

COMPASS



MOTOR
HOMES



OWNERS HANDBOOK



INDEX

P	PAYLOADS SEE SPECIFICATION SHEET	1
	PROPANE	8, 9, 10
R	REFRIGERATORS:	
	RM 4206	22 - 26
	RM 4207	22 - 26
	RM 4237	22 - 26
	RM 4267	22 - 26
	CLEANING	25, 26
	ROOF LOADING	1
	ROOF LIGHTS	2
S	SPEED LIMITS	1
	SHOWER	3
	SERVICING	36
T	TOWBAR WIRING	2
	TOWING WEIGHTS see below	
	TAP UNIT OPERATION	3
	TOILET - THETFORD CASSETTE	4, 5, 6
	T.V. AERIAL SOCKET	37
	TANKS:	
	CAPACITIES see below	
	CLEANING AND DRAINING	3
	TYRES - PRESSURES & SIZES see below	
V	VEHICLE WEIGHTS see below	
W	WINDOWS	36
	WATER SYSTEM	3, 7, 31
	WATER LEVEL INDICATOR	3, 31
	WASTE WATER DRAINAGE	3
	WATER HEATING	18 - 21
	WIRING DIAGRAMS 12V/240V	32, 33
	WHEEL SIZES see below	
Z	ZIG - CONTROL PANELS	28, 29, 31

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

CONTENTS



	Page No.
1. Introduction	
2. Preparing for the Road	1, 2
3. Siting your Compass Motorhome.....	2
4. Connection of Services	3
5. Operation of Motorhome Equipment	3 - 34
Water	3 - 7
Gas	8 - 26
Electrics	27 - 34
6. General Safety	35
7. Motorhome Care	36
8. Laying Up	37
9. Supplementary Information	37
10. After Sales	38
11. Index	39, 40
 Motorhome Specification Sheet	 Loose leaf in rear of handbook



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..

Your Compass Motorhome. (Terms explained)

Ex works weight:

The maximum weight of your motorhome as it leaves the factory, as new with standard fixtures and fittings.

Gross vehicle weight, or M.A.W. maximum authorised

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

Load margin, or C.A.P. caravan allowable payload

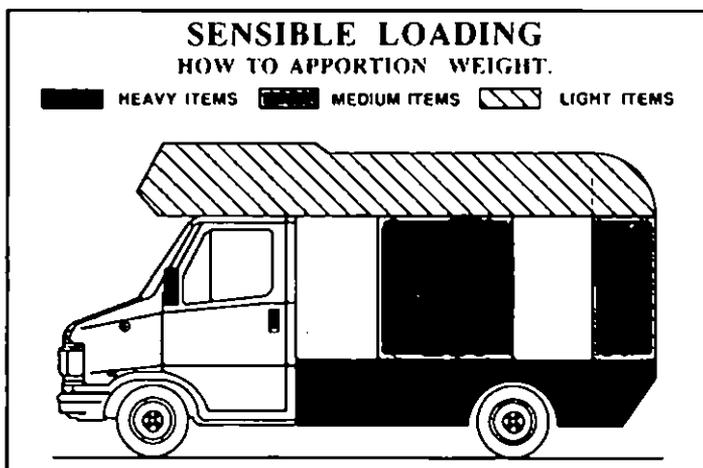
The load margin (payload), this represents the difference between the ex works weight and the gross vehicle weight. It shows the maximum weight which can be loaded into your motorhome, covering items such as food, crockery, cutlery, clothing, bedding, gas cylinders, etc.

Train weight:

This is the maximum legal weight of your motorhome plus any towed vehicle. This is an absolute maximum and should not be exceeded under any circumstances. We recommend a maximum towing weight of 1000kg with a maximum towball weight of 60kg. Please refer to the vehicle specification manual.

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. To accommodate the roof rack the roofs of all motorhomes have been specially strengthened. However, it must be noted that the strengthened area relates only to that contained by the roof rack and that to step beyond this area may cause damage to the roof panel itself. When loading the roof rack ensure that the load is distributed evenly and that it is securely fastened. Do not overload the roof rack! In normal conditions the roof rack area is capable of withstanding the average persons weight e.g. 12 stone/76Kg.

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 that the gas supply is turned off, 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:

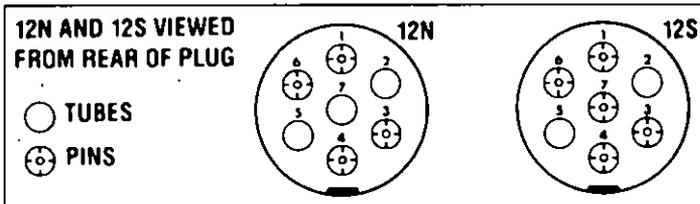
Be considerate to other road users and remember everything takes a little longer than normal motoring.



PREPARING FOR THE ROAD

12S and 12N Plugs

For your information the wiring diagram of the 12N and 12S plugs are shown below. A tow bar and a 12N socket are available as an optional extra however it should be noted that a 12S socket is required if you intend towing a modern touring caravan. If in any doubt, consult a qualified electrician.



Terminal Colour	12N Plug	12S Plug
1	Yellow L H Indicator	Reversing light
2	Blue Rear fog lamp	Battery charging
3	White Common return (earth)	Common return (earth)
4	Green R H Indicator	Interior lights
5	Brown R H Side tail	Sensing device (reversing)
6	Red Stop lamp	Fridge
7	Black L H Side tail	Spare

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.

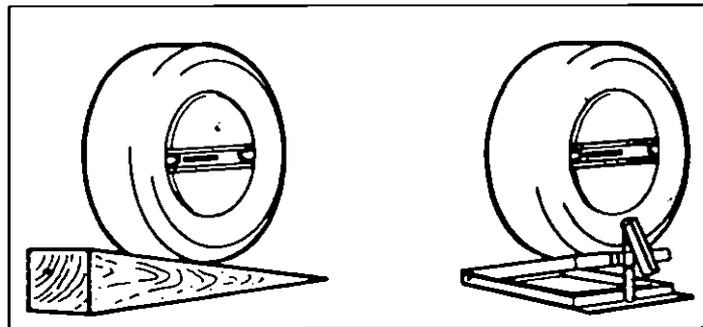
Changing a wheel:

1. Remove the hub cap. If it is the bolt on style the nut cover can be removed by placing the palm of your hand on the centre of the disc and turning anti-clockwise. alternatively place a screw driver blade in the slot provided and turn the disc anti-clockwise.
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.

Siting Your Compass Motorhome:

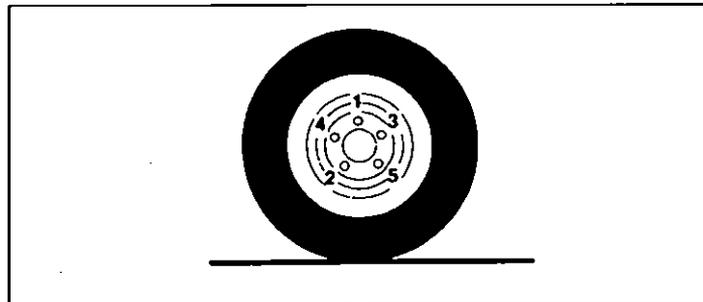
When siting your Compass Motorhome please keep to the roadways unless otherwise directed. Obey the speed limit; It should be noted that the speed limit is generally 10 mph. Only a person in possession of a current driving licence may drive on the site. It is also worth remembering that stopping distances 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.



CONNECTION OF SERVICES



Gas

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

Electrics - 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 the tank itself, which is situated beneath the vehicle. 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.

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

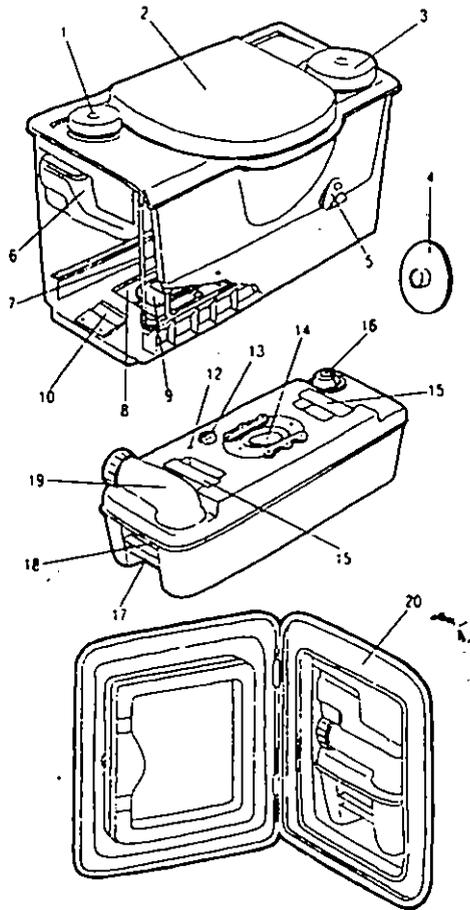
THETFORD CASSETTE TOILET OPERATING INSTRUCTIONS

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 Porta Potti 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 Porta Potti 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 tube 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 full 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.
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.

OPERATION OF MOTORHOME EQUIPMENT



THETFORD CASSETTE TOILET OPERATING INSTRUCTIONS CONTINUED

Operation

FLUSHING

10. 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.
11. 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.

