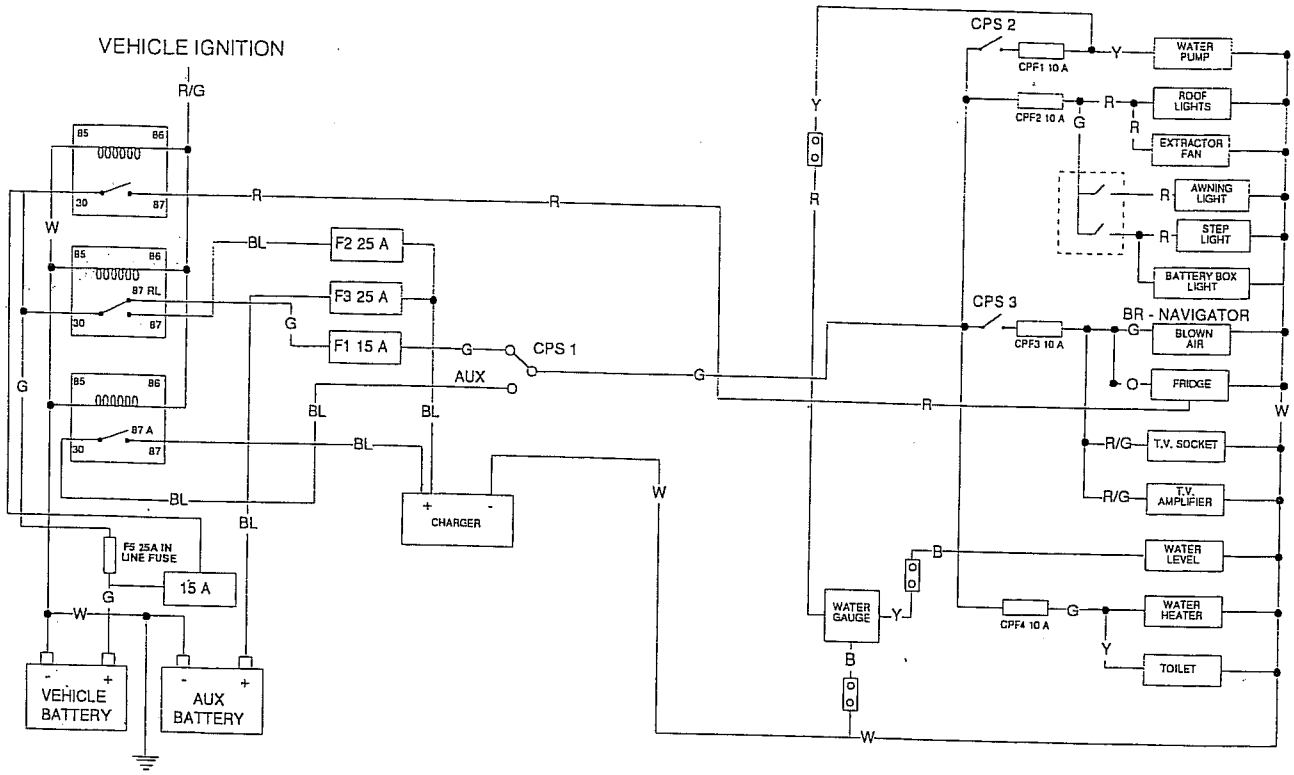
Specification

Mains Input	230 volts +/- 10% - AC
Frequency	50Hz
Output voltage	13.8 volts DC
Output current	10 amps (max)
Battery recommended	Re-chargeable lead-acid 12 volt battery, 6 cells, leisure type. 44 ampere-hours minimum
Dimensions - Height 444mm	Width 102mm Depth 230mm (max)
Weight	3.2kg

