

 **UTOHOMES**

MOTORHOMES

OWNERS HANDBOOK

www.vwT4camper.info - a useful website for owners and enthusiasts of VW T4 Transporter Campervans

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

Please check current details with your dealer and inspect the motorhome to ensure it is satisfactory before purchase. Dealers are not agents and have absolutely no authority to bind Explorer Group Limited by any express or implied undertaking or representation.

Model _____

Model Year _____

Motorhome Serial No. _____

Chassis No. _____

Key No. _____

Overall Length _____

Overall Width _____

Overall Height _____

M.I.R.O. _____

User Payload _____

M.T.P.L.M. _____

Tyre Size _____

Tyre Pressures:

Front _____ Rear _____

Introduction	1	Connection of Services	9	5500/5600 Hob/Oven Unit	39
Motorhome Code	2	Water System	9	6000/6100 Hob/Oven Unit	40
On Site	2	Shur Flo Water Pump	11	Carver Trumatic 1800 SC Heater	43
On the Road	2	Gas System	12	Carver 3600 Auto Heater	44
Preparing for the Road	4	Bottles	12	Carver 2000P, 2000A & Fanmaster	45
Weights explained	4	Regulator	12	Carver 4000P, 4000 Auto & Fanmaster	47
Loading & Distribution of Weight	4	Types of Gas	12	Fanmaster	48
Roof Racks and Loading	4	Precautions	13	Trumatic S3002 P	50
Before Moving Off	5	Electricity	14	Trumatic S3002 EL	51
On the Road	6	Hook-up Lead	15	Trumavent Fan	52
Pulling Off	6	Overseas Connections	16	Butterfly Outlets	53
Motorhome Handling	6	Motorhome Equipment	17	Fan Tastic Vent	53
Motorway Driving	6	Mains Unit (CEC 225)	17	Omnivent Rooflight	54
Changing a Wheel	6	Zig Charging Unit	18	Blizzard 1300 Air Conditioner	55
Bicycle Racks	6	Control Panels	19	Smoke Alarm	55
Safety & Security	7	PMS7 Power Modular System	20	Toilet (Thetford Cassette Toilet)	56
Fire Precautions	7	Carver Crystal 3 Filter System	22	Toilet (Thetford Cassette C-200 CW)	59
Ventilation	7	Cascade Water Heater	24	Doors	63
Security	7	Whale Elite Taps	25	Sink/Draining Board Cover	63
Arrival at Site	8	Reich Taps & Shower	27	Blinds	63
Selecting a Pitch	8	Refrigerators	28-31	Flyscreens	64
Levelling	8	Stoves Vanette 2200 Oven	32	Sunscreens	64
		Stoves Vanette Hob & Grill	33	Care of your Motorhome	65
		Country Leisure 'Caprice' Oven	34	Servicing	65
		Spinflo Oven (Car@)	36	Cleaning	65
		Spinflo Hob & Grill	37	Spares & Servicing	67
		Spinflo Integrill	37		

Welcome to the world of Motorhomes

You are now the owner of a quality Motorhome. The Owners Handbook has been prepared for your guidance to help you derive the greatest amount of pleasure from the use of your Motorhome. It is recommended that you read the pages of this Handbook thoroughly so that you are fully conversant with all the Motorhome systems. If there is anything you wish to know which this Handbook fails to cover we are sure that your Authorised Dealer will be pleased to help.

Note:

All coach built motor caravans are classified as Grade 2 which meet with the thermal insulation and heat levels for specific climatic conditions.

Important:

The serial number of your motorhome should be quoted in all correspondence, it can be found stamped on a plate fixed beneath the motorhome door.

There is also a serial no. on the chassis cab or pillar, which should also be quoted.

Your Authorised Dealer will be able to supply any replacement parts for your Motorhome, should the need arise, along with any accessories you may require. Please note that it is not possible to purchase replacement parts or accessories direct from the manufacturer.

We are sure you will have many happy times with your Motorhome but please remember a happy carefree time is based on proper, thorough and responsible preparation, careful driving with regard to 'The Rules of the Road', other road users and above all ensuring your Motorhome is in a first class roadworthy condition. It is recommended that your Motorhome is serviced by an Authorised Dealer once every twelve months.

Fire Retardant Foams

Under the Condition of the Consumer Protection Act 1987, manufacturers have a responsibility to ensure that their product is as safe as possible.

With this in mind all Motorhomes are equipped with Combustion Modified High Resilient (C.M.H.R.) foam cushions or sprung mattresses. These foams are very much safer from a fire point of view than those previously used. In addition all upholstery is made of fire retardant fabric.

The purpose of introducing a Code of Conduct for Motor Caravanners is to be seen to be doing all we can as an industry to ensure that motor caravans are looked on sympathetically by legislators and other opinion formers.

The main elements should cover such things as responsible camping, safe and considerate driving, parking, and other areas where a motor caravanner could cause abuse or nuisance if he or she is not careful.

Here is a brief outline of the main points:

ON SITE

- Keep to roadways unless otherwise directed.
- Adhere to speed limits. Note that these are generally 10mph. (Remember that the stopping distance on grass is considerably greater than on Tarmac.)
- Ensure that all fresh water taps/connections are turned off after use.
- Have care and consideration when using all facilities (toilets and showers etc.) and leave clean and tidy. Young children should be escorted.

- If the vehicle is not fitted with a waste water tank a suitable receptacle should be put below all waste water pipes. Do not let these containers overflow.
- Dispose of all waste water where instructed.
- Empty effluent from chemical toilets where instructed.
- Put all litter in containers marked for the purpose.
- Do not make excessive noise.
- Petrol generators, unless silenced, should be used with consideration.
- All dogs and other pets should be kept under control.
- Adhere and take note of all fire precautions noting the whereabouts of the fire points.
- Unless permission has been granted barbecues should not be used. When permission has been given consideration should be given to the annoyance that can be caused to other users of the site. Similarly, open fires are not allowed.
- Awnings and tents should only be used when permission has been obtained.

- Leave the pitch clean and tidy.
- On leaving, check out with the reception paying the required dues.
- Camping away from licensed sites, without the land owners or his agents permission, is not allowed in the United Kingdom.

ON THE ROAD

- Motor caravans should only be parked in approved places.
- When using a motor caravan on either the public highway or private roads the Highway Code should be complied with and full consideration given to other road users.
- In the event of a motor caravan travelling slowly and there being a queue of traffic behind, the driver of the motor caravan should, where possible, pull over in order to let the other traffic pass.
- Before using a motor caravan all aspects of the handbooks produced by the chassis manufacturer and the converter must be read and adhered to.

- Care and consideration should be taken to protect the environment.
- Observe the Country and Coastal Codes.
- When ignition is on all 12V ceases except fridge.

A full copy of the Motor Caravanners' Code can be obtained from the SMMT (Society of Motor Manufacturers and Traders).

3 PREPARING FOR THE ROAD

YOUR MOTORHOME (Weights explained)

Mass in Running Order

The weight of your motorhome as it leaves the factory, as new with standard fixtures and fittings, plus an allowance for driver and 90% fuel.

Maximum Technically Permissible Laden Mass

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

User Payload

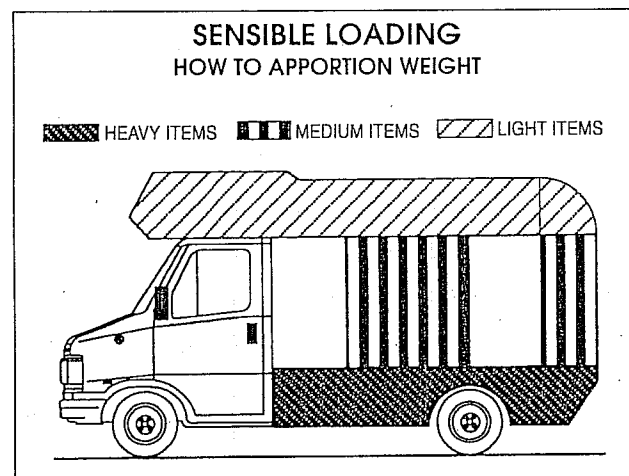
The load margin (payload), this represents the difference between the Mass in Running Order and the Maximum Technically Permissible Laden Mass. It shows the maximum weight which can be loaded into your motorhome, covering items such as food, crockery, cutlery, clothing, bedding, gas cylinders, etc.

LOADING AND DISTRIBUTION OF WEIGHT IN THE MOTORHOME

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.

Do not exceed recommended maximum loading for your motorhome.



ROOF RACKS

Some models of Motorhomes are fitted with a roof rack and ladder as standard.

Care is needed when using this facility. It is recommended you exercise extreme caution when loading and unloading.

DO NOT ALLOW CHILDREN TO CLIMB ONTO THE ROOF.

DO NOT EXCEED THE STATED MAXIMUM LOAD. ITEMS FITTED OTHER THAN STANDARD EQUIPMENT WILL DEplete THE PAYLOAD STATED IN THIS HANDBOOK.

ROOF LOADING

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

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

UNDER NO CIRCUMSTANCES WALK ON THE OVER CAB SECTION.

Calypso Roof Loading

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

Roof loads should be evenly distributed and securely fastened, but care must be taken not to over-tighten straps or ropes to the point where roof rails or brackets may

become distorted, particularly as during braking and cornering, forces exerted by straps or ropes are greatly increased. It is also worth noting that when carrying heavy or large objects on the roof, the vehicles handling may change due to the resultant displacement of the centre of gravity and the increased area exposed to the wind.

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. Do not store tins, bottles, etc. in overhead lockers.
2. Close and secure all windows and roof lights.
3. Leave all curtains and blinds open to aid rear visibility.
4. Check that gas cylinders are securely fastened and turn off all gas appliances, also ensure that the gas locker door is securely fastened.
5. Switch off 240 volt supply at source, disconnect mains cable and store in an appropriate place.
6. Check that the battery is secure and that the battery box lid is fastened.
7. Ensure the fridge is on 12V operation and door lock is set. (**Note:** the electrical relays will allow the fridge to be run on the vehicle battery when the engine is running.)
8. Remove any external fresh water connections etc.
9. Make sure any heavy articles are stored in accordance with the loading procedure. Tables should also be made secure.
10. Lock the motorhome exterior door (remember to take out your keys).
11. Check your external rear view mirrors and adjust if necessary.
12. Check that all corner steadies are wound up and that, if a step is used, it is put away before moving off.

PULLING OFF

Engage the clutch smoothly.

Avoid wear and tear on clutch and transmission by taking extra care.

Change gears smoothly.

Try not to jerk the clutch.

MOTORHOME HANDLING

Do not bump kerb with wheels.

When passing other vehicles allow more than the normal clearance.

Allow longer to get up speed to pass.

Do not suddenly swing out.

Carry out all manoeuvres as smoothly as possible.

Use nearside wing mirror to check motorhome has cleared when overtaking.

MOTORWAY DRIVING

Speed Limits (UK)

Where a speed limit is not in force, your motorhome can be driven up to 70mph on motorways and dual carriageways.

1. Reducing Speed:
 - i) In high or cross winds.
 - ii) Downhill.
 - iii) In poor visibility.
2. High sided vehicles cause air buffeting so extra care must be taken when passing or being passed. As much space as possible should be given.

CHANGING A WHEEL

1. Ensure handbrake is applied and chock the wheel diagonally opposite the wheel to be removed.
2. Remove the hub cap.
3. Use wheel brace to slacken off wheel nuts on the wheel to be changed.
4. Position jack at the appropriate jacking point (see vehicle handbook).
5. Jack up the motorhome until the wheel for removal is just off the ground.

6. Remove the wheel nuts and remove the wheel.
7. Fit spare wheel and reverse the above procedure.
8. Tighten wheel nuts in the order and in accordance with the vehicle handbook instructions.

WARNING:

Ensure the wheel is of the same construction and size as the one that has been removed.

BICYCLE RACKS

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

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

SAFETY

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

CHILDREN

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

FIRE EXTINGUISHERS

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

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

IN CASE OF FIRE

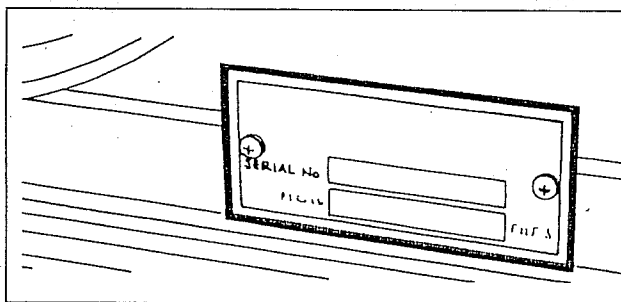
1. Get everyone out of the motorhome as quickly as possible using whichever exit is the quickest including windows. Do not stop to collect any personal items.
2. Turn off gas container valve if safe to do so.
3. Raise the alarm — Call the fire brigade.

VENTILATION AND CONDENSATION

All motorhomes comply with C.O.P. 201. The ventilation points on your motorhome are fixed points of ventilation which are stated by the British Standards. Under no circumstances must these vents be blocked or obstructed. It is advised that fixed ventilation points are checked and cleaned (if necessary) on a regular basis.

SECURITY

SERIAL NUMBER



Record your motorhome serial number (which can be found stamped on a plate fixed beneath the motorhome door or pillar), and your cab chassis serial no. (which can be found on a plate under the bonnet). Make a note of this number in the space provided at the front of this handbook and make a separate note of the number to keep safe at home.

MOTORHOME THEFT

The theft of a motorhome can occur in the most unlikely circumstances; from a motorway service area, even from an owner's driveway.

Secure all windows and doors when your motorhome is unoccupied even if only for a short length of time.

ADDITIONAL SECURITY

Consider fitting any device which might deter or prevent intrusion by thieves. A wheel lock prevents removal of the wheel.

Window etching of the chassis number is a cost effective deterrent.

FREE CRIME PREVENTION

Advice about securing your motorhome, protecting your valuables, property marking, either at home or whilst on site, can be obtained from the Crime Prevention Officer through your local Police Station.

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

Before making connections of any description to the motorhome ensure ALL equipment is turned off and that where appropriate switches are moved to the on site positions.

The Cascade Water Heater, where fitted MUST NOT be switched on until water flows from the hot water taps which indicates the water heater is full.

The Cascade Water Heater should not be used on BATTERY CHARGER ONLY (i.e. without a 12V battery in circuit) as this may cause the heater to operate incorrectly.

Under no circumstances connect **The Cascade Water Heater** directly to a mains water supply.

WATER SYSTEM

FRESH WATER TANK

NOTE: It is recommended that the fresh water tank is sterilised at the beginning of each season's use with one of the proprietary products available following the instructions given.

Fill the tank with fresh water from a known drinking water supply using a hosepipe which is recommended for use with drinking water, alternatively by means of a container, and funnel; the tank is full when the water runs from the overflow pipe.

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.

The fresh water tank is drained via a drain cock on an extension pipe clipped to the motorhome valance.

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.

WASTE TANK

Motorhomes are fitted with a waste water tank which accepts all waste water from the sink, handbasin and shower (where applicable).

When full the waste water tank can be emptied using the outlet valve provided under the motorhome, the position of this valve varies according to the model of motorhome.

COLD WEATHER USE

You will find that certain pipes (waste water) run outside and underneath your Motorhome. In colder weather it may be desirable to insulate these pipes. This can be done by using foam insulation tubing from your local DIY store.

Check Site Regulations

SITING YOUR MOTORHOME

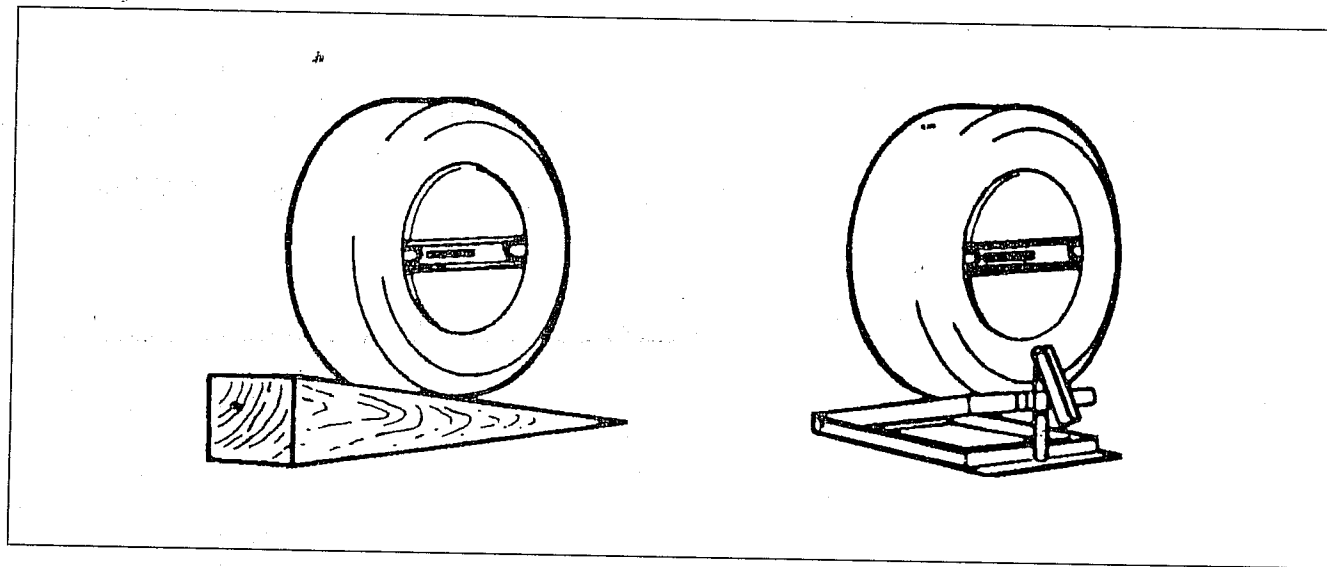
When siting your motorhome please keep to the roadways unless otherwise directed. Obey the speed limit; it should be noted that the speed limit is generally 10 mph. Only a person in possession of a current driving licence may drive on the site. It is also worth remembering that stopping distances on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

SELECTING A PITCH

Carefully select where you wish to place your motorhome. The site should be as level as possible, preferable not under or near trees, well drained and away from possible boggy areas. Consider how you will move the motorhome when it is time to leave the site. On sloping ground it is better to pitch facing downhill, especially during the rainy season.

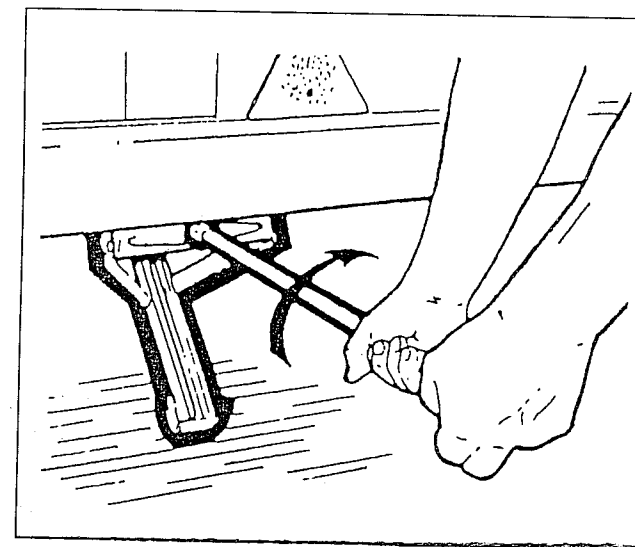
LEVELLING

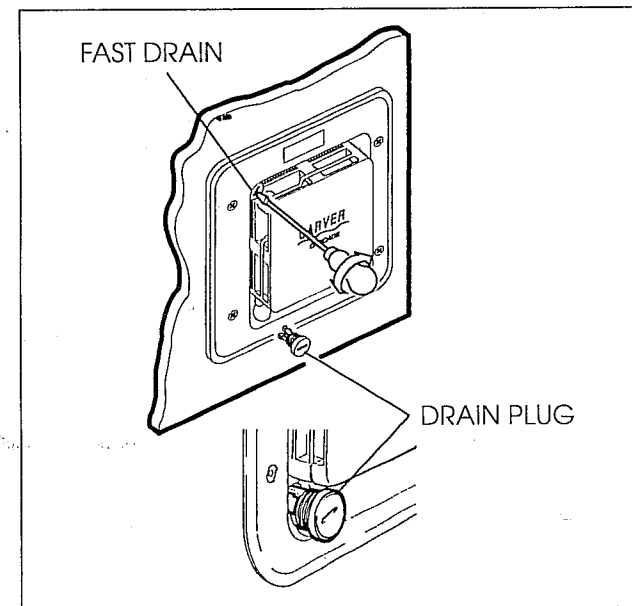
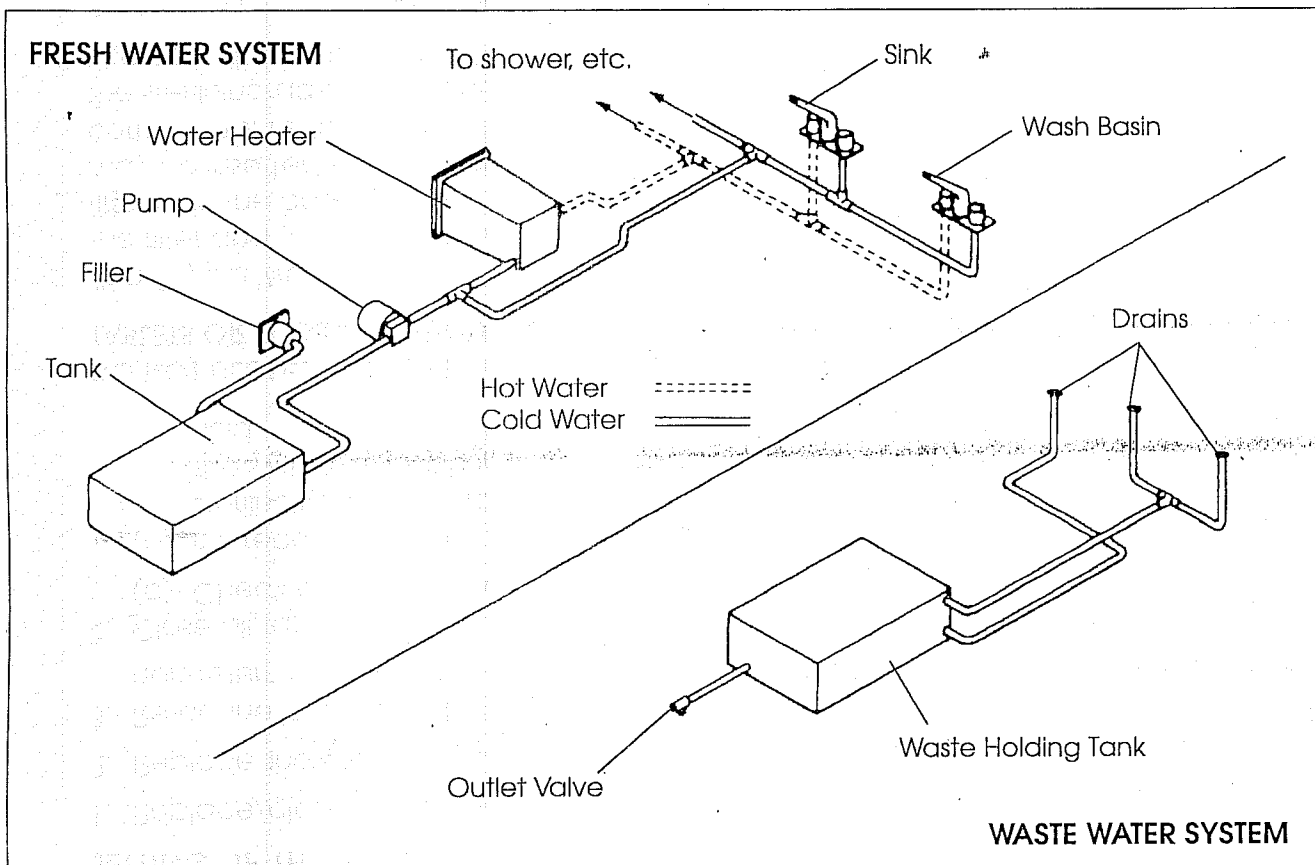
It is important that the motorhome is correctly levelled to ensure the correct working of the refrigerator, cooker, etc. Use ramps or levelling devices to raise the lower wheels.



Wind down the rear corner steadies (if fitted) onto load spreaders (blocks of wood a minimum of 6 inches (15.25cm) square) taking care not to lift the motorhome.

NOTE: Corner steadies are NOT wheel jacks.





3. Open all hot and cold taps and shower heads if fitted.
4. Remove drain plug and store in a safe place in motorhome (e.g. kitchen sink).
5. Using a flat bladed screwdriver, turn the fast drain 90°.

