

INSTALLATION INSTRUCTIONS

Thermostatic Valves

Part #'s: J-TH34, J-TH12

Thermostatic Valves with Built in Diverter/Shut Off

Part #'s: J-TH34-686, J-TH34-688, J-TH34-687, J-TH34-689

Thermostatic Valve with Built in Volume Control

Part #'s: J-THVC12

Diverter Valves

Part #'s: J-20682, J-20686, J-20688, J-20687, J-20689

JACLO®

Confidence from start to finish.™

FOLLOW ALL APPLICABLE LOCAL PLUMBING CODES, PUBLIC HEALTH AND SAFETY CODES

This unit has no serviceable filter. See Valve Maintenance Section

System Requirements

- This thermostatic valve is designed for use with pressurized hot and cold water supplies only and should not be used with low-pressure storage heating systems.
- This valve was factory set to 100° F maximum at a pressure of 45 PSI. The actual temperature must be checked due to water temperature and pressure deviations.

Temperature:

Hot water inlet - 165°F Max. - 130°F Min.

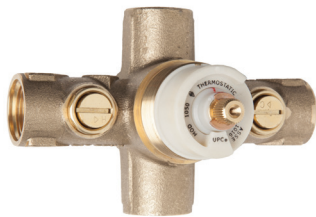
Marked dial range - 70°F - 120°F

Safety stop - Adjustable

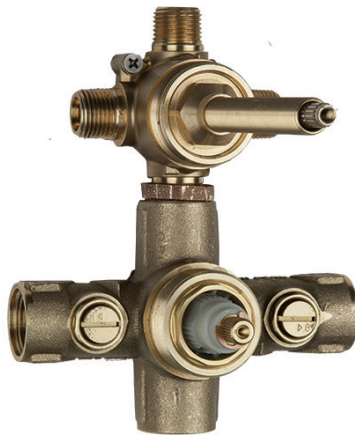
Pressure: Recommended range 30 PSI - 70 PSI

1/2" Valve: 1/2" NPT inlets and outlets

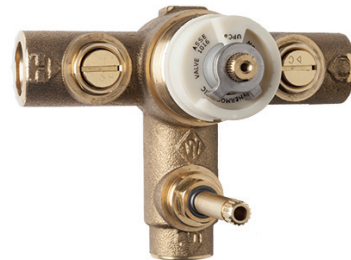
3/4" Valve: 3/4" NPT inlets and outlets



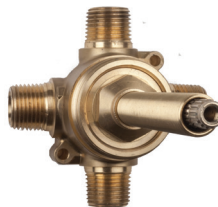
J-TH34 / J-TH12



J-TH34-686 / J-TH34-688 /
J-TH34-687 / J-TH34-689



J-THVC12



J-20682 / J-20686 / J-20688 / J-20687 / J-20689

****RETAIN THESE DIRECTIONS FOR TRIM INSTALLATION****

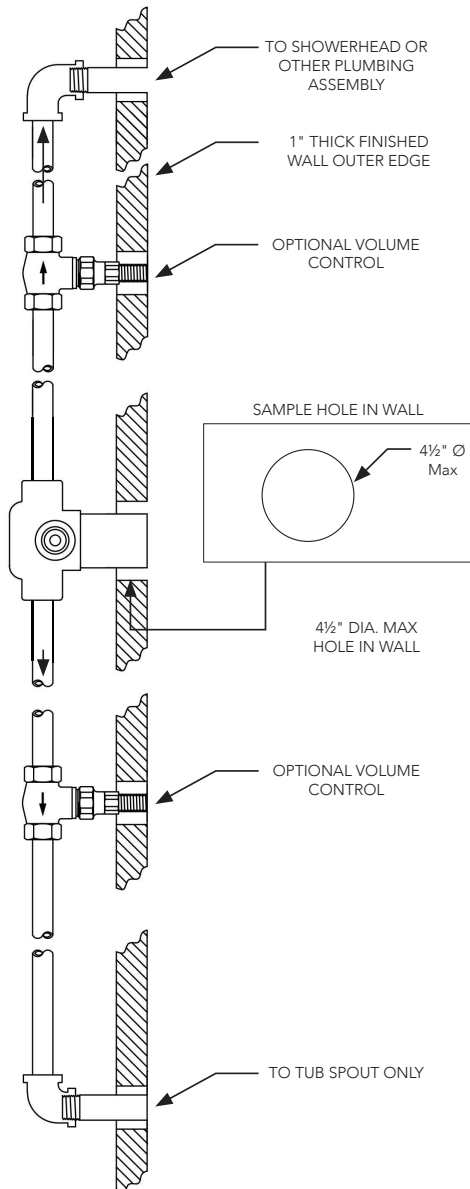
[STEP 1] ROUGH VALVE INSTALLATION (J-TH34/J-TH12)

1. Position valve assembly so outer edge of finished wall is between min./max. thickness marked on rough in shield. **Figure 2**
2. Using appropriate fasteners, mount valve assembly to studs/blocking. **Figure 1**
3. Remove cartridge and check stops. **Page 6**
4. Connect inlet and outlet port piping.
5. See "Rough in plumbing and valve flushing". **Page 9**
6. Turn on water supply and flush valve with cartridge and check stops removed. **Page 9**
7. Turn off water supply and re-install cartridge and check stops. **Page 10**
8. Turn on water supply and test for leaks and all functions.
9. Continue on to **Page 11 & 12**

