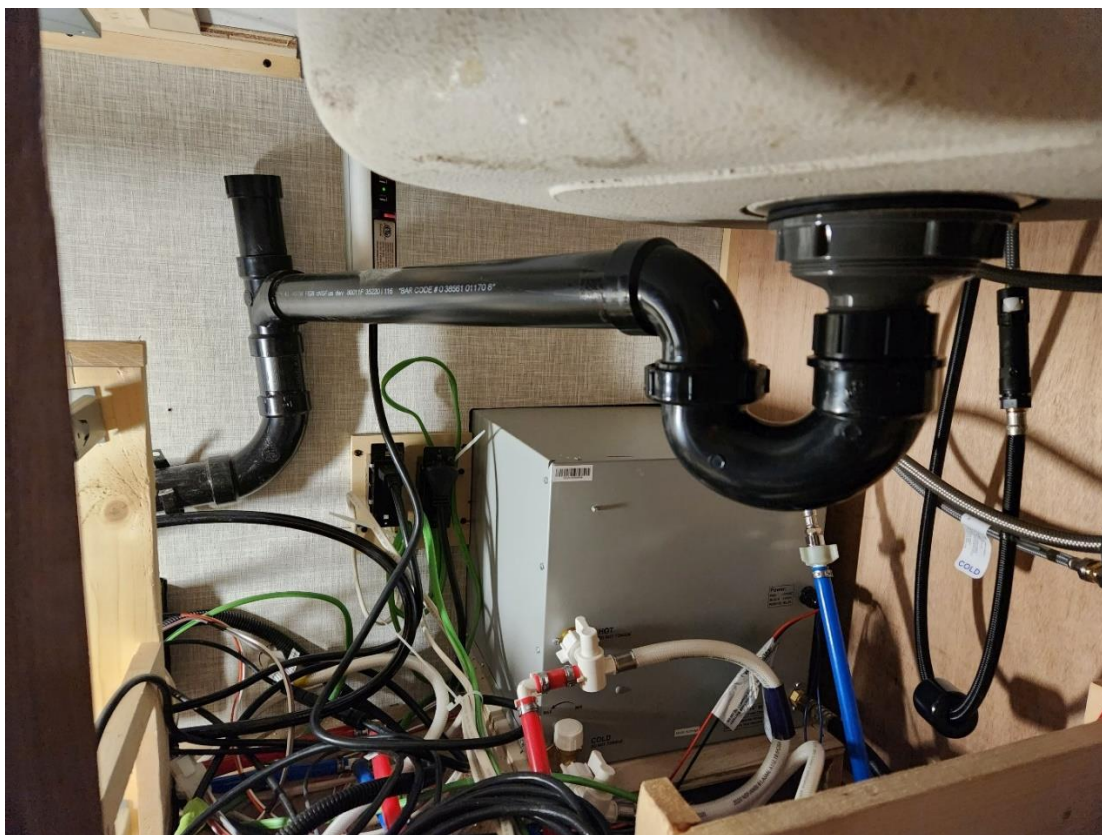


# Modifying the Quantum JM31 kitchen sink drain

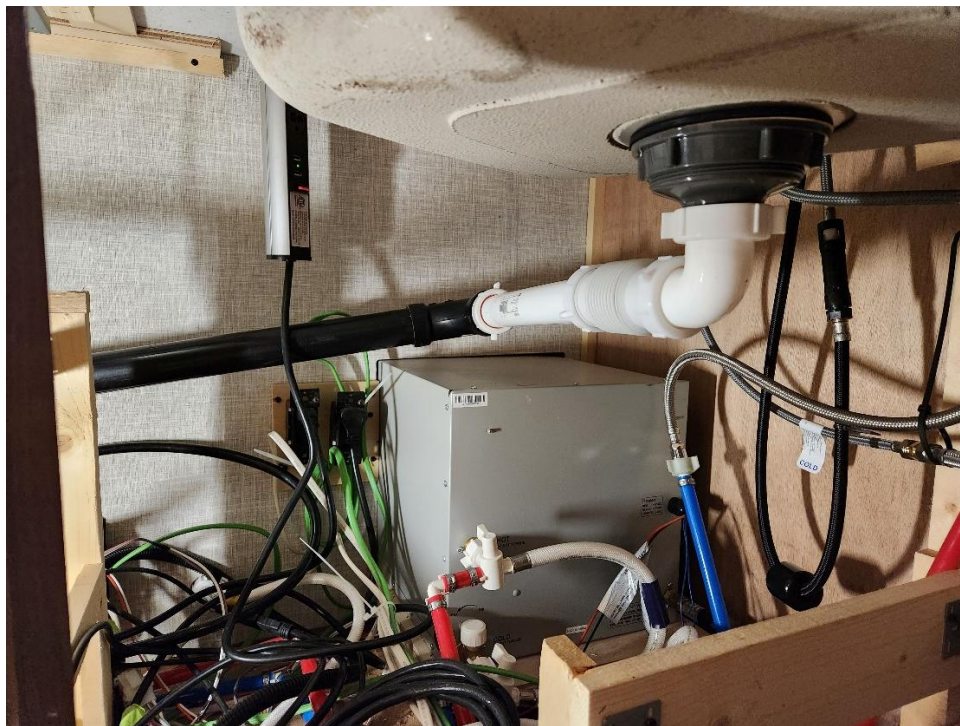
Bob Nodine, March 2023

The Quantum JM31 kitchen sink drain was poorly designed with the P-trap mounted directly under the sink and no slope on the output pipe. As a result, there is always water visible in the drain of the kitchen sink and the air admittance valve worked poorly. My wife did not like this and frequently complained about it. This was not a project we were looking forward to and put it off for almost two years after we purchased the motorhome. We just completed redoing this drain and thought others might be interested in the same modification. The