

NEW COACHMAN FIVE YEAR WARRANTY



2009 Owners Handbook

All Coachman Caravan models have been certified by the National Caravan Council for compliance with stringent European Standards, British Legislation and Industry set Codes of Practice specifically relating to health and safety issues. The approval process covers the testing and inspection of critical areas of the product from fire, safety, weights and dimensions to gas, electrics and ventilation. Every Coachman Caravan carries the "NCC Approved Caravan" badge. The NCC also conducts unannounced inspections at the Coachman factory to ensure continued compliance. **NCC approval gives you peace of mind that your caravan is legal and safe.**

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

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

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You are now the owner of a quality caravan. The User's Guide has been prepared for your guidance to help you derive the greatest amount of pleasure from the use of your caravan. It is recommended that you read the pages of this guide thoroughly so that you are fully conversant with all the caravan systems. The major proprietary components of the caravan such as the chassis, space heater, oven, water heater, refrigerator and electrical control systems all have their own comprehensive operating instructions which should be supplied with your caravan. It is worth reading these too as it is not possible to include all the information they contain in this handbook.

Your supplying distributor is responsible for carrying out a thorough pre-delivery inspection on your caravan and also for arranging any warranty work or routine servicing which may be required.

Authorised Dealers will be able to supply any replacement parts for your caravan, 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 caravan 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 caravan is in a first class roadworthy condition. It is a condition of your warranty that your caravan is serviced by an authorised Dealer once every twelve months and that the service record in your Warranty and Service Handbook is maintained in accordance with instructions.

Your Coachman Caravan has been designed as a luxury recreational vehicle and is **intended for recreational use only**. It is not intended for living in, using for business purposes or hiring and the Company accepts no liability if the caravan is used for any purposes other than holidays.

To ensure the very best quality and reliability the caravan has been through an extensive design and testing programme. Therefore **the Company accepts no liability if the caravan is altered or modified** in such a way that, in the Company's opinion, the changes would adversely affect the reliability.

You should consult your dealer before any additional equipment is fitted.

TOWING VEHICLES

- When selecting a towing vehicle for your caravan we strongly recommend you consult THE CARAVAN TOWING CODE, which is based on the recommendations of the NCC, The Caravan Club, The Camping and Caravanning Club, The Caravan Writers Guild and the Department of Transport.
- The caravan is manufactured for towing behind normal road cars and is **not suitable for towing behind commercial vehicles**. Providing care is exercised when towing with a 4x4, especially when off road, and loading limits are strictly adhered to, then no problems should arise. We would however **strongly recommend** that all such 4x4 are fitted with spring assisted tow ball which will reduce the shock put onto the chassis by up to 70%.

REPAIRS

We at Coachman, together with our suppliers, are continually undertaking extensive research into, and testing of, repair procedures and materials such as body sealant, adhesives, gaskets and tapes. Therefore, if you damage your caravan or if it should require repairing for any reason, then these repairs must be carried out by an authorised dealer using Coachman genuine parts, recommended sealant and following Coachman procedures.

IMPORTANT

The 17 character VIN of your caravan should be quoted in all correspondence. This number is also shown on the N.C.C. Certificate.

WARRANTY

All Coachman Caravans carry a **five-year manufacturers warranty**.

The Coachman warranty does require that a full annual service be carried out by a competent Service Centre. This service must be carried out within 90 days either side of the anniversary of the purchase date for interim years but before the anniversary date on the final year and must include a full damp check. Additionally if customers damage their caravan, or should it require repairing for any reason, then these repairs must be carried out by a

competent Service Centre using Coachman genuine parts, recommended sealant and following Coachman procedures.

To activate your warranty your dealer must complete the registration form in the Warranty and Service handbook and return it to Coachman within one week of collection.

WATER INGRESS

We at Coachman recognise that while over recent years we, together with our sealant suppliers, have made tremendous developments in sealants and sealing techniques and are extremely confident in our product resisting water ingress, it is water ingress above all other problems which remains the main worry and concern of potential and actual retail customers.

Therefore, on every new Coachman caravan sold, we make a comprehensive **6 year Worry Free Water Ingress Offer**:

- Water Ingress between new and 5 years - All labour and parts covered by the Coachman Warranty provided there is a full service history.
- Water Ingress between 5 and 6 years:

Coachman will pay the total labour cost and supply parts free of charge provided there is a full service history and the third service was carried out before the anniversary date on the final year of the five year warranty.

- When a customer part exchanges a Coachman caravan at a Coachman Dealer and water ingress is detected at the time of the part exchange Coachman confirms they will pay the dealer the total of the agreed cost of any repair undertaken to rectify the water ingress provided:
 - a) It is being exchanged for a new Coachman Caravan.
 - b) There is full documentary evidence that the caravan has been serviced annually.
 - c) The caravan is less than 6 years old.

GENERAL WARRANTY TERMS

The caravan is not covered if the manufacturers identification (vehicle identification number) of the caravan has been defaced or removed.

The warranty also excludes

- Failure due to reasons of fair wear and tear.
- Damage resulting from accidents.
- Misuse of any component.
- Replacement of parts which have reached the end of their effective working life because of age and/or usage.
- Cleaning or adjustment of any assemblies.

The warranty will be invalidated if the caravan has been neglected, misused or modified in any way without the prior agreement of Coachman Caravans.

The caravan will be deemed to have been neglected if it has not been serviced and maintained as stated in the Warranty and Service handbook.

The warranty also excludes:

- Caravans used for hire or reward.
- Caravans used for other than

recreational purposes i.e. for living in or business purposes.

- The cost of transporting the caravan, by whatever means to the place of repair.
- Any consequential cost or loss arising.
- Damage by mould.
- Damage by forces of nature.

For full details of the warranty refer to your Warranty and Service handbook.

FIRE RETARDANT FOAMS

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

With this in mind all caravans are equipped with either 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).

NOTE: Whilst this manual will describe the general operation of the caravan, we recommend that you refer to the individual equipment manufacturers manuals for detailed information.

CARAVAN REGISTRATION AND IDENTIFICATION SCHEME - VIN

The caravan has been security marked and recorded under the Caravan Registration and Identification Scheme that is recognised by the Caravan Industry.

Shortly after purchasing this caravan you should receive your Touring Caravan Registration Document. It will be sent by post to your home address.

Your Touring Caravan Registration Document will include a 17 character VIN (Vehicle Identification Number), shown in the top right hand corner. This 17 character VIN will be die stamped into the caravan drawbar and chemically etched on up to a maximum of 10 eye level windows.

To protect yourself and your touring caravan, never leave the Registration Document in the caravan. For security reasons keep it in a safe place.

If you sell the caravan please follow the instructions on the Touring Caravan Registration Document.

If you do not receive a Touring Caravan Registration Document, lose it or any of the details recorded are incorrect, please contact:

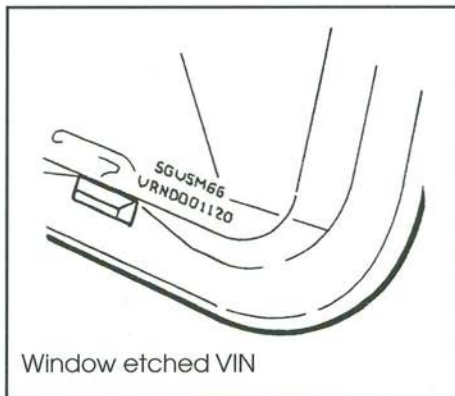
CRIS
Dolphin House
New Street
Salisbury
Wiltshire
SP1 2TB

Telephone 01722 411430

SECURITY TAG

An electronic security tag containing the individual identity of your caravan is concealed within the caravan body and can only be read by using a special decoder.

Your local police can obtain the use of a decoder by contacting C.R.I.S. on telephone no: 01722 411430.



PHANTOM TRACKING SYSTEM

Some Coachman models are fitted with the Phantom Tracking System. This enables the 24 hours Phantom Monitoring Centre to pinpoint the location of the caravan through a global positioning satellite system.

For further details and instructions please refer to the Phantom literature.

The following is a brief description of the main components used in your caravan. More comprehensive descriptions are to be found in the equipment manufacturers' literature held in the wallet with this guide.

AL-KO GALVANISED CHASSIS

The AL-KO chassis fitted to your Coachman is constructed from high quality, hot dip galvanised steel.

The axles suspension are comprised of 3 rubber elements within a hexagonal tube.

BRAKING SYSTEM

The braking system comprises a rod operated overrunning device with expander mechanism and adjuster box.

An automatic reversing system with a spring-loaded reverse lever is attached to the adjuster box.

Note: Holes should not be drilled into the chassis. When purchasing a stabiliser, consult your dealer who will advise you.

The system also incorporates a link device, which gives added safety to the handbrake operation when parking on a reverse slope or steep hill. Brake adjustment instructions are given in the Maintenance Section of this guide.

BODY SHELL

Caravan bodies are constructed from the highest quality materials. The floor is constructed from a styrafoam plywood sandwich, impregnated with anti damp and rot compounds and adhesives.

The wall comprises an insulated foam sandwich having a pre-coated aluminium exterior surface and a coated plywood interior finish. Wooden framing is positioned within the sandwich to add strength.

The very latest 'state of the art' presses are employed to produce the extremely well insulated, robust, yet lightweight sections.

Windows are all of a dual glazed acrylic construction and the door frames are extruded aluminium. Fronts and backs are moulded acrylic capped ABS construction for strength and lightness.

Each caravan is fitted, as standard with an awning channel as an integral part of the aluminium roof and body

side moulding. If it is found necessary to fit additional attachments care must be taken to ensure any holes that are drilled in the outside of the body are correctly sealed.

Awnings which employ rubber sucker attachments rather than screw fixings are recommended.

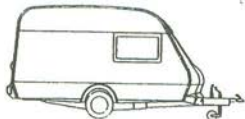
On NO account should screw threads longer than 15mm (5/8th inch) be permitted to enter the shell sandwich (from inside). Ensure that all screws are of the self-tapping type.

All Coachman Caravans are classified as Grade 2 in which the average thermal transmittance of the vehicle shall not exceed 1.7w (m²k). This will maintain a temperature difference of at least 20k between the inside and the outside when the outside temperature is 0°C.

EUROPEAN TOURER TOWING WEIGHT GUIDE

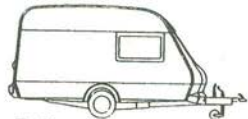
A number of terms have been introduced for describing weight/mass in conjunction with the European standards for caravans EN 1645 Part 2.

The table shows an explanation which will help you to understand the terminology.



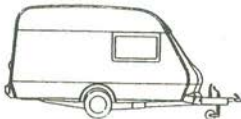
MASS IN RUNNING ORDER (MRO)

This was previously known as the Ex-Works Weight and is the mass of the unladen caravan with bodywork in running order



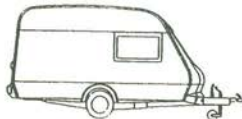
ESSENTIAL HABITATION EQUIPMENT (EHE)

This is made up of:- Gas bottle 2 (1 full, 1 empty). Water heater full of water. Cassette Toilet flushing tank full. Auxiliary battery 80 amp/hr



PERSONAL EFFECTS PAYLOAD (PEP)

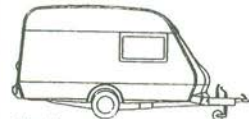
This is made up of:- Cooking equipment, crockery etc. Sleeping bags, bedding etc. Provisions and any other personal effects



OPTIONAL EQUIPMENT PAYLOAD (OEP)

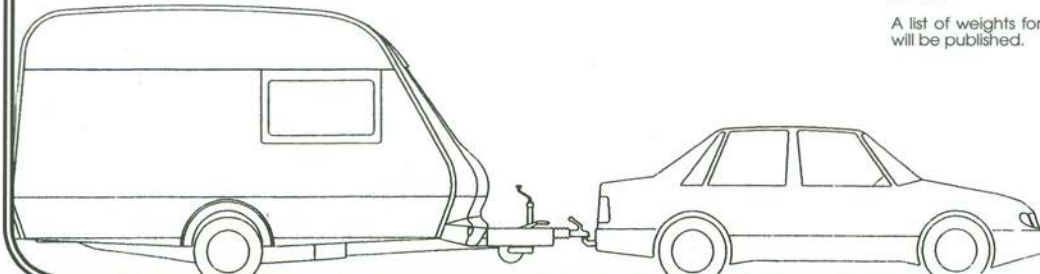
Is the maximum limit provided for optional equipment on each model.

A list of weights for each option will be published.



MAXIMUM TECHNICAL PERMISSIBLE LADEN MASS (MTPLM)

This is a total of MRO + EHE + PEP + OEP. MTPLM (THIS MASS MUST NOT BE EXCEEDED)



THE CARAVAN TOWING CODE

The Code of Practice contains recommendations jointly reviewed and agreed by the following organisations:

The National Caravan Council
The Caravan Club
The Camping and Caravanning Club
The Caravan Writers Guild
The Department of Transport.

Scope of the Code

The Code applies to all trailer caravans of maximum laden weight not exceeding 2030 kg (4,475 lbs.), overall width not exceeding 2.3m (7ft 6in approximately) and overall length not exceeding 7m (23ft approximately), excluding the drawbar and coupling.

CARAVAN MODEL YEAR

Caravans are designated by their model year. This runs from 1st September to 31st August. For example, a 2009 caravan would have been dispatched by the manufacturer no earlier than 15th August 2008.

DEFINITION OF TERMS

MTPLM

As stated by the vehicle manufacturer. This mass takes into account specific

operating conditions, including factors such as the strength of materials and loading capacity of the tyres.

WARNING Under no circumstances should the maximum technically permissible laden mass (MTPLM) of this caravan be exceeded.

MRO - Mass in Running Order

This is the mass of the unladen caravan with bodywork in running order.

USER PAYLOAD

This is the difference between the maximum technically permissible laden mass and the mass in running order. (Payload includes personal effects, optional equipment and essential habitation equipment).

ESSENTIAL HABITATION EQUIPMENT

Those items required for the safe and proper functioning of the equipment for habitation as defined by the manufacturer of the caravan.

Essential habitation item allowances are as follows:

- Gas bottles (One 5kg full, One 5kg empty) - 13kg*
- Battery (80 amp/Hr) - 17kg
- Full Toilet Flushing Tank - 7kg

- Full Water Heater - 10kg

*Figures relate to BP Gas Light cylinders

PERSONAL EFFECTS

Those items which a user can choose to carry in a caravan and which are not included as essential habitation equipment or optional equipment.

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

OPTIONAL EQUIPMENT

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

Please note that all options are not applicable to all models of caravan. Please consult your dealer prior to your decision, as some options may require your caravan MTPLM to be upgraded. In some cases the MTPLM of your caravan may have been increased to accommodate optional equipment fitted.

In some cases it may be possible to upgrade the MTPLM of certain caravans. Please consult your dealer if you require this upgrade.

NOSE WEIGHT

The part of the weight of the caravan

☐ TOWING CODE

supported by the rear of the towing vehicle.

When measuring the nose weight, it is important that the caravan is loaded and level. Do not place extra items indiscriminately into the caravan after this adjustment has been made.

The caravan is intended to be towed slightly nose heavy. The nose weight can be adjusted by distribution of the load within the caravan. You must not exceed the maximum nose weight rating of the hitch head, which is 100kg or that of the towing vehicle as stated in the manufacturers handbook.

TOWING VEHICLE TERMS

Kerb Weight:

The weight of the towing vehicle as defined by the vehicle manufacturer.

The Caravan and Towing Vehicle Weight Ratio

This can be determined by calculation and is equal to:

actual laden mass of caravan

kerb weight of towing vehicle x 100%

THE LAW REQUIRES THAT CARAVANS AND THEIR TOWING VEHICLES AND THE LOADS THEY CARRY MUST BE IN SUCH A CONDITION THAT NO DANGER OR NUISANCE IS CAUSED.

(Regulation 100 of the Road and Vehicles (Construction and Use) Regulations 1986.)

POWER TO WEIGHT RATIO:

No hard and fast rules can be stated but here is a general guide.

- (a) Conventional petrol engines with a capacity up to approximately 1500 cc should be adequate for towing a caravan weighing around 85% of the kerb weight of the towing vehicle.
- (b) Above 1500 cc such engines should manage a caravan weighing up to 100% of the kerb weight of the towing vehicle and still give adequate performance.

Note: The towing vehicle manufacturer's limit is, in some cases, less than the kerb weight.

Vehicles with automatic transmission may need an oil cooler fitting or the SAE rating of the gearbox oil increasing when towing. The advice of the vehicle manufacturer should be sought.

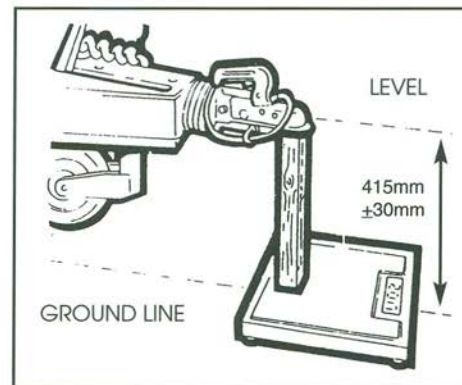
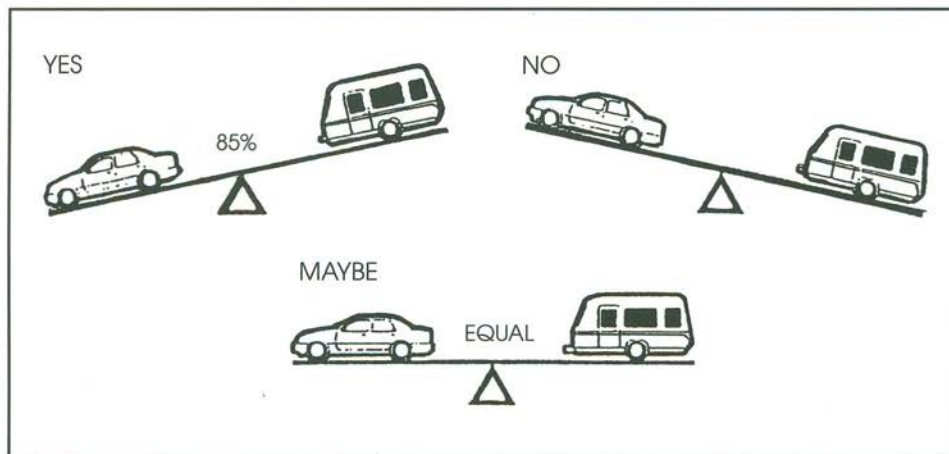
MEASUREMENT OF NOSE WEIGHT:

Nose weight may be measured using a proprietary brand of nose weight indicator. Such equipment is obtainable at your caravan dealer.

Another simple method is to use bathroom scales under the coupling head with a piece of wood between the coupling head and the scales, of such length that the caravan floor is horizontal with the jockey wheel raised.

Nose weight can be adjusted simply by distribution of weights in the caravan.

(See Loading)



□ PREPARING FOR THE ROAD

In order to be able to tow a caravan a driver must hold a Category B licence. Those car drivers who passed their tests prior to 1 January 1997 would have automatically obtained Category B + E. However, anyone who passed their test after 1 January 1997 will need to take a further test in order to obtain a Category B + E if they wish to tow a car and caravan combination whose train weight exceeds 3,500kg, or up to 4,250 if the caravan is less than 750kg or if the caravan's Maximum Technically Permissible Laden Mass exceeds the unladen weight of the car.

Note: The unladen weight of a car is normally less than the kerbside weight.

If you are unsure contact the DVLA at Swansea for further details.

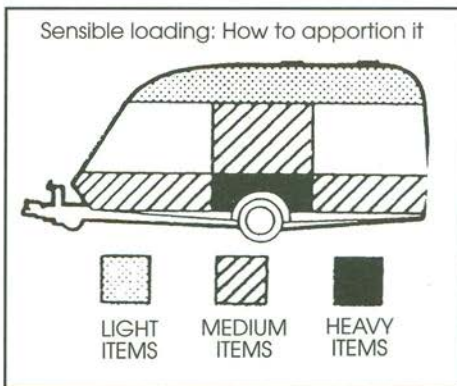
Compulsory Third Party Insurance cover is required by the Road Traffic Act for a caravan and this is normally provided by the towing car Insurance Policy, it is essential that you ensure your car Policy is not invalidated by towing.

Do not forget to take out separate Insurance Cover on the Caravan and Contents.

LOADING AND DISTRIBUTION OF WEIGHT

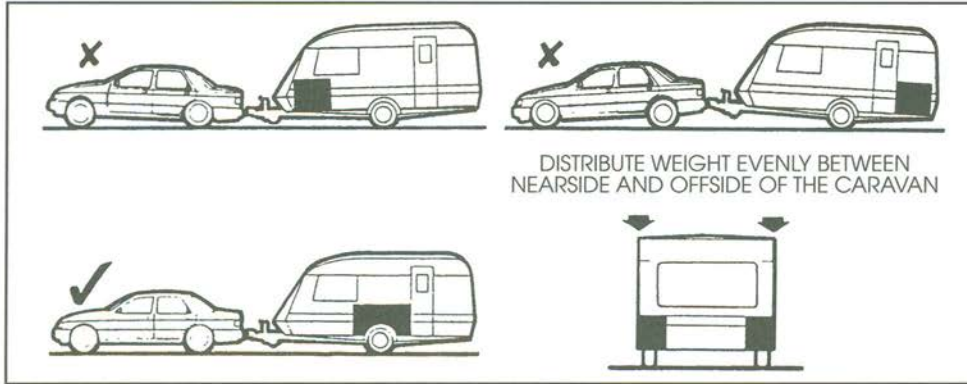
Under no circumstances should the MTPLM of this caravan be exceeded.

When the towing vehicle and caravan are fully laden and "ready to go" the towing vehicle should be level fore and aft. If the nose of the caravan is high at the start of your journey you may experience snaking and on rough and uneven ground the rear of the caravan could catch the road.



Caravans should be loaded so that the nose weight of the caravan is in accordance with the tow vehicle manufacturer's recommendation. **Also under no circumstances should it exceed the maximum hitch weight shown in the specification for the caravan.**

Heavy items should be stowed as close to the axle as possible and lightweight items, such as bedding, should be loaded at the rear. Try to stow bulky tinned supplies in the lower kitchen cupboards or even in the bottom of the bed boxes until you arrive at your final destination. Please note that the roller catches and spring loaded doors are only to keep the door closed and not to stop items falling out of lockers and on to work surfaces. Only light items should be stowed high up in the roof lockers. Ensure that all items are secure and will not move around while on tow.



Towing vehicle's rear suspension

It is important that the towing vehicle's rear suspension is not deflected excessively by the nose weight on the tow ball. If it is excessive the steering and stability will be affected.

The greater the towing vehicle's tail overhang (the distance between the rear axle and the tow ball) the greater the effect the nose weight will have on the towing vehicle's rear suspension.

After trying out the caravan it may be found that stiffening of the vehicle's rear suspension is necessary - note that this may give the towing vehicle a firmer ride when not towing.

There are a number of suspension aids

available and advice should be sought on which to use and how to fit.

It is important to ensure that the caravan is towed either level or slightly nose down. This is particularly important on twin axle models.

STABILITY

The most common causes of poor stability include:

- (a) Worn springs or loose spring fixings on the towing vehicle.
- (b) Towing vehicle springs too soft.
- (c) Insufficient nose weight.
- (d) Nose of caravan is towing too high.

(e) Incorrect loading.

(f) Incorrect tyre pressures on car or caravan.

Tyres and Pressures

The tyres fitted to your caravan will operate with complete safety at the UK maximum speed limit of 60 mph, but the tyres are rated to 130 km/hr. The tyres on your caravan must be operated at the pressures indicated on the caravans specification sheet. Remember that the towing vehicle tyres should be inflated to the 'heavy loaded' pressure given in the vehicle manufacturers' service handbook.

Note: Pressures should only be checked when the tyres are cold, not after a journey or if the vehicle has been standing in the sun.

Tyre Tread

This caravan is subject to the same criteria applied to car tyres, namely, the minimum tread should be 1.6 mm around the total circumference and across the entire width of the tyre.

Brakes/Breakaway Cable

A breakaway cable is fitted so that in the case of the caravan becoming detached from the car it immediately applies the brakes. Always ensure the breakaway cable is secured to the towing vehicle. See Page 20.

SNAKING

This is a term used to denote an unstable car and caravan combination where the caravan 'weaves' from side to side often causing a similar swaying movement in the car itself.

Causes:

- i) Unsuitable or unbalanced outfit.
- ii) Incorrect loading or weight distribution.
- iii) Excessive speed especially downhill.
- iv) Side winds.
- v) Overtaking
- vi) Being overtaken by a large fast moving vehicle.
- vii) Erratic driving.
- viii) Insufficient tyre pressure.

Cures:

Cases of persistent snaking can be alleviated or even completely cured by various proprietary devices, about which your dealer will advise you.

PRE-TOW CHECKLIST AND HITCH-UP

CAUTION: Never enter the caravan without first lowering the four corner steadies with the brace provided. Corner steadies should not be used as a jacking device, or to take the weight of the caravan.

Loose articles must be stowed securely. Do not stow tins, bottles or heavy items in overhead lockers prior to towing.

- ensure all lockers and cupboard doors are closed and secured
- all bunks are secure.
- all rooflights are closed and secured.
- tables are stored in their transit positions.
- fridge is on 12v operation and door travel catch is set.

- all windows are fully closed and latched.
- all items are removed from spice racks, kitchen tool racks etc.

Never tow with windows on night setting.

Leave all curtains and blinds open to aid rear visibility.

- gas cylinders and appliances are correctly positioned, secured and turned off.
- battery is secure and mains connecting cable is disconnected and stowed.

Check Gas Locker, Battery Locker, Wet Locker and Cassette Toilet doors are secure.

Check wheel bolts, tyre pressures and tyre conditions.

Lock the entrance door

Suitable Towing Vehicles:

The caravan is manufactured for towing behind normal road cars and is not suitable for towing behind commercial vehicles other than passenger car derivatives. If in doubt please contact your caravan dealer.

STABILISERS AND TRACTION CONTROL

All Coachman Caravans come fitted with a stabiliser. It can make a good towing vehicle/caravan combination safer to handle. A stabiliser should never be used to try to improve a combination, which has poor stability, since instability will reappear at a higher speed.

Note:

Under no circumstances should holes be drilled into the chassis members e.g for fitting additional equipment.

All Coachman Caravans are also equipped for the fitment of the Al-Ko Trailer Control system (ATC) and some models have it fitted as standard.

The Al-Ko ATC is the emergency braking system for caravans and works in a similar way to ESP systems for cars. The sophisticated, but simple electronic system monitors the lateral movement of a caravan during travel. When difficult driving conditions are experienced, such as evasive manoeuvring, high side winds and turbulence encountered while overtaking HGVs, the Al-Ko ATC takes control to regain stability and prevent dangerous snaking accidents.

ATC OPERATING INSTRUCTIONS

After coupling the caravan correctly to the towing vehicle, connect the 13 pin plug to the tow bar.

Upon connection, ATC will carry out an initial self test and the LED light on the front fairing will light up RED. During the self test, the sound of the push rod moving inside ATC can be heard. When the self test is complete, the LED will turn GREEN or flashing GREEN to signal that ATC is active.

If the LED does not change to GREEN, then the ATC is not functioning correctly. The table provided see page 14, details what to do in this case.

