

THINKING A LOT ABOUT ECO-HOT

ECO-HOT-EQUIPPED TRAVATOS BEGINNING WITH THE 2022 MODEL YEAR

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APPLICABILITY

The comments herein are for 2022 and later model year Travatos incorporating the Eco-Hot system.

INTRODUCTION

The inconvenient truth of any water system is that hot water lines don't stay hot. Typically, we open the HOT valve on the faucet or shower head fixture to let the hot water refill the pipes to the fixture before using the fixture. This wastes water. In an RV, fresh water is precious, and we should conserve it as much as possible.

Winnebago's Eco-Hot system addresses this problem very simply with a valve that lets hot water from the Truma purge the cooler standing water in the hot water lines. The purged water returns to the fresh tank. The user's responsibility is to open this valve just long enough for the hot water from the Truma to completely replace the standing water in the hot water lines to the fixtures, then to close it to use the fixtures. Water hot, water conserved.

It's a great idea. In this document I'll discuss the basic operation of Eco-Hot, its limitations, and how its implementation differs between K and G models.

How Eco-Hot Works

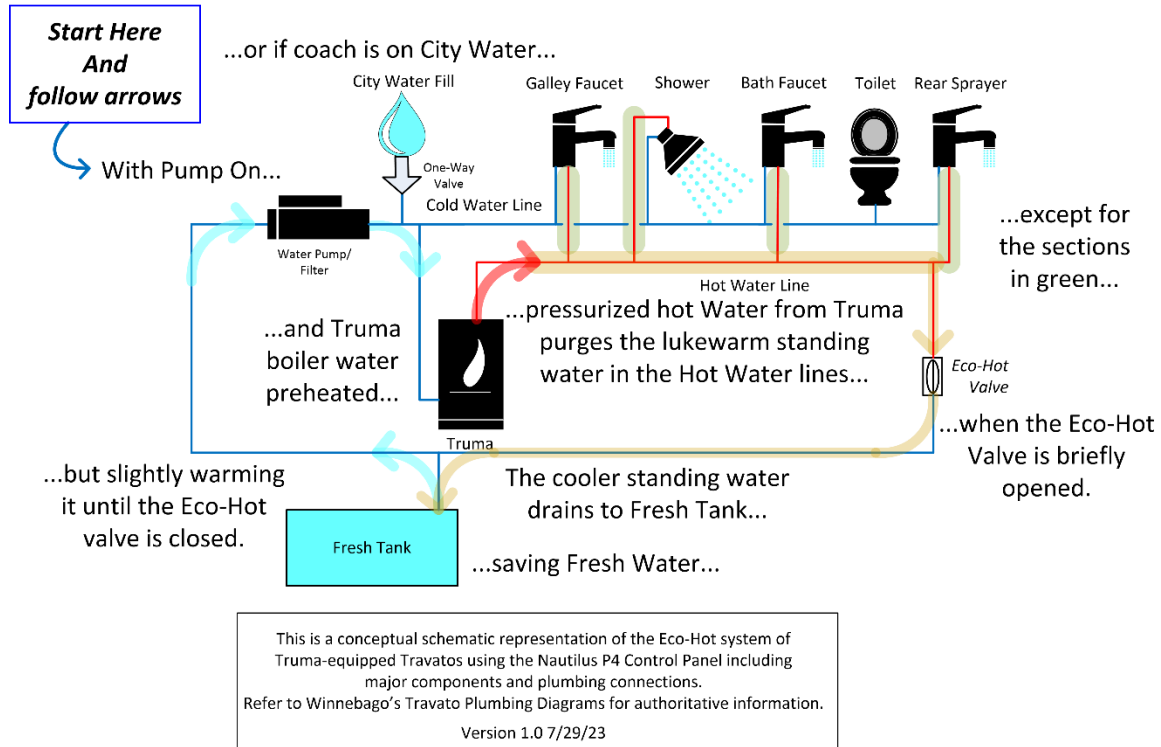


Figure 1. Eco-Hot system principle of operation

The Eco-Hot system is often talked about as a hot water *recirculating* system, but it's not one in the standard sense. Winnebago refers to it more accurately as a "pre-heat" system. The standing water that the Eco-Hot system purges - *only* from the main Hot Water line - doesn't go *directly* back to the Truma tank as it would in a true recirculating system but instead drains into the fresh tank where it mixes with the water that's already there.

The Eco-Hot system can't purge standing water from the main Hot Water line beyond the Eco-Hot valve or from the pipes that branch off the main hot water line to the fixtures¹. To work well, all fixtures need to be located between the Truma water heater and the Eco-Hot valve and the branch lines to the fixtures need to be very short.

