WINTERISATION
of Holiday Homes

ABI

Because the little things matter

General

Fresh water freezes at a temperature of 0°C, which then expands and can destroy:

- pipe work
- boiler components
- taps and shower valves

Fresh water left in your caravan system over a winter period has the potential to cause massive damage. Removing the fresh water from the system – otherwise known as a 'drain down' – eliminates this risk. This drain down procedure can be carried out yourself, however, we would strongly advise that a professional engineer performs this. Many holiday and park homes have systems which require specialist equipment, as the water needs to be removed by being blown out. Always ask the engineer if he has the relevant equipment needed for this kind of procedure, including a refractometer to check the anti-freeze level.

Frost damage usually affects the shower valve and hydraulic assembly in a combi boiler, which can cost up to £100 and £200 respectively to replace.

This photo illustrates the plumbing under the combi boiler of an ABI Holiday Home. The two drain cocks are for the sealed central heating system. Clearly marked with "Do not drain off central heating".

Drain Down Procedure

- Disconnect the fresh water feed. Make sure this is done outside the ABI Holiday Home to prevent flooding.
- Turn off the fresh water supply stop cock outside the ABI Holiday Home.
- Make sure all hot and cold taps are opened, then open shower valve and place the shower head in the tray.
- Locate the fresh water drain cocks under the van using the ABI Holiday Home Owner's Handbook.
- Open drain cocks (NOTE: if your ABI Holiday Home has central heating, DO NOT open the drain cocks directly underneath the combi boiler; this will drain the sealed system. For further details, see 'Additional Information for Combi Boilers'.)

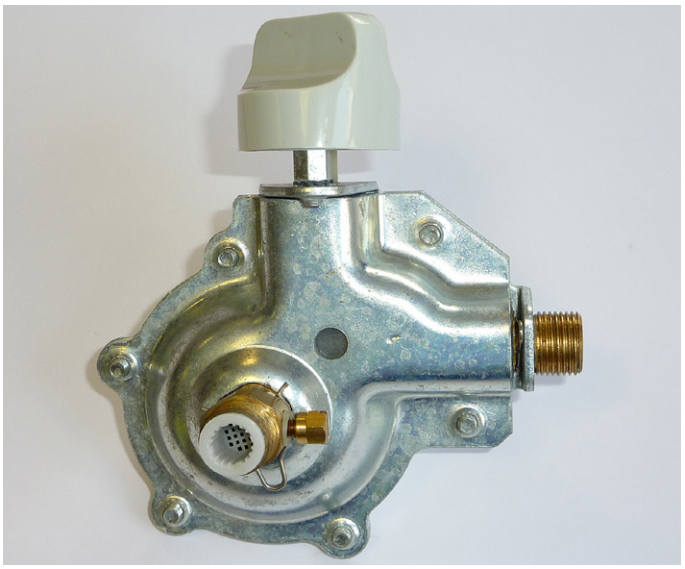
There is no guarantee that all fresh water will be removed during this procedure. Sometimes fresh water can be trapped, as most modern ABI Holiday Homes have check valves in the shower mixers. Once the taps and drain cocks are open, the flow of water is stopped by double check valves that are fitted in the shower mixer valves. In this case, it may seem that all the water has been drained when it hasn't and removing any shower mixer valves from the system can remedy this issue. These should be removed after the cold water supply has been turned off and drain cocks opened. The shower mixers may be removed through access panels, if provided by the manufacturers, otherwise special tools may be required. There may also be water left inside components such as the boiler, caused by air locks from certain pipe work layouts.

For the spring re-commissioning, this procedure is reversed.

This photo illustrates the drain cocks for the fresh water system. This needs to be drained down for winterisation.

Additional Information for Water Heaters

A drain plug in all Morco water heaters, including D61B, and F11E, can be located at the bottom of the boiler, as pictured below. This drain plug should be removed after the drain down procedure has been completed. It should then be stored in a safe place, then refitted before re-commissioning for use after winter.



The photos above show the drain plug still attached to the brass part of the cold water inlet. This appears at the bottom of the boiler and should be removed from the brass body, making sure the plastic washer is also removed.

Additional Information on Combination Boilers

All ABI Holiday Homes with radiators come with combi boilers. Combi boilers have two water circuits; fresh water and water/anti-freeze mix. The latter circuit is sealed. The drain down procedure applies to the fresh water circuit, which you must follow carefully, although you must be aware that a successful drain down is not completely guaranteed. To ensure 100% drain down, an experienced engineer is required to blow all the domestic water out of the system with professional equipment.