TOILET TISSUE

12. 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.
13. 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 so 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 the retaining 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 Porta Potti. 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 Porta Potti 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:

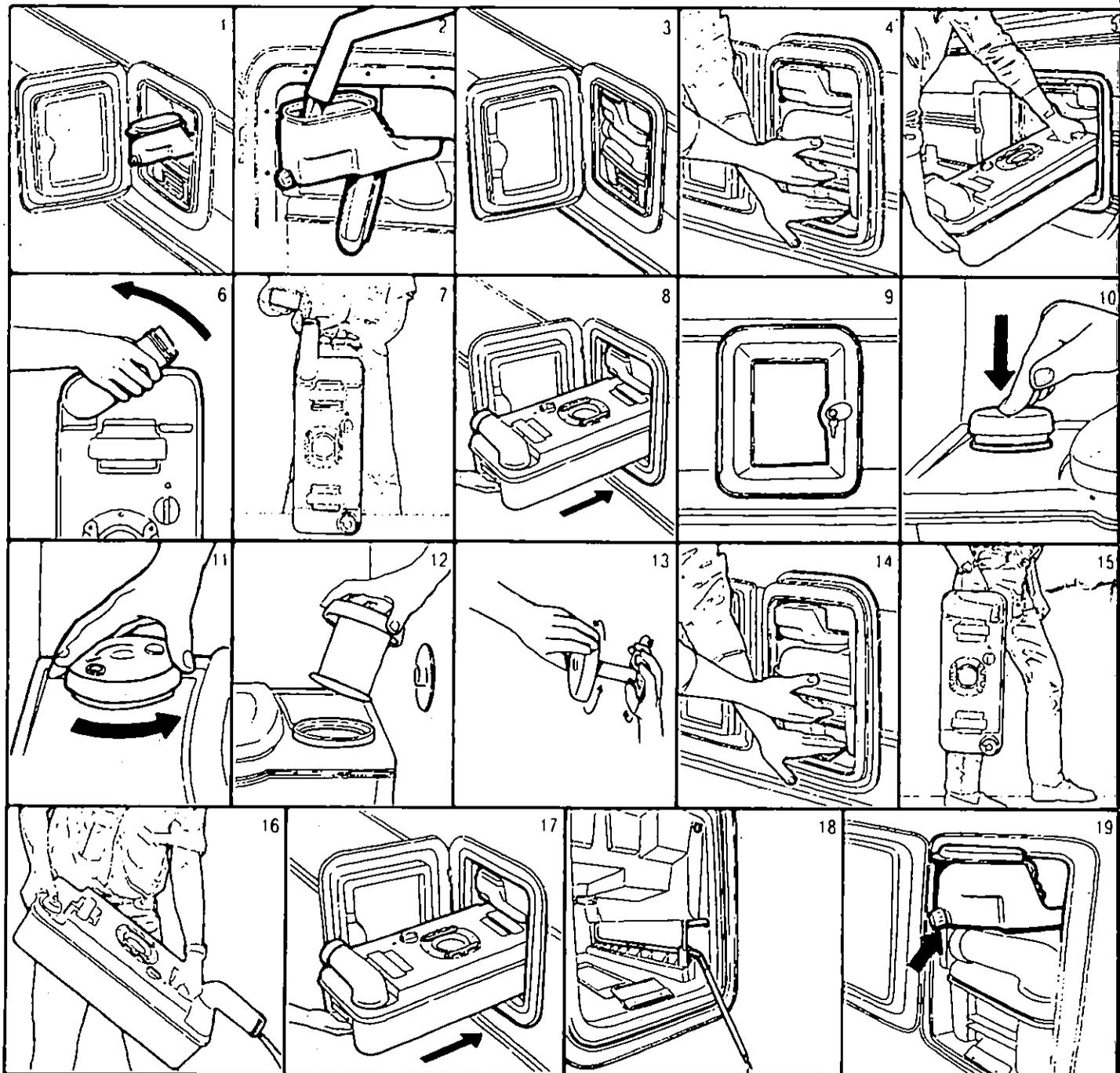
THETFORD (AQUA) PRODUCTS LTD., Centrovell Estate, Caldwell Road, Nuneaton, Warwicks CV11 4UD.



OPERATION OF MOTORHOME EQUIPMENT

THETFORD CASSETTE TOILET

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. If the tank has no drain then open a faucet and allow the pump to pump the tank dry.
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.
NOTE: It is much easier to winterize using the potable antifreeze solutions available.

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 faucets . . . Hot and Cold
3. Switch pump to "On" position. Allow time for the hot water tank to fill. Shut off each faucet as flow becomes steady and free of air. Shutting off the last faucet 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 faucets 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 faucet 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 faucets are closed, something is wrong. Most likely there is a leak somewhere. Check faucets 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)

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

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

When gas is supplied the pressure in the cylinder is slightly reduced and the liquid "boils off" to restore the balance. This action cools the liquid and the cylinder, and condensation or even frost may sometimes be observed on the outside of the cylinder. The cylinder when in use is always cooler than the surrounding air, so allow plenty of circulation in cool weather and do not cover the cylinder with a "cosy".

Butane

Butane is supplied in the U.K. in green or blue cylinders. These have a male left hand threaded connection except for Camping Gaz which has a special female right hand thread. The Calor 7kg and 15kg cylinders have a special clip-on connection. Most continental cylinders have a male left hand thread similar to, but not identical with, U.K. butane. Carver Duomatic butane regulators will satisfactorily fit directly onto continental male threaded cylinders. Other U.K. regulators will screw on but may not seal properly and should only be used on U.K. cylinders.

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

Propane

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

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

The Regulator

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

Warning

Some industrial L.P.G. appliances operate at high pressure and require a "high pressure" regulator. This often has an adjusting handle 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

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.

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 extinguisher 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 5/16" 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 butanè, 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.
- (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.

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 valves, 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, sound and is correctly positioned prior to making the connection. Where the connection relies on a metal to metal seating or a 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. Where self-sealing valves are incorporated in a gas cylinder, connection 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 escaping.

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

Boiling Burners

Burners can be used for fast boiling or simmering and are controlled by safety taps of the self-locking type.

Some models are supplied with a flame failure device incorporated into the tap. These can be identified by the addition of a probe (thermocouple) adjacent to the burner head.

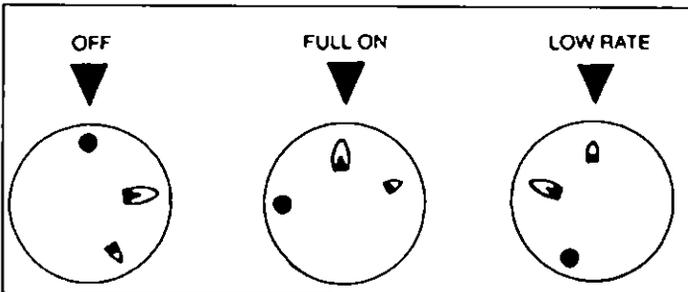
When lighting a burner make sure you apply a lighted match or taper, or on units fitted with spark ignition, depress the ignitor button, before turning on the gas. With lighted match in position, push in the tap and keeping it depressed turn it an anti-clockwise direction to the FULL ON position.

Where flame failure taps are fitted it is necessary to keep the tap depressed for a further five seconds and check that the burner is alight. If the burner does not light repeat this operation.

When turning a tap from the FULL ON position to LOW RATE, turn anti-clockwise until tap will not turn any further. This indicates the bottom of the simmer range. By turning clockwise a larger flame can be obtained when required. To turn off, turn clockwise to OFF position, when a stop will be reached; then release and the tap will spring out.

Try not to have the burner flames spreading beyond the base of smaller utensils, since this is wasteful.

Make sure the base of every kettle, saucepan or frying pan is smooth; any roughness may damage the chrome plated support.



Pan Sizes

This unit is suitable for use with pan sizes from 10cm (3.9") to 22cm (8.66").

Grill

The operation of lighting and controlling this burner is the same as for those boiling burners, without spark ignition.

The grill heats up quickly so it is unnecessary to preheat it unless steaks or chops are being cooked, in which case a couple of minutes preheating improves the quality of the grill.

If a preheat period is used, the empty grill pan should be placed under the grill to protect the base lining.

When the grill has heated up, remove the grill pan, load the pan, and place it centrally under the grill.

The grill pan trivet is reversible, giving a choice of two grilling heights. Use it in the high position for toast.

Cleaning

To keep this appliance in good condition it should be cleaned as soon as possible after use.

The unit and burner heads should be cleaned with warm water and detergent using a soft cloth, or a NON-ABRASIVE liquid cleaner.

Stubborn stains can be removed with 'Jif' or similar products. Do NOT use harsh abrasive cleaners, steel wool or cleansing powders. Always ensure the appliance has cooled before cleaning.

The hotplate, burners and pan rest are designed for easy removal. Please ensure that all components are seated correctly after cleaning or travelling before attempting to light the burners.

Adjustment

Your supplier will leave your unit correctly fitted and adjusted. Any subsequent service must be carried out by a person qualified to do so.

General Notes

1. When the grill is in use it is recommended that the front of the grill compartment is not covered up, i.e. do not close the flap.
2. When the appliance is in use it is recommended that a window is opened for ventilation purposes.
3. This appliance must NOT in any circumstances be used as a space heater.
4. Care should be taken to ensure that curtains or any other inflammable materials are not in the vicinity of the burner flames.
5. All burners should be extinguished when the vehicle is moving. It is preferred that the cylinder valve to the appliance be turned off.
6. When lit for the first time, it is not unusual for some slight smell to be noticed, this will cease after a short period of time.
7. On units fitted with spark ignition, when the time taken for spark generation becomes extended then renew the battery with a suitable make of size AA long-life battery.

This unit is supplied by

Spinflo Ltd, 4/6 Welland Close, Parkwood Industrial Estate, Rutland Road, Sheffield.

Please Note: A glass lid is used in conjunction with this item. Care should be taken when using the lid. Do not put the lid down over hot burners or put hot pans etc on the glass lid. Always handle with care.

OVEN USER INSTRUCTIONS

ROSE COUNTESS

1. To light the oven burner

1.1 Open the oven door. Slightly depress the control knob and turn anti-clockwise until the indicator on the control knob is aligned with the number 9 marking on the fascia. Fully push in the control knob and apply a lighted match or other lighting device to the burner.

1.2 To light the oven with fitted piezo ignition. Open the oven door. Slightly depress the control knob and turn it anti-clockwise until the indicator bar on the control knob is aligned with the number 9 marking on the fascia. Fully push in the control knob and keep pressing in the piezo button until the burner lights.

NOTE: The piezo ignition system will not operate unless the oven door is open.

1.3 After the burner has lit, continue to keep the control knob pushed in for a further 20 seconds. If the burner goes out when the control knob is released, repeat the lighting procedures but keep the control knob pushed in for longer period.

1.4 The required Gas Mark can now be selected.

NOTE: A stop is fitted at the number 9 position and the control knob has to be pushed in slightly before the control knob will pass this position.

1.5 To turn off, turn the oven control knob clockwise, until the indicator on the control knob is aligned with the reference mark on the fascia panel. The control knob should spring out and lock in the OFF position.

2. Oven Shelves

2.1 Two oven shelves are supplied with the oven. Each shelf has a raised stop at the back to prevent dishes coming into contact with the oven back burner flame.

2.2 To remove the oven shelves. Pull the shelf forward until it reaches the stop. Tilt the shelf up and pull forward over the stop.

2.3 To replace the oven shelves. Ensure that the raised stop is at the top and rear of the shelf. Engage the shelf on the shelf runners and push into the oven.

3. Shelf Positions

3.1 There are four shelf positions which are counted from the top of the oven. Always place food centrally on the oven shelf and leave at least one shelf position between shelves to allow free circulation of heat.