task involved some trial and error and numerous trips to Lowe's before we arrived at a satisfactory solution. Documenting our effort will be a benefit to anyone who wishes to undertake this.

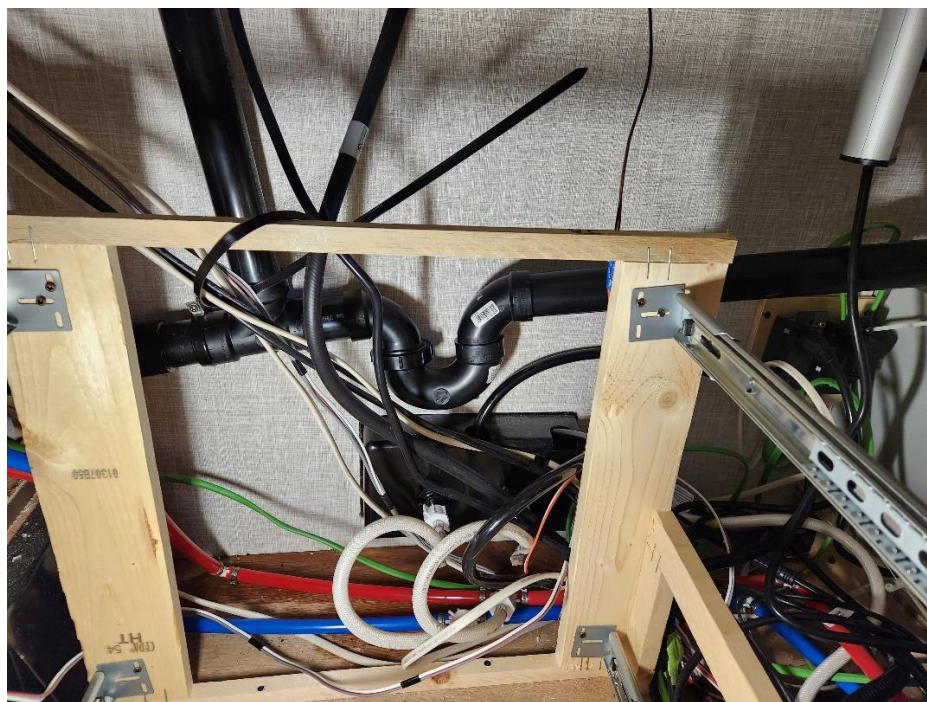
Describing what we did will be detailed with numerous photographs. First a few photos to show the kitchen sink drain before and after the modification. Figure 1 is the drain as it came from the factory. The air admittance valve is missing in the photo because we had removed it and forgot to replace it for the photo. Figure 2 shows the sink drain line after the modification and Figure 3 shows the new location for the P-trap and the air admittance valve.