The water system will now drain – this is likely to take 5 minutes. Remember that at least 9 litres (2 gallons) of water should drain from the system.

6. Leave all taps open, including main drain valve on all holding taps.

WATER SYSTEM WINTERISATION

Motorhomes may be in use all year round, but when not in use, even for short periods, this procedure should be followed. One night of freezing temperatures is all that is required for expensive permanent damage to water system components.

The whole system MUST be drained

To fast drain the system proceed as follows:

1. Park the motorhome on level ground.
2. Ensure that the gas and electric supplies are turned off.

7. Remove tap spouts and shower heads.
To remove: unscrew by hand, then shake out and store in a dry place.
8. When system is drained, remove water filters, if fitted.

SETTING UP THE WATER SYSTEM

1. Replace/close all drain valves & plugs.
2. Replace shower heads and tap spouts.
3. Re-connect pipes, if disconnected at non-return valves, etc.
4. Close all taps.
 - (a) Check all plumbing connections.
 - (b) It is recommended at this point to sterilise your water tank and flush the system through with a sterilising fluid.

DO NOT USE DOMESTIC BLEACH, CAMDEN TABLETS OR SODIUM METASULPHIDE.

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

5. Renew old filter after flushing system through. It is also recommended that

the water system is checked during annual service.

Note: Frost damage cannot be claimed under warranty.

SHUR FLO PRESSURE SENSITIVE WATER PUMP

SETTING UP THE WATER SYSTEM

CHECK OUT PROCEDURE

Examine the installation. Ensure all pipes and connections are fitted and tight, there are no kinks in the hoses and the battery is fully charged (or a 12V DC converter of at least 10 amp capacity if used).

INITIAL OPERATION

1. Fill the tank with water.
2. Open all taps . . . Hot and Cold.
3. Switch pump to 'ON' position. Allow time for the hot water tank to fill. Shut off each tap as flow becomes steady and free of air. Shutting off the last tap should cause the pump to shut off.

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

WINTERISING THE WATER SYSTEM

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

1. Drain the water tank through the drain on the tank.
2. Now drain the lines by opening the lowest outlet or drain in the system.
3. Remove the outlet hose on the pump. Turn the pump on, allowing the pump to pump out any remaining water. . . about a cupful. A towel or rag can be used to catch the water. Should you wish to blow the lines out with air, apply the airline to the system where the outlet hose has been removed. Be sure all valves are open.
4. Having removed the water from the system, attach the pump hose now. . . or later. The system is now winterised.

See Water Heater Instructions for winterisation of water heater.

GAS SYSTEM

GENERAL INFORMATION

GAS BOTTLES

Bottled L.P. gas is the most convenient portable source of fuel for your motorhome.

Make sure that heating, cooking appliances and gas cylinders are switched off before you move the motorhome.

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

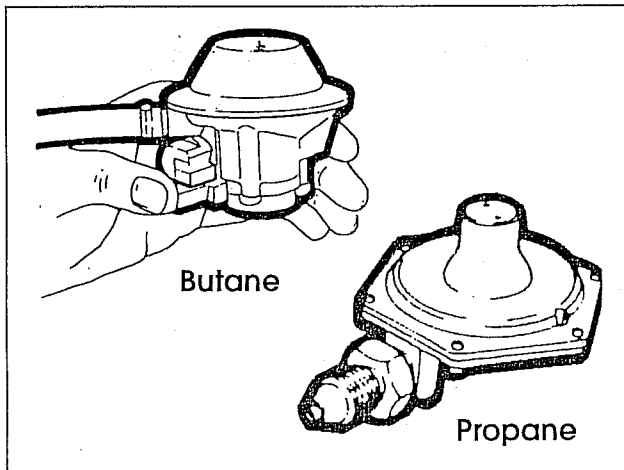
THE REGULATOR

The regulator is a governing device which adapts the bottle pressure to one that suits the equipment in the motorhome.

It is recommended to fit a regulator with a pressure relief valve at 150 mbar.

The gas system should be checked on an annual basis.

Note: Regulator valves should always be in the 'OFF' position when the motorhome is on the move.



WARNING

Some industrial LPG appliances operates at high pressure and require a 'high pressure' regulator. This often has an adjusting handle on it. **NEVER** use such a regulator on a motorhome.

Propane and Butane gas regulators are not interchangeable.

HOSES

Hoses should be made from Neoprene, which is black and should conform to BS 3212. Rubber hosing should never be used. It is good practice to replace hoses annually, and a jubilee clip is a worthwhile addition to prevent accidental removal of the hose.

TYPES OF GAS

BUTANE

Butane is supplied in the U.K. in Green, Blue or Aluminium bottles.

All these have a male left hand thread except for Camping Gas which has a female right hand and Calor, aluminium and 32lb bottles which have a special clip-on connection.

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

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

PROPANE

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

Scandinavian countries use the same connector.

Germany or Austria supply Propane with a male connection.

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

GAS SAFETY ADVICE

FACTS ABOUT LPG

LPG is not poisonous.

Bi-products are harmless.

There is a danger if all air and oxygen were excluded.

Ventilation holes must be clear at all times.

LPG has been given a smell by the manufacturers in order to identify leaks.

AWNING SPACES - LPG APPLIANCE EXHAUST

There is no danger of pollution in an enclosed awning space from the LPG exhaust from a refrigerator venting into it.

Space heaters may produce sufficient

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

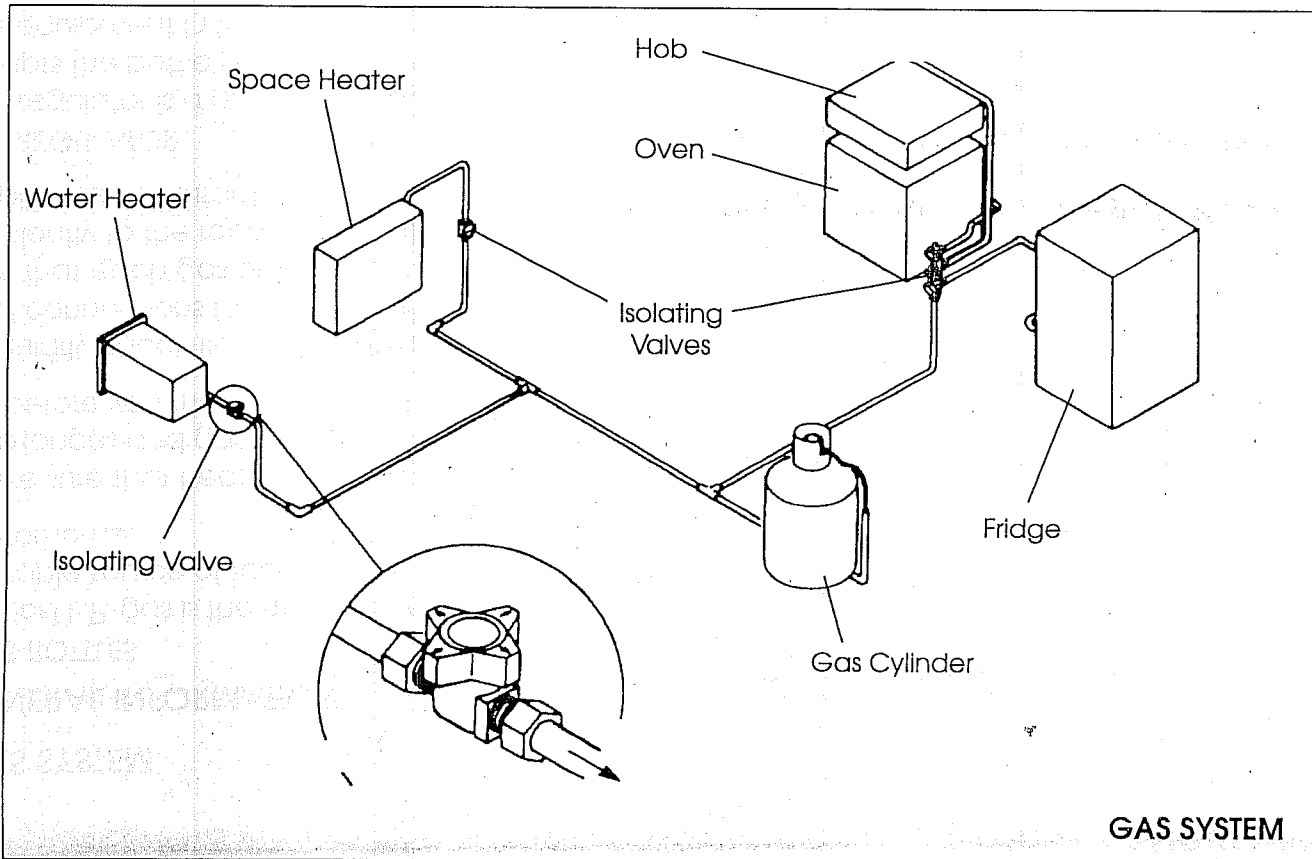
Motorhome owners are advised to allow some fresh air circulation in the awning space when such appliances are in use.

PRECAUTIONS

- Never look for a leak with a match. Always use a soap solution or its equivalent when testing connections. Do not operate any electrical apparatus whatsoever, especially light switches. If the leak is not obvious, the motorhome should be evacuated and qualified personnel consulted. The gas bottle should be turned off.
- Avoid naked lights when connecting or changing a cylinder.
- Check the flexible hose frequently.
- The gas is heavier than air and therefore sinks to the lowest point.

ROOF-MOUNTED FLUE INSTALLATIONS

All flue installations should be inspected once a year throughout their length for corrosion. Flues should be replaced if any sign of perforation is found. Ensure that the replacement is on an approved type.



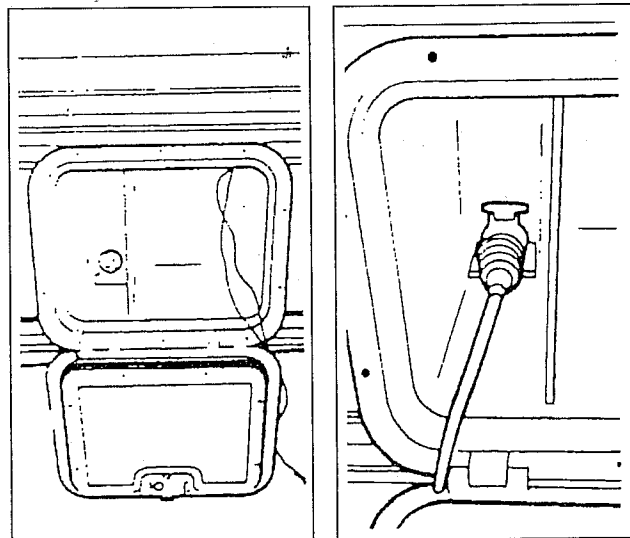
ELECTRICITY

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

**INSTRUCTIONS FOR ELECTRICITY SUPPLY
ON ARRIVAL AT CARAVAN SITE**

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

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



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

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

ON LEAVING CARAVAN SITE

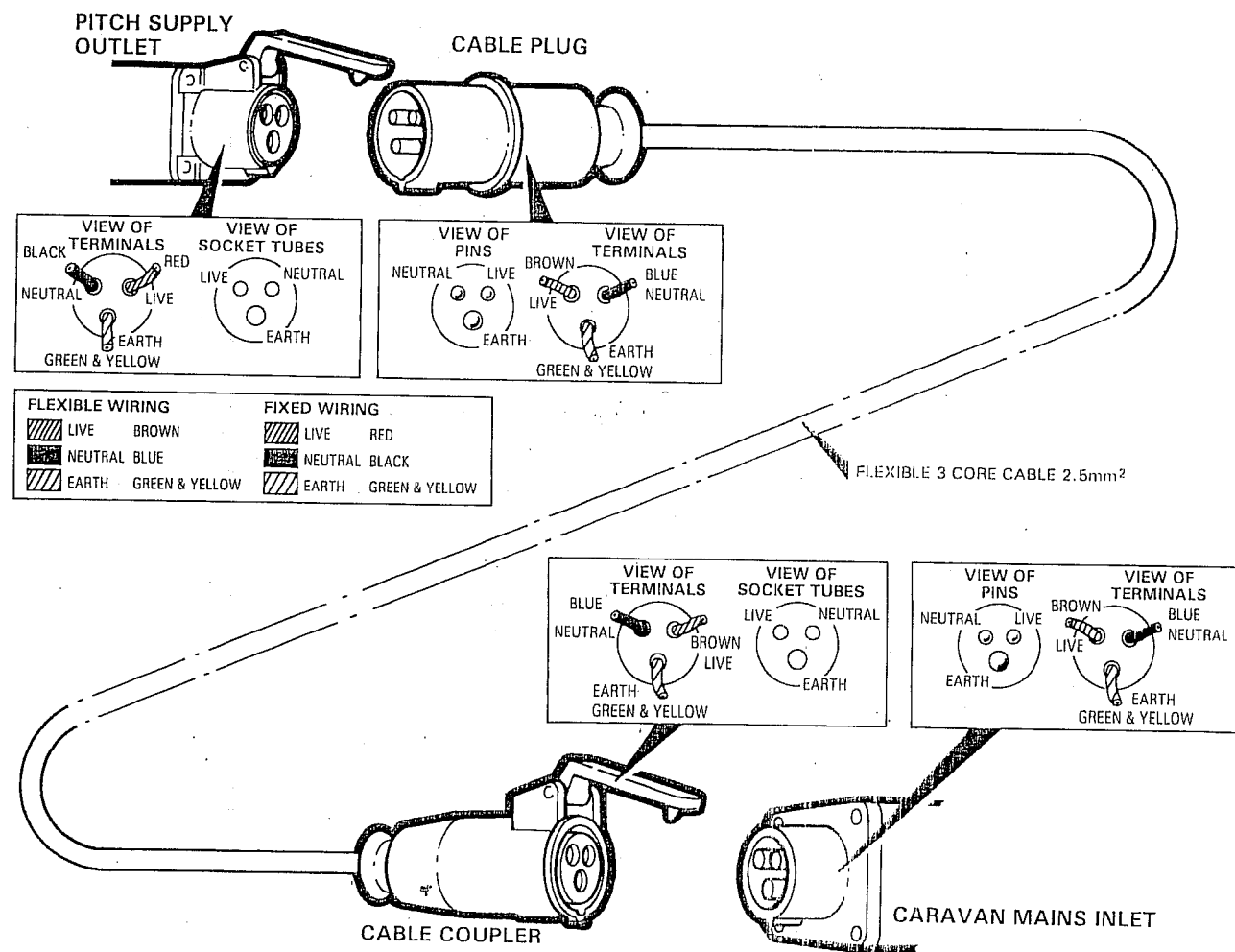
5. Reverse the procedure described in Paragraph 3 and 4 above.

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

PERIODICALLY

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

WIRING OF CONNECTING CABLE AND MOTORHOME MAINS INLET



WARNING

IT IS ESSENTIAL THAT CONNECTIONS ARE MADE EXACTLY AS SHOWN. IF TERMINAL MARKINGS ARE NOT IN ACCORDANCE WITH THE DIAGRAM, THEY MUST BE IGNORED. IF IN DOUBT CONSULT A QUALIFIED ELECTRICIAN.

7 CONNECTION OF SERVICES

OVERSEAS CONNECTIONS

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

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

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

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

A means of checking the polarity of the mains supply when overseas is useful.

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

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

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

N.B. The information provided in this handbook relating to fitted equipment is only intended as a quick reference guide. Comprehensive details of maintenance and fault finding charts where appropriate can be found by referring to the accompanying manufacturers' literature. If any doubts still exist about the operation of equipment qualified personnel or your Motorhome Dealer should be consulted.

MAINS UNIT (CEC 225)

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

The unit gives overload and earth leakage protection for the 230V electrical supply in your motorhome.

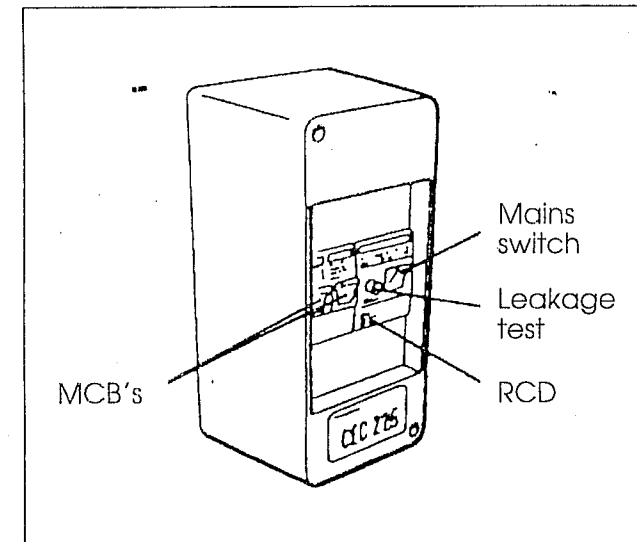
For normal operation all switches on the unit need to be in the ON position. The switches on the left of the unit are known as M.C.B.'s (miniature circuit breakers).

In the event of a fault the M.C.B. 'trips' i.e. automatically moves to the OFF position.

After elimination of the fault the M.C.B. can be re-set by switching to the ON position. (Against the spring pressure in an upwards direction).

If an earth fault develops or a person was to touch a live piece of equipment the leakage of current to earth should immediately operate the RCD (residual current device) and 'trip' the main switch to the OFF position.

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



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

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

Note: Having too many appliances switched on at the same time will trip the RCD. This is a safety measure.

ELECTRIC

Ensure all equipment is off. Switch control panel switch on RCD and MCB's to on site position. Switch on the charging unit (ZIG X-2/ZIG X-3/X-7) where fitted.

ZIG X-2/X-3/X-7 CHARGING UNIT & POWER SUPPLY

The X-2/X-3/X7 is a fully automatic battery charger, connected to a six-cell lead acid battery with a nominal voltage of 13.8 volts, the unit will charge and re-charge 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 overcharging, unless the battery is at fault.

The X-2/X-3/X7 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 for cell failure is discharging the battery below the recommended level of approximately 10V.

Please note that any drop in voltage coming in will reduce the output.

PRODUCT SPECIFICATION X-2 & X-7**INPUT SPECIFICATION**

1. Rated input voltage: 180—230 VAC
2. Rated input current: 1.6A (RMS) max at 230 VAC
3. Rated input frequency: 47 Hz—63 Hz

OUTPUT SPECIFICATION

1. Rated output voltage: Nominal 13.8V
2. Rated output current (continuous) 0A—10A
3. Ripple and noise: 100 mv p-p
4. Output voltage, stability: +/-0.5%
5. Maximum continuous: 140 watts

PRODUCT SPECIFICATION X-3**INPUT SPECIFICATION**

1. Rated input voltage: 198—230 VAC
2. Rated input current: 0.8A (RMS) max at 230 VAC
3. Rated input frequency: 47 Hz—63 Hz

OUTPUT SPECIFICATION

1. Rated output voltage: Nominal 13.8V
2. Rated output current (continuous) 0A—6.5A
3. Ripple and noise: 100 mv p-p
4. Output voltage, stability: +/-0.5%
5. Maximum power: 110 watts
6. Maximum current: 8A

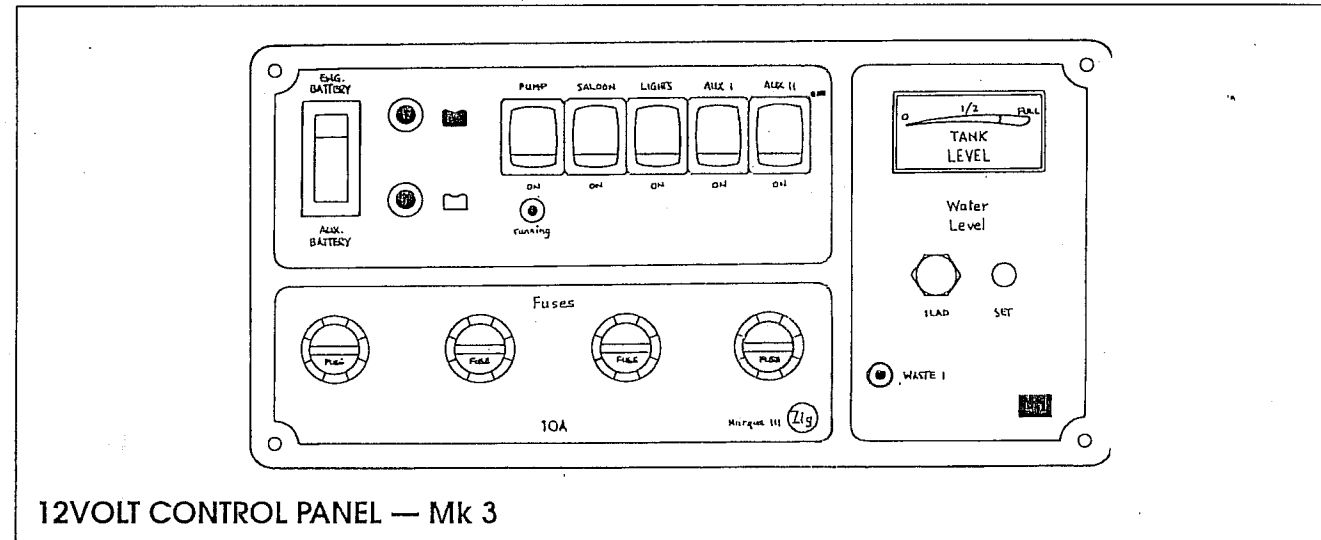
WARNING: Under no circumstances should a fuse of different size or rating be fitted. Should a fuse blow for any reason the fault must be diagnosed before replacement.

CONTROL PANELS

All the accessory switches are clearly marked with their functions, except the auxiliary switches. These switches, together with their separate fuses serve to isolate the various 12V outlets in your motorhome and will allow you to choose which circuits you wish to use at any time.

THE BATTERY CONDITION INDICATOR

This 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 11V, 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 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



12VOLT CONTROL PANEL — Mk 3

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.

In addition the SP7 is fitted with an analogue meter to indicate battery condition with 1/3 displayed red and 2/3 green. The breakpoint is 11V indicating the battery is in need of re-charging. Fuses are integral and located behind a panel.

THE 12V SYSTEM

The 12 Volt Distribution Panel and Battery control and monitor the 12 volt electrical system, including the second battery (see illustration).

To accurately test the condition of your second battery, turn the 12 volt switch on and observe the colour of the light. A green light indicates a satisfactory level of charge and a red light indicates an unsatisfactory level of charge. The colour of this light indicator is irrelevant whilst any 12 volt appliances are being used. The red light may glow whilst any of the 12 volt appliances are in use but this is not indicative of the battery charge level.

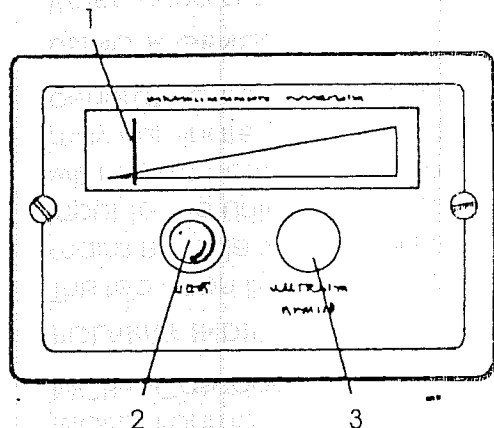
There are water level monitors for the fresh and waste water tanks which give an indication of the available capacities of each tank.

When water is present in the fresh water tank the indicator needle will light.

A red light will glow when the waste water tank is full.

ZIG WATER LEVEL

1. Fill the inboard water tank.
 2. With the pushbutton (2) 'IN' adjust the thumbscrew (3) marked 'set' until the needle on the dial (1) lays over the '1'.
- To check level at any time simply push in button and the dial immediately indicates how much water is available.



Water level indicator

BATTERY

All Motorhomes are fitted with a battery box which is vented top and bottom.

A deep cycling heavy duty 12V battery should be purchased to provide power for lights, fridge and other electrical appliances. The recommended size for a battery box is either a 60 or a 90 amp power box of a proprietary brand leisure battery. The battery must also have a tube venting capability.

WARNING

Explosive gases may be present at battery — prevent flames and sparks.

Your motorhome has been fitted with an in-line fuse between the battery terminal and strip connector. It is recommended that the fuse rating does not exceed 25A.

When fitting the battery, ensure that the correct polarity is observed, the terminals are securely fastened and the battery is secured with the strap provided.

Under normal circumstances it should not be necessary to remove the battery other than for routine inspection of terminals (possibly once a year).