****NOTE: THIS VALVE REQUIRES AN OFF/ON OR VOLUME CONTROL VALVE (NOT INCLUDED)****

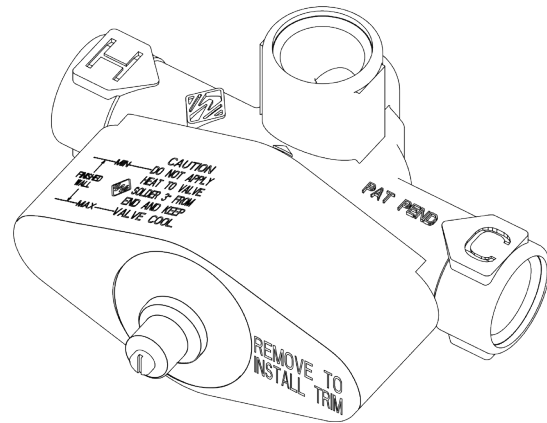
Installation Example

Figure 1

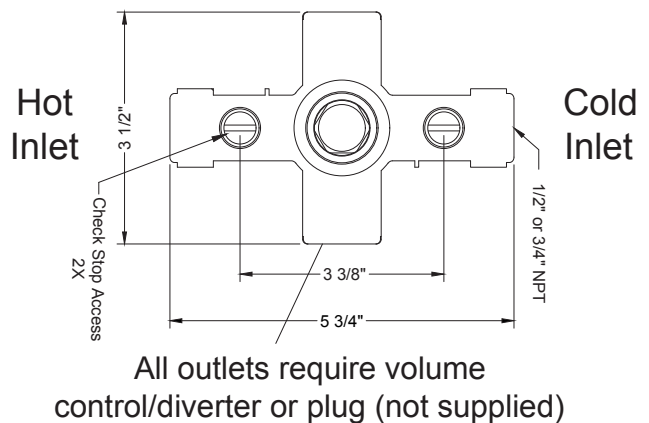


Valve Rough-in Shield

Figure 2



Valve Rough Specs

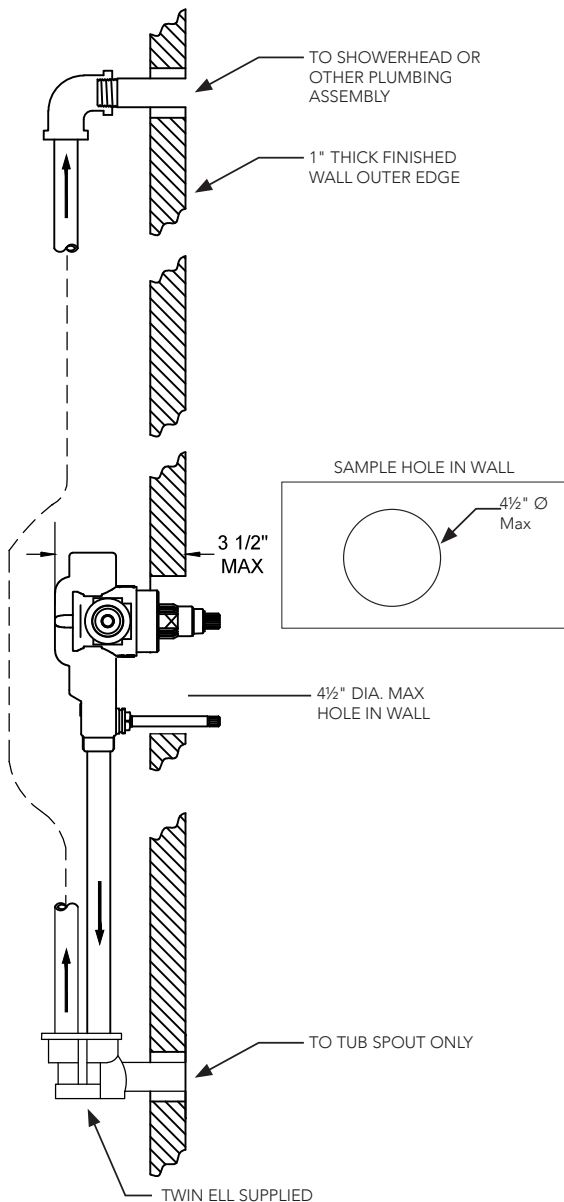


[STEP 1] ROUGH VALVE INSTALLATION (J-THVC12)

1. Position valve assembly so outer edge of finished wall is between min./max. thickness marked on rough in shield. **Figure 4**
2. Using appropriate fasteners, mount valve assembly to studs/blocking. **Figure 3**
3. Remove cartridge, check stops, and volume control. **Page 6**
4. Connect inlet and outlet port piping.
5. See "Rough in plumbing and valve flushing". **Page 9**
6. Turn on water supply and flush valve with cartridge, check stops, and volume control removed. **Page 9**
7. Turn off water supply and re-install cartridge, check stops, and volume control. **Page 10**
8. Turn on water supply and test for leaks and all functions.
9. Twin Ell supplied and is only used for a diverting tub spout.
10. Continue on to **Page 11 & 12**

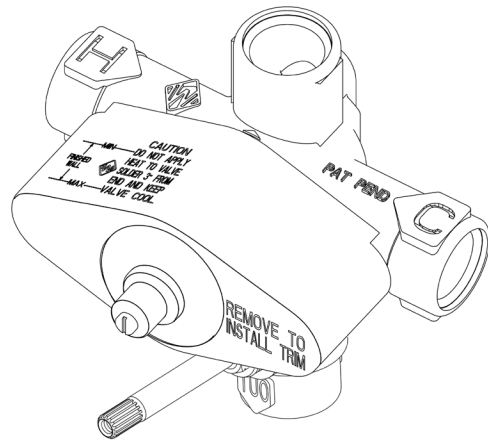
Installation Example

Figure 3

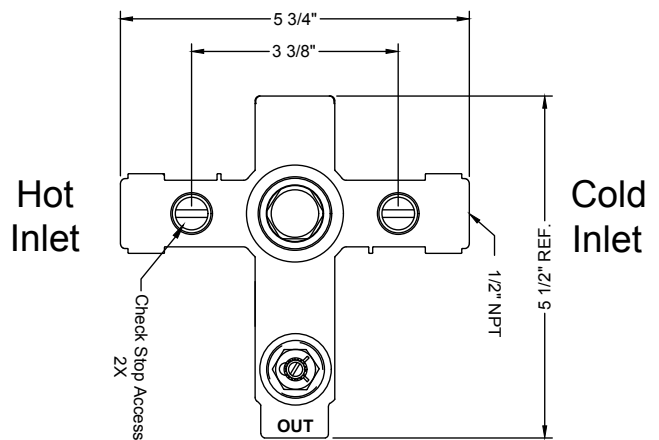


Valve Rough-in Shield

Figure 4



Valve Rough Specs

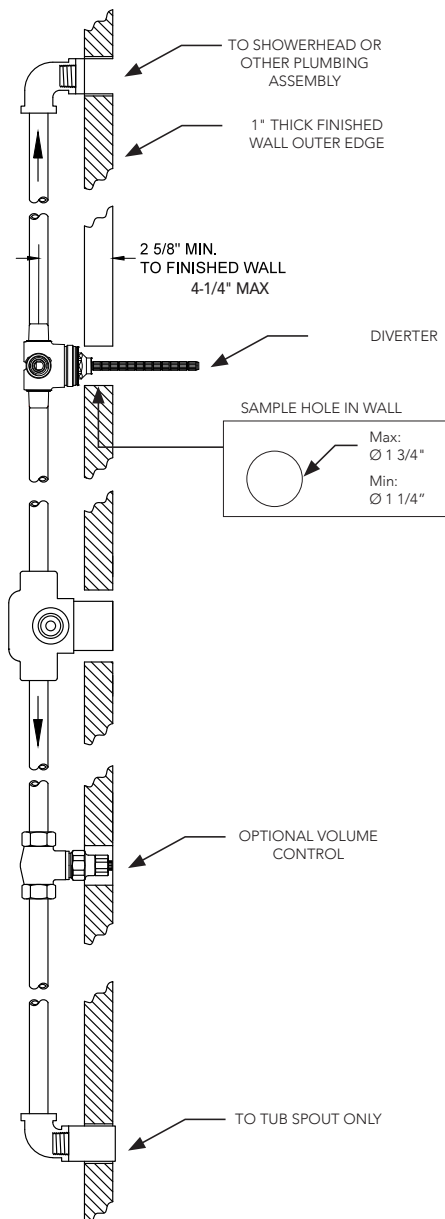


[STEP 1] ROUGH VALVE INSTALLATION (J-20682/J-20686/J-20688/J-20687/J-20689)

