

Replacing Drain Valve on Aqua-Hot

Replacing the drain valve on an Aqua-Hot (Model 600D) or Hydro-Hot (Model 450DE) presents several challenges. All of the coolant needs to be removed from the tank, the valve replaced, and then the coolant needs to be pumped back into the tank.

You should turn off the electric (and diesel) switches in your coach. It may take 24 hours for the coolant to cool to outside temperature or 3 – 4 hours for the coolant to cool enough so that you can work with it comfortably.

Before removing the coolant from the tank you need to make absolutely sure that the electric element is not turned on and cannot be accidentally turned on. You should also turn off the circuit breaker for the electric portion of the Aqua-Hot in the electric panel in your coach. It should be on its own 15-amp (or possibly 20-amp) breaker. If the electric element turns on while the coolant is removed from the tank, the electric element will immediately fail.

Caution: Make sure that you allow Aqua-Hot to cool before beginning work. When the Aqua-Hot is at operating temperature do not remove the cap, the coolant is at 200° F.

Removing Coolant

You will need to remove the cover from your Aqua-Hot and on some units you will need to remove the diesel burner head from its mounting on the burning chamber. If you can reach and work on the drain valve comfortably (like the photo below), you do not need to remove the burner head.

You can get more information about removing the diesel burner head, either in the shop manual for your specific model or in the Model 450DE shop manual. Here: <http://www.aqua-hot.com/documents/HHE-07E-MHydro-HotShopManual07-03.pdf> Section 8.2, Page 42 (actually page 45 of PDF).

Current Model Aqua-Hot Manuals: <http://www.aqua-hot.com/manuals.htm>

Older Model Aqua-Hot Manuals: <http://www.aqua-hot.com/Aqua-HotManuals.htm>

Move the burner head out of your way to expose the drain valve. Be careful don't break the fitting.

This is what the drain valve looks like. The diesel burner head has not been removed yet.

This photo shows an Aqua-Hot model AHE-100 – 03S (600D)



Replacing Drain Valve on Aqua-Hot

You will need to connect drain hose to the valve. In the example shown on the previous page, you would use either a short piece of pex pipe. Connect to a piece of clear 5/8" ID plastic pipe that is long enough to drain the coolant outside of your coach. In some coaches the valve may terminate in a 1/2" NPT (standard pipe) threaded coupling.



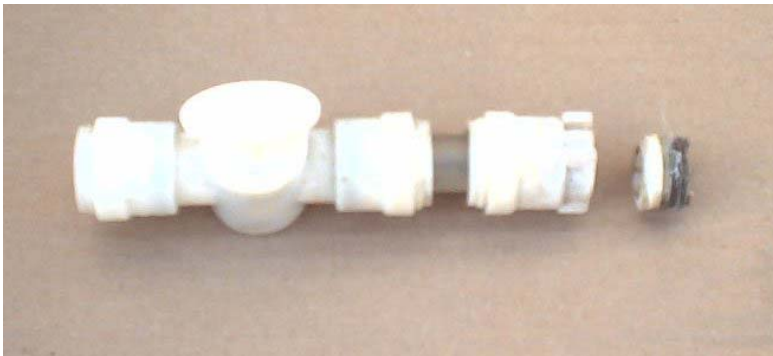
Drain coolant into 5-gallon bucket or other suitable container. Make sure that you keep coolant clean, because you will be re-using coolant. Make sure that you are prepared for the amount of coolant. The Aqua-Hot Model 600D will have about 16 gallons of coolant and the Hydro-Hot (Aqua-Hot 450DE) will contain 3-4 gallons.

Open drain valve and remove radiator cap so that the coolant will drain faster.

Not all of the coolant that is in the tank will drain through your drain hose. Place a small container under the drain valve and remove the hose. Allow the rest of the coolant to drain into your container. You may want to remove the pex pipe extension from the fitting and allow it to drain a little more.

Removing and Replacing Valve

When as much coolant has drained from the tank that will come out you are ready to remove and replace the valve.



This is a pretty good picture of what the infamous drain valve looks like. I broke the threaded portion (on the right) off when I was attempting to remove the pex pipe. I suspect that it was already cracked, because it was leaking.

Remove the entire pex pipe and valve, just leaving the plastic fitting in the tank.

The ideal tool to remove the fitting is 7/16 hex by 3/8" drive socket. The plastic fitting that threads into the tank is hex inside. You could also use a 7/16" Allen wrench if you are able to find one. You drive the hex inside and just screw the fitting out. Make sure that you engage the hex portion of the plastic fitting with the hex key. It is in pretty tight, so be prepared to apply some force.



Replacing Drain Valve on Aqua-Hot

This is what the fitting looks like inside. As you can see it is hexagonal. The 7/16" hex or Allen wrench fits right inside.



Another way to get the fitting out is to use a lawn sprinkler system riser stud extraction tool.



These tools are available from Lowe's, Home Depot and others. The difficulty that I had in using this tool was to get it to 'bite' into the interior of the fitting so that it could be unscrewed. Be prepared to hammer it in to get it to engage. You will need a wrench on the nut or pliers to give you additional turning force to get the fitting out. You cannot get enough leverage by using the 'T' handle.



Once the plastic fitting is out, install the 4" long by 1/2" NPT brass pipe. Screw the 1/2" brass ball valve to the pipe. Optionally you may want to install 1/2" brass by male hose fitting to the assembly to aide in future draining.

Make sure that the valve is closed. You are ready to reinstall the coolant.

Replacing Coolant Into the Tank

The coolant can now be returned to the tank. There is no great way to do this. The simplest may be to use a fluid transfer pump that is available from Wal-Mart, and others to do this.



Take your time to try to minimize spillage. All of the coolant removed should go back into the tank.

Optionally you can use drill pump or other electric pump.



Replacing Drain Valve on Aqua-Hot

When the tank is full (you may need to add some coolant due to spillage). Install the radiator cap. Check for leaks, and then reinstall diesel burner head.

When diesel burner is in place, check to make sure that everything has been re-installed, then fire up the diesel burner and optionally the electric element.

Allow Aqua-Hot to come to operating temperature, then make final leak check, before reinstalling cover.

Special Tools Needed:

Tank fitting extraction tool – Either hex socket or broken sprinkler riser extractor.

Drain hose

Bucket(s) or container(s) for coolant

Towels or rags to clean up spillage

Teflon Tape

Parts Needed:

1) 4" x 1/2" NPT brass pipe

1) Ball Valve – Female 1/2" NPT x Female 1/2" NPT

1) Optional – Brass coupling - 1/2" male NPT x male hose

Time Required:

About 2 hours

Copyright – Roger Berke – April 2008

L:\Aqua-Hot Authorized Service\Hydronic-RV-Heating-Yahoo\Replacing Drain Valve on Aqua-Hot.doc