PMS7 POWER MODULAR SYSTEM INTRODUCTION

The PMS7 Power Modular System from Plug-In-Systems Ltd is a 230V mains and 12V DC power control unit, providing all the necessary features for control of the electrics in your motorhome. The unit provides the following important features:

Mains 230V ac –

- Mains Module with
- Earth Leakage Protection (RCD)
- Over Current Protection (MCB's)
- Reverse Polarity Indication

12 volt dc –

- Fully Automatic Transformer/Charger
- Cascade Heater Module
- Battery/Water Level Module
- Fuse Module

UNIT DESCRIPTION

MAINS MODULE

The PMS7 is designed to operate on a mains supply of 185–265 volts ac (making it ideal for use with low continental voltages). The 40 amp RCD (Residual Current Device) gives protection against earth faults and also acts as the main switch. The mains module also has three MCB's (Miniature Circuit Breakers) which are basically resettable main fuses, to protect against overcurrent. Allocation of the MCB's is as follows:

MCB1 Sockets, Fridge & Charger
MCB2 Fanmaster
MCB3 Cascade

POLARITY INDICATOR

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

USING A GENERATOR

When using a generator in conjunction with the PMS7 the following must be observed, failure to do so may result in damage to the unit:

- i) Always start the generator with the mains isolator in the motorhome turned off.
- ii) Allow the generator to warm up for a few minutes before energising power in the motorhome; as the output voltage can be higher when cold.
- iii) Check the generator output voltage regularly to ensure it is within the specification of the PMS7 system (i.e. 230 volts $\pm 10\%$).

TRANSFORMER/CHARGER

The PMS7 employs a fully automatic mains to 12 volt dc transformer and battery

charger, able to operate with a wide range of input voltages and provide a stable output voltage even under load. The unit can provide up to 10 amps maximum, after which it will begin to shut down to protect itself.

CASCADE MODULE

This module provides controls for the Cascade water heater fitted in your motorhome. The three LED's show the following:

Green LED

Heater is switched on.

Red LED

There has been a heater fault, probably a low gas supply.

Yellow LED

DC voltage supply is too low for the heater to operate. Also included in this module are a pump isolation switch and pump running indicator. The pump isolation switch is used to isolate power to the water pump in the event of a pump fault or merely as a safeguard against unwanted pump operation. The red pump running indicator will light up as a warning when the water pump has been activated.

BATTERY/WATER LEVEL MODULE

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

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

To test battery voltage simply press the test switch to the BATTERY position. Readings should be taken as follows:

Green region Fully charged, (no charge necessary)

Yellow region Adequate charge (re-charge if desired)

Red region Low charge (turn on charger switch to re-charge)

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

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

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

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

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

FUSE MODULE

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

- Fuse 1 Front roof lighting
- Fuse 2 Rear roof lighting
- Fuse 3 12 volt sockets, auxiliary
- Fuse 4 Fan circuits
- Fuse 5 Water pumps, water sensor
- Fuse 6 Ignitions

SPECIFICATION

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

PRODUCT SUPPORT

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

HULL (01482) 652523 and ask for PRODUCT SUPPORT

CARVER CRYSTAL 3 FILTER SYSTEM INTRODUCTION

The Carver Crystal 3 Filter is designed to bring water into your motorhome in a convenient and efficient manner. The system includes a special two-stage filter which removes unpleasant tastes, smells and colouring to give clear fresh tasting water.

The first stage is a filter screen, which retains small solids. The second stage is a bed of silverised activated carbon, which removes chlorine tastes and smells etc. This is done by absorption and by mechanical filtration reducing algae and bacteria. Bacteria retained are then destroyed by the silver content. This action also prevents bacteriological growth in the filter.

The Carver pump is detached from the crystal housing for security and whilst touring.

OPERATION

Raise the crystal filter housing lid (see fig. 1). Clean both the water socket and the power supply terminals for the pump. It is advisable to lubricate the water inlet using vegetable oil (this reduces the friction between the 'O' ring and the plastic surface).

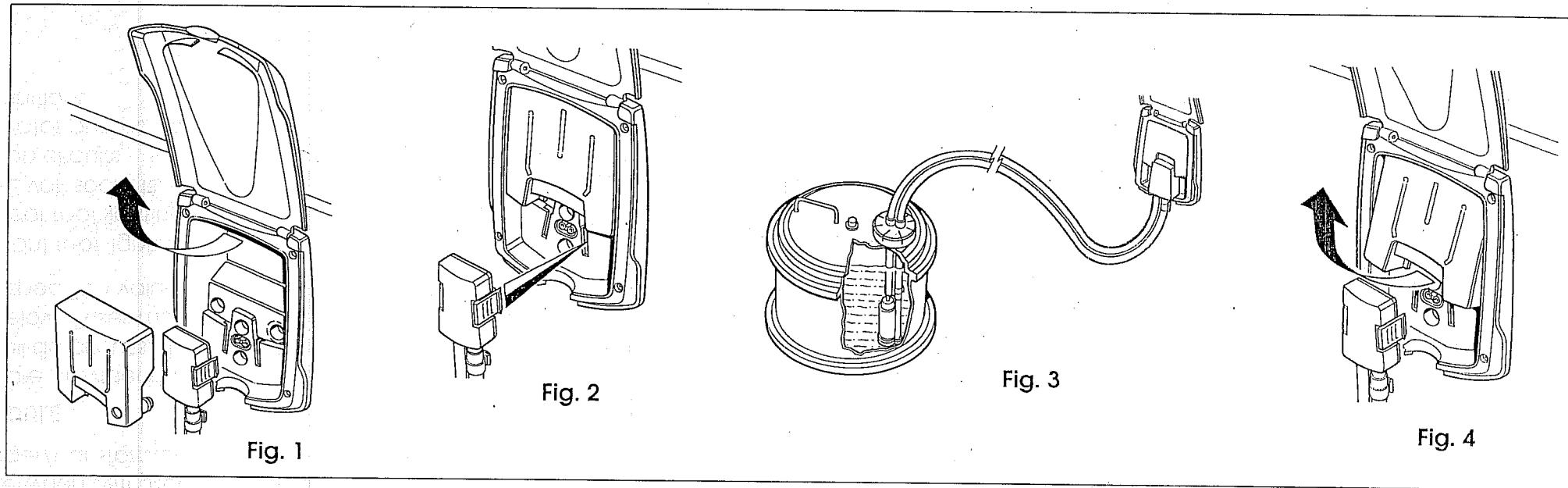


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Plug the pump assembly into the housing ensuring that it is pushed fully home (see fig. 2).

Place the pump into a full water container, ensuring that the pump is fully submerged. A dust cover is available to stop contaminants falling into the water (see fig. 3).

To remove the pump from the crystal housing, press the two clips in at either side of the pump plug and pull.

Do not remove by pulling the electric cable or the hose.

CHANGING THE FILTER CARTRIDGE

When inserting a new filter cartridge into the housing, smear vegetable oil on the two 'O' rings. (This reduces friction and makes it easier to remove).

It is recommended that the filter cartridge is replaced after 30 days of use.

To remove the filter cartridge pull the tab on the bottom of the filter, which will release the filter from the housing (see fig. 4).

Always ensure that the new filter cartridge is pushed fully home into the housing.

STERILISING

When cleaning the water system at the start or the end of the season, it is advisable to use the sterilising fluid, e.g. Chempro SDP or similar. It is recommended that for this operation you use any empty filter body as the fluid reduces the effectiveness of a new filter.

Flush the system thoroughly to remove the effective fluid traces.

After sterilising the system at the start of the season it is recommended that a new filter cartridge is fitted.

THE WINTERISING KIT

If caravanning in the winter there is a possibility that the water in the outside container will freeze. It is therefore recommended that a winterised system is fitted. This is achieved by simply fitting a Carver Compact to the inside of the motorhome in a suitable place, such as the washroom or kitchen. The container can then be used either inside or outside as required (Fig. 5).

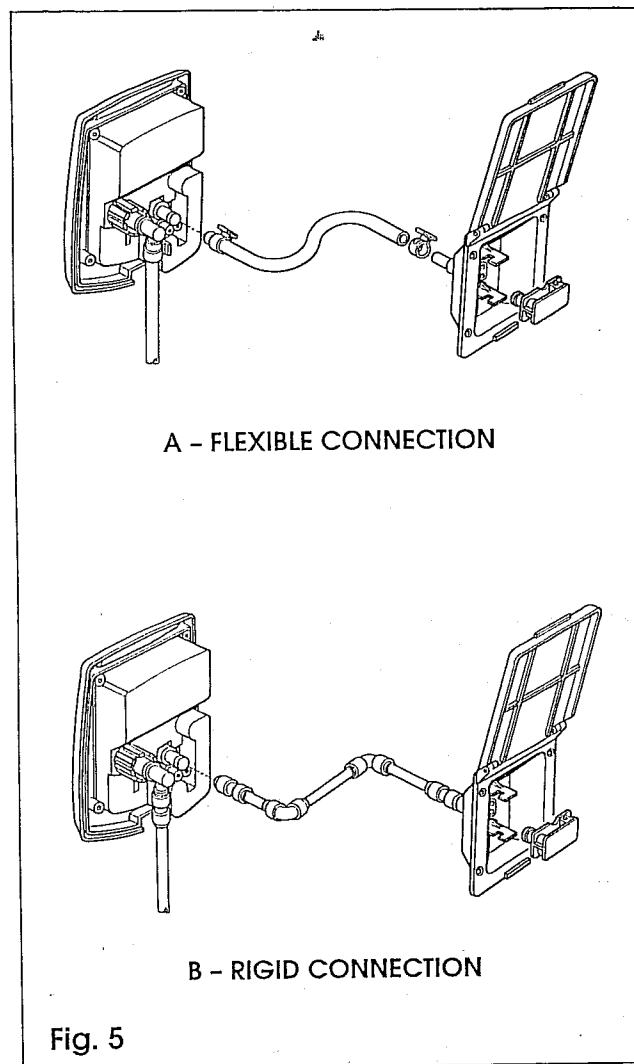
A waterway plug will be required to be fitted into the housing which is not going to be used.

Instructions for installing the winterising kit are supplied with the kit.

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

NOTES

- Never allow the pump to run dry. Always ensure that the pump is submerged in the water or the life of the pump will be reduced.
- Before winter storage, the water system must be completely drained and the filter cartridge removed. The filter hole may be sealed with the empty filter



body or left open but ensure the lid is firmly closed.

- Clean the water system at the start and end of the season with sterilising fluid (see notes under sterilising).
- If the pump fails to deliver water, the most likely cause will be air in the system. To remedy this, switch off the pump and shake the pump assembly in the water. Then switch on again. Alternatively the filter cartridge may not be positioned fully into the housing. Make sure the filter cartridge is positioned fully into the housing.

CASCADE RAPIDE, GE RAPIDE, CASCADE 2 AND 2 GE OPERATING INSTRUCTIONS

The gas side of the Water Heater is operated by the remote controller.

BEFORE SWITCHING ON the gas burner or the mains immersion heater make sure that water flows from the hot taps. This indicates that the water heater is full.

TO OPERATE THE HEATER ON GAS

1. **CHECK** that the gas and 12V D.C. electrical supplies have been connected and turned on.
2. **SWITCH THE WATER HEATER ON.** Press the ON button on the control panel switch. The green light will come on and remain on. To switch off, press the OFF button.

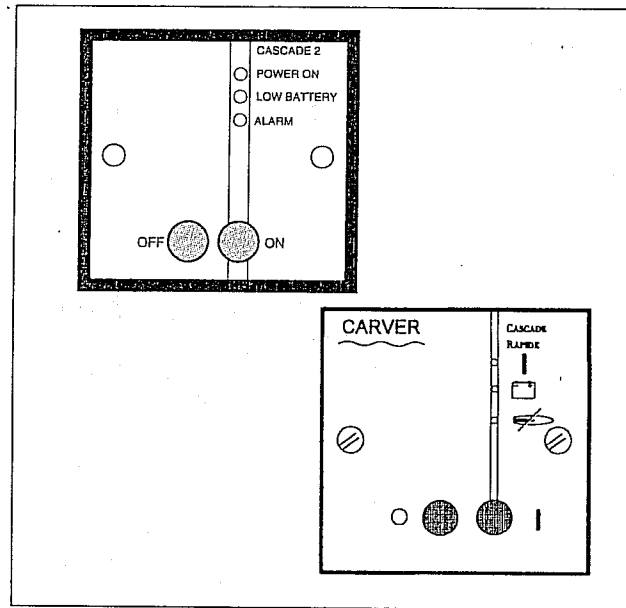
3. **THE GREEN LIGHT** indicates that the heater is operating satisfactorily and does not refer directly to the burner operation.

4. **THE YELLOW AND GREEN LIGHTS** on together indicate that the voltage of the power supply to the heater is too low. The heater is automatically switched off until the voltage is high enough. Re-charge the battery.

5. **THE RED AND GREEN LIGHTS** on together show that the burner has failed to light in the 10 second ignition period. This is usually due to failure of the gas supply or, in the case of new installation, air in the gas pipes. Switch off and wait for 3 minutes before switching on again, which resets the controllers and initiates a new ignition sequence. To clear air from the gas lines, several repetitions may be required.

TO OPERATE THE HEATER ON MAINS ELECTRICITY

With the motorhome connected to site mains, electrical power may be used instead of gas to maintain a supply of hot water. When switched on the immersion heater will maintain the tank at about 70°C under thermostat control. The mains immersion heater thermostat is not adjustable.



For quick warm-up both gas and electrical supplies may be used, but for maintenance use only one or the other.

The immersion heater takes approximately 3.75 amps when heating and this load must be taken into account if the site supply is current limited.

If the heater does not work, with the mains supply ON, the over temperature thermostat may have operated.

This may be due to no water in the heater tank or failure of the normal operating thermostat. Manually re-set the over

temperature thermostat by pressing the button in the centre of the electrical connection box. If it trips out again the over temperature thermostat has failed. **DO NOT USE THE IMMERSION HEATER AND CONSULT YOUR DEALER.**

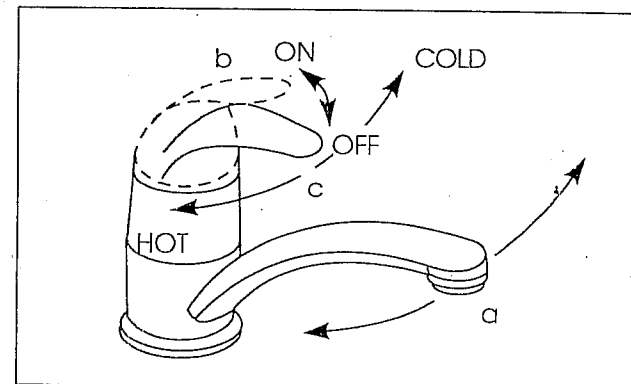
WHALE 'ELITE' MICRO SWITCH TAPS

The micro switch taps are used when the water supply is not pressurised.

When the tap is turned on the micro switch (which is fitted inside the tap) activates the pump to supply water.

OPERATION

Swivel the tap spout (a) to the desired position over the sink, lift the control lever (b) to activate the pump and allow water to flow simultaneously. To adjust the temperature swivel the lever (c) to the left or right as shown below.



CLEANING

It is recommended that a non-abrasive damp cloth is used for cleaning the Elite Tap/Shower.

Microswitch Replacement: A microswitch replacement kit is available (ref. MT8000).

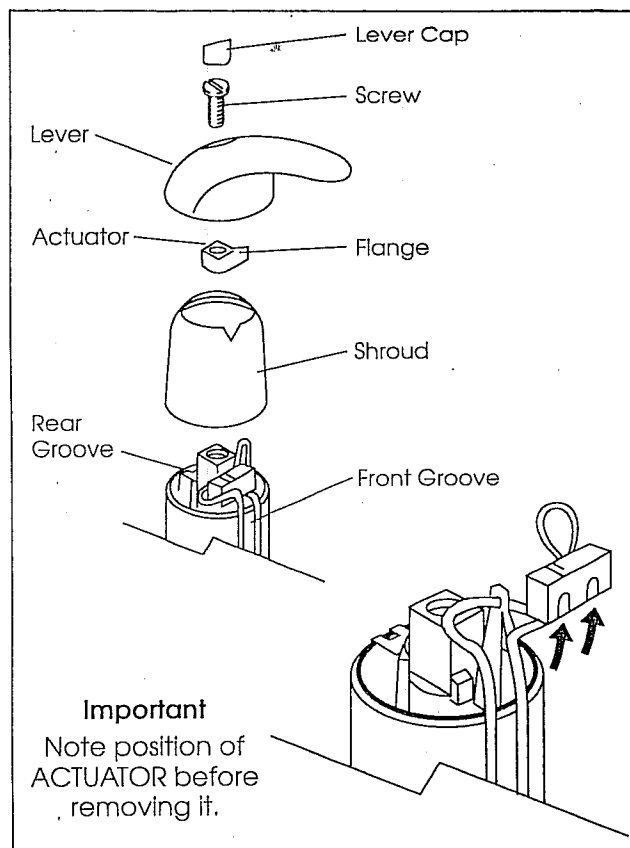
Note: Before commencing microswitch replacement ensure instructions are read through thoroughly. The entire process can be completed without the need to remove the tap from the worktop.

BEFORE YOU START

1. Ensure pump is isolated.
2. Position lever in central, i.e. mixer, off location.

MICROSWITCH REPLACEMENT

1. Carefully remove lever cap. A recess at the back of the lever cap is provided to assist with this.
2. Remove screw with No. 2 Pozzi screwdriver. Note the position of the lever at this stage.
3. Lift off the lever.
4. Note the position of actuator before removal. Flange should be facing forward.
5. Remove actuator.
6. To remove shroud, squeeze clips with one hand and slide shroud off with other hand.



7. Remove microswitch, using finger and thumb, pull up and outwards.
8. Slide wire terminals off microswitch.
9. Attach replacement microswitch and relocate. **Note:** Ensure microswitch snaps fully home.
10. Before relocating shroud ensure wires are neatly located in the front groove as shown.

11. Replace shroud. **Note:** Ensure shroud locating rib is aligned with the rear groove of tap and snap fully home, ensuring clips are retaining the shroud.
12. Replace actuator in position noted in 4 above.
13. Replace lever and fix with screw. **Note:** Do not overtighten screw.
14. Replace lever cap.

Please consult your dealer if in difficulty. If they are unable to solve the problem, contact Whale Customer Services: tel: 01247 270531 ext. 211 or 213.

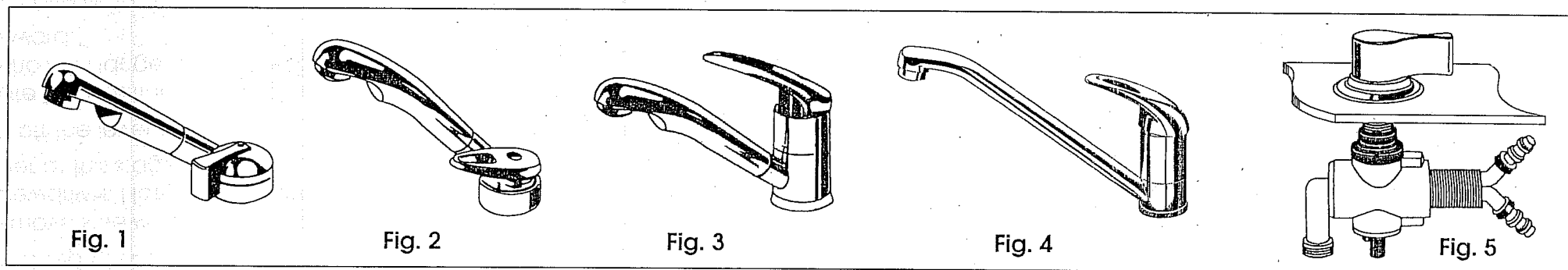
REICH TAPS AND SHOWER

THE KERAMIK 'MONO' TAP

The Keramik 'Mono' tap (Fig. 1) is a single flow tap (hot or cold) controlled by a lever which is rotated anti-clockwise to turn on. The housing is made from high quality plastic.

THE KERAMIK 'TWIST' MIXER TAP

The Keramik 'Twist' mixer tap (Fig. 2) is a single lever mixer tap. The flow is governed by lifting and lowering the lever. Temperature is controlled by rotating the lever anti-clockwise allowing cold water to flow first followed by further rotation to obtain hot water. The water temperature is regulated by the amount the tap is turned. By removing the tap nozzle, a shower



attachment with a 1/2 inch thread, can be screwed on.

THE KERAMIK 'COLOR' TAP

The Keramik 'COLOR' tap (Fig. 3) is a single-lever mixer tap. The volume of water is controlled by lifting up the control lever. Moving the lever anti-clockwise increases the water temperature whereas turning it clockwise will produce cold water.

THE 'CHARISMA' TAP

The CHARISMA' tap (Fig. 4) is a single-lever mixer tap. The volume of water is controlled by lifting up the control lever. Moving the lever anti-clockwise increases the water temperature whereas turning it clockwise will produce cold water.

STYLE 2000 MONO-MIX

The Mono-Mix (Fig. 5) is a single lever controlled mixer unit which is mounted through a table or work surface. Hot and

cold water are supplied independently to the inlet of the unit, under the work surface and mixed water delivered through a single outlet pipe to the tap or shower. When the control lever is rotated (90° from 'OFF' to fully 'ON') a microswitch operates the water pump to pressurise the water system. The degree of lever movement, in an anti-clockwise direction, determines the temperature of the water. The volume of water is controlled by the tap or shower head being used.

THE 'CARINO' SHOWER UNIT

The shower (fig. 6) is a chromed handset and flexible pipe on a wall mounted, chromed tubular, height adjustable, fitting. Adjustment is by pressing the button on the end of the sliding shower carrier. The shower is removable for hand held operation.

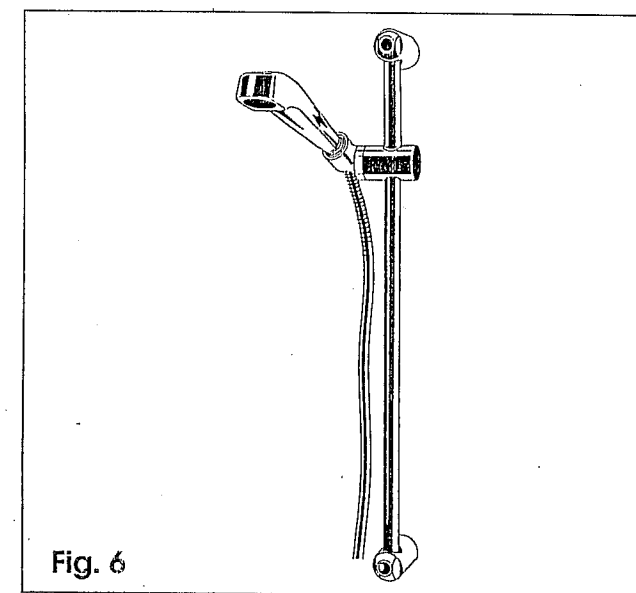


Fig. 6

Caution!

Do not use abrasive cleaning materials on the taps or shower. Wipe with a cloth and warm water.

REFRIGERATORS

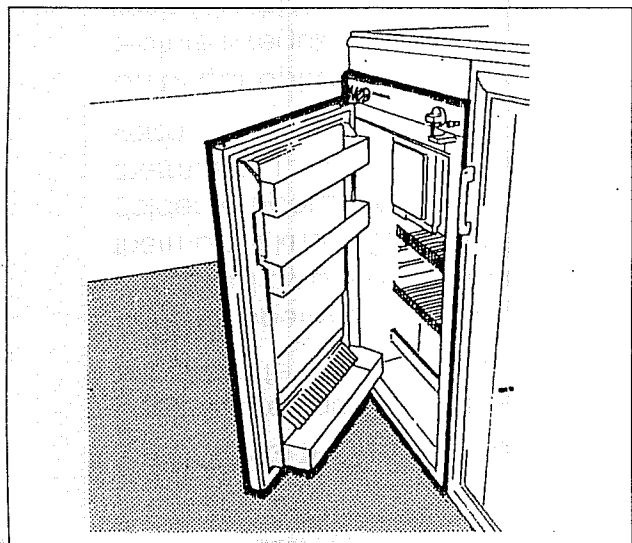
When the motorhome is on the move, the refrigerator should be operated on 12V electricity only and **NOT** by means of bottled gas.

CONTROLS

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

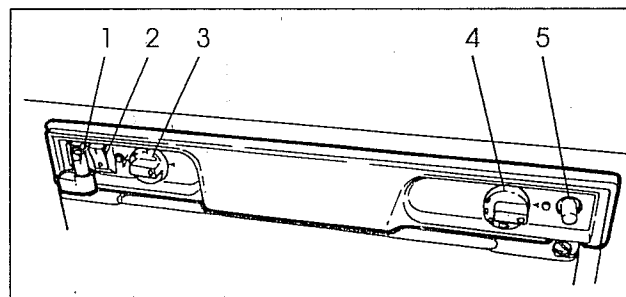
Caution!