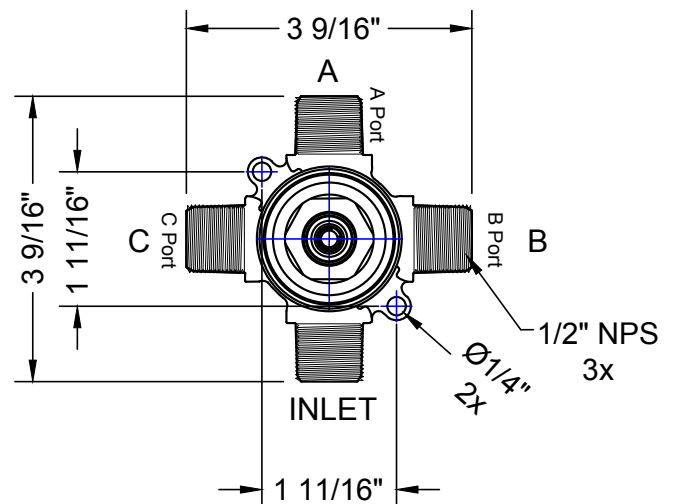
1. Position valve assembly per **Figure 5**
2. Using appropriate fasteners, mount valve assembly to studs/blocking. **Figure 5**
3. Remove diverter cartridge. **Page 6**
4. Connect inlet and outlet port piping. ****SEE PAGE 8 FOR PORTS USED/BLOCKED****
5. See "Rough in plumbing and valve flushing". **Page 9**
6. Turn on water supply and flush valve with cartridge removed. **Page 9**
7. Turn off water supply and re-install cartridge. **Page 10**
8. Turn on water supply and test for leaks and all functions.
9. Continue on to **Page 11 & 12**

Installation Example

Figure 5



Valve Rough Specs



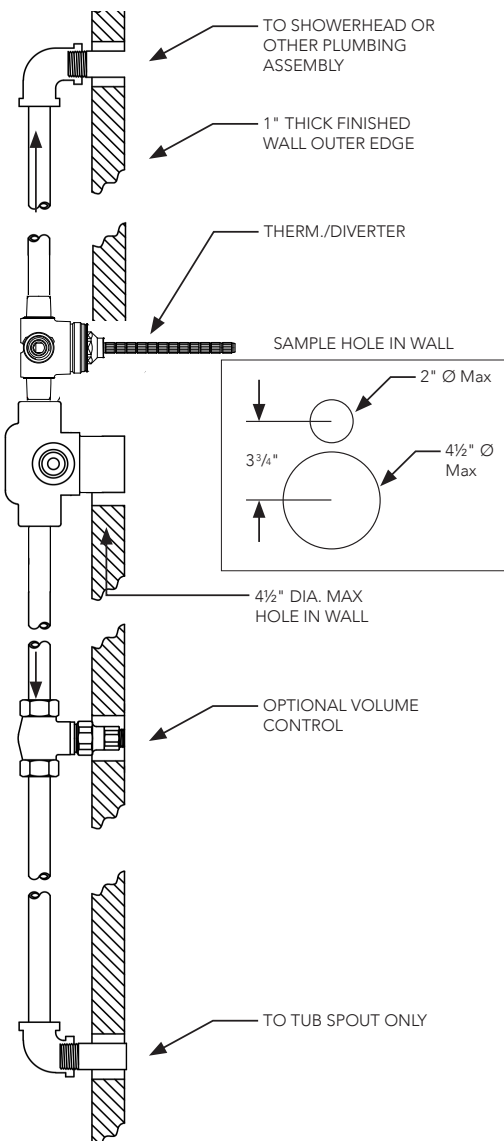
[STEP 1] ROUGH VALVE INSTALLATION (J-TH34-686/J-TH34-688/J-TH34-687/J-TH34-689)

1. Position valve assembly so outer edge of finished wall is between min./max. thickness marked on rough in shield. **Figure 7**
2. Using appropriate fasteners, mount valve assembly to studs/blocking. **Figure 6**
3. Remove thermostatic cartridge, check stops, and diverter cartridge. **Page 6**
4. Connect inlet and outlet port piping. ****SEE PAGE 8 FOR PORTS USED/BLOCKED****
5. See "Rough in plumbing and valve flushing". **Page 9**
6. Turn on water supply and flush valve with thermostatic cartridge, check stops, and diverter cartridge removed. **Page 9**
7. Turn off water supply and re-install thermostatic cartridge, check stops, and diverter cartridge. **Page 10**
8. Turn on water supply and test for leaks and all functions.
9. Continue on to **Page 11 & 12**

****DIVERTER AND THERMOSTATIC VALVES CARTRIDGES ARE FACTORY SEALED, DO NOT SEPARATE****

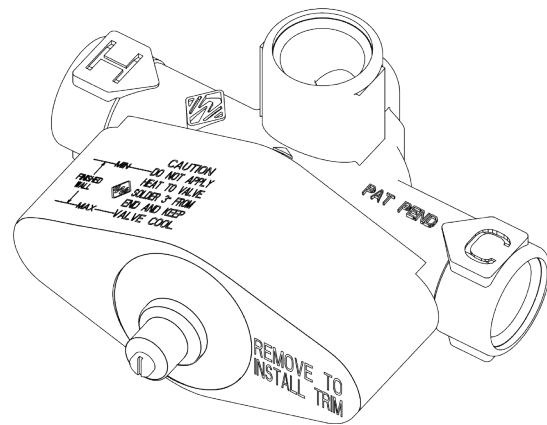
Installation Example

Figure 6

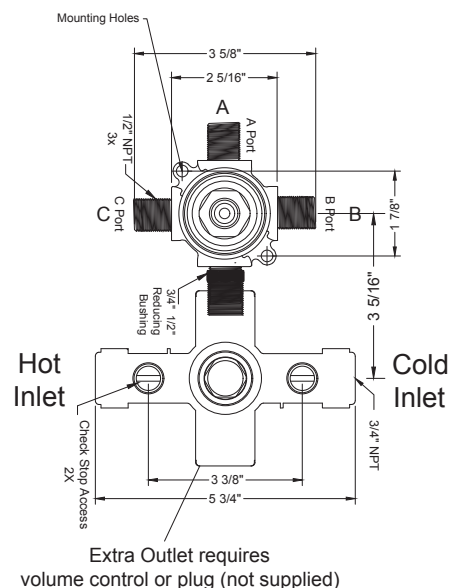


Valve Rough-in Shield

Figure 7



Valve Rough Specs



[STEP 2] ROUGH VALVE DISASSEMBLY & PREPERATION

****THIS STEP IS REQUIRED TO FACILITATE VALVE FLUSHING AND ELIMINATE THE RISK OF HEAT DAMAGE TO COMPONENTS WHILE SOLDERING****

1. CARTRIDGE REMOVAL (J-TH34, J-TH12, J-TH34-686, J-TH34-687, J-TH34-688, J-TH34-689, J-THVC12)

- Remove Phillips head screw and rough in shield. Do not discard screw or shield!
- Note position of the limit stops (#5). This is the factory setting of max. temperature. Next, remove limit stops. Retain for reassembly.
- Remove limit stop ring (#4). Retain for reassembly.
- Remove thermostatic cartridge locknut (#3) using 1¼" wrench. Retain for reassembly.
- Remove thermostatic cartridge (#2). Pull outward and twist slightly to aid removal. Retain for reassembly.

