The below is the process I used to replace the LED dome lights in my 2020 Keystone Bullet travel trailer. This process corresponds to the YouTube video: https://youtu.be/tY-I35KAvyw. Please watch this video for visual understanding of the process.

Disclaimer: Please be aware that this process includes changing plumbing items and if done incorrectly, can lead to water leaks and damage to your RV. If you are uncomfortable this process, please contact a mobile RV tech or your local RV dealer to do the work.

Below is the step-by-step process I used. While you may have a different RV, most of these steps should apply to your situation. Here are the tools and supplies you will need to do this job:

- A PEX Cinch/Removal Tool
- A PEX Pipe Cutter Tool
- Medium-sized channel locks
- A Tape Measure
- A Headlight or Flashlight
- A Sharpie Marker
- 1 PEX ½" Female Swivel 90 Degree Fitting
- 2 PEX ½" Coupler Fittings
- 8 PEX ½" Clamps
- One 3-Way Bypass/Shutoff Valve
- And 24" + of Blue PEX Pipe

Preinstallation Steps

- 1. Diagnose if your bypass valve is leaking. You can do this by finding the location of your hot water tank and valve and pressurizing your plumbing lines with water.
- 2. Decide on a new 3-way bypass valve. I settled on this small black hard plastic unit from Amazon.

Process Steps

- 1. Put a small tray below the female swivel connector to catch water at the water tank.
- 2. With pressure released and water drained from the hot water tank, remove the female swivel connector from the hot water tank.
- 3. Using your PEX pipe cutter tool, cut the existing bypass valve off by cutting the vertical and horizontal lines running to the bypass valve.
- 4. Measure the length between the new female swivel fitting and the new bypass valve, then cut the PEX pipe to length using your PEX pipe cutting tool.
- 5. Fit the cut PEX pipe onto the female swivel fitting. It will take some hand strength to twist the pipe on tightly.
- 6. Add a $\frac{1}{2}$ " PEX clamp onto the pipe about $\frac{3}{8}$ " from the end of the pipe.
- 7. Using your PEX Cinch Tool, compress the clamp to the PEX pipe. This takes considerable strength and two hands or one hand and a hard surface to accomplish.
- 8. Fit the female swivel fitting to the hot water tank male threads. On mine, there was a rubber gasket to thread first, and it took some hand pressure to thread. You will need to adjust the

attached PEX pipe as you tighten the fitting to the tank. (14:40) Also, remember to put a second $\frac{1}{2}$ " PEX clamp in the new pipe.

- 9. Use channel locks to tighten the fitting. Since the swivel fitting is plastic, be careful about over-tightening and potentially breaking the fitting. (15:34)
- 10. Fit the new bypass valve into the new PEX pipe, adjust the clamp to about 3/8" from the end of the fitting, and compress the clamp with your PEX cinch tool.
- 11. Cut the vertical line mid-way with the PEX cutter tool.
- 12. Place a PEX clamp onto the vertical pipe and fit the coupler fitting onto the end of the pipe.
- 13. Measure the distance for the vertical pipe insert and cut accordingly using your PEX pipe cutter tool. Add two PEX clamps to this piece.
- 14. Fit the vertical pipe insert to the bypass valve and the coupler fitting. Ensure you support the plastic bypass valve when pushing the new pipe onto the valve. It takes some effort to twist and push the new pipe onto the fitting and be aware of any obstacles. Once the new pipe is inserted, adjust the clamps to about 3/8" from the end of both sides of the new pipe.
- 15. Use your PEX cinch tool and compress both clamps onto the pipe, and test that the fit is tight.
- 16. Cut the horizontal line mid-way so I could access the pipe to compress the clamp. I did a quick measuring and marking to get a general length.
- 17. Add a clamp to the horizontal line and cut the line at the mark using the PEX cutter tool.
- 18. Insert the coupler fitting into the PEX horizontal line, adjust the clamp to 3/8" from the end of the fitting, and compress the clamp.
- 19. Measure the exact distance for the new pipe to fit between the new coupler fitting and the bypass valve.
- 20. Mark and cut a piece of PEX pipe to length, add clamps to the new pipe, and insert the pipe onto the coupler fitting.
- 21. Compress the clamp at the coupler fitting, then fit the pipe to the bypass valve, adjust the clamp, and compress it.
- 22. Physically check all the connections by hand to ensure everything is seated tightly.
- 23. Attach your water pressure regulator on a hose to the city water inlet of the rig and run a water pressure test to the system.
- 24. After the tank is full and you no longer hear water moving into the tank, check the water pressure on your pressure regulator (outside) to see that you have 40-50 psi on the water lines.
- 25. Go inside to the water tank with a headlight or flashlight and look closely for leaks at each fitting and at the female swivel fitting.
- 26. Heat the water in your full tank and let it sit for a while, then recheck the fittings for any leaks.

Congrats!