*Figure 1 The drain, P-trap, and air admittance valve before the modification*



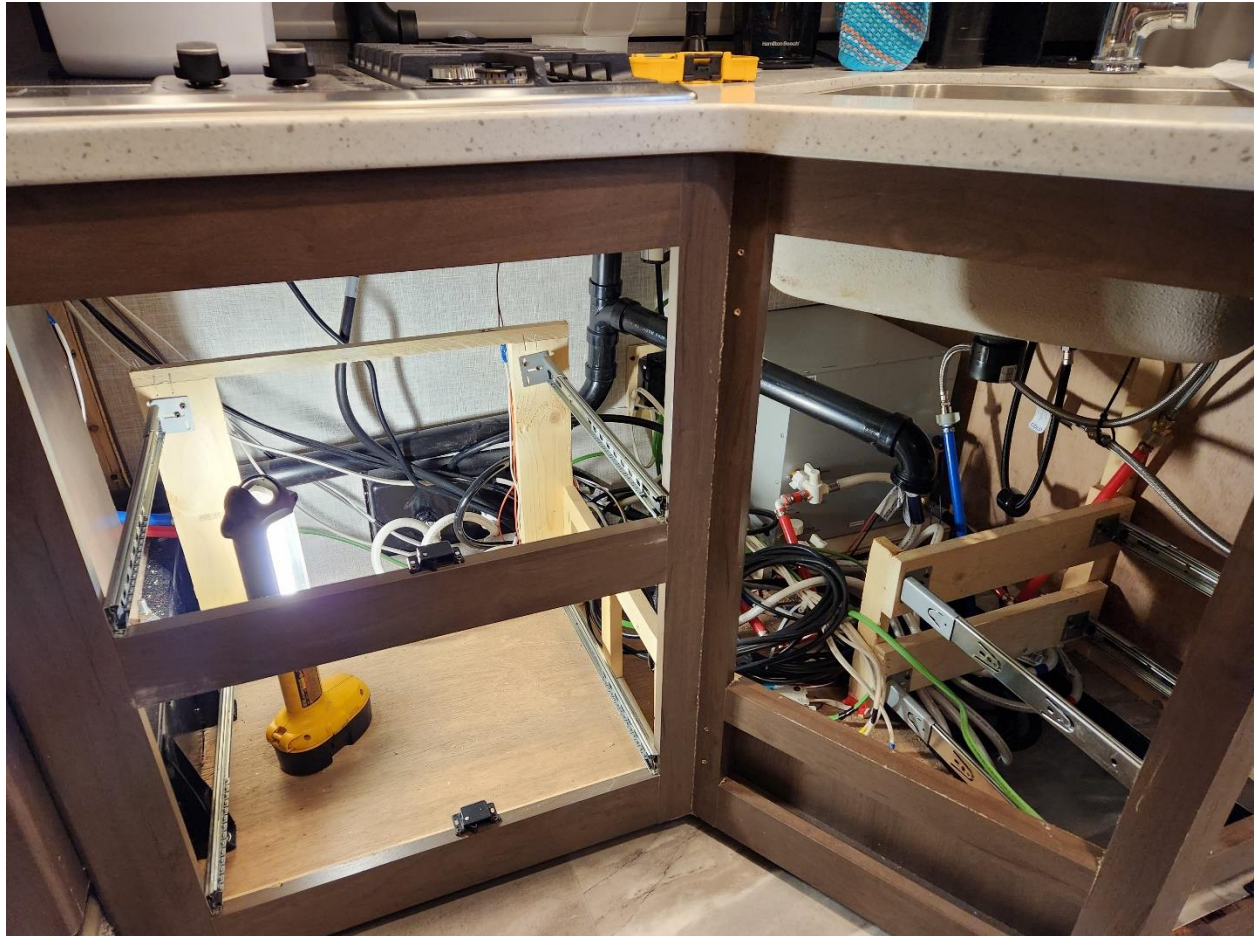
*Figure 2 Sink drain line after modification*