2. CHECK STOP REMOVAL (J-TH34, J-TH12, J-TH34-686, J-TH34-687, J-TH34-688, J-TH34-689, J-THVC12)

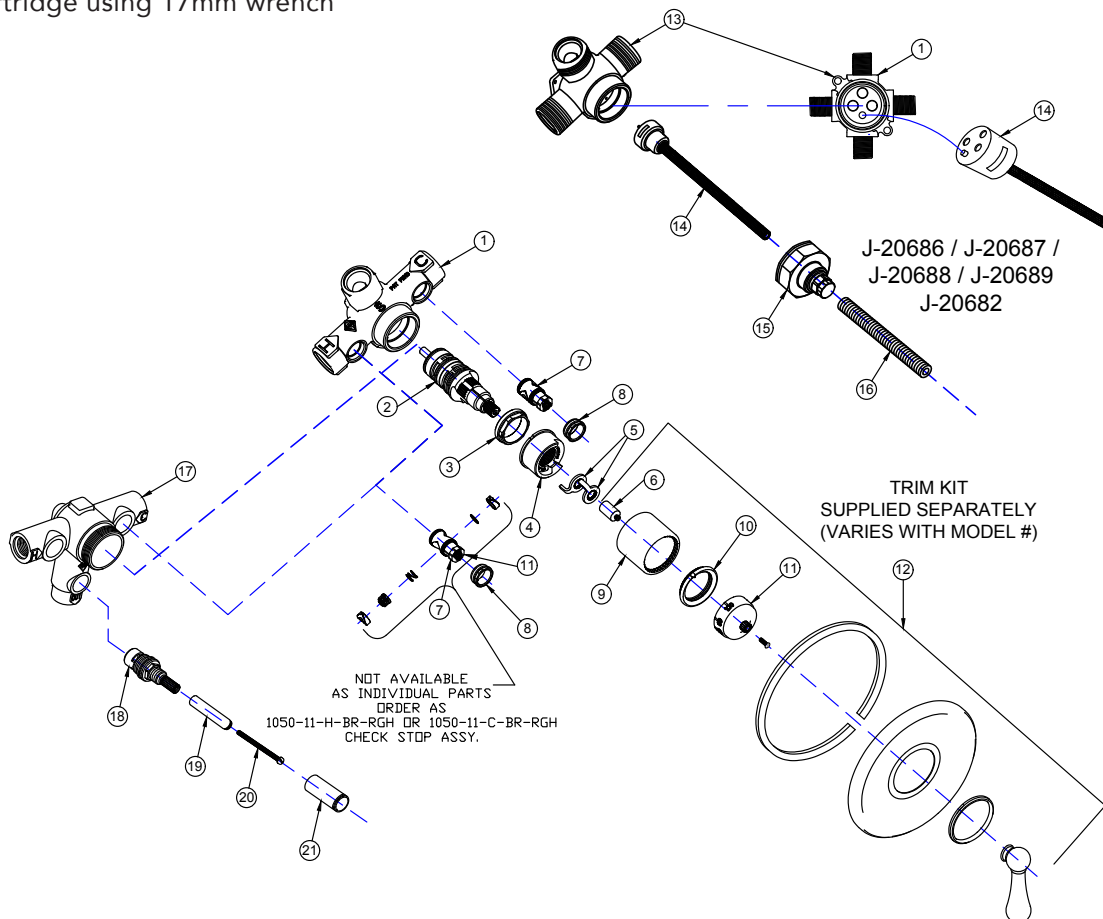
- Remove hot and cold check stop nuts (#8) using 13/16" wrench. Retain for reassembly.
- Remove hot (#7) and cold (#7) check stop assemblies. Pull outward and twist slightly to aid removal. Retain for reassembly.

3. DIVERTER CARTRIDGE REMOVAL (J-TH34-686, J-TH34-687, J-TH34-688, J-TH34-689, J-20682, J-20686, J-20687, J-20688, J-20689)

- Remove diverter nut using 1" wrench. (#15 - J-20686 / J-20688 / J-20682 / J-20687 / J-20689)
- Remove cartridge (#14) (J-20682, J-20686, J-20688, J-20687 / J-20689)

4. VOLUME CONTROL REMOVAL (J-THVC12 ONLY)

Remove cartridge using 17mm wrench



[J-TH34/J-TH12]

ITEM	DESCRIPTION	QTY	PART #
1	3/4" Thermostatic Body Rough	1	TH34-BODY-RGH / TH12-BODY-RGH
2	3/4" or 1/2" Thermostatic Cartridge	1	J-TH34- CART or J-TH12-CART
3	Thermostatic Cartridge Locknut	1	1050-3-RGH
4	Thermostatic Valve Limit Stop Ring	1	2050-4-0
5	Stainless Steel Limit Stop	2	1050-5-0
6	Extension for 60mm Dual Therm	1	60MM-EXT-0 (Supplied with Trim Kit)
7	Check Stop Assembly	2	1050-11-H-BR-RGH / 1050-11-C-BR-RGH
8	Check Stop Locknuts	2	1050-12-RGH
9	Sleeve	1	Supplied with Trim Kit
10	Dial Pointer	1	Supplied with Trim Kit
11	Spline Adapter	1	Supplied with Trim Kit

[J-THVC12]

ITEM	DESCRIPTION	QTY	PART #
17	Dual Thermostatic Body Only	1	THVC12-BODY-RGH
2	1/2" Thermostatic Cartridge	1	J-TH12-CART
3	Thermostatic Cartridge Locknut	1	1050-3-RGH
4	Thermostatic Valve Limit Stop Ring	1	2050-4-0
5	Stainless Steel Limit Stop	2	1050-5-0
6	Extension for 60mm Dual Therm	1	60MM-EXT-0 (Supplied with Trim Kit)
7	Check Stop Assembly	2	1050-11-H-BR-RGH / 1050-11-C-BR-RGH
8	Check Stop Locknuts	2	1050-12-RGH
9	Sleeve	1	Supplied with Trim Kit
10	Dial Pointer	1	Supplied with Trim Kit
11	Spline Adapter	1	Supplied with Trim Kit
18	Volume Control Cartridge	1	304436-RGH
19	Stem Broach for Volume Control	1	VB-EXT-13.0
20	Screw for EXT-13	1	1001-6-NYL-0
21	Sleeve for Volume Control	1	Supplied with Trim Kit

[J-20682/J-20686/J-20687/J-20688/J-20689]

