

Removing and Replacing the Water Heater in a 2007 TrailManor 3124KS

This tutorial may apply to different year/models of TrailManor, but there may also be differences. The model of the water heater is the Suburban SW6DE, which can operate on both propane and 120vac. Generic installation instructions can be found with the owner's manual for this unit, but this is my experience with my TM.

This is a fairly complex operation, and should be undertaken only by TM owners who have a fair degree of mechanical and electrical know-how. If you don't feel comfortable at the beginning of this job, you probably should take the trailer to a competent RV repair facility to have it done.

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There are many sharp metal edges around the outer frame of the water heater and the aluminum skin of the trailer once the water heater is pulled out. You will have instances where your arms may be in very close quarters with these edges, and for that reason, I advise wearing a long-sleeved shirt. It is also useful to take pictures at various stages of the operation to help with re-installation.

1. Insure that the shore power is disconnected.
2. Insure that the propane is turned off.
3. Insure that the water pump switch is set to “off.”

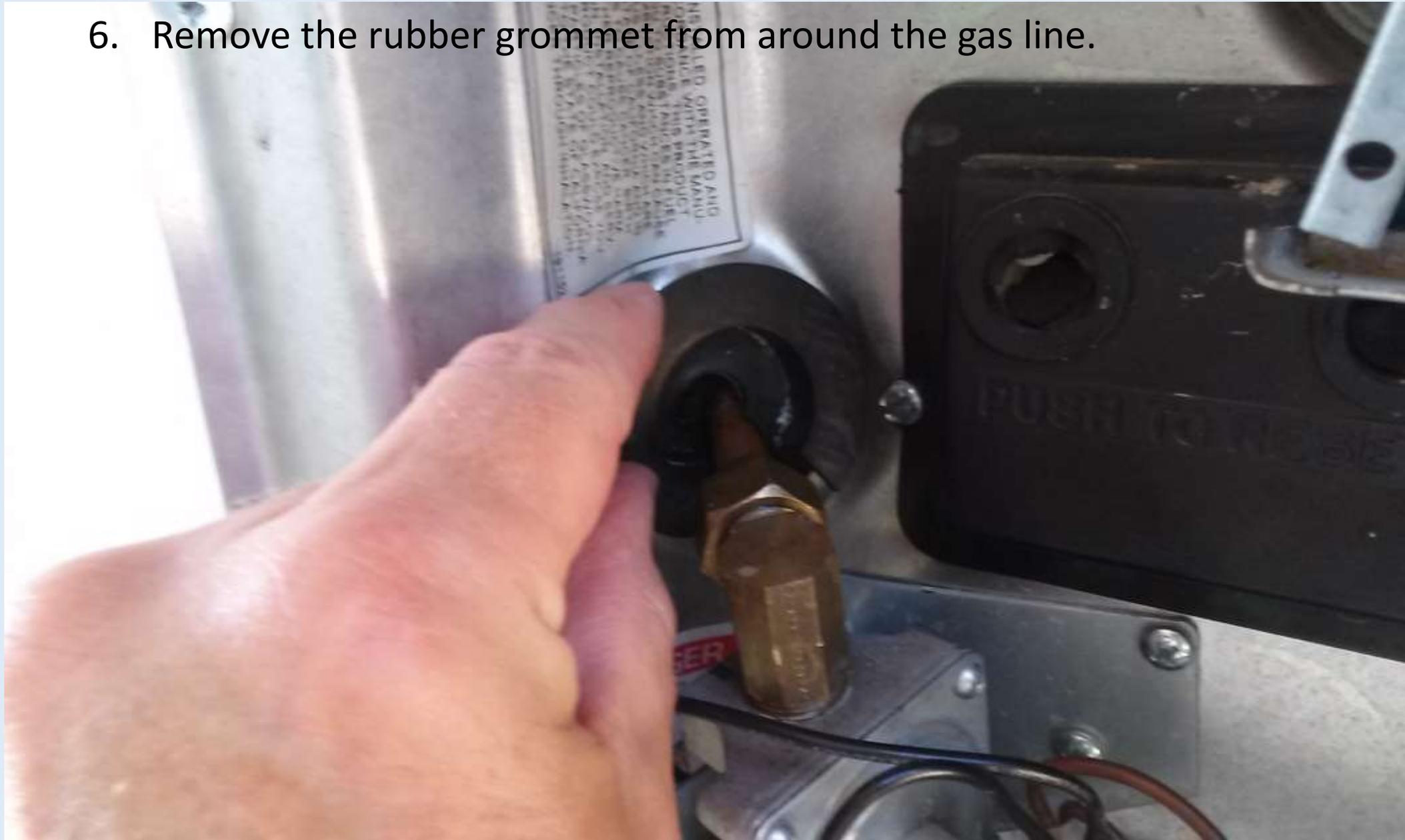
4. Drain the water heater by opening the drain valves under the TM that are forward of the tire on the driver's side, and opening the faucets on the kitchen sink. (Only one of these valves actually needs to be opened. On my TM, it is the valve nearest the outer edge of the trailer, but it doesn't hurt to just open them both.)