*Figure 3 New location for P-trap and air admittance valve*



The first step in the project is to remove all the drawers, the cabinet door where the garbage can is stored, and the floor for the garbage can. The cross brace between the drawers under the stove can be removed but we did not find this necessary. A larger individual may need the additional access provided by removing this piece.

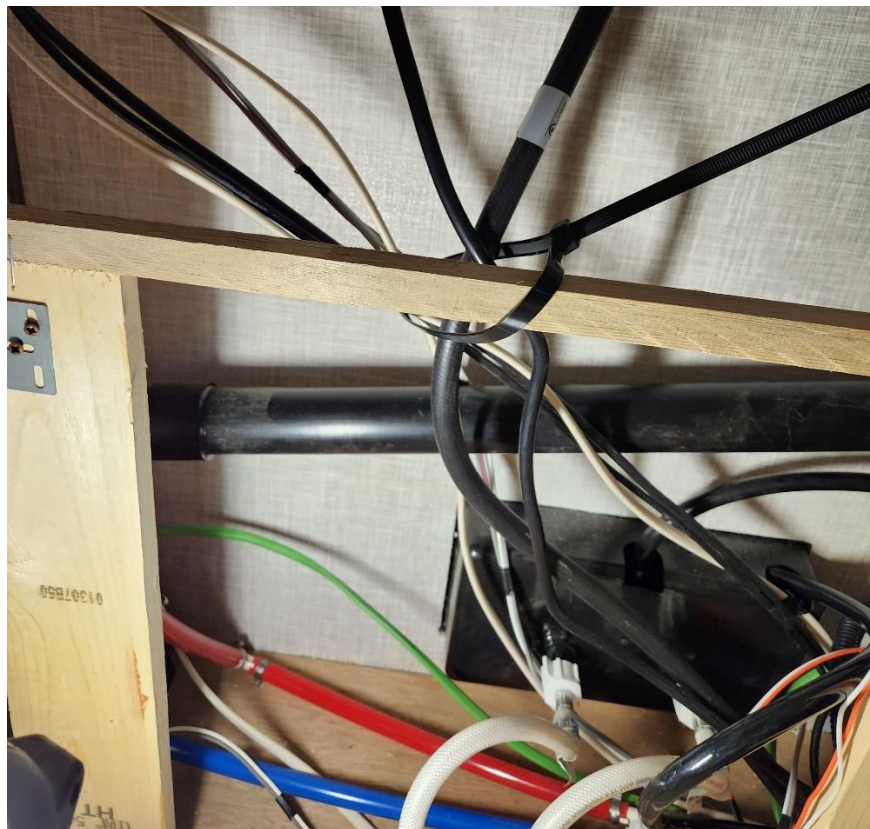


*Figure 4 Drawers, door, and garbage can floor removed*

A PVC pipe wire saw is available for sawing in confined spaces so we purchased one. It did not work on the schedule 40 drain pipe so we abandoned it for an old fashioned hacksaw blade. See Figure 5. First tie up the wires and cables to keep them out of the way as shown in Figure 6. We chose to cut the pipe about three inches in front of the existing pipe joint, Figures 7 and 8. Remove the P-trap and drain line from under the cabinet and discard it, Figure 9. Be sure to save the clamp and air admittance valve because they will be used on the new drain line, Figure 10.