4. Roasting Dish

4.1 The maximum recommended size of roasting tin is 10.07in by 12.5in (225mm by 318mm).

5. Oven Temperature

5.1 The temperature at the centre of the oven corresponds with the selected Gas Mark. The oven will be hotter at the top and cooler at the bottom for any selected setting. This variation is approximately one Gas Mark higher at the top and one Gas Mark lower at the bottom.

DO NOT USE ALUMINUM FOIL OVER OVEN SHELVES OR ALLOW FOIL TO BLOCK THE OVEN FLUE OUTLET.

6. Cleaning

6.1 Clean your oven frequently to avoid a build up of soiling which will be difficult to remove. Always clean off any spillage as soon as possible to prevent it burning on. Use the following recommended cleaning methods for various components parts and finishes of the oven.

6.2 (COUNTESS ONLY) To remove the shelf support, gently pull the bottom away from the oven side until the top of the shelf support can be withdrawn from the top retaining holes.

6.3 To replace insert the top of the shelf support into the top holes, gently lower the bottom to the oven sides and push into the lower holes.

6.4 For the vitreous enamelled parts of your oven, only use the cleaners which bear Vitreous Enamel Development Council recommendation seal.

7. Important Safety Requirements

7.1 These recommendations apply to all cooking appliances and are intended as a guide for your safety.

7.2 Flame Supervision Device. The oven and grill burners are protected with a Thermoelectric flame supervision device which will shut off the supply of gas to the burner if the flame should go out for any reason.

7.3 Do not leave the oven door open for longer than necessary when the burner is alight. The oven must not be used as a heater.

7.4 Do not leave cabinet doors open which are near to the heat source whilst cooking appliance is in use.

7.5 Perishable foods, inflammable items, ie. aerosol cans etc. should not be stored in cabinets which are in close proximity to any cooking appliance.

7.6 NOTE. The insulation used in the construction of the oven appliance is mineral wool fibres. These fibres are bonded together with a resin which may cause smoke emitted when fired. This is normal and should give no cause for alarm.

7.7 It is recommended that the appliance is operated on a medium setting, with the living space well ventilated for 30 minutes before using. Any staining of the fascia or furniture can be wiped off with a mild detergent once the appliance has cooled.

Vitreous Enamelled Parts

Oven Linings Wash with a clean cloth soaked in hot, soapy water. For stubborn marks use a mild paste cleaner or a moist soap pad.

Plated Parts

Shelves, Soak in hot, soapy water. Polish with a soft cloth.

Shelf Supports **DO NOT USE ABRASIVE CLEANERS OR POLISHES**

Painted Parts

Oven Surround, Clean as glass parts
Facia Panel,
Bottom Trim

Plastic Parts

Control Knob, Clean as glass parts
Door Handle

OPERATION OF MOTORHOME EQUIPMENT



CARVER TRUMATIC 1800 SPACE HEATER USER INSTRUCTIONS

General Description

Carver Trumatic 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 or vehicle. 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 the air for combustion discharged through the adjacent 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, that if for any reason the burner flame is extinguished, the heater will automatically go to fail safe. Ignition is by piezo spark operated by pressing the ignition button mounted adjacent to the gas control knob.

Cautions

This heater has an underfloor flue and requires unrestricted ventilation beneath the caravan 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. If there is a possibility of the sides becoming blocked by snow etc. then the heater must not be used.

Curtains must not hang within 150mm of the sides of the heater or within 300mm above the top of the outlet grille.

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.

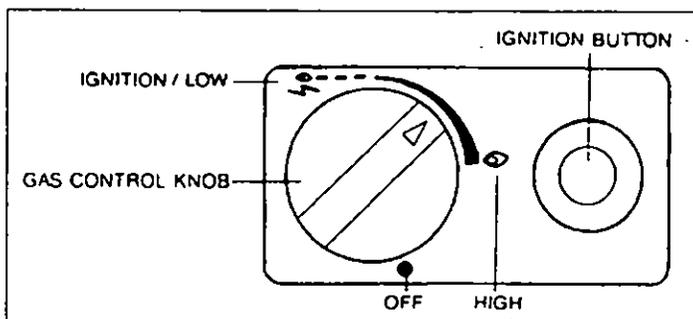
Heaters (as with all other gas appliances) should be switched off and the gas cylinders turned off when the caravan is in motion.

A guard fitted around the heater is recommended where children, the elderly or the infirm are present. This heater does not contain any asbestos or asbestos related products.

Do not store aerosols in the vicinity of the space heater.

NOTE: There is danger in the placement of inflammable products in close proximity to the space heater, please take care.

To Light and adjust the heater



1. Before Lighting the heater

1.1 Ensure that the gas is turned on.

2. Lighting the heater

2.1 Turn the gas control knob fully anti-clockwise and then press down. Immediately press the ignition button several times.

2.2 Check through the viewing window on the lower half of the case that the burner is alight.

2.3 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.

2.4 The control knob can now be adjusted to the required comfort setting between the ignition/low and the high positions.

2.5 If the burner fails to remain alight or if it is extinguished due to abnormal wind conditions the heater will shut down to a safe condition. After shut down always wait 3 minutes before attempting to relight the heater.

3. Turning off the heater

3.1 Turn the gas control knob from high flame position to low or off. depress the knob before turning.

Annual Service

As with all gas appliances it is recommended that this heater be serviced annually by a approved Compass dealer only.

If you have any problems with this heater seek the advice of your nearest authorised Compass dealer.



OPERATION OF MOTORHOME EQUIPMENT

CARVER TRUMATIC 2000 SPACE HEATER USER INSTRUCTIONS

General Description

Carver Trumatic 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 or vehicle. 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 the air for combustion discharged through the adjacent 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, that if for any reason the burner flame is extinguished, the heater will automatically go to fail safe. Ignition is by piezo spark operated by pressing the ignition button mounted adjacent to the gas control knob.

Cautions

This heater has an underfloor flue and requires unrestricted ventilation 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. If there is a possibility of the sides becoming blocked by snow etc. then the heater must not be used.

Curtains must not hang within 150mm of the sides of the heater or within 300mm above the top of the outlet grille.

Always wait 3 minutes before attempting to relight the heater after switching off or the heater going to fail safe shut down.

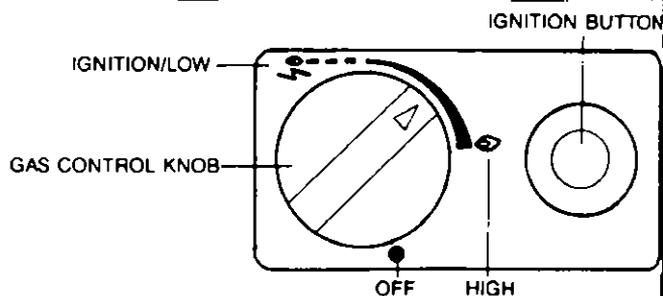
Do not obstruct the gap at the bottom of the heater or the outlet grille slots.

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

A guard fitted around the heater is recommended where children, the elderly or the infirm are present. This heater does not contain any asbestos or asbestos related products.

Annual Service. As with all gas appliances it is recommended that this heater be serviced annually by a Carver approved dealer only.

If you have any problems with this heater seek the advice of your nearest authorised Compass dealer.



To Light and adjust the heater

1. Before Lighting the heater

1.1 Ensure that the gas is turned on.

2. Lighting the heater

2.1 Turn the gas control knob fully anti-clockwise and then press down. Immediately press the ignition button several times.

2.2 Check through the viewing window on the lower half of the case that the burner is alight.

2.3 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.

2.4 The control knob can now be adjusted to the required comfort setting between the ignition/low and the high positions.

2.5 If the burner fails to remain alight or if it is extinguished due to abnormal wind conditions the heater will shut down to a safe condition. After shut down always wait 3 minutes before attempting to relight the heater.

3. Turning off the heater

3.1 Turn the gas control knob fully clockwise to the off position.

OPERATION OF MOTORHOME EQUIPMENT



CARVER TRUMATIC 3000 USER INSTRUCTIONS

General Description

Carver Trumatic heaters are 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 or vehicle. 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 path and is completely sealed from the living space, all the air for combustion being drawn in from beneath the motorhome or vehicle through the air intake and the products of combustion 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. Ignition of the Carver 3000 is by a manually operated piezo spark generator.

Cautions

At least one side of the underfloor space of the motorhome or vehicle must remain open at all times so there is a continual free entry of air to the underfloor air intake. Any build up of snow etc. around the motorhome or vehicle must be cleared. Air is required to maintain good combustion and the efficiency of the heater.

The heater must not be used if the flue has been damaged. The products of combustion pass through the flue located inside the wardrobe to the roof cowl, therefore any damage to the flue could affect the safety of occupants. Do not place objects that are likely to cause damage to the flue against it.

Avoid hanging wet cloths etc. against the flue inside the wardrobe.

Curtains must not hang within 150mm of the sides of the heater or within 300mm above the top of the outlet grille.

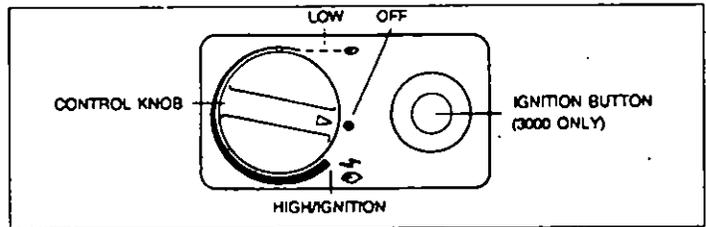
Always wait 3 minutes before attempting to relight the heater after switching off or the heater going to fail-safe shut down. Do not obstruct the gap at the bottom of the heater or the outlet grille slots.

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

A guard fitted around the heater is recommended where children, the elderly or the infirm are present. This heater does not contain any asbestos or asbestos related products.

Annual Service. As with all gas appliances it is recommended that this heater be serviced annually by an authorised Carver dealer.

If you have any problems with this heater seek the advice of your nearest authorised Compass dealer.



To light and adjust the heater

Carver 3000

1. Before Lighting the Heater

(a) Ensure that the gas supply is turned on.

2. Lighting the Heater

(a) Turn the Gas Control Knob fully anti-clockwise and then press down. Immediately press the ignition button several times.

(b) Check through the viewing window on the lower half of the case that the pilot burner is alight.

(c) After the pilot has lit continue to hold the Gas Control knob down for approximately 30 seconds. This is to operate the flame failure device within the gas control.

(d) On releasing the Gas Control Knob the pilot burner will remain alight and the main burner should then ignite.

