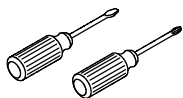
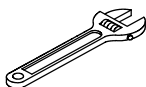


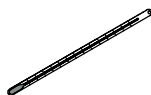
Tools and Materials



Assorted
Screwdrivers



Adjustable
Wrench



Thermometer

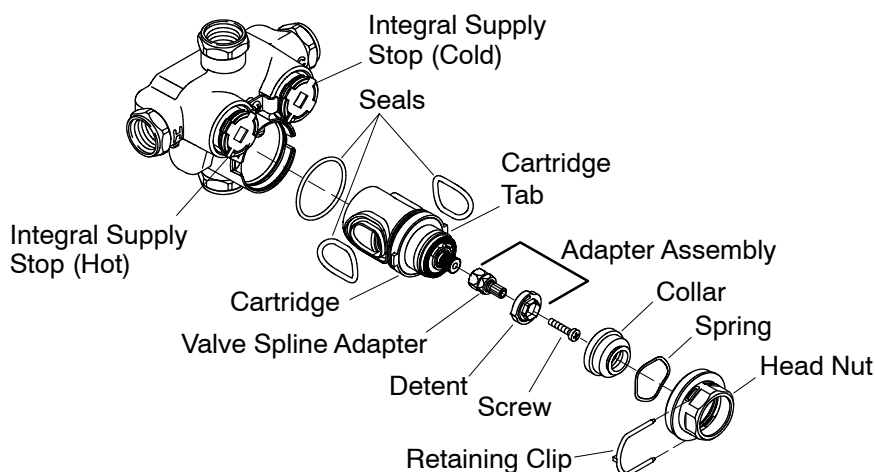


3/8" Socket
Wrench or Drive

Before You Begin

⚠ DANGER: Risk of scalding or other severe injury. This cartridge has been calibrated at the factory to ensure a safe maximum water temperature. Any variance in settings or water inlet conditions from those used during factory calibration may raise the discharge temperature above the safe limit and present a scalding hazard. A qualified service professional is responsible for installing this valve and setting its maximum water temperature to no higher than 120° F (49° C) to minimize the risks associated with scalding hazards according to ASTM F 444.

⚠ CAUTION: Risk of product damage. Do not apply petroleum-based lubricants to the valve components, as damage may result.



Replace Adapter Assembly or Detent

- ☐ Remove the trim (not shown) needed to access the valve body.
- ☐ Turn both integral supply stops outward until they contact the stop bracket.
- ☐ Open and close the volume control valve (not shown) to relieve pressure that has built up in the valve.
- ☐ Detach the retaining clip from the head nut.
- ☐ Remove the head nut.
- ☐ Remove the detent collar with the spring from the cartridge.

NOTE: The spring on the detent collar may fall off. Reattach the spring around the detent collar if this occurs.

To replace the adapter assembly:

- ☐ Remove the existing adapter assembly and replace with the new one.

To replace the detent:

- ☐ Remove the existing detent by pulling it off the valve spline adapter.
- ☐ Install the new detent onto the valve spline adapter until the detent snaps into place on the hex portion of the adapter body.

NOTE: Proceed to the "Hot Temperature Adjustment" section and follow those instructions before reinstalling any remaining components.

Replace the Cartridge or Seals

- ☐ Remove the trim (not shown) needed to access the valve body.
- ☐ Turn both integral supply stops outward until they contact the stop bracket.
- ☐ Open and close the volume control valve (not shown) to relieve pressure that has built up in the valve.

Remove the cartridge:

- ☐ Turn the head nut counterclockwise to unthread it from the valve body. This action will also draw the cartridge out of the valve body.

NOTE: Water may be trapped in the cartridge and may leak out once the cartridge is removed. Use a bucket and towels to contain the water.

- ☐ Pull the head nut and cartridge out of the valve body.

To replace the seals:

- ☐ Remove the three existing seals from the cartridge.
- ☐ Apply silicone lubricant (provided with kit) to the new seals. Install each new seal onto the cartridge.
- ☐ Reverse the cartridge removal procedures to reinstall the cartridge into the valve body. Reinstall so the Hot and Cold tabs on the cartridge fit into the corresponding tab slots in the valve body.