*Figure 5 Hacksaw blade with Stanley handle*



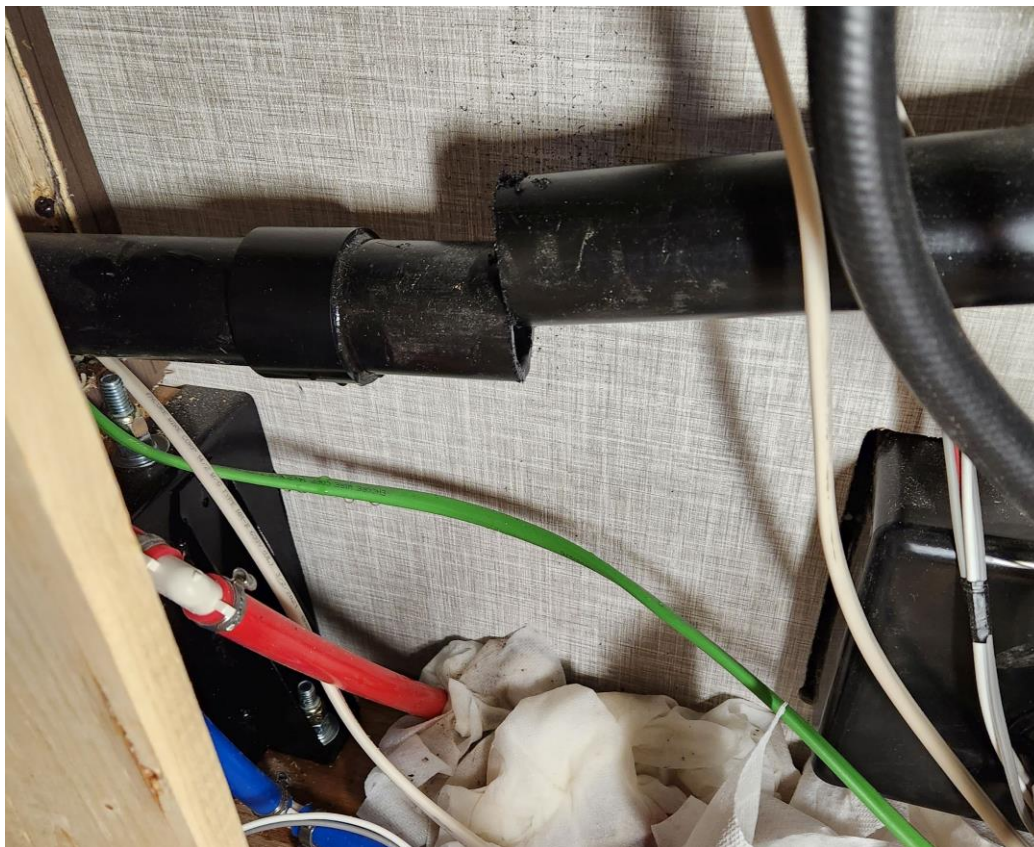
*Figure 6 Tie wires and cables out of the way*





*Figure 7 Saw pipe about 3 inches in front of existing joint*





*Figure 8 Pipe cut*



*Figure 9 Remove P-trap and old section of drain pipe*



*Figure 10 Save the clamp and air admittance valve*

The following details the parts that need to be purchased to modify the drain line. We purchased everything at Lowe's and the item numbers can be used on Lowe's website to locate the parts. Of course, PVC cement will be needed so if you do not already have some on hand you will need to purchase that.