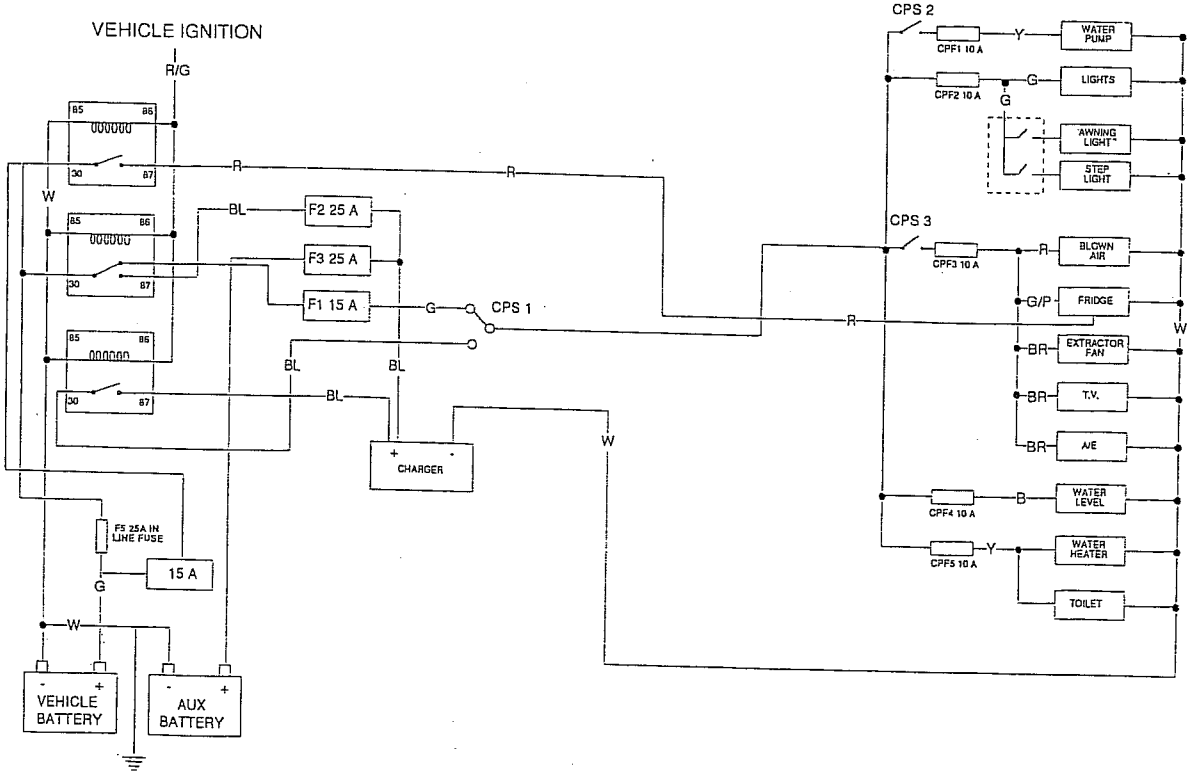
Product support

Plug-In-Systems Ltd offer the customer an On-site Service, available for both Warranty and Non-Warranty repairs (on the CEC and Plug-In-Systems range equipment only). If you would like to take advantage of this service then please ring Plug-In-Systems (direct) on:
HULL (01482) 582323 and ask for PRODUCT SUPPORT.