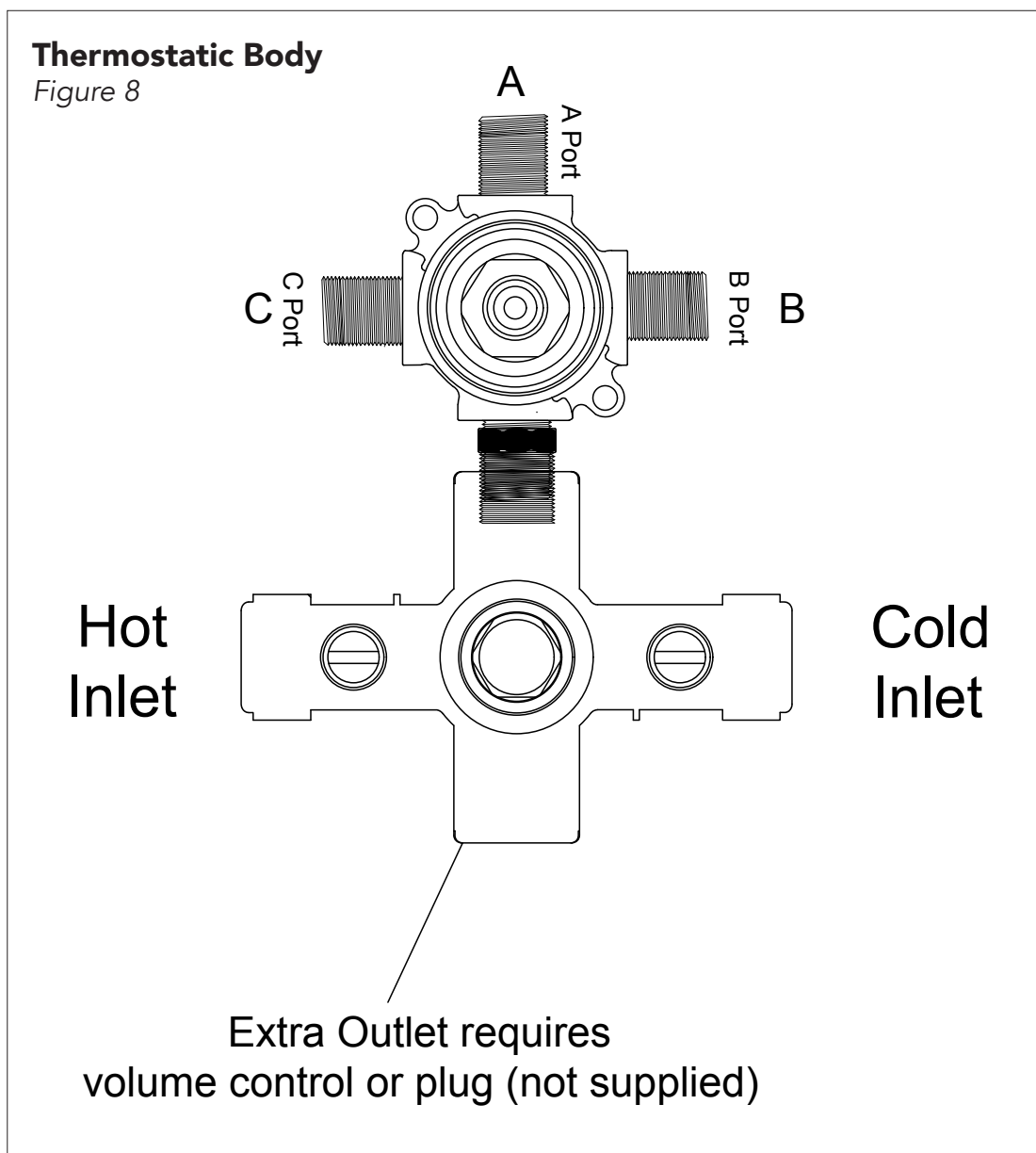
ITEM	DESCRIPTION	QTY	PART #
13	Diverter Body Rough	1	DIV-BODY
14	Diverter Cartridge	1	15150-CART / 15128-CART / 15129-CART / 15214-CART/15215-CART
15	Diverter Lock Nut Assembly	1	

[STEP 3] PLUMB ROUGH USING APPROPRIATE FITTINGS

Diverter and Thermostatic valve are factory sealed, do not separate!

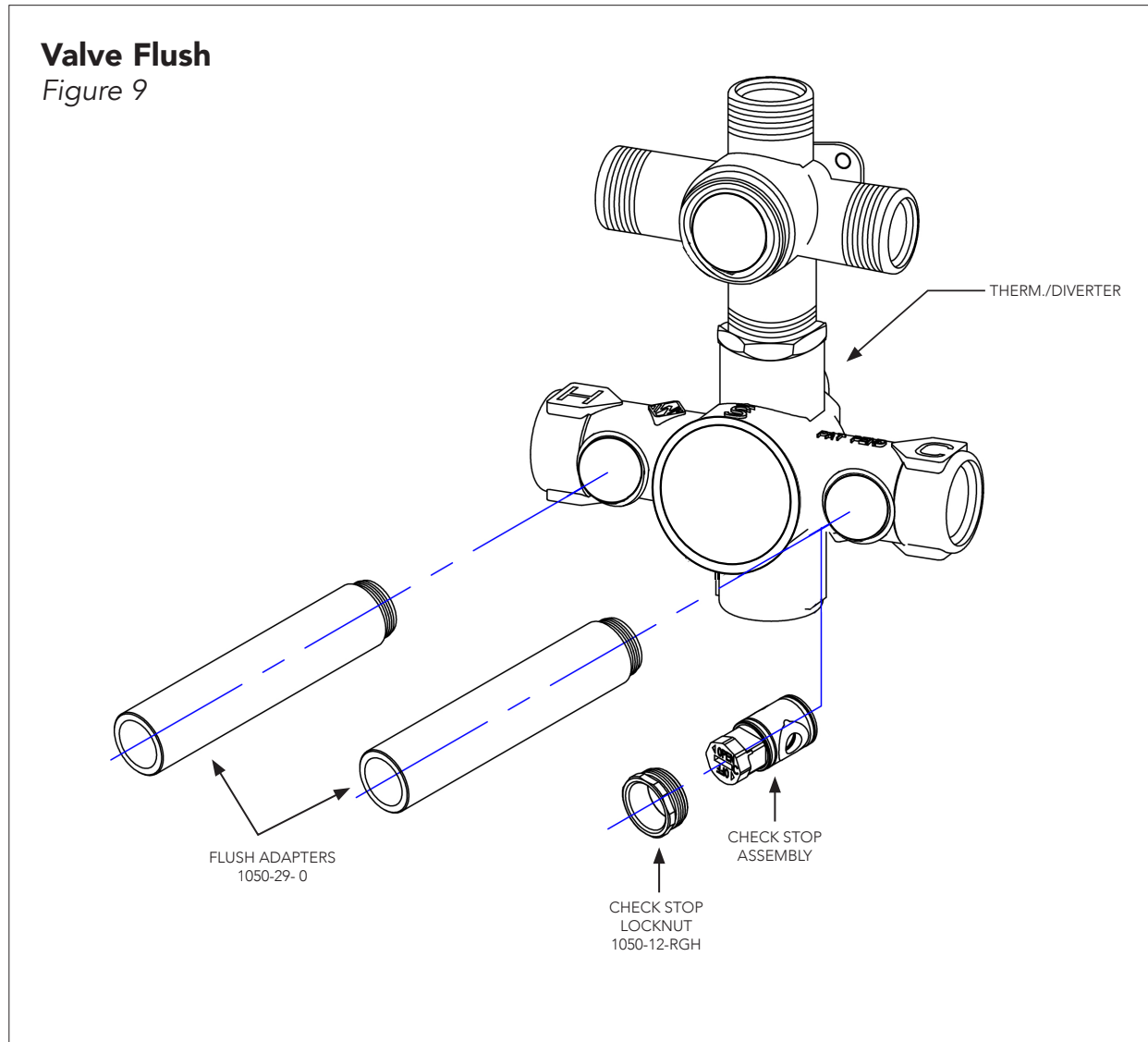
1. Plumb hot and cold inlets on thermostatic body. Part #'s: J-TH34. J-TH12, J-TH34-686, J-TH34-687, J-TH34-688, J-TH34-689, J-THVC12. **Figure 8**
2. If using lower port on thermostatic body, a separate volume control is required. If not, port must be plugged. **Figure 8**
3. Select diverter ports to be used. C, A, B and plumb with appropriate fittings. Part #'s: J-TH34-686, J-TH34-687, J-TH34-688, J-TH34-689, J-20686, J-20688, J-20687, J-20689. **(Note: Port A is not used with the 2-way diverter and must be capped) Figure 8**

Note: Two way diverter can be used as a single outlet and volume control by capping B or C port. Three way diverter can be used as two way diverter by capping any single port or a volume control by capping any two ports.