Only use one source of energy at a time.



MODELS RM4200/4230

BOTTLED GAS OPERATION — LIGHTING THE BURNER



1. Open the shut-off valve of the gas bottle (check that there is enough gas). Open any on-board shut-off valve.
2. Check that the switches for mains and 12V are off.
3. Depress and turn on the gas control safety device knob (4) to the large flame symbol.
4. Depress the gas control safety device knob (4) and hold it down while depressing the piezo-electric igniter button (5) rapidly 3 or 4 times in quick succession.
5. Check the flame viewer (located bottom left of refrigerator) to see if the flame is alight.

6. Keep the safety device control knob depressed for a further 15—30 secs.
7. Release the safety device control knob and again check to see that the flame is alight.
8. To terminate gas operation, turn knob (4) to 'O'.

ELECTRIC OPERATION

230V Operation

1. Turn off gas or 12V operation when applicable.
2. Turn the knob (3) of the thermostat to its highest (coldest) position.
3. Set switch (2) to position I.

12V Operation

There is no thermostat control on 12V operation.

Only operate your refrigerator on 12V when the engine of your vehicle is running.

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

1. If applicable, turn off the gas operation.
2. Set the 230V rocker switch (2) to 'O' and the 12V rocker switch (1) to I.

REGULATING THE TEMPERATURE

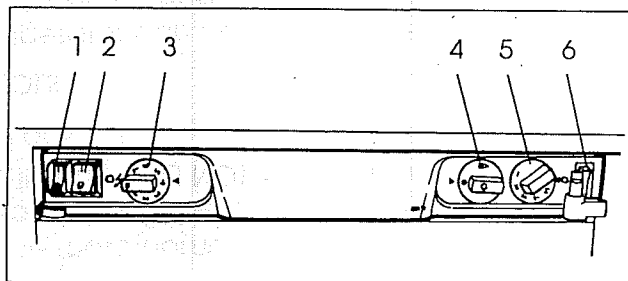
Once the refrigerator has been started it will take a few hours to become cold.

On 230V operation the refrigerator is controlled by a thermostat and the thermostat knob (3) should be set at 3. If a colder temperature is required set the thermostat to a higher number and vice versa.

On LP gas operation the refrigerator temperature is regulated by the gas control knob (4) which should be set at 'mid'. This setting provides a suitable temperature in warm weather. Setting the valve to 'max' gives the coldest temperature.

On 12V operation the refrigerator works continuously.

MODEL RM4233/4201/4213



BOTTLED GAS OPERATION - LIGHTING THE BURNER

In this model the gas flame is electronically lit, monitored and relit if necessary. For this,

the toggle switch (6) should be ON during gas operation.

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

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 (1) and (2) for mains and 12V are off (set to O).
3. Turn on the gas supply by pressing the knob (4) and turning it to the largest flame position.
4. Set the thermostat knob (3) to the highest setting.
5. Set switch (6) 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 (FFD) 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—15 seconds to activate the flame failure device, then release it.

The flame can be observed in the flame viewing glass inside the refrigerator at the bottom left.

To terminate gas operation, turn knob (4) to 'O' and set switch (6) to 'O'.

ELECTRIC OPERATION

230V Operation

1. Turn off gas or 12V operation when applicable.
2. Turn the knob (3) of the thermostat to its highest (coldest) position.
3. Set switch (1) to position I.

12V Operation

There is no thermostat control on 12V operation.

Only operate your fridge on 12V when the engine of your vehicle is running.

Note: Before operating the fridge on 12V it should be pre-cooled, together with its contents, by running it on bottled gas or 230V for a few hours.

1. If applicable turn off the gas operation.
2. Set the 230V rocker switch (2) to 'O' and the 12V rocker switch (1) to 1.

REGULATING THE TEMPERATURE

Once the fridge has been started it will take a few hours to become cold.

On 230V operation the fridge is controlled by a thermostat and the thermostat knob (3) should be set at 3. If a colder temperature is required set the thermostat to a higher number and vice versa.

On LP Gas operation the fridge temperature is regulated by the gas thermostat knob (5) which should be set at 3. If a colder temperature is desired set the thermostat at a higher number. If less cooling is required set to a lower number.

On 12V operation the fridge works continuously.

MODEL RM4270

In model RM 4270 a manual piezo-electric igniter is used. When the button (G) is pressed, sparks are generated at the burner.

Inside the fridge at bottom left is a sight glass for the burner. A blue light can be seen through it when the flame is alight.

LIGHTING THE BURNER

1. Turn on the gas supply by pressing the (D) knob and turning it to the large flame position.
2. Set the thermostat knob (E) to the highest setting.
3. Keeping the flame failure device button (D) pressed, operate the igniter (G) until the flame lights.
4. Keep the (D) button pressed for a further 10 to 15 seconds then release it.
5. To terminate gas operation, turn knob

(D) to "•" and (when applicable) set switch (F) to "0".

230 V OPERATION

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

12 V OPERATION

Only operate your fridge on 12V when the vehicle's engine is running, otherwise your battery will soon be discharged.

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

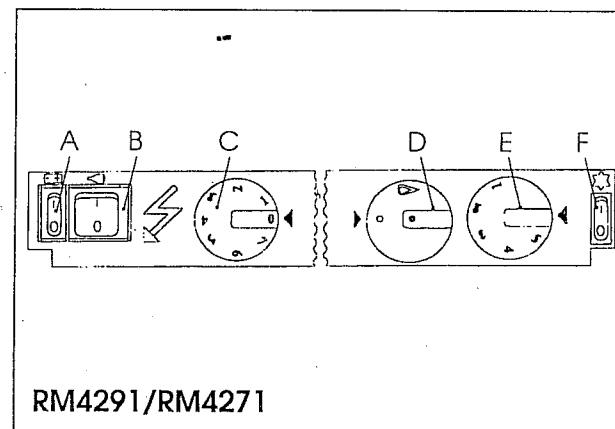
REGULATING THE TEMPERATURE

Once the fridge has been started it will take a few hours to become cold.

On 230 V operation the thermostat knob should be set at 3-5, set the knob to a higher figure if a colder temperature is desired.

On 12 V operation the fridge works continuously.

MODEL RM4291/RM4271 (86 litres)



Two rocker switches are used to select the electric power supply, one for 12V (A) and one for 230V (B).

Refrigerator temperature is controlled by a thermostat knob (C) when the refrigerator runs on 230V.

The refrigerator runs continuously on 12V operation (no thermostat).

The gas supply is turned ON/OFF by means of the knob (D). When lighting the gas, the knob must be pressed as explained in LP Gas Operation.

Refrigerator temperature is controlled by a thermostat (E) when the refrigerator runs on LP gas.

The gas flame is electronically lit, monitored and re-lit if necessary. For this, the toggle switch (F) should be 'ON' during gas operation.

The RM4291 is fitted with an internal light which is operated by the door.

STARTING THE REFRIGERATOR

CAUTION: Use only one source of energy at a time.

LP Gas Operation

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 operation are OFF.
3. Turn on gas supply by pressing knob (D) and turning it to the highest flame position.
4. Press ON switch (E). A light in the switch should now start to flash, indicating that sparks are being generated at the burner.
5. When the flame ignites, the sparking stops automatically and the switch stops flashing.
6. Keep the knob (D) pressed for a further 10 to 15 seconds to activate the flame failure device, then release it.

7. To terminate gas operation turn knob (D) to the '•' position and put switch (F) to the OFF position.

230V Operation

Ensure the mains supply cable is connecting the motorhome to the site supply.

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

12V Operation

Only operate your refrigerator on 12V when the engine of 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 230V for a few hours before changing over to 12V and starting on a journey.

1. If applicable turn off the gas or 230V operation.
2. Set the 12V rocker switch (A) to I. The switch will light up red when the power supply is connected.

REGULATING THE TEMPERATURE

The position numbers refer to Control Panel diagram.

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

On 230V operation the refrigerator is controlled by a thermostat and the thermostat knob (C) should be set at 3-5. If a lower (colder) temperature is desired, set the thermostat to a higher figure.

On LP gas operation the refrigerator temperature is regulated by the gas thermostat knob (D), which should be set at the medium 'flame' position. If a lower (colder) temperature is desired, set the thermostat to the larger 'flame' position.

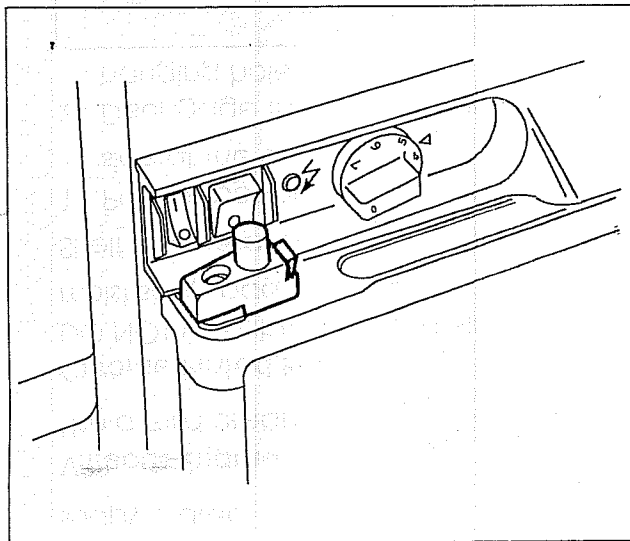
On 12V operation the refrigerator works continuously.

WINTER OPERATION

Please check that ventilation grilles or the flue outlet are not blocked.

Ventilation grille covers are available from Electrolux and can be fitted to protect the unit against very cold air. These covers should be fitted when the temperature is below 10°C and when the motorhome is laid up during winter months.

TRAVEL CATCH



Make sure that the travel catch is engaged when the motorhome 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.

STOVES VANETTE 2200 OVEN

IGNITION

IMPORTANT: A safety device stops the ignition being used when the oven door is closed.

1. Open the oven door and turn the control knob anti-clockwise to the required gas mark. Push in and hold in the control knob and press the ignition button on the hotplate fascia.
2. Once the burner has lit, close the oven door.
3. If the flame goes out, the Flame Sensing Device cuts off the gas supply to the burner. To light the oven again, repeat the above procedure.
4. To turn off — push in the control knob and turn clockwise.

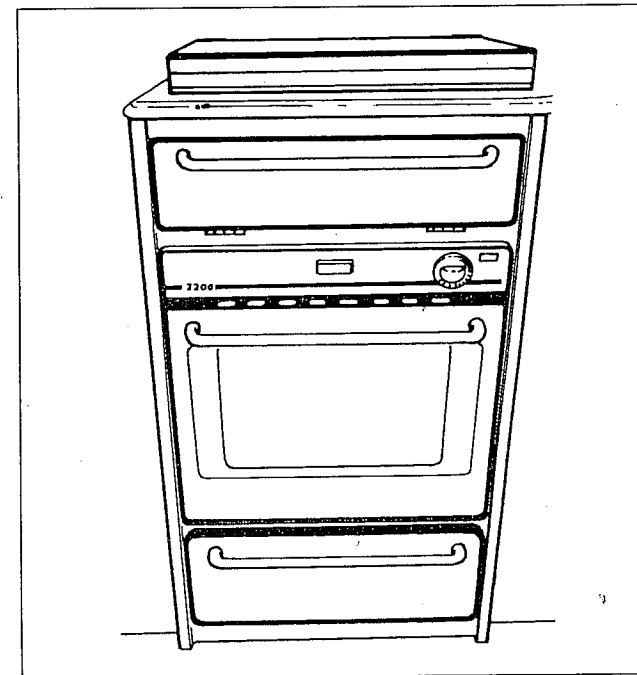
A 15 minute warm-up time is recommended before using the oven.

Note:

Keep young children away from the vicinity of the oven.

DO NOT use foil on the oven shelves, as this creates a fire hazard.

Keep all flammable materials away from the oven.

**Caution:**

Care must be taken in rear end kitchen layouts — when the oven is in use DO NOT leave the shower room door open against the oven as heat damage could occur.

CLEANING

All parts of the oven can be safely cleaned with a cloth wrung out in hot soapy water.

To avoid damaging the surface when removing stubborn marks, we recommend the following:

Glass Parts

Use a mild cream cleaner, rinse thoroughly and dry with a soft cloth. **DO NOT** use abrasive cleaners.

The inner door glass can be removed for cleaning. Open the door wide, hold the bottom and top edges and slide out. When replacing the glass panel, hold it level and straight with the grooves in the door trims before sliding back in.

Painted parts

Only use a clean cloth wrung out in hot soapy water.

Vitreous Enamel Parts

Use a mild cream cleaner.

Chrome Plated Parts

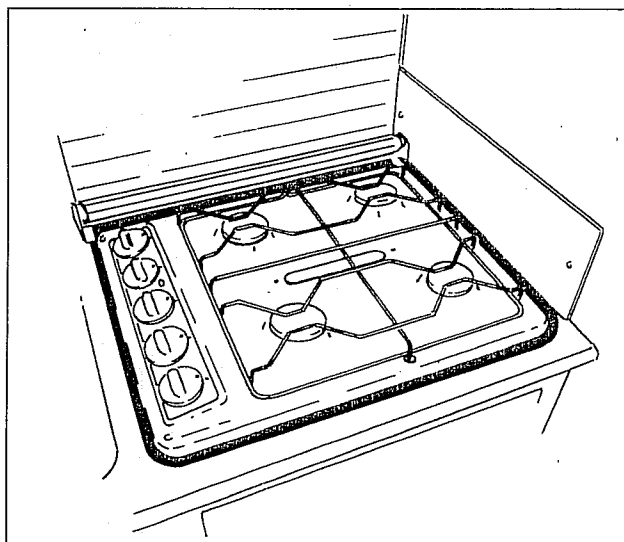
DO NOT use abrasives or polishes. Use a moist soap pad, e.g. Brillo.

Shelf runners can be removed for cleaning:

1. Pull the bottom edge away from the side of the compartment.
2. Disengage the runners from the hanging holes.

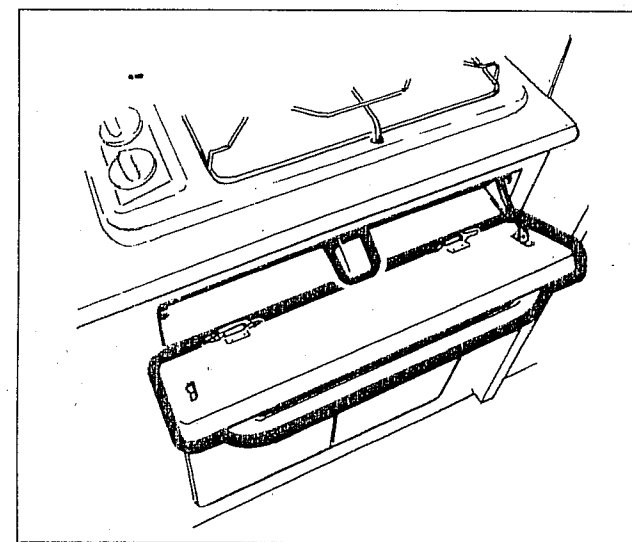
WARNING:

Caustic pastes, abrasive cleaning powders, coarse wire wool and hard implements will damage the surfaces.

**STOVES VANETTE HOB & GRILL****THE HOB****Ignition**

1. Push in the control knob and turn anti-clockwise to the small flame symbol.
2. Keep the knob depressed and press the ignition button (if fitted) or hold a lighted match or taper to the burner. Keep the control knob depressed for a few seconds after the burner has lit until the flame is established and the FFD has opened.

Note: The FFD (Flame Failure Device) will cut off the gas supply if the flame goes out for any reason.



3. Turn the control knob to the required setting.

To Turn Off

Turn the control knob clockwise until the dot symbol on the control knob is next to the reference mark on the fascia.

The burners at the rear of the hob can be used for boiling or deep fat frying while the front burners are suitable for items that will need attention.

PAN SIZES

Do not use pans with a base diameter greater than 200mm or smaller than 120mm. Using a pan that is larger than this

may cause damage to the control knobs and hob lid hinge. Only use standard type pans. DO NOT use dry heat 'ovens', oven-type pans need to be steam only.

WARNING:

All pans should be mounted centrally over the burners, even when cooling, to protect adjacent walls.

Do not lower hob cover until hobs have cooled.

On no account should this appliance be used as a space heater.

THE GRILL

The operation of lighting and controlling the grill is the same as for the hob.

If a door is fitted to the grill it MUST be kept OPEN while the grill is in use.

There are three different grilling positions, as the trivet inside the grill pan, can be inverted to give a high or low position or it may be removed.

DO NOT use foil on the grill pan as it creates a fire hazard.

It is recommended that a 3—4 minute warm-up time is allowed before using the grill.

COUNTRY LEISURE 'CAPRICE' OVEN

THE OVEN

IMPORTANT: A safety device stops the ignition being used when the oven door is closed.

To light the oven

1. Open the oven door and turn the control knob anticlockwise to the required gas mark. Push in and hold in the control knob, and either press the ignition button or hold a match to the burner.
2. Once the burner has lit, close the oven door, and hold the knob in for 15–20 seconds.
3. If the flame goes out, the flame sensing device cuts off the gas supply to the burner. To light the oven again, wait for 3 minutes and repeat the above procedure.

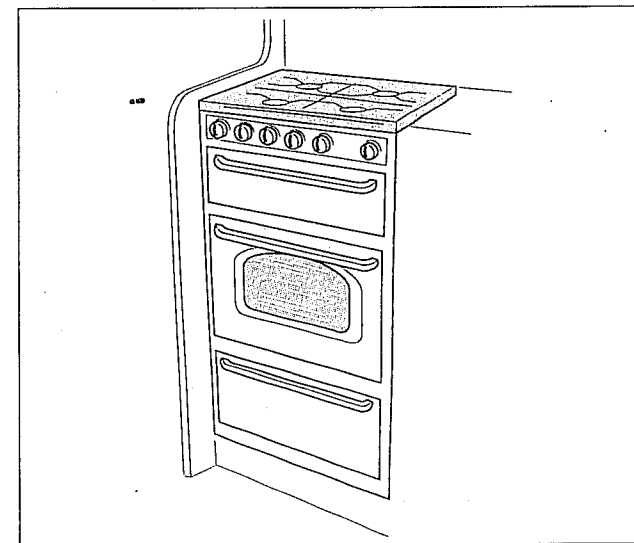
To turn off the oven

Push in the control knob and turn clockwise.

A 15 minute warm-up time is recommended before using the oven.

Note:

Keep young children away from the vicinity of the oven.



DO NOT use foil on the oven shelves, as this creates a fire hazard.

Keep all inflammable materials away from the oven.

CLEANING

All parts of the oven can be safely cleaned with a cloth wrung out in hot soapy water.

To avoid damaging the surfaces when removing stubborn marks, we recommend the following:

Glass Parts

Use a mild cream cleaner, rinse thoroughly and dry with a soft cloth. DO NOT use abrasive cleaners.

The inner door glass panel can be removed for cleaning. Open the door wide, hold the bottom and top edges and slide out. When replacing the glass panel, hold it level and straight with the grooves in the door trims before sliding back in.

Painted Parts

Only use a clean cloth wrung out in hot soapy water.

Vitreous Enamel Parts

Use a mild cream cleaner.

Chrome Plated Parts

DO NOT use abrasives or polishes. Use a moist soap pad e.g. Brillo.

Shelf runners can be removed for cleaning:

1. Pull the bottom edge away from the side of the compartment.
2. Disengage the runners from the hanging holes.

WARNING

Caustic pastes, abrasive cleaning powders, coarse wire wool and hard implements will damage the surfaces.

THE HOB

IGNITION

1. Push in the control knob and turn anti-clockwise to the large flame symbol.
2. Keep the knob depressed and press the ignition button (if fitted) or hold a lighted match or taper to the burner. Keep the control knob depressed for 15–20 seconds before releasing.

Note: The FFD (Flame Failure Device) will cut off the gas supply if the flame goes out for any reason.

3. Turn the control knob to the required setting.
 - Do not use foil on the hob as it creates a fire hazard.
 - Glass lids may shatter when heated, turn off all burners before shutting the lid.

Always use the most appropriate size of burner for the pan you wish to use. Use pans with a flat base of minimum 100mm/4in diameter and maximum 200mm/8in diameter, which are stable in use. Avoid old or mishapen pans as these may cause instability.

THE GRILL

Note: The door must be open when the grill is in use.

Caution: When the grill is being used, accessible parts may be hot, young children should be kept away.

- Never cover the grill pan or grid with cooking foil, or allow fat to build up in the grill pan as this creates a fire hazard.
- Keep all flammable material away from the appliance.

To light the grill

Push in the control knob and turn anti-clockwise to the large flame symbol. Keep the knob depressed, and press the ignition button (if fitted), or hold a lighted taper to the burner. The knob must be held in for 15–20 seconds before releasing.

Using the grill

Push in the grill pan until it locates centrally under the grill burner. There are 3 different grilling positions as the trivet can be inverted to give a high or low position or it may be removed.

1. The high trivet position is suitable for toasting bread.

2. The low trivet position is suitable for grilling all types of meat.
3. With the trivet removed the food is placed directly on the base of the grill pan, e.g. when cooking dishes such as whole fish.

Always pre-heat the grill for 3 minutes for best results.

When you have finished grilling, check the control knob is in the OFF position.

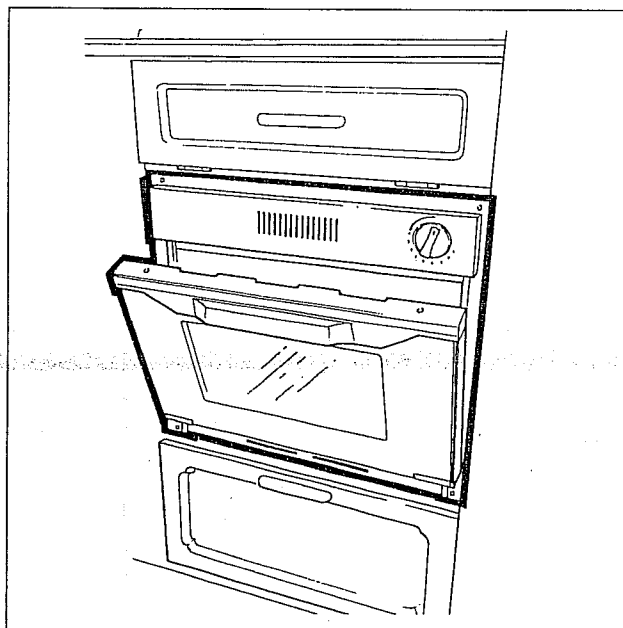
WARNING:

All pans should be mounted centrally over the burners, even when cooling, to protect adjacent walls.

Do not lower hob cover until hobs have cooled.

On no account should this appliance be used as a space heater.

SPINFLO OVEN (CARA)



IMPORTANT

This appliance is suitable for use on liquid petroleum gas (LPG) only and should not be used on any other gas. The following gas pressures should be used:

PROPANE	37mbar
BUTANE	28mbar

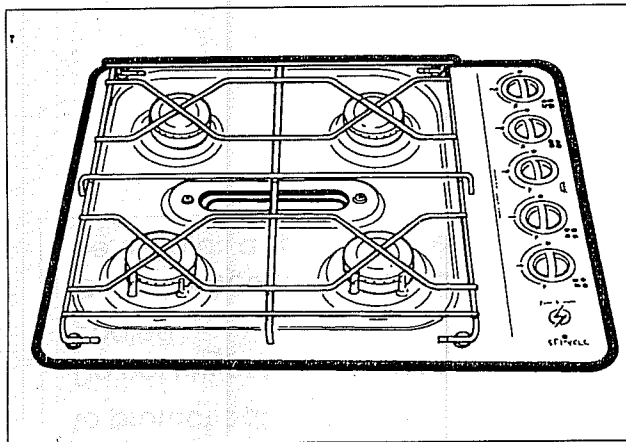
TO LIGHT THE OVEN

Open door, push in the control knob and turn to gas mark 9. Hold a lighted match or taper to the burner and push the control knob in and hold. The burner should ignite and the control knob should be held in for 10–15 seconds before release. If burner goes out, repeat, holding control knob in for slightly longer.

FLAME FAILURE DEVICE (FFD)

The oven burner is fitted with a flame sensing probe which will automatically cut off the gas supply in the event of the flame going out.

Note: This appliance must have adequate ventilation in accordance with BS 5440 Part 2: 1976. When in use ensure that air vents are not inadvertently blocked or shut off.

SPINFLO HOB & GRILL

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

When lighting a burner always make sure you apply a lighted match or taper before turning on the gas. With lighted match in position push in the tap, keeping it depressed for approximately 5 seconds to override flame failure device and turn it in an anti-clockwise direction to the full ON position. When selecting low rate, turn anti-clockwise until tap will not turn any further.

