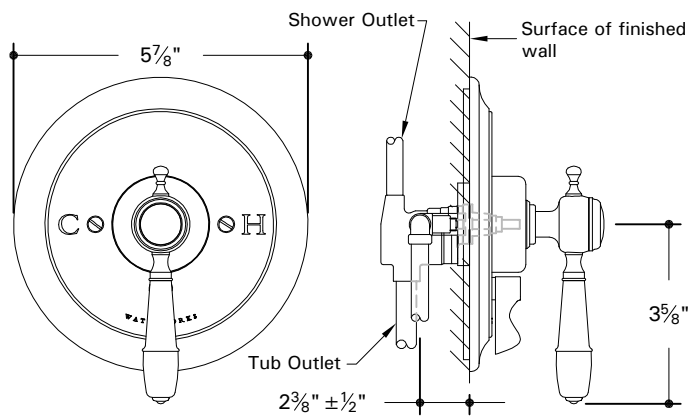


JUSV41-K (metal lever handle) & **GUSV87R** (rough)
JUSV42-K (white porcelain lever handle) & **GUSV87R** (rough)
JUSV43-K (black porcelain lever handle-MTO) & **GUSV87R** (rough)



IMPORTANT

- To ensure this product is installed properly, you must read and follow these guidelines.
- The owner/user of the valve must keep this information for future reference.
- The risk of scalding exists until the installer has properly set the temperature high limit stop.
- This product must be installed by a professional contractor and conform to all applicable codes
- Refer to the specification and assembly drawings attached. Valves are sold partially assembled but shown fully disassembled for illustrative and service purposes only.
- If soldering any connections, remove diverter assembly and cartridge to prevent damage to seals.
- This valve should be on-site prior to rough in and allows the installer to visualize the installation.
- Inspect this product to assure you have all parts required for proper installation.
- Check incoming water pressure; ideal operating pressure is 40-50 psi. The minimum is 25 psi. and the maximum is 80 psi.
- Use only a strap wrench or protected/smooth-jaw wrench on any finished surface.

ROUGH IN: (GUSV87R ROUGH SOLD SEPARATELY):

IMPORTANT - remove cartridge (11-14) and diverter assembly (27-30) when soldering any connections. Failure to remove the cartridge and diverter will damage both assemblies.

1. Install rough piping and valve body as shown.
 - Refer to marking on valve body when installing. When facing valve, HOT 'H' is on the left and COLD 'C' is on the right.
 - Valve should be installed with the plastic tile guard lettering face flush with the finished wall.
 2. Tile finished surface of wall, be careful to keep all ports free of obstructions.
 3. Turn on the hot and cold supplies and flush out the valve.
 - Valve will not operate unless both hot and cold water are turned on.
 - Allow valve to run in warm position for a few minutes to totally flush the system.
- IF SYSTEM IS EXCESSIVELY DIRTY, REMOVE THE CARTRIDGE (11-14) ASSEMBLY TO ENSURE PROPER FLUSHING.**
4. Tighten packing nut (10) for desired rotational resistance in handle.

VALVE OPERATION:

5. When the finished wall is complete, open the hot and cold supplies. The supplies are opened by removing the service stop cap (26) and stop retainer (25) then turning the $\frac{3}{16}$ " hex screw (22) counter clockwise. Both supplies must be on or the valve will not operate.
6. Pull off the tile shield and discard.
7. The larger of the two handles is for controlling temperature only, not volume. The smaller handle is used to divert the water in a tub and shower combination and cannot be used to supply water to a handshower. Install the large handle (1-1f) so it rests at 6 o'clock in the OFF position then turn the handle counter clockwise through the cold position then warm and stopping at the hot position. If additional rotational friction is required to maintain the handle position, tighten the packing nut (10).

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8. Allow the valve to run in warm position for a few minutes to completely flush the system. If system is quite dirty, remove the cartridge to ensure proper flushing.
9. IMPORTANT: This valve is equipped with a limit stop screw (8, 9) to be used to limit the valve handle from being turned to excessively hot water discharge temperatures.
10. Setting the limit stop screw: Open the valve to the maximum desired temperature then turn the limit stop screw (8) in until it seats.
11. WARNING: FAILURE TO ADJUST THE LIMIT STOP SCREW PROPERLY MAY RESULT IN SERIOUS SCALDING.

INSTALL THE TRIM:

Note: Part numbers refer to trim and/or rough exploded view drawings.