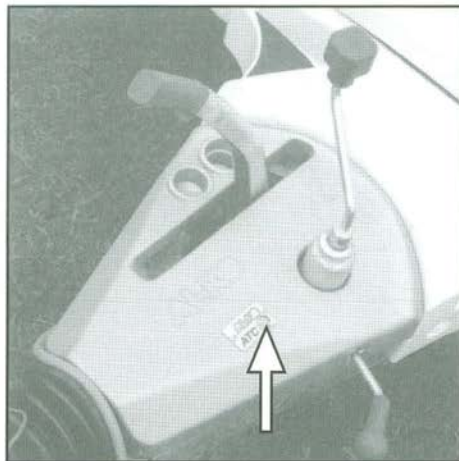
☐ PREPARING FOR THE ROAD

LED OPERATION

Display Colour	ATC Condition	Diagnosis	What to do	Outcome	Status
Green	ATC Active	Everything OK			
Green Flashing	ATC Active	Self test incomplete	Drive forward to detect movement to complete self test and recheck LED	Green (Constant)	Ready for journey
Red	ATC inactive	Possible to continue journey	Remove 13 pin plug and wait 5 seconds. Reconnect Reconnect plug	Green Red	Ready for journey ATC faulty but can be driven. Consult Al-ko. See back page of Al-ko handbook for details.
Red Flashing	ATC has detected a fault.	Do not continue with ATC connected	Remove 13 pin plug and wait 5 seconds. Reconnect the plug.	Green Red (Flashing)	Ready for journey ATC Faulty and cannot be driven Remove push-rod as shown on page 5 of Al-ko handbook. Consult Al-ko. See back page of Al-ko handbook for details.
LED not working	ATC has no power. LED Faulty	Check push-rod position as detailed on page 5 of the Al-ko handbook before continuing journey.	Remove 13 pin plug and wait 5 seconds. Reconnect the plug. Check for constant live refer to system requirements as detailed on page 3 of Al-ko handbook.	Green LED not working	Ready for journey If power OK, check push rod position. Red line visible - possible to continue journey but consult Al-ko. See back page of Al-ko handbook for details.

Prior to commencing any journey, ensure that the caravan lighting is fully operational and check vehicle is loaded appropriately, the nose weight and tyre pressure correct and confirm that the caravan is coupled to the vehicle tow bar correctly.

Always re-check the ATC LED is green after any interval during a journey, such as a service station break.



ATC LED light on the fairing

TROUBLESHOOTING

Should you experience a fault with ATC, the LED light on the fairing will change colour. Therefore, refer to the table, left, and follow instructions.

If no illumination of the LED is evident, refer to system requirements and

check tow bar wiring for permanent supply.

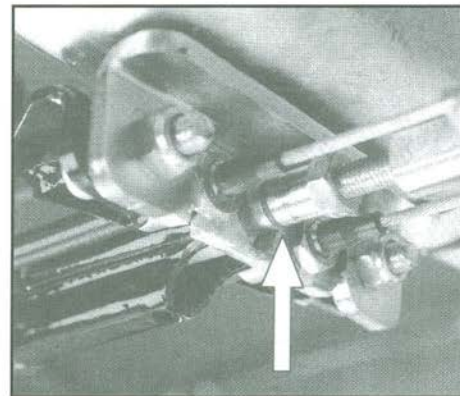
In the unlikely event that you receive a red flashing LED light and disconnecting and reconnecting the power does not alleviate the problem, check the push-rod position as detailed below.

Locate ATC on the axle and check the position of the push rod. (see photograph, right)

If no red line is visible, ATC is not active and can be driven. However, we recommend that you contact Al-ko at the earliest convenience.

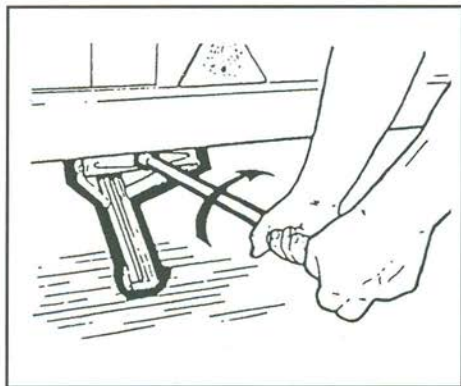
If the red line is visible on the push rod, as shown on the left, the caravan should not be moved.

Contact Al-ko or a specialist workshop.



☐ PREPARING FOR THE ROAD

HITCHING UP

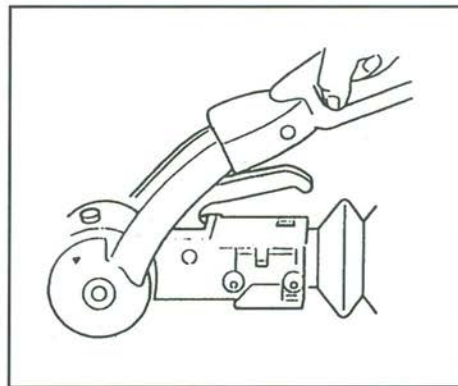
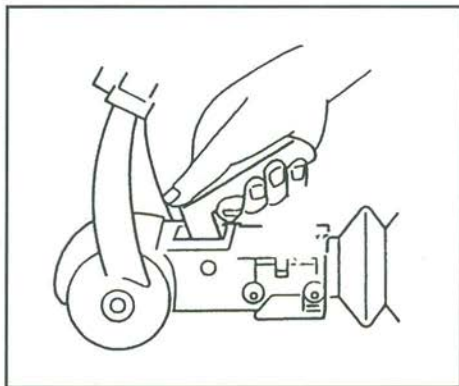


Wind up the corner steadies to the fully retracted position.

Wind up the jockey wheel to raise the hitch to the above height of the towing vehicle ball. Remove ball cover.

(It is an advantage to have a person standing by the caravan to direct the driver of the towing vehicle to place the vehicle in the correct position).

Reverse the towing vehicle so that the towing ball is just under the caravan hitch.



Operating Instructions - AKS 3004

The AKS 3004 stabiliser fitted to your caravan has 4 special friction pads, which suppress both snaking and pitching and it is essential that the tow ball is kept completely clean as contaminated pads will reduce its effectiveness.

The maximum vertical static load for this coupling is 100kg and must not be exceeded. However, the vertical static load on the towing vehicle may be less than this (check with towing vehicle manufacturer). Whichever is the least must not be exceeded.

To hitch up with the AKS 3004 follow the following procedure:

- Using the coupling handle, (which should be in the upright position)

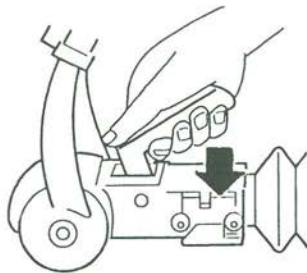


FIG. 1

AK 3004 STABILISER

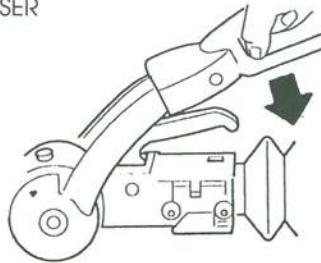


FIG. 2

put the AKS on to the towball. Push the black handle down and check the green indicator button is showing. (Fig. 1)

- Press the red stabilising lever down. The AKS is now ready for the road. (Fig. 2)

Safety Indicators

- If the green indicator is visible then you know you have correctly coupled your AKS to your towing vehicle. (Fig. 3)

Wear Indicator

For coupling mechanism and front/rear friction pads. (Fig. 4)

- Wear of the coupling ball and mechanism can be easily monitored. If the green section is

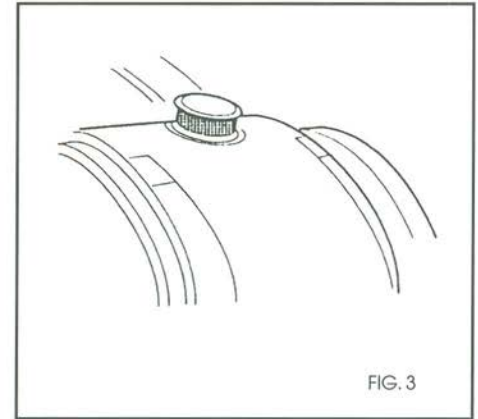


FIG. 3

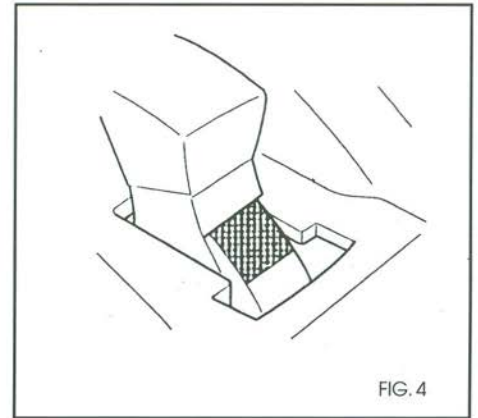
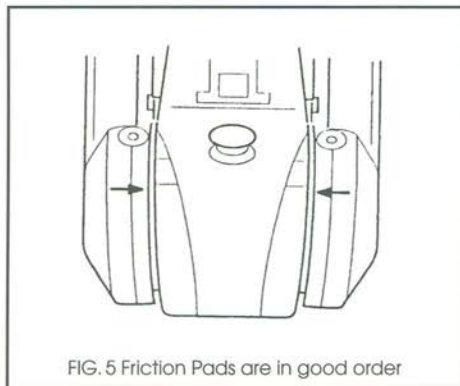
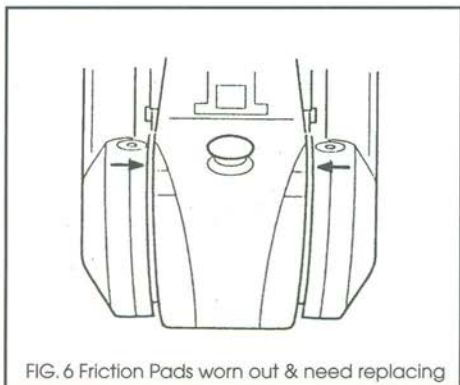


FIG. 4

□ PREPARING FOR THE ROAD



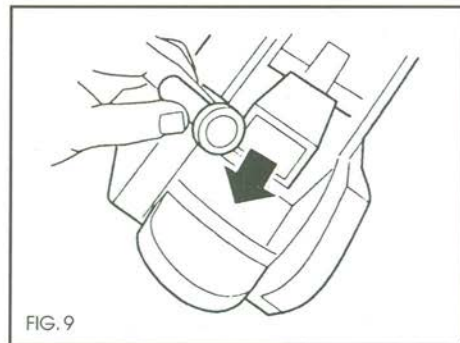
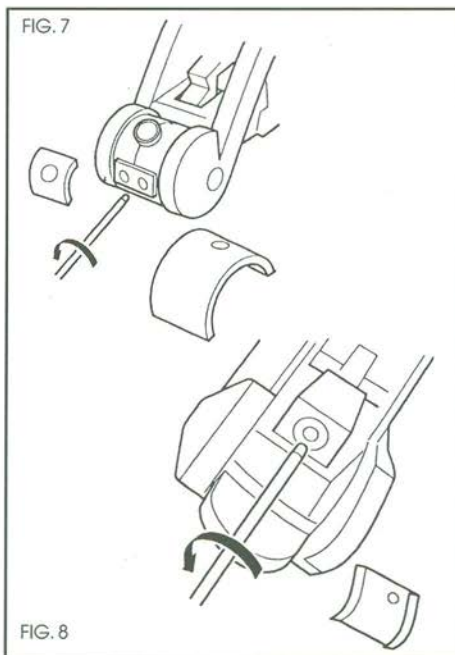
visible (when coupled to your towball) then the front/rear friction pads, coupling ball and mechanism are in order.



- If the red lower section obscures the green section then you need to check these parts immediately.

Friction Pads Replacement

- Unscrew the 2 screws which are under the red rubber soft dock by using the special tool. (Fig. 7).



- Remove screw from back plate. (Fig. 8)
- Remove friction pads. (Fig. 9)

Loading capacity

The AKS 3004 can tow vehicles up to a gross weight of 3000kg and a maximum nose weight of 100kg.

UNCOUPLING

Lower the jockey wheel to the ground. Disconnect the breakaway cable and plugs.

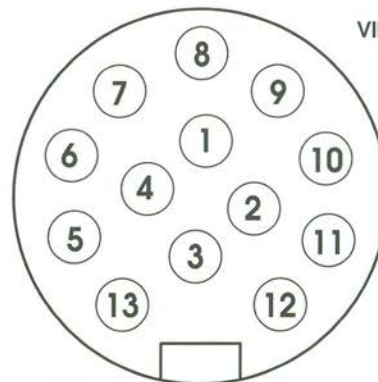
Release stabilising lever and lift the coupling handle whilst winding.

Lift the coupling head clear of the towball.

Electrical Connections and Road Lighting

Plug in the 13 pin electrical connections and check that all road lights work.

In accordance with EN150 11446 your caravan is fitted with a 13pin Jaegar plug for electrical connections and road lighting. If your car is fitted with the old type 12N and 12S sockets we would strongly recommend that you do not use adaptors but have it rewired and a 13pin Jaegar socket fitted. (Ensuring the car socket is wired in accordance with the drawing on the right.)



VIED FROM REAR

PIN No	COLOUR	DESCRIPTION
1	Yellow	Left Flasher
2	Blue	Fog Hazard Light
3	White	Return for 1,2,4,5 6,7 & 8
4	Green	Right Flasher
5	Brown	Right Tail Light
6	Red	Stop Lights
7	Black	Left Tail Light
8	Orange	Reverse Lights
9	Brown/Blue	Car +
10	Brown/Red	Fridge
11	White/Green	Return for 10
12	NOT USED	
13	White/Blue	Return for 9

□ PREPARING FOR THE ROAD

BREAK-AWAY CABLE

UK LAW requires that all trailers with brakes built on or after 1st October 1982 (e.g. caravans, horse boxes, flat bed car trailers etc.) are fitted with a safety device to provide protection in the unlikely event of the separation of the main coupling while in motion. A device referred to as a "breakaway cable" fulfils this requirement and when fitted to a trailer its use is mandatory.

Purpose - To apply a trailer's brakes if it becomes separated from its towing vehicle. Having done this, the cable assembly is designed to part, allowing the trailer to come to a halt away from the towing vehicle.

Construction - Usually a thin steel cable, possibly plastic coated; and fitted with a means of attachment for connection to the towing vehicle.

Operation - In the event of the main coupling of the trailer separating from the towing vehicle, the cable should be able to pull tight without any hindrance, engaging the trailer's brakes.

Note: The breakaway cable should never become taut during normal use.

Correct procedure for use:

- Regularly check the cable and clip for damage. If in doubt, contact your dealer or service agent.
- Make sure the cable runs as straight as possible and goes through a cable guide underneath the trailer coupling.
- Determine whether or not the towbar has a designated attachment point (i.e. a part specifically designated by its manufacturer for a breakaway cable).

Where a designated attachment point is provided on the towbar:

Pass the cable through the attachment point and clip it back on itself (**Fig 1**).

Do not attach the clip directly to the designated point (**Fig 2**). The clip is not sufficiently strong enough for use in this way.

Where no designated attachment point has been provided on the towbar:

Fixed ball - Loop the cable around the neck of the towball. If you fit the cable like this, use a single loop only. (**See Figs 3A and 3B**).

FIG. 1

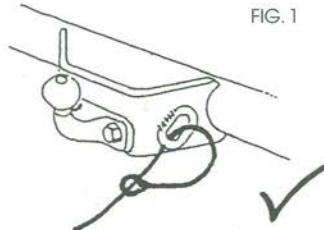


FIG. 2

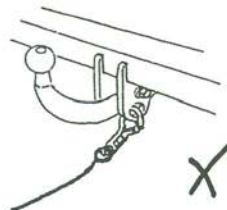
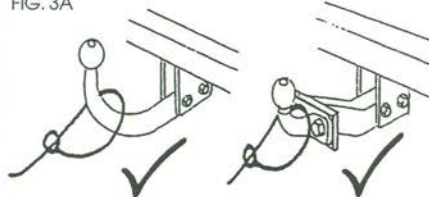


FIG. 3B

FIG. 3A



Detachable ball - You must seek guidance on procedure from the towbar manufacturer or supplier.

Other means of attachment -

In some instances it may be possible to attach the cable assembly:

Either:

- a) to a permanent part of the towbar structure, as long as this meets the approval of the towbar manufacturer/supplier.

Or

- b) to an accessory sold for the specific purpose of breakaway cable attachment.

When the breakaway cable is attached, check to ensure:

- a) that the cable cannot snag in use on the trailer coupling head, jockey wheel or any accessory e.g. a stabiliser, bumper shield, cycle carrier, etc.
- b) that there is sufficient slack in the cable to allow the towing vehicle and trailer to articulate fully without the cable ever becoming taut and applying the brakes.

Note: For peace of mind you might wish to check the state of the cable by positioning the trailer and towing

vehicle at extreme angles before setting off.

c) that it is not so slack that it can drag on the ground. If left loose, the cable may scrape along the ground and be weakened so that it subsequently fails to do its job. The cable may also be caught on an obstacle when in motion thus engaging the trailer brakes prematurely.

Having followed this advice, should you feel that a satisfactory coupling arrangement cannot be achieved, consult your Dealer.

MIRRORS

The driver of the towing vehicle must have an adequate view of the rear.

If there is no rear view through the caravan it is essential that additional exterior towing mirrors are fitted.

CAUTION: Any rear view mirror must not project more than 200mm outside:

- a) the width of the caravan when being towed.
- b) the width of the towing vehicle when driven solo.

Note: Any rear view mirror fitted shall be 'e' marked and cover the field of view as stipulated by type approved requirements (Regulation 33 of the Road Vehicles Constructions and Use Regulation 1986).

COUPLING UP A CARAVAN CHECK LIST

1. Is the hitch fully down over the tow ball?
2. Is the hitch head lever fully closed (down)?
3. Are the visual indicators showing green?
4. Is the breakaway cable correctly attached, passing through the cable guide, loose but not dragging, and will not snag on full lock?
5. Is the stabiliser correctly attached, with the handle closed and indicators green?
6. Is the jockey wheel fully retracted and stowed away securely?
7. Are the electrics correctly attached and free from dragging or snagging on full lock?
8. Have the lights and road indicators been checked and are they working?
9. Once "Hitched Up", are the corner steadies fully retracted, and the caravan handbrake OFF?
10. Has the caravan step been stowed away?
11. Are the Caravan door, windows, lockers and roof lights closed and secured?
12. Is the rear number plate correct and clearly visible?
13. Is the gas system turned off for towing.
14. If fitted check ATC system (see page 13)

SPEED LIMITS

Normal road towing:
50mph (80 kph)

**Motorways (including
Dual carriageways):**
60mph (96 kph)

PULLING OFF

Let the clutch out smoothly.

Allow more engine speed to produce the power to move the additional weight of the caravan.

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

Change gears smoothly.

Try not to jerk the clutch.

CARAVAN HANDLING

Allow for caravan being wider than car.

Do not bump kerb with caravan wheels.

When passing other vehicles allow more than normal clearance for driving solo.

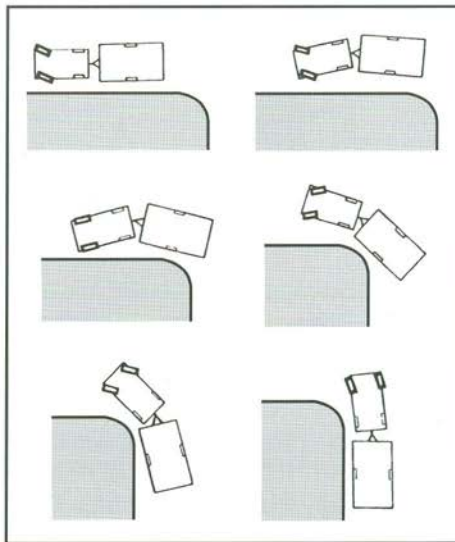
Allow longer to get up speed to pass.

Allow for the vehicle being over twice its normal length.

Do not suddenly swing out.

Carry out all manoeuvres as smoothly as possible.

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

REVERSING

It is advisable to have a second person available when reversing the caravan. Start practising by choosing a left-hand bend for ease. Reverse slowly, turning the wheel, initially the opposite way to the direction you

want the caravan to go.

Now the front of the caravan is nudged out and moving the rear in the intended direction. Take care not to hit the van with the car!

Midway through the manoeuvre, when the caravan is correctly angled, slow to a crawl and gradually apply opposite lock. Make the car follow the caravan round then finally straighten up.

Proficiency at reversing can only be achieved with practice.

CARE MUST BE TAKEN TO PREVENT FOULING WHEN TRAVERSING RAMPS OR OTHER GROUND OBSTACLES.

MOTORWAY DRIVING

1. Caravans may not be towed in the outside lane of a three or four lane motorway. (Ref. 12(2) of the Motorway Traffic (England and Wales) Regulations 1982)
2. Reduce Speed:
 - i) In high or cross winds.
 - ii) Downhill.
 - iii) In poor visibility.
 - iv) Poor road conditions.
3. High sided vehicles cause air

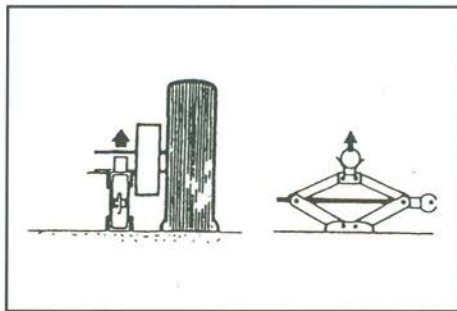
TOWING AND DRIVING

buffeting so extra care must be taken when passing or being passed. As much space as possible should be given.

CHANGING A WHEEL

1. Unhitch the caravan and ensure handbrake is applied.
2. lower the front of your caravan by retracting the jockey wheel as much as possible.
3. lower the corner steadies, as a safety measure, to stabilise the caravan.
4. Your spare wheel is located in the Al-ko spare wheel carrier situated just behind the axle.
5. To remove the spare wheel from the carrier locate hand wheel situated on the centre of the spare wheel carrier retaining plate on the nearside of the chassis and remove the split ring in the hole at the end of the bolt. Now loosen and remove the hand wheel.
6. Now slide the carrier out of the locating holes on the chassis and rest the nearside on the floor.
7. Reach into the centre of the spare wheel and remove the clamping sleeve and the retaining wheel nut. Remove spare wheel from carrier.

8. Use your wheel brace to slacken off the wheel bolts on the wheel to be changed.
9. If your caravan is fitted with the Al-ko jack then jack up the caravan inline with the Al-ko instructions, if



not, position a suitable jack under the axle at the appropriate jacking point (rear axle on twin axle models).

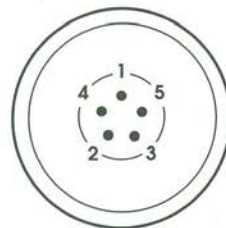
10. Jack up caravan until the wheel to be removed is just off the ground.
11. Remove the wheel bolts and remove the wheel.
12. Fit the spare wheel and reverse the above procedure placing the punctured wheel in the wheel carrier.

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

13. Tighten all bolts equally according to figure.

Torque setting 65lbs/ft (88Nm) for steel wheels and 85lbs/ft (110Nm) for alloy wheels.

WHEEL BOLT TIGHTENING SEQUENCE



WARNING: After the first 30 miles check all road wheel bolts and tighten, if required, to correct torque setting. Also check before each major journey.

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

CHILDREN

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

FIRE EXTINGUISHERS

It is recommended that you provide, one dry powder fire extinguisher, of an approved type or complying with ISO 7165 of at least 1 kg capacity by main exit door, and a fire blanket next to the cooker. Familiarise yourself with the instructions on the fire extinguisher and the local fire precaution arrangements.

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

IN CASE OF FIRE

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

to do so.

VENTILATION AND CONDENSATION

All caravans comply with EN 1645-1. The ventilation points on your caravan are fixed points of ventilation, which are required by the European Standards. Low level ventilation is located at various points. High level ventilation is through the roof lights. 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.

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

Petrol/Diesel Fumes: The fitting of a tail pipe to your exhaust will reduce the possibility of fumes entering your caravan through the front fixed ventilation points.

SECURITY

VIN (VEHICLE IDENTIFICATION NUMBER)

Record your caravan V.I.N. which can be found stamped on the underside of the drawbar or on one of the eye level

windows. Make a note of this number in the space provided at the front of your Warranty and Service Handbook and make a separate note of the number to keep safe at home.

CARAVAN THEFT

The theft of a caravan 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 caravan is unoccupied, even if only for a short length of time.

ADDITIONAL SECURITY

Laser and VIP models come as standard with the AL-KO Secure wheel clamping device. While Amara, and Pastiche have the AL-KO Secure receiver fitted as standard and the AL-KO Secure device can be purchased from your dealer, alternatively consider fitting any device, which might deter or prevent intrusion by thieves. A hitch lock cover prevents towing of the caravan.

FREE CRIME PREVENTION

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

□ ARRIVAL AT SITE

CHECK SITE REGULATIONS FOR ANY LOCAL RESTRICTIONS

SELECTING A PITCH

Carefully select where you wish to place your caravan. The site should be as level as possible, preferably not under or near trees, well drained and away from possible boggy areas. Consider how you will move the caravan when it is time to leave the site. On sloping ground it is better to pitch facing downhill, especially during wet weather. **It should be noted that some items of caravan equipment are only designed for use up to a 3 degree angle, and if this angle is exceeded the components may fail.**

It is good practice to chock the wheels of the caravan when parked on a slope even though the caravan brakes are applied.

UNHITCHING

Apply the caravan handbrake.

Disconnect the breakaway cable.

WARNING: Attention: Always disconnect the 13 pin plug between the towing vehicle and the caravan before connecting an LV (230V) supply to the caravan and before charging the caravan battery by any other means.

Disconnect the 13 pin plug and return it to its holder.

Unclamp and lower the jockey wheel to the ground.

Release the stabilising lever and coupling handle.

Operate the handle to wind down the jockey wheel until the coupling head clear of the towing ball.

Replace towball cover.

Park your vehicle alongside the caravan on the offside.

LATERAL LEVELLING

On uneven ground lateral levelling may be accomplished by the use of a leveller jack and a spirit level placed

'across' the caravan floor.

Place the leveller jack, folded flat, in front of the wheel needed to be raised to level the axle.

Tow the caravan onto the leveller jack. Wind up until the spirit level shows that the caravan is laterally level. Apply the caravan handbrake and chock the caravan wheel if necessary. Lower the jockey wheel to ground level.

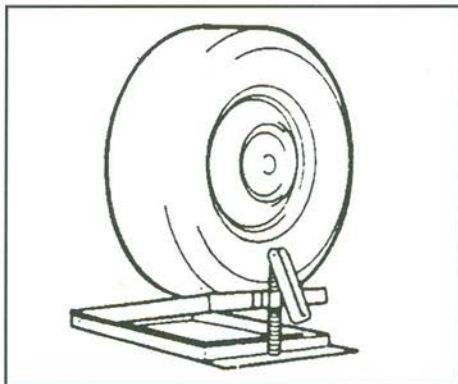
Proceed with unhitching as described above.

(On upward facing pitches when the hydraulically damped drawbar of the hitch becomes fully extended it will be necessary to compress the drawbar slightly in order to achieve a 'clean' unhitching). With the caravan brake on, reverse the towing vehicle about 1 inch (2.54cm) to release hitch lock tension and using the jockey wheel adjustment unhitch the caravan as previously described.

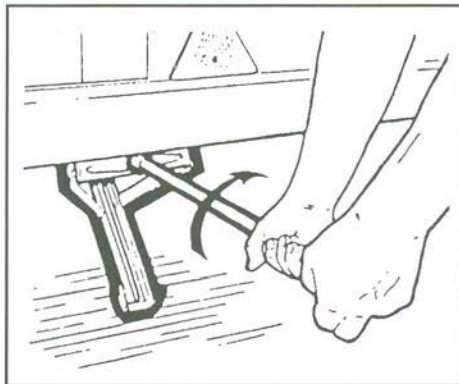
Note: Under no circumstances should the caravan steadies be used as a jack. They are only a means of stabilising the caravan.

FORE AND AFT LEVELLING

Place the spirit level 'fore and aft' and using the jockey wheel adjustment level the caravan horizontally.



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



It is important that the caravan is correctly levelled to ensure the correct working of the refrigerator, cooker etc.

Your caravan should not be operated at an angle greater than 3 degrees.

CAUTION: Never enter the caravan without first lowering the four corner steadies with the brace provided. Corner steadies should not be used as a jacking device.

PARKING ON A REVERSE - SLOPING SITE OR STEEP HILL

For successful parking on a reverse slope or steep hill, the operator need only apply the handbrake with one hand while gently but purposely inching the caravan or trailer a small distance backwards with the other.