To turn off, turn clockwise to OFF position, when a stop will be reached. Release and the tap will spring out.

AUTOMATIC IGNITION

Follow instructions as above.

The battery for the spark ignition is located in the igniter button assembly. To replace battery, turn igniter button $\frac{1}{4}$ turn anti-clockwise and lift off. (Battery MN9100 LR1 Size N, 1.5 volts).

CARE AND CLEANING

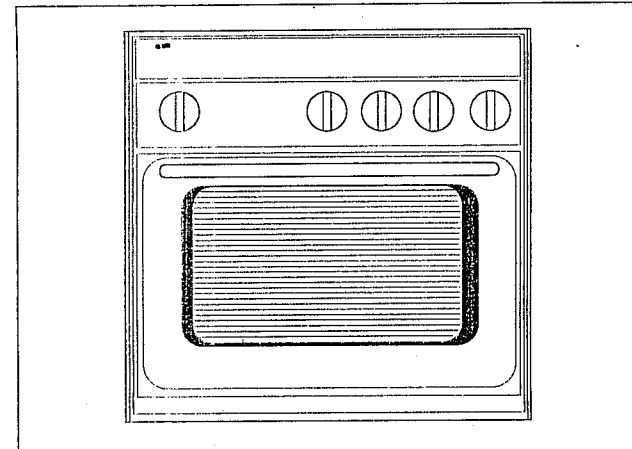
Clean with warm, soapy water when hob is cold.

DO NOT remove burner heads for normal cleaning purposes. If any ports are stopped up, clean with a tooth pick — do not use metal instruments as they may distort or enlarge ports. Should the burner heads be removed, the joints between head and hob and mixing chamber must be checked and replaced if necessary. Re-locate burner heads tightly.

When hotplate and/or grill is in use always ensure:

- Grill flap is open.
- Glass lid is in raised position, the glass may shatter if subjected to naked flame.
- Kitchen window and rooflight are open.
- Sink worktops are in raised position.
- Combustible materials e.g. curtains, kitchen towels DO NOT come in contact with the appliances.

NEVER USE THE HOTPLATE/GRILL AS A SPACE HEATER

SPINFLO INTEGRILL (Models 5500 & 5600)**PROVISION OF VENTILATION**

The use of a gas cooking appliance results in a production of heat and moisture, ensure that the kitchen is well ventilated and keep ventilation holes open. Prolonged intensive use of the appliance may call for additional ventilation, for example, opening a window.

When in use ensure that air vents are not inadvertently blocked or shut off.

Important This appliance is suitable for use on liquid petroleum gas (LPG) only and should not be used on any other gas.

OPERATION

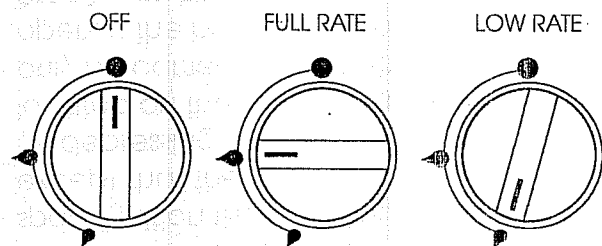
Ensure the the gas cylinder is turned on.

In the event of a gas smell turn off at the cylinder and contact supplier.

HOTPLATE BURNERS

Caution: Glass lids may shatter when heated. Turn off all burners and grill before closing lid.

Each burner is controlled individually and may be monitored by a flame supervision device. In the event of the burner flames being accidentally extinguished, turn off the burner control and do not attempt to re-ignite the burner for at least one minute. The respective knob positions are shown below.



To light the burner, press in and turn the knob anti-clockwise to the full rate position and apply a light to the burner or press the ignition button if fitted. It is necessary to hold the knob depressed during ignition and for approximately 15 seconds after the burner has lit to allow the probe to reach

temperature. Should the flame go out when the knob is released, the procedure should be repeated holding the knob depressed for slightly longer.

For simmering, turn the knob further anti-clockwise to the low rate position. To turn the burner off, rotate knob fully clockwise until the dot on the knob lines up with the dot on the control panel.

The burners on this appliance have fixed aeration and no adjustment is required. Depending on the gas being used, the burners should flame as follows:

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

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

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

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

GRILLING OVEN

Caution:

Accessible parts may be hot when the grill is used! Young children should be kept away.

Glass lids may shatter when heated. Turn off all burners and grill before closing the lid.

The grill burner is situated in the roof of the oven and can be used as either a conventional grill or as a radiant burner for the oven. It should be noted that when the grill pan is used the door must be left open to ensure the handle does not overheat. The cooker is fitted with a flame supervision device, so if for any reason the flame goes out, the gas supply to the grill burner will be shut off. In the event of the burner flames being accidentally extinguished, turn off the burner control and do not attempt to re-ignite the burner for at least one minute.

1. Ensure gas cylinder is connected and turned on. In the event of a gas smell turn off at cylinder and contact supplier.
2. Remove all accessories and packing materials that may be in the oven and clean the interior before using it for the first time. Use soap and water and rinse carefully.

3. **To light:** open door, push in the control knob and turn to full rate. Hold a lighted match or taper to the burner and push the control knob in and hold. The burner should ignite and the control knob should be held in for 10–15 seconds before release. For models fitted with spark ignition the procedure is similar except that the burner can be ignited by depressing the ignition button located on the control panel. It should only be carried out with the door fully open. If the burner goes out, repeat procedure holding control knob in for slightly longer.
4. Heat the oven on full rate for about 20 minutes to eliminate any residual factory lubricants that might impart unpleasant smells to the meals being cooked.
5. **To turn off:** turn the control knob clockwise until the dot on the control knob is aligned with the dot on the control panel.
6. **Grilling oven shelf:** to set the required shelf position, pull forward until it stops, raise at front, remove and insert at the required position.

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

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

5500/5600 HOB/OVEN UNIT

GRILLING OVEN

CAUTION: Glass lids may shatter when heated. Turn off all burners and grill before shutting the lid.

The grill burner is situated in the roof of the oven, and can be used as either a conventional grill or as a radiant burner for the oven. The door must be left open to ensure the door handle does not overheat. The cooker is fitted with a flame supervision device, so if for any reason the flame goes out, the gas supply to the grill burner will be shut off. In the event of the burner flames being accidentally extinguished, turn off the burner control and do not attempt to re-ignite the burner for at least one minute.

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

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

TO LIGHT THE OVEN

When using for the first time, heat the oven on full rate for about 20 minutes to eliminate factory lubricants that might impart unpleasant smells to the meals being cooked.

Open door, push in the control knob and turn to full rate. Hold a lighted match or taper to the burner and push the control knob in and hold. The burner should ignite and the control knob should be held in for 10–15 seconds before release. For models fitted with spark ignition the procedure is similar except that the burner can be ignited by depressing the ignition button located on the control panel. If the burner goes out, repeat procedure holding control knob for slightly longer.

GRILLING OVEN SHELF

To set the required shelf position, pull forward until it stops, raise at front, remove and insert at the required position.

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

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

COOKING GUIDELINES

The grilling oven works using radiant heat from the grill situated in the roof of the oven, at all times this should be noted, and food positioned accordingly. Best results will be obtained by following the shelf positions in this guide. Care should be taken not to overload the oven, adequate spacing being used to allow free circulation for heat. The baking tray and roasting tin provided are the largest that should be used in this size oven. Larger items may well affect the circulation and heat distribution. It is not necessary to preheat the grill, however the oven must be heated for 10-15 minutes prior to use. Shelf positions are from the top down.

Cooking	Shelf position	Dish
Fast grilling	1	Conventional
	grilled food only	
Slow grilling /fast baking	2	Pastries, dough
Slow baking	3	Convenience
	foods, re-heating	

Always ensure the food is piping hot prior to serving. Food must be rotated and turned over where possible to ensure that it is heated thoroughly. As with the use of microwaves, standing time will also aid the equalisation of heat distribution. When

roasting with aluminium foil care must be taken that the foil will considerably increase the cooking time. These guidelines have been prepared only to assist cooking, the best results will be obtained with experimentation.

6000/6100 HOB/OVEN UNIT

GRILL

CAUTION: Glass lids may shatter when heated. Turn off all burners and grill before shutting the lid.

Although the grill does heat up quickly, it is recommended that a few minutes pre-heat be allowed. The grill pan should be left in position to protect the base lining. The grill is fitted with a flame supervision device, so if for any reason the flame goes out, the gas supply to the grill burner will be shut off. In the event of the burner flames being accidentally extinguished, turn off the burner control and do not attempt to re-ignite the burner for at least one minute. It is normal for the flames on this burner to develop yellow tips as it heats up, particularly on Butane. The grill pan trivet can be reversed to give a choice of grilling height.

USING THE OVEN

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

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

TO LIGHT

Open door, push in the control knob and turn to gas mark 9. Hold a lighted match or taper to the burner and push the control knob in and hold. The burner should ignite and the control knob should be held in for 10-15 seconds before release. If the burner goes out, repeat procedure holding control knob in for slightly longer.

For models fitted with spark ignition the procedure is similar except that the burner can be ignited by depressing the ignition button located on the fascia. Ignition must be carried out with the door open, and if the burner has not lit within 15 seconds the control knob should be released and the oven left for at least 1 minute before a further attempt to ignite the burner.

When using for the first time set control knob to approximately gas mark 5 and heat the oven for about 20 minutes to

eliminate any residual factory lubricants that might impart unpleasant smells to the meals being cooked.

TO TURN OFF

Turn the control knob until the dot on the control knob is aligned with the dot on the control panel.

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

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

TEMPERATURE CONTROL

The temperature in the oven is controlled by a thermostatic gas tap and is variable over the range 130°C to 240°C.

Approximate temperatures for the settings on the control knob are shown in the table below. The temperatures indicated refer to the centre of the oven, and at any particular setting the oven will be hotter at the top and cooler towards the base. The

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

Gas Mark	Approx. Temperature	
	°F	°C
1/4-1/2	265-275	130-135
1	285	140
2	300	150
3	330	165
4	355	180
5	385	195
6	410	210
7	430	220
8	445	230
9	465	240

COOKING GUIDELINES

The baking tray and roasting tin provided are the largest that should be used in this size oven. Larger items may well affect the circulation and heat distribution. It is

advisable to preheat the oven, which is capable of full temperature in approximately 15 to 20 minutes.

DO'S AND DON'TS

- Do** read the user instructions carefully before using the appliance for the first time.
- Do** allow the oven to heat before using for the first time, in order to expel any smells before the introduction of food.
- Do** clean the appliance regularly.
- Do** remove spills as soon as they occur.
- Do** always use oven gloves when removing food shelves and trays from the oven.
- Do** check that controls are in the OFF position when finished.
- Do not** allow children near the cooker when in use. Turn pan handles away from the front so that they cannot be caught accidentally.
- Do not** allow fats or oils to build up in the oven trays or base.
- Do not** use abrasive cleaners or powders that will scratch the surfaces of the hotplate and oven.
- Do not** under any circumstances use the oven as a space heater.

LEAKS

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

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

Butane/Propane is heavier than air; any escaping gas will therefore collect at a low level. The strong unpleasant smell of gas will enable the general area of the leak to be detected. Check that the gas is not escaping from an unlighted appliance. Never check for leaks with a naked flame, leak investigation should be carried out using a leak detector spray or soapy solution.

MAINTENANCE

These appliances need little maintenance other than cleaning. All parts should be cleaned using warm soapy water. Do not use abrasive cleaners, steel wool or cleansing powders. When cleaning the burner ring it is essential to ensure that the holes do not become blocked.

The control knobs are a push fit and can

These appliances must not be modified or adjusted unless authorised and carried out by the manufacturer or their representative.

No parts other than those supplied by the manufacturer should be used on this appliance.

CARVER SPACE HEATERS

Please read these cautions before using your heater.

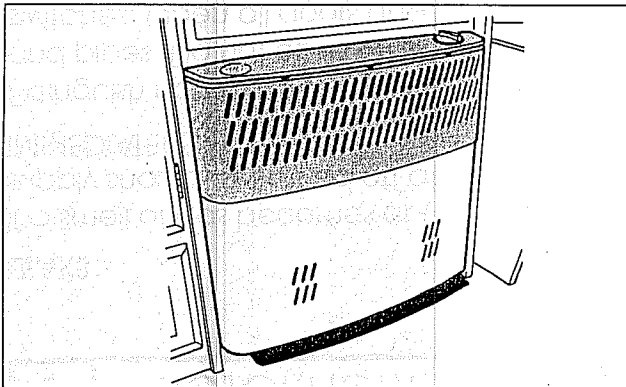
In the event of a gas leak, immediately turn off all appliances and the gas supply at the cylinder. Contact your nearest approved service agent without delay.

- The gas supply to the heater must be from an approved pressure regulator of adequate capacity. Under **NO** circumstances should an industrial or adjustable regulator be used on motorhomes.
- The heater **MUST NOT** be operated while refuelling or when the vehicle is in a confined space such as a garage. The heater **MUST NOT** be used if the flue has been damaged.

- The products of combustion pass through the vehicle floor and requires unrestricted air entry beneath the vehicle into which it is fitted. A minimum of 3 sides of the vehicle **MUST** be exposed at all times. This is to allow for dispersal of the underfloor combustion products. If there is a possibility of the sides becoming blocked by snow or mud, then the heater **MUST NOT** be used. Every effort must be made to clear obstructions before use.
- The '4000' range of heaters can be used whilst the vehicle is in motion, subject to local regulations in force.
- There **MUST NOT** be a mantelpiece or shelving sited above the heater.
- Curtains **MUST NOT** hang within 150mm of the sides of the heater, or within 300mm about the top of the appliance.
- **DO NOT** place furniture or upholstery closer than 5mm to the sides of the heater.
- Where children, the elderly or infirm are present, we recommend that a guard be fitted around the heater when in use.
- Always wait three minutes before attempting to relight the heater after

- **DO NOT** obstruct the gap at the bottom of the heater or the outlet grille slots.
- This heater does not contain any asbestos or asbestos related products.
- Aerosols and highly inflammable materials **MUST NOT** be stored in compartments behind or adjacent to the heater.
- These heaters must be switched off and the gas supply turned off while the vehicle is in motion.
- When the heater is first used, it is recommended that you open a window or door and turn the temperature setting to maximum for one hour. This will allow any odours when first using the appliance to escape. **Note:** If odours persist, contact your local distributor.

CARVER TRUMATIC 1800SC HEATER



USER'S INSTRUCTIONS

1. Before Lighting the Heater

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

2. Lighting the Heater

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


3. Turning off the Heater

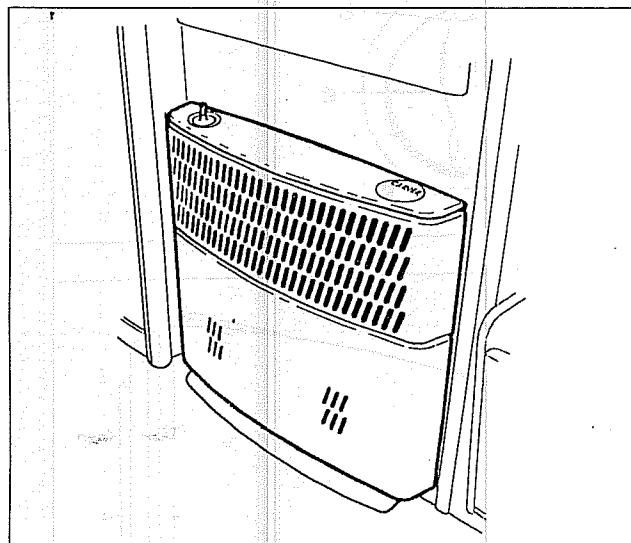
- 3.1 Turn the gas control knob fully clockwise to the '•' position.

CARVER 1800 AUTO.

Lighting the Heater

Lighting instructions are as the 1800 SC except for points 1 and 2 which should be substituted as follows:


1. Press the control knob down and rotate to the  position, maintaining downward pressure. The igniter will be heard to operate with a continuous 'ticking' noise.
2. Maintain the downwards pressure until the burner is seen to light while checking through the viewing window on the lower half of the case.

CARVER 3600 AUTO HEATER**USER'S INSTRUCTIONS**

The heater is controlled by a knob mounted on the top of the heater case which operates a thermostatic gas control valve.

Lighting the Heater

Before lighting the heater ensure that the gas supply is turned on.

1. Press the control knob down and rotate to the  position, maintaining downward pressure. The igniter will be heard to operate with a continuous 'ticking' noise.

2. Maintain the downwards pressure until the burner is seen to light while checking through the viewing window on the lower half of the case.
3. 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.
4. The control knob can now be released and the pilot will remain alight. To operate the main burner, turn the knob anti-clockwise and set at the desired position between High and Low.
5. If the burner fails to remain alight or if it is extinguished for any reason, the heater will shut down to a safe condition. After shut-down always WAIT 3 MINUTES before attempting to relight the heater.

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 to the set temperature but the pilot flame will always remain alight.

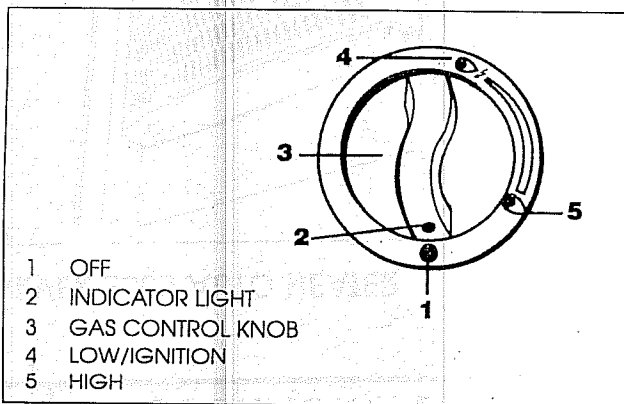
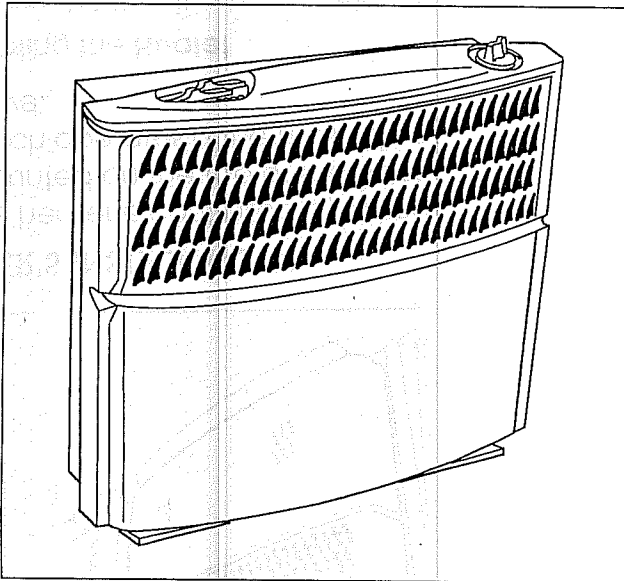
Turning off the Heater

Turn the gas control knob fully clockwise to the '•' position.

WARNING:

Aerosols and highly flammable materials must NOT be stored in the compartment behind, or adjacent to, the heater.

All caravans in this handbook are classified as Grade 2 which meets with the Thermal Insulation and Heating Levels for specific climatic conditions.

CARVER 2000P, 2000A and FANMASTER**To Light and Adjust the Heater – Gas Operation**

1. Ensure the gas is turned on at the cylinder.
2. **Lighting the Heater:**
2000P, and 2000 Fanmaster
Press the control knob (3) down and turn to the 'LOW/⚡' position (4) and then press firmly downwards. A click will be heard as the igniter operates, to light the heater. If a gas cylinder has been replaced, it may require several operations of the igniter to light the flame. Observe through the viewing windows on the lower half of the front case, that the burner lights.

2000A and 2000 Fanmaster (12V 'Auto' Ignition)

As above turn to the '⚡' position and press firmly down. A continuous ticking will be heard, as the spark generator is actuated. An indicator light (2) built into the control knob will light up when the flame is lit.

3. Continue to hold the knob down for 20 seconds and release. The flame supervision device will now have been actuated. The knob can now be released and adjusted to the desired setting as marked on the heater top panel.
4. If the burner is extinguished for any reason, or fails to remain alight, the

heater will shut down to a safe condition. In the case of the 12V 'Auto' ignition models (2000A and Fanmasters with this ignition device), the continuous ticking of the spark generator will be heard until turned off.

5. To turn off the heater at any time, turn the knob to the 'O' (1) position.
6. Wait for at least 3 minutes, after shut down, before attempting to relight these heaters.

Electric Heating – Fanmaster models only**Cautions:**

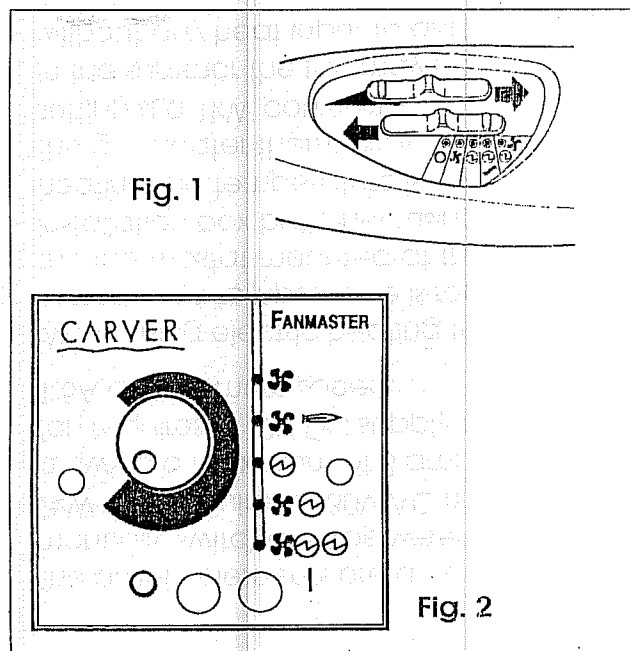
- Read the operating instructions before using the Fanmaster.
- Read the operating instructions for the Carver gas heater before using it in conjunction with the Fanmaster.
- One or more duct outlets must be open whilst the Fanmaster is in use.
- The 230V external supply to the vehicle must be disconnected before the caravan is towed.

General Description

The Fanmaster is an automatically controlled fan designed to distribute warm air around the motorhome via ducting.

All of the functions of the 2000 Fanmaster are controlled independently of the gas control – by front case slide switches when right-hand build is installed (Fig. 1), or by wall-mounted control panel for a left-hand installation (Fig. 2).

The air is heated either by the Fanmaster's own electric element or by the Carver gas fired heater. Both the Carver gas heater and the Fanmaster can be used at the same time providing the fan is in operation.



FANMASTER CONTROLLER OPERATIONS – SLIDE SWITCH ON HEATER TOP (R.H. INSTALLATION)

POSITION		OPERATION (without gas)	OPERATION (with gas)
0	○	Off	Gas convector
1	⚡	Manual fan speed – Temperature slider governs the fan speed. For cool air distribution.	Blown hot air distribution
2	⌚	1kW electric convector heating, no fan. Temperature slider selects desired room temperature.	Electric and Gas convection, but a high gas heater output will inhibit the electric heating to maintain safe operating temperatures.
3	⚡⌚	1kW electric fan heating, fan remains slow.	Electric and Gas blown distribution. Fan speed adjusts automatically based on outlet temperature.
4	⚡⌚⌚	2kW electric fan heating. Fan automatically adjusts speed to suit.	Electric and gas blown distribution. Fan speed adjusts automatically.

FANMASTER CONTROLLER OPERATIONS – WALLSWITCH CONTROL (L.H. INSTALLATION)

POSITION		OPERATION (without gas)	OPERATION (with gas)
0	○	Off	Gas convector
1	⚡	Manual fan speed – Wall switch knob governs the fan speed. For cool air distribution.	Blown hot air distribution
2	⚡⌚	Automatic fan speed, temperature of heater governs fan speed.	Blown hot air distribution with automatic fan speed control.
3	⌚	1kW electric convector heating, no fan. Wall switch knob selects desired room temperature.	Electric and Gas blown distribution. Fan speed adjusts automatically based on outlet temperature.
4	⚡⌚	1kW electric fan heating, fan remains slow.	Electric and gas blown distribution. Fan speed adjusts automatically.
5	⚡⌚⌚	2kW electric fan heating. Fan automatically adjusts speed to suit.	

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

When using electric heating the motorhome temperature is regulated by the thermostat mounted at the top of the installation box but when using the gas heating the temperature is controlled by the gas heater thermostat. The night setting is a 1kW convector heater setting. In the summer the fan may be operated without any heat input to distribute cool air.