(e) If the Pilot and Main burner both fail to remain alight or if the flames of both burners are extinguished due to abnormal wind conditions the heater will shut down to a safe condition. After shut down always WAIT 3 MINUTES before attempting to relight the heater.

3. To adjust the room temperature

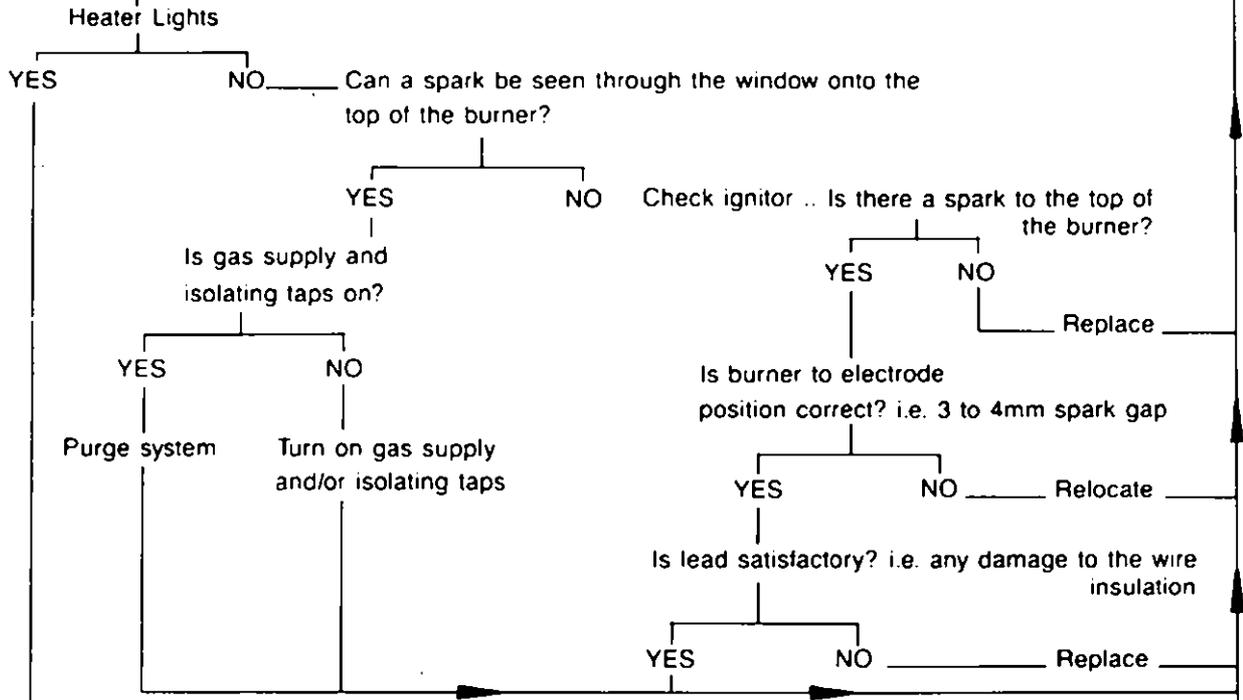
Turn the Gas Control knob to the setting that gives the required comfort level. The main burner will 'cycle' on and off automatically as required by the thermostat to maintain the set temperature but the pilot flame will always remain alight.



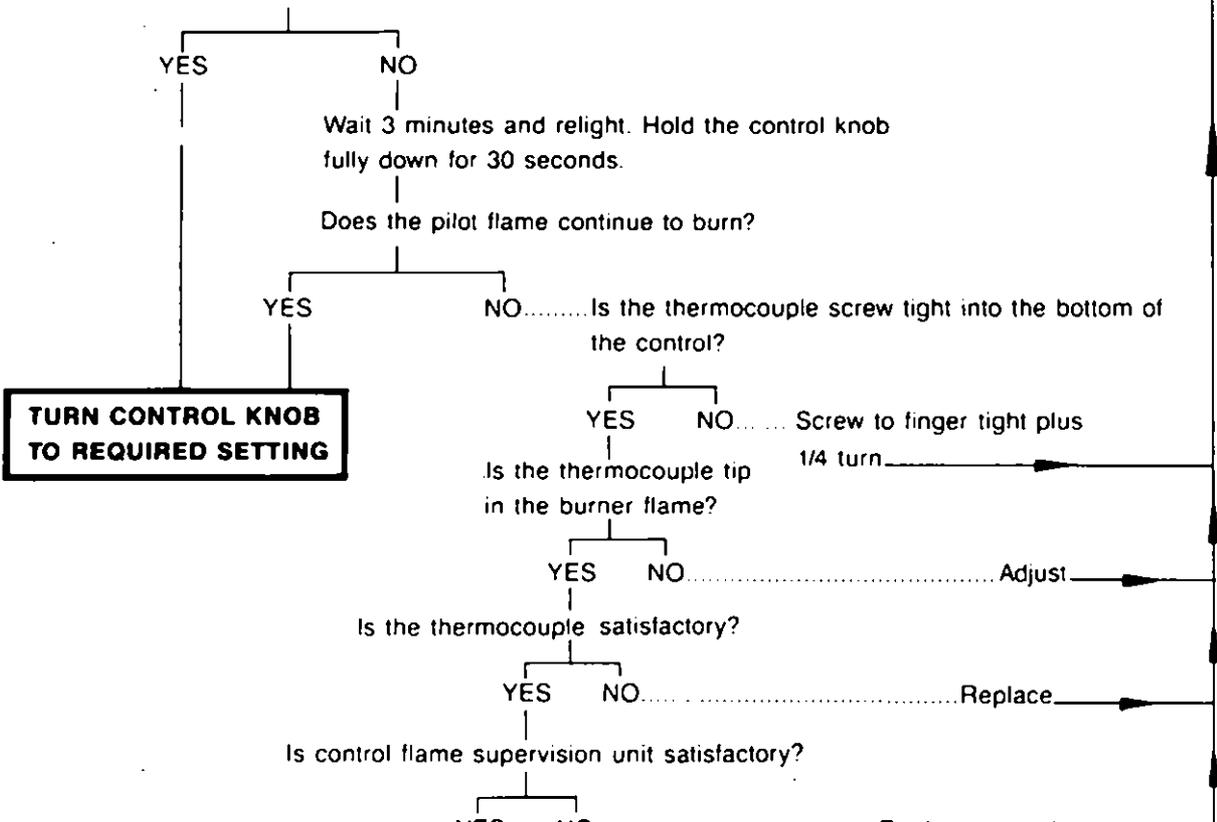
OPERATION OF MOTORHOME EQUIPMENT

FAULT FINDING CARVER 2000 & 3000

Turn the control knob to the ignition position and press down. Press the ignitor button three times in rapid succession.



Continue to hold the control knob down for a minimum of twenty seconds. On release of the knob does the pilot flame continue to burn?





OPERATION OF MOTORHOME EQUIPMENT

CARVER CASCADE WATER HEATERS OPERATING INSTRUCTIONS

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. Move the slide switch on the controller downwards.

b. A continuous green light indicates that the heater is working satisfactory.

3. To Switch The Heater Off

a. Move the slide switch upwards.

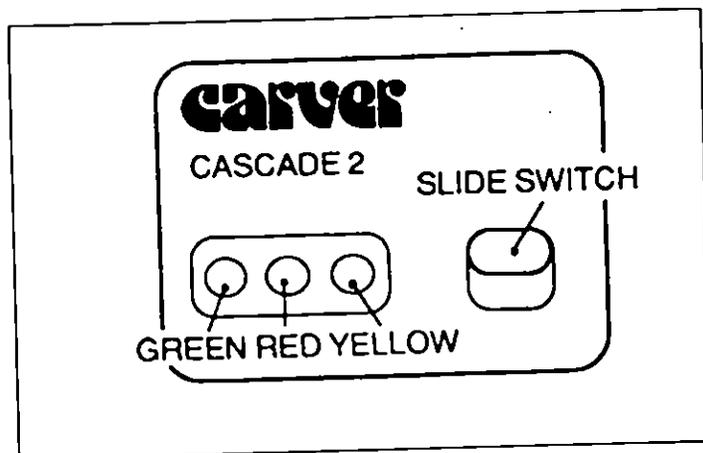
4. The Lights Indicate

a. GREEN The heater is working satisfactory.

b. GREEN and YELLOW The DC voltage is below the 10.5 volts that is required to operate the heater. Recharge the battery.

c. GREEN and 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 2 GE

Ensure that the Motorhome is connected to the site mains and the supply is adequate. (The Immersion heater uses approx 2.75 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 MOTORHOME DEALER.**

OPERATION OF MOTORHOME EQUIPMENT



WATER SYSTEM FAULT TRACING

Fault	Cause	Cure
Water not flowing from any tap when operated but pump runs	Freshwater tank empty	Check
	Pump wired in reverse	Check wiring. refer to pump manufacturers' instructions
	Pump not primed	Refer to pump manufacturers' instructions
	Pump inlet or outlet pipe disconnected	Check connections
	Pump pipes restricted by kinking	Check pipe runs
	Blockage in pump inlet or outlet pipe	Check, starting inside freshwater tank
	Blocked in-line filter or pump filter	Dismantle and clean
	Air leak in suction line to pump	Check for bubbles and secure with a clip
Pump does not run	Pump or tap incorrectly wired	Refer to pump/tap manufacturers' instructions
	Pump fuse blown	Check wiring connections and then replace with fuse of correct rating
	Battery disconnected	Check connections
	Pump seized or overheated	Refer to pump manufacturers' servicing instructions
	If a pressure pump is being used, the pressure sensing switch may have failed	Refer to pump manufacturers' servicing instructions.
	If a switched tap is being used, the switch may have failed	Refer to tap manufacturers' servicing instructions
Water flows from cold tap but not from hot	Feed pipe to water heater incorrectly connected to heater outlet	Refer to installation instructions
	Blockage in hot pipeline	Disconnect pipes and inspect
	Heater inlet or outlet pipes kinked preventing flow	Check and re-route if necessary. Ensure that hose is Carver recommended type
	Hot tap not connected	Refer to installation instructions
	Hot tap failed or blocked	Disconnect and inspect
	Heater non-return valve jammed	Seek service attention
Water flows from hot tap but has reduced flow from cold	Cold water pipe kinked preventing flow	Check and re-route if necessary
	Blockage in cold pipe line	Disconnect pipes after 1st Y connector and check up to tap
	Cold tap not connected	Refer to installation instructions
	Cold tap failed or blocked	Disconnect and inspect
	If a Carver Crystal water service unit is fitted the cartridge is exhausted	Replace cartridge
Reduced flow from both hot and cold taps	Battery condition low causing pump to run slowly	Check battery state or charge. Refer to electrical supply note
	If new taps have been fitted they may be restricting flow	Disconnect and check that they have at least 1/4" (6.3mm) bore
	Pump needs servicing	Refer to pump servicing instructions
	Partially blocked pump filter or in-line filter, if fitted	Dismantle and clean if necessary
	Pump outlet pipe kinked restricting flow	Check and re-route if necessary
	Water leak	Check all water connections
Reduced flow from either tap	"Y" connector(s) fitted incorrectly	Refer to installation instructions
	Pipe kinking restricting flow	Check and re-route if necessary
	Bore size difference in taps	Use taps of equal bore size
Warm water flow out of cold tap	Hot water feeding back into cold line, usually if mixer tap or single outlet hot and cold taps are being used	Fit non-return valve in cold supply near tap
Water Heater pressure relief valve venting water	Pressurised water system pump switching pressure too high	Refer to water supply note
	Switched tap water system flow rate is greater than tap flow rate capacity	Refer to water supply note
Water heater difficult to drain	Drain plug partially blocked	Remove plug entirely
	Hot taps not open preventing air entering hot system to let water out	Open taps
	Loops hanging in pipe runs	Refer to installation instructions