WARNING: If the handbrake is NOT fully applied (i.e. vertical) and is set to some lesser position than the full vertical, then problems will almost certainly arise after the caravan has been uncoupled from the towing unit. On steep hills or sloping sites always chock the caravan wheels.

CONNECTING SERVICES

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

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

WATER

Your caravan will be fitted with either a Truma Ultraflow Compact or a Truma Ultraflow Filter water system. To determine which model you have please refer to the equipment chart contained in your **Owner's Information Pack**.

Under no circumstances should mains water be connected to the caravan without a pressure reducer.

If using the system after a storage period, carry out checks as outlined in "Setting up the Water System".

Fill fresh water container and place in suitable position. Place waste water receptacles in position.

Place the submersible pump into the water container, ensuring that it is fully submerged before operating the system.

WASTE CONNECTION

Your caravan is fitted with a 28mm waste water system. Two waste water outlets are located below the exterior rear panel. These outlets connect to standard waste hose, which can then be inserted into suitable waste water containers.

TRUMA ULTRAFLOW COMPACT

The Compact Housing is a high quality

plug in system designed to bring water to your caravan in a convenient and efficient manner.

The ergonomically shaped pistol grip pump connection is plugged into the compact housing. To remove, pull the lower trigger and pull the grip from the socket.

The little blue flap on top can be turned down to support the tube when the pump is not in use.

TRUMA ULTRAFLOW FILTER HOUSING

The Truma Ultraflow Filter Housing is part of a unique, high quality product range designed to bring water to your caravan in a convenient and efficient manner.

The system includes a special filter which removes unpleasant tastes, smells and suspended particles to give clear, fresh tasting water.

The activated carbon, which removes chlorine, tastes and smells, etc., by absorption and by mechanical filtration reduces algae and bacteria. The silver content avoids bacteriological growth in the filter.

Truma Ultraflow operates in the caravan water supply as a **pressurised system. The Truma Surge Damper includes an electronically controlled pressure**

switch. The pressure switch turns the water pump on and off regardless of the momentary atmospheric pressure and battery power (between 10v and 14v).

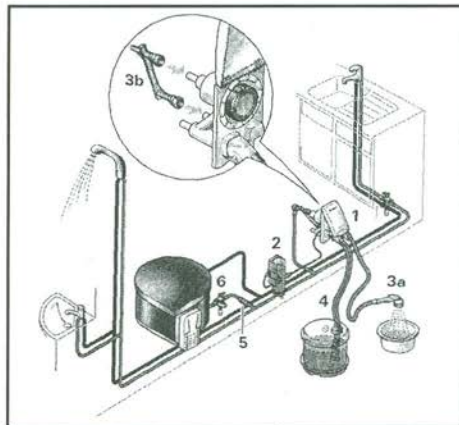
Also available on some models is a special outdoor shower which connects directly beside the pump.

The water pump and outdoor shower are detachable from the Ultraflow Filter Housing for security and while touring. A blanking plug is available to blank off the inlets when the pump or shower is not attached.

To connect the pump, simply align the plug with the socket and push it into position. This makes both water and electric connections.

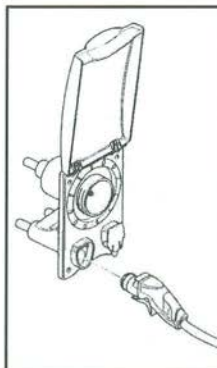
The shower plug contains no electrical connections.

To remove, pull the lower trigger and pull the plug from the socket.



1. Filter Housing.
2. Surge Damper.
- 3a Shower assembly.
- 3b Shower connection.
4. Pump assembly.
5. Non-return valve.
6. Ultrastore drain valve.

OPERATING INSTRUCTIONS

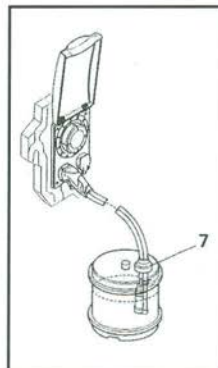


Raise the lid, clean both the water socket and the plug of the pump assembly.

Plug the pump assembly into the socket.

Place the pump into the water container, ensuring that it is fully submerged before operating the system. The dust cover (7) is to stop contaminants falling into the water container.

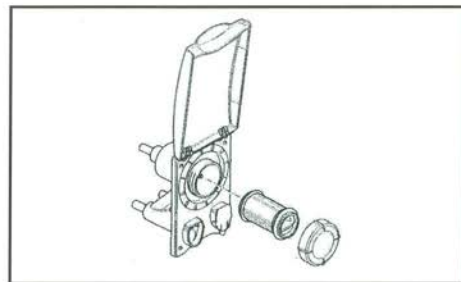
To remove the pump assembly from the Ultraflow Filter Housing, pull the lower trigger and pull out the hose plug.



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

Routine Maintenance

1. Ensure that the O-ring seal on the hose plug and socket are free from dirt.
2. To aid fitting of the plug assembly smear the O-ring with vegetable oil.
3. To change the filter, turn the filter cap anti-clockwise and pull out the filter.



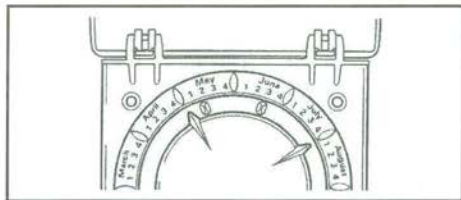
4. After installation, please drain off the first litres until the filtrate is clear.

Maximum filtering efficiency (cleaning effect) can only be achieved if the filter is changed at regular intervals. The filter must be changed within 35 days of initial use, even if it was not in use during this time. Please remember that water is foodstuff. We recommend that filtered water is

□ CONNECTING SERVICES - WATER

consumed within 1 - 2 days and advise you to drain the system after long periods of disuse.

Use dial on the filter housing for guidance to replace after approx. 35 days of use.



NOTES

1. **Never allow the pump to run dry.** Always ensure that the pump is submerged in the water or the lifetime of the pump will be reduced.

Winterisation

If there is any chance of the temperature falling below freezing when the caravan is not in use the water system and toilet system must be winterised. All the taps should be opened, the water filter and the caravan system drained using the drain taps situated within the caravan. Additionally, shower heads should be removed and the hose left hanging downwards.

During the winter when the caravan is

not in use, it is advisable to remove the filter to avoid any retained water within the filter freezing.

If you use the Truma external shower (some models) please drain the filter housing by connecting up the outside shower and allowing the remaining water to drain by the open shower head. The filter hole may be sealed with the filter cap.

Clean the water system at the start and end of each season.

Sterilising

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

2. Flush the system thoroughly to remove the effective fluid traces.

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

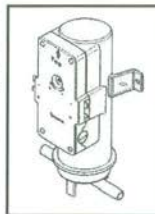
ULTRAFLOW WATER PUMP ASSEMBLY

The Water Pump Assembly comes complete with the water pump, container cover and storage clip. The

submersible pump needs no priming and is extremely quiet in operation. This pump can be used with both the Ultraflow Filter Housing and the Ultraflow Compact Housing.

ULTRAFLOW SURGE DAMPER

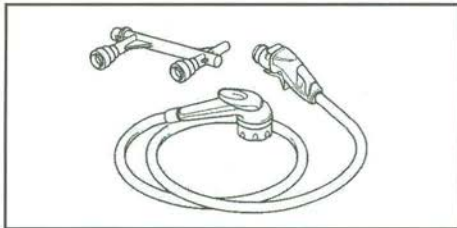
The Ultraflow Surge Damper enables an even water flow in the pressurised water supply. The integrated electronically controlled pressure switch turns the water pump on and off regardless of the momentary atmospheric pressure and battery power (between 10v and 14v).



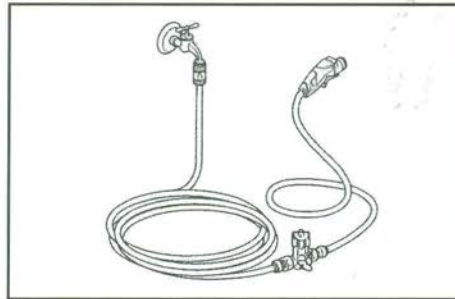
Please note that a correct function of the Truma pressure switch is only ensured with the genuine Ultraflow Pump Assembly.

ULTRAFLOW OUTDOOR SHOWER

The outdoor shower connects directly to the Ultraflow Filter Housing beside the pump socket. The supplied connector with quick fittings ensures an easy installation.



Please note, that the shower has no electrical connections and works only in a pressurised system.



ULTRAFLOW WATERLINE

The Ultraflow Waterline is a 15 metre "food quality" hosepipe. It comes complete with fittings and a special pressure-reducing adaptor, which allows caravanners to connect their Ultraflow caravan water system direct to a mains water supply with modification.

ULTRAFLOW REPLACEMENT FILTER

The Ultraflow Filter Cartridge is a high quality water filter, which removes unpleasant tastes and odours from the caravan's stored water. For the occasional caravanner, the cartridge should be replaced at the start of each season. For the regular caravanner we recommend to replace the filter after 35 days of use.

MIXER TAPS

The shower, hand basin and kitchen

taps are operated by raising or lowering the handle to control the flow and moving from side to side to blend hot and cold water to achieve the desired temperature.

OPERATION OF THE WATER SYSTEM

After the waste connections have been made, all the taps have been closed, the water heater drain tap and the hot and cold drain taps closed. Check also that your external container is full, and the pump submerged.

1. Switch on the 12v master switch.
2. Turn on the pump switch on the switch panel.
3. The pump will run for a short time as it is priming the system.
4. Open a cold tap and leave open until there is a good flow of water.
5. Close that tap and carry out the same operation on the remaining cold taps.
6. Repeat this operation with the hot taps until there is a good flow. This will take longer as your Truma water heater will be filling. See Page 40.

GAS (LPG)

The gas installation of your caravan has been designed to meet the requirement of EN1949 and BS 5482.

EN1949 requires a fixed outlet pressure regardless of the gas type and lays down a harmonised pressure of 30mbar for LPG installations in touring caravans across Europe. Your caravan is fitted with a regulator which meets these requirements and thus allows users to move freely between European countries by being able to purchase any LP gas type. Different bottle types are accommodated by using different hose adapters which connect to the 30 mbar regulator.

It should be noted the standard UK domestic butane or propane regulator is not suitable for use on caravans manufactured to EN1949. They are not set on 30mbar and have a greater outlet pressure tolerance. Likewise the current standard automatic changeover regulator will not be suitable.

Your caravan is designed to accept a maximum 2 x 7kg Butane or 2 x 6kg steel Propane bottles or 2 x 5kg BP Gaslight cylinders

NOTE: We do not recommend the siting of gas bottles outside the gas locker compartment, as this would necessitate the use of a high pressure hose in excess of 450 mm.

WARNING:

Do not use any additional independent gas appliance inside your caravan.

Types of Gas:

BUTANE

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

All these have a male left hand thread except for Camping Gaz, which has a special female right hand. Calor 7.5 kg and 15 kg bottles have a special clip-on connection.

Continental bottles usually have a male left hand thread similar but not identical to 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 steel containers or partly red bottles which have a female left hand threaded connector or by BP Gas Light in green cylinders.

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 caravanning.

Connection

Make sure that heating, cooking appliances and gas cylinders are switched off.

Ensure the regulator has been connected via the flexible hose supplied by your dealer to the gas bottle.

Note: Gas bottle valves should always be in the 'OFF' position when towing.

Hoses

Your Dealer will fit the appropriate flexible hoses between the pressure regulator and your gas bottle (there are different adapters for Propane and Butane and different types of cylinders).

Ensure that the open end of the gas hose is protected against the entry of dirt or insects if it is to be left disconnected for any extended period.

WARNING:

Inspect flexible hoses regularly for deterioration, wear and damage, and renew as necessary with an approved type, in any case no later than the expiry date marked on the hose.

Gas Safety Advice

Regularly check flexible gas hose. Finally make sure that each gas appliance is working efficiently to the recommendations of the appliance manufacturers.

Awning Spaces LPG Appliance Exhaust

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

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

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

Ventilation

Fresh air circulation should be allowed below the caravan when appliances are in use. At least three sides of the underfloor space should always be kept open and unobstructed especially by snow. Do not make any additional openings in the floor.

WARNING: Under no circumstances should fixed ventilation openings or gas appliance flues be obstructed in any manner as this could lead to a build up of dangerous carbon monoxide. Gas drop holes under appliances should also be kept clear at all times.

Grilles and flues should be kept clean and free from dust.

Fixed ventilation/gas drop holes are sited under gas appliances in various locations in your tourer.

Gas Leak Precautions

- NO SMOKING, extinguish all naked flames.
- If a gas leak is suspected immediately turn off all supply at the cylinder.
- NEVER look for a leak with a naked flame. Always use a soap solution or special leak detecting liquid when testing connections.
- DO NOT operate any electrical apparatus, especially light switches. If the leak is not obvious, the caravan should be evacuated and qualified personnel consulted.

□ CONNECTING SERVICES - GAS

Turn the supply off at the cylinder.

- e) Avoid naked flames when connecting or changing a cylinder.

Facts about LPG

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

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

WARNING:

Never allow modification of electrical or LPG systems and appliances except by qualified persons.

Aerosols and highly flammable liquids must not be stored in the compartment behind or adjacent to any gas appliance.

Some industrial LPG appliances operate a high pressure and require a 'high pressure' regulator. This often has an adjusting handle on it. NEVER use a regulator on a caravan.

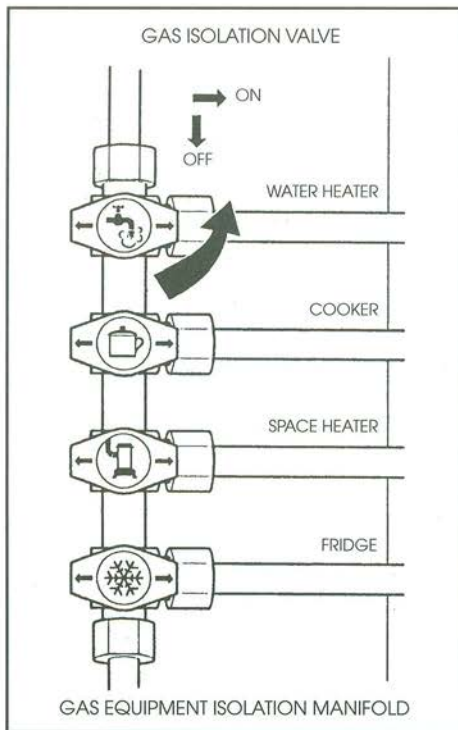
Roof-Mounted Flue Installations

All flue installations should be inspected once a year throughout their length for corrosion. Flues should

be replaced if any sign of perforation is found. Ensure that the replacement is of an approved type.

Gas Equipment Isolation Manifold

This is located in the sink unit and the



circuits covered by each tap are clearly indicated. If a fault is suspected then isolate the unit involved and consult your dealer.

External Quick Release Gas Coupling (BBQ Point)

This is supplied with a nozzle for your appliance which is a simple push-fit into the coupling on the caravan.

To attach, push back the knurled collar on the coupling. This action automatically seals the gas supply and will then allow you to turn on the gas supply.

WARNING: Do not use a gas barbecue in an enclosed awning space

CHANGING GAS CYLINDERS

If a gas cylinder is to be left disconnected for an extended period, then care must be taken to ensure that dirt and insects cannot enter the open end of the gas supply hose.

Empty cylinder:

- Turn off cylinder valve and all gas appliances
- Release retaining strap.
- Remove hose connection from cylinder.

- iv. Remove cylinder from gas locker and stand on ground.

Full cylinders

- i. Remove plastic protector from cylinder.
- ii. Place cylinder in gas locker.
- iii. Connect hose to cylinder (If you are changing the type of cylinder you will have to change this hose or use an adapter - See your Dealer). Avoid tension on the rubber gas hose.
- iv. Connect retaining strap.
- v. Turn on cylinder valve and then systematically turn on appliance valves. Relight appliances as required.

□ CONNECTING SERVICES - ELECTRICITY

ELECTRICITY

MAINS SUPPLY (Low Voltage)

WARNING:

Never allow modification of electrical or LPG systems and appliances except by qualified persons.

Your caravan's main electrical installation is designed to run on a 230v 50hz a.c. supply.

On Arrival At Caravan Site

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

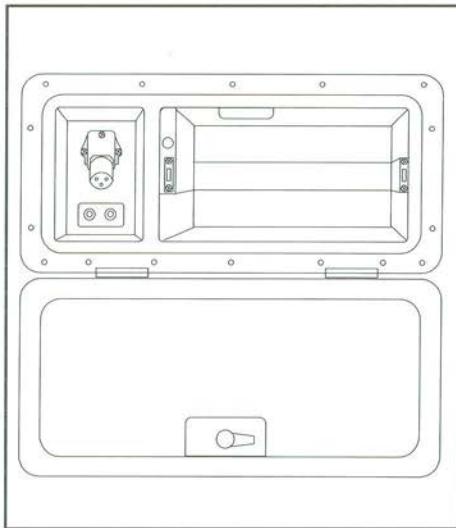
(a) the mains supply is suitable for your installation and appliances, i.e. whether it is a.c. or d.c. and whether it is at the correct voltage and frequency.

(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 caravan 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 AND THAT ALL ELECTRICAL EQUIPMENT IN THE CARAVAN IS SWITCHED OFF.**



3. Remove any cover from the electricity inlet provided on the caravan and insert the connector of the supply flexible cable.
4. Remove any cover from the socket outlet provided at the site supply

point and connect the plug at the other end of the supply flexible cable to this. Switch on the main switch at the site supply point.

Note: If you wish to use any 12v appliances, you must turn on at the control panel.

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 caravan 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.

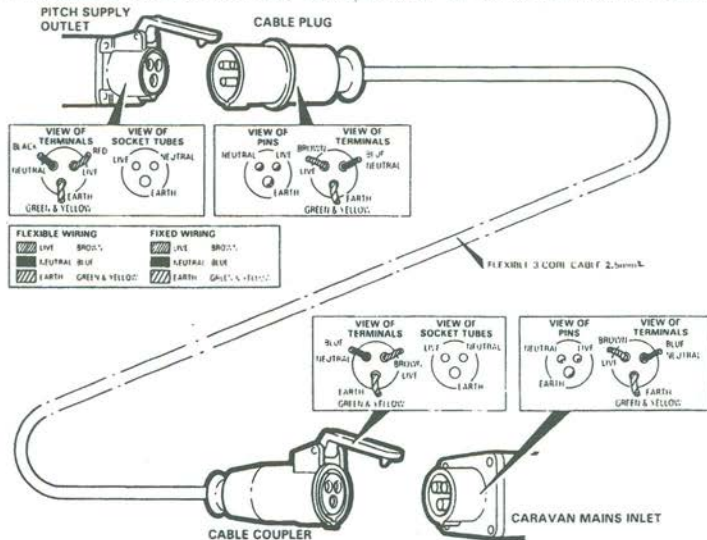
Note: Connection to a mains voltage supply OVERSEAS requires particular attention.

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

WIRING OF CONNECTING CABLE AND CARAVAN MAINS INLET

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

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

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

CHECK all caravan equipment is set-

up to accept the site supply before actually switching on.

Note: It is possible that all of the 230V mains electrical equipment may not be able to be operated simultaneously. A typical UK caravan site mains hook up point

□ CONNECTING SERVICES - ELECTRICITY

provides a maximum output of 16 amps and on some continental sites the available output may be as low as 5 amps. If your loading exceeds the site supply it may trip the site circuit breaker. Please check the available mains output with your site operator.

The following items need to be added together if used simultaneously.

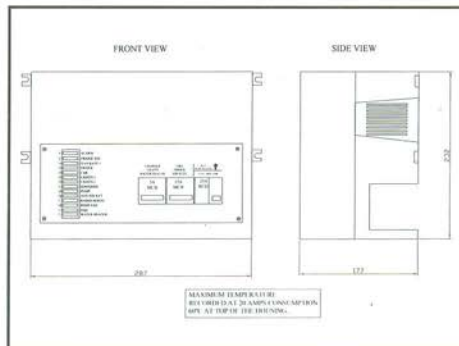
230V Mains equipment typical consumption figures:

Fridge	0.80 amps
Charger	0.80 amps
Water heater	3.7 amps
Blown air heaters	8.50 amps
Colour TV	2.50 amps
Microwave	6.00 amps
Air conditioning (Elec)	4.00 amps
Kettle	1.5kw 6.5 amps
	3.0 kw 13.0 amps

12V ELECTRICAL SYSTEM (Extra low voltage)

Your caravan is fitted with a Power Distribution Unit (PDU). This comprises of the 230 volt RCD and MCBs, Relay housing and Power Supply/Battery Charger, this is located under the front

off side seat towards the centre of the caravan



RCD & MCBs

This is for the 230 volt distribution RCD (Residual Current Device) and MCBs (Miniature Circuit Breakers). The RCD gives protection against electric shock, in the event of an earth fault that would cause earth leakage or earth directly through the human body the RCD will automatically disconnect the whole 230 volt supply. Only after removing the fault will the RCD be able to be switched back to the ON position. This is done by moving the switch upwards against the spring pressure and so restoring the supply.

The MCBs are designed to protect both for the overload of each circuit and also the short circuit. In both

NB: The information provided in the Guide relating to fitted equipment is only intended as a quick reference. Comprehensive details of maintenance and fault finding charts where appropriate can be found by referring to the accompanying manufacturer's literature. If any doubts still exist about the operation of the equipment qualified personnel or your caravan dealer should be consulted.

WARNING:

Always disconnect the electrical connector between the towing vehicle and the caravan before connecting a mains supply to the caravan and before charging the battery by any other means.

events the MCB will automatically switch to the OFF position and when the fault is removed they can be switched upwards against the spring to the ON position. Both the RCD and MCBs will only latch back into position if the fault has been removed. If these devices will not locate back into the ON position consult a qualified electrician.

BATTERY CHARGER/POWER SUPPLY

AMARA ONLY

This caravan is fitted with a 20amp 12 volt power supply providing the extra low voltages to the caravan and charging the battery. It will give a constant 13.8 volts that will supply the caravan when it is needed, as long as the 230 volt supply is connected. When you disconnect 230 volt supply the caravan auxiliary battery will supply your caravan extra low voltage system.

LASER/PASTICHE AND VIP

These caravans are fitted with a dual stage battery charger and a power supply to meet your caravan 12 volt requirements.

When the 230 volt supply is connected the battery charger will charge your auxiliary battery at 13.8 volts constantly and for 4 hours in a 24 hour period will boost this to 14.2 volts to ensure your battery is kept in prime condition. At no time during this period will any power for the 12 volt system in your caravan use the battery. At the same time the power supply side of the unit will supply your caravan requirements at 13 volts up to 20 amps.

When the 230 volt supply is disconnected for any reason the

power supply will automatically switch the auxiliary battery into the 12 volt system and feed your requirements.

NOTE WE RECOMMEND A BATTERY TO BE USED AT ALL TIMES.

The Thetford Refrigerator requires that the battery is connected for the gas igniter to work.

CAUTION!

- As with all types of transformer/power supply a certain amount of heat is generated, this will vary with the charge rate, therefore adequate space and ventilation must be provided and maintained around the unit to aid cooling.
- Keep all flammable materials and aerosols well away from this appliance and other sources of heat, as this could cause the pressure in the aerosol to rise. Should a seal then fail it is possible an explosion will ensue.
- **N.B.** Remember any work, replacing parts or repair, **must only** be carried out when the mains supply has been disconnected and only by a qualified electrician.

Relay Housing

Provides the 12 volt distribution through out the caravan. All the fuses are located at the front of the PDU behind the lift up cover. Ensure fuses being replaced are of the rating indicated on the PDU and never increase the rating of the fuse you replace.

The system is fully compliant with the EMC recommendations within the EU.

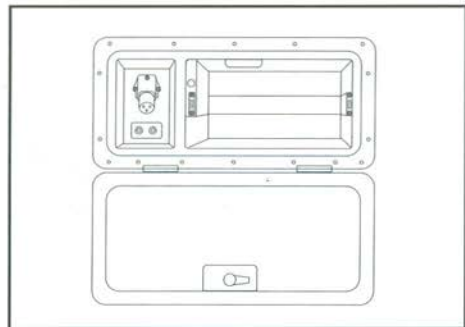
When the caravan is plugged into the car the 12 volts system will be supplied by the car except the refrigerator...

When the car Ignition is switched on and the car is started the system will automatically switch the 12 volt supply in the caravan off, then it will connect the refrigerator 12 volts on and connect the auxiliary battery to charge from the car.

□ CONNECTING SERVICES - ELECTRICITY

BATTERY BOX

Located in the battery box below the mains inlet your caravan will be fitted with an aerial and satellite connection if an external source is available.



TESTING RCD

Periodically it is necessary to test the operation of the RCD. This is achieved by ensuring that it is switched in the ON position with an electricity supply connected and by pressing the test button marked 'T'. The unit should immediately switch to the OFF position. Provided this happens all is correct and the switch should be returned to the ON position, upwards against the spring pressure, to restore the supply back to normal. The RCD also acts as the main switch for the unit and if it is required to switch off all

circuits in the caravan this can be achieved by switching the RCD to OFF.

ALWAYS USE BATTERY TRAY PROVIDED.

WHEN USING A BATTERY WITH A VENT KIT, LEAVE THE VENT TUBE IN THE BATTERY TRAY. VENTILATION IS PROVIDED THROUGH THE BATTERY BOX DOOR WHEN THE DOOR IS CLOSED AT THE TOP AND BOTTOM.

REVERSE POLARITY

When connecting mains supply abroad, the supply can be of reverse polarity. The significance of this is that when equipment is switched OFF it may not be electrically isolated. The only certain way of making sure equipment is safe is to unplug it.

There are several proprietary makes of equipment to check the polarity of mains supply. This equipment is useful, mostly for mains connection when overseas.

If reverse polarity occurs on site then reverse the live and neutral connections inside the plug on your mains cable. This must be done by a qualified electrician. Ensure that the cable is re-connected to its original configuration on return to the UK.

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

WARNING:

Do not smoke - explosive gases may be present at the battery. Prevent flames and sparks in that area. Switch off all appliances and lamps before disconnecting the auxiliary battery.

WARNING:

Batteries should be tested regularly to ensure reliability and safety. Should a fault develop the charger will continue to try to charge the battery leading to possible overheating and failure.

If in doubt have it checked by your supplier.

Battery Type

It is recommended that a 12V leisure battery of a sealed type is used which is essential to flatten out current surges. The battery locker will take up to a 120 amp hour battery depending on the manufacturer. The highest rating possible should be used. Always use

the battery tray and retaining strap when installing a battery.

Leisure Battery Life

Although a leisure battery is designed to operate down to low charge levels (unlike a car battery) it is advisable to keep a leisure battery well charged and not left for long in a discharged state.

CAUTION: Take care not to expose the battery to sparks or naked flames, as explosive gases may be present.

N.B. As with mains supply, switch off **all** appliances and lights before disconnecting the battery.

Generators

When using a generator ensure that the actual output voltage does not exceed the rated generator output voltage and the rated input voltage of the consumer unit, otherwise internal damage to the unit could occur.

Before starting the generator ensure that the RCD lever is in the off position.

N.B. Refer to the manufacturer's instruction book before use.

