

Reconditioning Kit Instructions for 1/2 Through 2 inch VG7000 Valves with Brass Trim

This procedure describes the recommended method to properly recondition a VG7000 Valve with brass trim to “near-new” condition.

Table 1: VG7xKxxx Kit Contents for Normally Closed and Mixing Valves

Quantity	Description
1	Stem and Plug Assembly
1	Bonnet
2	Ring Pack Assemblies
1	Packing Nut
1	Stem Guide
1	Stem Wiper (1 through 2 inch valves)
1	Spacer (1 through 2 inch valves)
1	Packing Insertion/Removal Tool
1	Packing Installation Bullet/Sleeve
1	Grease Tube
1	(Optional on 1-1/2 and 2 inch Valves) Lower Body (Three-way Valves) Bottom Cap (Normally Closed Valves)
1	Instruction Sheet

Table 2: VG7xKxxx Kit Contents for Normally Open Valves

Quantity	Description
1	Inner Valve Assembly
1	Instruction Sheet

Tools Required

- blade screwdriver
- wrenches
- pliers
- pipe joint compound

These tools can be purchased from Johnson Controls or your local authorized distributor:

- Spring Compression Tool, JC 5389 (for V-3000 Actuators only)
- Vise-Grip Chain Wrench, JC 5339 (not required for valves with factory-mounted V-3801-8001 or VA-802x Actuators)
- Squeeze Bulb, JC 5216 (for use with pneumatic actuators)

Isolate Valve to Prepare for Reconditioning

Isolate all of the piping connected to the valve being reconditioned, and bleed the pressure from the valve. If manual valves are not installed for this purpose, system shutdown and drainage is required.

Actuator Removal (See Table 3.)

Disconnect the control signal and remove the actuator and spring, if present. For safe removal of the valve actuator refer to the appropriate actuator product bulletin for specific instructions.

Table 3: Literature Code Numbers*

Actuator	Code Number
V-3000-8001	LIT-977252
V-3801-8001	LIT-977253
V-400 and V-500	LIT-977254
VA-802x	LIT-977285
VA-8050	LIT-977300
VA-8051	LIT-977305
VA-8052	LIT-977310X
M9x00	LIT-977352
VA-715x	LIT-977312
VA-720x	LIT-977314
M100	LIT-977355

* The literature listed is filed in the *Valve and Actuator Manual (FAN 977)* or can be ordered separately through Johnson Controls Customer Service at 1-800-ASK-JNSN, or through the Branch

Removal of Inner Valve Assembly (See Figures 1 and 2.)

Normally Open (Push-Down-To-Close) Valves

1. Using the vise-grip chain wrench (JC 5339, ordered separately) or the appropriate size wrench, unscrew the bonnet and remove the inner valve assembly.
2. Inspect the empty valve body for damage or buildup of debris. If debris is found, remove it from the valve and research the proper water treatment.
3. Visually inspect the plug seating surface. Minor abrasion will not hinder performance; however, if the port is severely gouged or damaged, the entire valve should be replaced.

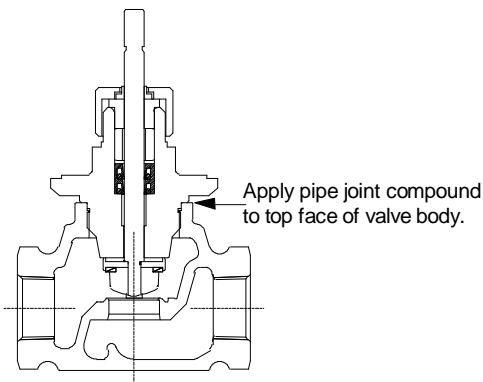


Figure 1: Normally Open Valve

Normally Closed (Push-Down-To-Open) and Mixing Valves (See Figure 2.)

Note: Although the illustration in Figure 2 represents a mixing valve, the normally closed and mixing valves follow similar procedures.

1. Disconnect the pipe connected to the lower inlet of the mixing valve before proceeding.
2. Using the appropriate size wrench, remove and retain the lower body (mixing) or bottom cap (normally closed).
3. Push the stem all the way down and remove the stem and plug assembly through the bottom of the body.