15" Waste Arm	Lowe's Item #172271
Extension Coupling	Lowe's Item #026614
Street Trap Adapter	Lowe's Item #022810
90° Sweep Elbow	Lowe's Item #073870
ABS DWV Adapter	Lowe's Item #022765
90° Street Elbow	Lowe's Item #022772
P-Trap/Union	Lowe's Item #022751
Sanitary Tee	Lowe's Item #022753
5 ft drain pipe	Lowe's Item #042325

Cut the 15-inch waste arm 12 inches from the end and reconnect the two sections with the extension coupling. See Figures 11 and 12. From the 5-foot section of drain pipe cut a 3-inch length, a 11-inch length, and a 20-inch length as shown in Figures 13, 14, and 15. Connect the waste arm with the extension coupling to the bottom of the sink. Using PVC cement glue the Female Adapter, Item #022765, to one end of the 11-inch section of drain pipe. Glue the other end to the Sanitary Tee, Item #022753, as shown in Figure 16. Allow 15 minutes for the glue to setup and then screw the air admittance valve into the Female Adapter. Next glue the Sanitary Tee with the air admittance valve to the drain pipe with the valve pointing in a vertical direction. Again, refer to Figure 16. Cut a length of 2 x 4 about 11-inches in length and place under the drain pipe to obtain a slope that will elevate the drain above the water heater. Locate the Sweep Elbow, Item #073870, and the Street Trap Adapter, Item #022810. Glue the Street Trap Adapter into one end of the Sweep Elbow and set aside for the moment.

Perform the following steps without using any PVC cement. Insert the 3-inch section of drain pipe into the open end of the Sanitary Tee and then slip the P-trap onto the other end of the 3-inch section. Next insert the male end of the Street Elbow, Item #022772, into the other end of the P-trap. Insert the 20-inch section of drain pipe into the female end of the Street Elbow and then slide the Sweep Elbow with the Street Trap Adapter onto the other end. Slide the waste arm from the sink into the Street Trap Adapter and position the entire drain line in the desired position that will become permanent after the joints are glued. Cut some pieces of painter's tape as shown in Figure 17. Apply the tape to each side of all unglued joints and mark across each joint with a felt tip pin as shown in Figure 18. Remove the unglued section of drain line and glue each joint being careful to align the marks made at the joints. Allow 15 minutes to dry and then re-install the drain line by gluing the 3-inch section at the P-trap into the Sanitary Tee. After the joint at the Sanitary Tee has dried inset the waste arm back into the Street Trap Adapter. Use the clamp that was saved from the original drain line to secure the drain line and remove the 2 x 4. Double check that all joints with threads are tight and then turn on the sink and make sure there are no leaks. Once confident there are not any leaks re-install all the drawers, the door, and the garbage can floor.