[STEP 4] ROUGH IN PLUMBING AND VALVE FLUSH

1. Flush adapters are provided for placement into body for flushing.



[STEP 5] REASSEMBLY (REASSEMBLE IN REVERSE OF STEPS ON PAGE 6)

1. DIVERTER:

- Inspect and remove any debris in diverter body
- Re-install diverter into body so nub from cartridge goes into detent in valve
- Install locknut using 1" wrench, tighten nut and replace spline adapter

2. THERMOSTAT:

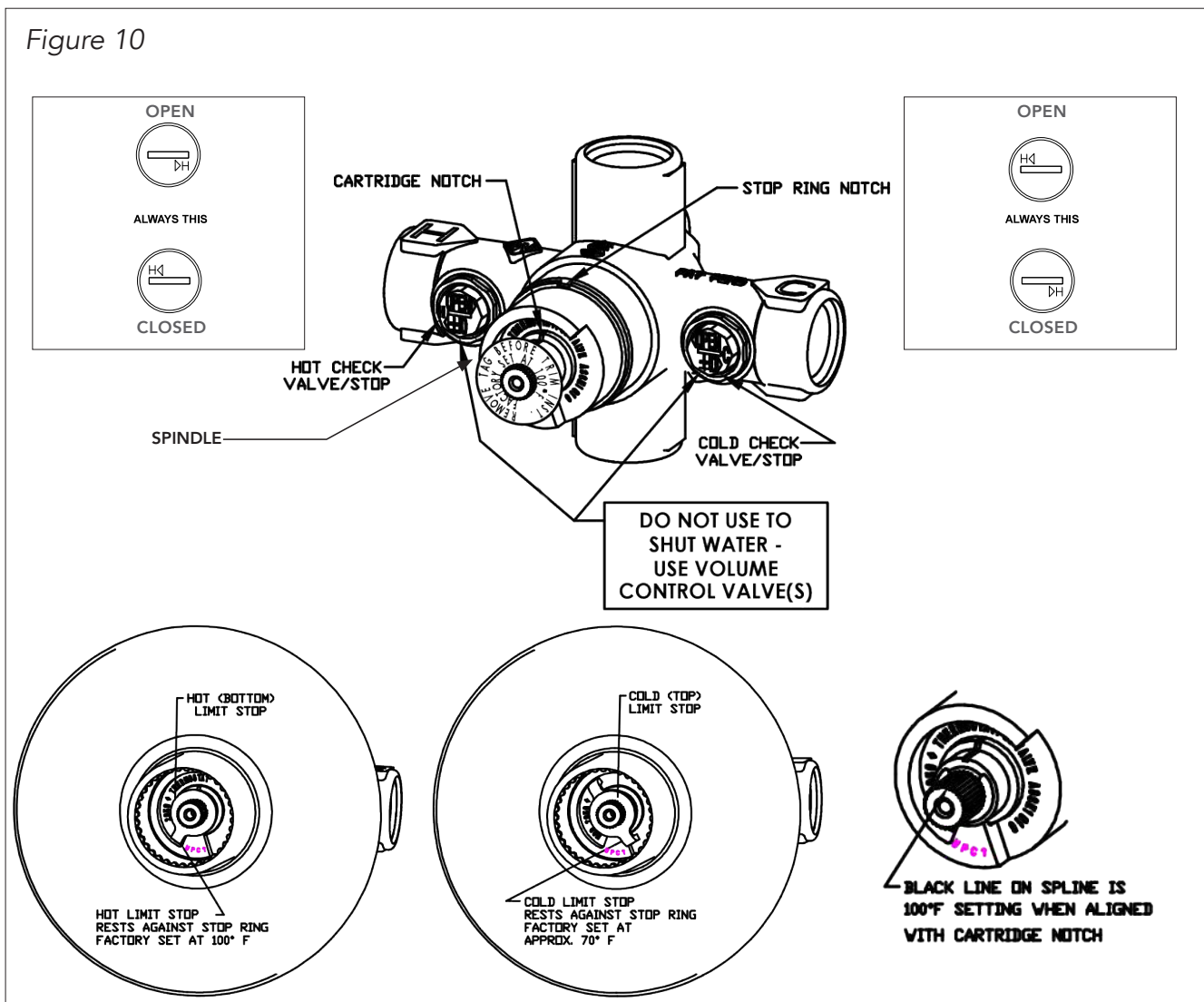
- Inspect and remove any debris in thermostatic body, including check stop cavities
- Apply lubricant suitable for potable water to the o-rings on the thermostatic cartridge, and insert into valve body rotating back and forth slightly. Orient cartridge with the notch up in the 12 o'clock position for J-TH34 and J-TH12 and 6 o'clock position for J-THVC12. **Figure 10**

- Re-install thermostatic cartridge locknut using a 1-1/4" wrench and tighten nut
- Re-install hot and cold check stops, rotating back and forth until seated
- Re-install check stop locknuts using a 13/16 (6 point) socket, tighten nuts

Helpful hint: Place locknut over flat tip screwdriver, press screwdriver and check stops down (spring loaded) then start locknut by hand

****NOTE: CHECK STOPS ARE DIRECTIONAL. ENSURE ARROWS POINT TO CENTER OF VALVE FOR ON POSITION****

Figure 10



[STEP 6] SYSTEM CHECK

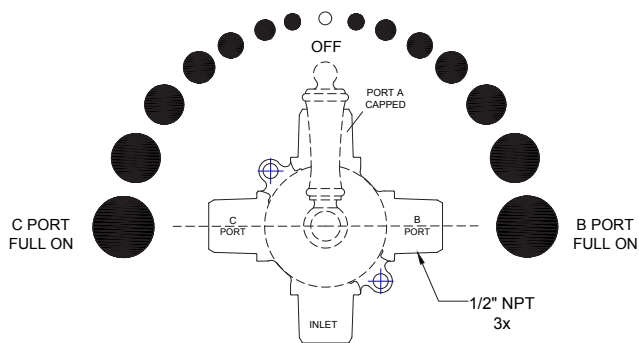
1. Close hot and cold check stops on thermostatic valve. **Figure 11, 12, 13, 14**
2. Turn off applicable volume control, separate volume control, diverter or integral (J-VC12)
Do not turn on water yet! Diverter of volume control must be off or damage to check stop seals may occur.
3. Turn on hot and cold main water supply. Check for leaks, repair if necessary.
4. Open hot and cold check stops. **Figure 11, 12, 13, 14**
5. Check for leaks, tighten locknuts if necessary or repair connections.
6. Open diverter valve. Test all positions. See **Figure 11, 12, 13, 14** for diverter operation.
7. Open volume control on bottom of thermostatic valve body if applicable. **Figure 16**
8. Close hot and cold check stops during finished wall fabrication. **Figure 11, 12, 13, 14**

