



User and Maintenance Manual

Dear Customer,

Congratulations on your purchase of a motor caravan manufactured by the "SEA" Group. We are confident your new "SEA" motor caravan will make your journeys easier and your stopovers more comfortable.

Purchasing a "SEA" vehicle means travelling, holidays and freedom. However, if you wish to enjoy all these benefits to the full, you should familiarise yourself with the features of your vehicle, so that you can use it to its full potential and maintain it in good condition.

Please read this User and Maintenance Manual carefully, together with the instructions and warnings provided by the manufacturers of all the appliances installed in the vehicle.

We recommend that you read the list on page 3, and to check that all the warranties have been properly attached to the User and Maintenance Manual.

Carefully follow and comply with all the instructions and warnings provided to enable you to travel in safety, make use of all the features we have designed into the vehicle and avoid any possible hazards for your passengers or damage to your vehicle.

Have a safe journey!



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N.B.: the photos throughout this manual are indicative only and non-binding.

2-year “SEA” warranty

The “Warranty Handbook”, an abstract of which is available below, is delivered to you together with your vehicle.

It contains all the identification data for your motor caravan, as well as the pre-delivery coupon prepared by you Dealer, in strict compliance with the control instructions provided by SEA Service.

You will also find a coupon you can use to obtain a free check within 6 months of the first registration of your vehicle, between 500 and 2,000 km, including an inspection schedule that will help you keep your motor caravan in perfect condition.

Therefore, we recommend that you have an annual service performed by your dealer, a dealer in the official network or a SEA Service’s authorised workshop, in order to keep your vehicle reliable, in good condition and to comply with the applicable contractual requirements of the warranties.

The last section of the “Warranty Handbook” deals with the notice of change of vehicle ownership.

Abstract from the Warranty Handbook

When your new vehicle was delivered, the Dealer gave you this “User and Maintenance Manual”, the “After-Sales Service and Warranty Handbook” and the user and maintenance manuals for all the appliances installed in your vehicle. We recommend that you make sure that the “Warranty Handbook” is duly filled-in and that both the “Warranty Certificate” and the “Pre-Delivery Coupon” have been sent to SEA Service.

Apart from passing the “Quality Control” tests when leaving “SEA” assembly lines, your new vehicle has been carefully inspected and tested by your Dealer in line with the contents of the pre-delivery control coupon in the handbook.

We recommend that you carefully read this User and Maintenance manual, to avoid and prevent any damage to the vehicle, injury to the passengers, and to allow you to enjoy unforgettable holidays.

“SEA” warranty and after-sales service

The services under warranty required by “SEA” vehicles are provided by “SEA” Dealers, whose updated list is available on the site www.sea-camper.com.

When a service under warranty is requested, you should produce your Warranty Certificate, duly filled-in and stamped by your Dealer when you take your vehicle to the dealer.

Some components, such as the chassis and its ancillary equipment, the refrigerator, stove, boiler, oven, control unit, sanitary facilities and the auxiliary battery are covered by the warranties of their respective manufacturers. All these warranties are delivered together with the vehicle, and we recommend that you check they that they have been completed and submitted to the relevant appliance manufacturer.

Note that the warranty will not apply, and shall no longer be valid, in the presence of defects deriving from maintenance operations that were not carried out by Importers /Dealers within the “SEA” Group or Sea Service authorised workshops, or from the lack of routine maintenance or tampering with of the original product, such as, for example, the assembly of structures or accessories not specifically provided by or approved of by the manufacturer.

Whenever the warranty cover is doubtful, the Dealer will charge the cost of the work to the customer; this cost will only be refunded if, after inspection, “SEA” agrees the cover was valid at the time of the claim.

Warranty conditions

a) As mentioned above, the warranty on the vehicles manufactured by “SEA” refers to the body mounted on the chassis (which is covered by its’ own manufacturers warranty) and is valid for a period of 24 months from the date of registration to the name of the first owner. The warranty is limited to the free supply and replacement of items which prove to be defective in materials and to the servicing of faulty items that can be used again once they have been repaired. The warranty shall apply after an assessment by “SEA” Dealer only, through Sea Service workshops or other workshops authorised by the latter. All other expenses (trailer, transport, inspections or other expenses of any nature), shall be charged to the owner of the vehicle.

b) “SEA” or the Dealer may not be held liable for any defects caused by normal wear and tear or improper use or by use other than the intended one, insufficient maintenance, overloads and excess speed.

c) Any modification of the vehicle, as well as any repair or tampering with, even partial, that are not carried out at the workshops of the Manufacturer, the Dealers or at authorised workshops, without the prior written approval of the Manufacturer, will result in the automatic cancellation of the warranty.

d) The warranty will no longer be valid in the event of any spare parts, other than the ones specified by the manufacturer, being fitted to the vehicle. The warranty will be null and void if, following a transfer of ownership; the new owner has not notified the transaction to Sea Service within fifteen (15) days of the date of transfer, using the relevant forms.

e) The warranty does not include the parts and accessories not manufactured by SEA, such as the chassis, signal lamps, refrigerators, stoves, ovens, boilers, sinks, burners and tyres. SEA transfers the conventional warranties provided by the manufacturers of these products to the purchaser.

f) These warranty conditions are final and binding and by purchasing the vehicle the Purchaser undertook to accept them.

5-year “SEA” warranty against water ingress

A warranty against water ingress is attached to the Warranty Handbook and is valid for five (5) years. Its contents are covered in brief below. We ask you to carefully follow the inspection schedule.

Because of the continuous improvement of the characteristics and performance of its vehicles, and thanks to a quality control system coupled to well tested production methods, “SEA” can offer to its customers a new warranty against water ingress, likely to damage the body of the vehicle.

In order to obtain this special warranty, the customer must periodically have his/her vehicle inspected at their Dealer’s or, any of Sea Service’s authorised sales and after-sales centres.



Warning: make sure that your vehicle is inspected according to the body control procedures determined by SEA Service. The inspection times and methods are described in the warranty carnet.

This inspection will be at the customer’s expense (apart from the first half-year) and proof that it has been done must be recorded and documented by filling in the dedicated control coupons attached to the warranty, as well as through the relevant proof (receipt, invoice etc.) the original copy of which must be attached to the control coupon. If the vehicle is sold, after the transfer of ownership, a transfer coupon shall be filled in and forwarded to SEA Service. These coupons will allow the new owner to replace the customer as the beneficiary of the warranty, provided that the conditions in this handbook are carefully complied with and the periodical maintenance can be checked through the relevant documentation.

This warranty shall no longer apply in the following circumstances:

- a) The water ingress derives from damage to the vehicle occurred as a result of any accident, improper assembly of accessories, negligence, treatment of the body with unsuitable materials, as well as for any other reasons not directly attributable to “SEA”.
- b) The damage, if any, has not been reported within 30 days from the date of occurrence to a Sea Service Authorised Centre, or non-original “SEA” spare parts and or improper materials have been used.
- c) The (current or former) owner neglects to adhere to the inspection schedule, and as a result did not have minor defects or damage identified and repaired in a timely manner.
- d) Following a transfer of ownership, the warranty shall be null and void in the event that the new owner failed to notify the transfer to “SEA” - using one of the dedicated forms - within fifteen (15) days of the date of transfer.

During the period of validity of the warranty, in case of defects of manufacture involving ingress of water into the body, the manufacturer shall pay:

- The labour for the necessary servicing;
- The materials and components required for servicing.

The customer shall pay:

- The cost of the scheduled control servicing;
- The cost of transporting the vehicle to the Sea Service Authorised Centre tasked with completing the necessary checks and repairs;
- The cost of any repairs required following an accident or connected with an improper use of the vehicle;
- Any kind of loss and expense connected with the non-availability of the vehicle during servicing.

Vehicle identification data

“SEA” vehicles are identified by the registration number and two other numbers (chassis VIN and SEA body) which are as follows:

a) *Chassis identification number (VIN or Vehicle Identification Number)*

In order to identify the chassis number consult the base vehicle chassis manufacturers User and Maintenance Manual.

The chassis number is also in the vehicle registration document.

b) *“SEA” body identification number.*

Can be found on the “SEA” identification data plate positioned just inside the habitation entrance door. The identification number is located in the space preceded by the letter “N°”.



Equipment

The following equipment is delivered with each motor caravan:

- Two complete sets of keys (ignition, doors and fillers)
- This manual:
 - Base vehicle user, maintenance handbook and warranty.
 - SEA warranty handbook
 - Instructions and warranty for the appliances fitted inside the vehicle:
 - Refrigerator
 - Oven
 - Fume hood
 - Central-locking /antitheft
 - TV and remote control
 - Stove or Webasto system
 - Boiler
 - Sink/Hot plate
 - Toilet
 - Fire extinguisher
- Instructions for the electrical control unit

YOU MUST CAREFULLY READ THIS MANUAL BEFORE USING THE VEHICLE FOR THE FIRST TIME!

Always keep the motor caravan user manual close to hand, and provide details of all the safety advice and regulations in it to all other users.



This symbol is associated to the regulations to be complied with for the safety of people.



This symbol is associated to the regulations to be complied with for the safety operation of the vehicle.



This symbol is associated to recommendations and suggestions for a safe use of your vehicle.



This symbol is associated to recommendations relative to environmental protection.

Some of the fittings illustrated above are available only on some models or are optional equipment; they are described in brief in this manual. For more information, please consult the additional, separate, instructions supplied by their manufacturer.

Damage caused by failing to follow the instructions in this manual, will result in the warranty granted by “SEA” becoming null and void.

“SEA” is committed to the constant improvement of its models and accordingly reserves the right to make changes of technical/aesthetic nature. This manual refers to the design of and appliances installed inside, the vehicle when this manual was printed. Therefore, the contents of this manual shall not provide any right of recourse against “SEA”.

It is forbidden to print, translate and reproduce this manual, in whole or in part, without “Sea’s” prior written authorisation.

General regulations

- The motor caravans manufactured by “SEA” strictly conform to the technical and safety regulations in force and to state-of-the-art structural techniques. Failure to comply with the safety instructions provided throughout this manual may cause injury to people, damage property or items inside the vehicle, as well as to the vehicle itself.
- Use your motor caravan only when it is in good working order condition, and carefully follow all the instructions provided throughout this manual.
- Have any failures, which are likely to prejudice your safety and the safety of your motor caravan, immediately repaired by specialised personnel authorised to carry out such work by the manufacturer.
- Have the gas system and the electrical system of your motor caravan, as well as the braking system of the chassis, checked and repaired only by suitably qualified personnel, authorised by “SEA”, or the respective appliance or base vehicle manufacturer.
- Any changes to the body shall be carried out only by specialised personnel, authorised by “SEA”, who will be directly responsible for such changes.
- The motor caravan shall be used for carrying people, their luggage and appropriate accessories only. Care must be taken to ensure that payloads are adhered to and the approved maximum vehicle weight is not exceeded.
- Please comply with the schedules for inspections and checks necessary to maintain the cover provided under the general and water ingress warranties



Caring for the Environment

- **Do not discharge** the waste water tank and the Thetford tank anywhere except at the appropriate disposal points available at camp sites and other locations. Respect the rules and regulations in force on camp sites and if in doubt ask where the available disposal points are located before emptying your waste tanks.
- **Do not** leave household waste in car park rubbish bins. Please remember to recycle where you can. Ask for the disposal points available on site.
- **Use** environmentally friendly biodegradable chemical substances, in minimum doses, for the WC.
- **Do not** leave the engine running if the motor caravan is parked up and remember that a cold engine releases more toxic substances when idling. Driving off immediately the engine is started ensures the optimum engine working temperature is reached as quickly as possible.
- **Ask for** areas specifically provided for motor caravans if you wish to prolong your stay in city centres.
- **Endeavour** to avoid causing obstruction and inconvenience to others when parking at busy tourist sites.
- **Use** awnings, tables and chairs only in those place where their use is permitted (camp sites, special rest areas etc.)
- **Remember that** your freedom to act freely should not limit the freedom of others.