12. Hand tighten the dome cover (5) completely onto the packing nut (10). The dome cover MUST be tightened to prevent damage to the handle.
13. Moisten the o-ring (8a) then slide the diverter assembly and plate (6-6b, 8-8b) trim over the dome cover while making sure the diverter shaft/handle (6) is aligned with the diverter spindle (27-30).
IMPORTANT: The diverter must be properly aligned and the handle must rest at 6 o'clock position. If the handle and diverter spindle are not properly aligned, the valve will not function. See Figure 1.
14. Secure the plate to the wall using the two screws (7).
15. Pull off the indice assembly (2-2c) from the handle, position then hold handle spacer (4) onto the spindle. Secure the handle by tightening the screw (3) then reinstall the indice assembly.
16. Open the valve and confirm the temperature setting, adjust as required. Verify that the diverter is functioning properly. NOTE: a small amount of water may trickle from the tub spout when the diverter is set in the shower position and is not considered a defect.

SERVICE

NOTE: REFER TO EXPLODED VIEW DRAWING FOR SERVICE PART CALL OUTS. A TROUBLE SHOOTING GUIDE IS ALSO INCLUDED.)

17. Remove valve trim.
18. Shut-off water to the valve. Remove the service stop cap (26), stop retainer (25) and tighten valve stop (22) with a $\frac{3}{16}$ " hex wrench.
19. CAUTION: Before removing main cap/bonnet nut (3) use the following sequence to avoid damage to the stem:
-Unthread the adjustment screw (9) until the o-ring is fully exposed.
-Open valve to full hot and unscrew cap/bonnet nut (3).
Loosen but leave packing nut (10) in place when removing cap/bonnet nut to avoid damage to packing assembly.
-Control stem/spindle (11-14) will be removed with the cap/bonnet nut.
20. Replace appropriate parts as needed and inspect seats and o-rings for any visible wear.
21. Extended Service:
-Control Stem/Cartridge: the end of the control stem that is the furthest point into the valve is the most important part. This houses the stainless steel control piston (12).
-Shake the stem and listen for the piston to be moving back and forth. A freely moving piston makes a knocking noise similar to an empty spray paint can.
-If a noise is not detected, check for obstructions such as flux, solder, saw dust etc. Soak in mineral deposit de-scaler if necessary.
-Replace the cartridge if the piston does not move freely.
-Seat replacement: requires seat replacement tool and appropriate parts.
22. Reinstall the valve in reverse sequence.
- If further assistance is required, please contact Product Support at 1-800-927-2120 (8am-7pm EST).

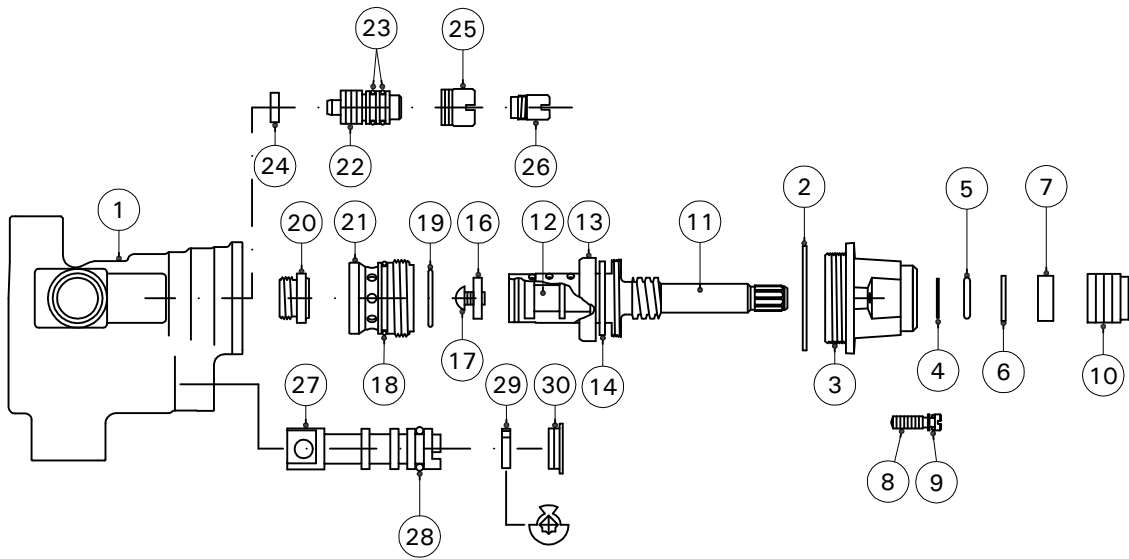
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MAINTENANCE INSTRUCTIONS		
PROBLEM	CAUSE	SOLUTION
Valve will not flow water	Hot and cold water not turned on. service stops not opened.	Be sure both supplies are turned on and service stops are opened. Valve will not operate unless both HOT and COLD water inlets have pressure.
Valve leaks when shut-off.	Hot and cold water washers are worn, or foreign matter (solder, chips, etc.) are between washers and seat surfaces.	Replace Hot and Cold washers and inspect top surface on hot and cold seats for damage.
Water volume from valve is inconsistent during operation.	Pressure balancing piston housed in control spindle assembly is blocked from free movement by foreign matter.	With valve open half way, remove temperature handle and tap spindle with plastic hammer. If problem is not solved, remove spindle assembly completely and tap handle end against a solid object to free piston. Rinse out control sample assembly. Soaking in household vinegar will help free foreign matter build-up.
Valve delivers an insufficient quantity of Hot and Cold water.		
Temperatures fluctuates without moving temperatures handle.		
Temperatures out of valve reduces gradually during use.	Supply system is running out of hot water.	Reduce maximum flow rate out of valve or shower head. This will allow longer period of use before reduction of hot water supply.
While using a tub & shower valve with integral diverter set for shower, a trickle of water runs from tub spout.	This is a design function of the valve. Water is allowed to trickle from the tub spout when diverter is set in shower position; in accordance to national standards.	This is a design function in accordance to national standards.