Please note that the sealed circuit containing a water and anti-freeze mix **SHOULD NOT** be drained down. The circuit should hold enough anti-freeze to maintain protection down to -15°C, or surplus anti-freeze can be added to protect down to -22°C. Be aware that this circuit can leak under the ABI Holiday Home and cause low system pressure. For more details, see the factsheet on low central heating system pressure.

If fresh water is added to the sealed circuit via the filling loop underneath the combi boiler, this dilutes the anti-freeze, which reduces the effectiveness of its protection. A system lacking adequate anti-freeze can significantly damage radiators, combi boilers and pipe work. It is recommended that a professional engineer is used to ensure a sufficient level of protection, and refill if necessary. This is a strongly advised part of the winterisation process, which requires a refractometer for the procedure.

The photo above shows a refractometer. If, for any reason, an engineer does not have one of these, they may not be an appropriate person to carry out the winterisation process.

The table below displays the amount in litres of 100% anti-freeze required for the total volume of a system for the volume to be protected. Usually, if there is less than 30% anti-freeze/inhibitor, reducing the entire contents of the sealed system then refilling using 30% pre-mix is the most efficient way of resolving this.

When refilling, it must be stressed that the solution be pre-mixed and not added separately, as this will result in ineffective mixing. ABI recommends the use of Fernox Alphi 11.

Size of ABI Holiday Home	Approx. total volume of sealed system	Volume of 100% anti-freeze/ inhibitor needed for 30% or -17°C**
28 x 10 2 bed	15 litres	4.5 litres
32 x 12 2 bed	17.5 litres	5.25 litres
36 x 12 3 bed	20 litres	6.67 litres
Twin units*	25-100 litres	8.33-30 litres

*Contact unit manufacturer for total volume

**Based on the use of Fernox Alphi 11 anti-freeze/inhibitor

Frost Protection Systems

Many combi boilers have frost protection systems/frost stats. These systems provide protection for the GB24 combis against frost for the sealed system within the boiler, but does not include radiators or pipe work. For some older combis, they may provide protection for the whole system, including radiators and pipework. The boiler must be connected to a gas and electricity supply for the duration of winter in order for these systems to work. The controls must be set to the off position on Morco combi boilers, which is fully anti-clockwise.* Under certain circumstances, the frost protection system will not engage, for example if there are any low pressure problems during winter, or component failure. The fresh water circuit will not be protected against frost and only partial protection will cover the sealed circuit. Any frost protection system is advised to be used only as a back-up to a thorough drain down procedure and anti-freeze inspection.

Additional Information for Morco Condensing Combination Boilers

Although in the past only residential park homes were fitted with condensing boilers, the last year has seen all ABI Holiday Homes supplied with condensing combi boilers. As a result of the condensing process, a liquid condensate is excreted from the boiler via a trap, then runs through the waste water drain beneath the ABI Holiday Home. This can sometimes become frozen, blocking the flow of subsequent liquid condensate. At this point, the boiler will display a fault code and stop running. However, there are ways of remedying this issue:

1. The condensate should flow through a siphonic trap; this will not release the condensate until it has reached 150ml, then releasing the warm condensate in one go. This means that it is far less likely to freeze along the pipe. Morco's GB range of condensing boilers come with siphonic traps.
2. When the boiler is not in use, removing the condensate traps will avoid frost forming and damaging the pipes. As soon as the boiler is used again, the trap must be replaced before turning the boiler on.
3. The trap supplied with the Morco GB24 boiler has been successfully tested against frost, so this approach is purely for precaution rather than necessity.
4. The pipe that runs from the boiler to the drain must be at least 22mm.
5. The pipe should ideally be vertical up until the point it reaches the 110mm waste pipe beneath the home, ensuring a smoother journey for the condensate. Horizontal pipes are prone to freezing.

Radiator Valves

The frost setting on the central heating system's thermostatic radiator valves are marked as "*", which bears no relevance to your ABI Holiday Home's frost protection.

Summary

We have shown in this guide that the best way to guarantee complete protection for the fresh water circuit in your ABI Holiday Home is by employing an experienced engineer to perform a drain down procedure. For the sealed central heating circuit, a refractometer is the only way to guarantee a sufficient volume of anti-freeze for protection during the winter.

These are measures that are highly recommended by ABI, and any self-drain down and/or use of a boiler frost protection system is not guaranteed to completely protect your ABI Holiday Home in the necessary way, as this guide has demonstrated.

Additional information can be obtained by checking the boiler manufacturer's website.

* In the case of the FEB20E combi boiler, the system will only work the gas and electricity connected, and the middle control dial in the summer setting.

ABI (UK) Ltd, Swinemoor Lane, Beverley, East Yorkshire HU17 0LJ
Tel: +44 (0) 1482 678000 Fax: +44 (0) 1482 887009 email: info@abiuk.co.uk www.abiuk.co.uk