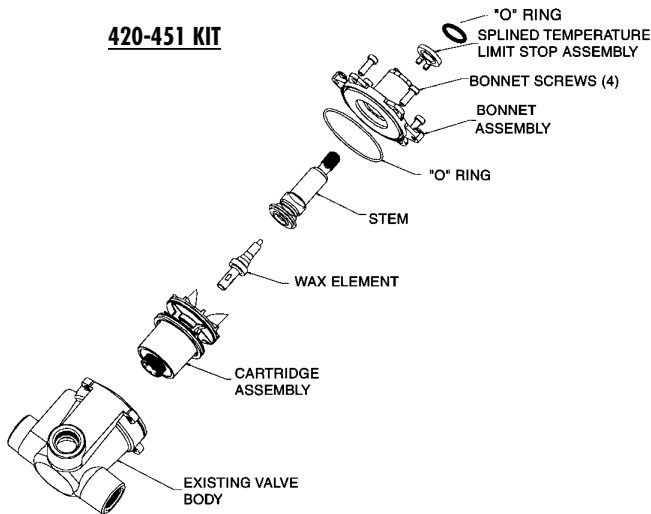


420 RETROFIT INSTRUCTIONS

The following instructions explain how to retrofit your existing 420 HydroGuard to the new, enhanced version which utilizes a wax element and cartridge type design. The combination of these design concepts results in a valve with enhanced performance. See the exploded view of this new assembly below:

Figure 1

420-451 KIT



Before you begin your upgrade, take the time to ensure you have all the necessary pieces. Your retrofit kit, for each valve, consists of the following (refer to above diagram when taking inventory):

1. Cartridge Assembly (w/2 "O"-rings).
2. Wax Element.
3. Bonnet Assembly.
4. Spline Temperature Limit Stop (2 pieces).
5. Bonnet "O"-Ring.
6. Lubricant.
7. Four (4) Bonnet Screws.

After you verify that you have everything needed to complete the retrofit, proceed with the next section.

Retrofit:

Follow the instructions below to perform your retrofit. Save all components until you have successfully completed your retrofit.

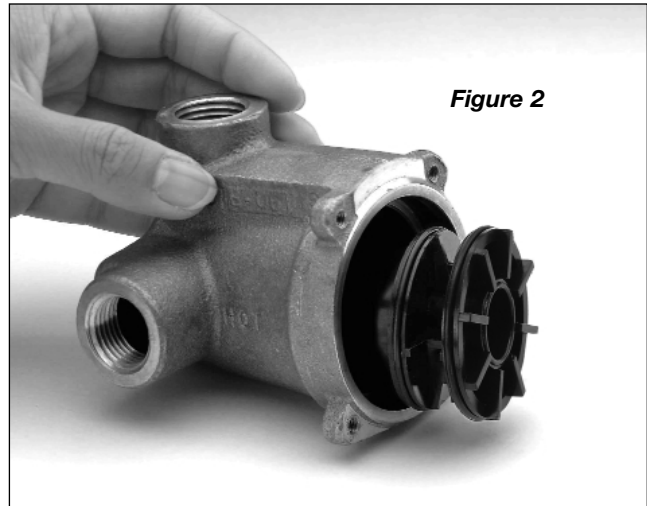


Figure 2

Disassembly:

1. Turn off hot & cold water supply-stops (required for this retrofit).
2. Remove the handle and trim plate.
3. Remove 4 bonnet screws and bonnet assembly.
4. Remove all internal components from valve body.
5. Remove hot water seat using 7/8" hex socket.
6. At this point you should have an empty valve body.

You are now ready to put the new components into your existing valve.

Reassembly:

1. Ensure the inside of the valve body is free of deposits and debris. Clean as necessary.
2. Push the cartridge into the body without the "O" rings installed. The cartridge should slide in easily, and bottom out with its large fins just inside the front surface of the casting. If the cartridge is difficult to install, or does not go in all the way, remove the cartridge and clean the body or remove any obstructions. Repeat this step until the cartridge installs easily.
3. Remove the cartridge and install the 2 "O" rings. Lubricate the "O" rings with silicon lubricant.
4. Install the cartridge back into the body. The cartridge should go in until the large fins are just inside the front surface of the casting (same position as in step 2). If you cannot push it in all the way due to "O"-rings, use bonnet and two (2) screws to force in. When using bonnet screws, be sure to use a diagonal direction to ensure cartridge seats in the body evenly.
5. Lubricate the bonnet "O"-ring and install onto new bonnet assembly.
6. Place the wax element into the stem assembly, small end first, and place this bonnet-stem-motor assembly into/onto the valve body. Rotate the bonnet assembly to line up the bonnet screw holes and reinstall and tighten the four bonnet screws.