Control Panel

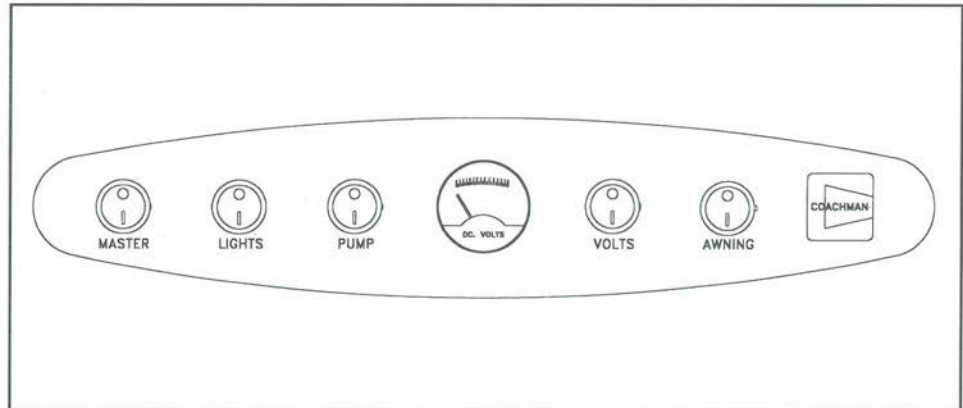
- Pump ON/OFF Switch/Pump Run Indication
- Master 12 volt ON/Off Switch

- 12 volt Lighting Switch
- Voltmeter Switch
- Awning Light Switch

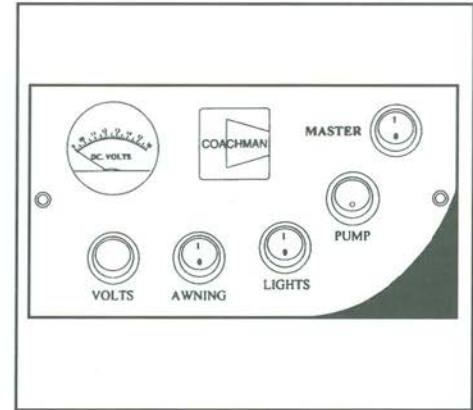
When the caravan is connected to the car, the car supply is connected automatically. For your convenience the master 12 volt switches all the 12 volt circuits from the caravan except for the circuits requiring dedicated supplies from the battery, such as fridge ignition or alarm if fitted.

The pump switch switches the supply to the pump, but the pump run light will only illuminate when water is being used.

Amara



Pastiche/VIP/Laser



TRUMA ULTRASTORE WATER HEATER

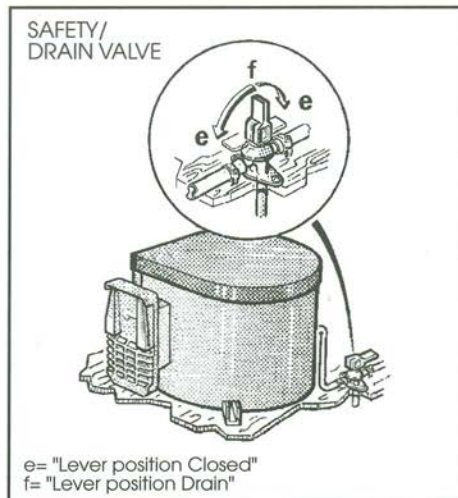
Always observe the operating instructions prior to starting! The vehicle owner is responsible for the correct operation of the appliance.

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

ATTENTION:

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

When connecting to a central water supply (rural or city connection) or when using more powerful pumps, a pressure reducer must be used which prevents pressures of greater than 2.8 bar occurring in the Ultrastore.



Filling The Truma Ultrastore With Water

1. Check that the safety/drain valves are closed: Lever should be in horizontal position, position (e).
2. Open hot tap in bathroom or kitchen, with pre-selecting mixing taps or single-lever fittings set to "hot".
3. Switch on power for water pump (12v switch and pump switch).

Leave the tap open to let air escape

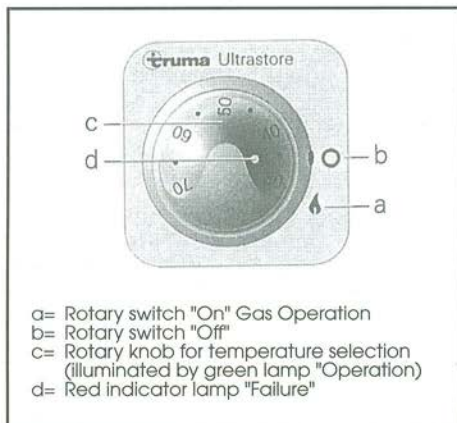
while the water heater is filling. The heater is filled when water flows out of the tap.

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

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

Draining The Water Heater

1. Disconnect power for water pump (12v switch and pump switch).
2. Open hot water taps in bathroom and kitchen.
3. Open safety/drain valve: Lever in vertical position, position (f).
4. The water heater is now drained directly to the outside via the safety/drain valve. Check that the water contents have been completely drained (10 litres).

CONTROL PANEL (GAS OPERATION)**GAS OPERATING INSTRUCTIONS**

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

1. Remove cowl cover.
2. Open gas cylinder and open appliance valve in the gas supply line.
3. Select required water temperature at rotary knob (b) infinitely variable from approx. 30° to 70°C.
4. Switch on water heater at the slide switch (a) on the control panel, green indicator lamp "Operation" lights up.

5. If there is air in the gas supply line, it may take up to a minute before the gas is available for combustion. If the appliance switches to "Failure" during this period, switch off the appliance - wait 5 minutes - and switch on again!

Switching Off (Gas Operation)

Switch off the water heater at the slide switch (a).

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

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

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

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

RED INDICATOR LAMP**"FAILURE"**

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

The reason for such an indication is, for example, no gas available or air in

the gas supply system, triggering of the excess temperature monitor etc. To unlock, switch off the appliance, wait 5 minutes and switch on again.

In event of faults, always contact your dealer.

ELECTRICAL OPERATING INSTRUCTIONS

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

Switch on at the fused switch.

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

Note: The electrical heating element is fitted with an excess temperature cut-out. In the event of a fault, switch off at the control panel wait 5 minutes, then switch on again.

TRUMA ULTRASTORE WATER HEATER 10ltr

WATER CONTAINER

The water tank in the Truma -Ultrastore Water Heater is of high quality Food-proof Stainless steel VA. The plastic elbow water connections and the Safety/Drain valve are to EC guidelines for food quality in plastic parts to (90/128/EEC).

Recommendation

In order to avoid colonisation of micro-organisms, we recommend heating up the tank to 70°C at regular intervals (on gas) and not to use the water for drinking.

De-Scaling

For de-scaling use wine vinegar (approx. 1 Ltr) into the water tank and mix with fresh water, allow the product to react and then thoroughly flush out the appliance with plenty of fresh water.

To Sterilise

We recommend "Certisil-Argento" in Germany, but Chempro SDP or Milton 2 can be used. Other products, particularly those containing chlorine are unsuitable.

Fuses

The water heater fuse is on the electronic control unit on the water heater.

Important note: Only replace the miniature fuse on the p.c.b. with a fuse of the same type: 1.6AT

EN 60127-2-3 (slow action)

GENERAL SAFETY NOTES

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

- extinguish all naked flames!
- do not smoke!
- switch off the appliances!
- close gas cylinder!
- open the windows!
- do not operate any electrical switches!
- have the entire system checked by a qualified gas engineer.

REPAIR JOBS ARE ONLY TO BE CARRIED OUT BY A QUALIFIED GAS ENGINEER.

1. Any alteration to the appliance (including cowl) or the use of spare parts and accessories which are important for the functioning of the heater and which are not original

Truma parts, as well as the non-observance of the installation and operating instruction, shall 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.

2. The operating pressure for the gas supply is 30mbar and must correspond to the operating pressure of the appliance (see data plate).

The vehicle owner is always responsible for arranging the inspection.

3. In other countries, the respectively valid regulations must be observed. For your own safety it is absolutely necessary to have the complete gas installation regularly checked by a qualified person (at least every 2 years).
4. During the initial operation of a brand new appliance (or after it has not been used for some time), a slight amount of fumes and a slight smell may be noticed for a short while. Remedial action here is to immediately run the heater and to ensure adequate room ventilation.

5. Items sensitive to heat (e.g. aerosols etc) must not be stored in the installation area, since excess temperatures may under certain circumstances be incurred there.
6. If the burner makes an unusual noise or if the flame lifts off, it is likely that the regulator is faulty and it is essential to have it checked.

TECHNICAL DATA

Water contents: 10 litres

Water pressure: up to max. 2.8 bar.

Type of gas: Liquid gas
(propane/butane)

Operating pressure: 30 mbar

Rated thermal output: 1500 W

Gas consumption: 120 g/h

Heating time up to approx. 70°C

Gas operation: approx. 35 min

Electrical operation: approx. 70 min

Gas and electrical
operation: approx. 20 min

Power consumption 12 V

Ignition: 0.17 A

Heating up: 0.08 A

Standby 0.04 A

Power consumption 230 V

Heating up: (3.7 A) 851 W

Weight (empty): approx. 6.7 kg

Declaration of conformity:

The Truma-Ultrastore model has been tested and approved through the DVGW and fulfils the EC gas appliance guidelines (90/396/EEC) as well as the associated EC guidelines. The CE product number is available for EU countries: **CE-0085AP0038**

WARNING INFORMATION

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

PRESSURISED WATER SYSTEM PUMP

Fresh water is supplied to the caravan from an external water container by the Truma Ultraflow/Ultraflow Filter Compact System, which consists of a socket located near the water heater cowl, on the offside of your caravan and a separate plug-in pump assembly. The socket is protected by a hinged lid which should be kept shut when the pump is not connected. The

lid is easily opened by gripping the lower edge and pulling outwards. The separate plug-in pump assembly consists of a submersible pump, hose and plug. The plug provides connection to both water supply to the caravan and 12 volt DC electric power to the pump. A dust cover is fitted to the connecting dual hose to prevent contaminants falling into the water container.

SURGE DAMPER/PRESSURE SWITCH

The Ultraflow Surge Damper is part of a unique, high quality product range and ensures an even water flow.

The **integrated, electronically controlled pressure** switch has an intelligent control sequence. This ensures a comfortable (on/off) function of the water pump regardless to the momentary atmospheric pressure and battery power. (10v to 14v)

Together with the Ultraflow Surge Damper the caravans water supply operates as a pressurised system.

REFRIGERATOR

Your caravan is fitted with a refrigerator/freezer combination, details of which are in your Technical Data.

FOR FULL OPERATIONAL INSTRUCTIONS FOR YOUR PARTICULAR FRIDGE, REFER TO REFRIGERATOR MANUFACTURER'S INSTRUCTIONS USUALLY FOUND IN THE APPLIANCE.

For 12v wiring arrangement, refer to Technical Data.

The refrigerator is not suitable for the proper storage of medications.

THETFORD REFRIGERATOR

INTRODUCTION

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

ALERTS

the following alerts are used in these user notes.

Warning! "Warning!" alerts the user to danger of damage to the product or

to the user if the user fails to carry out the described procedures carefully. Non-observance of the procedures may result in serious injury to the user or damage to the product.

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

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

Warnings

- Read this manual carefully before you start to use your refrigerator.
- Always consult the warnings before you perform any maintenance or gas checks.

Repair/Maintenance

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

- Always switch off the refrigerator before you perform any kind of maintenance or cleaning.

Use

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

What to do if...**You smell gas:**

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

You suspect a leak in the cooling system:

- switch off the refrigerator;
- extinguish any naked flames;
- provide sufficient ventilation;
- contact the Customer Service department of Thetford.

About your refrigerator

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

Cold Space

The cooling fins are located on the inside of your refrigerator. The absorber system uses the cooling fins to draw heat from the refrigerator. Therefore,

never place plastic or paper over the cooling fins. Air must be able to circulate freely through the refrigerator so that heat can be extracted.

Important!

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

To limit frosting on the cooling fins:

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

Fitting racks

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

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

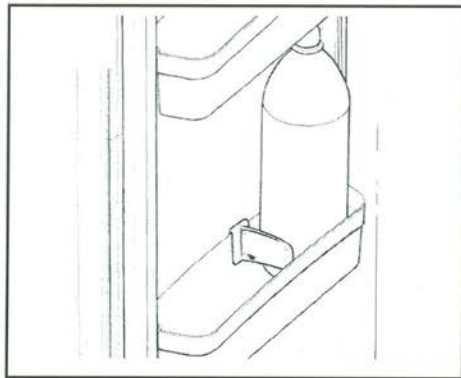
- place the short side with bracket in the corresponding groove on the right wall of the refrigerator.

- turn the bracket downwards to fix into the groove.

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

Securing products for driving

The fitting racks in your refrigerator have a system for you to secure products while driving. The system consists of a simple click-and-slide plastic strip. To secure products on the rack while driving, push the plastic strip as tightly as you can against the products on the rack.



In the storage space on the inside of the refrigerator door, there is the unique Thetford flexible bottle slide. The slide prevents bottles from sliding around during driving. Push the slide against the products in the door or place the products between the bottle slide.

Freezer compartment

The freezer compartment reaches a temperature of -12°C^* and is suitable for making ice cubes and for storing frozen foods for a short time.

*Tested at an ambient temperature of $+25^{\circ}\text{C}$ at 230V.

Important! The freezer compartment is unsuitable as a means of freezing food.

- use only drinking water to make ice cubes.
- do not place any other products in the freezer compartment when you are making ice cubes.
- water freezes fastest with the thermostat at the highest setting.

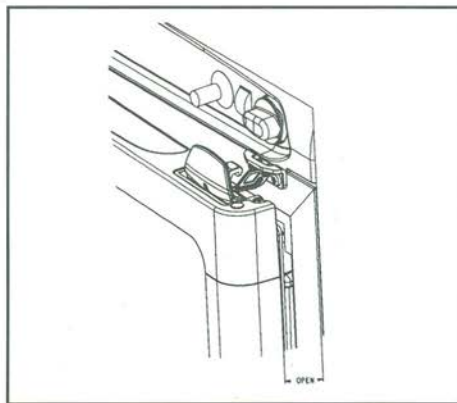
Tip! - make ice cubes at night when your refrigerator has more space capacity.

Door locking mechanism

The refrigerator door has an automatic

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

If you are not going to use the refrigerator for a prolonged period of time, you can use the special hook of the door locking mechanism to prevent odours. Rotate the hook through 90 degrees and lock it in place using the pin.



SWITCHING ON THE REFRIGERATOR

- It is recommendable to clean the inside of the refrigerator before you switch it on.
- Let the refrigerator cool for at least eight hours before you place food in it for the first time.
- The freezer compartment should be cold one hour after switching on the refrigerator.

OPERATING YOUR REFRIGERATOR

Different models of refrigerator with different controls are fitted to the various Coachman Caravan ranges/models and we would therefore refer you to the comprehensive Thetford operating instructions supplied with your refrigerator. These instructions cover switching on the refrigerator, energy source selection, electrical operation, powering with gas and switching off the refrigerator.

MAINTENANCE

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

Interior Cleaning

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

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

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

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

Exterior Cleaning

The exterior of the refrigerator should only be cleaned with a damp cloth no consideration should abrasive or chemical cleaners be used.

Defrosting

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

- Remove the ice cube tray and all food.

- Switch off the refrigerator in the way described in the previous section.

- Leave the refrigerator door open.

- Place dry towels in the refrigerator to absorb the water.

- Place trays containing hot water in the freezer compartment.

- After defrosting (when the freezer compartment and condenser are frost-free), remove the towels and the water trays and use a cloth to dry off the refrigerator.

- Switch the refrigerator on again in the way described in the Thetford manual. (Igniting and starting your refrigerator).

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

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

Door locking mechanism

Frost will form in the refrigerator if the door is not closed properly. To determine whether the door closes properly, close the door with a piece of paper between the door and the refrigerator. Pull at the piece of paper. If you feel resistance, the refrigerator

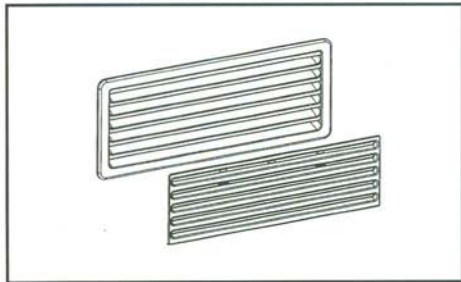
door closes properly. If you feel no resistance, the door does not close properly. Perform this test regularly on all four sides of the refrigerator door.

If you find that the door does not close properly, check whether the door locking mechanism keeps the door properly shut.

Winter operation

If you use the refrigerator when the outdoor temperature is below 8°C, install the Thetford winter cover (see illustration) on the ventilation grills. The cover protects your refrigerator from excessively cold air. The winter cover is a refrigerator accessory obtainable from your caravan dealer.

Tip! It is advisable to use the winter cover if you are not going to use the vehicle for a long period of time.



Maintenance of gas equipment

A qualified service engineer must maintain and inspect gas and electrical equipment. It is advisable to have this maintenance work performed by a Thetford customer service centre. Contact the Customer Service department of Thetford for a list of qualified parties.

Important! European laws covering gas appliances and extractors prescribe observance of the following rules (which are the user's responsibility):

- Appliances that run on liquid gas must be inspected before being used for the first time and every year thereafter.
- The gas burner must be cleaned at least once a year or more frequently if necessary.
- If a gas hose is used, it must be checked annually. This hose has a limited life and, thus, must be regularly replaced. Check the hose regularly for cracks, splits and ageing. If in doubt, replace the hose. Pay attention to the maximum life of the hose and replace it in time, as advised by the manufacturer or in conformance with local regulations.
- For replacement, a gas hose approved in accordance with the

local regulation must be used. Position the hose so that it can rotate, is not kinked and will allow no bends to occur.

- Due to the limited life of the gas hose, it must be installed so that replacement is possible.

Maintenance checklist

This refrigerator will give you many years of trouble-free use if you simply run through the following checklist regularly:

- Keep the refrigerator clean.
- Defrost the refrigerator as often as is necessary.
- Check the door closing mechanism regularly.
- Make sure that the ventilation grills are not blocked.
- Regularly clean the ventilation grills.

STORAGE

If you do not expect to use your refrigerator for a lengthy period, carry out the following actions:

- Remove all food.
- Switch off the refrigerator.
- Clean the refrigerator as described on PAGE 49.
- Shut off the gas tap to the refrigerator.
- Leave the door of the refrigerator ajar using the special door closure hook (storage position)
- Place the winter protection on the ventilation grill.

GUARANTEE, CUSTOMER SERVICE AND LIABILITY

Guarantee

Thetford B.V. offers the end users of Thetford refrigerators a three-year guarantee. In the case of defects within the guarantee period, Thetford will repair or replace the product. In this instance, the costs of replacement, labour costs for the replacement of defective components and/or the costs of the parts themselves will be paid by Thetford.

1. To make a claim under this guarantee, the user must take the product to a Service Centre recognised by Thetford. The claim will be assessed here.

2. If components are replaced during repair under guarantee, these become the property of Thetford.

3. This guarantee does not prejudice current consumer protection law.

4. This guarantee is not valid in the case of products that are for, or are used for, commercial purposes

5. No claim under the guarantee will be accepted in the following circumstances:

- The product has been improperly used or the instructions in the manual

have not been followed.

- The product has not been installed in accordance with the instructions.

- Alterations have been made to the product.

- The product has been repaired by a Service Centre not recognised by Thetford.

- The serial number or product code have been changed.

- The product has been damaged by circumstances outside the normal use of the product.

Liability

Thetford is not liable for loss and/or damage caused directly or indirectly by use of the refrigerator.

ALL REFRIGERATORS

Storing food

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

The freezer compartment is suitable for making ice cubes and for short-term storage of frozen food. It is not suitable as a means of freezing foods.

Making ice cubes

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

 Only use drinking water!

Defrosting

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

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

1. Switch off the refrigerator.

2. Remove the ice cube tray and food.

3. Leave the refrigerator door open.

4. After defrosting (freezer compartment and fins free of frost), wipe the cabinet dry with a cloth.

5. Use a cloth to mop up the water from the freezer compartment.

6. Switch the refrigerator back on again.

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

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

Troubleshooting

Before calling the authorised Service Department, please check whether:

1. The instructions in the section "Using the refrigerator" have been followed.

2. The refrigerator is not tilted excessively.

3. It is possible to operate the refrigerator with an available power source.

☐ CARAVAN EQUIPMENT

Failure: The refrigerator does not work in gas operation mode.	
Possible Cause a) Gas bottle empty. b) Is the supply valve closed. c) Air in the gas pipe?	Action you can take a) Change gas bottle. b) Open the supply valve. c) Switch device off and on again 3 - 4 times to remove air from the gas pipe.
Failure: The refrigerator does not work on 12V.	
Possible Cause a) On-board fuse defective. b) On-board battery discharged. c) Engine not running.	Action you can take a) Fit new fuse b) Check battery, charge it. c) Start engine.
Failure: The refrigerator does not work on 230V.	
Possible Cause a) On-board fuse defective. b) No connection to supply voltage.	Action you can take a) Fit new fuse. b) Establish power connection.
Failure: The refrigerator does not cool sufficiently.	
Possible cause a) Inadequate ventilation to the unit. b) The thermostat setting is too low c) There is too much ice on the condenser. d) Too much warm food put inside. e) Appliance running for a short time. f) Door does not shut properly	Action you can take a) Check that the ventilation grilles are not covered b) Turn the thermostat to a higher setting. c) Check that the refrigerator door seals when shut. d) Let food cool down first. e) Wait several hours, check again. f) Check the door closing mechanism

Maintenance

- **Work on gas components and electrical installations may only be carried out by authorised personnel. We recommend to contact your Authorised Service Centre.**

- EN 1949 stipulates that the appliances gas equipment and its associated fume system must be inspected after installation and a certificate issued.

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

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

- It is recommended that the gas burner be inspected and cleaned as necessary at least once a year.

We recommend maintenance following an extended shutdown of the vehicle.

Product liability

Product liability does not include damages which may arise from faulty operation, improper alterations or intervention in the equipment, adverse effects from the environment such as changes in temperature and air

humidity, which may impact the equipment itself or the direct vicinity of the equipment or persons in the area.

1. Battery drainage through normal use.
2. Setting the switch when on mains electric supply (typically 230 volts) then using a 12 volt battery.
3. Setting the switch when on 12 volt battery then using mains electric supply (230 volts).

OVEN, HOB AND GRILL

Your caravan is fitted with one of the range of Spinflo Caprice Mk3 Cookers or separate hob and oven.

Operation

Ensure the gas cylinder is turned on.

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

WARNING!

- When cooking, young children should be kept away.
- Glass lids may shatter when heated. Turn off all burners before shutting the lid.
- Spillage on the surface of the lid should be removed before opening the lid.

Burner operation

The burners on the 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.

IMPORTANT

- Although each burner will support pans from 10cm 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.
- Avoid old or misshapen pans as these may cause instability.
- The lid must be opened fully prior to using the hotplate burners.

Using the Hotplate Burners

1. Ensure gas cylinder/supply is connected and turned on. In the event of a gas smell turn off at gas cylinder/mains and contact supplier.
2. Flame supervision: Each burner is controlled individually and is

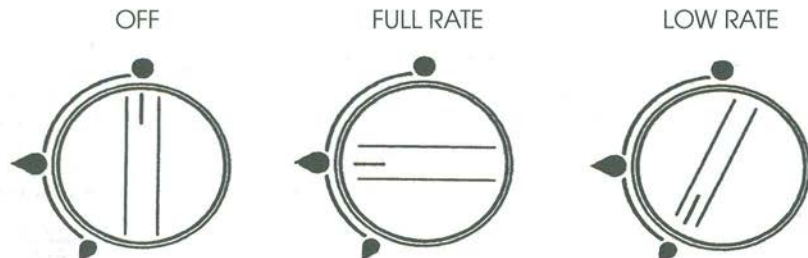
monitored by a thermocouple probe. In the event of the burner flames being accidentally extinguished, turn off the burner control and do not attempt to re-ignite the burner for at least one minute.

WARNING: It is recommended that the burner heat shields be used at all times.

When you are cooking it is essential to provide additional ventilation, such as opening windows near grill, cooker and oven.

3. To light: Push in the control knob and turn to full rate - see Fig 1. Hold a lighted match or taper to the burner and push the control knob in and hold. It is necessary to hold the knob depressed after the burner has ignited for approximately 10 - 15 seconds, to allow the thermocouple probe to reach temperature before releasing the knob. Should the flame go out when the knob is released, the procedure should be repeated holding the knob depressed for slightly longer.
4. For models fitted with Spark Ignition the procedure is similar except that the burner can be ignited by

Fig. 1



depressing the ignition button, which is located on the fascia. If the burner has not lit within 15 seconds the control knob should be released and the burner left for at least 1 minute before a further attempt to ignite the burner.

IMPORTANT

- **The pan supplied with the appliance is multi functional, for use in grill or oven.**
- **The handle design allows removal or insertion whilst the pan is in use.**
- **Always remove the handle when the pan is in use.**

event of a gas smell turn off at gas cylinder/mains and contact supplier.

2. To light: Open door, push in the knob and turn to full rate - Fig 1. Hold a lighted match or taper to the burner and push the control knob in and hold. The burner should ignite and the control knob should be held in for 10 - 15 seconds before release.

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

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

4. Note: the grill must only be used with the door open.

5. On first use of the grill, it should be heated for about 10 minutes to eliminate any residual factory lubricants that might impart unpleasant smells to the food being cooked. A non-toxic smoke may occur when using for the first time so open any windows and turn on mechanical ventilators to help remove the smoke.

6. Although the grill does heat up quickly, it is recommended that a few minutes preheat be allowed.

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

Using the Grill

1. Ensure gas cylinder/supply is connected and turned on. In the

flame going out. In the event of the burner flames being accidentally extinguished, turn off the burner control and do not attempt to re-ignite the burner for a least one minute.

8. It is normal for the flames on this burner to develop yellow tips as it heats up, particularly on Butane.
9. A reversible grill pan trivet enables the correct grilling height to be achieved.

Fast Toasting - trivet in high position

Grilling Sausages -trivet in high position

Grilling Steak/Bacon - trivet in high position

Grilling Chops, etc - trivet in low position

Slow Grilling - trivet removed

10. To turn off: turn the control knob until the line on the control knob is aligned with the dot on the control panel. Always make sure the control knob is in the off position when you have finished grilling.

Using the Oven

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

2. To light: Open door, push in the control knob and turn to 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 for slightly longer.

IMPORTANT

- **The pan supplied with the appliance is multi functional, for use in grill or oven.**
- **The handle design allows removal or insertion whilst the pan is in use.**
- **Always remove the handle when the pan is in use.**

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

position and close the door. Set control knob to approximately gas mark 5 and heat the oven for about 30 minutes to eliminate any residual factory lubricants that might impart unpleasant smells to the meals being cooked. A non-toxic smoke may occur when using for the first time so open any windows and turn on mechanical ventilators to help remove the smoke.

5. Although the oven does heat up quickly, it is recommended that a 10 minutes preheat be allowed. The oven should be up to full temperature in about 15 - 20 minutes.
6. To turn off: turn the control knob until the line on the control knob is aligned with the dot on the control panel.
7. Shelf: the shelf has been designed to allow good circulation at the rear of the oven and are also fitted with a raised bar to prevent trays or dishes making contact with the back of the oven. To remove a shelf, pull forward until it stops, raise at front and remove.

Oven Temperature Control

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

to 240°C. Approximate temperatures for the settings on the control knob are shown in the table below. The temperatures indicated refer to the centre of the oven and at any particular setting the oven will be hotter at the top and cooler towards the base. The variation between top and centre and centre to bottom is approximately equivalent to one gas mark. Good use can be made of the temperature variation in several dishes requiring different temperatures may be cooked at the same time. In this way maximum benefit can be obtained from the gas used to heat the oven. Care should be taken not to overload the oven, adequate spacing being used to allow free circulation for heat.