2 Way - J-TH34-686

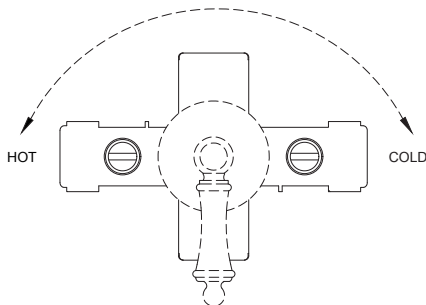
Figure 11

DIVERTER VALVE OPERATION

J-20686



THERMOSTATIC TEMPERATURE CONTROL

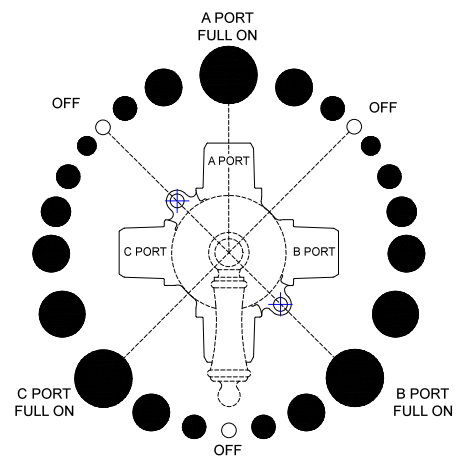


3 Way - J-TH34-688

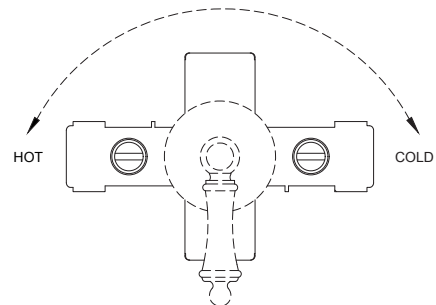
Figure 12

DIVERTER VALVE OPERATION

J-20688



THERMOSTATIC TEMPERATURE CONTROL



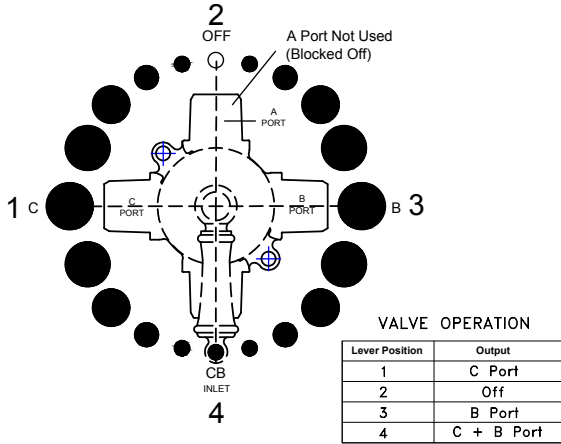
[STEP 6] SYSTEM CHECK CONTINUED

2 Way - J-TH34-687

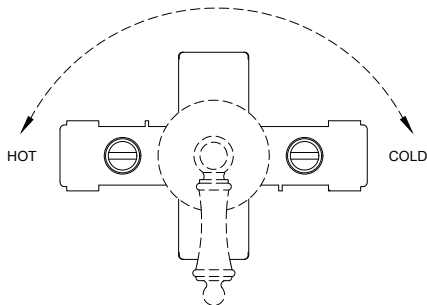
Figure 13

**DIVERTER
VALVE OPERATION**

J-20687



**THERMOSTATIC
TEMPERATURE CONTROL**

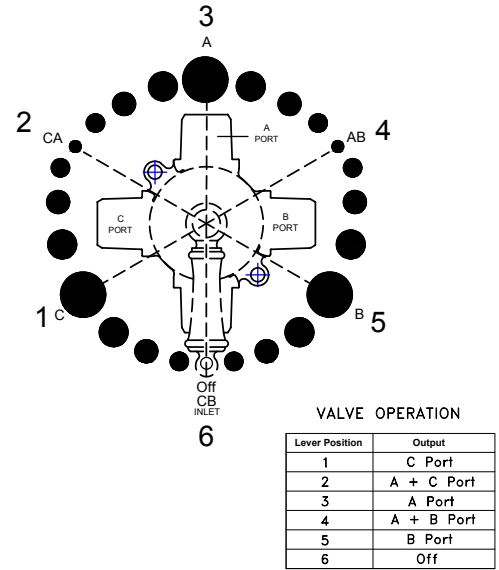


3 Way - J-TH34-689

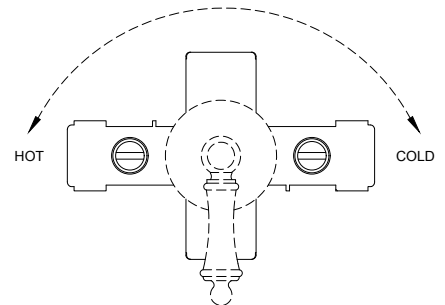
Figure 14

**DIVERTER
VALVE OPERATION**

J-20689



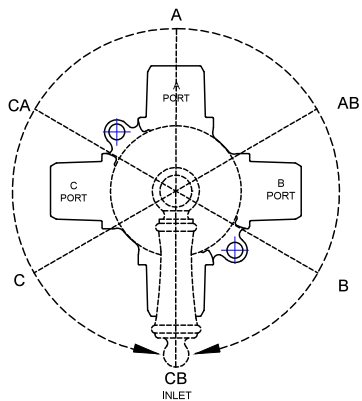
**THERMOSTATIC
TEMPERATURE CONTROL**



[STEP 6] SYSTEM CHECK CONTINUED

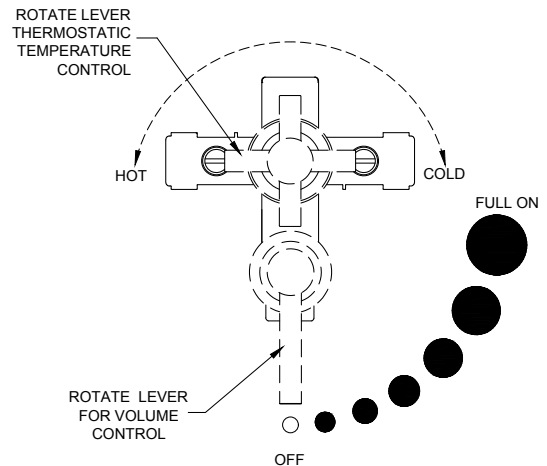
J-20682

Figure 15



J-THVC12

Figure 16



[STEP 7] REINSTALL ROUGH IN SHIELD

[STEP 8] FINISHED WALL OPENING

See Figures 3 & 5 for maximum finished wall opening

[STEP 9] THERMOSTATIC VALVE SET UP

1. Remove rough in shield and discard if trim is to be installed after valve setup.
2. Turn volume control/diverter to off position. See **Figures 11-16** for diverter operation.
3. Open hot and cold check stops (should be horizontal, arrow pointing to center of valve).
4. Open volume control/diverter to allow water to flow.
5. Reattach limit stops to original setting from **[STEP 2] 1b**
6. Rotate thermostatic valve full counter clockwise and check water temperature with thermometer. Factory setting should be 100° maximum. **Figure 10**
7. Limit stop setup:
 - **FOLLOWING STEPS SHOULD BE PERFORMED WITHOUT HANDLE ATTACHED, BY ROTATING VALVE BY HAND ONLY****
 - **DO NOT ROTATE THERMOSTATIC CARTRIDGE PAST THE RESISTANCE POINT. THIS WILL DAMAGE THE CARTRIDGE!****
 - a. Remove limit stops. **Figure 10**
 - b. Open volume control/diverter to allow water to flow, run water for 2-5 minutes. **Figure 11-16**
 - c. Rotate thermostatic valve counter clockwise until resistance is felt. Replace hot limit stop so leg is resting against left side of stop ring stop. **Figure 10**
 - d. Rotate thermostatic valve clockwise until resistance is felt. Replace cold limit stop so leg is resting against right side of ring stop. **Figure 10**
 - e. Turn off water flow.