Fire-fighting regulations and precautions

- > Never obstruct the fixed vents, which are essential for your safety.
- > Ask for the location and operation of the emergency exit controls.
- > Keep all escape routes clear.
- > Make sure you know the location and operation of all safety exits (identified by a sticker).
- > Keep all evacuation spaces clear.
- > Do not leave children and animals alone inside the motor caravan.

FIRE-FIGHTING EQUIPMENT

- > Keep a dry powder fire extinguisher, of an approved type complying with ISO 7165, of at least 1 kg of capacity, within reach, near the main door of the motor caravan. Keep a fire blanket near to the cooker. Familiarise yourself with the instructions of your fire extinguisher and the fire-fighting precautions of your motor caravan.
- > The fire extinguisher must be regularly checked and refilled, when necessary, by qualified authorised personnel. Always comply with the scheduled inspection dates.

AVOIDING FIRE HAZARDS

- > Keep flammable materials away from the stove and the hot plates.
- > Never use portable stoves or hot plates inside the motor caravan, they will increase the risk of fire and may overload the ventilation system and cause carbon monoxide poisoning.
- > Only allow suitably trained personnel to repair and service the electrical system, liquefied petroleum gas system and the other appliances.

FIRE-FIGHTING MEASURES

- > Get all passengers out of the motor caravan.
- > Turn off and disconnect the main electricity supply.
- > Close the main valve of the gas cylinders.
- > Raise the alarm and call the Fire Brigade.
- > Attack the fire if safe to do so.

General safety regulations

- The body of your motor caravan is designed in compliance with European safety regulations to always provide adequate ventilation, in full. In order to ensure a constant air change inside your vehicle, some fixed vents are required; these are provided by openings in the roof ventilators and in ventilation grilles located in the lower part of the vehicle. None of these fixed ventilation vents must ever be closed or obstructed, even in winter. If they are obstructed there is a risk that the level of carbon dioxide in the vehicle could rise and create a serious danger of asphyxia.
- The air change provided by the fixed ventilation, coupled with an adequate heating control, will allow you to keep a comfortable temperature inside your vehicle, even in very cold climates.
- Carefully observe the instructions provided in the user manuals of the chassis (engine, braking system etc.) and of the on-board appliances (hot plates, gas stove, refrigerator etc.). The instructions provided in these manuals are essential for a correct use of the appliances they refer to.
- Remember that the addition of accessories may change, sometimes to a great extent, the dimensions, weight and performance of the vehicle, and may, in some cases, require a change to the registration documentation.
- Remember that, if a tow bar is fitted, the maximum permissible speed when towing is 100 km/h.
- Always ensure that all tyres and wheels fitted are suitable for use on the vehicle. The necessary data is available in the vehicle handbook.
- Whenever you stop your vehicle, always apply the hand brake.
- Make sure you know the location and operation of the safety exits (identified by a sticker).
- Keep all evacuation spaces clear.
- The motor caravan should carry a set of wedges/chocks for use when parking on inclines, levelling the vehicle and when changing wheels.
- When you leave your vehicle unoccupied remember to always close all the doors, windows and unit doors.
- If the motor caravan is sold, remember to pass all the relevant user manuals, including the manuals for the appliances installed to the new owner, together with the receipts for the service coupons.
- Never use portable appliances for cooking purposes or portable heaters, other than electric radiators which are not direct radiation type, because of the risk of fire or asphyxiation.
- Never allow any changes to be made to the electrical or LPG installations or appliances, unless they are carried out by qualified personnel.
- Place a dry powder fire extinguisher, of an approved type complying with ISO 7165, of at least 1 kg capacity, within reach of the main door of the motor caravan. Keep a fire blanket near the hob. Read the instructions of the fire extinguisher and check the local fire-fighting regulations.
- Observe the maximum permissible capacity of the beds (approx 100 kg for singles and 180 kg for doubles).

Safety regulations en route

- Before leaving, check the steering, brakes and the operation of the lighting and signal devices.
- Before moving off check that any cab seat swivels are locked in the forward facing position.
- After a prolonged lay up, have the braking system, the gas and electrical systems in the habitation space checked by an authorised workshop.

WARNING:

- Always check the mass of all items to be loaded onto the motor caravan.
- Under no circumstances shall the Maximum Technically Permissible Laden Mass be exceeded.
- When calculating the total mass remember to include any roof rack load; this should never exceed 80Kg and must be evenly distributed over the area inside the rack.
- **The mass declared in the vehicle handbook may vary by 5% more or less (European Directive 95/48/EC).**
- Remember that the weight of the water in the fresh water tank must be taken into consideration when determining the technically permissible laden mass.
- While the vehicle is being driven passengers shall remain in seats marked with the "Passenger Seat" label or a similar graphic symbol. The vehicle registration document of your motor caravan shows the number of approved seats. National regulations applicable to the use of safety belts shall also be complied with.
- Please be aware that the rear view through the vehicle may be obstructed so be prepared to rely on the wing mirrors.
- When driving, remember that the base vehicle is a typical commercial vehicle. Always remember the maximum height of your motor caravan (this can be found on the vehicle registration document) when you encounter underpasses, tunnels, colonnades, car ports etc.).
- Remember that the large side surface area of motor caravans makes them susceptible to the effects of cross winds. Slow-down in the presence of this phenomenon and take extra care when attempting to pass large commercial vehicles.
- In winter check for and remove snow and ice from the roof before driving.

Safety regulations - gas system

- Pursuant to law, while the vehicle is being driven all the gas system shall be turned off. To do this, close the cylinder valve, the red isolation taps and check that all appliance taps are turned off. (Refer to the instructions for each appliance elsewhere in this manual).
- Any changes or repairs must be carried out by qualified personnel. Always use the Sea Service sales or after-sales service network for maintenance.
- Have the gas system checked at least once a year by a suitably qualified person. We suggest you contact your Sea Service's sales or after-sales service centre.
- Regularly inspect the hose connecting the cylinders to the system to ensure it is replaced before any expiry dates stamped on it and for any signs of damage. Additionally, check the sealing washers in the hose connectors every time you change the cylinder. All time expired or damaged hoses and seals must be replaced with an approved type before using the gas system.

NB: "SEA" may not be held liable in case of improper use, tampering with or changes to the original system..

- If you suspect a leak (gas smell, unusual consumption), immediately close the main cylinder valve. Ventilate the vehicle by opening the doors, windows, and roof vents. Do not light matches or lighters and do not smoke. Do not operate any electric switches (service appliances, lights, etc). Have the system checked and repaired only by qualified personnel.
- Before lighting the gas hot plates, make sure that there is sufficient ventilation inside the vehicle.
- Do not use the gas hot plates as heaters. If the motor caravan or the gas appliances are not being used, close the main gas cylinder valves.
- Each gas appliance is provided with an isolating tap. If an appliance is not used, close its tap.
- All appliances are fitted with flame failure devices which turn off the gas if the flame is accidentally extinguished. Check their operation at regular intervals. The safety device shall close automatically within 1 minute of the flame going out (a "click" is heard as the device shuts off the gas).
- **Warning! Explosion hazard.** When refuelling the vehicle, all the gas appliances (hot plates, stove, and boiler) must be turned off.
- 13.5 kg gas cylinders can be used. Cylinders provided with built-in non-return valves can be used providing they are equipped with a safety valve. Cylinders must be stored in the cylinder compartment and be secured to prevent them moving around whilst the vehicle is in motion.
- Propane gas vaporises down to a temperature of -32° C, while butane gas vaporises down to 0° C. The gases will not operate below these temperatures.
- For this reason, it is recommended that only propane gas is used during the winter season.
- For safety reasons the cylinder compartment can only be accessed from outside. Never obstruct the ventilation system installed as this would prevent the dispersal of the gas leaks to the outside atmosphere.
- Do not use the cylinder compartment as storage unit or luggage carrier.
- The cylinders' main valve shall be kept easily accessible.
- Keep the cylinder compartment locked to prevent unauthorised access.
- The cylinders shall be transported only inside their compartment.

Safety regulations - electrical system

- Any changes or repairs to the electrical system shall be carried out only by qualified personnel and at official dealers in the "SEA" network or at SEA Service authorised centres.
- Before working on the electrical system, turn off all the appliances and lights, disconnect the batteries and disconnect the 220 V mains electricity supply.
- To prevent dangerous short-circuits when disconnecting the battery, remember to disconnect the negative pole first, and then the positive pole. To connect it again, proceed in the reverse order.
- Replace the fuses only with original fuses, having the same ratings as specified in the user manual.
- Replace defective fuses only after you have identified and removed the cause of the failure.

Safety regulations - water system

- It is recommended that you avoid using the contents of the fresh water tank as potable water.
- This recommendation is made as a precaution because though the water may have been potable when the tank was filled it may become unsuitable for drinking after a short time. Before using the motor caravan, thoroughly rinse the tank, pipe work, boiler and stopcocks with plenty of potable water. To do this, open all the stopcocks add fresh water to the tank and run the pump until fresh water is flowing from all the taps and drains.
- When the motor caravan is not being used or there is a risk of freezing the water system must be drained down to prevent frost damage to the system and its appliances.



Warning!
Frost damage is not covered by the warranty.

Before leaving

- When you load the vehicle (with luggage, accessories, food supplies etc), spread out the load inside the motor caravan to maintain stability when driving and do not exceed the axel or maximum permissible laden weights. (To check this data, consult the vehicle registration document).
- Close the valves on the gas cylinders.
- Close the red stopcocks on the gas distribution manifold, usually located inside the kitchen unit.
- Check all the gas appliances are turned off. (Refer to the original operating instructions of each appliance).
- Disconnect the 220 V external power cable.
- Turn on the refrigerator (12 V).
- Check that the corner steadies (optional equipment) have been raised.
- If your vehicle is equipped with a retractable step, make sure, especially after a short stop, that it is secured in its closed position.
- Close the bathroom door, locker doors, all the drawers and check that the entrance and refrigerator doors are locked.
- Close all the external doors and lock the catches.
- If your motor caravan is provided with a rear dinette, fasten the table to the transverse bench, using the supports mounted on the bench.
- Close the roof vents and keep them closed while the vehicle is being driven.
- Close all the windows, and secure them with the relevant safety levers.
- Make sure that if you have an awning it is fully retracted.
- We advise that the tightness of the wheel nut/bolts is checked after the first 60 miles (100Km) and aging after the first 3000 miles (5000Km) they should be tightened to the torque specified in the base vehicle handbook.
- Before leaving, and thereafter at regular intervals (two weeks), check the tyre pressures (the correct pressure is specified in the base vehicle handbook; please pay particular attention to the the "full-load" data). It is particularly important to maintain the correct tyre pressures when carrying heavy loads because of the risk of tyres bursting and the resulting loss of vehicle control.
- When using snow chains, the steering, tyres and suspensions are subjected to considerable stress. Only drive with the chains on if you are travelling on snow-covered roads and proceed slowly to avoid damaging your motor caravan.
- The use of the chains is subject to different regulation in most countries and you should be familiar with these before using them.