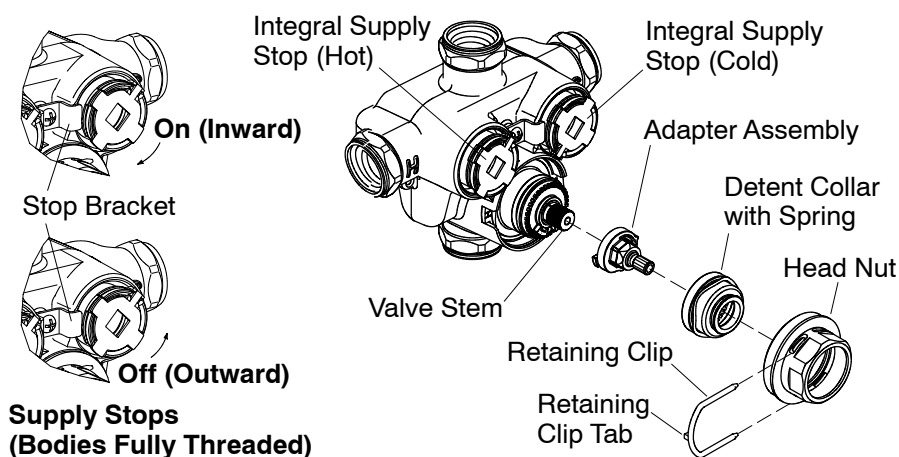
To replace the cartridge:

- ☐ Detach the retaining clip from the head nut.
- ☐ Remove the head nut and detent collar with the spring from the cartridge.

NOTE: The spring on the detent collar may fall off. Reattach the spring around the detent collar if this occurs.

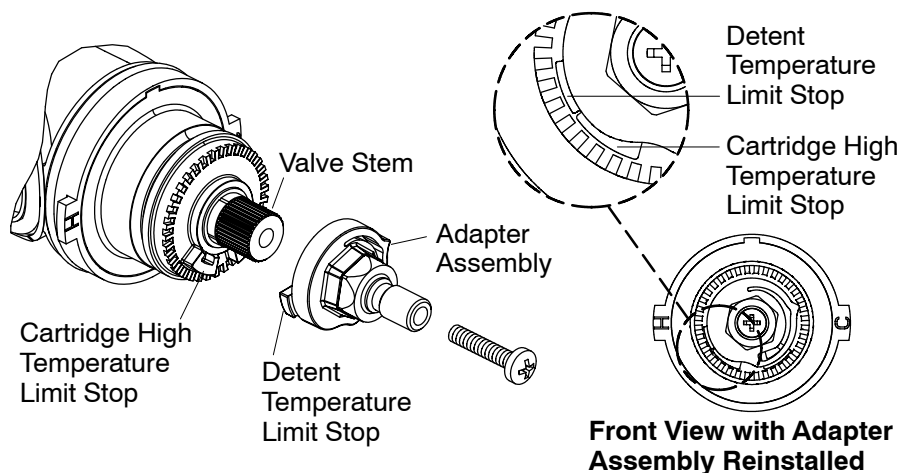
- ☐ Reinstall any seals that may have fallen off the new cartridge.
- ☐ Reverse the cartridge removal procedures to install the new cartridge into the valve body. Install so the Hot and Cold tabs on the new cartridge fit into the corresponding tab slots in the valve body.

NOTE: Proceed to the "Hot Temperature Adjustment" section and follow those instructions before reinstalling any remaining components.



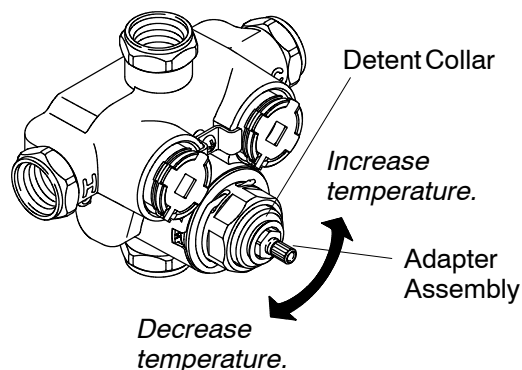
Hot Temperature Adjustment

- ☐ Remove the adapter assembly.
- ☐ Turn the valve stem fully counterclockwise.
- ☐ Reinstall the head nut to the valve casting. Hand tighten the head nut until the shoulder of the head nut contacts the lip of the valve casting.
- ☐ Turn both integral supply stops inward.
- ☐ Turn on the water using the volume control valve (not shown).
- ☐ Allow the water to flow for several minutes to stabilize the water temperature.
- ☐ Hold a thermometer in the water stream to check the water temperature.
- ☐ Turn the valve stem clockwise until the maximum 120° F (49° C) temperature is reached.
- ☐ Align the adapter assembly onto the valve stem so the detent temperature limit stop is flush left against the cartridge high temperature limit stop as shown in the illustration on page 5.
- ☐ Secure the adapter assembly to the valve stem in this position with the supplied screw.
- ☐ Shut off the volume control valve (not shown).
- ☐ Turn both integral supply stops outward until they contact the stop bracket.
- ☐ Open and close the volume control valve (not shown) to relieve pressure that has built up in the valve.