The Fanmaster has an air deflector allowing the majority of air to be directed down one fan outlet. For example, down the longest ducting run. This may have been preset on installation.

The duct outlets are generally of the butterfly type and may be opened or closed by adjusting the butterfly valves. Twisting the disc in its housing directs the flow in the direction required. One outlet on each leg of the duct layout must be kept open.

Servicing

In order to ensure that your heater continues to operate effectively, you will need to arrange for it to be serviced at least once a year by a competent and trained service engineer. By law no one is permitted to deal with the installation and servicing of gas appliances unless they have proven competence. Contact your nearest authorised motorhome distributor if service or repair is required.

CARVER 4000P, 4000 Auto and FANMASTER

Read the cautionary notes for the Carver Space Heaters before using your heater.

Before Lighting the heater

Ensure the gas is turned on at the cylinder.

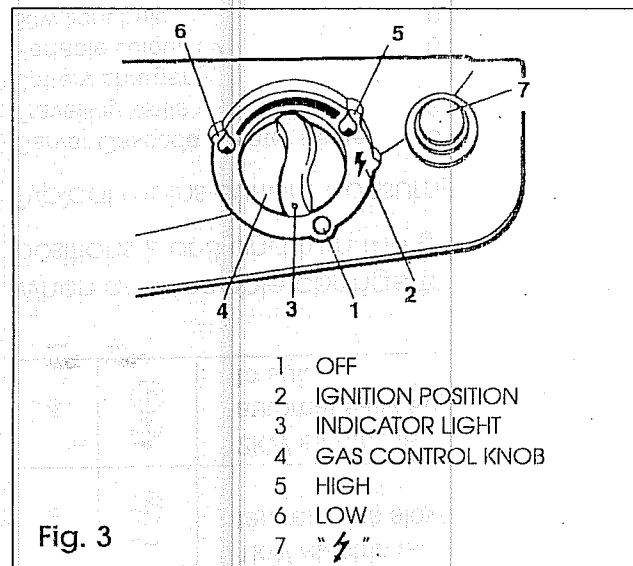
Lighting the Heater (Fig. 3)

For the 4000A/Fanmaster press the control knob (4) down and rotate to the '⚡' position (2), maintaining downwards pressure. The igniter will be heard to operate with a continuous 'ticking' noise. On ignition the control knob indicator (3) will illuminate to show that a flame is present.

After the burner has lit, continue to hold down the control knob for a further 10 seconds. Release the control knob and the indicator should remain illuminated to show that the burner has remained alight.

For the 4000P, press the control knob (4) down and rotate to the '⚡' position (2), maintaining downwards pressure. Press the ignition button (7). Check through the viewing window on the front case that the pilot burner is alight, if so continue to hold the control knob down for ten seconds.

Release the control knob and the pilot burner should remain alight. It may require several operations of the igniter to light the burner.



To operate the main burner, turn the control knob further anti-clockwise and set it at the desired comfort level, between the high flame and low flame positions (5 & 6).

The main burner will 'cycle' automatically as required by the thermostat to maintain the set temperature, but the pilot light will always remain alight.

Turning off the heater

Turn the control knob fully clockwise to the '⚡' position (1).

FANMASTER

General Description

The Fanmaster is an electric heating and blown air system controlled by the slider switches on the front case of the heater (Fig. 4).

The automatically controlled fan distributes warm air around the caravan via ducting. The air is heated either by the Fanmaster's own electric element or by the Carver gas fired heater. The Carver gas fire and the Fanmaster can be used at the same time providing the fan is in operation.

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

When using electric heating the motorhome temperature is regulated by the thermostat mounted at the bottom right of the installation box but when using the gas heating the temperature is controlled by the gas heater thermostat. The night setting is a 1kW convector heater setting. In the summer the fan may be operated without any heat input to distribute cool air.

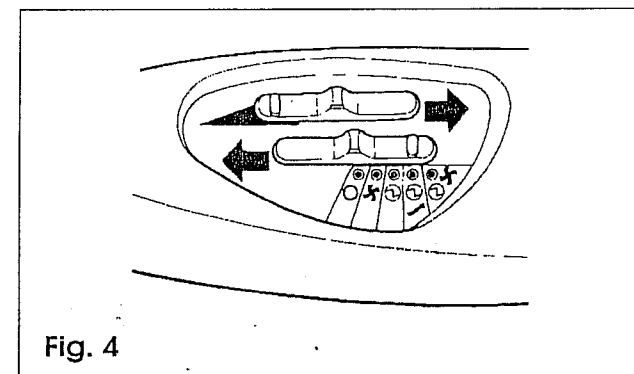
The air ducting outlets are generally of the butterfly type and may be opened or closed by adjusting the butterfly valves. Twisting the disc in its housing directs the flow in the direction required.

One outlet on each leg of the air ducting layout must be kept open at all times.

Note:

Mains hook-up is needed for positions 2, 3 and 4, the current consumption will be approximately 4 amps for positions 2 & 3 and approximately 8 amps for position 4.

If you suspect that your mains hook-up is inadequate to supply the 8 amps required for position 4 in addition to your existing mains load, then for initial warm-up, use the Carver gas heater on a high setting and the Fanmaster on the position 1 setting.



FANMASTER CONTROLLER OPERATIONS (Fig. 2)

POSITION		OPERATION (without gas)	OPERATION (with gas)
0	○	Off	Gas convector
1	✚	Manual fan speed – Temperature slider governs the fan speed. For cool air distribution.	Blown hot air distribution
2	⌚	1kW electric convector heating, no fan. Temperature slider selects desired room temperature.	Electric and Gas convection, but a high gas heater output will inhibit the electric heating to maintain safe operating temperatures.
3	⌚	1kW electric fan heating, fan remains slow.	Electric and Gas blown distribution. Fan speed adjusts automatically based on outlet temperature.
4	⌚	2kW electric fan heating. Fan automatically adjusts speed to suit.	Electric and gas blown distribution. Fan speed adjusts automatically.

When comfortable change to either positions 2 or 3 and turn the gas heater off.

Typical mains current consumption is:

Carver Cascade 2 water heater	3.6A approx.
Travelling kettle	3.2A approx.
Battery charger	1.0A approx.
Portable colour TV	0.3A approx.
60w light bulb	0.3A approx.
Fanmaster on position 4	8.3A approx.
Fanmaster on position 2 or 3	4.2A approx.

The normal mains supply to UK sites are rated at 16A but some sites have only a 10A capacity.

Servicing

In order to ensure that your heater continues to operate effectively, you will need to arrange for it to be serviced at least once a year by a competent and trained service engineer. By law no-one is permitted to deal with the installation and servicing of gas appliances unless they have proven competence. Contact your nearest motorhome distributor if service or repair is required.

Safety

To prevent over-heating of the electric elements at least one warm air outlet must be open at all times. It is recommended that one outlet should be of the non-closable type and not a butterfly.

If all the outlets are closed the self-hold thermal trip will switch off the power to the elements. If this happens, open the outlets, switch the heater power off and wait until the unit has cooled down, the unit will then reset itself.

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

Warranty Conditions

The space heaters are covered by a two year guarantee from the date of purchase of the appliance or the registration date of the vehicle in which it is installed.

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

We strongly advise that all repairs on the unit are carried out by authorised Service Centres.

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

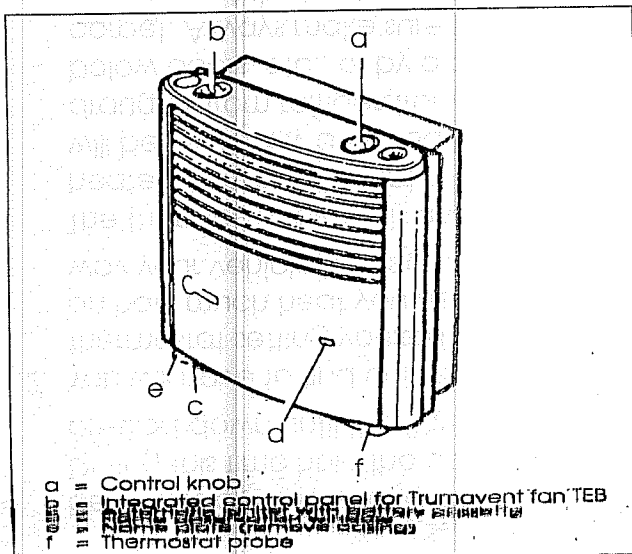
WARNING:

Aerosols and highly flammable materials must NOT be stored in the compartment behind, or adjacent to, the heater.

All motorhomes in this handbook are classified as Grade 2 which meets with the Thermal Insulation and Heating Levels for specific climatic conditions.

TRUMATIC S 3002 P

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

**SWITCHING ON**

Prior to first ignition make sure that the batteries have been inserted. Observe correct fit of battery cassette.

1. Open the valve on the gas cylinder. Open quick-acting valve in the gas supply line.
2. Turn control knob to thermostat setting 1-10 and press it down as far as the stop. Ignition takes place automatically (ignition sparking audible) until the flame ignites. Keep the control knob pressed down a further 10 seconds to allow the safety pilot to operate.

In the event of a fault always wait 2 minutes before attempting to re-ignite.

3. If the flame goes out again, re-ignition is carried out immediately during the closing time of the safety pilot (approx. 30 seconds). If there is no flame, the automatic igniter continues to operate until the control knob is switched to 'O'.
4. If ignition sparking is not audible or only at intervals of more than a second, the batteries must be changed.
5. To ensure even and rapid warm air distribution as well as lower surface temperatures on the heating unit, we recommend that you operate the heater with a Trumavent warm air system.

THERMOSTAT

Set the required room temperature at the control knob (numbers 1-10). For an average room temperature of approx. 22°C we recommend setting 1-3 without Trumavent fan and 4-7 with Trumavent fan.

SWITCHING OFF

Set control knob to 'O' (this switches off the automatic igniter at the same time). If turning off for a longer period of time, close the quick-acting valve in the gas supply line. Close valve of gas cylinder.

CHANGING THE BATTERIES ON THE AUTOMATIC IGNITER

Only change the batteries with the heater switched off. Always insert new batteries at the beginning of the heating season.

Unlock battery cassette (press catch lever R to the left) and then swing out. Change the batteries. Observe plus/minus. Slide battery cassette into automatic igniter to be flush on the left side. Press catch lever R to the right **until catch audibly engages**.

Only use temperature resistant (+70°C), leak-proof Mignon round cells, other batteries could lead to malfunctions.

1. If the gas supply line is filled with air, it may take up to 2 minutes before the gas

becomes available for combustion. During this time hold the control knob pressed down until the flame ignites.

2. You will have to find out the exact thermostat setting yourself, depending on how much heat you need and the way your vehicle is designed.

The thermostat probe is underneath the heater. Please note that the thermostat will be adversely affected by cold draughts from refrigerator vents, gaps below doors, etc., or by a deep-piled carpet. Always make sure to avoid problems of this kind, otherwise satisfactory temperature control cannot be guaranteed.

Any alteration to the appliance (including exhaust duct and cowl or the use of spare parts and accessories which are important to the function of the heater and which are not original Truma parts, as well as the non-observance of the installation and operating instructions, will lead to the cancelling of the guarantee and exclusion of liability claims. It also becomes illegal to use the appliance, and in some countries this even makes it illegal to use the vehicle.

Do not operate the heater when refuelling the vehicle and when in the garage.

During the initial operation of a brand new appliance, a certain amount of fumes and a slight smell may be noticed for a short while. Remedial action here is to immediately run the heater at maximum output and to ensure adequate room ventilation.

Never allow the warm air outlet on the heater to be obstructed in any way. For instance, never hang washing on or in front of the heater to dry. Misusing your heater in this way could cause serious damage from overheating. Do not place flammable objects near the heater. Please follow these guidelines in the interest of your own safety.

Cleaning (with switched off appliance): It is recommended that at least once a year, before the heating season starts, you remove any dust that has collected on the heater exchanger and base plate.

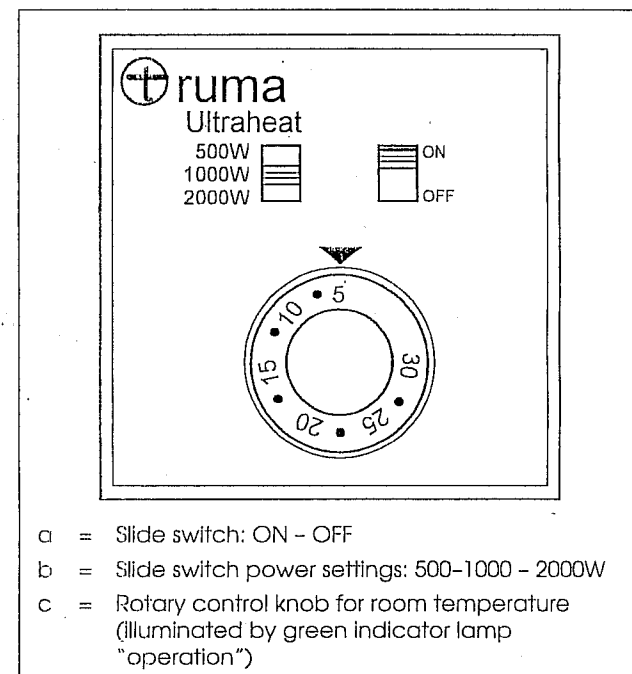
You will need to remove the heater casing to do this pull forward at the top, press up retaining springs and fold out casing).

TRUMATIC S3002 EL

with additional Electric Heating 500/1000/2000W

OPERATING INSTRUCTIONS

Before use, check that the supply available is suitable for (230V) 2100W (minimum 10 amp, better 16 amp).



OPERATING INSTRUCTIONS

SWITCHING ON

WARNING: Before switching on, ensure that

the fuse protection for the power supply of the camp site is sufficient for the selected power setting (b) (see Technical Data).

Important: The electric feed line for the caravan must be fully wound up in the cable drum.

1. Push slide switch (b) to the required power setting.
2. Push slide switch (a) to the ON position.
3. Set rotary control knob (c) to the desired room temperature.

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

If the heater is operated simultaneously with electricity and gas, the electrical unit will switch itself off before overheating occurs as a result of the stronger gas burner.

SWITCHING OFF

Push slide switch (a) to the OFF position.

IMPORTANT OPERATING NOTES

1. Repairs may only be carried out by an expert.
2. The heater's hot air outlet should under no circumstances be blocked. Never hang clothes or similar in front of or on top of the heater to dry. This could

cause serious damage to the heater as a result of overheating. Do not place inflammable materials near the heater. Please observe these instructions for your own safety.

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

TECHNICAL DATA

Power supply: 230V ~, 50Hz

Power consumption at power setting:
 500W: 2,2 A
 1000W: 4,5 A
 2000W: 8,5 A

Weight: approx. 2 kg

TRUMAVENT FAN

WARM AIR DISTRIBUTION AND VENTILATION

Always observe the operating instructions prior to starting. The vehicle owner is responsible for the correct operation of the appliance.

Repairs are only to be carried out by an expert.

1. Trumavent TEB with automatic speed control 12V

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

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

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

2. Trumavent TN Standard version 230V~~

° = **Off**

1-5 = **On**

Adjust required output at control knob.

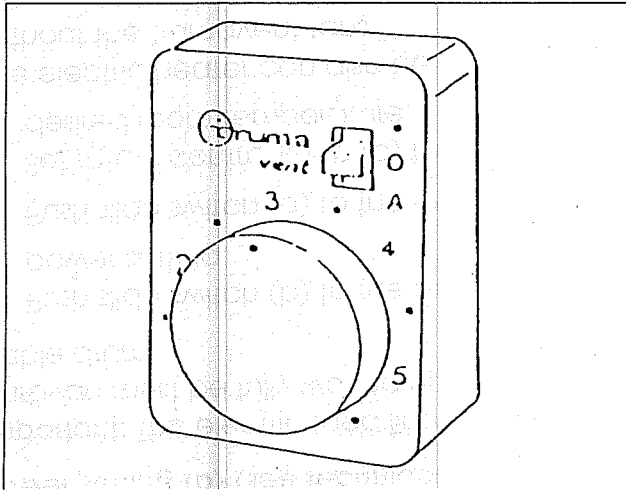
OPERATING INSTRUCTIONS

TEB & TBM FAN

"•" gives manual fan speed control for cold air circulation, the fan speed is regulated by the knob. "O" is OFF. "A" is automatic speed control.

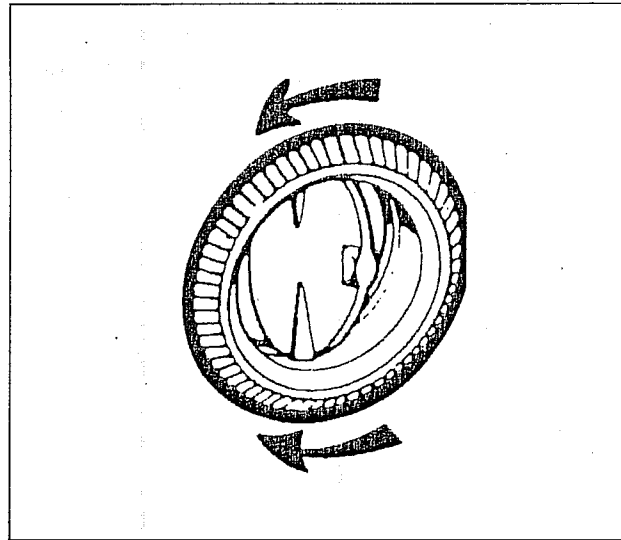
The fan speed is high when the heater is on maximum output and is progressively reduced as the heater thermostat reduces the heat output.

The maximum speed is controlled by the knob.



TN FAN

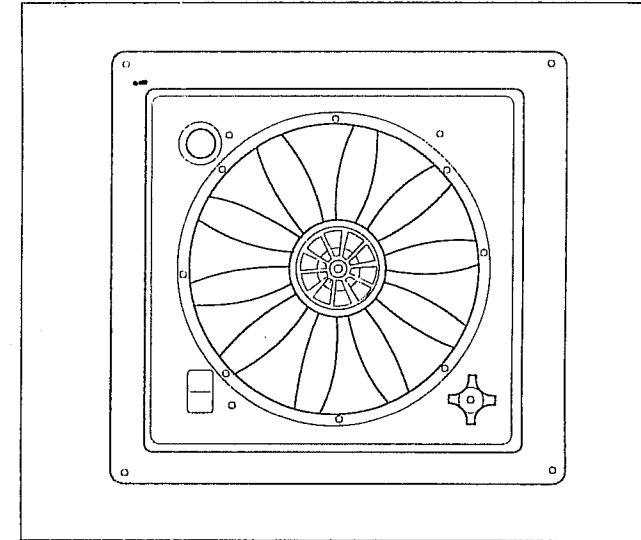
The fan speed is manually controlled by turning the knob from "O" (OFF) to the required speed.



BUTTERFLY OUTLETS "BE" and "EN"

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

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



FAN TASTIC VENT (Model 4040)

The fan has a manually operated, rain-proof cover. With the cover down the fan will not operate.

Two insect-proof screens are fitted at the top and bottom of the ventilator.

The fan is controlled by a 3-speed switch, the lowest setting being suitable for quiet operation at night.

THE OMNIVENT ROOFLIGHT (12V)

The Omnivent is a rooflight fitted with thermostatically controlled fan which will expel or induce air.

The fan is controlled by two switches and a knob:

- A red switch with 3 positions for directional control and OFF.

	IN	INDUCTION (IN)
	OFF	OFF
	OUT	EXPEL (OUT)

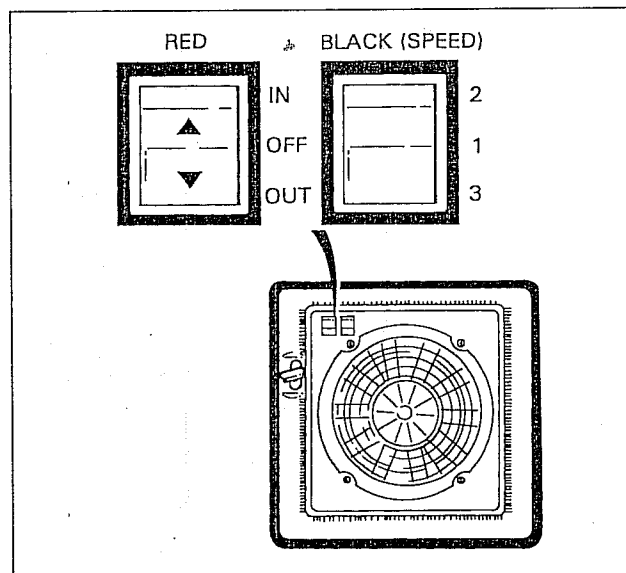
- A black switch with 3 positions for fan speed control.

2	Position 2 is 420 cft/min (30W 2.5 Amps)
1	Position 1 is 245 cft/min (15W 1.2 Amps)
3	Position 3 is 700 cft/min (50W 4.0 Amps)

- A knob with 7 positions for thermostatic control. Each position controls the temperature as follows:

Position 1	up to 35°C
Positions 5 to 6	20°C to 25°C
Position 7	12°C

Select the setting on the thermostat control knob for the desired temperature level.



To Operate

Open the outer cover. The fan will not operate when the cover is closed.

Select the required direction of flow on the red switch.

Select the black switch position for the volume of air to be induced or expelled.

To operate the fan without the thermostat select position 7. The fan will not operate below 12°C.

To Stop

Select 'OFF' on the red switch.

Caution

Always ensure that the rooflight outer cover is closed before moving off.

Maintenance

Unscrew the grille of the ventilator and remove for cleaning.

THE BLIZZARD 1300 AIR CONDITIONER

STARTING AND FUNCTION SELECTION

1. Internal temperature control thermostat
2. Two speed fan switch
3. Main switch (Red light ON' Green light OFF) Push the switch '3': Red light 'ON' to switch the air conditioning on.

To set the required temperature adjust the RED/BLUE selector control knob against the indicator mark on the outer bezel. Airflow direction can be achieved fore and aft by adjustment of the air outlet louvres.

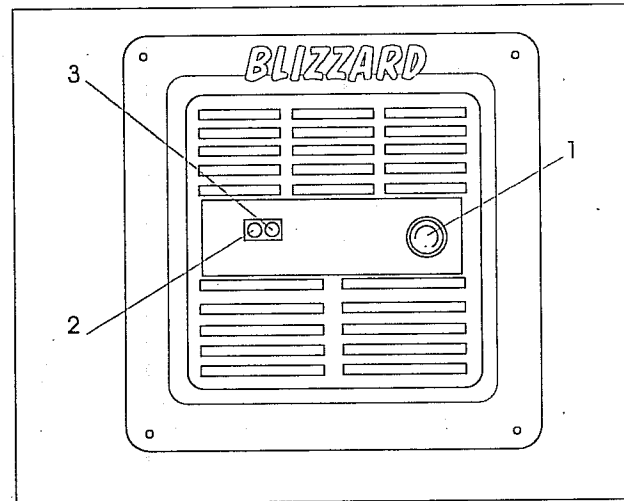
Push the switch '3' (Green light 'OFF') to stop the unit.

Attention

Never obstruct the air inlets and outlets

The air conditioning compressor runs during the refrigerating phase, if switched on and off at once it may get damaged. Therefore, it is very important to wait at least 3 minutes before attempting to switch it on again.

WARNING: Never introduce your hands or other object within the air inlet openings.



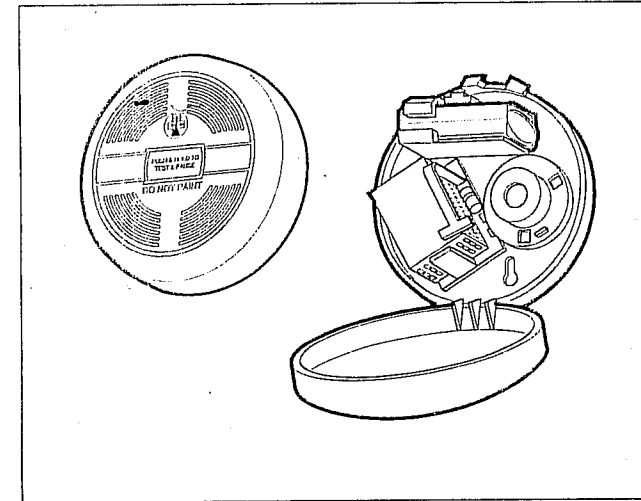
MAINTENANCE

To ensure trouble free running it is recommended that the unit be cleaned once or twice a year.

Never attempt the following until the power is disconnected and the unit is cool

Demount the external cover, clean the heat exchangers (evaporator and condenser) with a brush or compressed air. Remove any dirt.

Check that water trap holes are not clogged.