WARNING: You should be familiar with the maximum carrying capacity (maximum technically permissible laden mass MTPLM) of you vehicle and you must never exceed this. The data is on the registration document. It is illegal to exceed this weight.

Check list - before you leave

Body checks		Checked
1	Did you wind up the corner steadies?	
2	Is the entrance door locked?	
3	Are the windows and roof vents closed and locked?	
4	Is the roof bed secured to the roof by its straps?	
5	Are the doors of the lockers/drawers closed?	
6	Is the refrigerator door locked?	
7	Is the awning (if provided) retracted?	
8	Is the entrance step (if provided) retracted?	
9	Is there any snow/ice on the roof?	
10	Are the internal/sliding doors locked?	
11	Is the TV aerial retracted (if fitted)?	
12	Are any loose objects stored or locked away?	
13	Are the open storage shelves empty?	
14	Is the dining table hooked to its support?	
15	Is the front cab curtain secured?	
16	Are the side curtains secured in their straps?	
Chassis checks		
18	Lighting	
19	Engine oil, gear change oil and power steering fluid.	
20	Water in the radiator and the windscreen washer tanks	
21	Brakes	
22	Uniform braking	
23	Tyres condition and pressure.	
	An insufficient pressure may cause the tyres to burst and the driver to lose control of the vehicle. Before leaving, and thereafter at regular intervals (two weeks), check the pressure of the tyres, with reference to the values mentioned in the vehicle registration document.	
Gas system		
24	cylinders secured and stored in the relevant compartment	
25	main valve of the cylinders closed	
Electric system		
26	Recharge the battery if the control panel indicates an insufficient voltage	
	Before leaving check that the engine battery and the service battery are charged	

The first time you use your motor caravan

Two sets of keys will be delivered to you with the motor caravan (ignition, doors and fillers). Always keep a spare key out of your motor caravan.



During the first trip with your motor caravan, after the first 60 miles (100 Km), tighten the wheel bolts as required. Then, after approximately 3000 miles (5,000 km), check bolts again and tighten, if necessary.

Payload

- Always check the weight (mass) of all the objects you intend to load onto your motor caravan.
- For no reason shall the Maximum Technically Permissible Laden Mass be exceeded.
- The mass declared in the vehicle handbook may vary by 5% more or less (European Directive 95/48/EC).
- Remember to include the weight of the water in the fresh water tank when calculating the maximum technically permissible mass.
- The payload shall not result in the approved weight specified in the vehicle registration document being exceeded. An excessive load and insufficient tyre pressure may cause the tyres to burst and the driver to lose control of the vehicle.
- The load on the roof rack shall not exceed 80 kg and this must be evenly distributed on the surface of the roof.
- The mounting of any accessories, special fittings, a full fresh or waste water tank, the gas cylinders and the load on the rack must all be considered when calculating the payload.
- Observe the axle weight limits in the vehicle registration document.
- In order to maintain the vehicle's road holding and driving characteristics, place loads, as far as practicable, low down (just above the floor of the vehicle.)
- When calculating the payload, please consider the following weights:
 - All passengers and pets
 - The base fittings (potable water, gas cylinders at full load)
 - Any additional fittings (additional appliances, bicycle rack, awning, carpet)
 - All personal effects (food supplies, crockery, cutlery and glasses, luggage, bicycles and sports equipment, bed linen and towels and any load on the roof rack).

How to properly load your motor caravan

- Even out the payload on the right-hand and left-hand sides.
- Secure heavy objects, so that they cannot slip, by storing them in the storage units under the floor, in the side storage units under the body, or directly on the floor so they do not move about when the vehicle is in motion.
- Stow lighter objects in the wall cupboards.
- If your vehicle is provided with a bicycle rack, use it to transport bicycles.
- For safety reasons you must check the weight of the loaded vehicle, complete with its passengers.

Note. Fiat cassis rear elastic suspension is made up of several layers.

When the vehicle is not subjected to stress, the bands of the springs are horizontal.

If stressed, they bend downwards, so that the vehicle seems to be overloaded.

This situation represents the initial stage of a progressive reaction of these springs to the stress they are subjected to. When the stress increases, the reaction of the spring becomes more and more pronounced.

Loading the roof

- If the weather is wet or freezing, the roof will be very slippery, beware of the risk of falling.
- The maximum permissible load on the roof is 80 Kg and must be evenly distributed on the whole surface of the roof rack (if fitted).
- Carefully tie the loads with appropriate straps or ropes, do not use elasticised straps as they may be unable to withstand the forces generated when braking or cornering..
- Only walk on the roof inside the area covered by the roof rack, avoid the areas around the roof vents and where possible, remain in the centre of the roof.
- Warning. The roof of your motor caravan may be over 3 meters high – falling from this height can cause severe injury or death.

Rear garage - Rear storage unit

- When loading the rear garage or storage unit, remember to observe the specified axial loads and the MTPLM.
- Spread out the load as concentrated point loads are likely to damage the floor coating.
- Remember that the load in the rear storage unit must be included in the total payload of the vehicle.

Trailers

- Do not stand between the vehicle and the trailer while the trailer is being hitched or unhitched.
- Draw-bar hooks of approved type can be fitted. The maximum permissible speed when towing is 60mph.
- Do not hook/unhook trailers provided with overrunning brake with the brakes applied.
- You must familiarise yourself with the operating instruction supplied with tow bars and trailers before using them.
- Check the permissible rear axial weights and the admissible loads on the vehicle documentation along with those for the tow bar and trailer before using them. These values shall not be exceeded.

Snow chains

The regulations applicable to snow chains may vary from country to country.

These chains must only be fitted on the driving wheels.

Check, and if necessary adjust, the tension of the chains after a few minutes use.

- When you use snow chains, the steering, tyres and suspension are subjected to considerable stress. Use chains only on snow-covered roads and proceed slowly to avoid damaging your motor caravan.
- Carefully follow the assembly instructions provided by the manufacturer of the chains.

Driving the motor caravan

- Before moving off, especially after short stops, check that steps are fully retracted and secured.

It is the driver's responsibility to ensure

- That the passengers remain in their seats when travelling.
- While the vehicle is being driven, the driver and the passengers must wear seat belts.
- That the doors and the windows remain locked while the vehicle is being driven.
- That all the safety measures listed throughout this manual are complied with.
- Try and avoid sudden and heavy braking. Drive slowly on uneven roads.
- Remember that the rear overhang is considerable especially on larger models and you should be particularly careful when manoeuvring in confined areas or on uneven ground (risk of grounding)
- To prevent any damage to the underside of the vehicle and the chassis be very careful with steep slopes and access ramps to garages, ferries, speed bumps etc. particularly when reversing.
- Remember that the base vehicle is a commercial one and may have handling characteristics you have not experienced before – proceed with caution until you are familiar with them.

Cab seat swivels

- Check that any cab seat swivels are locked in the forward facing position before driving off.
- Cab seats must face forward while the vehicle is in motion.

Brakes

- Any failures or operating anomalies shall be immediately reported to and repaired by a specialist service provider.
- Before leaving, check that:
 - the brakes are in proper working order
 - the brakes react uniformly

Safety belts

Depending on the model , “SEA” motor caravans are provided with two or three point inertia reel seat belts in the habitation space. You should be familiar with the laws governing the wearing of these belts in the country in which you are travelling.

- Do not damage, twist or knot the seat belts. Replace worn belts as soon as possible.
- Do not modify the retainers, closures or the inertia reel.
- Periodically check the fixing bolts securing the belts to the vehicle for tightness.
- Belts shall be worn by all passengers.
- When using child seats or baby carriers the seat or carriers manufactures fitting instructions must be observed. If in doubt consult a specialist before using them.
- The seat belts will not work properly with children shorter than 150 cm.
- Where necessary, carry and use the additional safety devices required by the Highway Code applicable in the contry in which you are travelling.

How to use the seat belts properly

- When travelling do not recline the seat back too far as this may impair the performance of the belt.
- Do not fold or roll the belt. It must fit snugly across the shoulder, chest and stomach.
- Adjust the seat before adjusting the belt.
- If the space between your body and the belt is greater than 50mm (2”) the belt has not been properly adjusted.



Seating arrangements

- While the vehicle is being driven, passengers shall remain in their seats. Consult the vehicle registration document to check the number of approved seats.
- In the seats are provided with seat belts, it is mandatory to wear the belts.

Head rest

Where adjustable headrests are fitted adjust it so that the centre is level with your ears.

Refuelling

- When refuelling (petrol or gas oil), there is a risk of explosion. It is very important that all the gas appliances in the motor caravan are turned off!
- Diesel's flash point decreases if you add petrol or oil; be aware that the explosion hazard increases if you handle this mixture of fuels

The fuel filler is located outside the motor caravan, generally on the left-hand side in the lower part of the vehicle.

Engine bonnet

- Be careful if the bonnet is open – there is a risk of injury particularly to the head and hands.
- The engine may be still hot even though it may have been switched off for a long time.
- If you touch the hot parts of the engine, there is a risk of burning.
- Do not work in the engine compartment if the engine is still running.
- While the vehicle is being driven, the bonnet must be fully closed and secured. Check that the closed bonnet is properly locked by pressing and lifting its front edge.

Parking brake

Whenever you park your vehicle, always apply the parking brake.

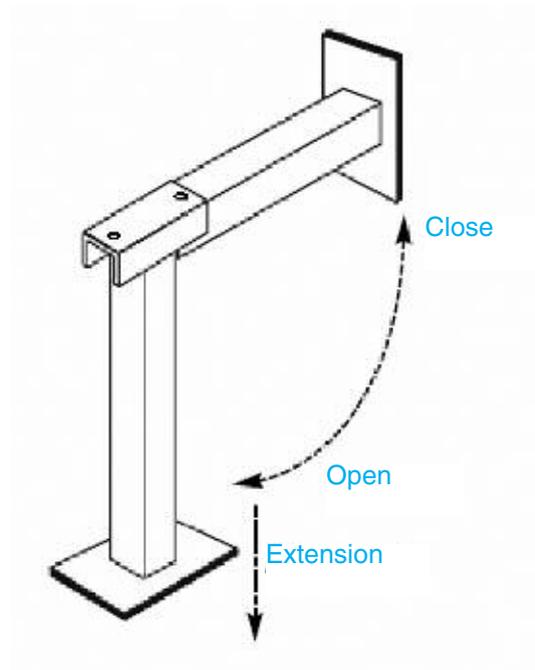
Levelling ramps or wedges

It is advisable to carry suitable levelling ramps or wedges, to be used for additional comfort and safety when staying on sloping sites.