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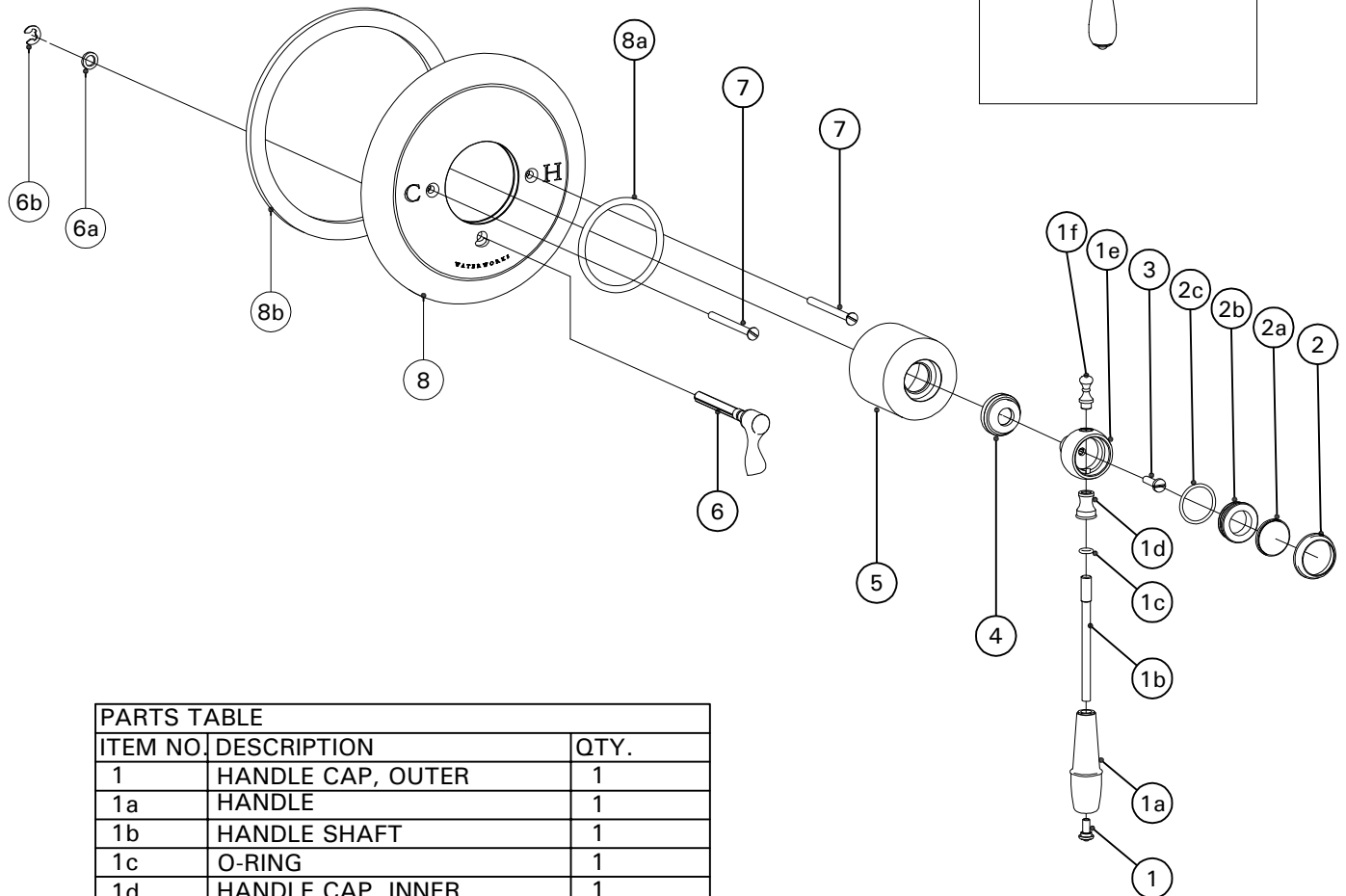
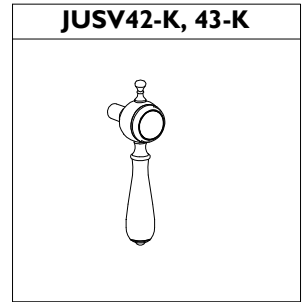