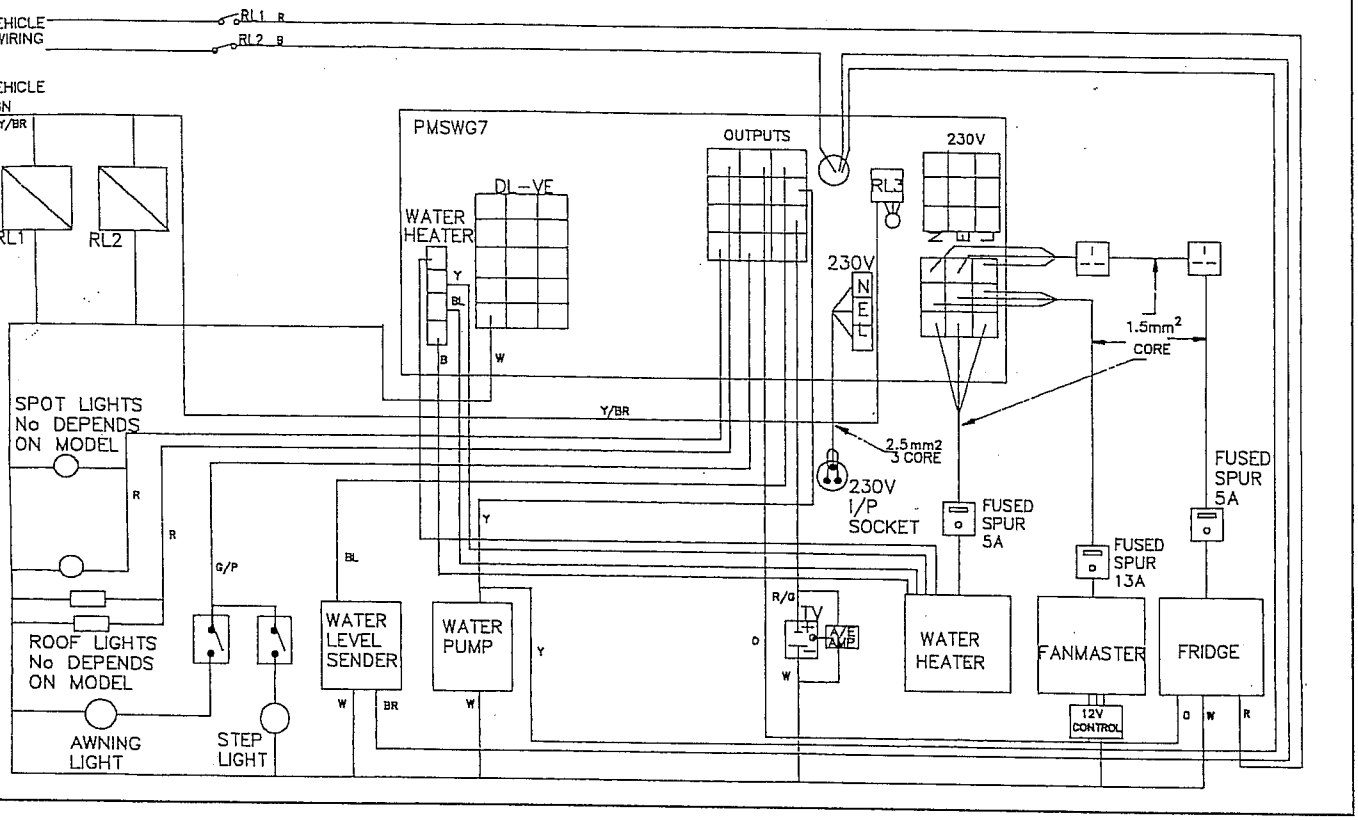
MERCEDES & NAVIGATOR 12V ELECTRICAL WIRING DIAGRAM



