Water Systems Winter Usage Guide

This guide is intended to assist Heartland Owners in understanding how to prepare their water systems for winter usage when temperatures may drop below freezing.

Important Notices

Who created this document?

This document has been created by Heartland Owners independently of the Heartland RV Company, and is posted to the Heartland Owners Forum as a service to the owner community.

Errors and Omissions

Because the authors are Heartland owners, not engineers or service technicians, it's possible that this document could contain errors or omissions. Readers are advised to also review the manufacturers' product documentation for more complete information and guidance.

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Contact Information

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Introduction

This guide is a subset of the Water Systems Guide which contains a comprehensive view of the water systems in your RV. The section on Winter Usage has been extracted as a separate guide so that owners looking for information about Winter Usage of their trailers can have a more concise reference.

For complete information about your water systems, please refer to the entire Water Systems Guide.

Freeze Protection While Using the Trailer

Any time that outside temperatures drop below freezing, you could have parts of your water system freeze. Some parts of the water system are susceptible to freeze damage and must be protected unless the trailer has been winterized.

What if the Forecast is for only 1 or 2 Degrees below Freezing?

It's very dangerous to assume that the weather forecast will be accurate for your location. In addition to the limits of weather forecasting technology, the forecast may actually be for a different location. Many times the forecast is for an airport. Your campground temperatures could vary by more than a few degrees. If the forecast is for 32F, do not assume that you will be ok.

City Water Hose

The city water hose outside the unit will often be the first part of the system to freeze. If you don't have a heated water hose, an easy solution is to fill the fresh tank and run off the pump. Drain the hose to protect it from damage. If temperatures are slightly below freezing, this will allow you to have running water with little chance of freeze damage.

Icemaker Water Line

When the refrigerator is located in a slide out, the water line to the icemaker may be exposed to outside air. It's usually a small diameter unreinforced hose that will easily freeze and break. When it thaws, the water coming through the hose could flood parts of the trailer. The only practical method of protecting this water line is to close the cutoff valve, often located behind the UDC, and evacuate the water from the line between the cutoff valve and the solenoid on the back of the refrigerator. This can be done by disconnecting both ends, putting a bucket under one end, and blowing on the other end. Of course if you have an air compressor on hand, that will be easier.

Icemaker Solenoid

The solenoid on the back of the refrigerator is energized to feed water to the icemaker and on some refrigerators, to the water dispenser. The solenoid has a little water inside and may be damaged in a freeze. Because it's close to the air intake on the back of the refrigerator, it's exposed to outside air temperatures. However, the solenoid may have heat tape wrapped around it to protect it in mildly

freezing temperatures. To survive freezing temperatures without damage to the solenoid, it's preferable to evacuate the water from it, or after cutting off the water supply, to remove it completely and store it in a warm place. Note that in most cases, freeze damage is not covered by warranties or service contracts.

The Water Systems Guide and the Winterization Guide both provide detailed instructions on winterizing the icemaker/water dispenser.

Water Holding Tanks

If you have the Tank Heating Pad option, or the YETI option, which includes Tank Heating Pads, simply turn the switch on to keep the tanks from freezing.

***CAUTION**: Tank Heating Pads generate a substantial amount of heat. You must have at least a small amount of water in the tanks when the heating pads are turned on, or you could have damage to the tanks and subsequent water leaks.*

If you don't have tank heating pads, on units with sealed underbellies, running the furnace will usually provide enough heat to keep the tanks from freezing down into the mid 20s (F), and perhaps even lower. But there is some risk because without monitoring the underbelly temperature, there's no way to know how effectively the furnace heat is protecting the tanks. Also, if the furnace malfunctions, or you run out of propane, the tanks could be damaged in freezing weather.

UDC Connections

To keep the water connections, short hoses, and valves in the UDC from freezing, hang a drop light in the UDC with a 60W incandescent light bulb. That will generate enough heat to keep the UDC warm even in very low temperatures.

Water Pump and Internal Water Lines

In temperatures close to the freezing mark, the water pump and internal water lines may receive enough heat from the furnace, along with radiated heat from the trailer interior, as not to have much chance of freezing. As temperatures drop to the mid 20s and below, this is more problematic. To protect the pump and nearby water lines, hang a reflector with 100-150W incandescent flood lamp above the water pump to keep the area warm.

Sealed and Heated Underbelly

On trailers with a sealed and heated underbelly, there is a 2" diameter hose from the furnace that terminates in the underbelly. This duct will provide some heat to the underbelly area to prevent water lines from freezing. However, it relies on running the furnace. If you set the thermostat to a low temperature or use space heaters to conserve propane, the underbelly will not receive much if any heat overnight.