OPERATION OF MOTORHOME EQUIPMENT

WATER HEATER FAULT TRACING

Primary Symptom	Secondary Symptom	Cause	Cure
When switching on from cold no indicator lights come on	Heater does not operate	Reversed power supply	Check connection from motorhome wiring to wall switch
		Power not reaching heater	Check wiring from wall switch to motorhome supply
		Fuse not in place or blown	Check for wiring fault and replace fuses
When switching on from cold green light only comes on and stays on	Heater does not operate No fail light. Ignitor not working Gas valve not working	Multi-pin plug disconnected at wall switch or heater	Re-connect multi-pin plug
When switching on from cold green and yellow lights come on	Heater does not operate Battery condition low causing pump to run slowly	Voltage at wall switch below 10.5 V	Charge up motorhome battery
When switching on, green light comes on after 10 seconds the red as well	When listening to the heater during this sequence a click should be heard followed by intermittent ticking for 10 secs	Air in gas supply pipe	Purge pipe by switching off and on again. Repeat if necessary
		No gas supply	Check isolation valves and bottle
		Incorrect gas pressure	Refer to gas supply note
		Intake or flue obstructed	Check and clear
	Water coming from cowl	Pump pressure too high	Refer to water supply note
	A click heard but no ticking or ticking but no click	Poor connection at multi-pin plug in wall switch or on heater	Pull out and re-insert plugs
Yellow light comes on when pump is operated	Pump supply runs slowly	Low battery voltage or inadequate pump wiring	Check and charge battery. If not successful, check wiring
Red light comes on after about 30-45 minutes, with water and steam from cowl	No continuous water flow from cowl when pump is running Continuous water flow from cowl when pump is operated	Pressure relief valve operating on temperature rise	Pump pressure set too high - reduce
		Fusible plug blown indicating thermostat failure	Do not continue to use heater. Seek service attention

MAINS ELECTRIC OPERATION

Primary Symptom	Secondary Symptom	Cause	Cure
Mains immersion heater does not operate	Indicator light on isolating switch not alight	Motorhome not connected to site supply	Connect
		RCCB in motorhome tripped	Reset and try again If not successful seek service attention
		Site supply not adequate	Switch off. Seek warden attention
	Indicator light on isolating switch alight	Thermostat or fusible link failed	Switch off. Seek warden attention

If the suggested cures do not solve the problem:-
Seek Service Attention

OPERATION OF MOTORHOME EQUIPMENT



WATER HEATER PRECAUTIONS

Frost Precautions

IMPORTANT. During periods of freezing weather when the motorhome is unheated, the Cascade 2 **MUST** be drained to prevent frost damage.

The drain plug which is on the outside of the flue cowl should be unscrewed to permit draining. When the end of the drain plug thread is reached the plug can be pulled out a small distance, yet still retained in the thread and permit draining to occur. To allow the system and tank to drain effectively, open all hot and cold taps while the heater is still warm. Leave drain plug and taps open for **AT LEAST 30 MINUTES** to ensure complete draining.

If your system also includes a Crystal Water System, make sure that the pump is emptied of any water and unscrew the filter cartridge to permit it to drain.

To recommission the heater:

Close cold taps and drain plug and reconnect the pump. Let the system fill with water until water flows steadily from the hot taps. About two gallons will be required. Once the hot taps are flowing freely close them and switch on the Cascade 2.

Spring Preparation

At the start of the season, if it is felt necessary to sterilise the system, first refit the old filter cartridge (if you have a Crystal water Unit).

Prepare about two gallons of water using a proprietary baby bottle sterilising fluid or 'Chempro SDP' in accordance with the instructions.

Pump about half of this through the system, opening all taps in turn, leave for not longer than 30 minutes. Pump the remainder through. Drain the heater and water tanks (if fitted) Pump at least 4 gallons of fresh water through the system, again opening all taps in turn.

If a Crystal water System is fitted, replace the filter cartridge. On no account use the old cartridge again as the sterilising agent will have saturated the carbon bed. If a new filter is not readily available, remove the white body from the screw end cap, then replace the end cap in the Crystal unit.

DO NOT use domestic bleach, camden tablets or sodium metabisulphide for sterilising this equipment.

This unit is supplied by
**CARVER & CO. LIMITED, ENGINE LANE, COPPICE SIDE
INDUSTRIAL ESTATE, BROWNHILLS, WALSALL, WEST
MIDLANDS WS8 9E.**



OPERATION OF MOTORHOME EQUIPMENT

ELECTROLUX RM4206, RM4207, RM4237 AND RM4267 REFRIGERATOR OPERATORS INSTRUCTIONS

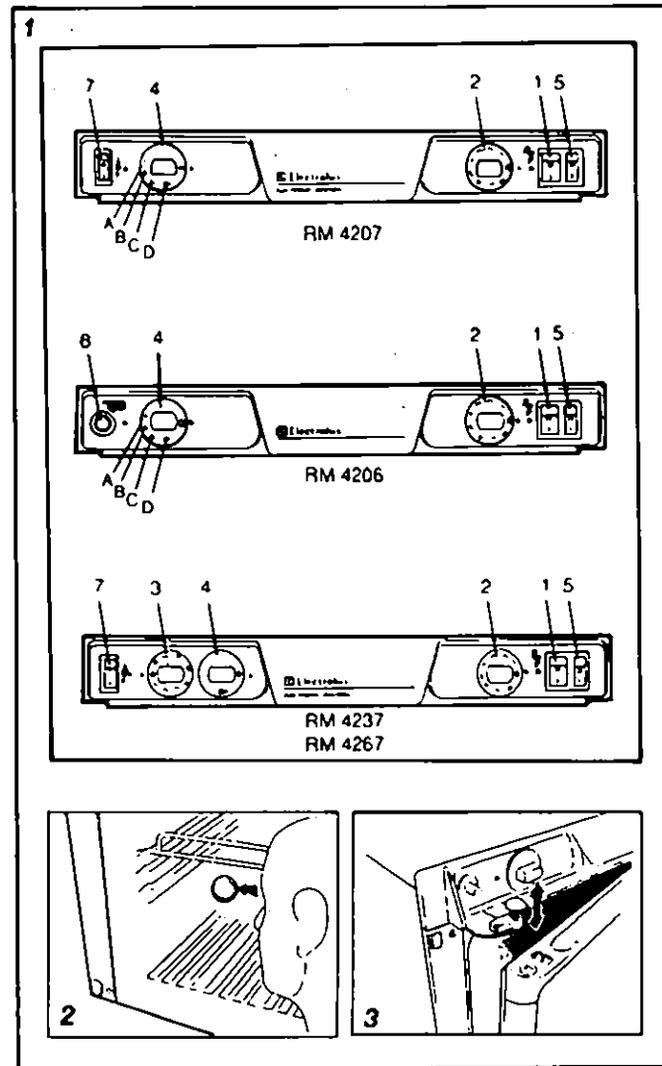
Introduction

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 Caravan 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.
 - 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.



OPERATION OF MOTORHOME EQUIPMENT



OPERATING INSTRUCTIONS

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. (See Figs 1)

Two rocker switches are used to select the electric power supply, one for 240V (1) and one for 12V (5).

Refrigerator temperature is controlled by a thermostat knob (2) when the refrigerator runs on 240V.

The gas supply is turned on/off by means of the knob (4). When lighting the gas, one must press in the knob as explained further on.

In the model RM4206, a manual piezo-electric igniter is used. When the button (6) is pressed, sparks are generated at the burner. In models RM4207, RM4237 and RM4267 the gas flame is electronically lit, monitored and relit if necessary. For this the toggle switch (7) should be 'on' during gas operation. An indicator lamp in the switch flashes when 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, after 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.

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

Before you 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.

Models RM4237 and RM4267:

3. Turn on the gas supply by pressing the knob (4) and turning it to the gas position.
4. Set the thermostat knob (3) to the highest setting.
5. Set switch (7) to 1. A light in the switch should now start to flash, indicating that sparks are being generated at the burner.

6. Press the knob (4). 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.
8. Keep the knob (4) pressed for a further 10 to 15 seconds to activate the flame failure device, then release it.

Model RM4206

3. Depress and turn on the gas control safety device knob (4) to the gas position D.
4. Depress the gas control safety device knob (4) and hold it down while depressing the piezo-electric igniter button rapidly 3 or 4 times in quick succession.
5. Check the flame viewer to see whether the flame is alight (See Fig 2)
6. Keep the safety device control depressed for a further 15-30 seconds.
7. Release the safety device control and check to see that the flame is alight (See Fig 2).
8. To terminate gas operation turn knob (4) to '0'.

Model RM4207

3. Depress and turn on the gas control safety device knob (4) to position gas D.
4. Set switch (7) to 1. A light in the switch should now start to flash, indicating that sparks are being generated at the burner.
5. Press the knob (4). This opens the flame failure device and allows gas to flow to the burner.
6. When the flame lights, the sparking stops automatically and the switch stops flashing.
7. Keep the knob (4) pressed for a further 10 to 15 seconds to activate the flame failure device, then release it.

The flame can be observed in a viewing glass inside the refrigerator at the bottom left (See Fig 2).

To terminate the gas operation, turn knob (4) to '0' and set switch (7) to '0'.