Corner steadies

Some models are fitted with corner steadies either as original, optional or after sale additions.

- Built-in corner steadies shall not be used as a jack to lift the vehicle. They will only stabilise the motor caravan when parked on site.
- When using the corner steadies, check that they are evenly.
- Before leaving, all the corner steadies (if fitted on the vehicle) shall be completely retracted and secured.
- On friable or soft soil, place a large plate under each corner steady to prevent them from sinking into the soil.
- To ensure trouble free operation clean and lubricate the mechanism periodically.



Entrance door, doors and external doors

- When you leave the motor caravan unoccupied, lock the cab doors, entrance door, windows and the external storage lockers.

Entrance door

- Always close the cab and entrance door before driving.
- It is advisable to lock the cab and the entrance door to prevent them from opening accidentally or in case of accidents.
- Be security conscious. Locking the doors is a safety measure against unauthorised access (for example when you stop at red lights). Be aware however that in an emergency, it will be more difficult for emergency services to gain access to the cab.

Entrance door lock

To open the door from the outside:

- Insert the key into the cylinder of the lock and turn the key clockwise until the lock is released (Fig. 1).
- Turn the key anticlockwise, to the central position, and extract it.
- Open the door by pulling the handle.

To close the door from the outside:

- Insert the key into the cylinder of the lock and turn the key anticlockwise until the lock is engaged.
- Turn the key clockwise, to the central position, and extract it.

To open the door from the inside:

- Lower the lever in order to release the latch and the lock and push the door (Fig. 2).

To close and lock the door from the inside:

- Close the door and lift up the lever, leaving it in the position indicated in (Fig. 3).



Fig. 1

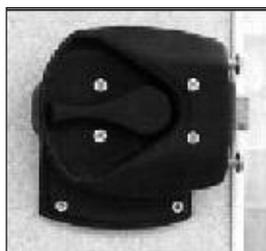


Fig. 2

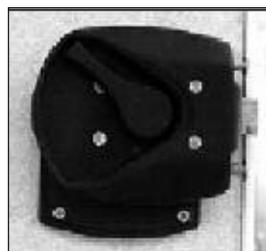


Fig. 3

Entrance door safety lock

- In some models, the entrance door has an additional safety locking system, consisting of two turnbuckles (see the examples in Fig. 4 and 5 respectively) fitted to the aluminium door frame, these prevent it from opening by accident or being opened from the outside.

To lock the door from inside:

- Close the door with the handle and turn the two stops so they lock over the inside of the door frame.

Warning! The safety locking system could prevent you from quickly abandoning the vehicle in an emergency.



Fig. 4

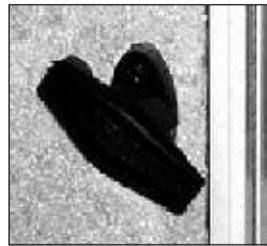


Fig. 5

External doors

- Close and lock all external doors and windows when leaving the vehicle unoccupied.
- All the external doors are provided with a single-key lock, and can be opened with the same key.
- Slamming doors does not ensure they have been locked.

To open the doors:

- Insert the key into the cylinder and turn it clockwise by 1/4 of turn; the lock is thus released.
- Turn the key in vertical position again.
- Remove the key from the lock.

To close the doors:

- After slamming the door, insert the key; turn it by 1/4 of turn anticlockwise to secure the lock.
- Turn the key in vertical position again.
- Remove the key from the lock.



In the models provided with garage compartments, the lock is secured as above, but a safe closure can be obtained using the knobs or handles, as the ones in the photos on the previous page.

To open the door:

- Follow the procedure described above and turn the opening/closing knob (1) anticlockwise by 1/4 of turn, or try to pull the handle (2).

To close the door:

- Close the door by pressing, as necessary, the knob or the handle.
- Follow the procedure described above for a safe locking of the door.



Ventilation

- The oxygen inside the motor caravan is depleted by the occupants, hot plates and the use of the heating system. The air inside must be constantly changed to ensure safety and comfort.



One effect of the decrease in oxygen levels may be an increase in the CO2 percentage of the atmosphere inside the motor caravan and this may pose a serious asphyxiation hazard.

- There are permanent ventilation openings in the vehicle and while every effort is made to ensure these are draught free, cold air can enter the vehicle through these openings (edges of the roof vents, vents, fillers, doors etc.) these openings must not be obstructed under any circumstances your safety depends on them.
- In very damp climates, some condensate may appear on metal objects; this is not an indication that the ventilation inside the vehicle is sufficient.
- At very low temperatures, some condensate may form inside the acrylic double-glazing; this phenomenon is to be expected and should not cause concern. It will dissipate as the temperature rises and will cause no permanent damage.

Be careful to ensure a continuous air change and recirculation, especially when the outdoor temperature is very low, so as to prevent the formation of condensate. You will be able to maintain a comfortable temperature inside your motor caravan, by carefully balancing the air change rate with the capacity of the heating system.

- To conform to the applicable safety regulations, your vehicle is provided with fixed vents, these must not be obstructed. They provide an air intake required to prevent the formation of condensate and to ensure the air change required for your comfort.
- The permanent ventilation openings are positioned some of the roof vents and in the entrance step foot well they must not be obstructed – your safety depends on them.
- These openings shall never be covered or obstructed in any way.
- While the vehicle is being driven, some draughts may be experienced, in particular by the passengers in the rear dinette, this is caused by the presence of the vents required by the standards governing the ventilation system and shall not be ascribed to manufacturing defects or poor assembly.



Portilla de ventilación no obstruible.



Tomos de aire a escalón para la ventilación permanente.



Sliding windows

To open the windows:

- Press the buttons of the central locking device.
- Slide the window to the desired position.

To close the windows:

- Engage the catch. Always check that the sliding windows are locked before leaving your motor caravan unattended.



Caravan windows

- Keep these windows, and roof vents, shut while the vehicle is being driven.
- The windows and the roof vents are provided with fly screens and roller blinds with auto rewind, this is activated when you release the catches. Please restrict the rewind mechanism by holding onto the blind or fly screen as it rewinds, allowing them to rewind without restraining them may damage the mechanism.
- Always check that the windows and the roof vent are closed and locked before leaving your motor caravan unattended.



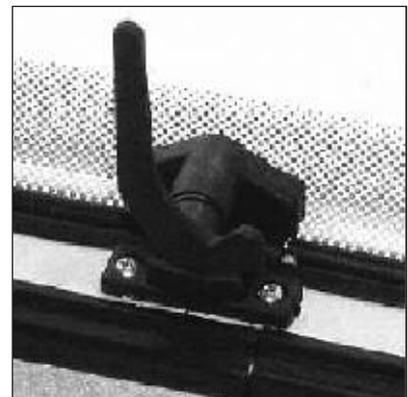
The caravan windows can be opened to varying degrees; they will be held in position by side telescopic arms with auto-trip. To close the window, when partially open, open it fully to release the auto-trip mechanism in the arms.

To open the window:

- Turn the lever. If a push-button is available, press it before turning the lever.
- Open the window to the desired position: it will be held in that position by the telescopic arms.

To close the window:

- Open the window fully to release the telescopic arm auto trip.
- Close the window and turn the lever, until it reaches the horizontal position and can locks.



The locking lever has an intermediate position that makes it possible to position the window in such a way as to obtain permanent ventilation when the vehicle is being driven. It is recommended you close the windows while you are driving in rain, to prevent any water spray entering your vehicle.

To lock the window in permanent ventilation position:

- Turn the locking lever as described for opening and leave it ajar.
- Turn the lever in the opposite direction, and locate it in its intermediate position.
- Do not attempt to operate these windows while the vehicle is in motion.



Blinds and fly screens:

The windows are provided with roller blinds and fly screens.

There are two types; A) ones with stepped fixed locking positions and B) those with variable positioning.

Type A

- To operate the blind or fly screen release it's centrally located lock and position it in the desired location, release the lock and slid the blind or fly screen up or down until the lock "clicks" into place.
- Note on some variants the fly screen must be clipped to the blind before use.

Type B

- When using only the blind simply position as required, to use the fly screen clip it to the blind before positioning.



Type A

Type B

Roof vent

- Do not step on the roof vents while you are on the roof.
- Before driving, check that the roof vents are closed and locked.
- Do not open the roof vent while the vehicle is being driven.

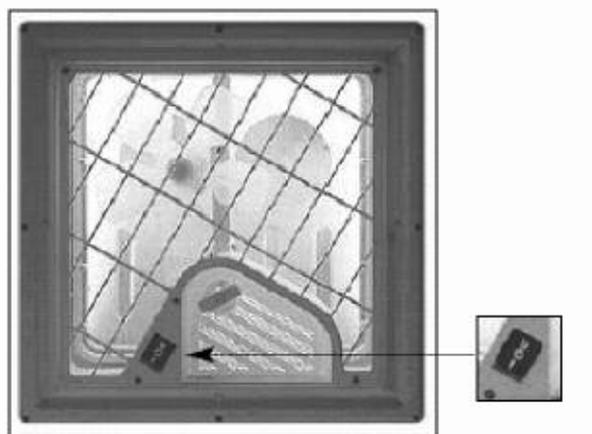
ROOF VENT WITH WINDER

Use the winder to lift (open) or lower (close) the vent to the desired position.

Two types are fitted A) a standard roof vent and B) fitted with a two way fan. Both models are provided with fly screens.



1. Claraboya con volante de abertura y simple función de aireación.



2. Claraboya con volante de abertura y sistema de ventilación / aspiración.

THE PANORAMIC (HEKI) ROOF VENT

If fitted is equipped with a roller blind and fly screens.

There are two types;

A) Push opening - to open release the side catches and use the folding handle to push it open. The handle also acts as an intermediate opening stay.

B) Wind up/down - to open turn the winder the direction shown on the sticker by the winder. The canopy can be adjusted to any intermediate position



3. Panoramic roof vent

Safety devices - Protection net



Photo 1

To comply with safety regulations a protection net is fitted to all beds more than 100cm above floor level.

Like all safety devices, the net must be used and installed according to the regulations in force. The correct installation and fastening are shown, by way of example, in photo 1.

- The roof bunks are designed to use as beds and the safety nets must be used by their occupants. They should not be occupied when the vehicle is in motion
- When upper bunks are used by children, especially under 6 years of age, care shall be taken against the risk of falling out, these bunks should not be used without the supervision of adults.

Folding Bed



Photo 2 - Safety catch

The Folding bed system consists of a bed secured to the cab of the motorhome by movable metal brackets, which make it possible to slide the bed from the upper position (used while the vehicle is being driven) to the lower (sleeping) position.

Release the safety stop

Push the wire mattress downwards, until you reach the stop (photo 4).

Stowing the folding bed

Push the wire mattress upwards until you reach the stop. (photo 3).

Engage the safety catch (photo 2)



Photo 3 - Travelling position



Photo 4 - Sleeping position

Over cab bed

The over cab bed is generally used on the vehicles provided with luton roof.