*Figure 11 Cut waste arm 12 inches from the end*



*Figure 12 Use the flexible coupling to reconnect*

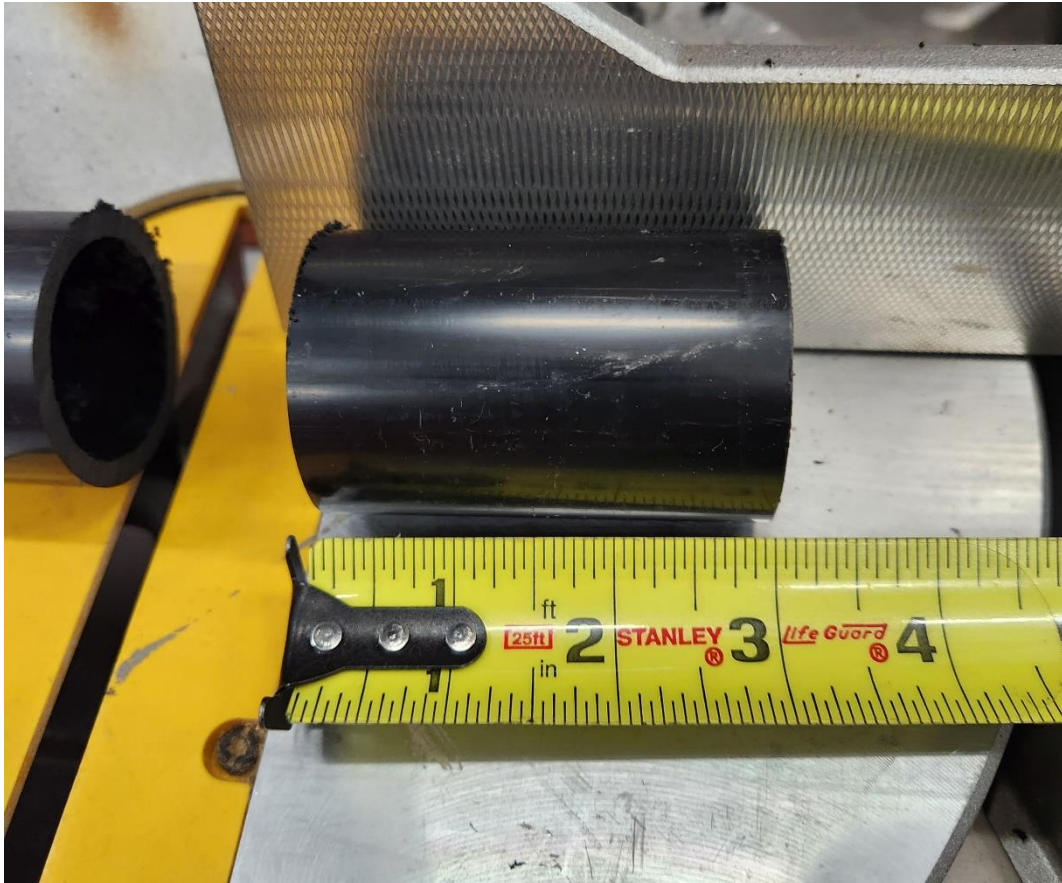


Figure 13 Three-inch length



Figure 14 Eleven-inch length





Figure 15 Twenty-inch length

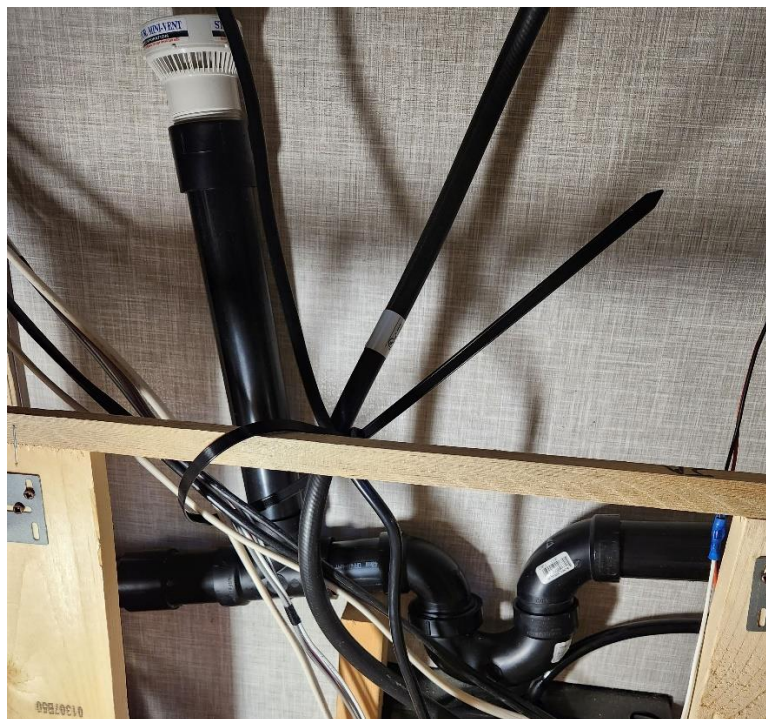
