Installation Instructions
February 2007

Design E, EH, HP, YD and YS HIGH-SEAL ULF Packing

Use these instructions to install HIGH-SEAL ULF packing in valves that have standard packing or when inspecting or replacing HIGH-SEAL ULF packing. Also refer to the HIGH-SEAL ULF Live-Loaded Packing System instruction manual, Form 5263 for additional information.

⚠ WARNING

Avoid personal injury or property damage from sudden release of process pressure or bursting of parts. Before performing any maintenance operations:

- **Always wear protective gloves, clothing, and eyewear when performing any maintenance operations to avoid personal injury.**
- **Disconnect any operating lines providing air pressure, electric power, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.**
- **Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure from both sides of the valve. Drain the process media from both sides of the valve.**
- **Vent the pneumatic actuator loading pressure and relieve any actuator spring precompression.**
- **Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.**
- **The valve packing box may contain process fluids that are pressurized, *even when the valve has been removed from the pipeline.* Process fluids may spray out under pressure when removing the packing hardware or packing rings, or when loosening the packing box pipe plug.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**

If you are installing the system in a valve that is still connected to an actuator, remove the actuator from the valve to provide sufficient space to install the packing assembly.

⚠ WARNING

If a spring-return actuator is used, it is possible that disconnecting the stem connector will allow the spring to force the actuator to the end of its travel, which could result in personal injury. Be sure the actuator spring is resting on its travel stop. Refer to the appropriate valve and actuator instruction manuals to remove the actuator.

1. Carefully remove the old packing parts from the packing box. The surface condition of the valve stem and the packing box wall is critical in obtaining a good seal. If the valve stem needs to be replaced, or any other valve part, refer to the appropriate valve instruction manual for replacement procedures. Complete all valve maintenance before installing the HIGH-SEAL ULF packing system into the bonnet.

2. If a retrofit kit is being installed in place of the original packing, remove the existing packing studs from the valve and replace them with the longer studs (key 200).

Note

Ensure that the packing box parts are assembled in the correct order. Packing parts can not function properly if the Belleville springs or other packing parts are not stacked correctly.

3. Refer to figure 1 to ensure that the packing parts are assembled in the correct order. Install the HIGH-SEAL ULF packing parts into the packing box.

- **For valves with 9.5 mm (3/8 inch) valve stems,** do not install the packing follower (key 203) at this time. (Note: the yoke boss will not slide over the packing follower. The packing follower must be

installed while lowering the actuator yoke onto the valve.)

Note

Lubrication is required for the packing studs and nuts.

Although it is important to properly lubricate the stud threads and internal nut threads, it is also important to properly lubricate the contacting face of the nut.

- **For valves with 12.7 mm (1/2 inch) or larger stem diameters,** install the packing follower (key 203).

4. Refer to the appropriate valve and actuator instruction manuals when connecting the valve to the actuator. While lowering the actuator yoke onto the valve, install the packing follower [for a 9.5 mm (3/8 inch) valve stem size], indicator disk, springs, and flange (keys 203, 206, 202, and 201).

5. Place the packing follower against the packing as shown in figure 1.

6. Place the indicator disk (key 206) and the first Belleville spring (key 202) while guiding them onto the packing follower (key 203). Make certain the cone-shaped side of the Belleville spring is towards the indicator disk as shown in figure 1.

7. Place the second Belleville spring (key 202) with the coned-shaped side toward the flange (key 201); see figure 1. Position the flange on top of the spring, making sure the second spring fits into its guide in the flange.

CAUTION

Keep the packing follower and flange centered on the valve stem. If any metal part makes contact with the stem, it can cause damage to the stem surface. Vertical scratches or nicks on the stem surface can cause excessive leakage from the packing.

8. Install the washers (key 219, not required for 9.5 mm [3/8 inch] stem). Lubricate the packing nuts with anti-seize lubricant and tighten them hand-tight.

9. The load scale is used to indicate compression on the Belleville springs. Position the load scale (key 205) by slightly loosening the mounting screws (key 204). Align the bottom edge of the load scale with the indicator disk and retighten the screws.

Figure 2 illustrates the load scale properly adjusted before the nuts have been tightened and with the Belleville springs not compressed.

Note

Failure to properly adjust the load scale will invalidate the Belleville spring compression indication.

10. Tighten the packing nuts while observing the two load scales (key 205) to make sure the flange (key 201) is tightened evenly. See figure 2 for the minimum spring compression line on the load scale. Be sure to keep the follower centered on the stem while tightening the nuts. Tighten the nuts alternately and evenly, keeping the flange parallel with the valve (see figures 1 and 2), until the indicator disk aligns with the maximum compression line on the load scales, as shown in figure 2.

11. Under normal conditions, the packing nuts should not require re-tightening for the life of the packing.

For additional information concerning the installation of this packing kit, consult the appropriate valve and packing instruction manuals.