Cooking Guidelines

Best results will be obtained by the shelf positions in this guide. It is not necessary to preheat the oven but

Dish	Gas Mark	Shelf Position	Cooking Time
Scones	7	2	8 - 15 mins
Small cakes	5	2	15 - 25 mins
Victoria Sandwich	4	2	20 - 30 mins
Very rich fruit cake	2	2	Approx. 60 mins per 500g
Puff pastry	8	2	15 - 30 mins
Flaky pastry	7	2	15 - 30 mins
Shortcut pastry	6	2	15 - 55 mins
Shortbread fingers	3	2	25 - 30 mins
Ginger nuts	5	2	12 - 16 mins
Rice pudding	2	3	100 - 120 mins
Baked custard	3	3	50 - 60 mins
Fruit crumble	5	3	30 - 40 mins
Beef	3	3	25 mins per 500g plus 25 mins
	7	3	15 mins per 500g plus 20 mins
Pork	3	3	30 mins per 500g plus 35 mins
	7	3	25 mins per 500g plus 25 mins

Gas Mark	Temperature			
1/4 - 1/2	265 - 275°F	130 - 135°C	Very cool	Meringues
1	285	140	Cool	Stewed fruit
2	300	150	Cool	Rich fruit cake
3	330	165	Warm	Baked Custard
4	355	180	Moderate	Victoria Sandwich
5	385	195	Fairly hot	Whisked sponges
6	410	210	Hot	Shortcrust pastry
7	430	220	Hot	Bread, scones
8	445	230	Very hot	Puff pastry
9	465	240	Very hot	Quick browning

□ CARAVAN EQUIPMENT

advisable for a range of dishes. The oven is capable of full temperature in 15 - 20 minutes.

Most cookery books give details of the shelf positions and gas mark settings for each recipe. If in doubt about a recipe you intend to use, study the recipe carefully then find a similar dish in our guide and use our shelf position and gas mark setting recommendation. Shelf positions are from the top down. When roasting with aluminium foil care must be taken that the foil does not impair circulation or block the oven flue outlet.

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** use the burner heat shields.
- 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.
- DO NOT** put heavy objects onto open grill and oven doors.

IMPORTANT

- All servicing must be carried out by an approved competent person.
- After each service the appliance must be checked for gas soundness.

Leaks

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

IMMEDIATELY. Extinguish naked lights including cigarettes and pipes. Do not operate electrical switches. Open all doors and windows to disperse any gas escape. Butane/Propane gas is heavier than air; any escaping gas will therefore collect at a low level. The strong unpleasant smell of gas will enable the general area of the leak to be detected. Check that the gas is not escaping from an unlighted appliance. Never check for leaks with a naked flame, leak investigation should be carried out using a leak detector spray.

ALL SERVICING MUST BE CARRIED OUT BY AN APPROVED COMPETENT PERSON AFTER EACH SERVICE THE APPLIANCE MUST BE CHECKED FOR GAS SOUNDNESS.

FOR FULL OPERATIONAL INSTRUCTION, REFER TO OVEN OR HOB AND GRILL MANUFACTURER'S INSTRUCTIONS USUALLY FOUND IN THE APPLIANCE.

This appliance needs little maintenance other than cleaning. All parts should be cleaned using warm soapy water. Do not use abrasive

cleaners, steel wool or cleaning powders. When cleaning the burner ring it is essential to ensure that the holes do not become blocked. The control knobs are a push fit and can be removed for cleaning.

Service routines marked ☺ denote appliance can be serviced in situ.

1. Remove appliance from housing.

Lift the glass lid and remove two screws from either side of the hob surround trim and close the lid. Open the grill door, oven door and lower door, remove the fixing screws. Carefully slide the appliance out one third to gain access and disconnect the gas supply. Check for any possible snagging of wires or pipes. If OK, lift appliance out onto a suitable surface.

2. Remove the hob surface ☺

Shut off gas supply at isolating valve. Lift off the pan rest and remove the two screws securing each burner cap and spreader. Carefully remove front fascia by removing all the push on control knobs and unscrewing the two recessed fixing nuts. Remove the two stand-off studs securing each burner cup. Remove the two screws securing the pressing to the rear box section. Grasp the hob by

the angled front face, carefully lift the hob surface tilting from the front to allow rear edge to unhook from rear box section. The hob surface should be put onto a suitable surface.

3. Control replacement - ☺
Hob and Grill

Shut off gas supply at isolating valve. Remove the hob surface (2). Unscrew the corresponding pipe and thermocouple and remove from the control. Remove the locknut from the front of the control panel. Disengage the control from the gas rail and remove.

4. Control replacement -
Oven thermostat

Remove appliance from housing (1). Remove the hob surface (2). Open the oven door and unscrew the two screws holding the thermostat probe in position and push the probe back out through the hole in the rear of oven. Remove the retaining screws from on top and underneath the control and remove from the gas rail. Remove the fittings off the old control and fit on the replacement.

5. Remove the grill burner assembly ☺

Shut off gas supply at isolating

valve. Remove the hob surface (2). Release the locking screw on the injector holder. Unscrew the thermocouple from the control and remove the spark ignition lead from the generator. Lever off starlock washers from the grill flue, remove flue clamping screw from rear cross strut and remove flue. Remove clamp screw retaining grill assembly to roof of cavity. Slide and lift out the complete grill assembly.

6. Spark Ignition -
Hob and Grill (where fitted) ☺

Remove the hob surface (2).

Hotplate burners - Pull off the fixing clip on the burner and remove electrode from the burner cup. Trace the electrode wire back to the generator and pull off the connector.

Grill burner - Remove the screw from the bracket of the spark ignition probe in the top of the burner. Trace the electrode wire back to the generator and pull off the connector.

7. Spark Ignition - Oven (where fitted)

Remove appliance from housing (1). Trace the electrode wire up the back of the cooker to the generator and pull off the connector. Unscrew the fixing

□ CARAVAN EQUIPMENT

screw on the spark electrode inside the oven cavity, then carefully pull the electrode from inside the oven and remove.

8. Spark Generator (where fitted)

Remove appliance from housing (1). Unplug the generator first. Remove all electrode wires and pull off all power and earth wires. Remove the two retaining screws and lift off the generator.

9. Hotplate burner injector ☺

Lift off the pan rest, remove the burner cap and spreader and unscrew the injector.

10. Grill burner injector ☺

Remove the hob surface (2). Release the locking screw on the injector holder, disengage the grill pipe from the control and remove the injector.

11. Oven burner injector ☺

Open the oven door and unscrew the burner retaining screw, slide the burner to the left and lift out. The injector is exposed to the right hand side of the cut out. Unscrew the injector.

12. Bypass replacement - all controls ☺

Remove the hob surface (2). Access bypass jet from front of control bracket, through hole adjacent to corresponding control. Unscrew completely the bypass and gently lever out from its seating.

13. Hob and grill thermocouples ☺

Remove the hob surface (2). Unscrew the thermocouple from the control. Unscrew the nut at the burner.

14. Oven thermocouple

Remove appliance from housing (1). Unscrew the thermocouple from the control. Inside the oven cavity, the thermocouple is found just above the burner on the rear wall. Unscrew the locknut and pull out the thermocouple from the rear of the appliance.

15. Removing doors ☺

Grill door/Lower door - Open the door and remove the screws on top and bottom of the grill door hinges. Carefully lower the door and remove.

Oven door (drop down) - Open the door and engage catch to hook on each hinge. Lift the door and pull out of front trim.

Oven door (side opening) - Open the door and remove the two screws retaining the top hinge, tilt the door slightly forwards at the top and then lift the door off the bottom hinge.

MICROWAVE (where fitted)

Certain model caravans are fitted with the Sharp Microwave Oven for usage instructions please refer to the Sharp Operational Manual and Cookbook. We would however draw your attention to the following important safety instruction and information.

IMPORTANT SAFETY INSTRUCTIONS

Please read carefully and keep for future use.

Oven use:

- The oven is for domestic food use only.
- Never operate the oven when empty.
- Do not leave or store anything inside the oven when not in use.
- Never attempt to use the oven with the door open. It is important not to force or tamper with the door safety latches.
- Never operate the oven with any object caught in the door.
- Do not insert fingers or objects in the holes of the door latches or air-vent openings as this may damage the oven and cause an electric shock.
- If water or food drops inside the air vent openings switch off the oven immediately, unplug it and call a

SHARP approved service facility.

WARNING: Never allow children to use the oven without adult supervision.

WARNING: Liquids and other foods must be heated in sealed containers since they are liable to explode. Microwave heating of beverages can result in delayed eruptive boiling, therefore care has to be taken when handling the container. Stir the liquid prior to and during heating/reheating, let liquid stand for at least 20 seconds in the oven after cooking.

FIRE: If smoke is observed, switch off and unplug the appliance and keep the door closed in order to stifle any flames.

HOW YOUR OVEN WORKS

Microwaves are energy waves, similar to those used for TV and radio signals.

Electrical energy is converted into microwave energy, which is directed into the oven cavity via a waveguide. To prevent food and grease entering the waveguide it is protected by the waveguide cover.

Microwaves cannot pass through metal, because of this the oven cavity is made of metal and there is a fine metal mesh on the door. During cooking the microwaves bounce off the sides of the oven cavity at random.

Microwaves will pass through certain materials, such as glass and plastic, to heat the food.

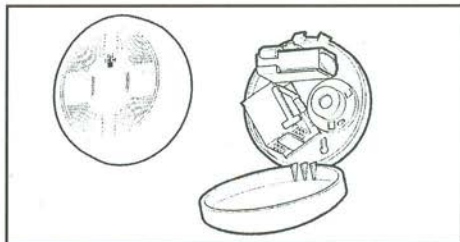
Water, sugar and fat in food absorb microwaves which cause them to vibrate. This creates heat by friction, in the same way your hands get warm when you rub them together.

Once cooking is complete the oven automatically stops producing microwaves.

Standing time is necessary after cooking as it enables the heat to disperse equally throughout the food.

SMOKE ALARM

The smoke alarm fitted to your caravan is approved for use in caravans and motor homes. The National Caravan Council (NCC) requires that all new or used touring caravans sold by its members be fitted with a smoke alarm featuring an alarm silence facility.



WARNING

Test smoke alarm operation after caravan 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 the manufacturer's literature contained in the Owner's Information Pack.

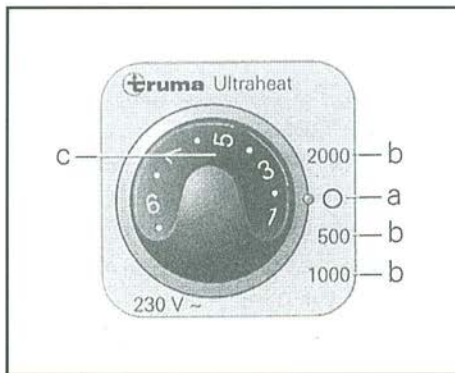
SPACE HEATER

TRUMA ULTRAHEAT - OPERATING INSTRUCTIONS

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

Control Panel with thermostat

- a = Rotary switch "Off"
- b = Rotary switch "On"
power setting:
500 - 1000 - 2000 W
- c = Rotary control knob for room temperature
(illuminated by green indicator lamp "operation")



SWITCHING ON

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

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

1. To switch on, turn the rotary switch to the desired output level (b).
2. Set rotary control knob (c) to the desired room temperature.

With the electric ultraheat the room temperature is measured by a remote sensor situated over the entrance door.

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

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

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

IMPORTANT OPERATING NOTES

1. **Repairs may only be carried out by an expert.**
2. The heater's hot air outlet should under no circumstances be blocked. Never hang clothes or similar in front of, or, on top of the heater to dry. This could cause serious damage to the heater as a result of overheating. Do not place inflammable materials near the heater! Please observe these instructions for your own safety.
3. When operating a brand new heater for the first time (or after it has been idle for a lengthy period) you may temporary 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 not-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 ~, 50 Hz
Power consumption at	
Power setting:	500 W: 2,2 A
	1000 W: 4,5 A
	2000 W: 8,5 A
Weight:	approx. 2 kg

WARNING!

Heater surfaces become hot in use and the guard provided does not give full protection to the young or elderly.

WARNING!

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

ATTENTION

Temperature sensing may be affected if the sensor is covered or obstructed.

TRUMATIC S 3002P
S 3002
S 5002

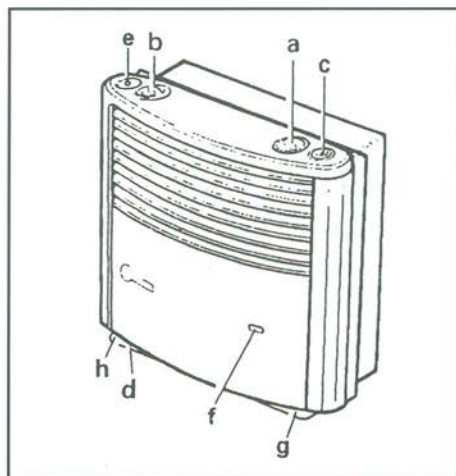
OPERATING INSTRUCTIONS

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

The installer or vehicle owner must affix the yellow sticker with warning information enclosed with the appliance to a place in the vehicle where it is clearly visible to all users (e.g. on the wardrobe door)!

Ask Truma to send you a sticker if necessary.

- a = Control knob (Thermostat)
- b = Integrated control switch for the Trumavent fan TEB
- c = Pressure igniter
(model Trumatic S 3002 P)
- d = Automatic ignition device with battery compartment
(model Trumatic S 3002/S 5002)
- e = Remote ignition display
(special accessory)



f = Window to check flame

g = Thermostat sensor

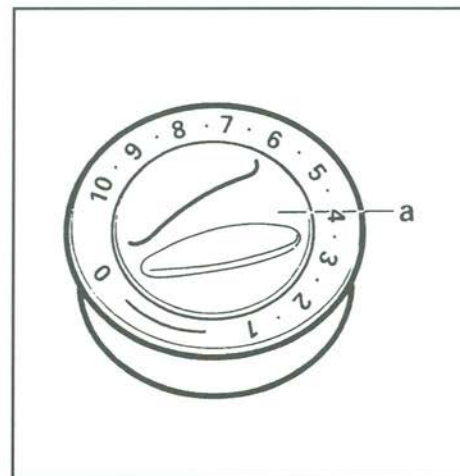
h = Name plate

(remove cover)

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

Taking into operation with the pressure igniter (S 3002 P only)

1. Turn on gas cylinder and open supply valve in the gas supply line.
2. Turn control knob (a) to thermostat



setting 1 - 10 and press it down as far as the stop. At the same time keep operating the igniter button rapidly until the flame ignites.

3. Keep the control knob pressed down for a further 10 seconds to allow the safety pilot to operate.
4. Observe through the inspection window for a further 10 seconds so as to check that the flame has not been extinguished due to air in the line (caused by a change of gas cylinder).

Attention: Always wait at least 2 minutes before attempting to

re-ignite, otherwise there is a risk of blowback (misfiring)! This also applies if a working heater goes out and has to be re-lit.

If air has got into the gas line, it may take up to two minutes before gas is available for combustion. During this period, the operating handle should be kept pressed down and the igniter button constantly actuated until the flame appears.

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.

Note: The Trumatic S 3002 P heating system (with igniter button) is designed in such a way that the subsequent installation of an automatic igniter can be carried out with no problem at all (ZAS additional fitting set, Art No. 30010-29200).

Taking into operation with the automatic igniter (S3002/S 5002)

Before using the heater for the first time, ensure that a battery has been inserted (see "Changing the Batteries").

1. Turn on gas cylinder and open supply valve in the gas supply line.

2. Turn control knob (a) 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 for a further 10 seconds to allow the safety pilot to operate.

Attention: In the event of a fault always wait 2 minutes before attempting to reignite!

If the flame goes out again, re-ignition occurs 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 (a) is switched to "O".

If there is air in the gas supply line, it can take up to two minutes until there is gas available for combustion. During this time hold the control knob down until the flame lights.

3. To ensure even and rapid warm air distribution and lower surface temperatures on the heating unit, we recommend operating the heater with a Trumavent warm air system.

ROOM THERMOSTAT

To maintain an average room

temperature of about 22°C we recommend a thermostat setting of **3 - 5 with the fan off, or 4 - 8 with the fan on.**

The exact thermostat setting must be determined in each case, depending on how much heat is needed and the design of your vehicle.

Note: The thermostat probe for gas operation 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 be sure to avoid problems of this kind, otherwise satisfactory temperature control cannot be guaranteed.

Switching Off

Turn the control switch to "O" (the automatic ignition will switch off at the same time).

If the unit is not used for a relatively long period of time, close off the supply valve on the gas pipe and gas bottle.

IMPORTANT OPERATING NOTES

1. Underfloor combustion air intakes must be kept clear of dirt and snow slush.
2. Before switching on the heater in

winter, clear all snow from the roof cowl.

3. If the heater is repeatedly blown out in very windy parking spots, or when used in winter, we recommend the SKV cowl extension kit (Art. No. 30690-00) which can be screwed onto the cowl shaft when required but must be dismantled before driving the vehicle.
4. Inspect the exhaust duct and all connections at regular intervals and always in the event of blowback (misfire). It is essential for the exhaust duct to be installed so that it slopes upwards over its whole length and is secured with several clamps. Never place any object on the exhaust duct, since this could result in damage. The exhaust duct connection to both the heater and the cowl must be firm and well sealed. It is no longer permissible to operate heaters with incorrectly fitted or damaged exhaust ducts!
5. Never allow the warm air outlet on the heater to be obstructed in any way. The heater casing becomes hot in use and care should be taken especially with the young and elderly. For instance never place hand 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.

General safety notes

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

- extinguish all naked flames!
- do not smoke!
- switch off all appliances!
- shut off the gas cylinder!
- open windows and doors!
- do not actuate any electrical switches
- have the entire system checked by an expert!

REPAIRS MAY ONLY BE CARRIED OUT BY AN EXPERT.

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

1. 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.

2. **The operating pressure for the gas supply is 30 mbar and must correspond to the operating pressure of the appliance (see name plate).**

The vehicle owner (operator) is responsible for arranging the inspection.

3. In other countries, the appropriate regulations must be observed. For your own safety it is absolutely necessary to have the complete gas installation and appliance checked by an expert regularly (at least every two years).
4. Do not operate the appliance when refuelling the vehicle and when in the garage.
5. When a brand-new unit is first used (or when the unit is used after a relatively long break), it may give off a little smoke and slight smell. If this happens we recommend running the unit on full power, ensuring that the room is well

ventilated.

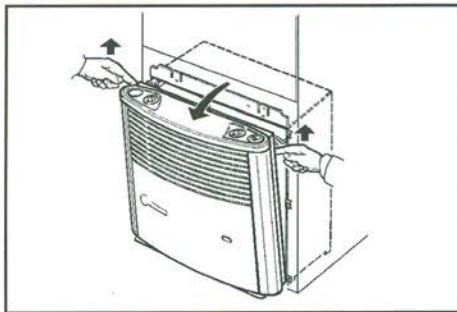
6. If the burner makes an unusual noise or if the flame lifts off while burning, it is likely that the regulator is faulty and it is essential to have it checked.

Servicing

In the event of a fault contact your dealer in the first instance

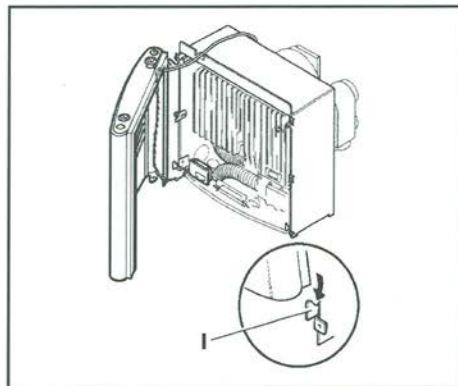
1. Removing The Heater Cover

Remove retaining screw through grill. Pull the cover forward at the top, lift up the retaining springs and fold out cover forwards. (If space is limited, lift the cover upwards and forwards, lift until the cover is released, then remove it).



Move the cover to one side so that any connection cables which might be present (e.g. for the igniter button

and the hot air fan, do not have to be unplugged.



For assembly, place the cover on the lower retaining lugs (1). Guide the operating bar from below into the handle sleeve and allow the cover to engage at the top.

S 3002 (P) only: Press the operating handle into position from above in such a way that the arrow points to the "O" position.

2. Cleaning (Only When The Unit Is Switched Off)

It is recommended that at least once a year, before the start of the heating season, the dust should be removed which may have collected on the heat exchanger, the base-plate and

the fan wheel of the TrumaVent hot air system. Clean the fan wheel carefully with a dusting brush or small paintbrush.

Technical data

Type of gas: Liquid gas
(propane/butane)

Operating pressure: 30 mbar

Rated thermal output:
S 3002 (P): 30 - 280 g/h

Operating voltage: 1.5 V

Power consumption: 50 mA (ignition)
0.01 mA (monitoring)

Weight:
S 3002 (P): 9.8 kg (without fan)

TRUMAVENT

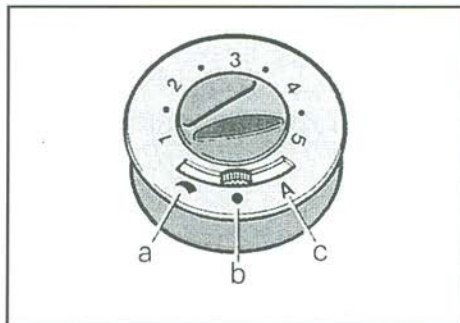
FAN FOR WARM AIR DISTRIBUTION AND VENTILATION.

24 Months guarantee as specified in the Truma manufacturer declaration of warranty.

OPERATING INSTRUCTIONS

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 12 V -

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).

c = Automatic operation (Heating).

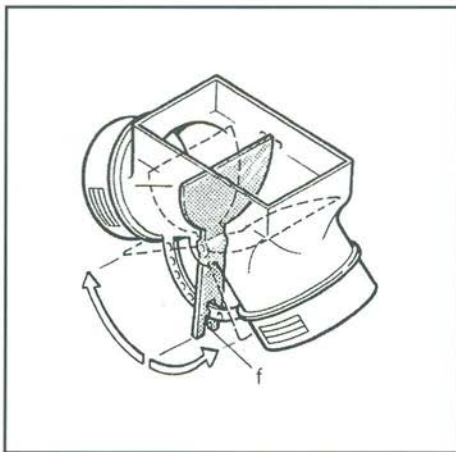
The output steadily adjusts to the respective heat emission of the heater. The maximum output can be limited at the control knob as required. The regulating between this value and slow running is carried out automatically.

TECHNICAL DATA

Power supply: 12 V -

Power consumption: 0.3 to 1.0 A

Airflow rate: up to 180.00 litres/h (with fan duct UR dia. 65mm) up to 205.00 litres/h (with fan duct VR dia. 72 mm)

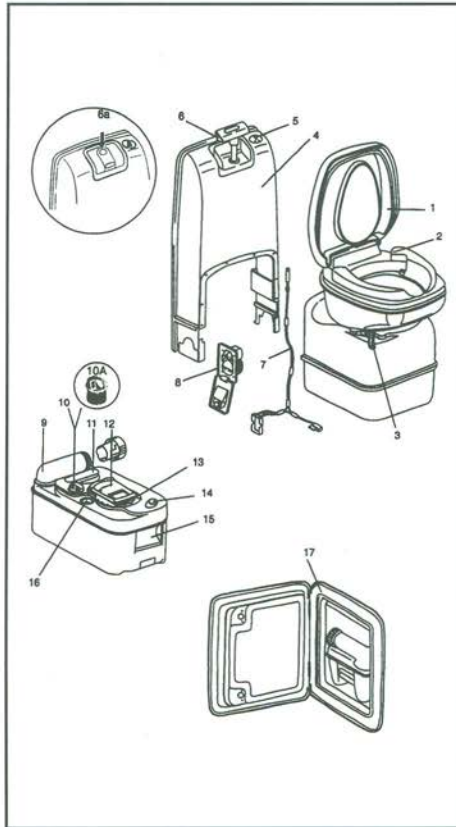


WARM AIR DISTRIBUTION

The quantity of air can be individually adjusted at the air flap, for warm air distribution. In centre position 50 % of the warm air is distributed to each outlet.

Note: If the air output drops or the operating noise increases, the fan impeller wheel may be severely soiled. (clean with appliance switched off!); We recommend removing dust which has collected on the heat exchanger and base plate of the heater and on the impeller wheel of the TrumaVent fan, once a year before the heating season starts. Clean the impeller wheel carefully using a brush or toothbrush.

THETFORD CASSETTE TOILET C-200 CW/CWE



Features

1. Removable seat and cover.
2. Rotatable bowl.
3. Valve blade handle: opens and closes valve blade.
4. Water tank.
5. Waste level indicator: indicates when holding tank requires emptying.
6. Flush handle: activates the flush by lifting and pushing down the handle.
- 6a. Flush button: activates the flush by pressing this button.
7. Power supply for the waste level indicator: two batteries, type penlite 1.5V AA alkaline (C-200 CW).
8. Waterfill door: locks from outside the caravan.
9. Rotating pour-out spout: makes emptying holding tank easy and convenient.
10. Automatic holding tank vent: vents the holding tank when the tank is inserted in the toilet. This prevents overpressure in the holding tank.
- 10a. Automatic holding tank vent:

vents the holding tank to the outside when the tank is inserted in the toilet. This prevents overpressure in the holding tank.

11. Upper carrying handles: makes carrying and emptying easy.
12. Sliding cover: opens and closes automatically by sliding the holding tank in and out.
13. Valve blade/blade seal.
14. Vent button: vents the holding tank to avoid splashing while emptying.
15. Hand grip.
16. Valve blade opener.
17. Access door: locks from outside caravan.

Thetford Cassette C-200 CW/CWE is a quality product made by the world's market leader in mobile sanitation systems.

The Thetford Cassette C-200 CW/CWE incorporates functionality and modern styling with home-like features, making it aesthetically compatible with the caravan bathroom decor. The Thetford Cassette C-200 CW/CWE is constructed of high quality plastics for durability and has a high gloss finish that is easy to clean and maintain.

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

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

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

The model identification can be found on the identification label.

Preparing For Use

1. Open access door pull retaining clip upwards.
2. Remove holding tank by pulling straight out. When holding tank hits the stop, tilt front end downwards slightly and remove.
3. Position tank vertically and swivel

pour-out spout upwards.

4. Remove dosage cap of pour-out spout. Add required amount of toilet fluid in the dosage cup. Add approx. 2 litres of water through the spout to cover holding tank bottom. Replace cap and return pour-out spout in original stored position.

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

Caution: Never add toilet fluid directly into toilet bowl.

5. Slide holding tank into position through access door.
6. Make sure the holding tank is secured by the retaining clip.
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 water tank with fresh water using a jerry can or a hose. Tank capacity C200 CW is 7 litres, tank capacity C200 CWE is 8.3 litres.

OPERATION

8. Turn the bowl into most comfortable position.
9. Before using the toilet it is recommended to flush some water in the bowl by lifting and pressing down the flush handle/pressing the flush button.
10. After use open the blade by pushing the blade-handle anti clockwise.
11. To flush, lift the flush handle and press it down or press the flush button. After flushing, close the blade by turning the blade handle clockwise. The toilet may also be used with the valve blade open, which allows the waste to pass directly into the holding tank.

Emptying The Holding Tank

The holding tank capacity is approximately 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 the access door and remove the holding tank. The holding tank can only be removed when the valve blade is closed.
13. Carry the holding tank to a normal household type toilet or other authorised disposal point. Place the holding tank in vertical position and rotate pour-out spout upwards.
14. Remove the spout cap. Grasp unit by upper carrying handle nearest to pour-out spout. Place the other hand on upper rear handgrip so that vent button can be depressed with the thumb while emptying. This ensures a smooth outflow of the tank contents.

Note: Only depress the vent button when pour-out spout is pointed downwards. Rinse holding tank with clean water. For preparing for use again, see steps 1 to 7.

Winterising/Storage

The Thetford Cassette C-200 CW/CWE is easily winterised for storage.

Empty remaining fresh water into the bowl by activating the flush handle up and down (C-200 CW) or by pressing the flush button (C-200 CWE).

Once pump has been cleared and water flow has stopped completely,

release into waste tank. Remove waste tank and empty contents in normal way

To evacuate any remaining water from the fresh water tank, place a container underneath the drain plug and remove drain plug.

When procedure has been completed replace drain plug and waste holding tank. Clean the seals and oil 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 oil 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 non-toxic 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.

C200S/CS/CW/CWE

Cleaning and Maintenance

Maintenance advice for the seal, blade and other areas of a Thetford toilet.

We advise that when cleaning the seal and blade you use Thetford bathroom cleaner and rinse with water. Alternatively use a luke warm solution of diluted washing-up liquid. Never use household cleaners as they could cause irreversible damage to the seal and other toilet parts.