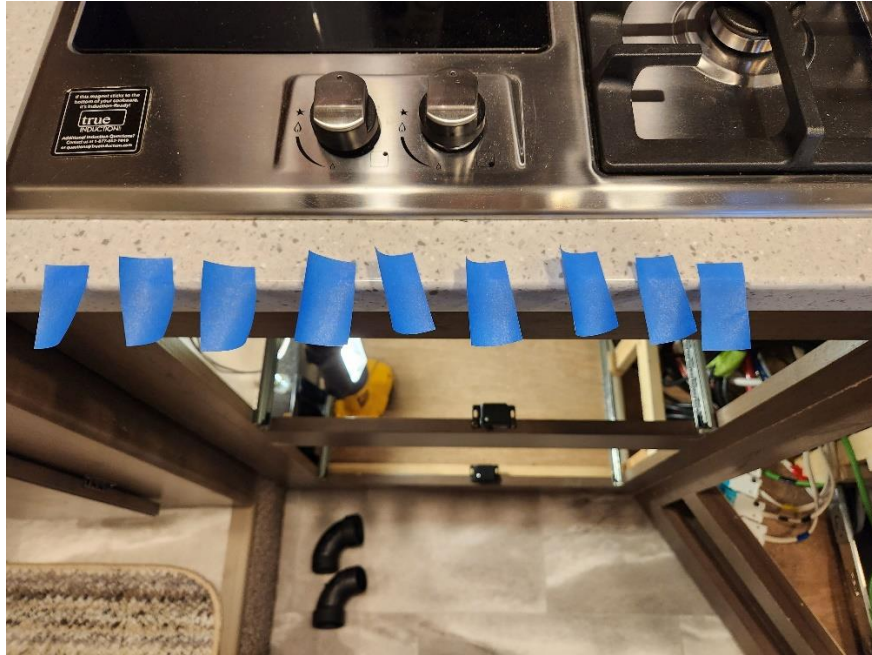
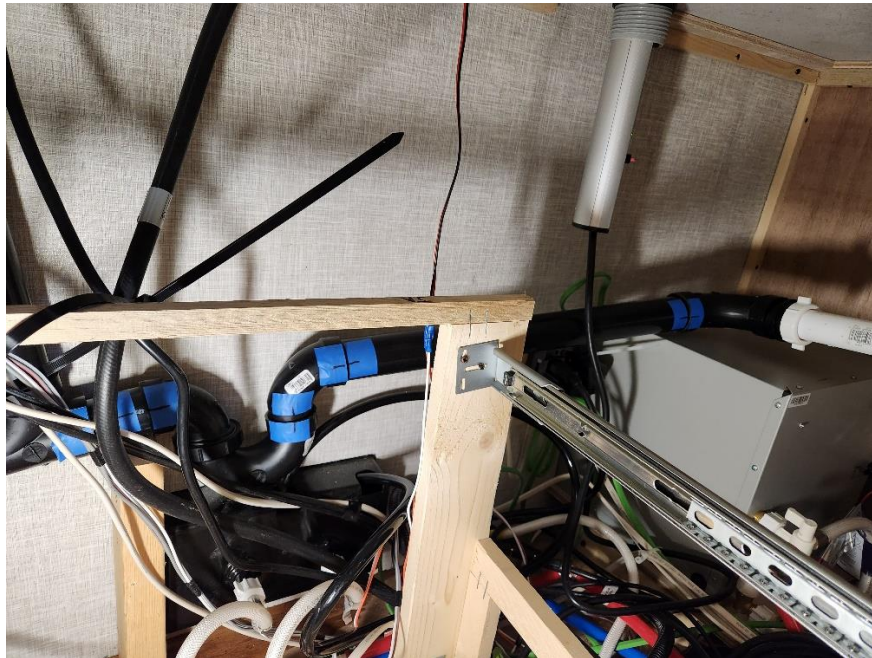


Figure 16 Sanitary Tee with up pipe for air admittance valve



*Figure 17 Pieces of painter's tape for marking joints*



*Figure 18 Unglued joints marked with tape and felt tip pin*