OPERATION OF MOTORHOME EQUIPMENT

OPERATING INSTRUCTIONS CONTINUED

240V Operation

RM4206, RM4207, RM4237 and RM4267.

1. Turn off gas or 12V operation when applicable.
2. Set switch (1) to position 1.

12V Operation

There is no Thermostatic Control on 12V Operation

Only operate your refrigerator on 12V when the engine of your vehicle is running. Install through a relay otherwise your battery will soon be discharged.

NOTE: Before operating the refrigerator on 12V, it should be pre-cooled, together with its contents, by running it on bottled gas or 240V for a few hours before changing over to 12V and starting on a journey.

Models RM4206, RM4207, RM4237 and RM4267

1. If applicable turn off the gas operation.
2. Set the 240V rocker switch (1) to '0' and the 12V switch (5) to 1.

Winter Operation (Ventilation)

If the refrigerator has been left switched off in an unheated caravan when the outside temperature is below -12°C the cooling unit will become so cold that it cannot be started in the 240V mode of operation. In such event the refrigerator must be started on LP gas.

Some ventilator grilles have a facility for a winter cover (ask your dealer). These covers should be fitted in winter conditions to avoid over freezing of the refrigerator. The covers can also be used when the caravan is in storage or is being washed by a high pressure spray. Remember to remove the winter covers at all other times when the refrigerator is in use.

Regulating the Temperature

Once the refrigerator has been started up it will take a few hours to become cold

Models RM4327 and RM4267.

On 240V operation the refrigerator is controlled by a thermostat and the thermostat knob (2) should be set at 3. If a lower (colder) temperature is desired, set the thermostat to a lower number.

On LP gas operation the refrigerator temperature is regulated by the gas thermostat knob (3), which should be set at 3. If a lower (colder) temperature is desired set the thermostat at a higher number. If less cooling is required set to a lower number.

Models RM4206 and RM4207.

(See Fig 1)

On 240V operation the refrigerator is controlled by a thermostat and the thermostat knob (2) should be set at 3. If a lower (colder) temperature is desired, set the thermostat to a higher number. If less cooling is required set to a lower number.

On LP gas operation the refrigerator temperature is regulated by the gas thermostat knob (4), which should be set at B. This setting provides a suitable refrigerator temperature in warm weather. Should the storage compartment for fresh items grow cold, particularly in cold weather set the valve to A. Do not forget to restore it to C or D if the weather turns cold.

All Models

On 12V operation the refrigerator works continuously.

Travel Catch

(See Fig 3)

Make sure that the travel catch is engaged when the caravan is on the move. The travel catch at the top of the door can be set in two different positions. In one position the door is held tightly shut. In the other position the door is secured ajar so that the refrigerator can be aired when not in use.

Food Storage

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

Never keep items in the refrigerator which might give off flammable gases.

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

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

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

OPERATING INSTRUCTIONS CONTINUED

Defrosting

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

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

To defrost the refrigerator, turn it off and remove the ice tray and all food items.

Any frozen foods should be wrapped loosely, but completely, in several layers of clean newspaper. Remember that, if the temperature of frozen foods is allowed to rise unduly during defrosting its storage time may be shortened.

If desired, defrosting can be speeded up by filling the ice tray with hot water and placing it in the frozen food compartment.

Do not try to accelerate defrosting by using any kind of heating device as the plastic surfaces of the refrigerator might then be damaged. Neither should any sharp object be used to scrape off the ice.

The defrost water from the cooling plate in the fresh food compartment runs from a collector channel down a tube to a drip tray at the rear of the refrigerator where it evaporates. This does not apply to the frozen food compartment which needs to be cleaned manually. Do not re-freeze any thawed frozen food. When all the ice has melted wipe the frozen and fresh food compartments dry and leave the door ajar for airing prior to re-starting.

Place the food items back inside but wait until the refrigerator is cold making ice cubes.

Cleaning the refrigerator

Clean the inside of the refrigerator regularly to keep it fresh and hygienic.

Soak a cloth in a solution consisting of a teaspoon of bicarbonate of soda to half a litre of warm water. Wring out the cloth and use it to clean 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.

Turning off the refrigerator

If the refrigerator is not in use for some time:

1. Turn off the LP gas and electric power.
2. Empty the refrigerator and defrost it.
3. Clean the refrigerator interior and accessories and wipe them dry afterwards.
4. Leave the door ajar. It can be secured in this position by means of the travel catch.

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 20V 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.



OPERATION OF MOTORHOME EQUIPMENT

OPERATING INSTRUCTIONS CONTINUED

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.

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 obstructed.
- * The door is secured by means of the travel catch when the caravan 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 OPEN 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.

TECHNICAL DATA

For Models RM4206, RM4207, RM4237 and RM 4267

Model	RM4206 RM4207	RM4237	RM4267
Overall Dimensions:			
Height	615mm	826mm	826mm
Height	516mm	516mm	516mm
Width	482mm	485mm	485mm
Depth with Door	482mm	485mm	485mm
Depth without Door	443mm	446mm	446mm
Built-in Dimensions:			
Height	613mm	825mm	825mm
Width	490mm	490mm	490mm
Depth	460mm	460mm	460mm
Capacities:			
Gross Vol. (approx)	60 ltrs	70 ltrs	77 ltrs
Weight (max)	17 kg	19 kg	19 kg

OPERATION OF MOTORHOME EQUIPMENT



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 ELECTRICITY SUPPLY

On arrival at Motorhome Park 240 volt/16 amp.

1. Before connecting the motorhome installation to the main supply,

consult the notice at the supply outlet and be satisfied -

(a) that the mains supply is suitable for your installation and appliances, i.e. whether it is at the correct voltage, and

(b) that your installation will be properly earthed. Never accept a supply from a socket-outlet or plug having only two pins, or from a lighting outlet. In case of doubt, consult the park owner or his agent.

2. Make sure that the switch at the park supply point is off.

3. Remove any cover from the electricity inlet provided on the motorhome, and insert the connector of the supply flexible cable obtained from the park owner.

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

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

On leaving Motorhome Park.

5. Reverse the procedure described in paragraphs 3 and 4.

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.

Periodically

6. Preferably not less than once a year, the electrical installation should be inspected and tested and a report on its condition obtained as prescribed in the Regulations for the Electrical Equipment of Buildings, published by the Institution of Electrical Engineers.

Also

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 5 metres in length and its supply and return leads should be 2.5mm squared minimum.



OPERATION OF MOTORHOME EQUIPMENT

ZIG CP CONTROL PANELS

Controls

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

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

Battery Selector (Auxiliary Battery/Vehicle Battery)

This switch does exactly as its name implies: it allows you to choose the source of 12 volt supply to your motorhome. It is a feature of all ZIG control panels and will be found very useful, especially when on sites without a mains supply for battery charging. The ability to utilise your vehicle battery to run your motorhome accessories will allow much longer times before recharging. At the same time the facility will allow you to be independent of your vehicle by using your auxiliary battery only.

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

The 12 volt On/Off Switch

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

Fuses

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

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.

OPERATION OF MOTORHOME EQUIPMENT



ELECTRICAL INSTALLATION

Electrical Installation (12volt)

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

It should be noted that the vehicle battery is a reserve power supply not an alternative power supply. The auxiliary battery may be recharged using the X2 charger when the appropriate mains supply is available.

ZIG MK IV CONTROL PANEL ALL MODELS

Zig MK IV Motorhome Control Panel

This unit acts as a fused central switch panel allowing you to independently isolate items like the water pump and 12 volt lighting. If any of the 12 volt electrical equipment refuses to function, first check that the appropriate switch on the control panel is in the 'on' position, then check that the appropriate fuse has not blown. Note: If fuses to any of the caravan's 12 volt electrical equipment persistently blow it would indicate that there is an electrical fault either with the equipment in question or the installation, if this is the case have your authorised Compass dealer check it out.

Instructions for Use

Select the source of supply (vehicle or auxiliary) with the switch at the top of the panel, if you do not have an auxiliary battery leave this switch in the "Vehicle" position.

The other three switches are labelled 'Pump', 'Lights' and 'Aux', and these switches should be turned 'On' when these items are in use. Note that in your motorhome the 'Aux' circuit may not be connected, if it is, your motorhome instructions will advise what it is used for, if not it is available for use at a later date if required.

The Fuses

The four fuses in the MK IV are all rated at 10 amps and replacements are easily obtained from accessory shops or radio and T.V. dealers, in case of difficulty contact your dealer.

DO NOT FIT FUSES OF HIGHER VALUE IN ANY COMPASS MOTORHOME. Remember the fuse is there for your safety, in the event of an equipment fault, if a fuse blows, there is a reason, which should be investigated immediately.

The Battery Condition Indicator

The battery condition indicator warns the user when the battery is becoming discharged, the red light will glow when the voltage is below 11 volts, above this the green light will glow. No harm will come to the battery or the equipment if they are used below this voltage, in fact a few days reserve current may still be available after the red light first appears. A true reading will only

be given when all the equipment is switched off and no battery charging is taking place.

NOTE: The red light may glow when an accessory is switched on, this is normal and is due to voltage drop.

A Residual Current Device (R.C.D.) has been fitted as part of the 240v installation together with two or three 13 amp sockets, one of which is for the fridge.

If you wish to fit extra mains appliances in the motorhome, you should consult a qualified electrician. And if necessary make sure you install an additional R.C.D.

Electrolux Refrigerator (12 volt running)

The refrigerator in your Motorhome is designed to operate on 12 volt/240volt or gas. The 240 volt side is connected to a 13-amp plug.

The 12 volt supply is connected to the vehicle battery or the auxiliary battery via the Zig control panel. As the refrigerator requires a high consumption and will quickly drain your battery, a relay with an in-line fuse is fitted to the motorhome as per Electrolux instructions.

You will find a comprehensive wiring diagram supplied with this booklet covering the 12 volt electrical installation in your Compass motorhome. Before adding to or modifying any 12 volt appliance, always consult your authorized Compass dealer or a professional auto electrician who will advise you accordingly.



ZIG X-2 & X-3 CHARGER OPERATING INSTRUCTIONS

Please read these instructions carefully before operating the X-2/X-3 charger:

Introduction

The X-2/X-3 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-2/X-3 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.

Wiring the Tow Bar

Using cable of at least 2.5mm sq (50/0.025) connect the socket as follow:

Pin 4-(Green) Is wired to the main engine positive terminal via a 25-amp in-line fuse.

Pin 3-(White) Is wired to the vehicle Chassis.

Pin 2-(Blue) Is wired directly to the main engine battery positive terminal via a split charge relay, controlled by the ignition switch so the relay is only energised when the engine is running.