To assemble the bed, simply pull down the part of bed held up by the air assisted rams (photo 6) to the same level as the fixed part of the bed, (photo 5); then arrange the cushions to create the mattress.

To reposition the bed in stowed position (photo 6), simply remove the cushions from the rising part and push it up until you reach the end of stroke of the air assisted rams.



Photo 5 - Sleeping Position



Photo 6 - Travelling Position

Variable Volume Bed

When vehicle are fitted with a garage this can often be used as an extra bedroom. They may have movable bed(s) the frame(s) of which can be stowed away when not in use. This is known as “variable volume” because the load volume of the garage varies according to the bed set up. An example of this is shown in photos 7 and 8.



Photo 7 - Use of the bed



Photo 8 - Use of the garage only

Garage

Side garage

The side garage, available on some models, makes it possible (by turning over the lower bed base and securing it in vertical position to the wall) to obtain a large load compartment, for carrying bicycles or a small scooter.

The openings in the lower part of the wall allow you to enter the compartment from inside the vehicle.



Rear garage

Some models are provided with rear garage compartment; this can be opened on both sides of the vehicle. The greater load capacity makes it possible to carry and store bicycles or a small scooter.

Loading and unloading can be facilitated by a dedicated slide provided as standards on some models and as optional on others. This can be fitted into the internal loading platform.

Pay attention to the maximum permissible load information applicable to the garage compartment, this is specified on the label attached to the internal wall of the door, and can also be found in the vehicle's approval data.



Operating instructions - gas system

- It is recommended that the gas system is turned off when the vehicle is in motion. Close the cylinder valve, the red appliance isolation taps on the manifold and check all the appliances are turned off. (Refer to the instructions for each appliance supplied with the vehicle).
- The system should be inspected and tested at least every two years. To do this, please contact your "SEA" sales or service centre.
- Every time a cylinder is changed the connecting hose must be inspected to ensure it is in good condition. The flexible hose must be replaced with an approved type before its expiry date is passed.

NB: "SEA" may not be held liable for the improper use, tampering with or any modifications to the original system.

The gas system of your "SEA" motor caravan is designed for use with one or two removable cylinders, connected to a pressure reducer. The system distributes the gas to the following appliances: hot plates, heater, storage water heater, refrigerator and oven, if any.

Gas cylinders

The removable cylinders must be stored in the dedicated ventilated compartment. This is only accessible from outside of the vehicle and is fully isolated from the internal habitation space. Always ensure that the ventilation in the cylinder compartment remains unobstructed and the grills fitted to the vents are clean. Do not place any objects other than the cylinders in this compartment.

- Secure the cylinders inside the compartment in vertical position, so that they cannot move.
- Always check the cylinder valve is closed before disconnecting the hose.
- Hose connections must be carefully made and tightened to ensure sound connections are made.
- Note that the screw connections of the cylinder, hose and regulator have left-hand threads.

The gas from the cylinder reaches the appliances through a pressure regulator and a manifold fitted with several taps (one for each appliance) this is usually positioned inside the kitchen unit.

Each appliance burner is also fitted with thermocouple safety valves that, should the burner be accidentally extinguished, automatically cuts off the gas supply.

If two cylinders are used at the same time, an automatic switching pressure regulator must be used.

When the vehicle is left unoccupied it is advisable to turn off all gas appliances and close the appliance isolating taps and the gas cylinder valve.

How to replace the gas cylinders

- Close the main cylinder valve.
- Unscrew the hose from the cylinder valve.
- Loosen the fastening straps and remove the cylinder.
- Position the full cylinder in the cylinder compartment.
- Secure the cylinder, using the fastening straps.
- Screw the hose onto the main valve.



Operating instructions - electrical system

- Modifications and repairs to the electrical system must only be carried out by specialised personnel at Sea Service authorised centres.
- Before working on the electrical system, turn off all the appliances and the lights; disconnect the battery and the connection (if any) to the 230 V mains.
- To avoid dangerous short-circuits when you disconnect the battery, remember to disconnect the negative pole, and then the positive pole. To reconnect the battery connect the positive pole first and then the negative pole.
- Only replace fuses with ones of the same with the rating as indicated in the user manual.
- Only replace the defective fuse after you have identified and removed the cause of the failure.

The electrical 12v system of the motor caravan is supplied at 12V via the auxiliary battery or, alternatively, it can be augmented or wholly supplied by the battery charger provided the vehicle is connected to a suitable external supply.

230 V power supply

This is via an external cable connection to the either an inlet socket on the body or an automatically retracting lead (see the example in photo 1). The connection is protected by a 2-pole miniature circuit breaker, located in a locker or bed box.

The external connection socket is provided with a mandatory third pole ("earth") for safety reasons.

After making the connection to the external socket, use the "general safety" MCB or automatic circuit breaker inside the locker or the bed box to test that the connection and supply are safe.

The 230 V supply allows:

- The operation of the 230V sockets.
- The operation of the refrigerator at 230 V.
- The automatic charge of the auxiliary and engine batteries through the battery charger mounted inside the motor caravan (power unit). The charging current is adjusted to the battery's charge level. Therefore, no overload can occur.

All the electric functions inside the body are controlled by the electronic "control unit".

The electric appliances are powered by the auxiliary battery.

WARNING: For your safety, do not work on electric components before disconnecting the power supply.



12 V power supply

This is provided by the auxiliary battery, it may be located in the engine compartment, in compartments in the bed boxes, under the floor, or under the passenger seat.

The auxiliary battery supplies the internal lighting and all the systems and accessories in the habitation space. The base vehicle battery only supplies the base vehicle systems.

When the vehicle is in motion, the two batteries are charged by the alternator through a dedicated battery charging system, Note this system also allows the fridge to operate on 12v while the engine is running.

When you turn off the ignition, the base vehicle and auxiliary batteries are automatically separated by means of a relay. Another relay turns off the 12v supply to the refrigerator. This prevents the base vehicle battery from being discharged by any of the appliances inside the habitation space. This ensures that power is always available to start the engine. The charge level of both batteries can be displayed on the control panel.

- It is not advisable to run ALL the electric appliances on the 12 V battery for a prolonged periods unless a connection to the external mains is available because of the risk of flattening the battery. To protect the auxiliary battery from being rapidly discharged the refrigerator is supplied at 12 V only while the engine is running.
- The 12 V power supply can be cut off by the 12 V master switch positioned on the control panel.

Connection to the 220 V mains

- The motor caravan can be connected to an external 230 V mains.
- The connection point shall not be more than 20 meters away from the motor caravan.
- The external 230 V power supply shall be protected by a (30 mA) faulty current safety switch.

External 230 V connecting cable

In compliance with CEI-64/8 part 7, section 708, the connecting cable between the sockets of the 230 V mains panel and the vehicle shall conform to the following characteristics:

- The plug and the socket shall have an earth contact according to CEI 23-12;
- The cable shall be flexible, of H07 RN-F or equivalent type, with a protection wire having the following characteristics:
 - Max. length: **25 m**
 - Minimum section: **2,5 mm²**
 - Core identification colours: earth - "**yellow/green**", neutral - "**blue**", positive - "**Red/Brown**".

Main components of the electrical system

- **Control panel** - for appliance control, battery test - tank test.
- **Distribution board** - main relay, batteries' parallel relay (12V -70A), refrigerator relay, pump relay, engine battery charger, protection fuses.
- **Battery charger** - automatic battery charging system.
- **Water gauge** - measure the content of the fresh water tank.
- **Service battery** - powers all the appliances.
- **Engine battery** - powers all the devices of the original frame.
- **Engine alternator** - recharges the batteries and powers the base vehicle systems.
- **230V master switch** - powers and protects the 230V appliance.
- **Fuses** - protect the engine (B1) and service (B2) batteries.

Recommendations and checks

220V distribution board

- Before working on the 230v systems check that the vehicle is not connected to a 230v supply.
- To avoid damaging the appliances, make sure that plugs are carefully connected.
- To cut off electricity to the 220v system, turn the 220V master switch to "0" (OFF).
- Connect and disconnect the 220V mains only when the master switch is off.
- In the event of the trip switch or circuit breakers disconnecting the supply, identify the cause of the fault before switching the supply back on.

Battery charger

- Check the correct charge on the control panel.
- The battery charger can remain switched on permanently.
- Keep the battery charger compartment dry and ventilated.
- The battery charger does not supply a current and cannot operate unless it is connected to the battery.

Tank probes

- To prevent the accumulation of deposits on the sensors do not leave water in the tanks for long periods, this applies particularly to the waste water tank.

Batteries

- Periodically check the electrolyte level inside the batteries.
- Disconnect the negative pole of the battery when you believe that the vehicle will not be used for a month or two.
- If the auxiliary battery is removed, isolate the positive pole to prevent any short-circuits in the event that the engine is started.
- Carefully follow the operating and maintenance instructions of the battery manufacturer.
- If the battery is flat, recharge it for at least 10 hours. If the motor home is not used for a long periods, recharge the battery every four months. Discharging a battery for more than six months may cause gradual permanent damage.
- If the ambient temperature is high (> 30°C) the auxiliary battery will run down more quickly. At a temperature of 20°C the battery loses approximately 2% of its charge during a whole month; at 40° C it will lose 15-20% of its charge.
- The converse also applies and if the ambient temperature is very low the auxiliary battery, loses a percentage of its charge and may require frequent recharging cycles to keep it fully charged.
- It is advisable to check that the auxiliary battery is charged, by using the "test" button of the LED Voltmeter on the control panel, before leaving home rather than discover it is flat after reaching your destination. When driving, try to take advantage of any opportunities to restore the charge level of the auxiliary battery.
- To prevent the risk of short-circuits do not start the engine if the auxiliary battery is disconnected.
- The charge levels in the battery can be properly ascertained 4 hours after the battery has been recharged.

Fuses

- If you have to replace blown fuses, always do so with ones of the same rating.
- Only replace blown fuses after you have identified and removed the cause of the failure.

Service battery: maintenance and charge

Appropriate maintenance prolongs battery life and ensures it always a good power supply.

Routine maintenance (once a month)

- Check the charge in the auxiliary battery using the “test” button of the LED Voltmeter on the control panel of the power unit.
- Start the battery charger when necessary to restore the charge (the battery charger is automatically turned on by connecting it to the 230V mains).

Additional maintenance (twice a year)

- Check the terminals are tight to prevent problems caused by improper conduction.
- The terminals should be cleaned and greased, to protect them against oxidation and corrosion.
- Check the specific gravity of the electrolyte and the voltage in the cells is uniform.
- Gel sealed batteries do not require any maintenance other than to clean and grease the terminals, check they are tight and make sure the caps are fitted.
- If the motor caravan is not used for a long period, it is advisable to recharge the battery every four months. Leaving the battery discharged may cause gradual permanent damage.
- To prevent dangerous short-circuits, if you have to disconnect the battery remember to disconnect the negative pole first, and then the positive pole. To connect it again connect the positive pole first, and then the negative pole.