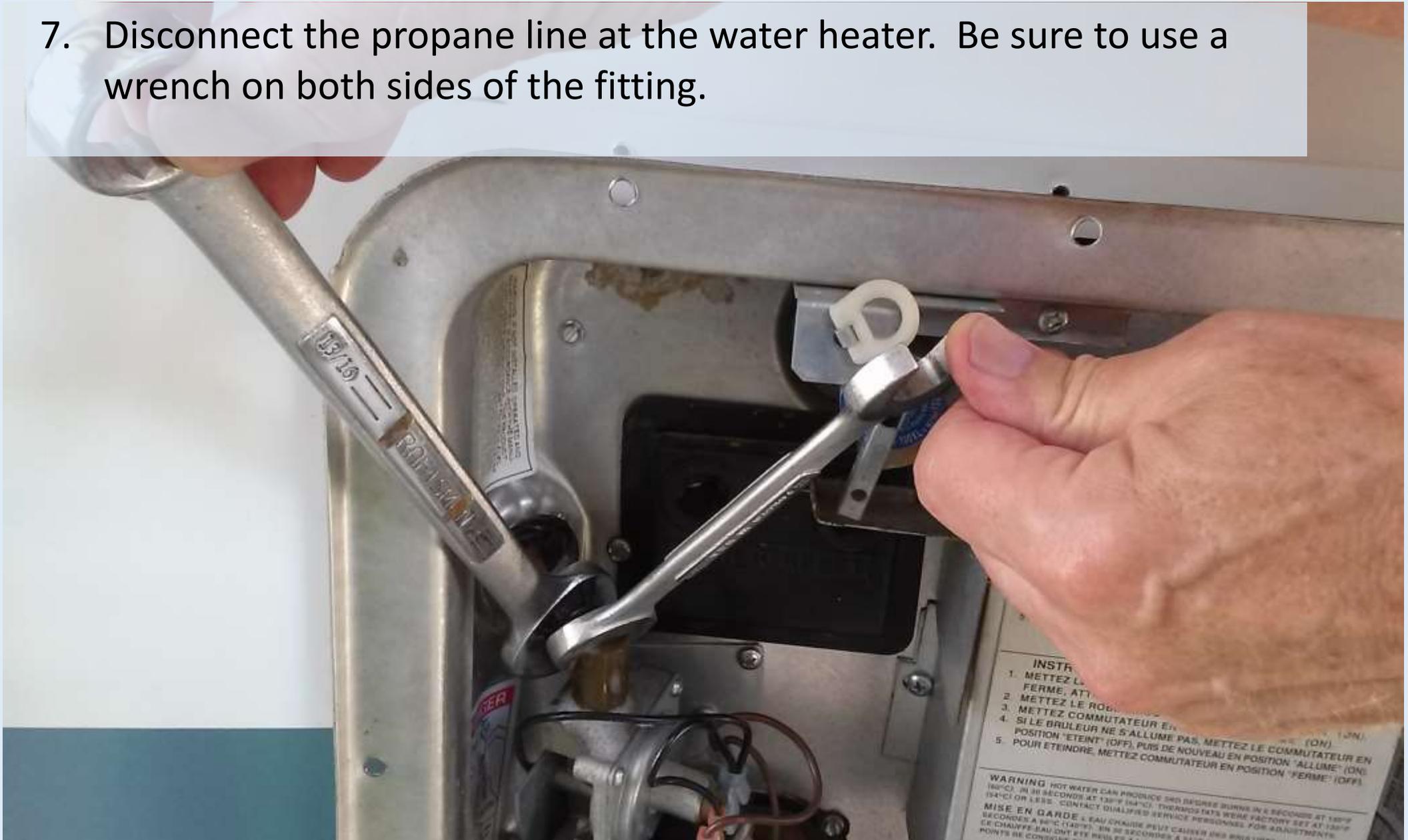
5. Remove the outside water heater door, by removing the two Phillip screws at the bottom of the water heater frame. Support the door while removing these screws.



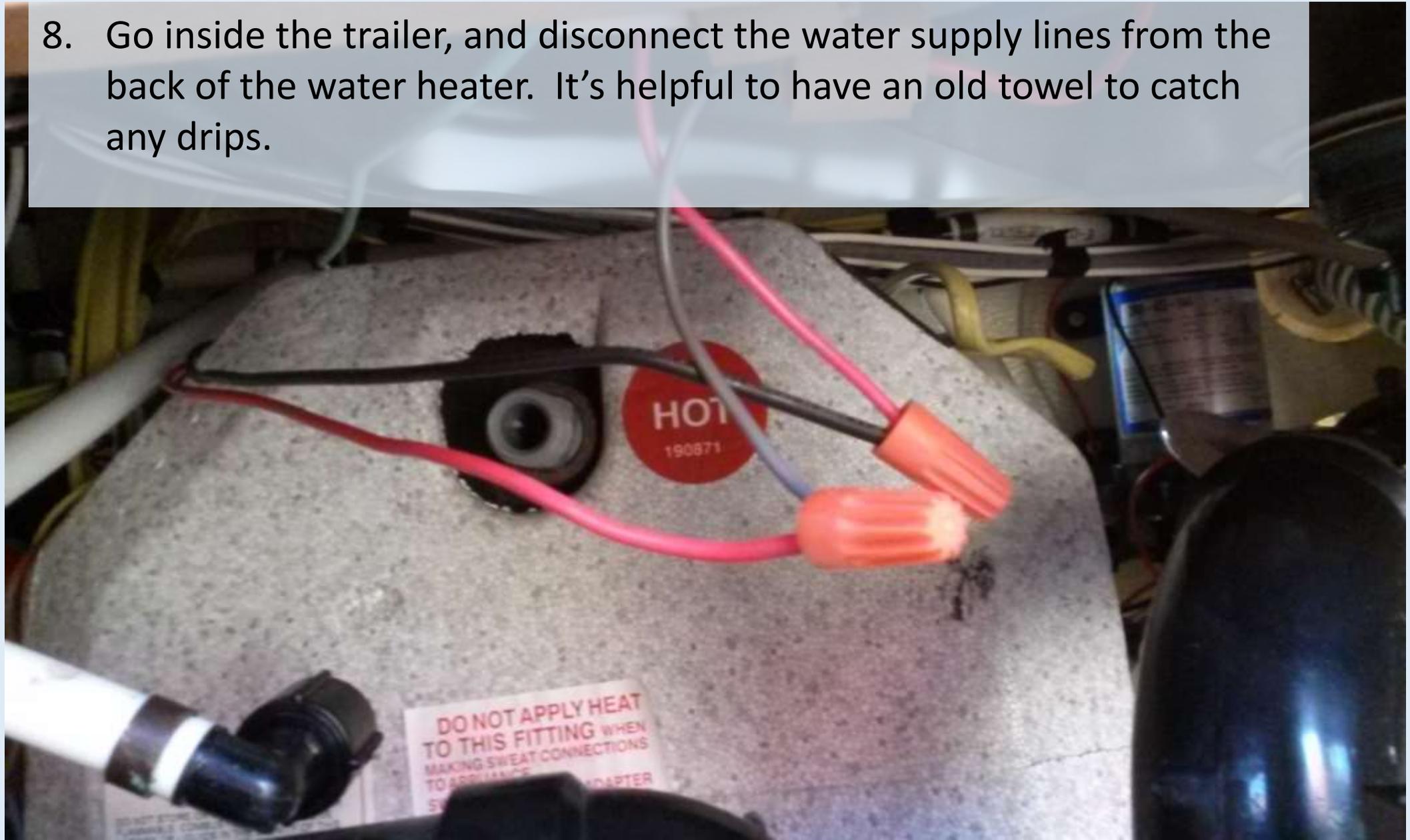
6. Remove the rubber grommet from around the gas line.