SMOKE ALARM

The smoke alarm fitted is approved for use in caravans and mobile homes.

The National Caravan Council (N.C.C.) requires that all new or used vehicles sold by its members be fitted with a smoke alarm featuring an alarm silence facility.

WARNING: Test smoke alarm operation after vehicle has been in storage, before each trip and at least once per week during use.

Note: A different smoke alarm to the one illustrated may be fitted (subject to availability) but it still meets the criteria above. For further information on use of the alarm, battery replacement, testing etc., refer to manufacturers' literature.

THETFORD CASSETTE TOILET

INTRODUCTION

The Thetford Cassette toilet is functional and incorporates modern sculptured styling with home-like features. The unit is an integral part of the motorhome bathroom.

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

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

The 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.

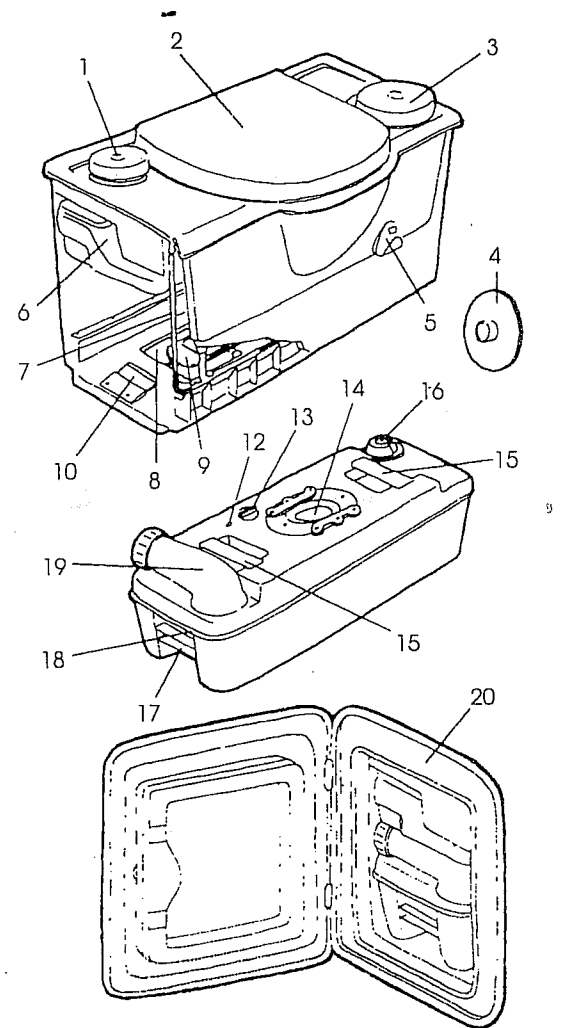
Other features include a safety sensor switch that guards against adding water to

the bowl without the Cassette in proper position.

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.
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.
20. Access door.

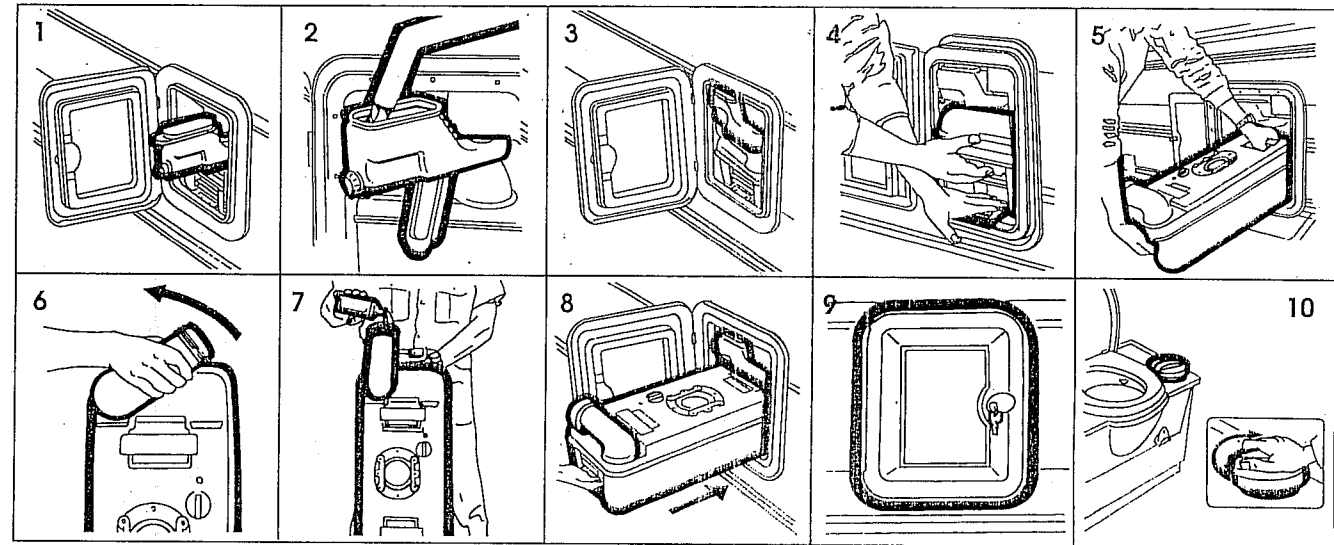
Fig. 1



THETFORD CASSETTE TOILET

PREPARING FOR USE

1. Open access door on the side of the motorhome and swing out fresh water fill funnel.
2. Fill freshwater tank using a hose or jerrycan until water funnel level reaches neck. Tank capacity is 15 litres. Aqua Rinse may be added to improve cleaning of bowl and flushing of unit.
3. Replace cap. Swing water fill funnel inward until it touches side of water tank. Note: 150ml of water will remain in fill bottle when fresh water tank is empty.
4. Next add Aqua Kem to Cassette for controlling odours. Depress retaining clip.
5. 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 upward.
7. Remove cap. Remove deodorant from storage compartment. Add 100 ml 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 return pour out spout to its original stored position.

Note: As an alternative, deodorant can be added to Cassette through the valve blade opening.

Hotter weather or longer retention time may require addition of more Aqua Kem.

CAUTION: Do not add Aqua Kem Concentrate or Aqua Kem Bio directly into toilet bowl while Cassette Tank valve blade is closed. Pressure due to heat and altitude change can build up in the Cassette tank

causing bowl contents to splash upward upon opening the valve blade, if opened too fast. Before each use, open and shut the Cassette valve blade to vent the tank, with the cover down.

8. Slide the Cassette, pour out spout facing outside, into the motorhome through access door. Never force insertion or removal of the Cassette tank, damage to system can occur.
9. Make sure the Cassette is secured by the retaining clip. Close and lock access door.

OPERATION

10. Before using the toilet we advise the addition of some water to the bowl by turning the flush knob in a clockwise direction. When flush knob is released it will turn automatically back.
11. To flush after use turn the valve knob in an anti-clockwise direction and turn the flush knob clockwise. This procedure results in the best bowl rinse and most efficient use of water.

EMPTYING THE CASSETTE

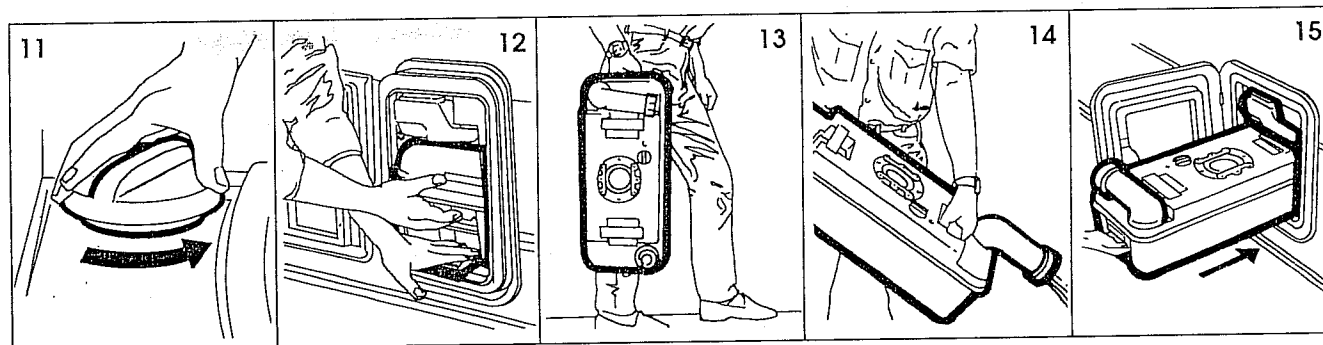
The Cassette capacity is 20 litres and should be emptied when the waste level gauge indicator goes from green to full red.

The gauge does not begin to move from green to red until tank is over half full.

CAUTION: Do not allow Cassette to become overfilled, see trouble shooting section for emergency procedure.

To empty Cassette be sure that the valve blade is in the closed position.

12. Open the access door on side of the motorhome. Depress the retaining clip. Pull Cassette until stop, tilt and remove cassette.



13. Carry 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 spout upward.
14. 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 insure 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.

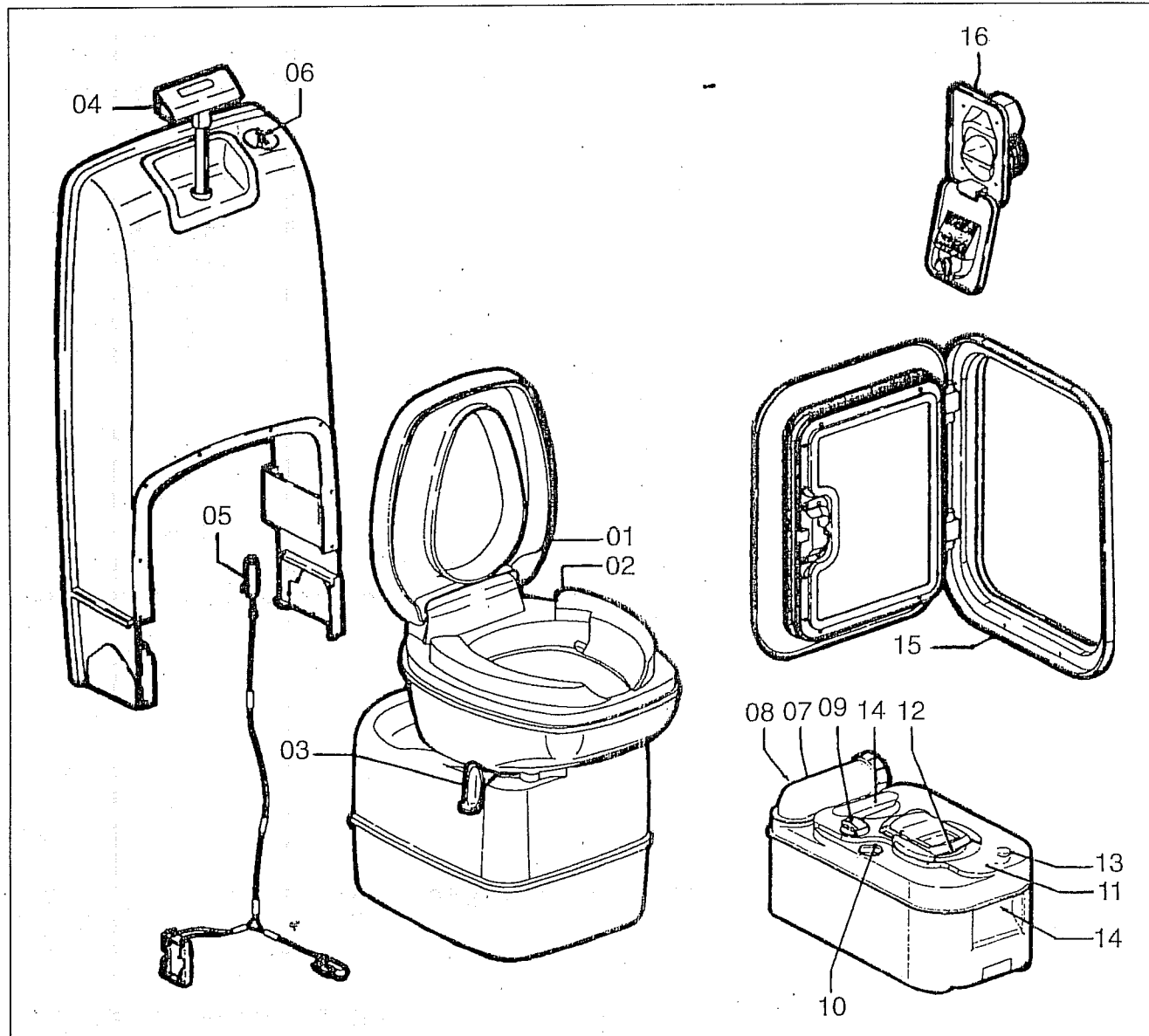
15. After preparing for use, slide the Cassette into the motorhome. Check to make sure that the retaining clip secures the tank in a locked position. The pour out spout end of the tank should be visible through the access door opening. Add water to the fresh water tank as outlined in "preparation for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

COLD WEATHER USE

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

THETFORD CASSETTE C-200 CW**FEATURES**

1. Removable seat and cover.
2. Rotatable bowl.
3. Valve blade handle: opens and closes valve blade.
4. Flush-handle activates the flush by lifting and pushing down the handle.
5. Power-supply for the waste-level indicator: two batteries, type: Penlite 1,5V AA alkaline.
6. Waste-level indicator: indicates when holding tank requires emptying.
7. Rotating pour-out spout: makes emptying holding tank easy and convenient.
8. Upper carrying handle
9. Automatic holding tank vent: vents the holding tank when the tank is inserted in the toilet. This prevents under- or overpressure in the holding tank.
10. Valve blade opener.
11. Sliding cover: closes automatically when holding tank is taken out. Guarantees optimal hygiene.
12. Valve-blade
13. Vent button: vents the holding tank to avoid splashing while emptying.
14. Hand grip
15. Access door
16. Waterfill door



CASSETTE C-200 CW

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

PREPARING FOR USE

1. Open access door pull retaining clip upwards (fig. 1).
2. Remove holding tank by pulling straight out. When holding tank hits the stop, tilt front end downwards slightly and remove (fig. 2).
3. Position tank vertically and swivel pour-out spout upwards (fig. 3).
4. Remove the cap of the pour-out spout. Add required quantity of toilet fluid through pour-out spout then add approx. 2 litres of water through the spout to cover holding tank bottom. Replace cap and return pour-out spout to its original stored position (fig. 4).

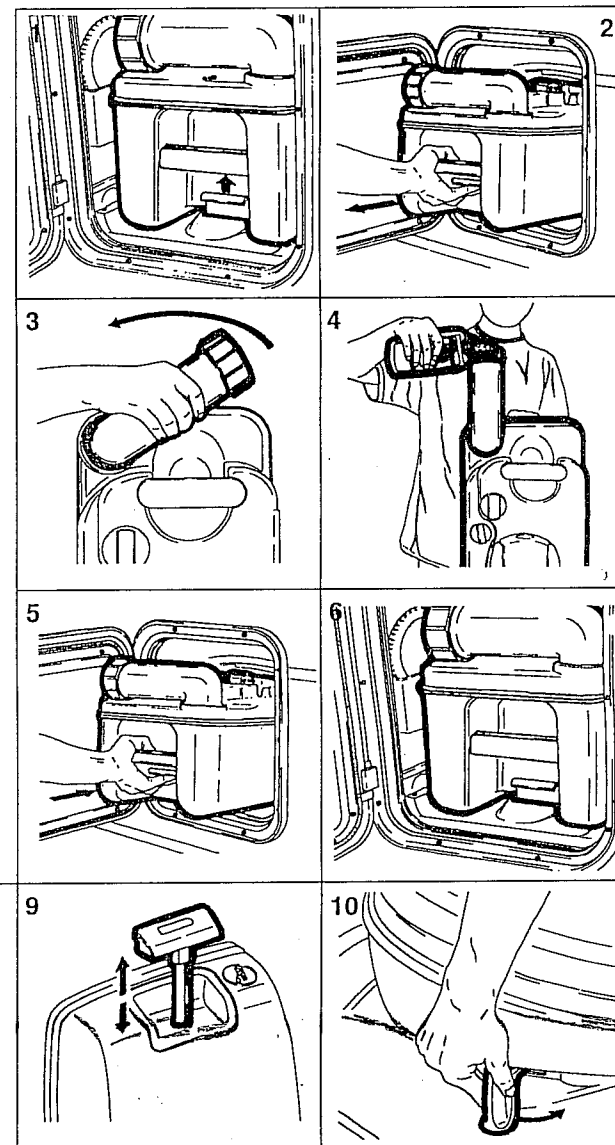
Note: Warmer weather or longer intervals between emptying the waste tank may require additional toilet fluid. Use only Thefford toilet fluid to achieve the best results.

Caution: Never add toilet fluid directly into toilet bowl.

5. Slide the holding tank into position through access door (fig. 5).
6. Make sure the holding tank is secured by the retaining clip. (fig. 6).
7. Open the waterfill door and add 50 ml of Aqua Rinse. Aqua Rinse results in a better flush and improves the hygiene of the toilet. Then fill the watertank with fresh water using a jerrycan or a hose. Tank capacity is 7 litres (fig. 7).

OPERATION

8. Turn the bowl in the most comfortable position (fig. 8).
9. Before using the toilet it is recommended to flush some water into the bowl by lifting and pressing down the flush handle (fig. 9).
10. After use open the blade by turning the blade-handle anti-clockwise (fig. 10).



11. To flush, lift the flush handle and press it down (fig. 11). After flushing, close the blade by turning the blade handle clockwise. The toilet may also be used with the valve blade open, which allows the waste to pass directly into the holding tank.

The waste holding tank is located underneath the toilet and is removed for emptying from the outside of the vehicle through an access door. A rotating pour-out spout, automatic holding tank vent, air release valve, valve blade, carrying handles and hand grip are incorporated in the waste holding tank. A sliding cover guarantees you optimal hygiene.

EMPTYING THE HOLDING TANK

The holding tank capacity is approx. 17 litres and the tank should be emptied when the waste-level indicator lights up. The waste-level indicator lights up when the holding tank contains more than 15 litres of waste.

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

12. Open access door and remove the holding tank. The holding tank can

only be removed when the valve blade is closed (fig. 12).

13. Carry the holding tank to a normal household type toilet or other authorized disposal point. Place the holding tank in vertical position and rotate pour-out spout upwards (fig. 13).
14. Remove the spout cap. Grasp unit by upper carrying handle nearest to pour-out spout. Place other hand on upper rear hand grip so that vent button can be depressed with the thumb while emptying. This ensures a smooth outflow of the tank contents. (fig. 14).

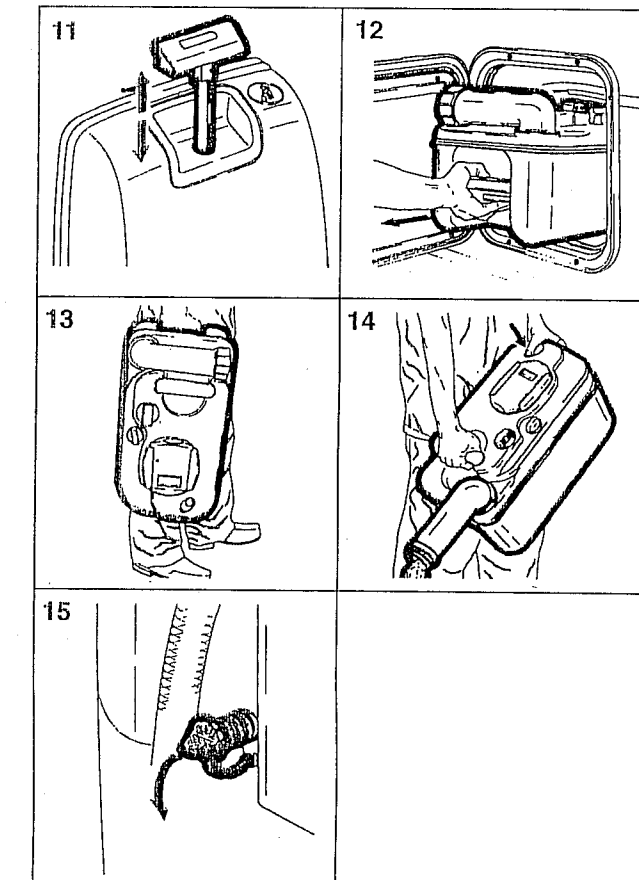
Note: Only depress the vent button when pour-out spout is pointed downwards.

Rinse the holding tank with clean water. For preparing for use again, see steps 1 to 7.

CLEANING AND MAINTENANCE

The lipseal and the seal of the automatic vent are made of rubber and therefore these parts need regular maintenance (depending on frequency of use, once or twice a month).

Lipseal: Remove the sliding cover. Open the valve-blade by turning the blade-



opener knob anti-clockwise. Clean the seal with water. Dry the seal and grease with silicone spray/oil or vegetable oil.

Seal of automatic vent: Turn the automatic vent 60° anti clockwise and remove gently. Clean the seal with water. Dry the seal and grease with silicone spray/oil or vegetable oil.

To clean the holding tank, empty the tank, and rinse with clean water. Use a mild soap to clean toilet bowl, seat and cover, as well as exterior of toilet unit and holding tank.

NOTE: Do not use strong household detergents or cleaners that contain chlorine, solvents or acid contents.

WINTERING/STORAGE

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

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

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

COLD WEATHER USE

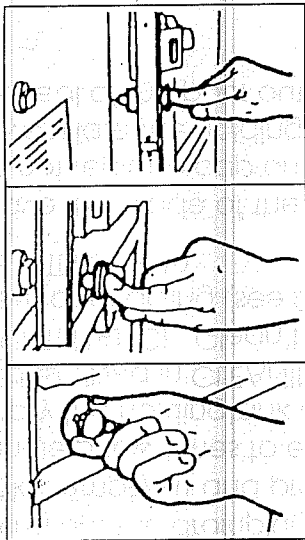
The toilet can be used in cold weather conditions provided that the toilet is in heated surroundings. If this is not the case, you can use a nontoxic antifreeze (propylene glycol) or an antifreeze such as those used in car radiators. Add the antifreeze to the water in the tank. Add the quantity specified in the instructions, paying due regard to the safety instructions.

HIGH ALTITUDE AND WARM WEATHER USE

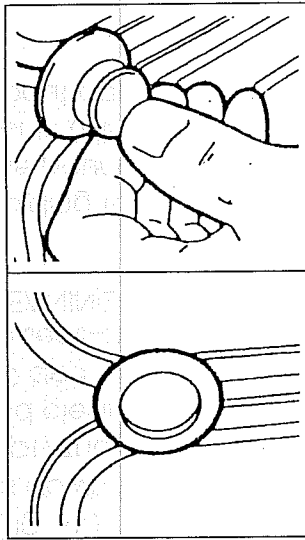
Pressure may build up in the holding tank if the tank is not inserted while driving at high altitudes or in warm weather conditions. The automatic holding tank vent will vent the tank when there is over- or under-pressure. High temperatures may require additional Thetford toilet fluid.

THETFORD WARRANTY

1. The Thetford Cassette is warranted to the original buyer for one year from the date of purchase, please fill in and return the warranty card.
2. The warranty covers replacement of defective or flawed parts and the inadequate performance of the toilet.
3. In case of a defect apply to an original dealer or Thetford Service Centre with proof of purchase.
4. Defects, which in our judgement occurred from misuse, negligence or accident, are not covered by the warranty. In addition, the warranty does not apply if the product is installed or handled improperly or if other than the prescribed toilet fluids have been used or if the product has been altered in any way or has been repaired by unqualified persons, or if the serial number and/or date has been altered or removed.
5. Should the original buyer wish to return to us parts believed to be defective, the parts should be sent prepaid. If we find the parts defective and covered by warranty, they will be repaired and returned. If warranty does not apply or has expired, a nominal charge will be made. Any transport costs are for the account of the owner.
6. Before returning product or parts they should be properly cleaned, in order to carry out inspection and repair.
7. No other warranty is given and no personal representative is authorised to make any warranty other than that is contained herein.



Exterior Door

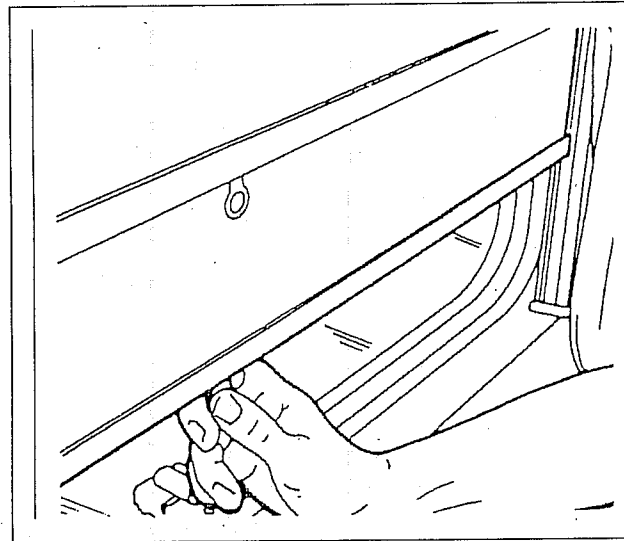


Internal Door

DOORS

The exterior door can be secured to the side of the motorhome by pushing the button as illustrated. Release by turning in the direction shown.