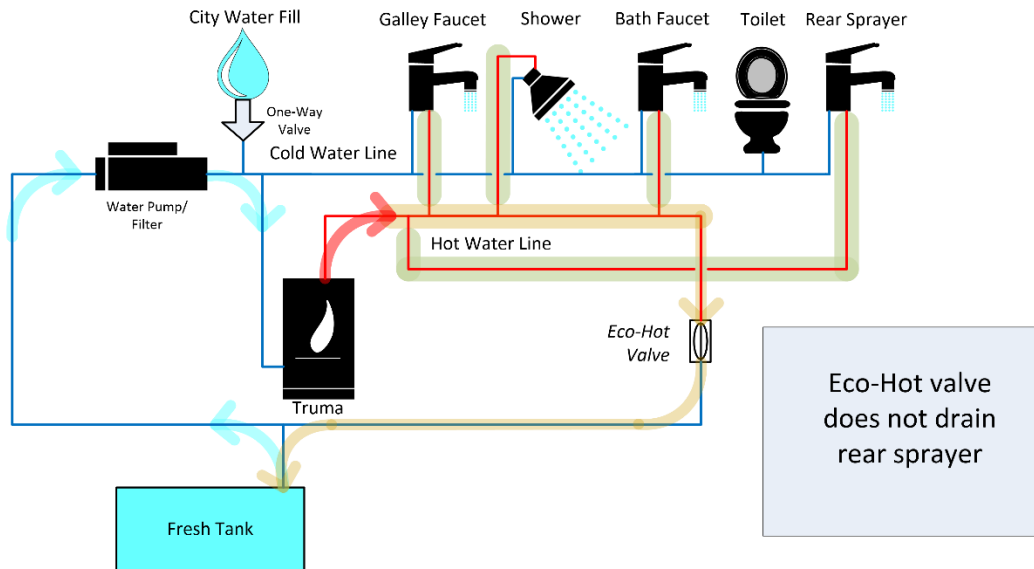
A side note: Eco-Hot preheating also works when you're on City Water. All that the Eco-Hot system needs is a supply of pressurized hot water to function.

¹ If this reminds you of needing to open the fixtures to totally fill the water lines when winterizing, it's because of the same basic reason.

IMPLEMENTATION AND USER EXPERIENCE

Owners have reported variable results with Eco-Hot - that the Eco-Hot valve must be opened for upwards of 20 seconds to get acceptable pre-heating (original factory claims were 6 seconds) and that not all fixtures pre-heat well – or at all. Figure 2 can give us some insight into the latter behavior.

Eco-Hot in the Travato G/GL



Eco-Hot in the Travato K/KL

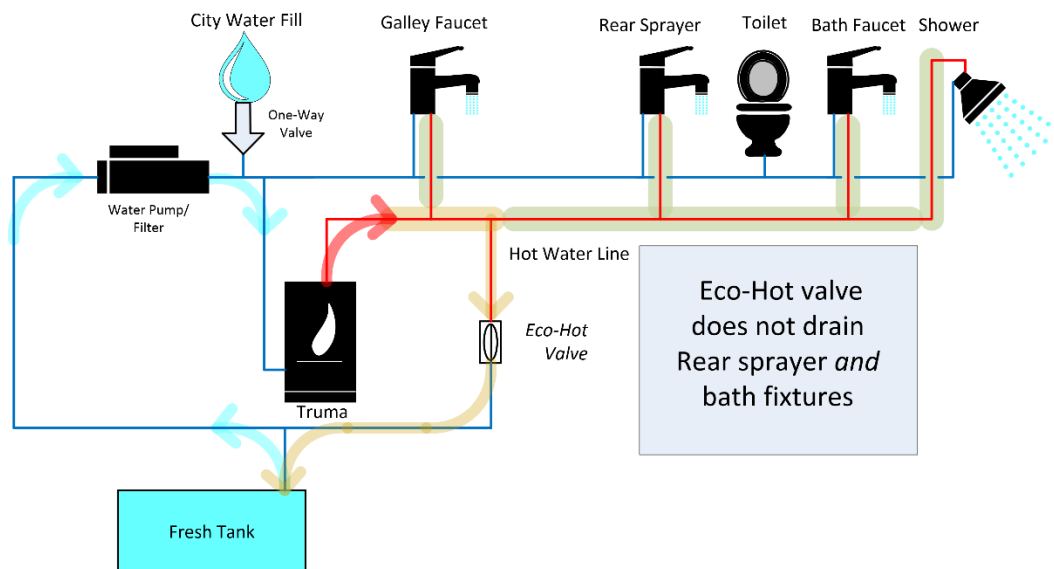


Figure 2. Implementation of the Eco-Hot system in K and G floorplans

The plots in figure 2 are derived from tracing the hot water lines as presented in the Travato 3-D Parts diagrams, which are taken from the factory computer model of the coach. The water systems in both floorplans are branched, which means that one or more fixtures will be left out of the Eco-Hot loop.

G floorplan. The Eco-Hot drain line taps into the Hot Water line after the kitchen and bath fixtures but before the rear sprayer feed line. The most important fixtures in the coach are in the Eco-Hot drain loop.

K floorplan. The Eco-Hot drain line taps into the Hot Water line after the galley faucet but before the bath fixtures and the rear sprayer. The most important fixtures in the coach are *not* in the Eco-Hot drain loop.

Based on these diagrams, the Eco-Hot system seems a natural fit for the G floorplan but not the K floorplan. Repositioning the Eco-Hot valve feed line tee closer to the K's bath fixtures would improve performance but would require a much longer Eco-Hot feed line using more hot water. In the K, valve operating convenience may be forcing a performance compromise that the G floorplan doesn't have to make.

Why purging seems to take much longer than 6 seconds is unclear. There is only about a quart of water in the hot water pipes which should take only a few seconds to purge at maximum flow, but the water pump's flow rate is much slower at normal system pressures than at low pressure. On the other hand, when the Eco-Hot valve is open pressure in the hot pipes should be low. However, the Eco-Hot valve is positioned higher than the rest of the hot water piping so the pump has to work against gravity to drain the standing water. Perhaps it's best to simply accept the valve timing for what it is – long.