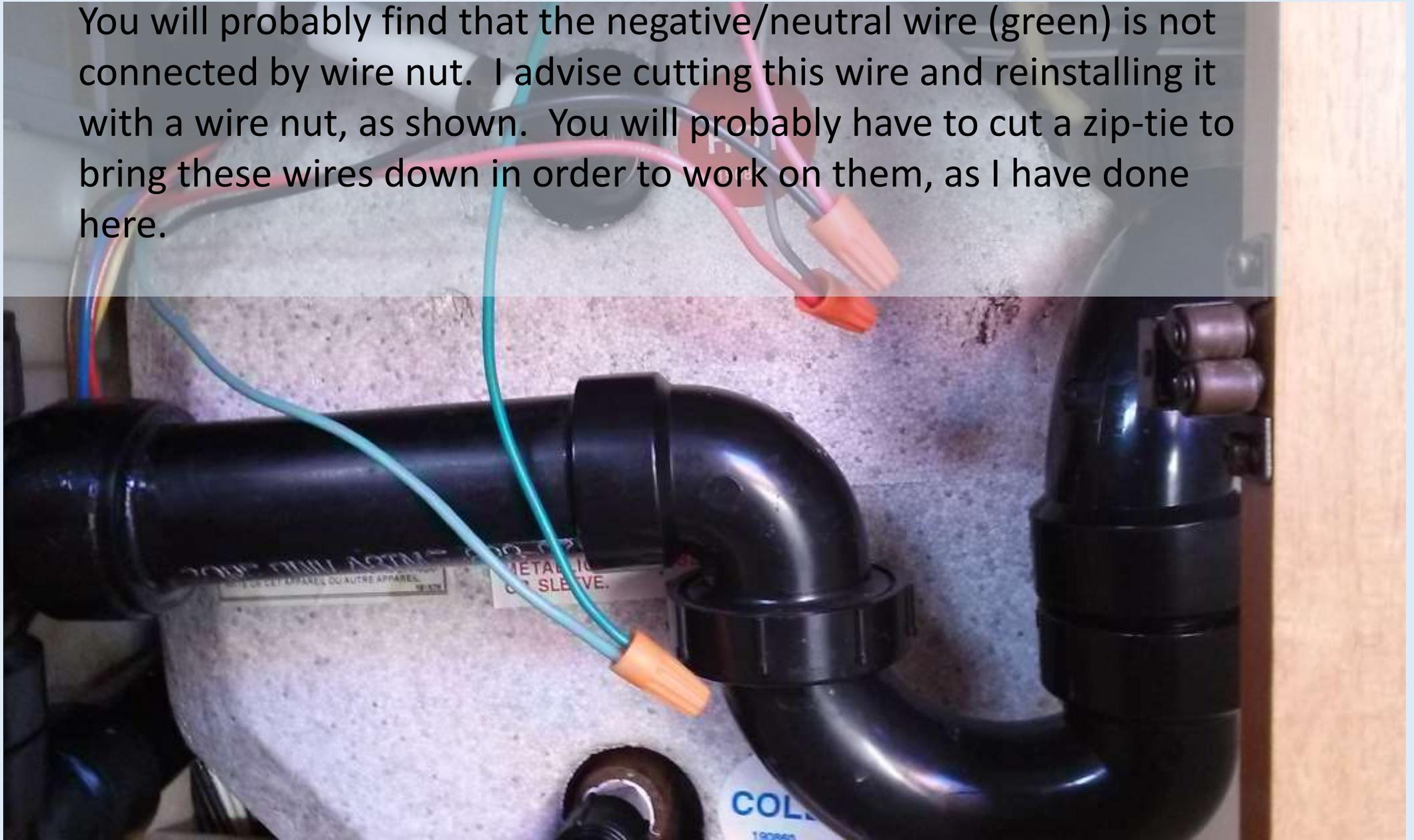
7. Disconnect the propane line at the water heater. Be sure to use a wrench on both sides of the fitting.



8. Go inside the trailer, and disconnect the water supply lines from the back of the water heater. It's helpful to have an old towel to catch any drips.



9. Disconnect the three 12vdc wires that go to the systems monitor panel. You will probably find that the negative/neutral wire (green) is not connected by wire nut. I advise cutting this wire and reinstalling it with a wire nut, as shown. You will probably have to cut a zip-tie to bring these wires down in order to work on them, as I have done here.