4. Using the vise-grip chain wrench (JC 5339, ordered separately) or the appropriate size wrench, unscrew the bonnet and remove the bonnet assembly.
5. Inspect the empty valve body for damage or build up of debris. If debris is found, remove it from the valve and research the proper water treatment.
6. Visually inspect the plug seating surfaces in the body and lower body. Minor abrasion will not hinder performance; however, if the port is severely gouged or damaged, the entire valve should be replaced.
7. On 1-1/2 and 2 inch valves inspect the guide hole in the bottom cap/lower body. If it is worn it should be replaced. The 1-1/2 and 2 inch lower bodies and bottom caps are available as replacement parts.

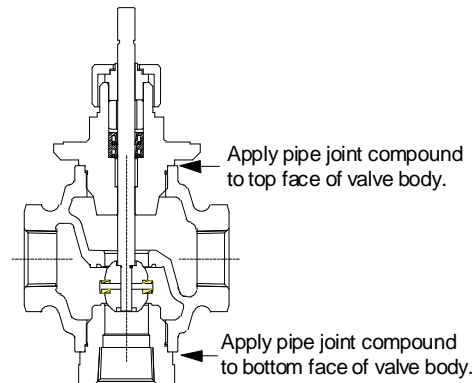


Figure 2: Mixing Valve

Install Recondition Kit Assembly

Normally Open (Push-Down-To-Close) Valves

1. Check to make sure that the top face of the valve and the mating face of the bonnet are clean. **Springly** apply pipe joint compound to the top face of the valve body as illustrated in Figure 1.

Note: Do not apply pipe joint compound to the threads. This may cause the compound to drip onto the valve seat and cause shutoff problems.

2. Do not remove the stem from the bonnet and packing assembly, doing so will damage the packing. (For normally open valves the entire bonnet assembly is preassembled.)

- Using the vise-grip chain wrench (JC 5339, ordered separately) or the appropriate size wrench, thread the inner valve assembly into the valve body and tighten to a torque specified in Table 4.
- Move the stem up and down by hand to be sure that it operates freely.

Table 4: Bonnet Torques, lb-ft (N·m)

Valve Size, In.	lb-ft (N·m)
1/2	85 to 100 (115 to 135)
3/4	110 to 125 (150 to 170)
1	175 to 190 (245 to 290)
1-1/4	250 to 265 (340 to 400)
1-1/2	325 to 340 (440 to 490)
2	430 to 445 (580 to 640)

Normally Closed (Push-Down-To-Open) and Mixing Valves

- Check to make sure that the top and bottom faces of the valve and the mating face of the bonnet and bottom cap/lower body are clean. **Springly** apply pipe joint compound to the top and bottom faces of the valve body as illustrated in Figure 2.

Note: Do not apply pipe joint compound to the threads. This may cause the compound to drip onto the valve seat and cause shutoff problems.

- Insert the stem and plug assembly through the bottom of the valve, the upper port, and bonnet opening. Grasp the stem with the opposite hand and pull the assembly up.
- While holding the stem and plug assembly in place, thread the lower body/bottom cap by hand until finger tight. (See Figure 3.)
- Release the stem. The stem and plug assembly is now captured.
- Place the bonnet over the stem, thread it into the valve body, and tighten to a torque specified in Table 4.
- Tighten the lower body to a torque specified in Table 4, using the appropriate size wrench.

For Steps 7 through 15, refer to Figures 4, 5, and 6.

- Apply a small amount of grease (provided in the kit) to the bottom of the packing box and to the valve stem.
- Slide the bullet (1/4 inch stem) or the sleeve (3/8 inch stem) over the stem threads. Apply a small amount of grease to the outside of the bullet.
- With the O-rings facing down, slide both ring packs together over the bullet/sleeve and onto the valve stem using the packing insertion/removal tool.
- Remove the bullet/sleeve.
- Apply a small amount of grease to the outside of the ring packs.
- Use the large end of the packing insertion/removal tool to push the ring packs down into the packing box.
- Install the spacer (1 through 2 inch valves), stem guide and stem wiper (1 through 2 inch valves) into the stuffing box.
- Install the packing nut onto the packing box.
- Tighten the packing nut until fully seated, and snug using a wrench not more than 1/8 of a turn.