Dry the seal and blade thoroughly. We recommend spraying the seal economically with Thetford Maintenance Spray, which will ensure a smooth operation of the blade, protects the seal and prevents adhesion between the blade and seal. Alternatively olive oil can be used. No other vegetable oils or vaseline should be used as they may cause problems.

Repeat the operation if the seal/blade is dirty or if the opening/closing of the blade is getting more difficult. When putting the toilet into storage or not

using for a long period (i.e. winter), then the seal should be kept clean and lubricated.

The blade of the toilet should also be left open as this prevents the seal from sticking to the blade and smell of the holding tank.

The rest of the toilet can be safely and effectively cleaned with Thetford bathroom cleaner. On parts where rinsing is not practical, use a damp cloth, then wipe dry with a soft piece of fabric or duster for extra shine. Alternatively use a lukewarm solution of washing-up liquid.

We advise draining the fresh water tank prior to travelling. Antifreeze should not be required if the caravan is heated.

If you do wish to use anti-freeze, brands containing the following substances may be used in the fresh water tank:

- Mono-propylene glycol
- Ethylene glycol
- Mono-ethylene glycol
- Propane-diol
- Glycerol
- Ethane-diol
- Glycol

Never use alcohol based antifreeze, i.e. Methanol, Ethanol and Iso-propanol.

THETFORD WARRANTY

1. The Thetford Cassette toilet is guaranteed to the original buyer for three years from the date of purchase.
2. The warranty covers replacement of parts arising from defects and from the inability of the unit to perform its intended function.
3. In case of defect, apply to the original dealer or Thetford Service Centre with proof of purchase.
4. Defects, which 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 the product has been altered to a non-standard toilet by unqualified persons, or if the serial number and/or date had/have been changed by hand.
5. Should the original buyer wish to return to us parts believed to be defective, the parts should be sent prepaid. If the parts are found defective and covered by warranty, they will be repaired and returned together with the

transport costs.

6. Before returning products or parts, they should be properly cleaned in order to carry out inspection and repair. When products or parts are not cleaned as mentioned, they will be returned.
7. No other warranty is given and no personal representative is authorised to make any warranty or assume liability by words or action under any warranty other than that is contained herein. This new warranty supersedes all other previously issued warranties.

TROUBLE SHOOTING (PROBLEMS-SOLUTIONS)

1. Holding tank overfilled.

Do not remove holding tank.

Open valve blade and leave blade open.

Open access door on outside of vehicle. Rotate pour-out spout outward. Place appropriate size container under pour-out spout. Remove spout cap carefully. Allow holding tank contents to drain into container. This will lower the level in the bowl. Replace cap and return pour out spout to stored position. Do not remove holding tank. Close valve blade first. Now holding tank may be

removed.

2. Odours.

Use the proper amount of holding tank toilet fluid specified on the bottle.

3. No flush.

Check if there is enough water in the fresh water tank. If this is the case and the toilet doesn't flush please contact your caravan dealer.

4. Blade cannot be opened manually.

When there is an over-pressure in the holding tank (which can be caused if the holding tank has been removed from the toilet for a longer time, inactivating the automatic vent) the blade may be pressed against the holding tank upper. To depressurise the tank, open access door and swivel out the pour-out spout. Slowly remove the cap of the spout. Check also if the blade has stuck to the lipseal. Lubricate blade.

5. Holding tank cannot be removed.

Check if valve blade is in closed position. Check if retaining clip is moving freely.

Caution: Never force insertion or removal of holding tank. This can cause severe damage to the toilet system.

6. Major unit malfunction.

Contact your dealer.

AIR CONDITIONING

BLIZZARD 1500 AIR CONDITIONING UNIT

Please note this is only available as a factory fit on Laser models. It cannot be fitted to any other model range either at the factory or by the dealer. Additionally if it is not fitted on a Laser at the factory it cannot be fitted by the dealer.

How to use the air conditioner.

The air conditioner performance can be improved by taking some simple measures.

- Improve the thermal insulation of the vehicle by closing any openings and by covering any glazed surfaces with reflecting curtains.
- Avoid opening windows and doors unnecessarily.
- Select the most suitable temperature and speed.
- Properly direct the air flaps.

To prevent trouble and minimise risks for people, take the following precautions:

- always wait some minutes (at least 3) before attempting to turn the air conditioner back on after turning off, to prevent damage to the

compressor:

- do not obstruct the air inlets and outlets with cloths, paper or other objects;
- do not introduce your hands or other objects into the openings;
- do not spray the air conditioner with

water;

- keep flammable substances away from the air conditioner.

Adjusting the air direction

Position the flaps to direct the air to the desired position.

WARNING!

Never place your hands or other objects within the air inlet openings.

MAINTENANCE

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

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.

N.B. 18 degrees centigrade is the minimum temperature that the thermostat is set to for the air conditioner to start its cycle.

Description of controls



Main Switch ON - OFF

Position air conditioner ON.

Position air conditioner OFF.



Warm/Cold dual-switch

Warm-Cold

Position warm air

Position fresh air



Thermostat

Air temperature (18°C+40°C)

By rotating the knob clockwise, temperature increases (max 40°C)

By rotating the knob anti-clockwise, temperature is reduced (18°C)



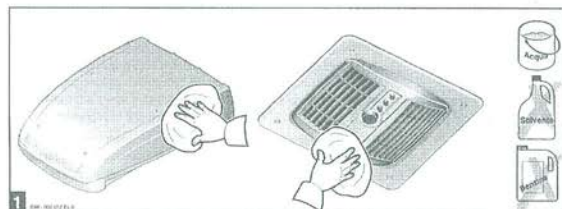
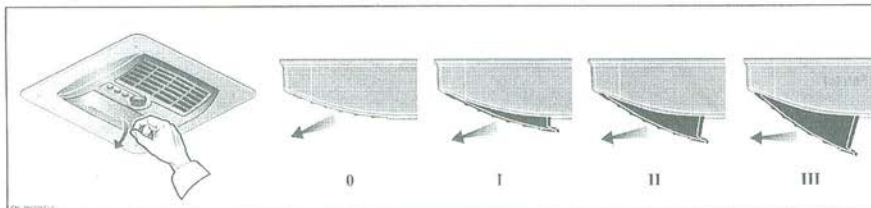
Fan Switch

Air Speed

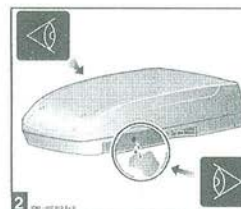
Position low speed

Position high speed

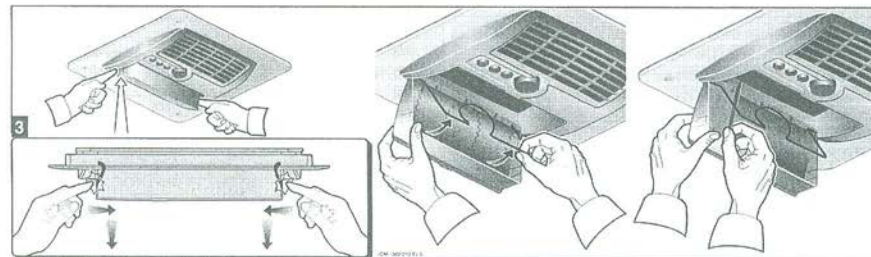
Ordinary Maintenance



Cleaning: periodically clean the air conditioner and remove dust with a damp cloth. When necessary, use a mild detergent. Do not use petrol or solvents.



Checks: regularly check the air conditioner and make sure that the water outlet holes are not clogged.



Filter cleaning: periodically carry out this operation; wash the filter with a detergent solution and allow to dry before refitting.

ROOF LIGHTS

When opening the roof lights, care must be taken to release the locking mechanism as the unit is raised.

Roof lights must be fully closed when towing.

When closed roof lights still provide fixed ventilation.

Roof lights provide a maximum 11,500mm of fixed ventilation each.

WINDOWS

All opening windows have two catch positions. The first position is for ventilation, the second seals the window from ventilation and rain.

NOTE: If your caravan is fitted with flat fitting Seitz windows. The window catch is fitted with a security button and **to open the window this button needs to be pressed in before the catch can be turned.**

THE OMNIVENT 12VOLT ROOFLIGHT FAN

Use Rooflight

- Close the lid before driving/
- To take away the roller blind, unscrew and click the frame off at the side of the knob.

Use of the Ventilator

- The ventilator is started by the soft switch S2. The middle LED light lights up and the ventilator starts in comfort mode, this is the lowest speed (extract) See Fig 1.
- By pushing on the switch S1 (extract) or S3 (intake), the airflow can be adjusted in 6 steps. See table 2.

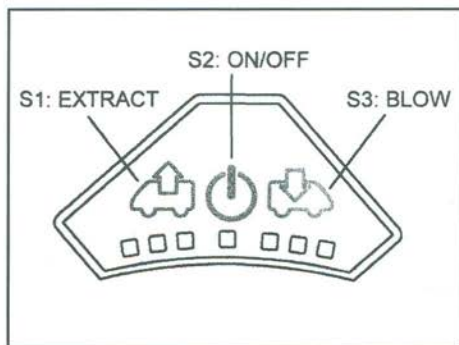


Fig. 1

*MIN = 3,7 m³/min. (2W - 0,17 A)

*MAX = 24m³/min. (86 W - 7,20 A)

- In order to save the battery, the speed drops from position 6 to the lowest position after one hour of use.

- It is possible to allow the ventilator to work for 5 minutes on the highest speed (boost). To do this push for 3 seconds on the button S1 (extraction) or S2 (intake). After 5 minutes the ventilator returns to its previous speed setting. (See table in Fig 3.)



































- For reasons of security, the ventilator stops when the tension is too high (19,5v) or too low (11,1v) or when the fan is blocked. For trouble shooting see Fig 4.

MAINTENANCE

The ventilator grid can be removed for cleaning. Also the mosquito screens can be taken out for cleaning.

The rooflight is only waterproof in the direction of the traffic. When transporting the caravan in the opposite direction or when the back of the caravan is up, ensure the dome is watertight by using the 'Lock-unlock' (not supplied on a ventilator version) or by using something that ensures that the dome remains closed when being transported.

Table 2

PUSH BUTTONS	LIGHTS	SPEED	Ampère	Watt
	■ ■ ■ ■ ■ ■ ■ ■	0	0,2 mA	2,4 mW
1x 	■ ■ ■  ■ ■ ■ ■	1 	0,17 A	2 W
1x  + 1x 	■ ■ ■  ■ ■ ■ ■	2 	0,40 A	5 W
1x  + 2x 	■  ■ ■ ■ ■	3 	0,90 A	11 W
1x  + 3x 	■  ■ ■ ■ ■	4 	1,55 A	20 W
1x  + 4x 	 ■ ■ ■ ■	5 	3,20 A	40 W
1x  + 5x 	 ■ ■ ■ ■	6 	7,20 A	86 W
1x  + 5x  + 1x 	 ■ ■ ■ ■	5 		
1x  + 5x  + 2x 	■  ■ ■ ■ ■	4 		
... ..				
1x 	■ ■ ■ ■ ■ ■ ■ ■	0	0,2 mA	2,4 mW



















PUSH BUTTONS	LIGHTS	SPEED	Ampère	Watt
	■ ■ ■ ■ ■ ■ ■ ■	0	0,2 mA	2,4 mW
1x 	■ ■ ■  ■ ■ ■ ■	1 	0,17 A	2 W
1x  + 1x 	■ ■ ■  ■ ■ ■ ■	0	15 mA	0,2 W
1x  + 2x 	■ ■ ■  ■ ■ ■ ■	1 	0,17 A	2 W
1x  + 3x 	■ ■ ■  ■ ■ ■ ■	2 	0,40 A	5 W
1x  + 4x 	■ ■ ■  ■ ■ ■ ■	3 	0,90 A	11 W
... ..				

Fig 3

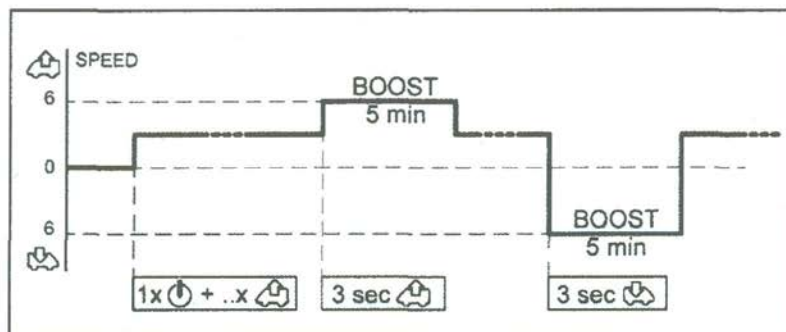


Fig.4

TROUBLE SHOOTING

FLASHING LED's	PROBLEM
■ ■ ■ ✱ ■ ■ ■	or Tension < 11,1 V or Tension > 19,5V
✱ ■ ■ ■ ■ ■ ✱	Motor blocked
■ ■ ✱ ■ ✱ ■ ■	Motor not connected

THE HEKI 2 ROOFLIGHT

The Heki 2 roof lights provide a maximum of 13,200mm of fixed ventilation.

1. To open to the tilted position:

- a) Press the button in the toggle catches on either side of the dome and turn through approx. 90°.
- b) Grasp the metal bar in the middle, snap it out of its holder, swivel down and push the dome upwards.

(Dome is held by the two gas springs after approx. 150mm).

- c) Swivel the metal bar towards the dome and snap into its holder.
- d) To close the dome, proceed with steps (a-c) in reverse order.

2. To open in the intermediate position:

- a) Open the toggle catches on either side of the dome.
- b) Grasp the metal bar in the middle, snap it out of its holder, swivel down and push the dome outwards.

(Dome is opened automatically by the two gas springs after approx. 150mm)

- c) Open both black fasteners and swivel the metal bar toward the intermediate position and pull the

dome down until the metal bar is stopped by the fasteners.

- d) To close, proceed with steps (a-d) in reverse order.

3. To open in the ventilation position:

- a) Open the toggle catches on either side of the dome.
- b) Using both hands on the two toggle catches, press the dome up about 2cm and fasten the toggle catches in the corresponding setting.
- c) To close, proceed with steps (a-b) in reverse order.

4. Closing the blinds:

- a) Pull blind across aperture using finger grip in the bar. Engage with plastic clip on the other side of the aperture.

CAUTION: In extremely bright sunshine, the blackout blind must only be closed two-thirds, and the pane must be set in the intermediate position.

- b) Select the required position (black-out/flyscreen) by moving both joined end rods together.

5. Opening the blinds:

- a) Move blind (end rod with rocker)

right to the outside.

- b) Hold the recessed grip with one hand; with the other hand, press the rocker and move the blind back (do not let it recoil).
- Suitable for a max. of 100km/h (62.5mph) (with Seitz spoiler up to 130km/h (81mph)).
 - Do not stand on the acrylic glass dome.
 - Close HEKI 2 completely before moving off.
 - Do not leave your caravan when HEKI 2 is open.
 - Please consult your supplying dealer if you have any problems or defects.
 - Remove any snow/ice or dirt before opening the roof.

Care Instructions

Clean the acrylic (glass) pane only with Seitz acrylic cleaner or soap suds and plenty of water.

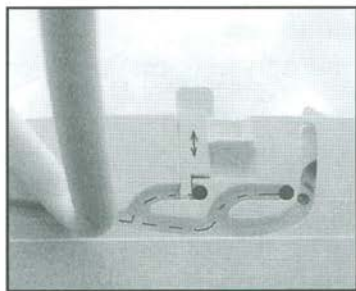
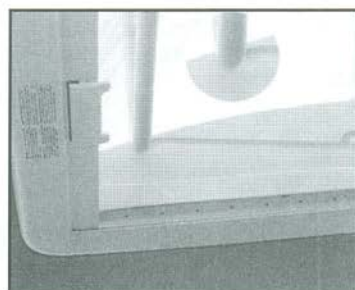
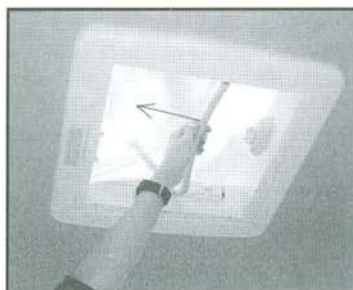
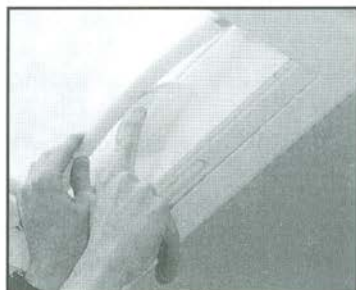
Use talcum to care for the rubber seals.

Only use water and mild soap suds to clean the blinds.

The guarantee becomes null and void if these instructions are not followed.

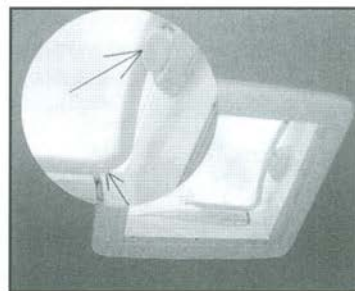
MINI HEKI ROOFLIGHT

The Mini Heki Rooflight will provide a maximum of 7500 mm² of fixed ventilation.



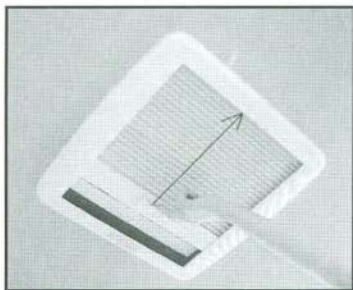
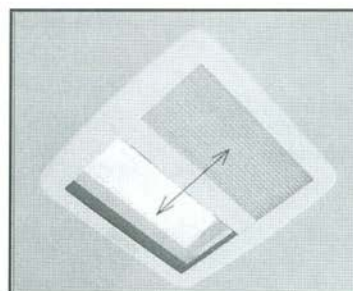
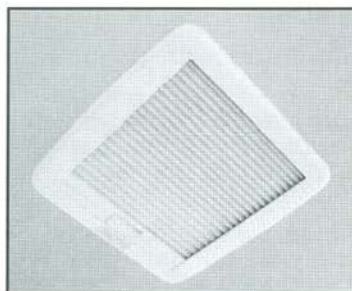
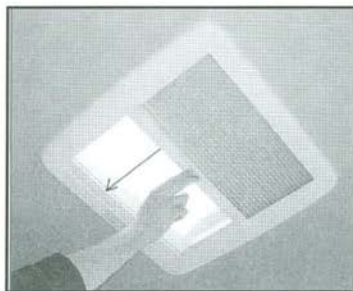
Intermediate position of the dome:

By pushing the bar into the marked rest positions (two extra opening angles, apart from the one in which the dome is fully opened, can be chosen. The intermediate position can be fixed with a slide.



Safety precautions:

1. Repairs should be carried out only by trained personnel.
2. Inform an approved dealer in case of defects and malfunctions.
3. Before starting off, check the rooflight for damage in the dome (tension cracks) and the opening mechanism which could arise owing to, for example, branches and other natural causes.
4. Do not step on the dome.
5. Close the rooflight before starting off (check whether it is locked).
6. Do not leave the vehicle with the rooflight open (danger of burglary).
7. Do not open in strong wind or rain.
8. Before opening, remove snow, ice, dirt, etc. from the dome.
9. Malfunctions are to be repaired by an approved dealer at once.
10. Do not use caustic detergents (danger of tension cracks in the dome).
11. Before setting off close the dome, check the locking mechanism and open the blinds.

**Opening/closing the blind and fly-net:**

Closing. Pull the end rod (without the catch/blind) from the recessed part and engage it with the opposite end rod with the catch.

Opening. Push the united end rods until the blind is fully extended. Press the catch and guide the blind with the other hand back to its original position in the frame. (do not let the blind recoil)

Care instructions

- Clean the dome with the Seitz acrylic cleaner.
- Opaque spots and light scratches on the dome can be removed with the Seitz Acrylic Polish and the Seitz special polishing cloth.
- Use talcum powder regularly (four times yearly) to care for the rubber seals supplied with versions without permanent ventilation.
- Clean the blinds only with water and mild suds.

The guarantee becomes null and void if the care and safety instructions are not followed.

WINDOW BLINDS

Pull blind down by its centre catch. Do not pull down by one side of the blind. This will inevitably lead to problems. Do not allow blinds to spring back freely. Always control them by hand.

FLYSCREENS

To operate the flyscreen, either pull the screen fully down or fully up, dependant on type of window fitted. To release - if a cross bar is fitted, gently pull the cross bar downwards towards you and allow the tension of the spring to roll up the flyscreen. Where a cross bar is not fitted,

disconnect from the blind catch and release gently.

It is recommended that blinds are in the open position whilst the caravan is moving.

Winterisation

The blind/flyscreen should not be left in the down position throughout the winter as the memory of the mechanism may be lost.

GAS BARBECUE POINT

Your caravan is fitted with a gas barbecue point.

The gas barbecue point, is situated on the nearside towards the front. This point is for use with a gas barbecue only.

Simply lift up the flap, unplug the red plastic end cap and connect the appliance in accordance with the gas barbecue manufacturer's instructions. Turn the gas supply valve on.

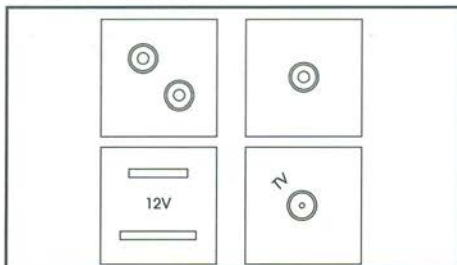
NOTE: The connection cannot be undone unless the gas supply valve is first turned off.

CAUTION! Do not use a gas barbecue inside the awning. ALWAYS use the appliance in the open air.

ENTERTAINMENT SYSTEMS

Your caravan is fitted with a Sony CD/MP3 or DVD/MP3 player. For instructions on how to set up and use this equipment, you should refer to the Sony Handbook you have received with your information pack. For service, warranty support and technical queries you should contact Base Systems at the number shown on page 113 of this handbook.

TV CONNECTIONS



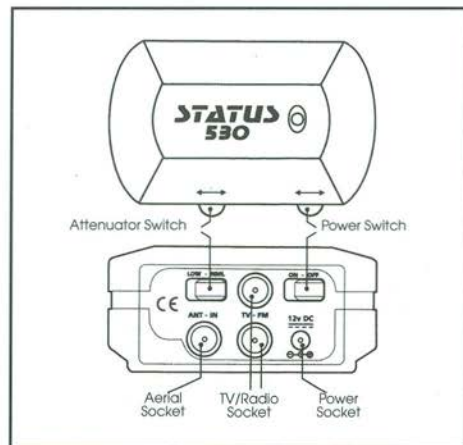
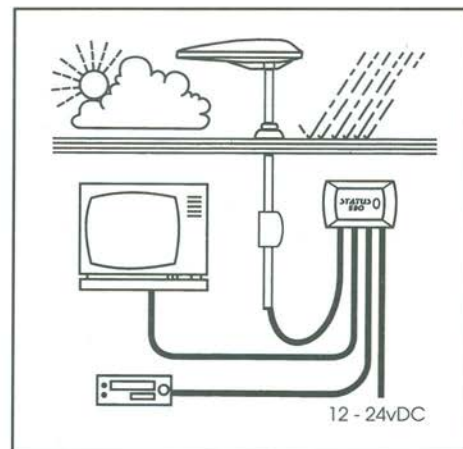
TV connections from CD player for connection to TV 12 volt supply + aerial connection.

VISION PLUS STATUS 530 DIRECTIONAL TV ANTENNA

Frequency Range	UHF 470-860 MHz VHF 40-230 MHz FM 88-108 MHz
Antenna Forward Gain	7db
Amplifier Gain	18 db*
Gain Adjustment	15 db
Flatness	± 1.5 db
Noise Figure	3 db
Output Impedance	75 ohms
Output	98 dbuv
Power Supply	12-24 v DC
Power Consumption	35 ma
TV lead	2 metres

*Gain figures must not be judged in isolation. A greater figure does not mean a better picture. Status is designed for optimum performance.

Conforms to European Directive 89/336/EEC.



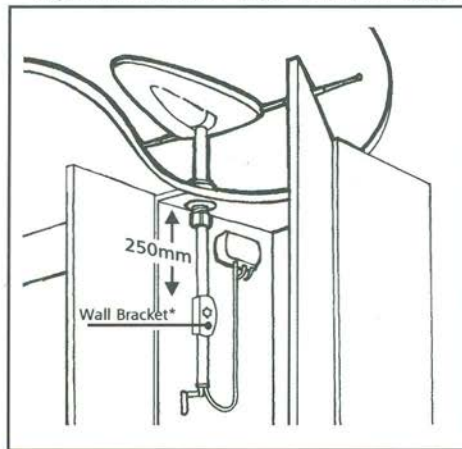
OPERATING THE SYSTEM

Firstly determine the approximate location of your nearest transmitter and whether the signals are horizontally or vertically polarised. For assistance ask your site operator or check other antennas in the vicinity.

1. Loosen the Mast Locking Collar and Wall Bracket* and raise the antenna. Turn the mast to direct the antenna towards the TV transmitter.

The RED spot on the bottom of the mast indicates the front of the antenna.

2. When receiving vertically polarised signals, rotate the winder anti-



clockwise to cant the antenna through 90° DO NOT overtighten or use undue force on the winder.

DO NOT overtighten or use undue force on the winder.

DO NOT scan for vertically polarised signals with the TELESCOPICS EXTENDED.

3. Switch ON the power pack and the red LED will illuminate.
4. Check the gain control switch is set to normal - NML
5. Tune your television into the strongest signal. You may need to adjust the direction of the mast to achieve the best picture quality.
6. Secure by tightening the Mast Locking Collar and wall bracket.

VHF TELEVISION RECEPTION (Overseas Only)

1. Extend the two telescopic antennas.
2. Tune your television into the strongest signal. You may need to adjust the direction of the antenna to achieve the best picture quality.
3. For fine tuning of VHF you may need to adjust the length of the telescopics.

IMPORTANT - VHF TV transmissions are ONLY horizontally polarised.

REMOVING THE ANTENNA

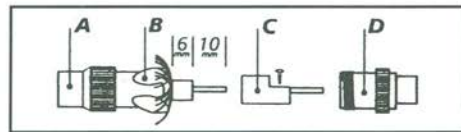
A permanently fitted Status can be easily removed leaving only the Mounting Foot and rubber gaiter.

1. Unplug the antenna from the power pack.
2. Loosen the Mast Locking Collar and Wall bracket and lift off whilst feeding out the mast and cable.
3. Push the Blanking Cap supplied into place.

IMPORTANT - The Blanking Cap is a temporary seal and is not recommended for long term use.

FAULT FINDING

The following are some of the key areas we suggest you check which generally solve the most common problems encountered with the operation of the Status antenna.



Coaxial Plugs

It is critical that all coaxial plugs in the system are fitted correctly. Using the diagram and procedure described above, please check each individual

plug ensuring it is wired correctly. Secondly please ensure only quality plugs have been used.

Coaxial Cable

Sharp bends, kinks and hot surfaces can easily damage coaxial cable and should be avoided. An inspection of the cable routing is recommended to ensure all is correct. Coaxial cable, if placed in close proximity to electrical cables, transformers or other pieces of electrical equipment, may pick up electrical interference causing picture quality to deteriorate, especially in poor reception areas. Excess cable should be removed and NOT coiled as this may cause picture distortion.

Pinnacle

The pinnacle is essential for the optimum performance of the antenna and therefore should be in place when the antenna is in use.

Gain Switch

Situated below the LED light on the Power Pack, this switch should be set to the normal 'NML' position (switch UP) for general use. The Low setting may be used when situated close to TV transmitters where strong signals may be affecting the quality of the picture. (See Interference 2).

Red LED Light

Should the red LED on the Power Pack not light, first try unplugging the cable connected to the Antenna Dome from the 'ANT-IN' socket. If the LED then illuminates the fault lies with either the coaxial plug or the coaxial cable, please refer to these areas described earlier.

If the LED is still not lit, contact your dealer.