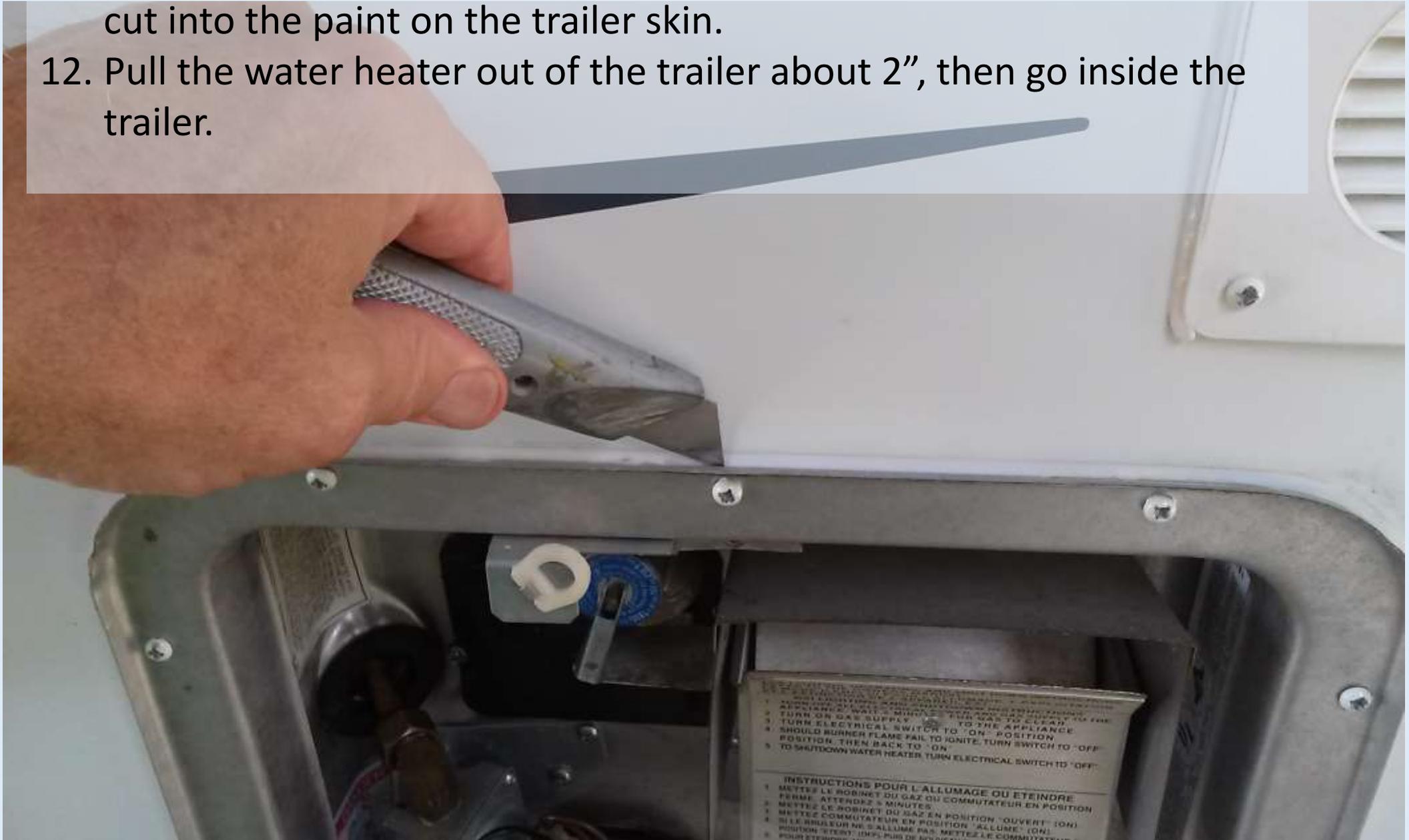


10. Remove the chassis screws (9). I recommend not using a drill-driver when working with these screws, so you don't strip them out.

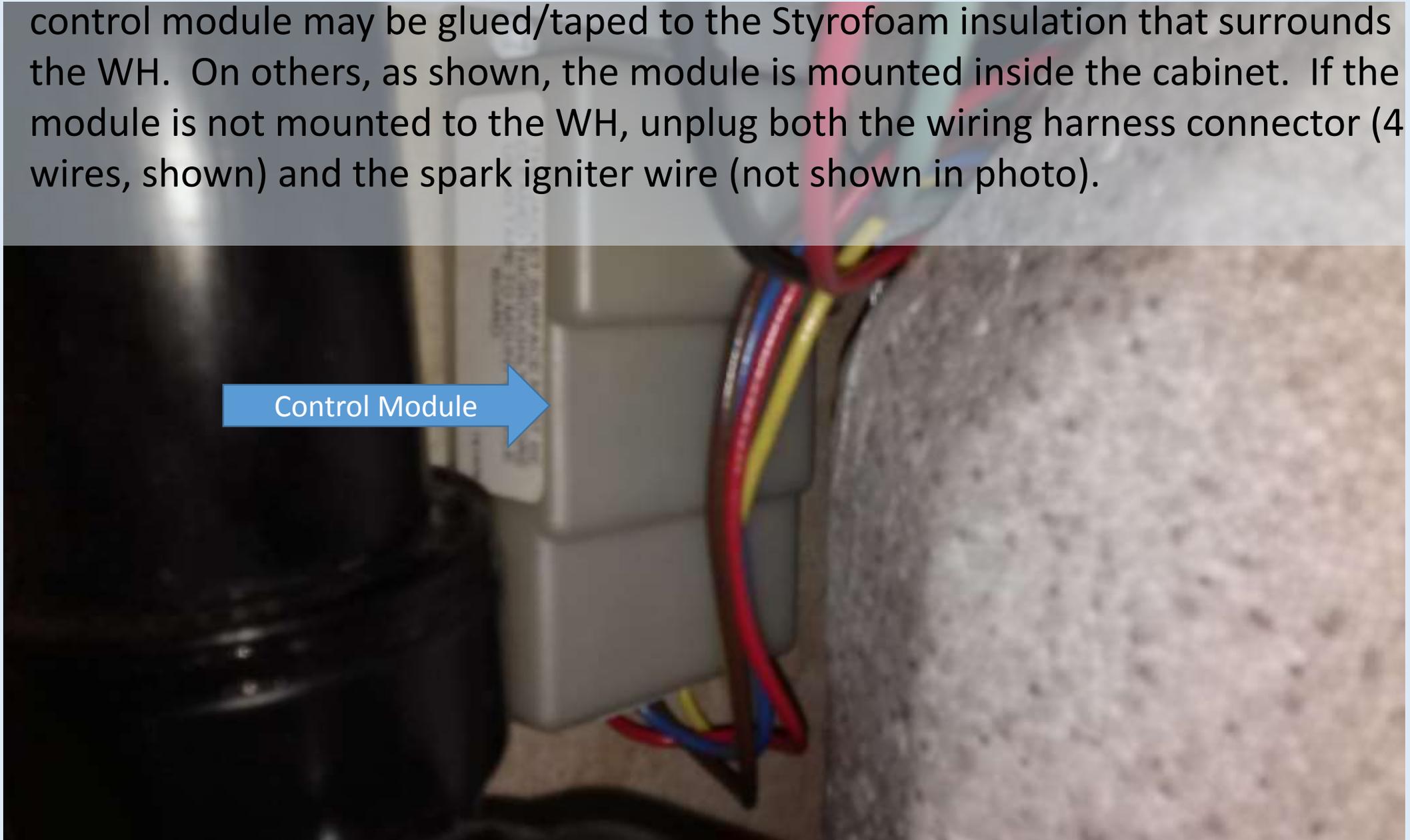


11. Cut the caulk bead. Keep the angle of the knife flat, so you do not cut into the paint on the trailer skin.

12. Pull the water heater out of the trailer about 2", then go inside the trailer.



13. Look underneath the sink for the water heater control module. On some, the control module may be glued/taped to the Styrofoam insulation that surrounds the WH. On others, as shown, the module is mounted inside the cabinet. If the module is not mounted to the WH, unplug both the wiring harness connector (4 wires, shown) and the spark igniter wire (not shown in photo).