The shower room door is fitted with a two-position push button lock. Push once to lock, push again to release.

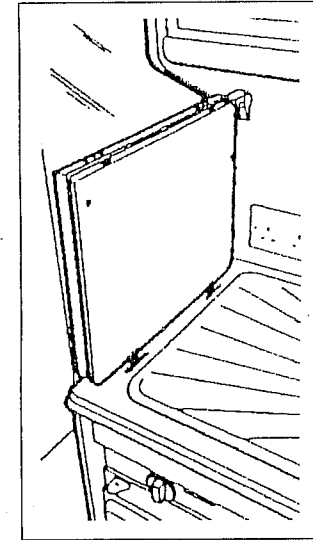
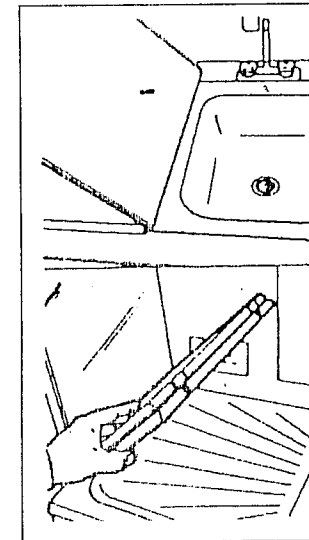


BLINDS

Pull blind down by its centre catch.

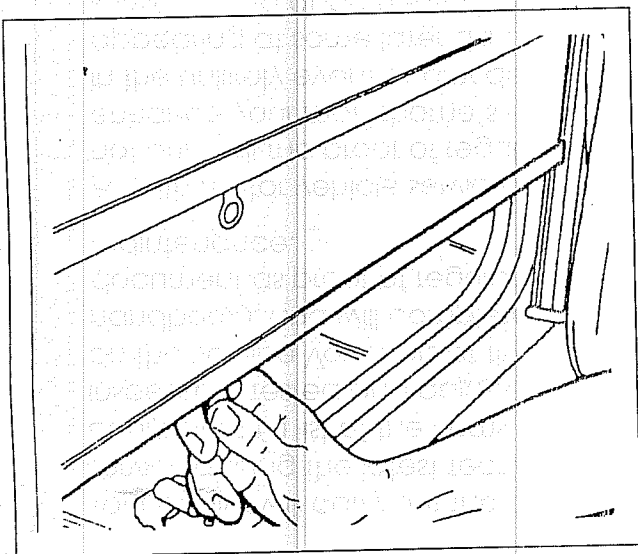
DO NOT pull down by one side of the blind as this will inevitably lead to problems.

DO NOT allow blinds to spring back freely. Always control them by hand.



SINK/DRAINING BOARD COVER

When not in use the sink/drainage board can easily be converted to an additional worktop by releasing the clip and unfolding the arrangement illustrated.



FLYSCREENS

To operate the flyscreen, pull the screen fully down and push the crossbar towards the window so that it locates in the retaining cut-out within the rear channel of the lateral guides.

To release — gently pull the crossbar downwards and towards you and allow the tension of the spring to roll up the flyscreen.

Note:

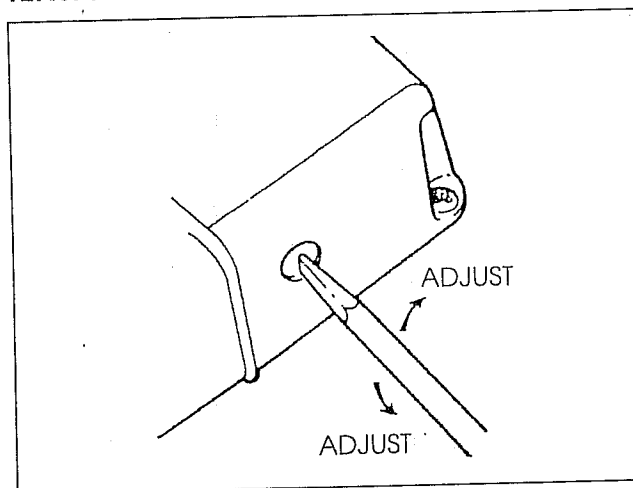
DO NOT release the crossbar, allowing it to fall as this will cause damage to the mechanism.

SUNSCREENS

The sunscreen has 'inverted' stop positions at various points along the lateral guides — look inside the guides to see the various cut-outs which indicate these positions.

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

TENSION ADJUSTMENT



The tension adjustment screws are located at either end of the top cassette (right side for sunblind and left side for flyscreen).

With a screwdriver gently apply pressure inwards and rotate the screw head a half turn clockwise to increase the tension or anti-clockwise to reduce tension.

It is not recommended that blinds are pulled down whilst the vehicle is moving.

WINTERISATION

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

This section of the handbook is devoted to the care, cleaning and general preservation of your Motorhome in order to retain its show room condition.

SERVICING

Your Motorhome requires servicing at least once a year for safety, efficiency and to protect the investment you have made. Whether the motorhome is used for short trips or continental long range touring, regular servicing is necessary and will ensure continued enjoyment of your holiday home.

Your dealer will carry out the annual servicing using the latest techniques and equipment (a list of the items to be inspected, tested and adjusted appears on the Service Vouchers at the rear of this handbook), and will complete the service document as proof of regular maintenance.

As with motor vehicle service documents, not only will the proof of regular servicing enhance your motorhome's real value but in the unlikely event of any defect appearing at some later date - a properly serviced and documented motorhome history will enable your dealer to rapidly assess and, where appropriate, carry out

the necessary remedial work. Additionally, but most importantly, regular service is a requisite of the Guarantee and will preserve your rights under the warranty.

CLEANING

EXTERIOR BODYWORK (NOT CAB)

The exterior of your motorhome is acrylic finished aluminium, which is extremely durable and easy to clean. It is recommended that you use a mild detergent (normal washing-up liquid) or a proprietary brand wash and wax shampoo with the use of plenty of cold water.

GRP PANELS

Glass reinforced plastic panels should be cleaned in the same way as the painted bodywork. In a very few instances slight crazing of the gel coating of a GRP panel may occur. This affects solely the gel coating and does not cause damage to the structure, waterproofing or security of the panel.

In the unlikely event of crazing appearing on a GRP panel of your motorhome this can be rectified by your dealer during the motorhome's next regular service.

Note: Some panels are constructed of Acrylic Capped ABS.

ACRYLIC WINDOWS

Your motorhome is fitted with shatter resistant acrylic windows. To preserve their clarity and unblemished transparency it is essential that the following cleaning instructions are strictly adhered to:

Road grit, dust, sand, flies, lime tree secretions, bird droppings etc., should be 'swilled off' using plenty of cold water. Any remaining dirt should be washed off using a soft cloth and warm water. Under NO circumstances should any abrasive cleaning agents, household detergents or proprietary cleaning fluids be used.

Wash the window again using only cold water and dry off with a chamois leather.

Note: Should scratches appear on the acrylic windows these can often be removed with an acrylic polish — consult your dealer BEFORE attempting to remove any but the slightest scratch.

INTERIOR WALLS

Your Motorhome interior walls are finished with a vinyl coating and will only require a wipe over with a damp cloth, using a mild detergent, to keep them in a 'showroom' condition.

FURNITURE

Treat your motorhome furniture as you would the furniture in your home. Polish wood surfaces sparingly with a good quality wax or spray polish. Use a damp cloth to clean melamine laminated surfaces.

CARPETS, UPHOLSTERY AND CURTAINS

Vacuum clean carpets and upholstery to ensure a long life. Marks on cushions can be removed using a mild upholstery shampoo with the minimum of water.

Curtains — check the manufacturers' label for washing instructions.

SHOWER ROOM AND WASH BASIN FITTINGS

These should be cleaned using a non abrasive household cleaner.

Always put the cold water into the wash hand basin before adding the hot in order to preserve the finish of the thermoplastic formed basin.

STORAGE

If the motorhome is to be stored for any length of time, especially over the winter period, the following operations are recommended.

Remove all linens, blankets, cushions, clothes, mattresses, etc. which could be affected by damp conditions. Clean the motorhome inside and out as detailed in the previous section.

Drain off the water system.

Ensure all windows, roof lights and doors are correctly fastened. Check fixed ventilation apertures are not obstructed. Check that the site you have chosen to store the motorhome is open, fairly high and dry and if possible not exposed to gales etc. If this proves impossible it is recommended that the motorhome chassis is anchored to the ground.

Jack up the motorhome (use bottle or screw jack) so that the wheels are clear of the ground. Support the motorhome axles with wooden blocks, axle stands or similar so that when the jacks are removed the wheels remain clear of the ground. Cover the tyres to prevent deterioration. Release the handbrake. Rotate the wheels at regular intervals to maintain wheel bearing lubrication.

If the vehicle is not stored on axle stands, check tyre pressures regularly.

DO NOT cover the body of the motorhome with a sheet or envelope as dampness may be trapped inside.

Avoid parking close to trees.

Should the motorhome be stored for a prolonged period of time it is strongly recommended that the motorhome is fully serviced before the commencement of use. Your dealer will ensure that your motorhome is safe, secure and ready for your enjoyment.

CHASSIS

Some models of Motorhome are built on a chassis cab unit with an Al-Ko fully galvanised chassis conversion which allows the floor level to be lower. The galvanising is a zinc coating which will lose its bright appearance with normal weathering. Occasionally a white zinc carbonate deposit can occur, this does not affect the efficiency of the galvanising and if unsightly can be cleaned off with a small amount of metal polish or light use of wire wool.

The wheels and braking system are part of the chassis cab and it is strongly recommended that any servicing or brake adjustment is carried out by the appropriate dealers workshops.

AFTER SALES SERVICE

Should you require any replacement parts for your motorhome we would advise that you contact the dealer from whom you purchased the motorhome or any authorised 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.

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

The cost of transporting, towing or moving the motorhome by any means to or from the place of repair is the responsibility of the owner.

Dealers are not agents of Elddis Caravans Limited and have absolutely no authority to bind the manufacturer by any express or implied undertaking or representation.

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

REPAIR FACILITIES

Should you be unfortunate enough to suffer an accident with your motorhome,, it is comforting to know that we carry an extensive stock of spare parts at the factory.

All relevant enquiries must be directed through your dealer.

The manufacturers will also undertake to supply certain specialist repairers with the necessary spare parts. In this case, your selected repairer must contact the AFTER SALES DEPARTMENT with all enquiries.

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

Any repairs should be referred first to your local dealer.

COMMITMENT TO CUSTOMER SATISFACTION:

IF YOU HAVE A 'WARRANTY' PROBLEM

In our experience the most common cause of all complaints is the result of misunderstanding or lack of communication between the customer and the dealer.

We sincerely hope you will never have cause to complain about your Motorhome. However, if things do go wrong, the course of action for you is to contact your dealer and explain the difficulty you are having. We are confident they will do their utmost to resolve the problem to your complete satisfaction.

The dealer from whom the motorhome is purchased is liable for warranty repairs. Any other approved dealer may carry out work on a motorhome at his own convenience or discretion, but is not obliged to do this.

Your motorhome is supplied to you with a warranty guarantee that is valid for three years from the date of purchase except when otherwise stated. The first year's cover is provided by the manufacturer, the second and third year by an extended warranty policy.

Please refer to your Extended Warranty Policy Booklet for details.

The manufacturers are not responsible for travelling costs incurred returning a motorhome to a dealer for warranty repair. This also applies to consequential loss, i.e. earnings incurred.

The warranty is not extended to cover motorhomes which are let out for hire or reward.

MOTORHOME ANNUAL SERVICE RECORD

Your motorhome needs servicing at least once a year.

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

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

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

Section (A) Chassis

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

Section (B) Exterior

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

Section (C) Exterior

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

Section (D) Electrical

1. Interior lights
2. Water pump & switches
3. Refrigerator
4. Distribution unit
5. Charging unit
6. Junction box/strip
7. Wiring & supports
8. Battery/ies
9. Fuses/Fuse holders
10. Awning light
11. Electronic ignition (hob)
12. 230V system, earth continuity
13. System check

Section (E) Gas equipment

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

WARRANTY

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

www.vwT4camper.info - a useful website for owners and enthusiasts of VW T4 Transporter Campervans

ANNUAL SERVICE RECORD

MOTORHOME MODEL _____

YEAR _____

VEHICLE IDENTIFICATION NUMBER _____

CHASSIS NUMBER _____

1st SERVICE

DATE: _____

DEALER'S STAMP _____

I/We certify that an annual service has been carried out in
accordance with the Manufacturers & National Caravan Council
recommendations

2nd SERVICE

DATE: _____

DEALER'S STAMP _____

I/We certify that an annual service has been carried out in
accordance with the Manufacturers & National Caravan Council
recommendations

3rd SERVICE

DATE: _____

DEALER'S STAMP _____

I/We certify that an annual service has been carried out in
accordance with the Manufacturers & National Caravan Council
recommendations

4th SERVICE

DATE: _____

DEALER'S STAMP _____

I/We certify that an annual service has been carried out in
accordance with the Manufacturers & National Caravan Council
recommendations

5th SERVICE

DATE:

DEALER'S STAMP

I/We certify that an annual service has been carried out in accordance with the Manufacturers & National Caravan Council recommendations

6th SERVICE

DATE:

DEALER'S STAMP

I/We certify that an annual service has been carried out in accordance with the Manufacturers & National Caravan Council recommendations

7th SERVICE

DATE:

DEALER'S STAMP

I/We certify that an annual service has been carried out in accordance with the Manufacturers & National Caravan Council recommendations

8th SERVICE

DATE:

DEALER'S STAMP

I/We certify that an annual service has been carried out in accordance with the Manufacturers & National Caravan Council recommendations

9th SERVICE

DATE:

DEALER'S STAMP

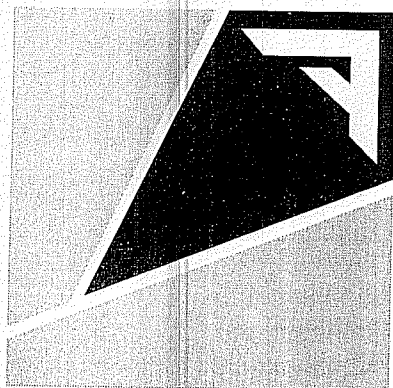
I/We certify that an annual service has been carried out in accordance with the Manufacturers & National Caravan Council recommendations

10th SERVICE

DATE:

DEALER'S STAMP

I/We certify that an annual service has been carried out in accordance with the Manufacturers & National Caravan Council recommendations



UTOHOMES

1998/99

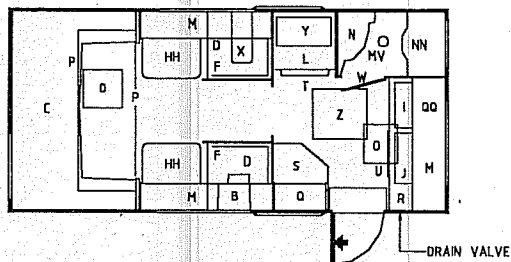
Autohomes Range

TECHNICAL SPECIFICATION

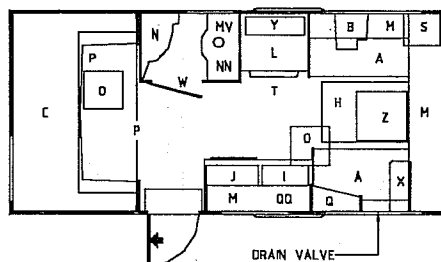


TECHNI

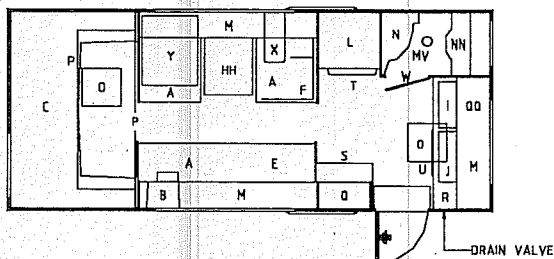
WILDWIND



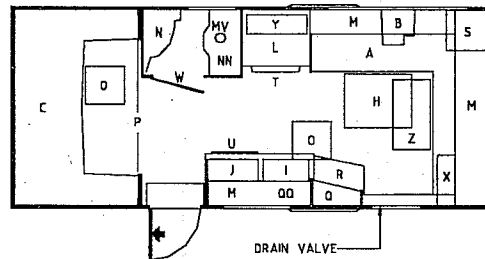
WINDFALL



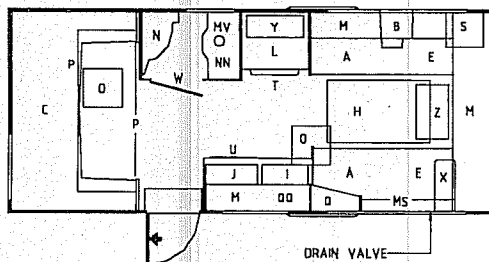
WAYFARER



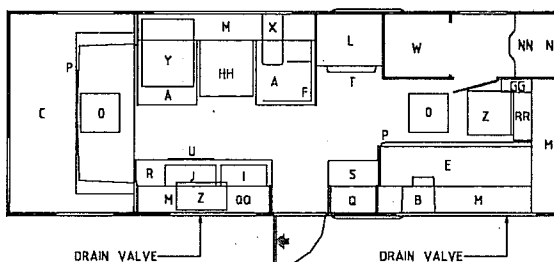
WANDERER



WAYFINDER



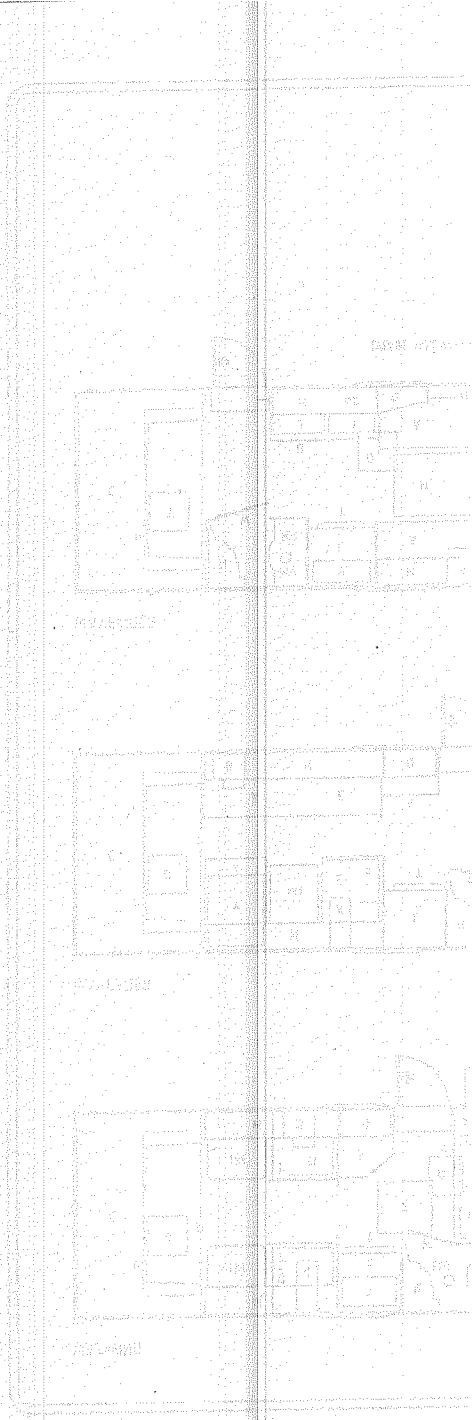
WINDWARD



KEY

A	DINETTE/DOUBLE BED
B	BATTERY COMPARTMENT
C	OVER CAB DOUBLE BED
D	DINETTE/SINGLE BED
E	SINGLE BED/DAY SEAT
EE	SINGLE BUNK
F	LAP SEAT BELTS
GG	TABLE STORAGE UNIT
H	FREE STANDING TABLE
HH	TABLE
I	3 BURNER HOB & GRILL
J	SINK & DRAINER
L	WARDROBE
M	WALL LOCKER
MS	SHELF
MV	MUSHROOM VENT
N	VANITY UNIT
NN	PORTA POTTI
O	ROOFLIGHT
P	DIVIDING CURTAIN
Q	WINE LOCKER
QQ	CROCKERY LOCKER
R	CUPBOARD
RR	DRAWER UNIT
S	GAS BOTTLE LOCKER
T	HEATER
U	FRIDGE
W	SHOWER
X	WATER HEATER
Y	FRESH WATER TANK
Z	WASTE WATER TANK

NOTE: ➡ LOW LEVEL VENTILATION SHOULD NOT BE OBSTRUCTED.



MODEL		WILDWIND	WINDFALL	WAYFARER	WANDERER	WAYFINDER	WINDWARD
BASE VEHICLE		PEUGEOT 270 SWB	PEUGEOT 270 SWB	PEUGEOT 270 MWB	PEUGEOT 270 MWB	PEUGEOT 270 MWB	PEUGEOT 320 LWB
No. OF BERTHS/DESIGNATED PASSENGER SEATS		4 / 3	4 / 1	4 / 3	4 / 1	4 / 1	5 / 3
EXTERIOR LENGTH(mm/in)		5383mm (17' 8")	5383mm (17' 8")	5846mm (19' 2")	5846mm (19' 2")	5846mm (19' 2")	6735mm (22' 1")
OVERALL WIDTH(mm/in)		2200mm (7' 2 1/2")	2200mm (7' 2 1/2")	2200mm (7' 2 1/2")	2200mm (7' 2 1/2")	2200mm (7' 2 1/2")	2200mm (7' 2 1/2")
OVERALL HEIGHT(mm/in)		2895mm (9' 6")	2895mm (9' 6")	2895mm (9' 6")	2895mm (9' 6")	2895mm (9' 6")	2965mm (9' 8 1/2")
MAXIMUM HEADROOM(mm/in)		2145mm (7' 0")	2145mm (7' 0")	2145mm (7' 0")	2145mm (7' 0")	2145mm (7' 0")	2140mm (7' 0")
INTERIOR WIDTH (mm/in)		2070 (6' 9 1/2")	2070mm (6' 9 1/2")	2070mm (6' 9 1/2")	2070mm (6' 9 1/2")	2070 (6' 9 1/2")	2070mm (6' 9 1/2")
TYRE PRESSURE	Front	44 PSI	44 PSI	59 PSI	59 PSI	59 PSI	59 PSI
	Rear	44 PSI	44 PSI	65 PSI	65 PSI	65 PSI	65 PSI
Bed Sizes:	Option 1	O/Cab Double 2057mm x 1290mm 2 x Single 1830mm x 685mm	O/Cab Double 2057mm x 1290mm 1 x Double 2070mm x 1380mm	O/Cab Double 2057mm x 1290mm 1 x Double 1854mm x 1220mm	O/Cab Double 2057mm x 1290mm 1 x Double 2057mm x 1235mm	O/Cab Double 2057mm x 1290mm 1 x Single 1875mm x 700mm 1 x Single 1840mm x 700mm	O/Cab Double 2057mm x 1287mm 1 x Double 1854mm x 1220mm 1 x Single 1830mm x 610mm 1 x Single 1735mm x 580mm
Bed Sizes:	Option 2					O/Cab Double 2057mm x 1290mm 1 x Double 2070mm x 1840mm	
Maximum Front Axle	kgs	1460	1460	1560	1560	1560	1560
Maximum Rear Axle	kgs	1460	1460	1560	1560	1560	1560
M.T.P.L.M.	kgs	2800	2800	3100	3100	3100	3200
Mass in Running Order	kgs	2266	2218	2299	2339	2295	2516
Essential Habitation Equipment	kgs	113	113	113	113	113	113
Maximum User Payload	kgs	534	582	801	761	805	684

Maximum User Payload includes Essential Habitation Equipment, Personal Effects, Optional Equipment and the Conventional Load

Mass in Running Order are all based on 1.9 Turbo Diesel Engine, excluding Windward based on 2.5 Diesel Engine.

User Payload can vary subject to weight tolerances in materials used.

Note 1: Please take care to ensure that you have allowed for the masses of all items you intend to carry in the caravan.

Note 2: Warning under no circumstances must the technical Permissible Laden Mass of the motorcaravan be exceeded.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488	1489	1490	1491	1492	1493	1494	1495	14
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	----

