

FILLING/PURGING INSTRUCTIONS FOR CONVENTIONAL BOILER (UTILITY PUMP)

Safety tip: Before beginning, turn off power to boiler and circulator.

FILLING AND PURGING LOOPS THROUGH MANIFOLD

- STEP 1** Close Manifold Isolation Ball Valves (#10) and (#12).
- STEP 2** Open all the manifold flow meter valves (#11) by turning counter-clockwise.
- STEP 3** Close all manifold valves (#13) except for the first loop by turning the plastic knob clockwise. Leave it wide open.
- STEP 4** Connect a garden hose (#15) to the drain valve on the return manifold end cap (#14) and put the open end in a 5 gallon bucket. Place bucket over a drain or outside. Turn the cap over and use it to open the drain valve on the end cap valve fully.
- STEP 5** Connect a double ended female washing machine hose (#17a) to the drain valve on the supply manifold end cap (#14a) and connect it to the outlet side of the utility pump (#16). Connect a garden hose or washing machine hose (#15) to the inlet side of the utility pump and put the open end in the 5 gallon bucket.
- STEP 6** Fill bucket 3/4 full with distilled or RO (Reverse Osmosis) water. Have enough additional water ready to keep filling the bucket as it fills the system.
- STEP 7** Turn over the cap for the supply manifold end cap (14a), and use it to open the drain valve fully. Turn on the utility pump and start filling the first loop on the manifold.
- STEP 8** Water will start filling the first open loop and empty into the bucket. Let the water run until ALL air is purged from that loop. Monitor water for air bubbles in the 5 gallon bucket. This is a good indicator that the system is free of air. Close the on/off valve (#13) and repeat this process for each loop on the manifold. Add more water to the bucket as needed.
- STEP 9** Repeat step 8 a second time. Leave all on/off valves (#13) closed for now. Close first return manifold end cap drain valve (#14), then the supply manifold end cap drain valve (#14a). Shut off the utility pump. Loops are now filled and purged.

FILLING AND PURGING THE REST OF THE SYSTEM

- STEP 10** Remove the double ended washing machine hose (#17a) from supply manifold end cap drain valve (#14a) and connect it to Boiler Drain (#19).
- STEP 11** Open Return Manifold Isolation Ball Valve (#12), and Ball Valves (#3) on supply and return side of the boiler.
- STEP 12** Manually set Mixing Valve (#9) in a mid-position so that it allows water to flow through all ports.
- STEP 13** Loosen cap on air eliminator (#6). *filling*
- STEP 14** Start the utility pump and slowly open Boiler drain (#19) to fill the boiler and the rest of the system.
NOTE: Do NOT exceed 30 psi. Full water pressure may damage the expansion tank or force open the pressure relief valve. A second person may be needed to monitor pressure while filling.
- STEP 15** Water will start filling the boiler, boiler piping, and return piping and empty into the bucket. Let the water run until ALL air is purged from that loop. Monitor water for air bubbles in the 5 gallon bucket. This is a good indicator that the system is free of air. Add more water into the bucket as needed.
- STEP 16** Close return manifold isolation ball valve (#12). Open all manifold on/off valves (#13) and supply manifold isolation ball valve (#10). Again, let the water run in bucket until all the air bubbles are gone.

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- STEP 17** Slowly close the drain valve (#14) and monitor the system pressure. Close Boiler Drain (#19) when system pressure reaches about 12–18 psi.
- STEP 18** Open return manifold isolation ball valve (#12).
- STEP 19** System is now ready for start-up. Turn power on for the circulator (#8) and (#18) and let run for about one hour before turning firing the boiler. Monitor the pressure. During this phase additional air may be vented from the system, lowering the system pressure. Add water with utility pump through Boiler Drain (#19) to maintain 12–20 psi. If zoning system is not yet connected, have the electrician make a temporary hook up to power the pumps.