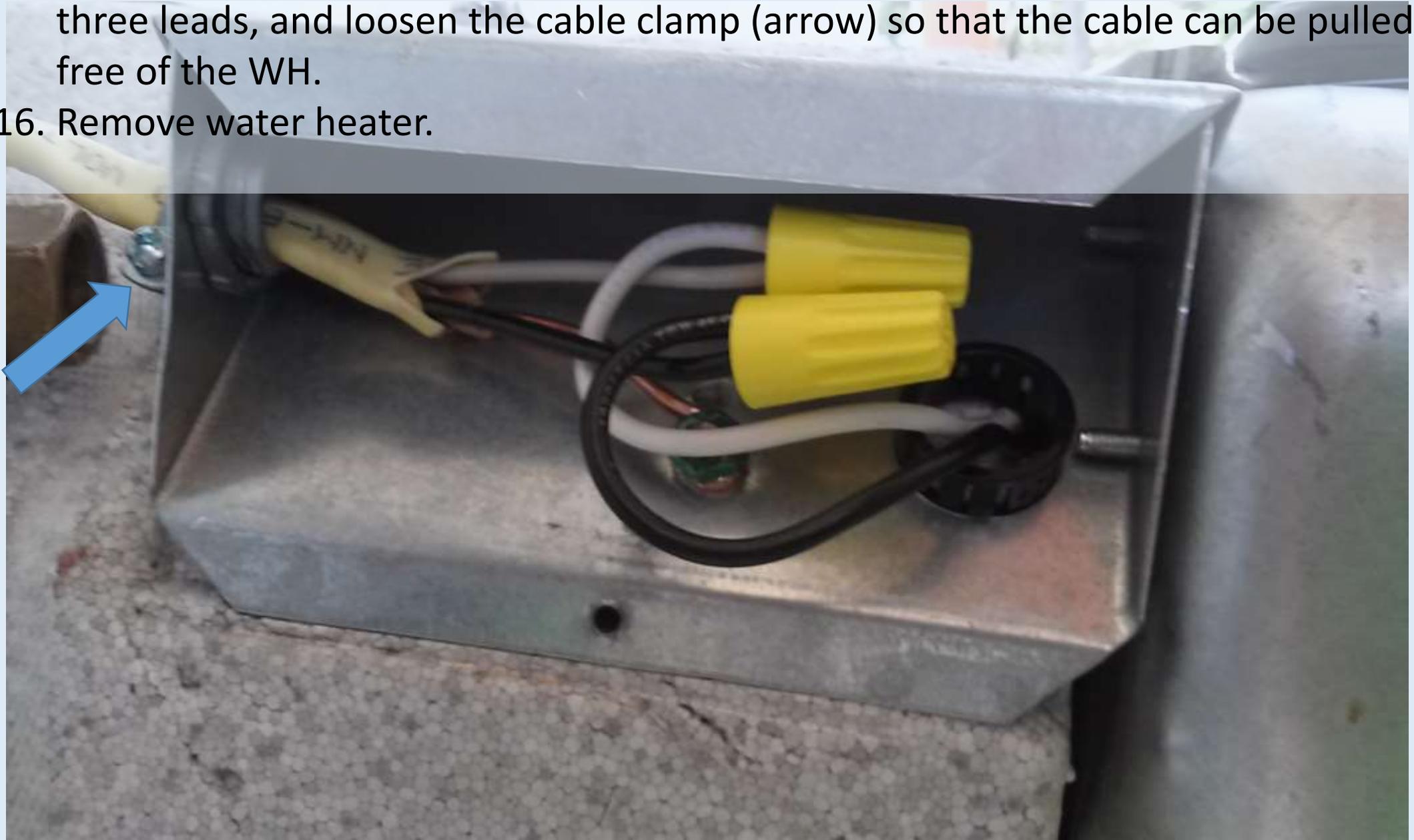


14. Now go back outside, and pull the WH approximately 12" out of the trailer, to expose the 120vac connection box. Remove the Phillips screw that secures the cover.



15. Remembering that the first step was to disconnect shore power, disconnect all three leads, and loosen the cable clamp (arrow) so that the cable can be pulled free of the WH.

16. Remove water heater.



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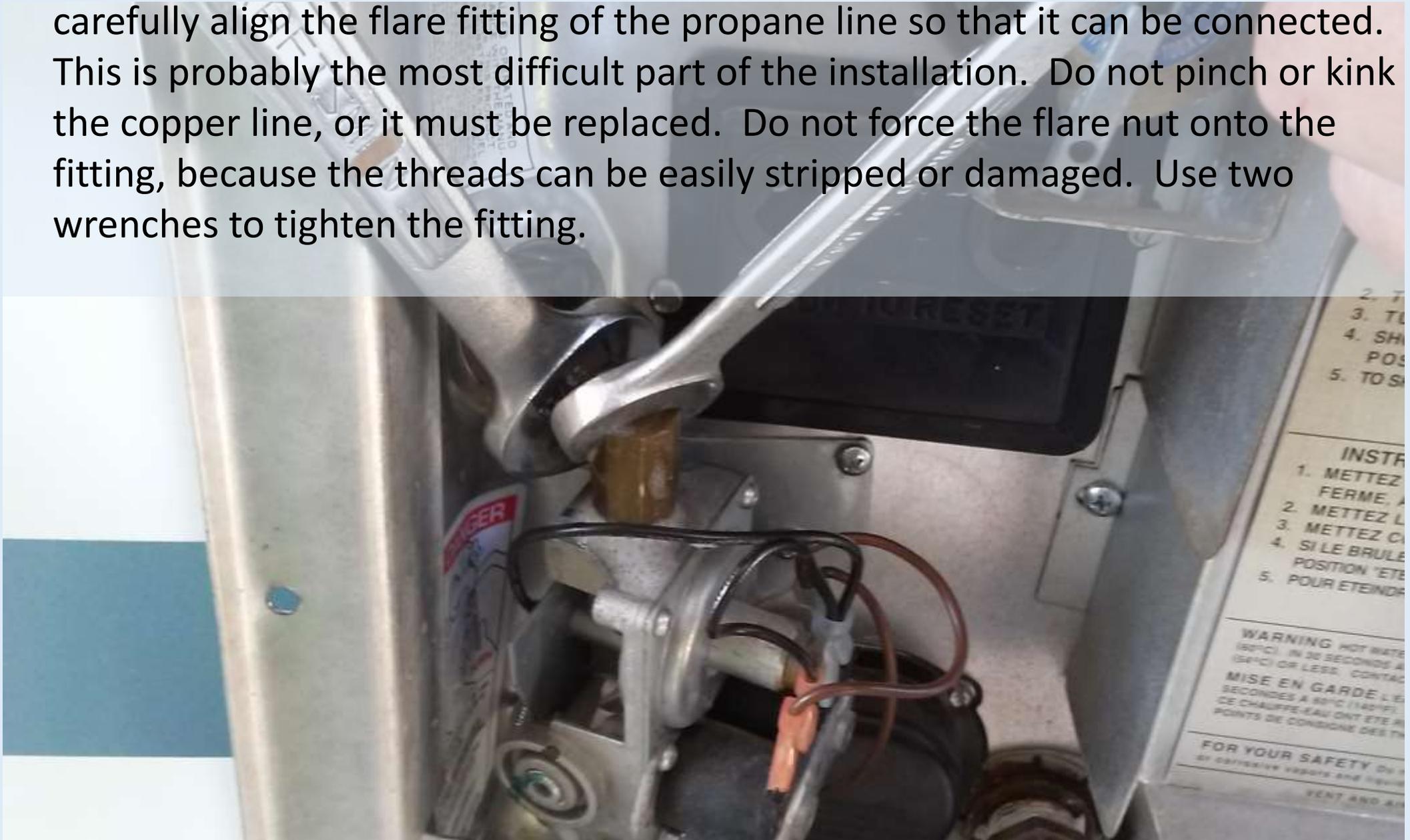
Replacing the water heater is the reverse of the above steps with some adjustments.