Note: The packing does not require compression loading from the packing nut. Over tightening of the packing nut may cause the stem to bind.

- Move the stem up and down by hand to make sure that it operates freely.
- Reconnect pipe to lower valve inlet on mixing valves.

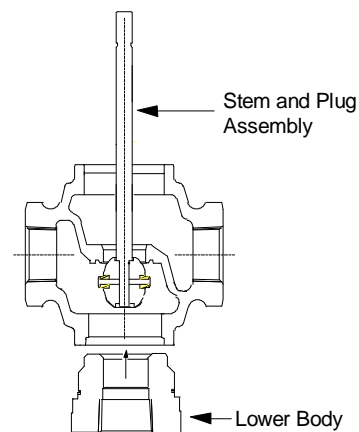


Figure 3: N.C. Lower Body Assembly

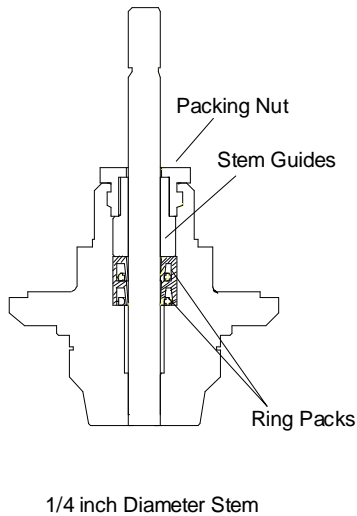


Figure 4: Packing Box for 1/2 and 3/4 inch Valves

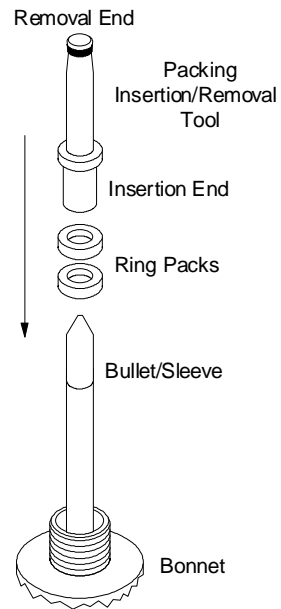


Figure 6: Packing Installation

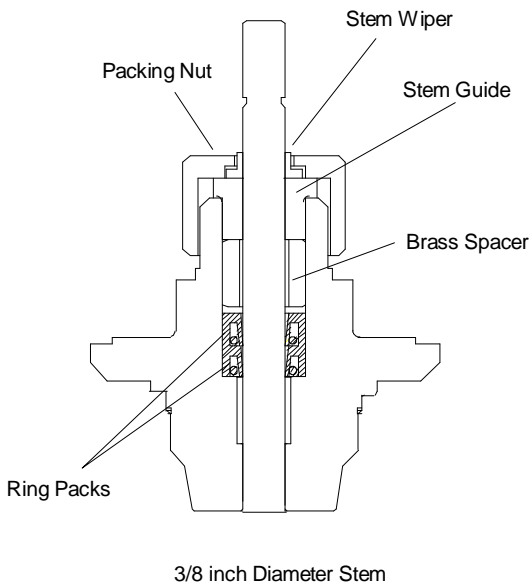


Figure 5: Packing Box for 1 through 2 inch Valves

Reinstallation of Actuator

Perform the reinstallation of the actuator as described in the actuator bulletin.

Note: An extra locknut may have been installed on the valve stem of normally open valves to prevent inadvertent removal of the stem from the bonnet assembly. This locknut should be removed prior to reinstalling the actuator.

Recommission Valve/Actuator

When the valve is reconditioned and the particular actuator is reinstalled, check the following items.

1. All threaded parts are tightened as described in this document.
2. The valve stem moves to its full up or down position when power or air is applied to the actuator.
3. Inspect for leaks once the system is back in operation.