[STEP 10] DIAL POINTER, TRIM, AND HANDLE INSTALLATION

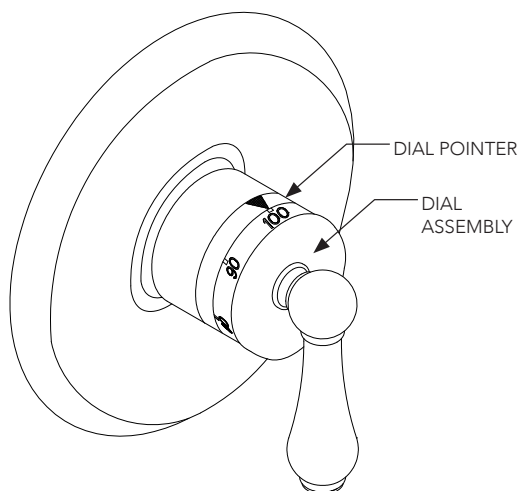
- A. Push the dial pointer on to sleeve with pointer on top at 12 o'clock position. **Figure 17**
- B. Turn on diverter valve to allow water to flow. Measure water temperature and adjust to 100°F.
- C. Install dial assembly on to spindle aligning the 100° to the dial pointer. **Figure 17**
- D. Place adhesive backed foam strip to back side of trim plate.
- E. Slide trim plate over sleeve against finished wall.
- F. Install handle to desired position using center screw or set screw, trims may vary.

[STEP 11] VALVE OPERATION

- A. Diverter/Volume control operation. **Figure 11-16**
 - i. J-20686 Two way diverter is off at 12 o'clock position full on "C" port a 9 o'clock position, full on "B" port at 3 o'clock position. Water volume increases as control moves toward full on positions. Control moves 180 degrees through full use.
 - ii. J-20688 Three way diverter is off in 2, 6, 10 o'clock positions. "C" port full on in 8 o'clock position. Control moves 360 degrees clockwise or counter clockwise through full operation. Water volume increases as control moves toward full on positions. Valve has detents in full on and stop positions.
 - iii. J-20682 Three way diverter Control moves 360 degrees clockwise or counter clockwise through full operation. Six operating positions, 12 o'clock A full port; 2 o'clock A+B shared; 4 o'clock B full port; 6 o'clock B+C shared; 8 o'clock C full port; 10 o'clock A+C shared.
 - iv. J-20687 Two way diverter is off at 12 o'clock [position; full on "C" port at 9 o'clock position and full on "B" port at 3 o'clock position. Water volume increases as control moves toward full on positions. When rotated to 6 o'clock position both C and B ports are on.
 - v. J-20689 Three way diverter is off at 6 o'clock [position; full on "C" port at 8 o'clock position; shared function with "C" and "A" at 10 o'clock position; full on "A" port at 12 o'clock positions; shared function with "A" and "B" at 2 o'clock position and full on "B" port at 4 o'clock position. ****NOTE - IF USING A TUB SPOUT ON THIS APPLICATION IT IS RECOMMENDED THAT THE SPOUT BE PLUMBED TO EITHER "C" OR "B" PORT****
- B. Thermostatic valve operation. **Figure 11-14, 16 & 17**
 - i. Temperature increases as control is moved counter clockwise
 - ii. Use temperature dial as indicator.

Dial Pointer

Figure 17



TROUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTION
Water leaks from shower head / tub spout when the volume control is shut off.	<p>The shower head is trapping water behind the faceplate.</p> <p>The volume control valve has been installed incorrectly.</p> <p>The ceramic disc in the cartridge of the volume control valve has been damaged.</p>	<p>Remove shower head and clean out the holes in the faceplate. Reinstall shower head.</p> <p>Arrow on side of volume control should be pointing away from the thermostatic valve. If arrow can not be seen, remove trim and cartridge. Look into the valve cavity. The location of the larger hole indicates the outlet of the volume control valve, the volume control is installed incorrectly. Refer to installation sheets for proper installation.</p> <p>Replace with a new cartridge</p>
Water is hot or cold but not mixing.	Thermostatic valve is installed upside down or the supply lines to the thermostatic valve are reversed.	Refer to installation sheets for proper installation.
Can not adjust water temperature properly.	<p>Check valves / stops are not opened all the way.</p> <p>Thermostatic cartridge is damaged.</p> <p>Debris in screens of thermostatic cartridge.</p> <p>Limit stops are not set properly.</p> <p>Dial assembly is not calibrated.</p> <p>Check valve (s) / stops are not opened all the way.</p>	<p>Remove trim and make sure the arrows on the check valve / stops are facing toward the center of the thermostatic valve.</p> <p>If cartridge spindle rotates more than 270° (DO NOT FORCE), replace cartridge.</p> <p>Remove thermostatic cartridge and clean screens.</p> <p>Refer to installation instruction for setting limit stops.</p> <p>Set water temperature with a thermometer and adjust dial assembly to reflect the measured temperature. Refer to installation sheet.</p> <p>Install with new check valve (s) / stop (s). Refer to check valves / stops removal and installation section of the installation sheets.</p>
Low flow of mixed water.	<p>Check valve (s) / stops have been damaged.</p> <p>Debris in screens of thermostatic cartridge.</p> <p>Check valves / stops are not opened all the way.</p>	<p>Install new check valves / stops. Refer to check valves / stops removal and installation section of the installations sheets</p> <p>Remove thermostatic cartridge and clean screens.</p> <p>Remove trim and make sure the arrows on the check valve / stops are facing toward the center of the thermostatic valve.</p>
Cold water in nearby faucet is lukewarm.	Check valve (s) / stops have been damaged or filled with debris.	Install new check valves / stops. Refer to check valves / stops removal and installation section of the installations sheets
Thermostatic valve is working properly, but the water is not hot enough, but water in nearby faucet is hot enough.	<p>Limit stops are not set properly.</p> <p>Boiler temperature not set high enough.</p>	<p>Refer to installation instruction for setting limit stops.</p> <p>Thermostatic valve has cold water mixing with the hot water at all times, so the water temperature on the boiler will need to be increased to get the desired temperature. CAUTION: increasing the temperature will affect all plumbing throughout the system.</p>

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