Hot Temperature Adjustment (cont.)

- ☐ Remove the head nut from the assembly by turning the head nut counterclockwise.
- ☐ Reinstall the detent collar. Be sure the spring is resting on top of the detent collar.
- ☐ Reinstall the head nut onto the assembly until hand-tight. Do not overtighten.
- ⚠ CAUTION: Risk of product damage.** Do not overtighten the head nut. Excessive torque may damage the head nut.
- ☐ Reattach the removal clip to the head nut. The tab on the removal clip should be facing inward.
- ☐ Turn both integral supply stops inward.
- ☐ Verify the temperature. Repeat the above steps if necessary.
- ☐ Proceed to the "Shower Temperature Adjustment" section.



Shower Temperature Adjustment

- ☐ Attach a trim handle onto the adapter assembly.
- ☐ Turn the trim handle fully counterclockwise until it can no longer move. The adapter assembly is now in the full hot position.
- ☐ Next, turn the trim handle clockwise until you hear or feel a click. Do not turn any farther. This is the shower temperature position.
- ☐ If no click is heard or felt, detach the trim handle. Pull out and rotate the detent collar 180° until it snaps back into place. Reattach the trim handle and repeat the above steps to find the shower temperature position.
- ☐ Remove the trim handle from the adapter assembly.
- ☐ Allow the water to run for a few minutes to stabilize the temperature.
- ☐ Hold a thermometer in the water stream to check the water temperature.

If the temperature is less than 104° F (40° C):

- ☐ Pull out the detent collar.
- ☐ Turn the detent collar counterclockwise.
- ☐ Verify the temperature with the thermometer.

If the temperature is greater than 105° F (40.5° C):

- ☐ Pull out the detent collar.
- ☐ Turn the detent collar clockwise.
- ☐ Verify the temperature with the thermometer.

NOTE: Repeat any of the above steps until the desired temperature is achieved.

Troubleshooting Guide

Symptoms	Probable Cause/Recommended Action
1. Only hot or cold water from outlet.	<ul style="list-style-type: none"> a. Inlet supplies are reversed. b. No hot water reaching shower control. Verify that hot water supply is open. c. Check filter screens for blockage.
2. Fluctuating or reduced flow rate.	<p>Normal function of thermostatic control when operating conditions are unsatisfactory.</p> <ul style="list-style-type: none"> a. Check filter screens for flow restriction. b. Make sure that the minimum flow rate is sufficient for supply conditions. c. Make sure that dynamic inlet pressures are nominally balanced and sufficient. d. Make sure that inlet temperature differentials are sufficient. e. Verify that both integral supply stops are fully threaded inward. f. Check thermostatic valve performance; replace thermostatic cartridge, if necessary.
3. No flow from shower control outlet.	<ul style="list-style-type: none"> a. Check filter screens for blockage. b. Hot or cold supply failure; thermostat holding correct shutdown function. c. Flow control cartridge does not work. Check and replace if necessary. d. Integral supply stops are shut off. Rotate both counterclockwise.
4. Blend temperature drift.	<p>Indicates operating conditions changed.</p> <ul style="list-style-type: none"> a. Refer to Symptom 2. b. Hot supply temperature fluctuation. c. Supply pressure fluctuation.

Troubleshooting Guide	
Symptoms	Probable Cause/Recommended Action
5. Hot water in cold supply or cold water in hot supply.	Indicates crossflow. Replace check valve.
6. Maximum blend temperature setting too hot or too cold.	a. Indicates incorrect maximum temperature setting; refer to the "Adjust Temperature Settings" section. b. Refer to Symptom 4. c. Refer to Symptom 5.
7. Water leaking from the valve body.	Seal(s) worn or damaged. a. Replace seal(s) with new ones from the service kit. b. If leaking around the temperature spindle, replace the thermostatic cartridge.
8. Flow knob or temperature knob is stiff to operate.	a. Impaired movement of internal components. Replace the appropriate cartridge. b. Supply pressures are too high. Install a pressure-reducing valve.

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