N.B. If the battery is faulty, please contact the after-sales service of the battery Manufacturer

- Before leaving home, make sure that the auxiliary battery is charged. Check this by using the relevant switch on the control panel, after disconnecting the vehicle from the external 220V mains supply and after making sure that there are no lamps or appliances turned on. The checked voltage shall not be lower than 12.5V, a value identified on the display of the control units or corresponding to the second LED from the top. This value is reached if you charge your battery for approximately 12 hours. When driving, try to take advantage of opportunities to restore the charge level of the auxiliary battery.

Charging the batteries

- The acid inside the battery is poisonous and corrosive. Avoid any contact with your skin and eyes.
- Charging your battery with an external battery charger involves the risk of explosion. Charge the battery only in ventilated locations away from naked flames or sparks.
- To charge the auxiliary or engine battery with an external battery charger, remove the battery from the motor caravan.
- The cables shall never be connected to inverse poles.
- Before disconnecting the terminals from the poles, turn off the engine and disconnect the 230V and 12V power supply. Disconnecting the terminals involves a short circuit hazard.
- If you use lead or gel batteries, check that the external battery charger is approved for this type of batteries.
- Consult the chassis user manual before charging the base vehicle battery.

Storing the batteries in winter

- If the motor caravan is not going to be used for long periods the batteries will slowly lose their charge. This effect is more pronounced during very cold weather. It is good practice to leave the vehicle connected to a 230V supply to keep the batteries fully charged - via the charger. Where this is not possible it is advisable to remove the batteries and keep them in a dry, frost free store.

Electric Step - operating instructions

- **Only trained personnel at SEA group dealers or authorised Sea Service centres shall change or repair the electric step.**

Operating the Electric Step (where installed)

Opening the step

- Press and hold the switch in the “down” position until you reach the stop (photo 1).
- As soon as you reach the stop, release the switch.

Closing the step

- Press and hold down the switch in the “up” position until you reach the stop (photo 2 - example of a step).
- As soon as you reach the stop, with the step retracted, release the switch.

NB: some models have “one press” opening and closing the step; simply press and release the switch.

To keep the electric step in good working order it is recommended that its mechanical parts are frequently cleaned to remove road dirt.

Does not use grease to lubricate the step mechanism; it will collect and hold sand or grit that may prevent its smooth operation.

Teflon lubricating sprays are recommended.



Manual Step - operating instructions

To pull out the entrance step:

Gently lift and pull the step outwards making sure it come fully out before using it.

To retract the entrance step:

Gently lift the step and push it until it folds away.



WARNING :

Do not get out/into your vehicle while the step is opening/closing.

The step is provided with a buzzer that sounds if the vehicle is started with the step extended.

Do not drive the vehicle with the step extended.

Water system - operating instructions

- **Only trained personnel at SEA group dealers or authorised Sea Service centres shall change or repair the water system.**

SEA motor caravans are provided with a large internal fresh water tank, a waste water tank collects the water from the sinks and the shower. Some models have insulated tanks, while in others have tanks positioned inside a double floor.

Toilets have their own built in holding tanks accessible from outside the vehicle. An electric pump, fitted with a pressure-switch delivers water automatically whenever a tap is opened. It is controlled by a switch on the control panel. SEA control panels make it possible to check the water level; simply press the "TEST" button to display the water level. (LED or gauge display depending on model)

The fresh water tank is filled from outside through the water filler point.

To open the filler:

- Insert the key into the lock, turn it to the left and remove the cap.

To close the filler:

- Place the cap in its seat, insert the key into the cylinder of the lock, and turn it to the right.
- Make sure that the cap is properly secured in its seat.
- Extract the key..



- Do not use the water in the "fresh water" tank as "potable" water.
- Before using the motor caravan, rinse the tank and the piping thoroughly with plenty of potable water, leaving the bathroom and kitchen taps open to ensure all the pipe work is flushed through.

- Periodically check hose clamps on the pump, taps, water heater, tanks and in particular the hot water piping for tightness.
- **Notice:** this check and any necessary tightening must be always carried out the first time by the Dealer as part of the pre-delivery checks.



Fresh water tank

Filling

- Close the tank drain tap
- Close the boiler's safety/ drain valve.
- Open the filler on the side of the vehicle.
- Fill the tank through the filler with potable water.
- Close the external filler again.

Draining

- Open the drain tap (see the photo).
- Open the safety/drain valve to drain the boiler; follow the manufacturer's instructions.
- Open the kitchen, hand basin and shower taps (and any auxiliary taps i.e. external shower points).
- When water stops flowing from the drain taps turn on the water pump and run it for a minute to flush out any remaining water.



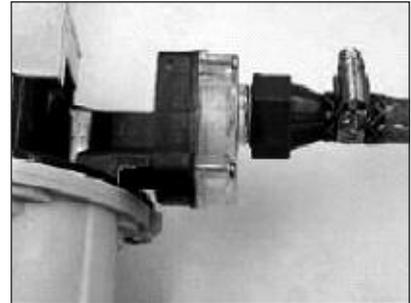
Faucet of unloading

- **Remember to include the weight of the water inside the tank when determining the payload.**
- **If the tank is full and the pump is running, but no water is flowing from the taps, the filter may be dirty or clogged. Switch off the pump and determine the cause of the lack of flow before restarting the pump.**

If the pump works to empty you can damage him.

Cleaning the external filter

- Disconnect the 12V power supply to the pump.
- Drain the tank and all the system's piping.
- Unscrew the plastic union that joins the filter to the outlet pipe.
- Unscrew the transparent cover of the filter and remove the filter body.
- Clean the filter with water and a small brush.



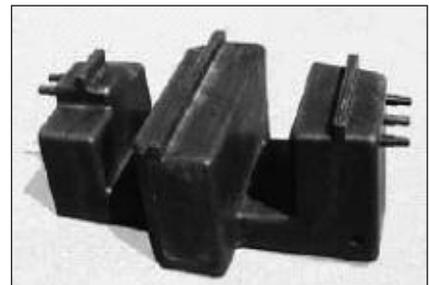
I filter pump

For pumps fitted with an internal filter (pressure switch type)

Please contact the Dealer for assistance.

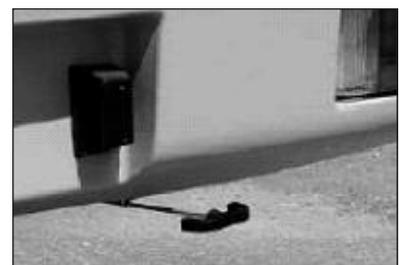
Waste water tank

- The waste water from the sink/shower is collected in a tank located under the vehicle. A light on the control panel signals when the tank has reached 4/5 of its maximum capacity.
- When temperature are expected to drop below freezing point, is it important to pour antifreeze into the waste tank. This prevents problems caused by frost, such as not being able to drain the tank and being unable to use the water system it also offers some protection against frost damage to the tank and its fittings.
- Only drain the waste tank at designated disposal points.



Emptying waste water tank

- The waste tank is fitted with a handle that operates the drain outlet; to open, pull the handle towards you, to close when the tank has been drained, push it inwards again.



ONLY IN THE AREAS OF STANDSTILL ALLOWED

Water system maintenance instructions

- During the winter add an antifreeze agent to the waste system. The antifreeze must be poured down all the waste water outlets to ensure any residual water in the pipe work and waste tank is treated. Repeat the treatment each time the tank is drained.
- When your vehicle is not in use (laid up) remember to drain the whole system (all tanks, piping and water heater) to prevent frost damage.
- **Warning: the warranty does not cover frost damage to the water system.**

Winter antifreeze protection - draining the water system

- Park the vehicle in horizontal position.
- Disconnect the 12V power supply from the main control panel.
- Make sure that the boiler is empty.
- Remove the fresh water tank inspection/cleaning cap.
- Open the blue fresh water discharge valve cock and leave it in the “open” position.
- Open the sinks taps and set in the hot/cold water mix position.
- Check that the fresh water tank is empty.
- Drain the residual water from the piping, by blowing low-pressure air through the system.
- Drain the waste water tank.
- Leave all cocks and taps open.

Thetford WC with waste holding tank

Your motor caravan is equipped with a Thetford WC with waste holding tank access to this is from outside the vehicle. The toilet flush is powered by the water system pump. The opening/closing of the blade valve/seal is controlled by the handle positioned on the WC body.

To rinse the tank:

- Before rinsing the tank, move the handle to the left to open the WC discharge hole.
- Press the “rinse” button for water supply.
- Close the discharge hole again, and move the handle to the right.

To drain the tank:

- Make sure that the discharge hole is closed (handle on the WC body moved to the right).
- Open the door providing access to the tank, positioned on the side of the vehicle.
- Release the safety catch and remove the waste holding tank.



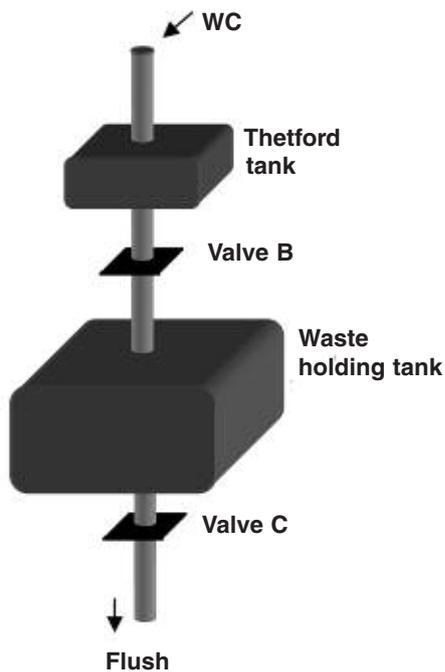
LEVER OF UNLOADING



- At low temperatures when there is a risk of freezing and there is no heating in the vehicle, empty the waste holding tank.
- Only empty the Thetford holding tank at designated waste disposal points.

Marine WC tank

The diagram of the WC system provided with additional tank (Marine WC tank) is as follows:



The installation includes a system consisting of two different WC discharge stages.

1) WC with Thetford waste holding tank

The opening/closing of the flush are controlled by the handle positioned on the WC pipe. The waste holding tank can be accessed from the outside of the vehicle.

To rinse and empty the waste holding tank, repeat the same steps reported on the previous page.

2) Chemical WC/ Marine WC tank change

In order to pour the content of the Thetford tank into the to the waste holding tank, simply activate valve B, by the lever positioned inside the compartment located on the right-hand side on the front of the vehicle (see photo 1).