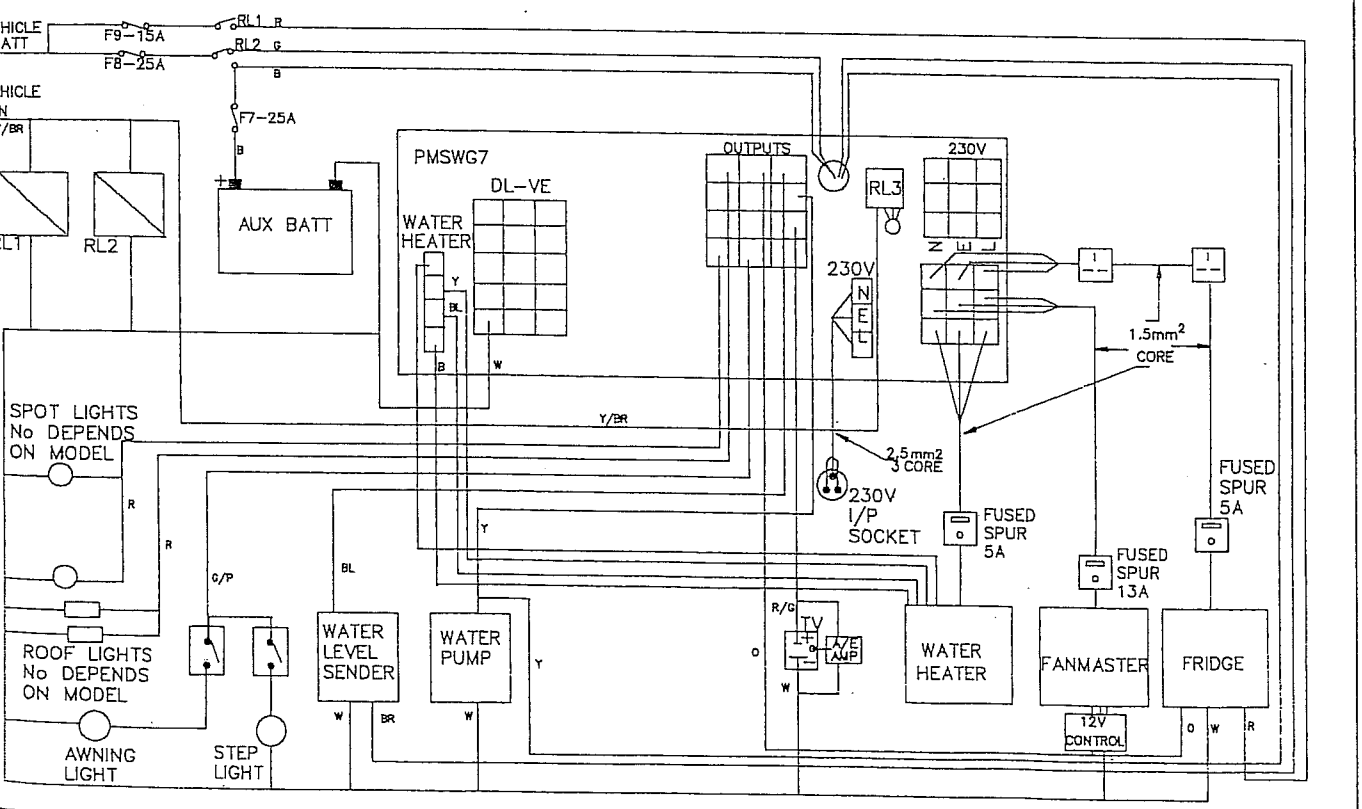
CALYPSO 12V ELECTRICAL WIRING DIAGRAM



INSIGNIA ELECTRICAL WIRING DIAGRAM



DRIFTER ELECTRICAL WIRING DIAGRAM



RESIDUAL CURRENT DEVICE (R.C.D.)
MAINS UNIT

This unit is designed to give both overload and earth leakage protection for the electrical supply in your motorhome.

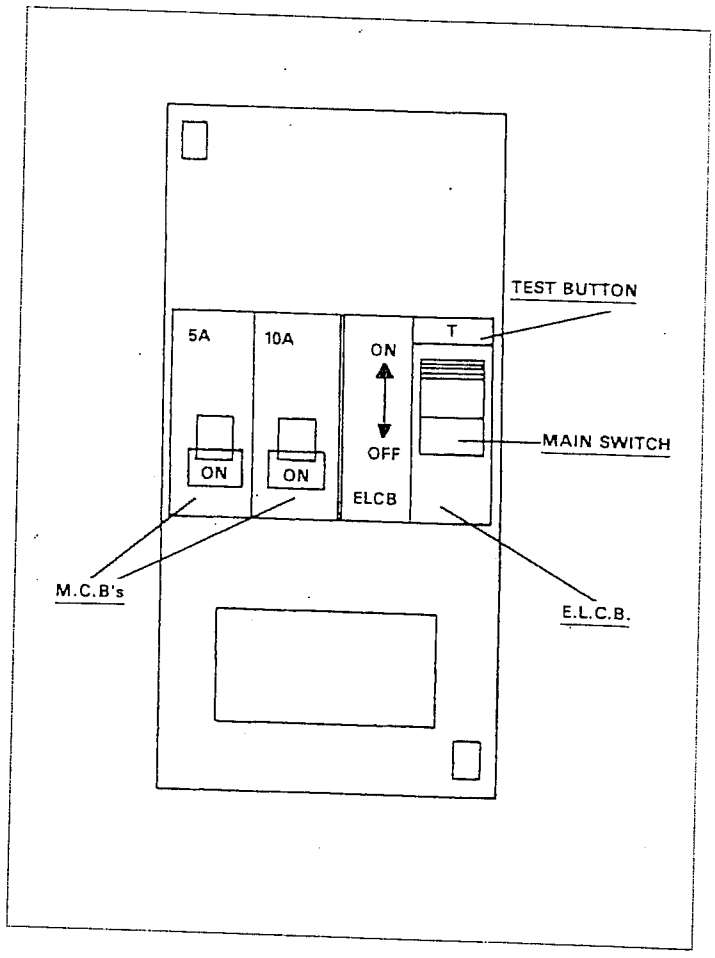
The M.C.B.'s (Miniature Circuit Breakers) are better described as mechanical fuses which, in the event of an overload situation in the circuit which they supply, will automatically switch to the OFF position. After elimination of the fault the M.C.B. should be re-set by switching it back on again (against the spring pressure) in an upwards position.