Pin 6-(Red) Is wired as pin 2 above using a separate cable and relay N.B. Under no circumstances must two cables be connected together.

The above is provided for your information only, please note the split charge facility available from the base vehicle is automatic and is totally independent from the X-2/X-3.

Safety Protection for the X-2/X-3

Reversed Battery Connection.

The X-2/X-3 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-2 or X-3.

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.

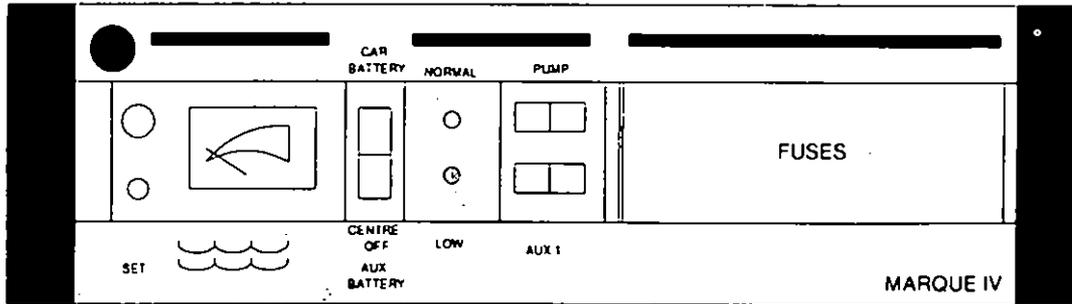
The X2 charger will only charge the auxiliary battery on site, irrespective of the position of the switches on the control panel. Its dual role is as a converter which will supply 12 volts to the system, whether there is a battery installed or not.

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.