1. Ensure that electrical, propane, and water are all off/disconnected.
2. Slide WH into the trailer, taking care not to pinch or cut any electrical wires. Be especially careful in routing the copper propane line on the left side.
3. Connect the 120vac electric cable, ensuring that the cable clamp at the back of the box is tightened. Replace the cover to the box.

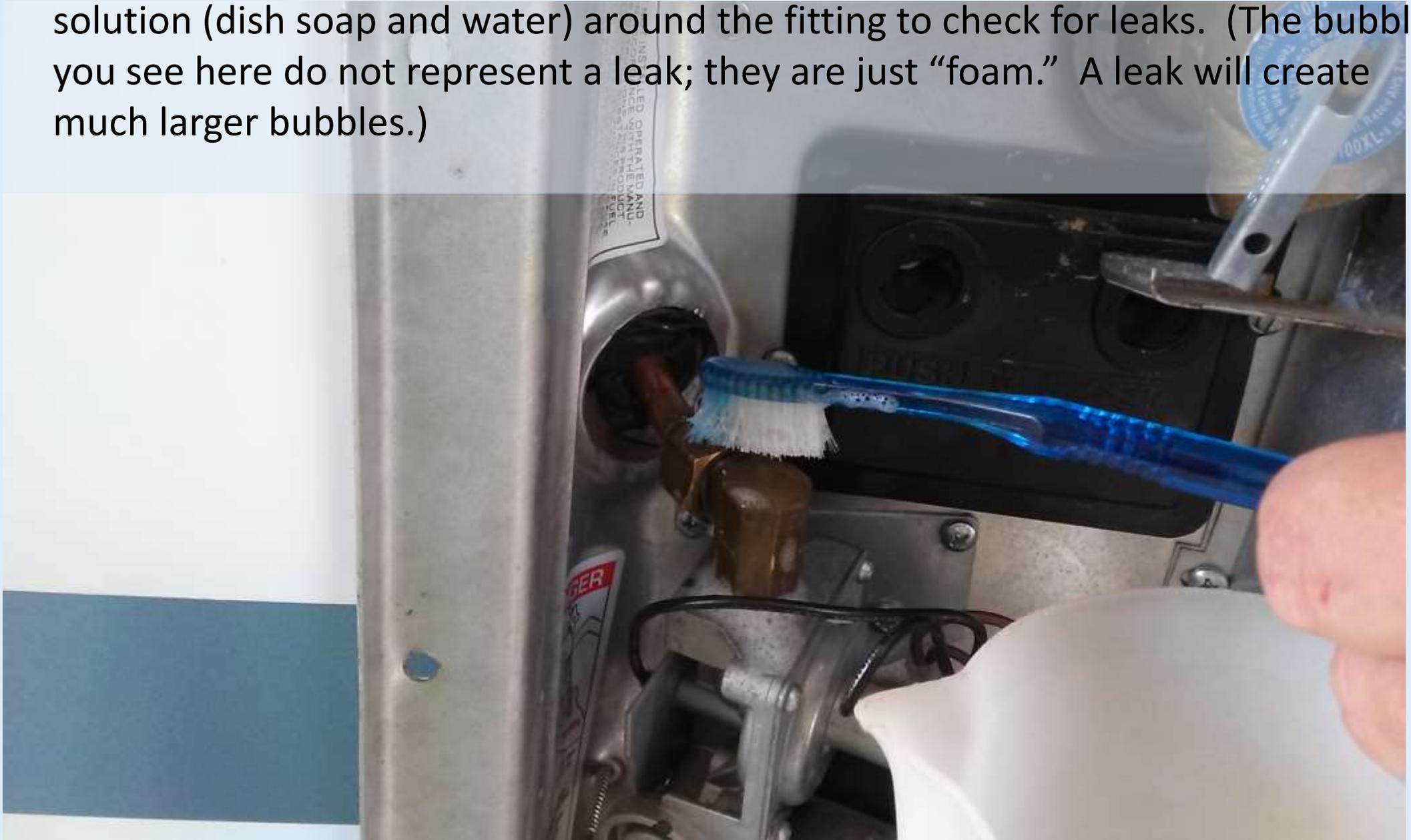
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4. Carefully slide the WH into the trailer. If you encounter resistance, stop pushing and go inside and inspect to see what might be blocking the water heater. The hardest part of this step will be to continually keep the propane line in proper position so that it can be reconnected later. If the control module is mounted on the WH, take care not to damage it as you slide the unit all the way into the trailer. If the control module is mounted inside the trailer, slide the WH until about 2" remains sticking out. Then, go inside and reconnect the wiring harness and spark igniter wire to the control module. Then finish sliding the unit in.

5. Do not screw the chassis mounting screws in yet. You will need some flexibility to carefully align the flare fitting of the propane line so that it can be connected. This is probably the most difficult part of the installation. Do not pinch or kink the copper line, or it must be replaced. Do not force the flare nut onto the fitting, because the threads can be easily stripped or damaged. Use two wrenches to tighten the fitting.