In normal operation these M.C.B.'s should be left in the ON position.

The R.C.D. residual current device is fitted to provide protection against earth faults and possible electrical shocks. In the event of an earth fault which would cause a leak of current to earth, either directly or via the human body, the unit should immediately trip and switch OFF the supply. Only after eliminating the fault will it be possible to re-set the R.C.D. to the ON position and so restore the supply again. The ON position is upwards against the spring pressure.

Periodically it is necessary to test the operation of the R.C.D., and this is achieved by ensuring that it is in the switched ON position with an electricity supply connected and by pressing the test button marked "T" the unit should immediately switch to the OFF position. Provided this happens all is correct and switch should be returned to the ON position (upwards) to restore the supply back to normal.

The R.C.D. also acts as the main switch for the unit and if necessary to switch off all circuits in the motothome this can be achieved by operating the ON/OFF switch on the R.C.D.



ctrical Installation (12volt)

12 volt electrical installation in your Compass Motorhome is ered by the vehicle battery or an auxiliary leisure battery. battery to be used can be selected via the control panel.

ould be noted that the vehicle battery is a reserve power ly not an alternative power supply. The auxiliary battery be recharged using the charger when the appropriate mains ly is available.

ening Windows

majority of your windows have a night vent position to le air to circulate and help prevent condensation. This tion is achieved by fastening the bottom window catches on second outermost notch.

ins Electric Cable

Compass Motorhomes with mains electricity are supplied , as standard equipment a 20 metre 240v mains hook-up le. Please remember to switch off all appliances before onnecting the mains cable.

V. Aerial Socket

advice as to the different aerials available consult your norised Compass dealer.

nould be noted that reception will be dependent on the quality ignal available, which could vary from area to area.

T.V. aerial is fitted as standard along with a signal booster. It uld be noted though, that the signal quality may vary from a to area also.

tz Window Blinds

blinds assembly can be easily removed for maintenance and lacement of parts. However, in normal use and provided the ds are treated with care this should not be necessary.

following points should however be noted:-

Do not allow the blinds to spring back freely.

Always pull the blind down by its centre catch as pulling it down by one side will cause the blind to snag and run unevenly.

emis Window Blinds

yscreens

operate the flyscreen, pull the screen fully down and push the ssbar towards the window so that it locates in the retaining cut within the rear channel of the lateral guides. To release, tly pull crossbar downwards and towards you and allow the sion of the spring to roll up the flyscreen.

O NOT RELEASE THE CROSSBAR (ALLOWING IT TO Y UP) AS THIS WILL CAUSE DAMAGE TO THE ECHANISM.

nscreen

e sunscreen has 'inverted' stop positions at various points ng the lateral guides - look inside the guides to see the various outs which indicate these positions.

raise or lower the sunscreen follow a similar procedure as th flyscreen.

Tension Adjustment - Blinds

The tension adjustment screws are located at either end of the top cassette (right side for sunscreen and left side for flyscreen). With a screwdriver gently apply pressure inwards and rotate the screw head half a turn clockwise to increase tension or anti-clockwise to reduce tension.

It is not recommended that the blinds are pulled down whilst the motorhome is being driven.

Winterisation

The flyscreen/sunscreens should not be left in the down position throughout the Winter as the memory of the mechanism may be lost. However, to rectify this gently pull crossbar downwards and towards you and allow the tension remaining in the mechanism to rewind the blind, when it stops, pull the crossbar downwards to the bottom position - repeat this action five or six times - the memory should be restored and the crossbar should rewind to the top position. If not fully retracted, adjust tension as per above tension adjustment.

Stainless Steel Heat Shield

The stainless steel heat shields are for the protection of adjacent surfaces. They are fitted to ensure compliance with the new habitation requirements for motorhomes. We do not therefore recommend that you remove any heat shield.

Vehicle Exhaust System

The exhaust system fitted to your Compass motorhome is the base vehicle manufacturer's standard system, although in some cases the tail pipe has been extended by Compass.

AL–KO Chassis Drifter 460

This vehicle is fitted with a special AL-KO chassis which modifies the vehicle from its standard form.