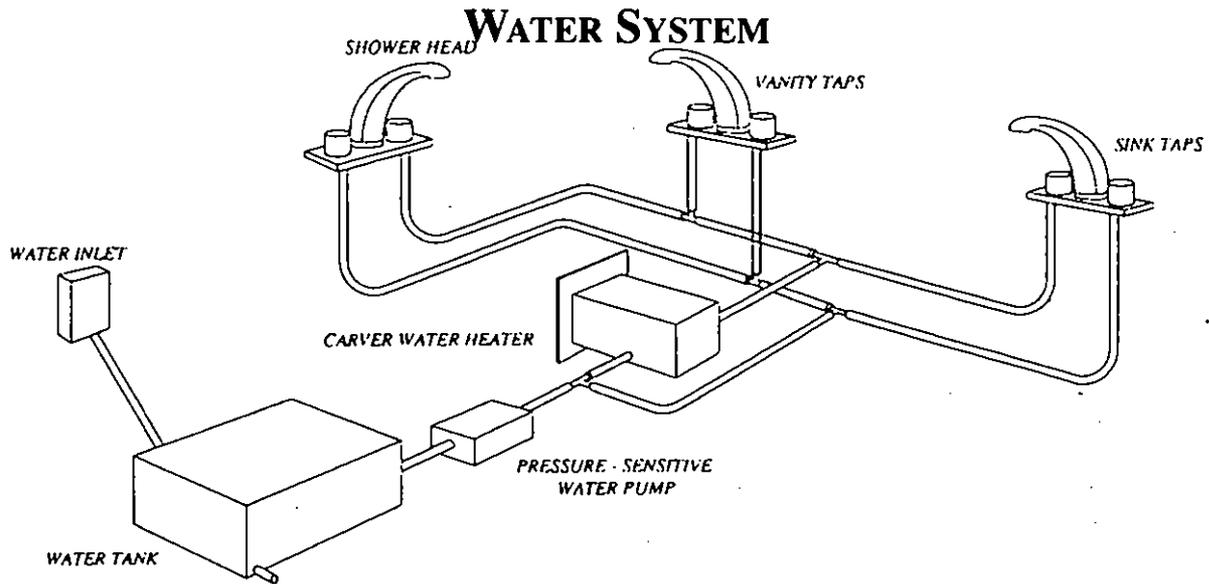
OPERATION OF MOTORHOME EQUIPMENT



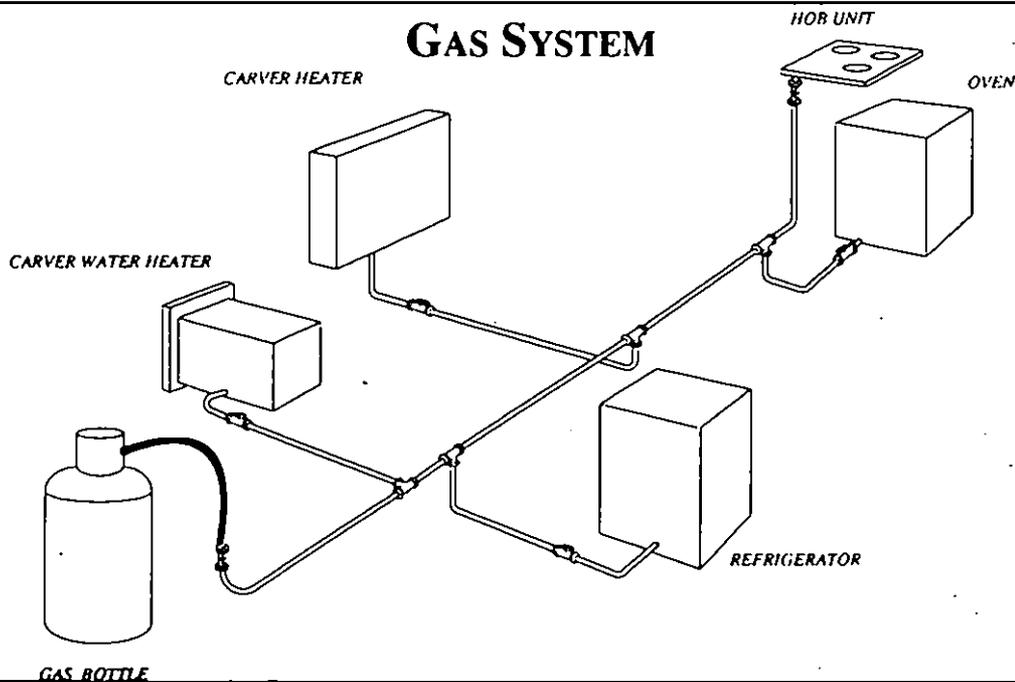
ZIG MARQUE IV CONTROL PANEL



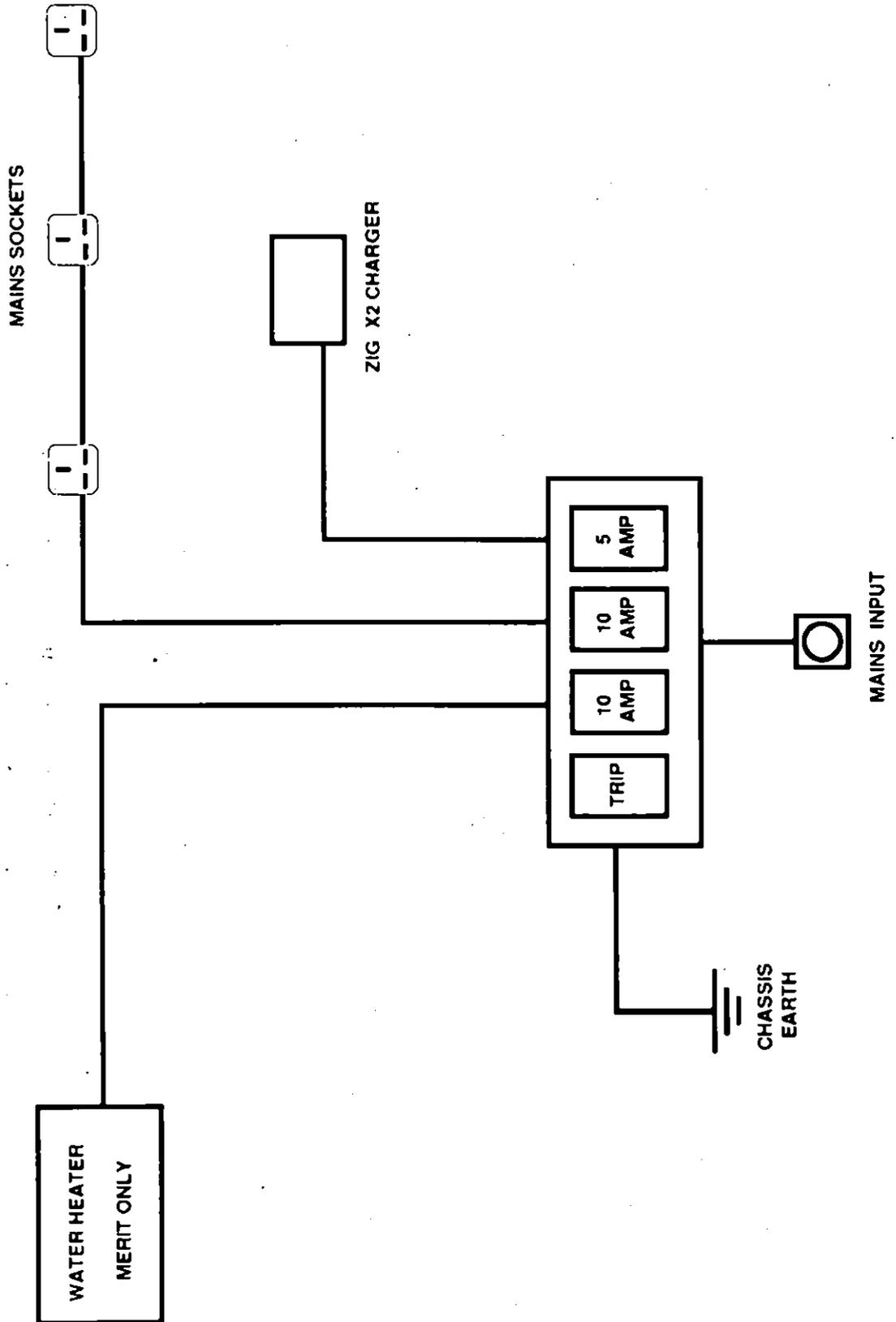
WATER SYSTEM



GAS SYSTEM

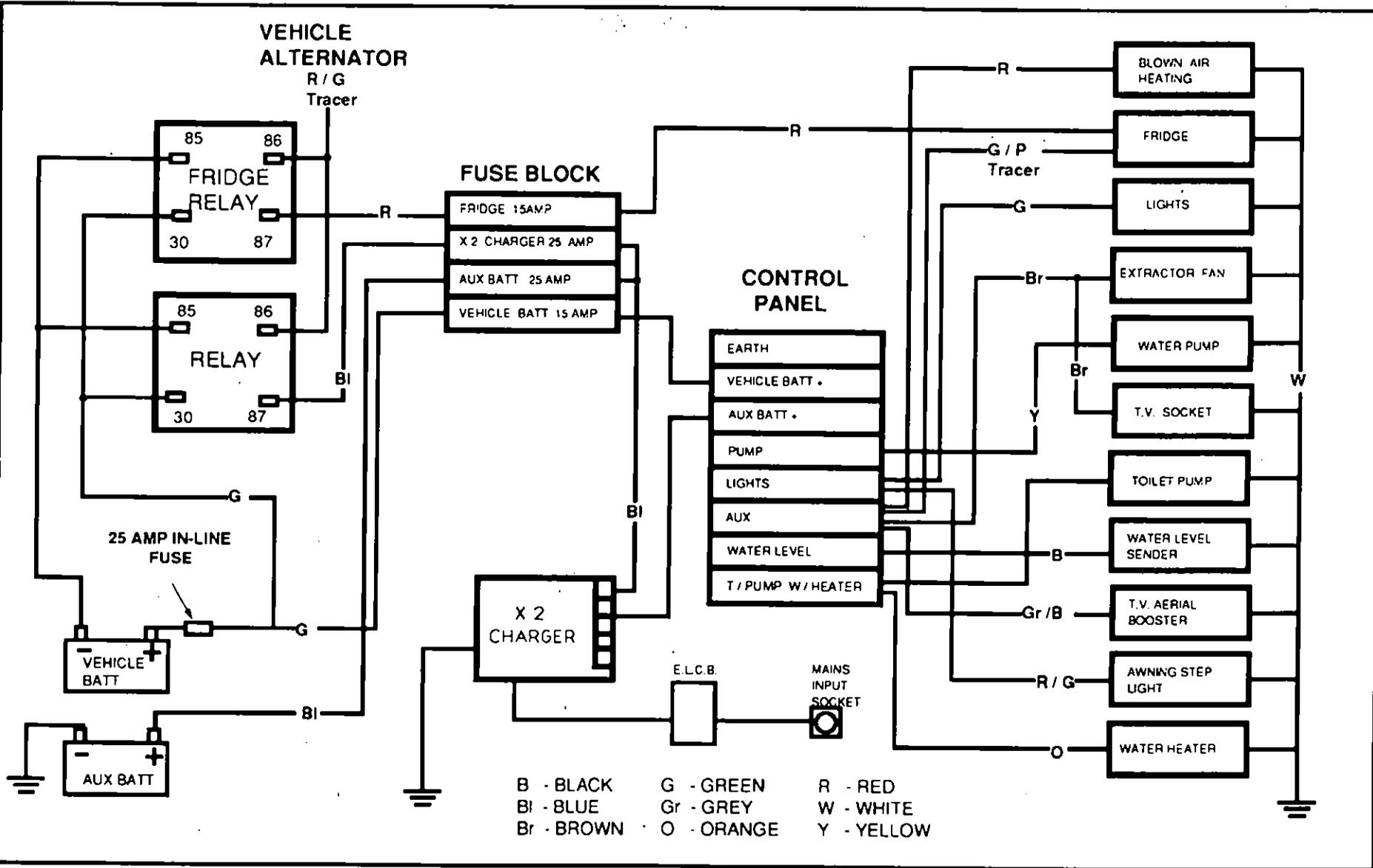


MAINS ELECTRIC.



OPERATION OF EQUIPMENT

COMPASS MOTORHOMES 12V WIRING DIAGRAM



MARKER LIGHTS (BROWN No 8 VEHICLE FUSE BOX, WHITE TO EARTHING BLOCK) FROM ROOF DOWN O/S WINDSCREEN PILLAR.
SPEAKER WIRES (BLACK, FIGURE 8) OVER ROOF FROM REAR LOCKER AND DOWN O/S WINDSCREEN PILLAR. NOT CONNECTED.



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.

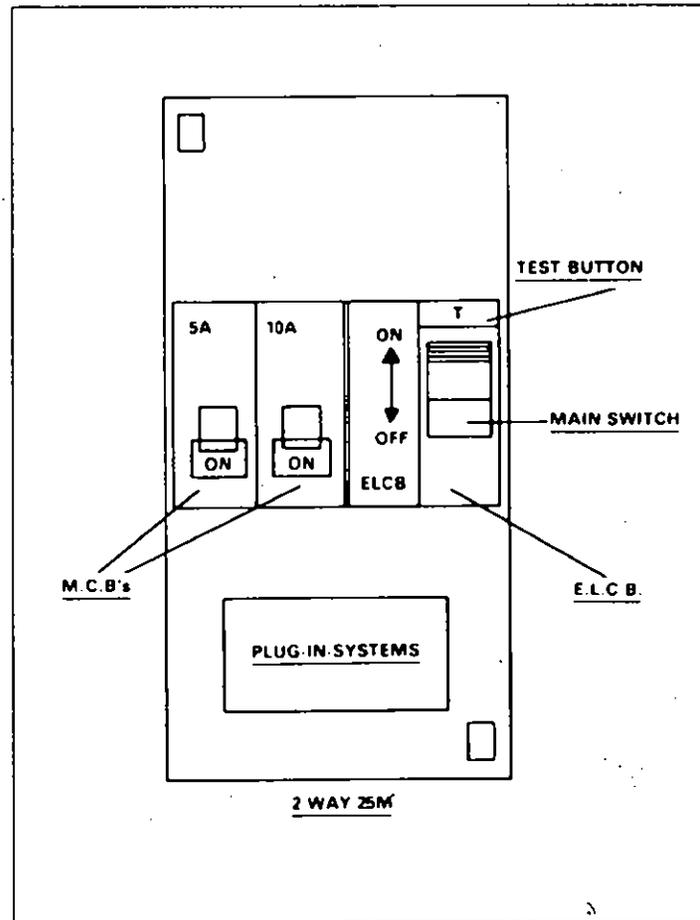
The M.C.B.'s (Miniature Circuit Breakers) are better described as mechanical fuses which, in the event of an overload situation in the circuit which they supply, will automatically switch to the OFF position. After elimination of the fault the M.C.B. should be re-set by switching it back on again (against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



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.

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.

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.

Motorhome Servicing

We recommend that you have your motorhome serviced at least once a year by an authorised dealer

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 caravan are made up from highly durable vacuum formed plastic, 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.

Front Drawer Unit/Folding Table Top

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

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.

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

Dry, covered space with fresh air circulation is best, but if this is not possible **DO NOT COVER** the body of the motorhome with a sheet or envelope as dampness may then be trapped inside.

Avoid parking close to trees.

During storage, you should remove the upholstery and furnishings and store these in a dry atmosphere. The sink and cooker should be thoroughly cleaned and all foodstuffs and perishables removed.

A light application of petroleum jelly or grease will preserve the bright 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 advisable 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.

SUPPLEMENTARY INFORMATION

Cassette Blind Scan Terieur

To operate the cassette blind or flyscreen, using the centre tab simply pull the blind down to the required preset level.

To open the cassette blind or flyscreen release the catches at either side, allowing the blind to recoil upwards into the cassette.

Opening Windows (Not Seitz)

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

Mains Electric Cable

The 240 volt electric supply at a caravan park may not include a mains connection cable to connect the 240 volt electric services to the motorhome mains input.

12v T.V. Aerial Socket

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

It should be noted that reception will be dependent on the quality of signal available, which could vary from area to area.

Seitz Window Blinds

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

The 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.

Vehicle Exhaust System

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

AL-KO Chassis Drifter 466

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.

Drifter 466 Tow Bar Fitting

Due to the special nature of the chassis on the Drifter 466 we recommend you only fit the specially designed AL-KO hitch. See your AL-KO handbook for further information.



AFTER SALES SERVICE

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

- A) 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**

INDEX



A	AWNINGS – Consult your supplying dealer	
B	BLOWN AIR HEATING	17
	BLINDS - CASSETTE/SEITZ	37
	BUTANE	8, 9, 10
C	CARVER HEATERS	13 – 16
	CASCADE WATER HEATER	18 – 21
	CHARGER/CONVERTER	30
	CLEANING	5, 11, 12, 25
E	ENGINE SPECIFICATION LOOSE LEAF	
	See also base vehicle manufacturers' handbook	
	EXHAUST	37
	ELECTRICS:	
	(12 VOLT)	33
	(240 VOLT)	32
	R.C.D.	34
F	FIRE PRECAUTIONS	8, 10
	FROST PRECAUTIONS	5, 7, 21
	FUSES	28, 29, 33, 34
G	GAS:	
	SAFETY	8, 9, 10, 27, 35
	CHANGING CYLINDERS	10
	LEAKS	10
H	HEATERS:	
	CARVER 1800, 2000, 3000	13, 14, 15
	CASCADE (WATER HEATER)	18
	FAULT FINDING	16, 19, 20
	HOB UNIT	11
J	JACKS – CORNER STEADIES	1, 2
L	LOADING	1
	LAYING-UP	37
M	MOVING OFF	1
	MAINS ELECTRIC – See under electrics	
O	OVEN:	
	ROSE COUNTESS	12



INDEX

P	PAYLOADS SEE SPECIFICATION SHEET	1
	PROPANE	8, 9, 10
R	REFRIGERATORS:	
	RM 4206	22 - 26
	RM 4207	22 - 26
	RM 4237	22 - 26
	RM 4267	22 - 26
	CLEANING	25, 26
	ROOF LOADING	1
	ROOF LIGHTS	2
S	SPEED LIMITS	1
	SHOWER	3
	SERVICING	36
T	TOWBAR WIRING	2
	TOWING WEIGHTS <i>see below</i>	
	TAP UNIT OPERATION	3
	TOILET - THETFORD CASSETTE	4, 5, 6
	T.V. AERIAL SOCKET	37
	TANKS:	
	CAPACITIES <i>see below</i>	
	CLEANING AND DRAINING	3
	TYRES - PRESSURES & SIZES <i>see below</i>	
V	VEHICLE WEIGHTS <i>see below</i>	
W	WINDOWS	36
	WATER SYSTEM	3, 7, 31
	WATER LEVEL INDICATOR	3, 31
	WASTE WATER DRAINAGE	3
	WATER HEATING	18 - 21
	WIRING DIAGRAMS 12V/240V	32, 33
	WHEEL SIZES <i>see below</i>	
Z	ZIG - CONTROL PANELS	28, 29, 31