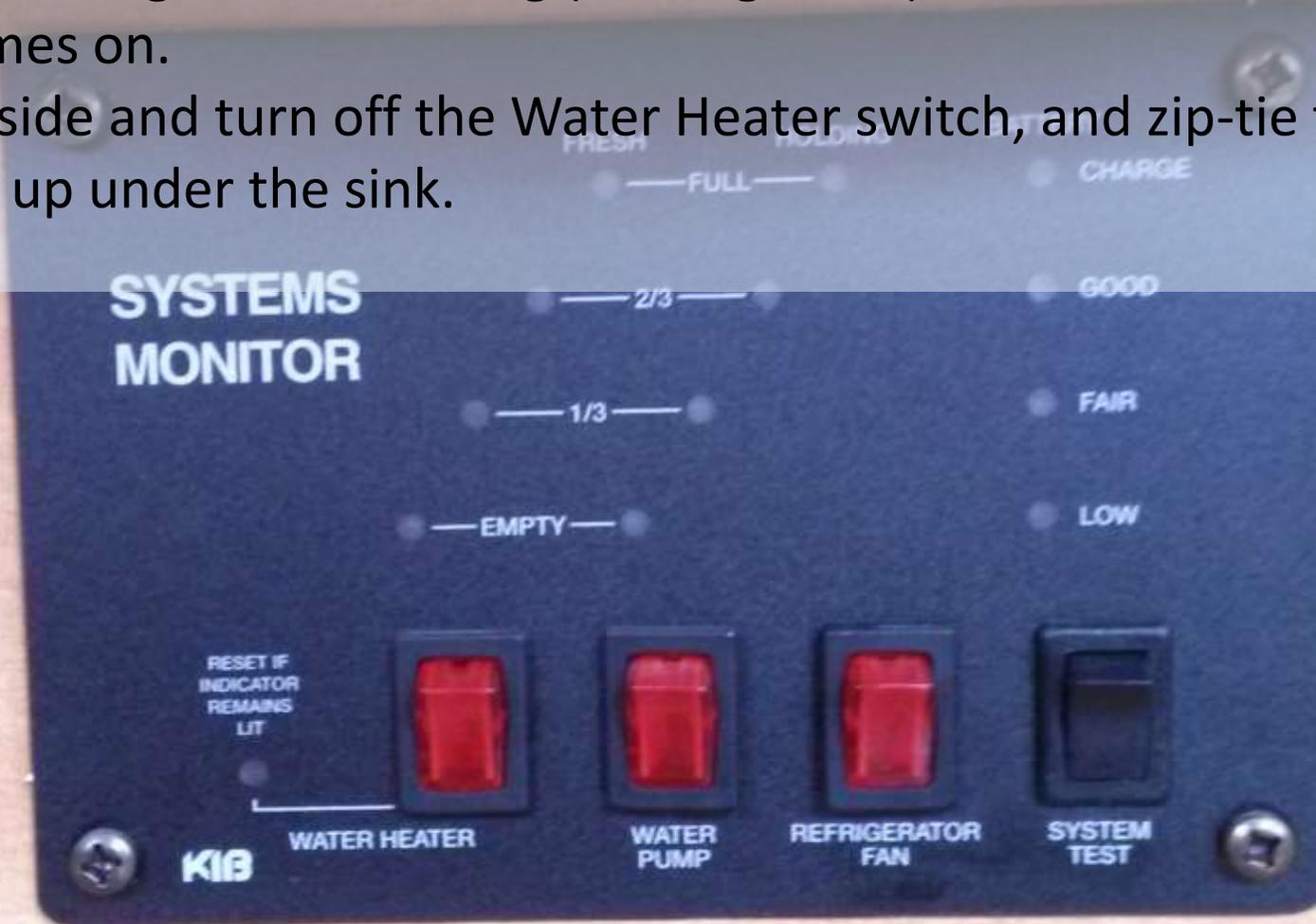


6. Open the propane tanks on the trailer to pressurize the gas lines. Apply a soapy solution (dish soap and water) around the fitting to check for leaks. (The bubbles you see here do not represent a leak; they are just “foam.” A leak will create much larger bubbles.)



7. Go inside the trailer and reconnect the water supply lines to the back of the water heater. Make sure that the rubber grommets are in place in the female connectors, and do not cross-thread when making the connections. Only hand-tighten these fittings.
8. Close the drain valves under the trailer, connect city water and pressurize the system. Do not use a pressure reducer in your water supply line. You want to maximize the water pressure now to find any potential leaks.
9. Open the hot water faucet on the kitchen sink to force air out of the system and allow the water heater to fill. Once all air is forced from the line and only water is flowing from the faucet, turn it off.
10. Check around the supply line connections and ensure that you have no leaks.

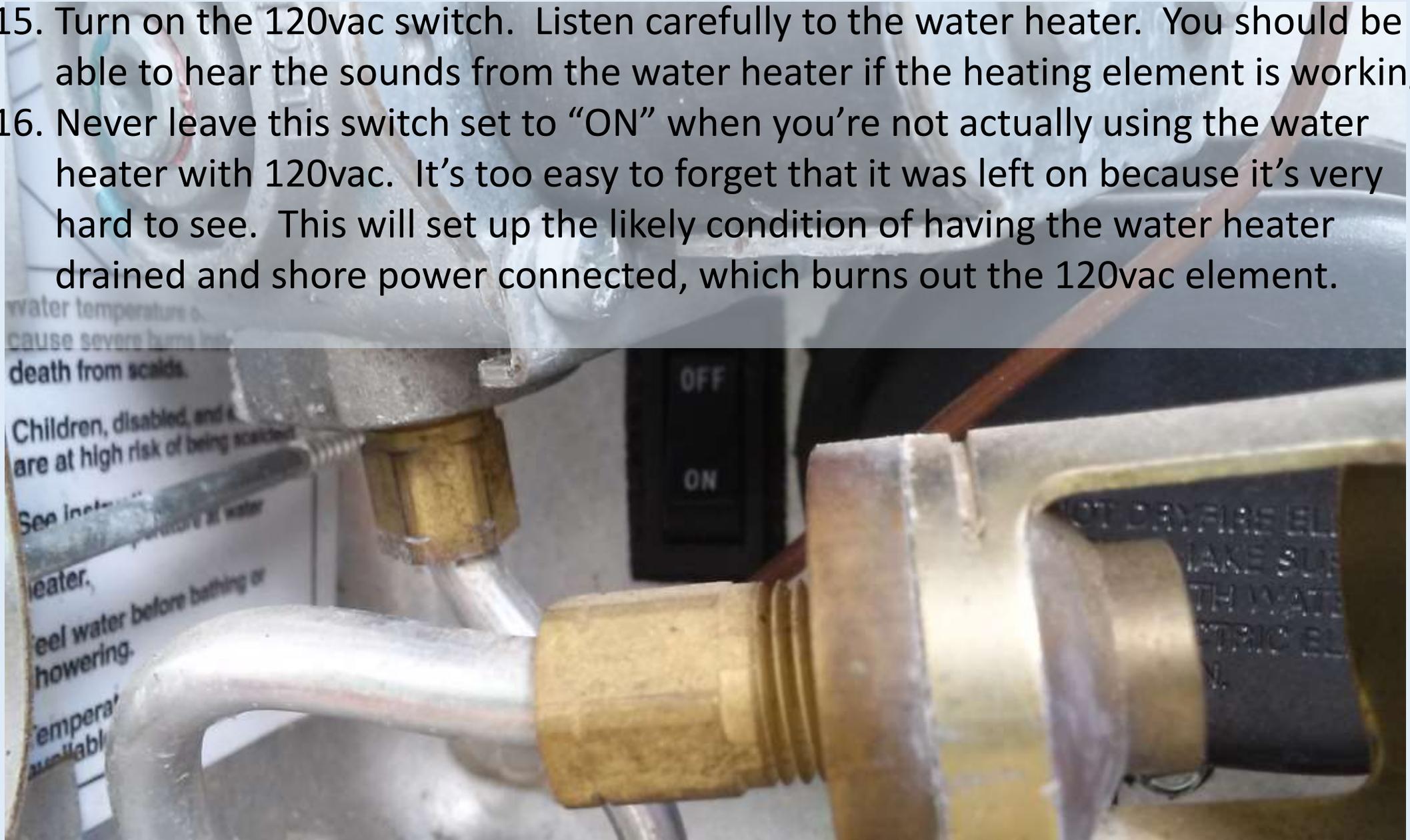
11. Reconnect the three 12vdc lines under the sink.
12. Turn on the Water Heater switch on the Systems Monitor panel. Go outside and ensure that the igniter is working (clicking noise) and make sure the propane burner comes on.
13. Go back inside and turn off the Water Heater switch, and zip-tie the three 12 vdc wires back up under the sink.