The standard chassis has been replaced with a fully Galvanised AL-KO chassis which effectively reduces the height of the chassis. The vehicle cab is bolted to the chassis.

The Beam and the Leaf Spring Axle fitted to the standard chassis has been replaced with one or two steel Torsion Bar Axle(s) manufactured by AL-KO.

The Axles are assembled to the chassis with a combination of conical and normal seat mountings.

The stub axles and wheel brakes fitted to the rear axle are standard.

Note: In certain cases internal brake parts may be changed. See section 4 of the AL-KO handbook.

BATTERY BOX LOCATION

On Navigator models the auxillary battery is stored in a compartment below the entrance door, door mat.

MOTORHOME CARE

Motorhome Servicing

We recommend that you have your motorhome serviced at least once a year by an authorised dealer.
In the interest of safety, replacement parts for an appliance shall conform to the appliance manufacturer's specification and should be fitted by them or their authorized agent.

We at Compass realise that nobody wants to be forever cleaning and polishing, so wherever possible we have chosen materials and types of finish both inside and out, that should be easy to care for.

Interior

Side walls and ceilings are either a durable finish decorative plywood or polyester effect which should not require attention too often. A simple wipe over with a warm damp cloth and a mild detergent is all that is required to keep the interior linings smart and fresh.
If a carpet effect finish is fitted to your Compass Motorhome it should be brushed occasionally to help keep its appearance and long life.

Furniture

Modern easy-care materials are used throughout and as with the motorhome walls only need a simple wipe over with a damp cloth; this should remove finger marks, etc., and keep the furniture in immaculate condition. All sink tops and tables are covered with Melamine laminates and are heat resistant up to the point of standing hot cups, teapot, etc., but will not stand a hot pan straight from the hotplate.

Solid wood furniture doors should also be wiped over with a damp cloth at regular intervals. It is also recommended that they should be polished occasionally with a propriety brand of wax polish to keep them in tip-top condition.

Carpets and Soft Furnishings

Carpets and upholstery should be vacuumed or brushed occasionally to remove grit and sand, thereby helping to maintain their appearance and long life.

Cupboard Catches

It is advisable to lightly oil all cupboard catches, sliding bolts and metal hinges from time to time.

Fixed Ventilation

Good ventilation is essential in a Motorhome for both practical and safety reasons. All Compass Motorhomes have a certain amount of fixed ventilation, **which under no circumstances should be obstructed.** The fixed ventilation can be supplemented by opening windows, roof lights and exterior door.

Periodically inspect and clean if necessary all fixed ventilation. A light cleaning with a soft brush and/or a vacuum cleaner is recommended.

Ventilation positions are shown on your model specification sheet which is loose leaf in the rear of this handbook.

Vanity and Shower tray

Although the vanity unit and shower tray (if fitted) in the toilet compartment of your motorhome are made up from highly durable vacuum formed plastic or fibre-glass, it is still inadvisable to pour in boiling water.

Exterior

The exterior of your Compass Motorhome is acrylic stove painted aluminium, glass reinforced plastic, or acrylic capped ABS which are all very durable and relatively easy to keep clean. To maintain a showroom finish, one needs to only wash the Motorhome regularly with warm water containing a mild detergent or car shampoo, (a car brush as opposed to a sponge may be slightly easier to use on any textured finish of the aluminium), rinse with cold water and leather off. A good quality car wax polish may be applied from time to time which will help keep your Motorhome clean and make washing even easier.

Under NO circumstances use any abrasive cleaning agents on the exterior of your Motorhome.

Mouldings and Exterior Door Frames

The exterior aluminium mouldings on all models are anodized and should retain their luster if cleaned in the same way as the exterior paintwork. Once again, no abrasive agents must be used as this method of cleaning would result in the eventual removal of the anodized coating, causing the aluminium moulding to corrode.

Chassis

It is suggested that if the Motorhome is used during periods of very inclement weather, i.e. snowy and icy weather, that the chassis is hosed down periodically to prevent the build-up of road salts which may be detrimental to the good appearance of the chassis.

Windows

Your Motorhome is equipped with acrylic sealed double glazed windows which have many advantages over glass windows. For example, there is a large saving in weight and a far better insulating factor. To ensure long term clarity of this type of window, only clean them by using water containing a light detergent, rinse clean and leather off.