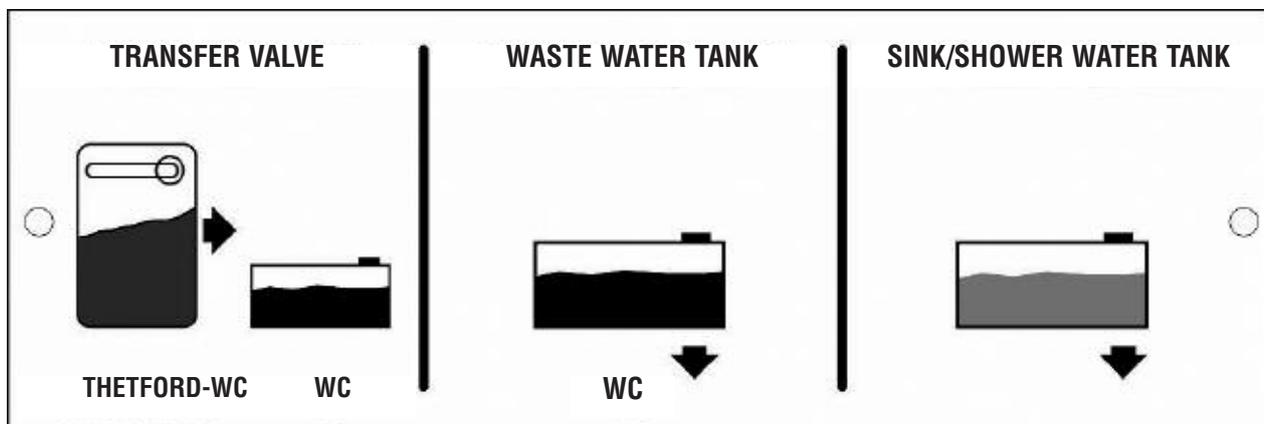
When the waste holding tank has reached its maximum level, it must be drained by means of valve C, via the lever positioned inside the compartment on the right-hand side on the front of the vehicle (photo 1).



Three levers are located in this compartment, that actuate the water system:

- the first lever allows the transfer of the content of the Thetford tank to the waste holding tank,
- the second lever makes it possible to drain the waste holding tank (waste water)

- the third one makes it possible to drain the sink/shower water tank. Inside the compartment, these three levers are indicated as follows:



WARNING

- > In case of low temperatures, freezing hazard and with no heating, empty the waste holding tank.
- > Drain the tanks only where instructed or at the disposal stations of the camp sites.

Heating system - general information

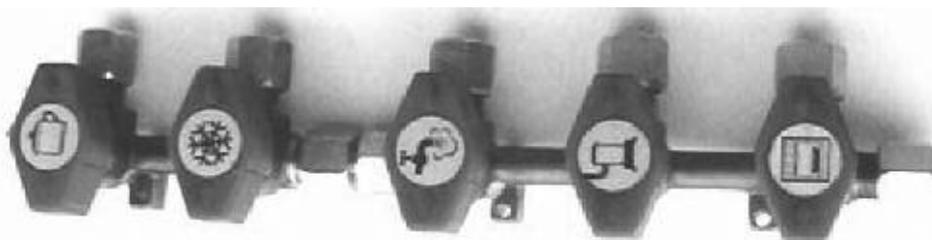
The heat exchanger of the gas heater shall be replaced every ten years, and this replacement shall be performed only by the manufacturer of the stove or by an authorised qualified shop.

The owner of the vehicle is responsible for the replacement.

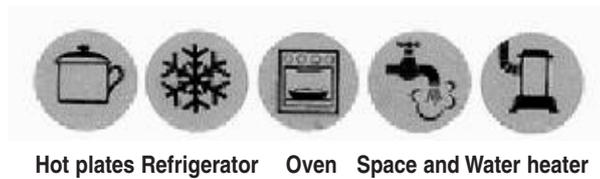
- > Your motor caravan is provided with several appliances, such as the space/water heater, hob, and refrigerator and, in some models, an oven. This manual provides a general description of the operation and main characteristics of these appliances.
- > For more detailed information about the appliances installed, please consult the original appliance manufacturer's user manual supplied with the vehicle documentation.

Gas distribution

- > Remember to open the main cylinder valve, any additional shut of valves and the appliance isolation taps before turning on appliance. The isolation taps are usually located under the sink. Each tap is marked by a symbol that identifies the appliance it controls.



➤ The symbols are shown below for a quick identification.

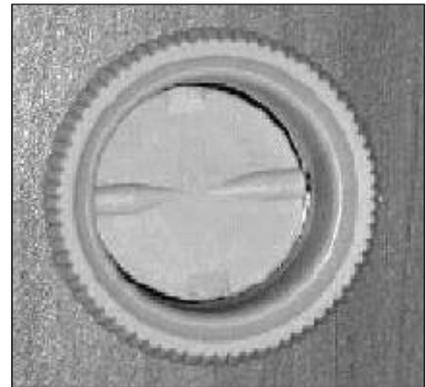


Using the heating system.

The air distribution system includes the pipes and the vents located in different areas of the habitation space. The vents can be opened, closed and directed to provide warm air in the desired direction/location.

Adjusting the vents

- With all the vents wide open, the hot air flow from the heater is at the maximum level, each vent delivering its share of the total out flow. Note that the volume from individual vents will be at the lowest level.
- Closing the control flap in the vent reduces that vent's output. Any spare air will flow from the other open vents.
- Note that as vents are closed down the out flow from those remaining open will increase until all available outflow is passing through the single remaining open vent.



Vent

Cleaning the interior

The materials adopted for the interior of your motor caravan, if properly used and regularly cleaned, will remain in good condition for a long time.

Do not use abrasive detergents, tools or media that are likely to scratch polished surfaces.

Do not use corrosive products.

General housekeeping products and detergents are fit for this application.

Material cleaning recommendations:

Cushion covers, curtains and fabrics in general

To prevent these items from shrinking and bleaching, dry clean only. To remove small stains, use dry foam detergents or a mild detergent. Light curtains can be washed at 30°. Protect the cushions from direct sunlight, to prevent bleaching.

Furniture

Wipe the surface of the furniture with a soft, damp cloth.

Sinks and hot plates

Use water and a cream cleaners, avoid those with abrasive particles.

Windows

Use only soap and water. Do not use alcohol-based products, as they will cause permanent damage to the surface of the acrylic.

Burners of the hot plate

Check and clean the heads of the thermocouples once a year to remove any deposits.

Floor

Use a mild soap and warm water; wipe over with a non-abrasive sponge and rinse with clean water. Do not place carpets on the PVC if it is wet; there is a risk they will stick together.

Fresh water tanks

Clean the tanks, and pipes thoroughly at least once a month. Remember that the water in the "fresh water" tank shall not be used as potable water.

Waste water tanks

After using your motor caravan, always clean the waste water tank, using a suitable detergent, and rinse out with plenty of water.

Thermoformed plastic items in the bathroom etc.

Use only a water and soap solution. Do not use alcohol-based products.

Cleaning the exterior

The materials used for the exterior of your motor caravan have been selected for their weatherproof properties. Wash them thoroughly, in particular coastal trips where it will have been exposed to salt laden air, in order to preserve your motor caravan over the years.

Recommendations

- Remove tar stains, bird droppings, insects, rust stains and other substances likely to corrode the body as soon as possible.
- Do not direct a water jet against the roof vents or the refrigerator grills. Check all doors, windows etc have been closed before washing your motor caravan.
- Do not use corrosive or abrasive products. Do not use hard brushes or other materials that are likely to corrode or scratch polished surfaces.
- Be very careful with the acrylic windows. NEVER use alcohol-based or abrasive products. Use a sponge, a soft cloth or chamois and plenty of water. Use detergents designed for PVC surfaces to remove difficult stains or marks.
- Do not wipe dusty dry windows (risk of scratching).
- Fibreglass surfaces can withstand most common detergents, as they can withstand a variety of chemical agents but we recommend you do not use abrasive products or materials as they will impair the gloss finish of fibreglass surfaces.
- Do not use steam cleaners (pressure washers) to wash your vehicle.
- Should the surface become opaque, it will be necessary to polish the dull area with a proprietary non-abrasive polish.
- Regularly lubricate the hinges of the external doors with acid-free products, to ensure their trouble free operation.
- Do not grease the entrance step or dirt will stick to the grease and this may damage the mechanism and or cause the step to malfunction.
- During the winter road salt deposits may damage the lower part of the vehicle. To prevent this it is advisable to regularly wash off the underside of the vehicle. When doing so be careful not to spray water up through the under floor vents.
- During lay-up periods it is advisable to leave all the internal doors and cupboards ajar to allow air to circulate - this will help prevent the build up of condensate and mould.

Lay-up Periods

General Lay-up

- Before leaving after a prolonged stop or lay-up, have the braking system and the gas system carefully checked at an authorised workshop.
- If you believe that your vehicle will not be used for a long time, it is advisable to fill the fuel tank, in order to prevent the formation of condensate likely to corrode and damage the fuel system.
- Before parking the vehicle for a long period, make sure that the vehicle and habitation batteries are charged (to do this, charge them for approximately 12 hours with the battery charger).
- During all inactive periods (even short), it is advisable to drain and clean the water system. Drain both the tanks and the boiler, and make sure that the pipe work is empty.
- Before using your motor caravan again, wash and rinse the fresh water tank and the hot/cold water pipe work thoroughly.
- Check that the boiler's safety/discharge valve is open, to prevent power consumption flattening the battery.
- Check that all the gas taps of the appliances and the main valves of the cylinders are closed.
- Remove the cylinders from the gas locker.
- Cover the cushions to protect them from direct sunlight.
- If possible, lift the motor caravan and place it on stands, or move it once a month to prevent the tyres from flat spotting.

Winter lay-up

- Clean the body, the under body and the floor thoroughly.
- Drain the water system.
- Disconnect and disassemble the vehicle and service batteries and store them in a warm dry place.
- Disconnect and remove the gas cylinders (full or empty)
- Remove the cushions and store in a dry place.
- Check all fixed vents are clear of obstruction.
- Clean the interior of the refrigerator and leave the door ajar to allow air circulation.
- Place dehumidifiers inside your motor caravan and ventilate the interior every three/four weeks.
- Clean and grease the hinges of all the external doors.
- Spray some lubricating oil on locks and the internal hinges and catches.
- Talc the weather strips.
- If possible, lift the motor caravan and place it on stands, or move it once a month to prevent the tyres from flat spotting.

Original spare parts

- The original spare parts and the accessories recommended by SEA have been designed and tested to check whether they can integrate perfectly with your vehicle. SEA dealers know the technical details and the characteristics of the spare parts and accessories of all our models are qualified to carry out servicing and replacement work. They can also advise you and supply original spare parts.
- Any modifications performed by non-authorized personnel may alter the operation and safety of your motor caravan, and the warranty will no longer be valid.
- The use of parts not approved by the manufacturer may hinder the safety and operation of your motor caravan and the warranty will no longer be valid.
- Therefore, contact SEA dealers and authorised workshops to ensure you obtain qualified and professional services, for your safety and for the safety of your vehicle.
- Please also contact SEA dealers should you intend to install special accessories that may require changes to the vehicles registration documentation. When fitting special accessories, it is necessary to conform to the permitted dimensions and weights approved for your motor caravan.



It is recommended that you carry on board:

- Fuses.
- Halogen lamps.
- Pressure switch-pump for the fresh water tank.
- Tool kit

Wheels and tyres

- Regularly check the wheel bolts for tightness. Adjust tightening after the first 60 miles (100 Km) and, then, every 3000 miles (5,000 Km).
- After fitting new tyres restrict your speed for the first 60 miles (100Km) to allow the tyres to “settle”.
- Always use tyres of the same type, make and model (summer or winter tyres).
- Use only tyres suitable for the type of wheels on your vehicle. The permissible specifications are in the chassis handbook.
- Regularly check the tyres for wear tread depth and damage to the walls.
- Comply with the minimum tread depth prescribed by the Highway Code.
- When the vehicle is not in regular use it is advisable to move it at least once a month so that the tyres are not always standing on the same part of the tread. This will help protect the tread and side wall and prolong the life of the tyre.
- Regularly check the tyre pressure (when cold).
- Over or under tyre pressure jeopardises safety while you are driving, causes excessive wear, and may result in blowouts.