Short Hook Up Test

This test isolates parts of your system leaving only the TV and the Status antenna linked directly together.

Firstly, unplug the coaxial plugs from the 'TV-FM' sockets of the Power Pack, which will be connected to a TV outlet socket.

With your TV fly lead, connect your TV direct to the Power Pack, plugging into one of the 'TV-FM' sockets.

Ensure the antenna dome is plugged directly into the 'ANT-IN' socket of the Power Pack and switch on. Tune in your TV for the strongest signal.

If the picture quality is improved the fault lies with the wiring of the system between the Power Pack and the TV outlet socket.

Antenna Dome Coaxial Cable

Check the routing of the coaxial

cable from the Antenna Dome to the Power Pack. Check to ensure there are no kinks or trapped cable or if there are loops of surplus cable which could be affecting performance.

When the Antenna Dome was originally fitted and lowered onto the Mounting Foot, cable may have been trapped or kinked under the Mounting Foot. To check, remove the Antenna Dome as described to see if this has occurred.

Interference Problems and Possible Remedies

1. **Weak TV Signal** - This produces a 'snowy picture which can be caused if you are far away from the TV station or if there is a building or hill between you and the station blocking the signal. Each TV station has a defined service area where the strength of the signal is adequate to give a good reception. Beyond this boundary of the service area is a 'fringe' area where the signal will be weaker thus giving a poor quality picture. The sound from the signal is not usually affected unless the signal is very weak.

Remedy - Check the gain control on the power pack is set to 'NML'. Check that your signal is not due to a broken or disconnected lead or

poor coaxial plug connections.

2. **Strong TV Signal** - This produces a herringbone pattern type of interference which is caused when you are close to a transmitter or picking up a strong radio transmission from another source.

Remedy - Switch the gain control on the power pack to 'LO'.

3. **Ghosting** - This is produced when the TV signal is reflecting from a building or landmark in your locality creating a double or 'ghost' image of the picture.

Remedy - If possible try to move to a better position away from the obstruction. Generally the higher the position, the better.

4. **Electrical Interference** - This type of interference is commonly caused by domestic electrical appliances, such as fans, electric shavers, fluorescent lights, inverters, chargers, etc.

Remedy - Turning off the offending appliance should help.

AS 210 MOBILE ALARM SYSTEM

- Remote controlled
- PIR movement detector
- Battery backup (up to 9 months)
- Adjustable tilt sensor
- Loud 110db siren with timer
- Auto reset

1. INTRODUCTION

Welcome to the AS210 mobile alarm system.

Using the latest microprocessor technology the AS210 provides all year round protection for your mobile home.

To ensure your alarm system is operated correctly, please read all sections of these instructions before attempting to operate the alarm system. If you are unsure of any content, please contact your supplier in the first instance or the manufacture direct (See section 6).

2. OPERATION

2.1 ARM/DISARM

The AS210 Alarm System is supplied with two key ring style radio controllers, which are used to control the alarm system. The system can be operated in

different modes as follows.

Standard Mode - Arm/Disarm

To fully arm the system with internal movement sensor and tilt sensor active, first exit the vehicle, then press and hold the key fob button until you hear a single long beep, then release the button.

Arm = Beeeep

To disarm the alarm system press and hold the key fob button until you hear two short beeps, then release the button.

Disarm = Beep Beep

Special Mode - Arm Disarm

(a) To arm the system with only the tilt sensor active, first exit the vehicle, then press and hold the key fob button until you hear a single long beep, continue holding the button until you hear a further single long beep then release the button.

Arm = Beeeep / Beeeep

(b) To arm the system with only the internal movement sensor active, first exit the vehicle, then press and hold the key fob button until you hear a single long beep, continue holding the button until you hear a further two long beeps, then release the button.

Arm = Beeeep / Beeeep Beeeep

To disarm the alarm system press and hold the key fob button until you hear two short beeps, then release the button.

Disarm = Beep Beep

Remember you must allow at least 60 seconds between arm and disarm otherwise the system may think you are selecting a special arm mode.

2.2 ALARM SIREN

When the alarm is triggered the siren will sound for 2 minutes. Following the 2 minute period the alarm will then deactivate for 15 seconds and then re-arm.

The alarm siren can be turned off at any point by pressing the key fob button. (see 2.1)

2.3 PIR INTERNAL MOVEMENT SENSOR

The AS210 alarm system comes complete with a 120° Passive Infra Red (PIR) internal movement sensor that detects body movement within the

vehicle.

If you are leaving pets within the vehicle the system should be armed in special mode (A) to prevent your pets from triggering the alarm.

Please be aware that direct sunlight onto the PIR lens, or extremes of temperature (above 30°C) may affect the operation of the detector. Always ensure roof light blinds are closed if sunlight could shine directly onto the PIR.

2.4 TILT SENSOR

The AS210 alarm system has an inbuilt tilt sensor that detects tilting of the vehicle during the hitching process. If the tilt sensor is not set correctly (i.e. pushed to front or back) and the alarm is armed, the siren will be triggered after a 5 second delay. To cancel the siren, press the key fob button (See 2.1) and then readjust the tilt sensor as follows:

During normal (on the flat) operation the tilt sensor adjustment lever should be left in the centre position (notched position).

If the vehicle is parked on a steep slope it may be necessary to adjust the tilt sensor. Firstly arm, and then disarm the alarm to activate the internal LED tilt indicator light. While viewing the slot adjacent to the

adjustment lever, move the lever forward until the light in the slot illuminates/flashes. Note the position of the lever.

Secondly, move the lever backwards and again note the position of the lever when the light in the slot illuminates/flashes. Now set the lever midway between the two positions.

Remember to return the lever to the centre 'notched' position when returning to 'on the flat' use.

Although not recommended in all cases as nuisance triggering can occur, the sensitivity of the tilt sensor can be increased by moving the tilt lever towards the rear of the vehicle. Move the lever slowly backwards until the tilt indicator light illuminates, then move the lever forward about 2mm.

3 KEY FOB CONTROLLERS

The AS210 alarm system comes complete with 2 key fob remote controllers. If additional controllers are required these can be ordered from your dealer.

3.1 KEY FOB BATTERY REPLACEMENT

- 1 Remove the key fob from your key ring.
- 2 Remove the single casing 'pozi-drive' screw.

- 3 Remove one half of the casing and remove the old battery.

- 4 Install the new battery (23A 12volt alkaline) ensuring the positive (+) terminal is located towards the (+) mark on the key fob circuit board. The coiled spring connection in the key fob is the battery negative (-) terminal.

- 5 Relocate the two casing halves and the casing screw.

- 6 Refit the key fob on your key ring.

- 7 Remember to dispose of old batteries in accordance with local regulations.

4. BATTERY

The AS210 alarm system incorporated a 3.3Ah sealed lead acid battery that is charged from the vehicle 12v supply. The battery has been selected to run the alarm in 'armed mode' without any external supply voltage for up to 9 months depending on ambient temperature/initial charge.

The battery is fully charged when the alarm system is dispatched, but may need further charging if the vehicle is stood for an number of months without any 12v supply to the alarm.

To charge the alarm battery either fit a fully charged leisure battery to the

vehicle or connect the vehicle to the mains supply and switch on the 12v charger/power supply. It may take up to 7 days to fully charge the battery.

The internal battery should be replaced approximately every 3 years to ensure correct operation. Replacement batteries can be ordered from your dealer. Always dispose of oil batteries in accordance with local regulations.

5 SPECIFICATION

5.1 CONTROL BOX

Supply voltage: 10.5 to 15v DC

Supply current: 250mA max 20mA typical

Operating temperature: -5 to +30°C

Battery capacity: 3.3Ah to 12v

Operating time (armed) with no external supply: 9 months at 20°C

Siren output: 110db \pm 10% @1M

Interface connector: Negative trigger in, Negative trigger out, System negative.

5.2 PIR MOVEMENT SENSOR

Range 120° x 6M

Current consumption armed: <1mA typical

5.3 KEY FOB CONTROLLER

Range: 6M typical

Battery: 23A 12-volt cell

Typical battery life: >1 year

6 SPARE PART/SERVICE

For spare parts, local supplier contact details or other service information please contact:

Sargent Electrical Services Ltd., service desk on 01482 678981 during normal office hours. Technical information is available at

www.sargentltd.co.uk/support

FIXING OF AWNINGS

In order to avoid puncturing the outer skin of the caravan wall, it is recommended that awning poles are fixed to your caravan using load spreading eyelet pads or rubber sucker pads.

Attaching awning brackets and associated fixings to your caravan by using mechanical methods which pierce the outer skin of the caravan wall can allow water ingress which will invalidate the product warranty.

Important:

Care must be taken when using an awning as poles and suckers can cause damage to exterior side panels.

Awnings should be taken down in strong winds to protect the side panels from cosmetic damage and dents from the awning poles.

Note:

Awnings should be kept ventilated when discharging products of combustion exhaust into them.

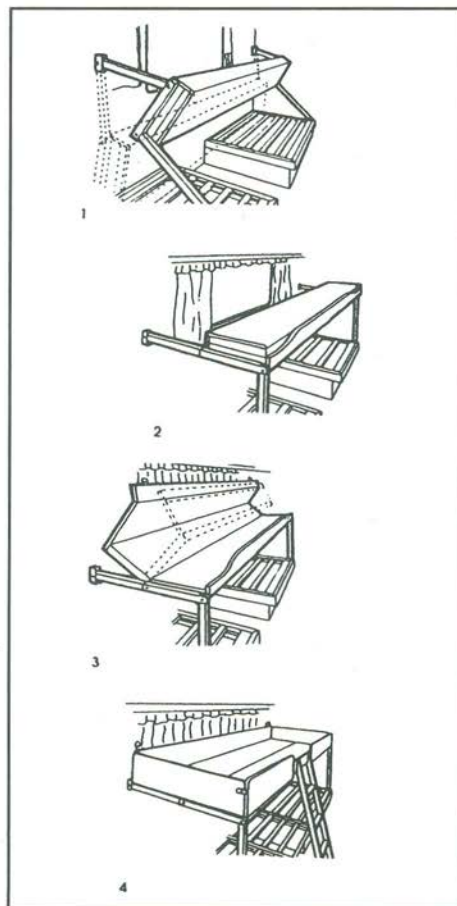
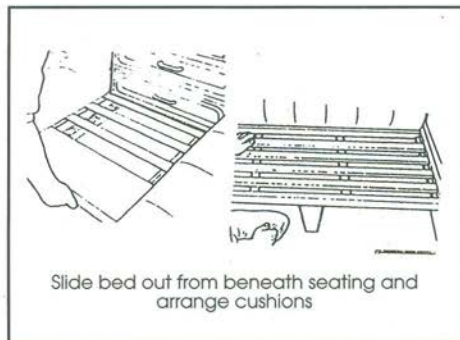
BEDS AND BUNKS

FRONT DOUBLE BED

The two front single beds can easily be converted into a double bed by pulling out the bed slats, stored beneath the chest of drawers stored in the bed slat box at the front of the caravan. Arrange the seat cushions appropriately.

On L-shaped layout, the bed frame is pulled out from underneath the rear-facing seat. Arrange the seat cushions appropriately.

All high level beds will take a maximum weight of 10 stone (63.5kg). When in use, the high level beds must have the bunk safety boards in place as shown in diagram 4.



WARNING:

When upper bunks are used by children, especially under the age of three, care must be taken against the risk of falling out.

CLEANING

This section of the guide is devoted to the care, cleaning and general preservation of your caravan in order to keep it in good condition.

Exterior

- Side walls of your caravan are finished in acrylic finished aluminium, which is extremely durable and easy to clean. It is recommended that a proprietary brand of vehicle shampoo with plenty of cold water is used.
- Do not use a pressure washer as this can disturb the mastic seals.
- An occasional polish with a good quality vehicle wax will help obtain a high gloss finish. Under no circumstances should an abrasive or harsh cleaner be used. Stubborn marks, such as tar, grease etc., can be removed by rubbing with a soft cloth dampened with white spirit.
- Plastic and ABS panels should be cleaned using water and a mild detergent.

Under no circumstances should alcohol spirit or solvent-based liquids be used on these items, as these substances will react with the material and cause visual damage.

Acrylic Windows

Your caravan 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. Alcohol spirit or solvent-based liquids must not be used on these items as they will react with the material and cause visual damage.**

Correct removal of scratches from acrylic panes is achieved by using a special polishing cloth and acrylic polishing paste. Light scratches and matt areas can be removed from acrylic by using the acrylic polishing paste and polishing cloth. Distribute the polishing paste on the pre-cleaned surface with the polishing cloth and polish gently in a circular motion for 3-5 minutes. Rinse with warm water. Do not use in strong sunshine. Correct antistatic treatment of the acrylic pane is achieved with an antistatic acrylic cleaner. The

acrylic cleaner prevents the static charging and with it the attraction of dust; it removes among other things, light stains and dust which clings loosely to the pane. Regular care with acrylic cleaner prevents the formation of a film of grime, which might be difficult to remove later, and renews constantly the antistatic effect. Spray the acrylic cleaner on the pane, with an unbroken movement wipe the surface with a fresh polishing cloth (for example: first vertically, then horizontally, but not in a circular motion!). Rub gently do not rub dry, leave to dry naturally. Do not use in strong sunshine. Thus the acrylic panes be enjoyed again.

It is a popular misconception that caravan windows are vacuum sealed. This is not the case.

The windows in a caravan can be susceptible to condensation if the temperature difference between inside and outside is changed quickly and dramatically, such as when a damp or cold caravan heats up quickly via a heater or the sun. This can be exaggerated particularly if the ventilation is not allowing the temperatures to balance.

The caravan window, unlike a glass window is not completely diffusion-proof, which means it is permeable to the water vapour contained in the air.

That is to say that water is initially absorbed from the air on the surface of the panes. The water molecules then penetrate by diffusion into the material itself and then end up on the inside of the pane. Here they are absorbed by the air trapped between the two panes. If the water vapour in the air surrounding the window is high enough, this procedure continues until the air in the window is completely saturated.

In view of the fact that the quantity of water vapour which can be absorbed by a volume of air decreases when the temperature falls, as soon as the temperature drops the water condenses at the coldest points of the window where it becomes visible as droplets. When the pane heats up again, the water evaporates. It is in fact still there but invisible. If the air around the window becomes very dry, then the diffusion procedure starts up again through the acrylic in the other direction. Most of the moisture disappears from the window. But it should be noted that the diffusion procedure through the window is relatively slow.

It is true condensation can be the result of window delamination but for a quantity of windows to delaminate on the same caravan would be extremely unlikely and the real test is

"do the windows eventually clear".

Condensation actually occurs when the humidity inside the caravan exceeds 60% and the ventilation is not sufficient. To help overcome this some of the following actions can be taken:

- Leave the rooflight open.
- Put windows onto night vent position.
- Leave doors between compartments open.
- Keep temperature at night to minimum.
- Increase ventilation above normal in inclement weather.

Interior Walls

Your caravan 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 good condition.

Furniture

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

Carpets, Upholstery and Curtains

- Do not use aerosol sprays as the propellant will permanently mark

cushions.

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 and Upholstery - check the manufacturer's label for care instructions.

DO NOT WASH CURTAINS AND DO NOT WASH OR DRY CLEAN CARPETS.

Leather Upholstery Option

As LEATHER is a 100% natural product, some variation in texture and grain may be evident on this item of furniture.

Care for Leather

Avoid exposing leather to direct sunlight for prolonged periods, and keep away from strong heat sources. Avoid your furniture getting damp and clean up spills immediately. Sharp objects could tear, scratch or score leather.

Cleaning

Once a month, wipe with a damp cloth and dry thoroughly with a towel. Once or twice a year (or as required) apply a leather cream as per the manufacturers' instructions to keep the leather supple.

Argent Stainless Steel Sink (where fitted)

Routine Cleaning

It is good practice to clean equipment immediately after use. Most deposits can be removed by washing with soap or mild detergent and hot water, followed by a clean water rinse and drying with a soft cloth to prevent water spotting. For more tenacious deposits a non-abrasive multi-purpose cream cleaner (such as CIF) may be used. This should be applied with a soft damp cloth followed by a clean water rinse and drying. Stubborn dirt and grease may require the use of nylon scouring pad (such as Scotchbrite), in conjunction with the multi-purpose cream cleaner.

Oil, grease and fingerprints can generally be removed with a soap/water solution but a hydrocarbon solvent may be required.

Care must be taken to use the proper safety precautions if using solvents. Fingerprints, on the glass lid, can be eliminated with a glass cleaner. Removal of the excess cleaner with a soft cloth leaves a protective film from which fingerprints can be wiped.

Tannin (Tea) Stains

Tannin stains can be removed using a hot solution of sodium carbonate

(washing soda) and water, alternatively, the solution can be applied with a soft cloth/sponge. This treatment should be followed by a clean water rinse to remove any residues and drying with a soft cloth.

Heat Tinting and Discoloration

Heavy oxidation is unlikely to occur during normal usage. If heat tinting does occur, slight abrasion of the surface will be required and the type of cleaner will depend upon the original finish of the component. A highly polished surface will require the use of a proprietary stainless steel polish but slight scratching may occur during the polishing treatment. If the finish is directional, as in a ground, brush or dull polish, then a nylon scouring pad/cloth in conjunction with the multi-purpose cream cleaner can be used.

Scratches

Scratching will be most noticeable on highly polished components, in particular the drainer area of sinks where hard objects are likely to be placed during normal household use. These marks are usually only superficial and can be removed with a proprietary stainless steel cleaner/polish. A useful alternative is a car paint restorer, such as 'T-Cut'.

Rust Marks

Under normal usage, it is unlikely that these marks will be caused by rusting of the stainless steel itself, but are more likely to be the result of small particles of "ordinary steel" which have become attached to the surface and subsequently rusted. These brown marks are usually only superficial stains and can be removed by using a soft damp cloth and multi-purpose cream cleaner. Occasionally, it may be necessary to resort to a proprietary stainless steel cleaner, to return the surface to its original condition.

CAUTIONS

- i) Cleaning agents containing sodium hypochlorite (bleach) should not be left in contact with stainless steel. This includes many of the new "trigger-dispense" cleaning products and some multi-purpose cream cleaners. If bleach is necessary, it should be used only in the strengths prescribed by the manufacturer and never left in contact with the surface for longer than 30 minutes, after which the stainless steel should be rinsed thoroughly with clean water.
- ii) On no account should "wire wool" pads be used (e.g. Brillo pads), unless they are made of stainless steel.

CARE OF YOUR CARAVAN

- iii) Harsh abrasives and scouring materials (such as VIM) should not be used for cleaning stainless steel as they will leave scratch marks in the surface and damage the appearance of the article. Likewise, do not use wire brushes, scrapers or contaminated scouring pads.
- iv) If the article has a directional polished grain, any cleaning with abrasives should be carried out along this grain and not across it.
- v) After use, always remove wet cleaning aids (such as cloths, pads, containers) from the surface, to avoid formation of water marks/stains.
- vi) Most domestic dishwashing liquids contain chlorides; if they are left in long-term contact with stainless steel, pitting corrosion may occur.
- vii) Silver Dip cleaners are particularly harmful as they contain strong acids which can very quickly cause discoloration and pitting. If this type of cleaner comes into contact with the surface of a stainless steel article, it should be rinsed off thoroughly with clean water.

Ovens

Only clean ovens with soap and water.

Shower Room and Wash Basin Fittings

Always put the cold water into the wash hand basin before adding the hot. Thermoplastic products such as basins and showers have an adequate but limited resistance to high temperature. 70°C normally should be considered the maximum temperature the products can withstand. Bear in mind the maximum comfortable for human skin is approximately 40°C!

The normal effect of overheating on plastics is distortion of the surface, although perhaps unsightly this does not generally affect the practical application of the product.

The best way to keep the surface clean is by regular conventional soap and water and clear rinsing in cold water. **For stubborn stains Thetford Bathroom Cleaner is recommended.** The use of any other cleaners may harm the product, cause premature failure and will invalidate the warranty.

Abrasive products should never be used and the same applies to solutions such as nail varnish remover (Acetone), linseed oil based products (such as putty), thinners, pine oil, etc. Thetford Bathroom Cleaner is available from most good Caravan Dealers.

Water Systems

The water systems, and in particular storage tanks, in caravans are susceptible to contamination by bacteria if care is not taken with their use and cleaning. The symptoms caused by bacterial contamination are not purely limited to gastrointestinal diseases, but may also manifest themselves as ear, nose, throat, eye or skin infections. It is therefore important that you carry out the following procedure prior to using the caravan each time, even if you boil or filter all water you use for drinking.

Containers

1. All water remaining in the container should be disposed of so that the container is empty.
2. The outside of the container should be thoroughly cleansed and washed down to remove any dirt, dust or other contaminant. Water at a suitably hot temperature containing an appropriate detergent is recommended for this purpose.
3. Water should be put into the container swirled round, then emptied out.
4. The container should then be totally filled with water containing an appropriate disinfectant/

sterilant solution and allowed to stand for the recommended contact time (e.g. Milton for 15 minutes).

5. The solution should be emptied from the container.
6. The opening of the container should be cleaned thoroughly with an appropriate pre-prepared wipe impregnated with a disinfectant/sterilant.
7. The container should be inverted whilst stored overnight (if possible).
8. The container must be filled with mains water only and mains water only should be used for the above cleaning procedure.
9. On no account should garden hoses be used to fill water tanks.

Systems

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

strength appears all taps/showers). Allow to stand for the recommended period of time.

4. Drain the system down completely, as 1.
5. Thoroughly clean the outside of all taps/connectors with a cloth soaked in the disinfectant/sterilant.
6. Flush the system through with clean drinking water until no traces of disinfectant/sterilant can be detected at any tap.
7. Replace the filter.

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

STORAGE

If the caravan 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 caravan inside and out as detailed in the previous section.

Drain off the water system. (See previous section).

Drain and sterilise the toilet. (See previous section).

Ensure all windows, roof lights and doors are correctly fastened and locked. Check fixed ventilation apertures are not obstructed.

Ensure that the alarm PIR's view of the caravan interior is clear and not obscured by items stored on the floor.

Check that the site you have chosen to store the caravan is open, fairly high and dry and if possible not exposed to gales etc. If this proves impossible it is recommended that the caravan chassis is anchored to the ground.

Jack up the caravan (use bottle or screw jack, do NOT use the corner steadies) so that the wheels are clear of the ground. Support the caravan axle with wooden blocks, axle stands or similar so that when the jacks are removed the wheels remain clear of the ground. Lower the corner steadies to 'just' site the caravan. Cover the tyres to prevent deterioration. Release the handbrake. Rotate the wheels at regular intervals to maintain wheel-bearing lubrication. Grease the over-run and shroud in a waterproof protective cover. Grease must not be used if an AKS or similar stabiliser is fitted.

Switch off 12 volt supply.

CARE OF YOUR CARAVAN

SECURITY: Lowering and locking the corner steadies and removing the wheels reduces the risk of caravan theft.

NOTE: Do not work under the caravan unless the corner steadies are down and the axle is supported.

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

NOTE: Caravans stored for any length of time should not have the handbrake applied. Ideally the wheels should be removed and the caravan placed on winter wheels and the handbrake released. The hitch head should be checked to see that it is fully extended and that there is no load on the braking system.

AL-KO GALVANISED CHASSIS

Hot dip galvanising offers high corrosion protection by forming a barrier layer through reaction with the atmosphere. This will be apparent by the chassis members changing to a light grey colour. During winter periods or storage where there is insufficient air circulation or heavy moisture, a soft porous, light grey oxidation layer may form. This is known as 'White Rust' and should NOT be confused with rust

COUPLING HEAD DESCRIPTION

The coupling head is designed to engage automatically with the international 50mm towing ball recommended by the following: British Standards Institution, National Caravan Council and Society of Motor Manufacturers and Traders, ISO.

Coupling heads should never be drilled

OPERATION

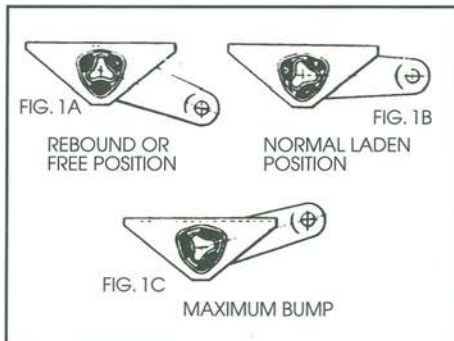
All coupling head types are designated for one hand operation. Coupling heads are now fitted with a coupling head indicator. When the tow ball is seated correctly the red button of the indicator will pop out showing a green shank.

The trailer towing ball coupling of the chassis has been type tested; the

maximum support load at the coupling point must not be exceeded. Vertical static load must not exceed 100kg. If the vertical static load on the towing ball, specified by the towing vehicle, is less than 100kg, then this weight must not be exceeded.

THE AXLE (Fig 1)

The AL-KO rubber suspension axle has been designed for new standards of spring comfort and is maintenance free.



Three rubber elements are contained within a hexagonal axle tube. These provide suspension and have inherent damping characteristics.

Figures 1(A), (B) and (C) show the deformation of the rubber elements at the extremes of suspension movement.

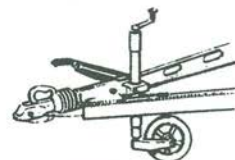
The axle is designed to ride with the suspension drop arm at, or slightly below, the horizontal position.

SUSPENSION SHOCK ABSORBERS

All AL-KO chassis have pre-punched holes to accommodate shock absorbers, in front of the axle. On the Euro-Axle-System, axle swing arms have a welded bracket or removable rectangular plastic cap exposing a slot to accommodate retrofit brackets for the Octagon Shock Absorbers.

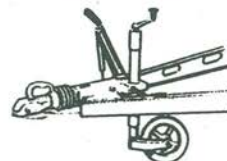
OPERATION OF BRAKING SYSTEM (Figs 2 and 3)

FIG. 2



'OFF' POSITION

FIG. 3



'ON' POSITION

FORWARD BREAKING

In the free position, with the handbrake fully forward in the OFF position, the drawshaft of the overrun device is fully extended and the shoes are clear of the drum.

As the towing vehicle brakes, or starts to drive downhill, the drawshaft of the overrun device is depressed toward the unit being towed. This action imparts linear motion to the main shaft of the overrun device which is transmitted via the overrun lever, brake rod and Bowden cable to the expanding clutch. This mechanism forces the leading brake shoe and, by reaction, the trailing shoe outwards into contact with the drum.

Friction between the brake shoes and the drum creates a tendency for both shoes and the expanding clutch to move in the direction of forward rotation until they abut the adjuster box. This ensures that both shoes remain in the braking position.

REVERSING

When the towing vehicle reverses, the drawshaft is pushed backward, moving the overrunning device through its full travel. This movement is transmitted in the normal manner to the expanding clutch.

The clutch forces both shoes into

contact with the drum. Initial friction between these creates a tendency for the shoes and the expanding clutch to move in the direction of the wheel rotation i.e. reverse. This movement imparts pressure to the spring-loaded auto-reverse lever, causing it to collapse. Thus, friction between the shoes and drum is almost eliminated, allowing the trailer to reverse in concert with the towing unit.

Slight forward movement of the chassis will allow the coiled spring to reassert itself, enabling the reverse lever to recover to its normal position. Normal braking is then immediately available.

PARKING

The AL-KO parking brake system incorporates a patented device for added safety when parking on a reverse-sloping site or steep hill.

The AL-KO parking brake system comprises a handbrake lever mechanism actuating a Bowden cable, which operates a brake unit assembly, contained within the wheel hub.

AL-KO's unique parking brake system requires a source of stored energy to lock the wheel brakes should the trailer start to move after it has been uncoupled from the towing unit.

This energy source is provided by a

spring cylinder acting as an energy store.

SPRING CYLINDER TYPE

DESCRIPTION

A spring cylinder is attached to the link between the handbrake lever and the central brake rod. Full application of the handbrake lever compresses a steel spring inside the steel cylinder and energy is stored.

The action of the brake lever imparts motion to the brake rod, the Bowden cable and the expanding clutch. This mechanism forces both shoes into contact with the drum.