NEVER RUB WITH A DRY CLOTH or use any form of cleaning fluid that contains the slightest abrasive agent.

Window Care Instructions

SMALL SCRATCHES:
For small scratches use a liquid metal polish or a proprietary acrylic polish of a suitable grade, dependable upon the severity of the scratches.

CLEANING:
Wash down as you would your car. Do not use a sponge on dirty windows. When all dirt has been removed, dry with a leather or a cloth. The catches and stays do not need lubricating.

CHECK EACH SEASON: Check whether the seal around the aperture is still firmly fixed to the motorhome wall. If not, re-seal with a rubber sealing compound or water repellent sealer.

Front Drawer Unit/Folding Table Top

Where drawer runners are fitted ensure that they are oiled periodically with a silicone lubricant.

LAYING UP

be appreciated that your interest will be best served if the home is stored under cover when not in use during the .

overed space with fresh air circulation is best, but if this is ossible DO NOT COVER the body of the motorhome with t or envelope as dampness may then be trapped inside.

parking close to trees.

ng storage, you should remove the upholstery and hings and store these in a dry atmosphere. The sink and er should be thoroughly cleaned and all foodstuffs and ables removed.

ht application of petroleum jelly or grease will preserve the t metal work outside.

Drain the water system completely, freezing could result in damage to the feed lines and components. If a water heater is fitted, instructions on how to drain the appliance are set out earlier in this handbook.

If the vehicle is to be stored or unused for a period of time it is adviseable to check for the free operation and lubricate accordingly any items such as corner steadies e.t.c. Care should also be taken with tyres ensuring that they are turned every few weeks. It must also be noted that partly deflated tyres on stored vehicles represent a risk of blow outs especially if subsequently driven at high speed. Recommended tyre pressures therefore should always be maintained.

AFTER SALES SERVICE

ld you require any replacement parts for your Compass Motorhome we would advise that you contact the dealer from whom you ased the Motorhome or any authorised Compass dealer and give the following information which will help in identifying the ired component.

Type of Motorhome **B) Serial number** **C) Year of manufacture** **D) Description of fault**

All the above information is contained in your document wallet

ALL PARTS MUST BE ORDERED AND SUPPLIED THROUGH YOUR APPOINTED DEALER

he interest of safety, replacement parts for an appliance shall conform to the appliance manufacturer's specification and should be fitted by them or their authorized agent.

cost of transporting, towing or moving the Motorhome by means to or from the place of repair is the responsibility of Owner.

lers are not agents of Compass Caravans Limited and have olutely no authority to bind Compass Caravans by any ress or implied undertaking or representation.

the illustrations and descriptive matter in this handbook are nded to give a general idea of the Motorhome. Changing rket and supply situations may prevent Compass from ntaining the exact specifications and details in this handbook we therefore reserve the right to alter specifications and terials as conditions demand.

pair Facilities

ould you be unfortunate enough to suffer an accident with ur Motorhome, it is comforting to know that Compass carry an extensive stock of spare parts at the factory.

ALL RELEVANT ENQUIRIES MUST BE DIRECTED THROUGH YOUR COMPASS DEALER.

Compass Caravans Limited will also undertake to supply certain specialist repairers with the necessary spare parts. In this case, your selected repairer must contact COMPASS AFTER SALES DEPT. with all enquiries.

Compass Caravans Limited are a factory housed manufacturing facility and as such are subject to numerous rules and regulations. Consequently no member of the public will be admitted, for whatever reason, unless they have a prior appointment. Such arrangements are at the discretion of Compass Caravans Limited.

Any repairs should be referred first to your local dealer.

INDEX

INDEX

VEHICLE SPECIFICATIONS; Sizes, Weights, Tank capacities are to be found loose leaf in the rear panel of this handbook.

MOTORHOME – ANNUAL SERVICE RECORD

Your motorhome needs servicing at least once a year.

Whether you use your motorhome for short journeys or for touring at home or abroad, regular servicing will help to ensure that you can enjoy it to the full.

The Annual Service offered by your Compass Dealer will include the following work and it is our recommendation you have your motorhome serviced to this standard annually.

The Compass Dealer will complete the record in this handbook to show the work has been carried out.