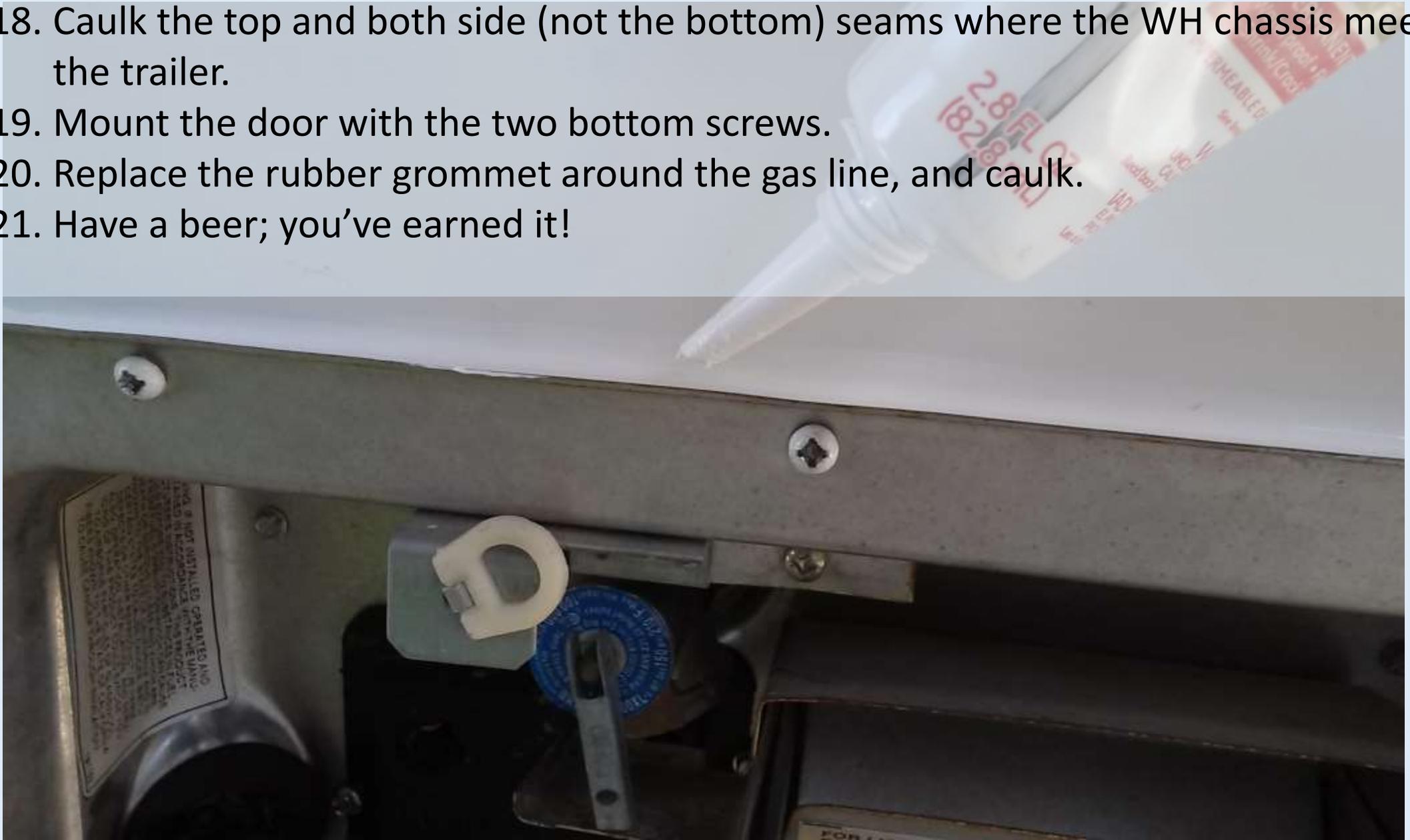
14. Connect shore power to the trailer.

15. Turn on the 120vac switch. Listen carefully to the water heater. You should be able to hear the sounds from the water heater if the heating element is working.

16. Never leave this switch set to "ON" when you're not actually using the water heater with 120vac. It's too easy to forget that it was left on because it's very hard to see. This will set up the likely condition of having the water heater drained and shore power connected, which burns out the 120vac element.



17. Replace the (9) screws that hold the heater chassis to the trailer.
18. Caulk the top and both side (not the bottom) seams where the WH chassis meets the trailer.
19. Mount the door with the two bottom screws.
20. Replace the rubber grommet around the gas line, and caulk.
21. Have a beer; you've earned it!



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Final footnote: The most frustrating part of this job is trying to work with the propane line on the re-installation. There's very little room to work with, and it can seem almost impossible to line up both sides of the flare fitting without breaking something. One trick I did when I replaced the WH in my 1995 3326KS, was to go under the kitchen sink in a spot where the copper line was easily accessible (just a few inches above where it came through the floor), and cut the line with a tubing cutter. I then installed a "union" fitting there. This allowed me to have a disconnected, short piece of line to the WH, which made manipulating that section much, much easier. Once the WH connection was in place, it was a simple job to manipulate the two ends under the sink back on the union. Of course, doing this requires that you have flaring tools (relatively inexpensive), and gives you one more place you need to leak check once you've completed all your work.