At this stage, the brake unit is latent, the mechanism waiting to see in which direction the trailer will start to move.

If the trailer starts to move backwards, the stored energy in the spring will be released. The trailing brake shoe together with the expanding clutch will tend to move in the direction of rotation (reverse) and abut against the stop. Thus the trailer is braked.

However, if the handbrake has not fully applied (ie lever vertical) then problems will almost certainly arise after the trailer has been uncoupled from the towing unit.

If the trailer is parked on a reverse slope or if it is pushed backwards, then the brake mechanism will act as though the trailer is being reversed by the towing unit. The shoes and expanding clutch will tend to move with the direction of rotation reverse which imparts pressure to the spring-loaded reverse lever, causing it to collapse. Thus, friction between the shoes and the drum is almost eliminated and the trailer will run away.

OPERATING THE HANDBRAKE

Some people find it difficult to set the handbrake lever to its full vertical position without a great deal of physical effort. However, AL-KO have designed their systems so that the average user need not do so.

For successful parking on a reverse slope or steep hill, the operator need only apply the handbrake with one hand while gently but purposefully inching the caravan or trailer a small distance backwards with the other.

The user must supply this small but essential backward movement to ensure that the fulcrum of the transmission lever moves past the point of reverse, thus preventing the lever from collapsing, as it would normally do when reversing.

Most users will find it easier to stand facing the towing unit while applying the handbrake and at the same time gently push the caravan an inch or two backwards with their posterior.

Important points to remember

- It is absolutely vital that the slight backwards push of the caravan or trailer is applied before it is uncoupled from the towing unit.
- It is also important to check that the brake has in fact operated correctly as soon as the caravan has been uncoupled.
- If the caravan or trailer is to be parked on a steep slope or on loose slippery surfaces, it is advisable to chock the wheels.
- Where possible, always ensure that the handbrake lever is in the fully vertical position.
- When the handbrake has been applied it is possible for the caravan or trailer to roll back as much as 25cm before the full force of the brake takes effect.

WHEELS AND TYRES

WHEELS

The AL-KO chassis is supported on road wheels fitted with pneumatic tyres. The size of wheel and type fitted to the

chassis is dependent upon the load to be towed.

Each chassis is provided with an adjustable jockey wheel, which is clamped inboard directly to the overrun device. The jockey wheel provides stabilisation and is fitted with a solid tyre.

SPARE WHEEL CHASSIS MOUNTED

Each Coachman caravan has an ALKO spare wheel carrier mounted on the chassis under the caravan.

The carrier is of extra strong, lightweight construction and is easy to operate. Detailed operating instructions are included under the heading 'Changing a Wheel' on page 24.

TYRES

Please refer to Technical Data Handbook for information regarding wheel and tyre sizes.

PRESSURES

It is customary for tyre manufacturers to mark tyres with load and inflation data. This information relates to the use of the tyre on cars. This is not the operating or maximum pressure when used on a caravan.

Please refer to the technical supplement for information regarding

tyre pressures.

It is dangerous to drive with under inflated tyres. The pressures (cold) recommended by the manufacturer should be adhered to.

Pressure checks, including those on the spare tyre, should be made with the tyres cold and using an accurate pressure gauge. The checks should be carried out before each journey and at regular intervals during storage.

TYRE WEAR AND DAMAGE

The legal requirements for tread depth on motor vehicles' tyres applies also to caravans. Similarly, it is not permitted to mix cross-ply and radial tyres on the same axle. A redundant tyre must be replaced by one of the same size and construction.

Wheels should be balanced and changed round occasionally to equal wear and prolong the life of the tyres. A tyre should be renewed if a blister, rupture or cut exposing the casing is detected. If the tyre has suffered violent impact (e.g. against a kerb), it should be examined by a specialist as soon as possible.

As from April 1987 the speed limit in the UK when towing a caravan was raised from 50mph to 60mph where permitted.

RECOMMENDED LUBRICANTS

Mobilgrease MP is recommended for all greasing routines. A good all-purpose oil is recommended for general use.

AL-KO EURO-AXLE

DESCRIPTION

Retaining the well-proven AL-KO Hexagonal rubber independent suspension, the specific features of the AL-KO Euro-Axle are:

- Bolted on wheel brakes
- Adjustable toe-in and camber (factory only)
- Strengthened stub axle Sealed for life bearing unit
- Retro-fit Octagon Shock Absorbers

In addition the backplate has a 'gold' coloured, zinc passivated finish.

All Euro-Axles can be positively identified by the axle date plate.

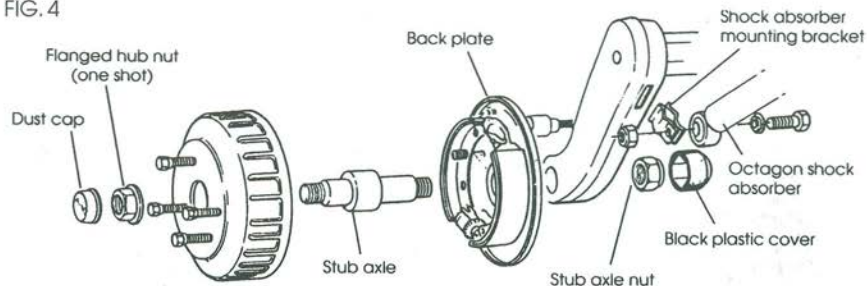
IMPORTANT NOTE

The toe-in and camber is factory set and must not be altered.

Braking System adjustment is identical for Euro-Axle as it was for previous axles (Fig. 5).

The flanged hub-nut, located under the dust cap, used to keep the brake drum insitu is a one-shot nut (i.e. Must only be used once). If removed it must be replaced with a NEW flanged nut-torqued to 290 ± 10 Nm, (214 ± 7.5 lbs/ft). A small amount of special mineral grease, available from AL-KO, must be applied to the stub axle

FIG. 4



thread prior to fitting the new flange nut. After fitting excess grease must be removed with white spirit. The special marking sealant available from AL-KO, is then applied to indicate the flanged nut has been correctly torqued.

The rear stub nut located under the black plastic cap **MUST NOT BE DISTURBED** under any circumstances. Interference with this nut in any way, will result in immediate tyre wear and damage to the braking system and **WILL INVALIDATE ALL WARRANTIES.**

Should the rear stub nut be accidentally disturbed then the complete axle must be returned to AL-KO for resetting of toe-in and camber.

The sealed for life double row angular contact ball bearing unit is maintenance free with a design life of

100,000 Km (62,000 miles). It is set in the hub with a pressure of 3.5 tonnes and retained by an expanding circlip. **NO ATTEMPT SHOULD BE MADE TO REMOVE THE BEARING.** In the event of damage to the bearing or drum, only the drum complete with bearing and circlip will be available as a spare.

No grease should be placed in the DUST cap. This is not a grease cap as used in all previous hubs.

NOTE: Both the flanged hub nut and rear stub nut are security marked on assembly.

Should the hub be removed and a new flanged hub nut used, it also must be security marked, after being correctly torqued, with the special marking sealant only available from AL-KO (Part Number 800 015).

AL-KO BRAKING SYSTEM ADJUSTMENT

1. Ensure the towing shaft with coupling head is pulled FULLY FORWARD, (Fig. 6)
2. Release the handbrake to the FULLY OFF position. If the handbrake will not go down the whole way because of an obstruction; then the obstruction must be removed to achieve this desired position. It will not be possible to set up the braking system properly when the handbrake is not in the FULLY OFF position. (Fig. 6).
3. Jack up one side of the caravan.
4. Remove the inner plastic bung from the backplate to expose the "starwheel" adjuster (Figs. 5 & 6).

FIG. 5

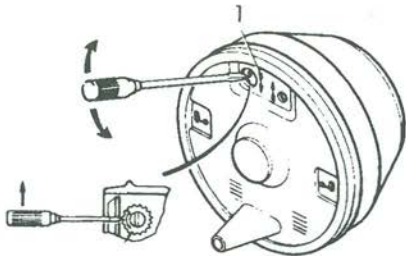
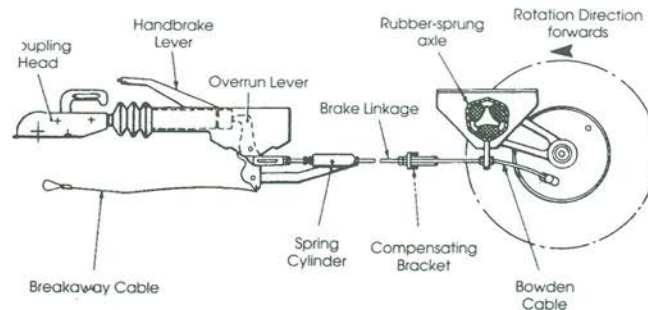


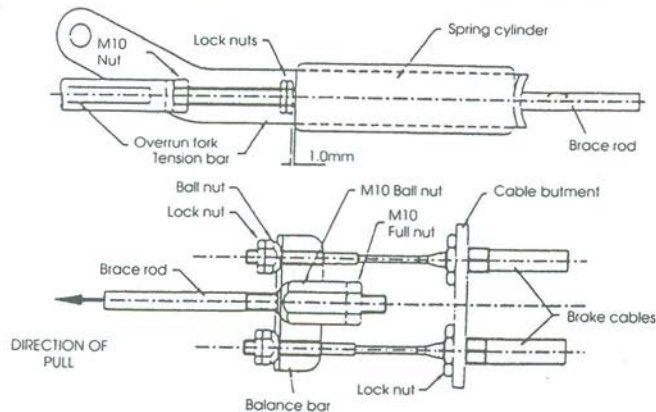
FIG. 6



□ MAINTENANCE - AL-KO LIGHTWEIGHT CHASSIS

5. ALWAYS rotating the road wheel in the forward direction - NEVER backwards adjust the starwheel with a suitable screwdriver, in the direction of the arrow embossed on the backplate until there is resistance in the wheel rotation. (Fig. 5)
6. Slacken off the starwheel adjuster until the road wheel turns freely in the FORWARD direction. (Fig. 5).
7. Check the adjustment at the end of the brake cable where it is secured to the abutment (bracket) welded to the centre of the axle. When the inner cable is pulled out it should extend between 5 and 8 mm. (Fig. 7). (On tandem axles a double adjustment is fitted to the front axle ONLY).
8. Repeat for other wheel or wheels.
9. On tandem axles the brake cables from the rear axle should pass over this axle and cross over each other before being connected to the adjustment on the front axle.
10. Ensure the balance bar (compensator) is being pulled evenly. This bar (double on tandem axles) should ALWAYS be parallel with the axle tube when pulled. (Figs. 6 & 7). Adjust M8 lock and ball nuts, if necessary, to achieve correct parallel position. (Fig. 7).
11. Check the brake rod support bracket, (fixed to the floor) IS supporting the brake rod evenly. The brake rod MUST ALWAYS run straight, NEVER bent or curved under any fittings. On tandem axles, using the double balance bar, a brake rod support tube (Part No. 228827) MUST ALWAYS be fitted on the end of the brake rod, passing through the centre aperture on the abutment.
12. Remove the slack in the brake rod by adjusting the long ball nut, rear of the balance bar, ensuring the overrun lever makes contact with the end of the towing shaft. If the overrun lever will not make contact, it is possible the two lock nuts, forward of the spring cylinder, are incorrectly adjusted. Loosen the nuts and adjust brake rod as above (Figs. 6 & 7).
13. Adjust the two locking nuts, forward of the spring cylinder (Fig. 6), (on some chassis a single Nyloc nut is used) to give 1mm of clearance on the spring cylinder. This cylinder (the energy store for the handbrake operation) must be able to rotate ONLY, not slide on the brake rod. (Fig. 8).
14. CORRECT ADJUSTMENT of the linkage is checked by operating the handbrake lever so that braking force is felt on the road wheels.
15. OVER ADJUSTMENT of either wheel brakes or linkages, will result in difficult reversing causing the wheels to "lockup".
16. When parking, the handbrake lever MUST ALWAYS be engaged into the fully upright position (90°). This is to compress the spring within the spring cylinder and thereby create an energy store, which will automatically engage the brakes further should the caravan move. If difficulty is experienced in this operation, try easing the caravan backwards with one hand while engaging the handbrake fully with the other. This manoeuvre should not be attempted on a rearward facing slope. In this case wheel chocks should be used combined with the handbrake. (Fig 9)
17. Finally, if the road wheels have been removed, re-tighten using a calibrated Torque Wrench to 88 Nm (65 lbs/ft) for steel wheels and 110 Nm (85lbs/ft) for alloy wheels-on all wheel bolts - in sequence, see Fig 10 for sequence. Remember to over-tighten is just as dangerous as to under-tighten, as

FIG. 7



Do not forget to give the caravan or trailer a slight rearward push to stop the reversing lever collapsing.

(c) Slacken off the wheel bolts on the wheel to be changed.

(d) Jack up the caravan with the jack under either the axle tube or the axle mounting plate.

Do not use the chassis member as a jacking point.

If there is lack of ground clearance because of a flat tyre, gently move the caravan onto some ramping boards.

(e) Support the weight of the caravan on axle stands or ramping boards.

this can distort the wheel rims.
Avoid the use of power wrenches.

IMPORTANT After re-fitting wheels - The torque settings should be re-checked after 30 miles. Wheel bolts should NEVER be lubricated.

CHANGING A WHEEL (Figs. 8, 9 and 10)

The corner steadies must not be used to jack up the caravan. They can be lowered to touch the ground only as a safety measure to stabilise the caravan.

(b) Apply the handbrake full as for parking.

FIG. 8

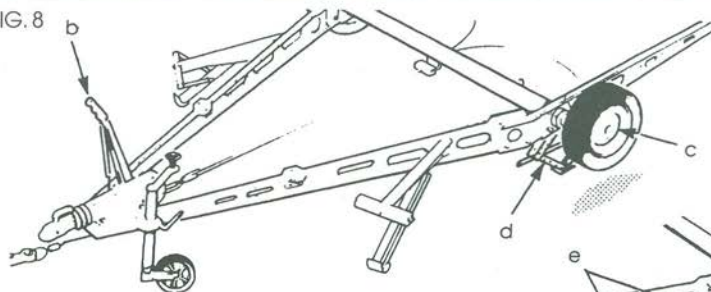


FIG. 9

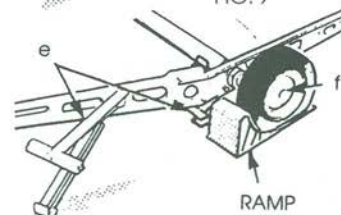
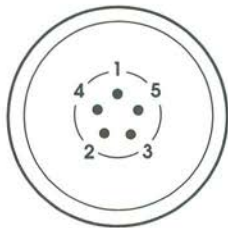


FIG. 10



Lower the corner steadies.

- (f) Remove the wheel bolts and remove the redundant wheel.

The spare wheel is located in the AL-KO spare wheel carrier situated just behind the axle. To remove it follow the instructions on pg24 (items 5 to 7)

Before fitting a new wheel, examine it for distortion or other damage. Ensure that all mating surfaces are clean and dry, including bolt seats.

ALWAYS USE THE CORRECT BOLTS TO SECURE THE WHEEL. THERE ARE UNIQUE BOLTS FOR ALLOY WHEELS AND UNDER NO CIRCUMSTANCES SHOULD ANY OTHER BOLTS BE USED WITH ALLOY WHEELS. Alloy wheel bolts are stamped with 10.9 and may be used with steel wheels.

A corner steady brace is not to be

used for the next step.

- Fit the new wheel and refit the wheel bolts.

After the bolts have been screwed in as far as possible by hand, each bolt should be tightened gradually in sequence. The wheels of the trailer will not rotate during tightening as they are held rigid by the wheel hub brake unit.

Using the AL-KO Combi brace or suitable socket wrench, sequentially tighten the wheel bolts to a torque of 88 Nm (65lb/ft) following the procedure shown in Fig. 10. Should alloy wheels be fitted, the wheel bolts need to be tightened to 110 Nm (85lb/ft).

- Raise the corner steadies. Take the weight of the caravan onto the jack and remove the axle stands or ramping boards.
- Lower the caravan to the ground.

The torque settings should be rechecked with a torque wrench after the first 30 miles of use, and before each major journey, or at least every 2000 miles.

JACKING

Under no circumstances should the corner steadies be used to jack up the

unit.

When it is necessary to jack up use the AL-KO jack if fitted, if not use a bottle, screw or scissor type jack with axle shaped head is recommended. Place the jack plate under the axle tube as near as possible to the main chassis member.

LUBRICATION (Fig. 11)

Lubricate the Jockey Wheel

Lightly oil the wheel axle and screw thread.

Lubricate the Brake Linkage

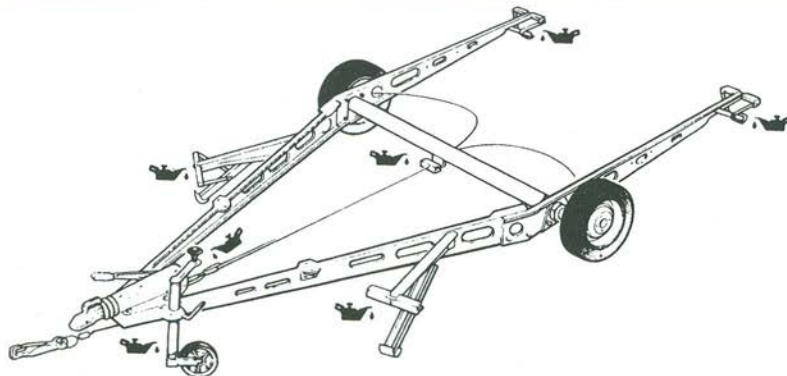
Lightly oil all moving parts.

Lubricate the Corner Steadies

Lightly oil the screw and pivot pins.

For more information concerning the chassis and undergear please refer to the AL-KO handbook contained within your document wallet.

FIG. 11



SERVICING

It is a condition of warranty that your caravan is serviced once a year by a competent Service Centre. Proof of this will be required in the event of a warranty claim.

The Coachman warranty does require that servicing must be carried out within 90 days either side of the anniversary of the purchase date for interim years but before the anniversary date on the final year and must include a full damp check.

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

Dealers will carry out your annual servicing using the latest techniques and equipment (a list of the items to be inspected, tested and adjusted appears in your Warranty and Service Handbook and at the rear of this guide), 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

caravan's resale value but in the unlikely event of any defect appearing at some later date it is vital that service history can be identified. We suggest service invoices are retained with this guide.

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

PARTS

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

MAINS ELECTRICS

It is recommended that you have your Mains Electric's System inspected by an NICEIC approved contractor every 3 years.

CUSTOMER SERVICES

Should you require any replacement parts for your caravan it is necessary that you contact the dealer from whom you purchased the caravan or any authorised dealer and give the following information, which will help in identifying the required component.

a) Model of caravan.

b) VIN number.

c) Description of fault plus sizes if cupboard doors, mirrors, windows wheels & tyres etc. are required.

ALL PARTS MUST BE ORDERED AND SUPPLIED THROUGH YOUR APPOINTED DEALER.

The dealer can then order them from the factory or direct from the supplier for appliances detailed overleaf where the original supplier undertakes warranty.

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

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

REPAIRS

Should you be unfortunate enough to suffer an accident with your caravan, you should contact your dealer.

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

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.

Coachman genuine parts and recommended procedures must be used at all times.

SERVICE DOCUMENTS

TOURING CARAVANS - ANNUAL SERVICE RECORD

Your caravan needs servicing at least once a year.

Whether you use your caravan for short journeys or for touring at home or abroad, regular servicing will help 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 caravan serviced to this standard annually.

The dealer will complete the record in your Warranty and Service Handbook to show the work has been carried out.

SECTION (A) CHASSIS

1. Brakes/Lights
2. Suspension
3. Axles and Hubs
4. Tyres and pressures
5. Wheel bolts
6. Towing hitch and overrun device
7. Jockey wheel
8. Breakaway cable
9. Corner steadies
10. Check wheel carrier and grease sliding joints
11. Lubrication
12. Operational check

SECTION (B) EXTERIOR

1. Exterior panels
2. Windows
3. Rooflights
4. Entrance door/Door Locks
5. Wheel boxes
6. Mouldings
7. Gas bottle and locker
8. Ventilation

9. Paintwork
10. All seals, mouldings etc.
11. Reflectors
12. Graphics

SECTION (C) INTERIOR

1. Wall panels
2. Furniture
3. Curtains/Blinds/Flyscreens
4. Bedding/seating
5. Carpet
6. Door and Drawers
7. All hinges and catches
8. Ventilation
9. Hoses and sink plugs
10. Hot water system
11. Cold water system
12. Window hinges and stays
13. Cassette Toilet
14. Shower
15. Shower Tray
16. Central Heating
17. Damp test

SECTION (D) ELECTRICAL

1. All interior lights/Road lights
2. Water pump and switches
3. Refrigerator
4. Distribution Unit
5. Charging Unit
6. Junction box
7. Wiring and supports
8. Trailer connecting plugs
9. Overall tests ext. lights
10. Awning light
11. Electronic Ignition (Hob)
12. 12v/230v System where applicable

SECTION (E) GAS INSTALLATION

1. Hob burners
2. Oven
3. Heater
4. Fridge
5. Water heating
6. Fully operational
7. Leak tested

SECTION (F) FINAL

Road Test

CARE WARRANTY

Your caravan is covered by a 5 year warranty. To activate this warranty your selling dealer must forward the signed and completed Registration Form contained in the Warranty and Service Handbook within one week of purchase. It is a condition of this warranty that a service and safety check is carried out by a competent service centre at least once every year (12 months from the date of purchase) within the period 90 days before to 90 days after the anniversary of the purchase date for interim years but **BEFORE THE ANNIVERSARY ON THE FINAL YEAR** in accordance with the National Caravan Council recommendations. For further information please read your policy documents in your Warranty and Service Handbook.

IF YOU HAVE A "WARRANTY" PROBLEM

We sincerely hope you will never have cause to complain about your caravan. 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 caravan is purchased is liable for warranty repairs.

Any other approved dealers may carry out work on a caravan at his/her own convenience or discretion, but is not obliged to do this.

Your caravan is supplied to you with a manufacturers warranty guarantee that is valid for five years from the date of purchase except when otherwise stated.

Please refer to your Warranty and Service Handbook for details.

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

You will need to retain proof of servicing (Invoices) in the event of a warranty claim.

SPECIFIC EXCLUSIONS

During the first year; tyres, bulbs, fluorescent tubes and fuses. Normal wear and tear.

- Proprietary products such as refrigerators, space heater, water heaters, ovens and audio equipment which are covered by the respective manufacturers own

guarantee and service arrangements. (See list on Page 113)

- The caravan is not covered if the manufacturers identification (vehicle identification number) of the caravan has been defaced or removed.

The warranty also excludes

- Failure due to reasons of fair wear and tear.
- Damage resulting from accidents.
- Misuse of any component.
- Replacement of parts which have reached the end of their effective working life because of age and/or usage.
- Cleaning or adjustment of any assemblies.

The warranty will be invalidated if the caravan has been neglected, misused or modified in any way without the prior agreement of Coachman Caravans.

The warranty also excludes.

- Caravans used for hire or reward.
- Caravans used for other than recreational purposed i.e. for living in or business purposes.

□ SERVICING

- The cost of transporting the caravan, by whatever means, to the place of repair.
- Any consequential cost or loss arising.
- Damage by mould.
- Damage by forces of nature.

For full details of the warranty refer to your Warranty and Service Handbook.

In years two three, four and five, the Warranty will cover all original components of the caravan including permanently fitted equipment forming part of the original manufacturer's specification plus water ingress and delamination. The specific exclusions of the Coachman Caravan Company Limited Warranty during years two three, four and five are tyres, battery, windows, paintwork, brightwork and all similar trim and finish, tables, hinges, knobs and handles, window catches, stays and associated fittings, adjustment of blinds, catches, stays and doors, replacement of bulbs, fluorescent tubes and electrical connection, entertainment/communications systems and connected equipment. Additionally proprietary products such as refrigerators, space heaters, water heaters, ovens, chassis and audio equipment which are covered by the

respective manufacturers' own guarantee and service arrangement are also excluded. (SEE LIST PAGE 113)

- The caravan is not covered if the manufacturers identification (vehicle identification number) of the caravan has been defaced or removed.

The warranty also excludes

- Failure due to reasons of fair wear and tear.
- Damage resulting from accidents.
- Misuse of any component.
- Replacement of parts which have reached the end of their effective working life because of age and/or usage.
- Cleaning or adjustment of any assemblies.

The warranty will be invalidated if the caravan has been neglected, misused or modified in any way without the prior agreement of Coachman Caravans. The caravan will be deemed to have been neglected if it has not been serviced and maintained as stated in the Warranty and Service Handbook.

The warranty also excludes.

- Caravans used for hire or reward.

- Caravans used for other than recreational purposes i.e. for living in or business purposes.

- The cost of transporting the caravan, by whatever means, to the place of repair.

- Any consequential cost or loss arising.

- Damage by mould.

- Damage by forces of nature.

For full details of the warranty refer to your Warranty and Service Handbook.

The remaining benefits of the Coachman 5 Year Warranty may be transferred to a new owner if the caravan is sold provided the caravan has been serviced by an Authorised Dealer in accordance with the requirements of the Warranty and Service Handbook and details of the change of ownership have been supplied to Coachman using the change of ownership form in the Warranty and Service Handbook.

IT IS A CONDITION OF YOUR WARRANTY THAT YOUR CARAVAN IS SERVICED ANNUALLY BY AN APPROVED COACHMAN DEALER OR A COMPETENT SERVICE CENTRE.

EQUIPMENT MANUFACTURERS HANDLING WARRANTY DIRECT WITH DEALERS

Appliance/Component	Company & Address	Telephone Number
Al-Ko Chassis, axle & undergear Hitch, Traction Control	Al-Ko Kober Ltd, South Warwickshire Business Park, Kineton Road, Southam, Warwickshire CV47 0AL.	01926 818500
CD/Radio/DVD/MP3	Sony-Base Systems, 36 Higher Eanan, Blackburn, Lancashire BB1 3AZ	0800 9173330
Cooker & Hob	Spinflo Ltd, 4-10 Welland Close, Parkwood Industrial Estate, Rutland Road, Sheffield S3 9QY	0114 2738157
Alarm	Sargent Electrical Systems Ltd, Unit 39 Tokenspire Business Park, Woodmansey, Beverley, HU17 0TB	01482 678981
Polyplastic Windows	Mirriad Products Ltd, 2000 Park Lane, Dove Valley Park, Foston, South Derbyshire DE65 5BG	01283 586060
Porta Potti Cassette Toilet	Thetford Ltd, Unit 19, Oakham Drive, Parkwood Industrial Estate Rutland Road, Sheffield. S3 9QX	0114 2738157
Power Centre/Chargers/Loom/ Relays/Consumer Unit/Control Panels	BCA Leisure Ltd, Unit H9 Premier Way, Lowfields Business Park, Elland HX5 9HF	01422 376977
Refrigerator	Thetford Ltd, Unit 19, Oakham Drive, Parkwood Industrial Estate Rutland Road, Sheffield. S3 9QX	0114 2738157
Shower Towers	Thompson Plastics (Hull) Ltd, Bridge Works, Hessle, Hull, HU13 0TP Plas-Tech Thermoforming, Catfoss Ind. Est., Catfoss Lane, Brandesburton, YO25 8EU	01482 646464 01964 544544
Soft Furnishings	Leisure Furnishings Ltd, Unit 4, Meadow Brooks Business Park, Meadow Lane, Long Eaton, Notts, NG10 2GD	01159 463666
Status Aerial	Grade UK, 8 Finch Close, Lenton Lane Ind. Est., Nottingham NG7 2NN	01159 867151
Ultra Heat Space Heater/ Ultrastore Water Heater/ Regulator/Ultra Flow Filter Housing /Compact Housing	Truma UK Ltd, Park Lane, Dove Valley Park, Foston, South Derbyshire DE65 5BG	01283 586060
Phantom Tracker	Phantom Ltd., 7A London Road South, Poynton, Cheshire SK12 1JX	0870 7777060

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