See cut-away below to see how everything goes together.

7. Rotate the stem assembly clock-wise, by hand, until it bottoms out on the cartridge. At this point your valve is in the off position.
8. Turn the hot and cold water supplies back on and verify there is no leakage.

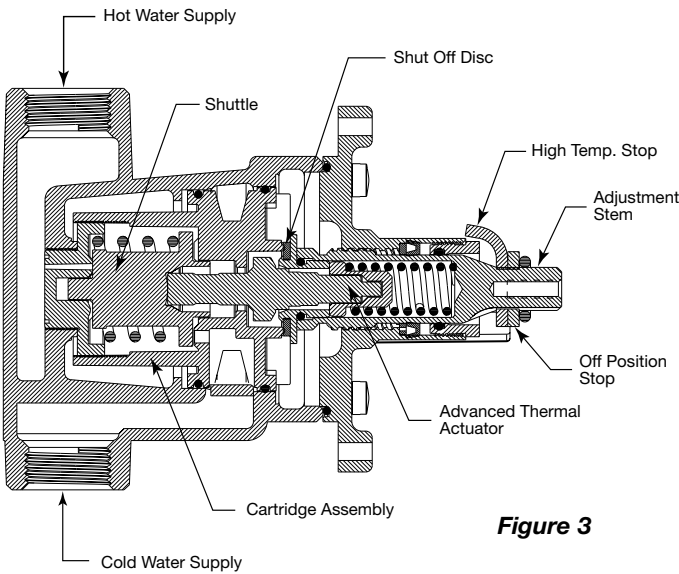


Figure 3

Maximum Temperature Setting/Handle Rotation Stop
The handle rotation setting must be adjusted to limit the distance the user can rotate the handle towards the full hot water position and the off position.

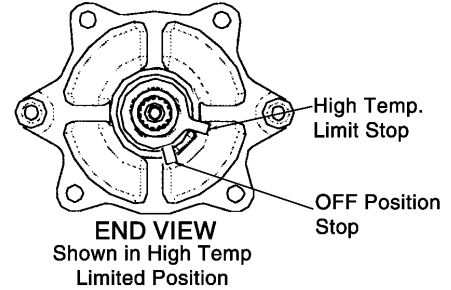
CAUTION: Any repair or modification of the valve may affect the high temperature setting. The maximum temperature setting must be checked by the installer before use.

9. Adjust the valve to the desired maximum outlet temperature [110°F (43°C) max]. Install the splined limit stop with its tab clockwise of the bonnet stop.
10. Turn the stem clockwise until the water stops. Install the second splined limit stop with the tab counter-clockwise of the bonnet stop.

11. Replace handle. Repeat steps 9 and 10 (see figure 4) until desired maximum outlet temperature is reached. Remove handle before final assembly.

CAUTION: Resetting of the splined stop can result in temperatures higher than 110°F [43°C].

Figure 4



Note: Set valve "off" position with bare hands only! Over tightening in the off position with pliers or a wrench can cause internal valve damage.

If low flow or no hot water, cartridge is not fully installed. If flow does not stop, something is wrong with the installation. Turn off both supplies, disassemble the valve, and go back to "reassembly" – step #1.

12. Your valve should now be set properly. Verify proper operation by rotating the stem from the off position, counter-clockwise, to the high temperature position. Verify the temperature does not exceed your desired maximum temperature. Rotate stem back to the off position.
13. Replace trim plate and handle.
14. Your retrofit is complete!

If you have any problems, comments, or suggestions, please contact your Powers representative. We are interested in feedback from the field.

CALIFORNIA PROPOSITION 65 WARNING

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (California law requires this warning to be given to customers in the State of California.)
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