REPLACEMENT PART KITS		
CONTROL STEM REPLACEMENT KIT		
ITEM NO.	DESCRIPTION	QTY.
2	CAP GASKET	1
11	CONTROL STEM	1
12	CONTROL PISTON	1
13	COLD WASHER RETAINER	1
14	COLD WASHER	1
16	HOT WASHER	1
17	WASHER RETAINING SCREW	1
SEAT REPLACEMENT KIT		
18	COLD SEAT O-RING	
19	INT. COLD SEAT O-RING	1
20	HOT WATER SEAT	1
21	COLD WATER SEAT	1
SEAT REPAACEMENT KIT		
	COLD SEAT TOOL	1
	HOT SEAT TOOL	1
CONTROL STEM WASHER REPLACEMENT KIT		
2	CAP GASKET	1
13	COLD WASHER RETAINER	1
14	COLD WASHER	1
16	HOT WASHER	1
17	WASHER RETAINING SCREW	1
SERVICE STOP REPLACEMENT KIT		
22	VALVE STOP	2
23	STOP O-RING	2
24	STOP GASKET	2

REPLACEMENT PART KITS		
ADJUSTMENT SCREW REPLACEMENT KIT		
ITEM NO.	DESCRIPTION	QTY.
8	ADJUSTMENT SCREW	1
9	O-RING	1
CAP REPLACEMENT KIT		
2	CAP GASKET	1
3	BONNET	1
4	O-RING WASHER	1
5	O-RING	1
6	PACKING WASHER	1
7	RUBBER PACKING	1
8	ADJUSTMENT SCREW	1
9	ADJUSTMENT SCREW O-RING	1
10	PACKING NUT	1
PACKING REPLACEMENT KIT		
2	CAP GASKET	1
4	O-RING WASHER	1
5	O-RING	1
6	PACKING WASHER	1
7	RUBBER PACKING	1
ADDITIONAL ITEM LIST		
ITEM NO.	DESCRIPTION	QTY.
1	VALVE BODY	1
25	STOP RETAINER	2
26	SERVICE STOP CAP	2
27	DIVERTER SPINDLE	1
28	DIVERTER SPINDLE O-RING	1
29	DIVERTER KEY	1
30	DIVERTER RETAINER	1

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PARTS TABLE		
ITEM NO.	DESCRIPTION	QTY.
1	HANDLE CAP, OUTER	1
1a	HANDLE	1
1b	HANDLE SHAFT	1
1c	O-RING	1
1d	HANDLE CAP, INNER	1
1e	HANDLE BASE	1
1f	HANDLE POINTER	1
2	INDICE TRIM RING	1
2a	INDICE, BLANK	1
2b	INDICE CAP	1
2c	O-RING	1
3	SCREW, HANDLE	1
4	HANDLE SPACER	1
5	DOME COVER, THREADED	1
6	DIVERTERR HANDLE	1
6a	BUSHING	1
6b	C-CLIP	1
7	FACE PLATE SCREW	2
8	FACE PLATE	1
8a	O- RING, FACE PLATE	1
8b	GASKET, FACE PLATE	1

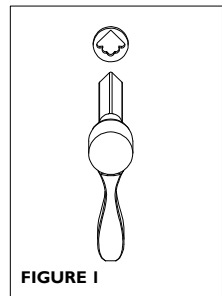


FIGURE 1

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