Trailers that don't have a sealed underbelly have water tanks and water lines directly exposed to outside air temperatures and are likely to freeze at a higher temperature than with a sealed, heated underbelly.

What if the Forecast is for Extreme Weather?

Heated Water Hose

You can purchase pre-made heated water hoses from various sources, or you can make your own.

Pirit Heated Water Hose

Pirit is a popular choice for a heated water hose. One thing to be aware of is placement of the end of the hose that has the thermostat. If you place that end in the UDC, the thermostat will not read the outside temperature and the water in the hose is likely to freeze. You will probably need to purchase adapters to change the gender of the hose connections so the thermostat is at the faucet end.

Making Your Own Heated Water Hose

You'll need a length of heat tape to match the length of the hose, heat-resistant electrical tape to hold the heat tape tightly to the hose, pipe insulation that will close completely around the hose and heat tape, and high quality duct tape, such as Gorilla Tape, to seal the joints.

It's a good idea to briefly test the heat tape before constructing your heated hose.

The hose should be laid out as straight as possible. Starting at one end, position the heat tape against the hose and secure it with the electrical tape in a straight line. When finished, cover with the pipe insulation. Then use the Gorilla tape to hold the pieces of pipe insulation together and to tape over the joints.

Skirting

There are various methods to keep the underbelly warm. One of the most effective is to add skirting all the way around the trailer. Unfortunately, while professionally made skirting works very well, it's also extremely expensive.

Quick and Easy Skirting

As an alternative, it's possible to quickly construct very inexpensive skirting that goes under the trailer. Two 4x8 foot sheets of ¾" foam board can be quickly cut to create a box under the trailer. Cut the pieces to fit the distance between the ground and the bottom of the underbelly. Use duct tape to hold the corners together and tape the top of each piece to the underbelly. With drop-frame trailers, the pieces might be approximately 16" high in the front section and 24" in the rear.

If you have tank heating pads, it's not necessary to outline the entire trailer. The enclosure needs to protect the internal plumbing lines that are often located on the off-door-side, between the pump and the front of the fresh water tank (near the axles). The enclosure can be aligned to the frame on the off-door-side and cross perhaps 2/3 of the way to the other frame (about 4 feet across).

You'll have to make some additional cuts to fit the pieces around the sewer pipes.

Cut an access panel in a convenient location on the off-door-side and use duct tape as a hinge. Then place a heat lamp or thermostatically controlled ceramic disc heater into the enclosure to keep the area warm. Place the heating device on a support to keep it off the ground in case water should run across

the campsite. Set the heater on low and you'll find it keeps the underbelly quite warm even in temperatures well below zero (F).

Insulate the UDC

In addition to keeping a drop light in the UDC to provide heat, for extreme weather, cut a piece of foam board insulation to sit in the opening.

Dedicated Outlets

In extreme weather, you'll be counting on lamps and heaters to keep water from freezing. Be aware that the outlets in the basement are on the same GFCI circuit as the bathroom. It's easy to trip the circuit breaker while using the hair dryer. If the person using the hair dryer was almost finished, they may forget to mention it to you and you'll wake up with everything frozen.

A solution is to install an outlet in the basement that is on a dedicated circuit breaker. The parts are inexpensive and your RV tech should be able to handle this for about an hour of labor charges.

Engine Block Heater

This has nothing to do with the water systems, but in extreme weather, you need to have an engine block heater plugged into a reliable electrical source or you'll have trouble starting your vehicle in the morning.

Modifications

UDC Opening

The UDC has a round disc that unscrews to allow hoses, coax cables, and other items to be routed into the trailer while the cargo hatch door is closed. However, with the disc removed, pests can enter the UDC. Also, in cold weather, it creates an opportunity for cold air to cause freeze damage. It's fairly easy to make a replacement disc, fashioned from 2" furniture pad foam, that has a slit from the edge to a hole in the center allowing the quick-connect water hose and cables to pass through, but otherwise sealing the opening. The disc is cut to ½" larger diameter than the original plastic disk.

Another approach is to use an inexpensive garden kneeling pad found in the garden section of many hardware stores. Cut it to fit the bottom of the UDC. Then cut a slit as shown on the right that allows you to fold one corner back when running hoses and cables. Push the corner back into place to seal the opening.

Revision History

July 26, 2013 Version 1 released