SECTION (A) CHASSIS

1 Tyres and pressures
2. Corner steadies
3. Under floor tanks
4. Spare wheel
5. Wheel boxes
6. Body to chassis fixing
7. Body to cab fixing

SECTION (B) EXTERIOR

1. Exterior panels
2. Windows
3. Rooflights
4. Entrance door/Door Locks
5. Mouldings and trim
6. Gas locker, cylinders and regulator
7. Ventilators/Flue terminals
8. Paintwork and striping
9. Roof racks and ladders

SECTION (C) INTERIOR

1. Wall panels
2. Furniture
3. Curtains/Blinds/Bunk nets
4. Dinette seat/beds
5. Over cab bed
6. Carpets
7. Swivel seat base
8. Doors and Drawers
9. Hinges and catches
10. Ventilators
11. Water pumps
12. Hoses and conections
13. Hot water system
14. Cold water system
15. Window hinges and stays
16. Cassette toilet
17. Shower
18. Shower Tray
19. Central heating
20. Damp test
21. Inboard tanks

SECTION (D) ELECTRICAL

1. Interior lights
2. Water pump and switches
3. Refrigerator
4. Distribution Unit
5. Charging Unit
6. Junction Box/Strip
7. Wiring and supports
8. Battery/ies
9. Fuses/Fuse holders
10. Awning light
11. Electronic Ignition (Hob)
12. 230V system, earth continuity
13. And system check

SECTION (E) GAS EQUIPMENT

1. Hotplate
2. Oven
3. Refrigerator
4. Space heater
5. Water heater
6. Operation of appliances
7. Leak tested

COMPASS CARE WARRANTY

If your motorhome is covered by the Compass Care 3 year warranty, it is a condition of this Policy that a service and safety check is carried out by your Compass motorhome dealer at least once a year (12 months from the date of purchase) in accordance with the National Caravan Council recommendations.

For further information please read your policy documents.

ANNUAL SERVICE RECORD

TORHOME MODEL ....

MBER .... YEAR ....

t SERVICE
ATE:
EALER'S STAMP

We certify that an annual service has been carried out in accordance with the Compass and National Caravan Council recommendations.

1st SERVICE
DATE:
DEALER'S STAMP

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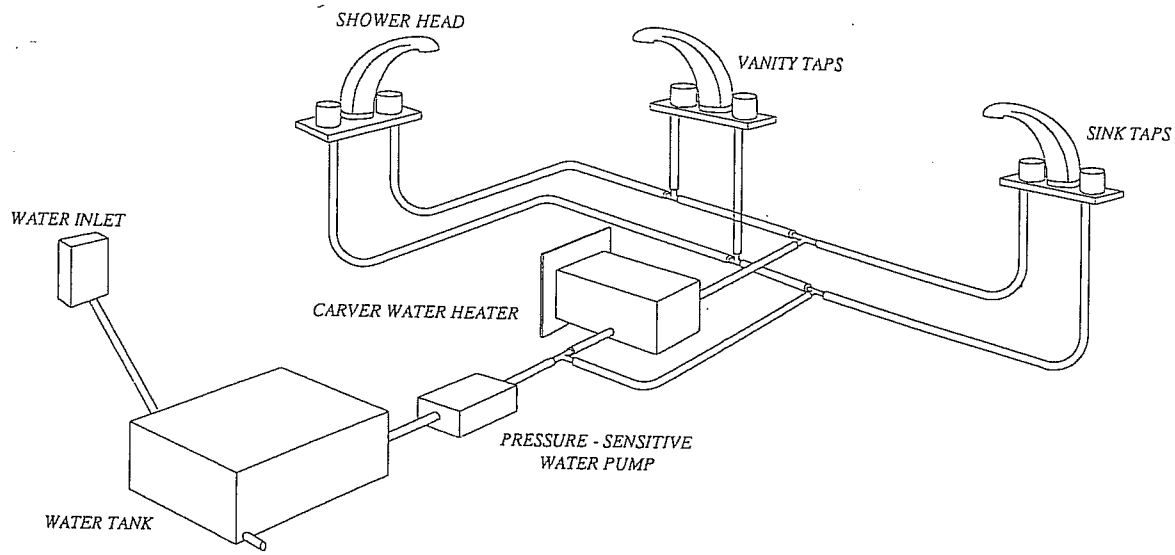
SYSTEMS DIAGRAMS

WATER SYSTEM



GAS SYSTEM