Tyre pressure:

The tyre pressure (in bar) is measured with your vehicle tyres cold.
To check the pressures recommended for your vehicle, refer to the chassis manufacturer's handbook, please take the load the vehicle will be carrying into consideration when calculating the correct pressure.

Changing the wheels

- Apply the parking brake before jacking the motor caravan.
- If necessary position chocks or wedges to prevent the vehicle from moving.
- Never lift the vehicle with its corner steadies down or use the corner steadies to lift the vehicle. Do not try to lift the vehicle by jacking the body – only use the jacking points recommended in the chassis manufacturer's manual.
- Do not lie under the jacked vehicle if you have to work under the vehicle it must be supported on suitable stands.
- Do not start the engine while the vehicle is jacked.
- Be careful not to damage the threads or cross thread the bolts when changing wheels.
- Replacing the wheels with others of a type not recommended for your vehicle may render the vehicle dangerous to drive, endanger your safety, invalidate your insurance and break the law.
- If you wish to replace the original specification wheels you should consult an expert before doing so.
- When changing wheels on the roadside consider the risk to yourself and other road users. It is advisable to use hazard warning lights and triangles.
- Before changing wheels, make sure that the ground is flat, stable and not slippery, so that jacking will be safe.
- Before changing a wheel, make sure that the dimension of the rim and the tyre and its characteristics are consistent with the instructions provided in the chassis handbook.
- The models approved for 7 seats, may be supplied without spare wheel, these are provided with a 12V compressor to inflate the wheels (cigarette lighter power supply) and a service kit for punctured tyres. If a tyre is punctured and serviced with the kit provided, do not exceed a maximum speed of 80 Km/h.

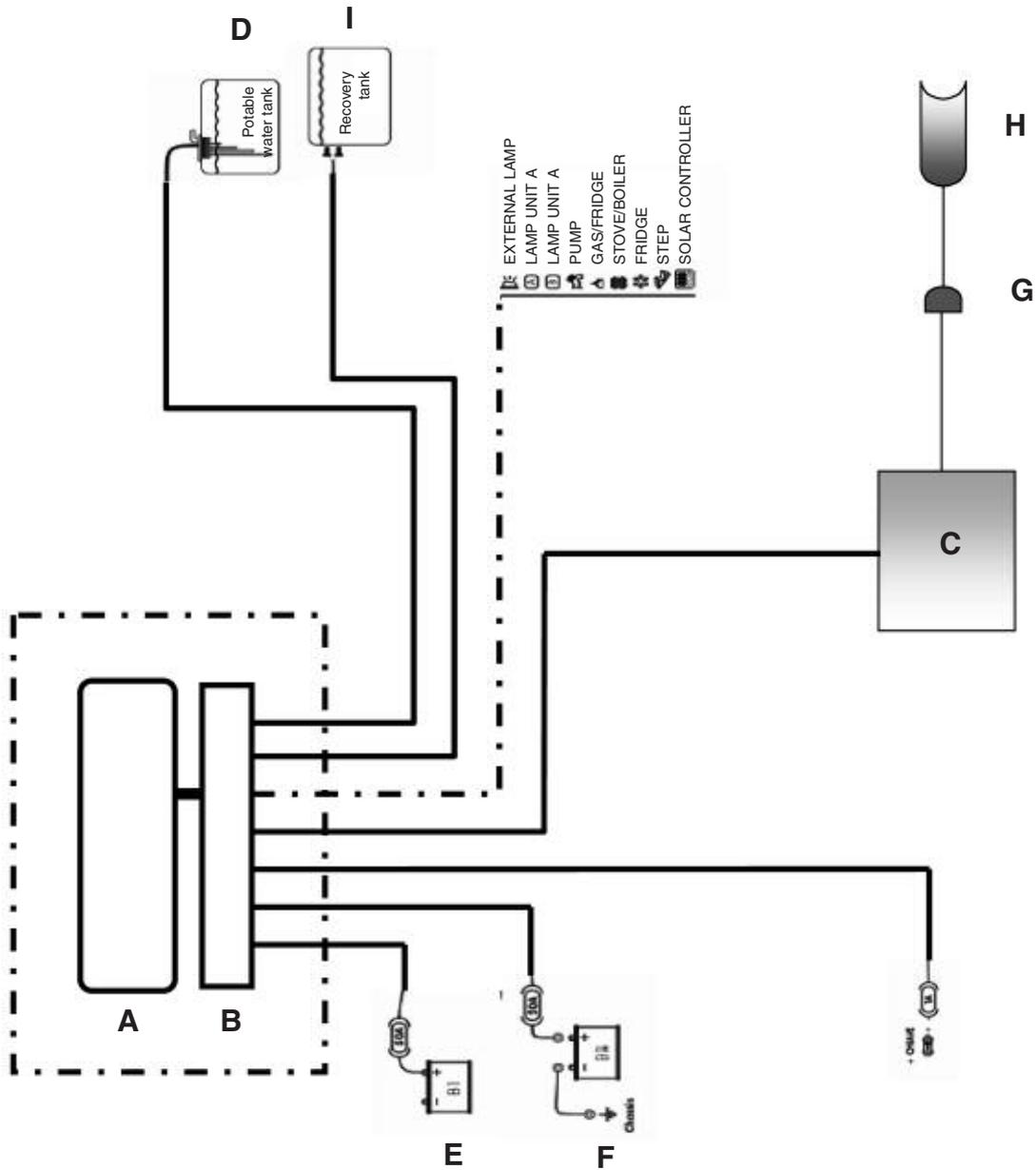


Technical Annex

General Technical Note

- Please note that, should you notice daylight filtered through some points of the body of the habitation space, this can be ascribed to the structural characteristics of the body and to the physical properties of the fibreglass, and should not be considered as a sign of structural defect, poor seals, defects of the thermal insulation or of the structural solidity of the vehicle as a whole.
- Furthermore, for some models, the manufacturing process does not include gluing down of the fibreglass sheet that covers the roof of the vehicle. Under certain weather conditions, the fibreglass is likely to undergo some expansion due to heat, causing corrugation. This phenomenon is not indicative of manufacturing faults or a lack of structural integrity.

Wiring Diagram



Legends

- A. Control panel
- B. Fuse holder (in some models it is built into the control panel)
- C. Battery charger
- D. Water tank level probe
- E. Habitation battery
- F. Engine battery
- G. 230V master switch
- H. Outside socket
- I. Waste tank level indicator

Replacing the headlights (NAZCA, ICARO, TOP DEALER HEADLIGHTS)

The following headlight components are usually installed on “SEA” vehicles:

- Original headlights and rear lights (Fiat, Iveco, Ford, etc)
- Original headlights and custom rear lights (Mobilvetta Icaro, Top Driver, Nazca M)

The choice of either configuration depends both on the performance of the headlight system (with respect to the vehicle) and on the appearance of the assembly.

WARNING. The lamps of the headlights shall be replaced with the relevant system disconnected

When replacing faulty lamps the following shall apply:

1) Original headlights and rear lights:

- Follow the instructions available in the manufacturer’s manual (Fiat, Iveco, Ford, etc.)

2) Custom rear lights

- Remove the light lens by unscrewing the fastening screws (photos 1 and 2)
- Replace the damaged lamp
- Refit the lens and secure with the screw



Photo 1

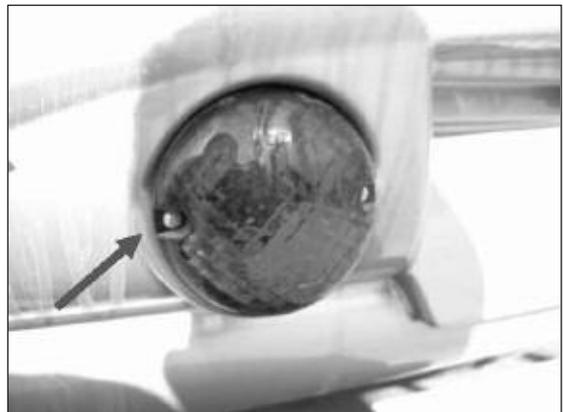


Photo 2

3) Rear lights - Series Nazca M - H

- With a small screwdriver, lever off the light lens using the slot provided (photos 3 and 4)
- Replace the damaged lamp
- Refit the lens by pushing it gently into position



Photo 3

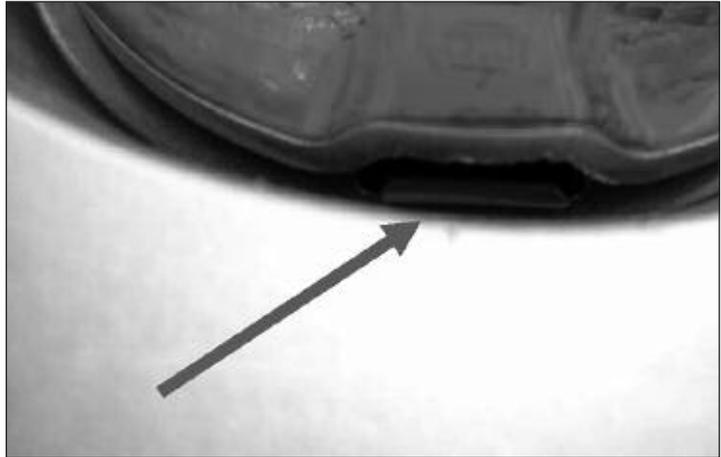


Photo 4

4) Headlights (dazzling and anti-dazzle lights) - Series Nazca H

- Open the engine bonnet (photos 5 and 6)
- Silver covers are positioned on the right-hand and left-hand sides (photo 7)
- Remove the covers (photo 8)
- Replace the damaged lamp inside the relevant connectors (photos 9 and 10)
- Place the covers in their initial position
- Close the engine



Photo 5



Photo 6



Photo 7

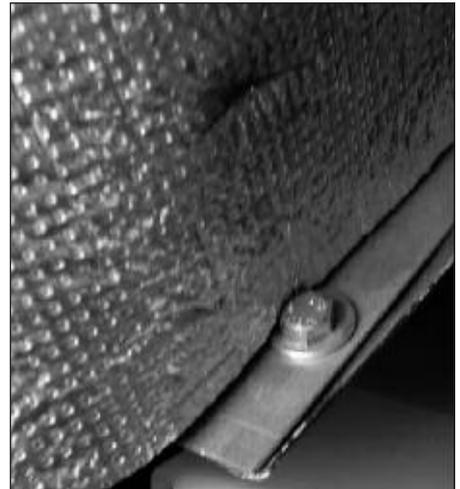


Photo 8



Photo 9



Photo 10

5) Indicators and sidelights - Series Nazca H

- Open the engine bonnet
- Identify the relevant connectors in the lower part of the cab (photos 11, 12)
- Replace the damaged lamp
- Place connectors in their initial position
- Close the engine bonnet



Photo 11



Photo 12