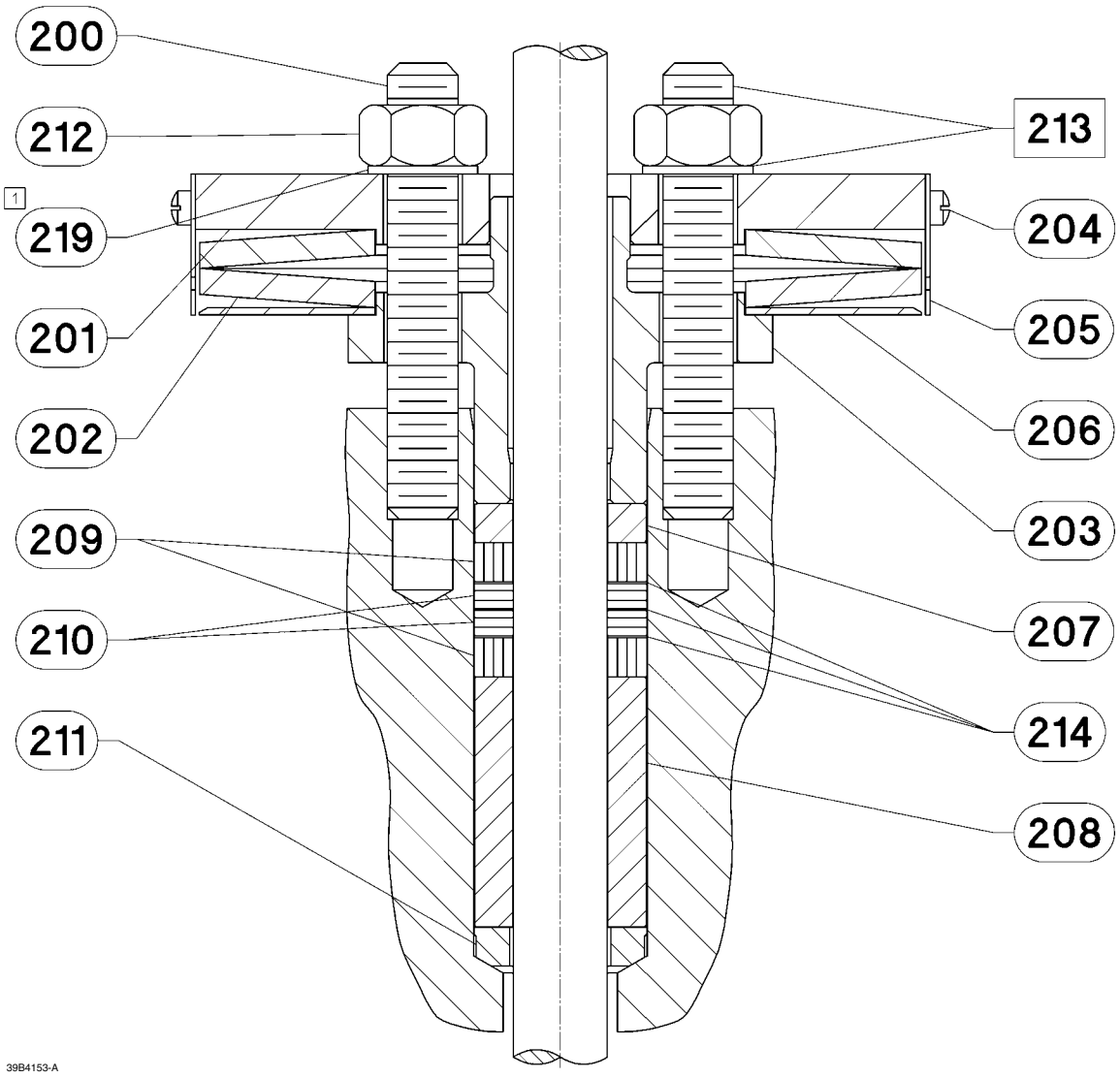
12. Install the actuator, following instructions in the appropriate instruction manual.

WARNING

Stems and packing box constructions that do not meet Emerson Process Management stem finish specifications, dimensional tolerances, and design specifications may adversely alter the performance of this packing retrofit, resulting in personal injury or property damage.

WARNING

Use only genuine Fisher® replacement parts. Components that are not supplied by Emerson Process Management should not, under any circumstances, be used in any Fisher valve, because they will void your warranty, might adversely affect the performance of the valve, and could give rise to personal injury and property damage.



1. FIND NUMBER 219 NOT REQUIRED WITH 9.5 mm (3/8 INCH) STEM

**9.5 mm (3/8-INCH) THROUGH
31.8 mm (1-1/4 INCH) STEM SIZES**

Figure 1. HIGH-SEAL Graphite ULF Packing Assembly

Note

Neither Emerson, Emerson Process Management, nor any of their affiliated entities assumes responsibility for the selection, use and maintenance of any product. Responsibility for the selection, use, and maintenance of any product remains with the purchaser and end-user.

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Table 1. HIGH-SEAL Packing Kits

STEM SIZE DIAMETER, mm (Inch)	PACKING RETROFIT		PACKING REPAIR
	S17700 Springs	N07718 Springs	
9.5 (3/8)	RPACKXRT312	RPACKXRT322	RPACKX00592
12.7 (1/2)	RPACKXRT332	RPACKXRT342	RPACKX00602
19.1 (3/4)	RPACKXRT352	RPACKXRT362	RPACKX00612
25.4 (1)	RPACKXRT372	RPACKXRT382	RPACKX00622
31.8 (1-1/4)	RPACKXRT392	RPACKXRT402	RPACKX00632

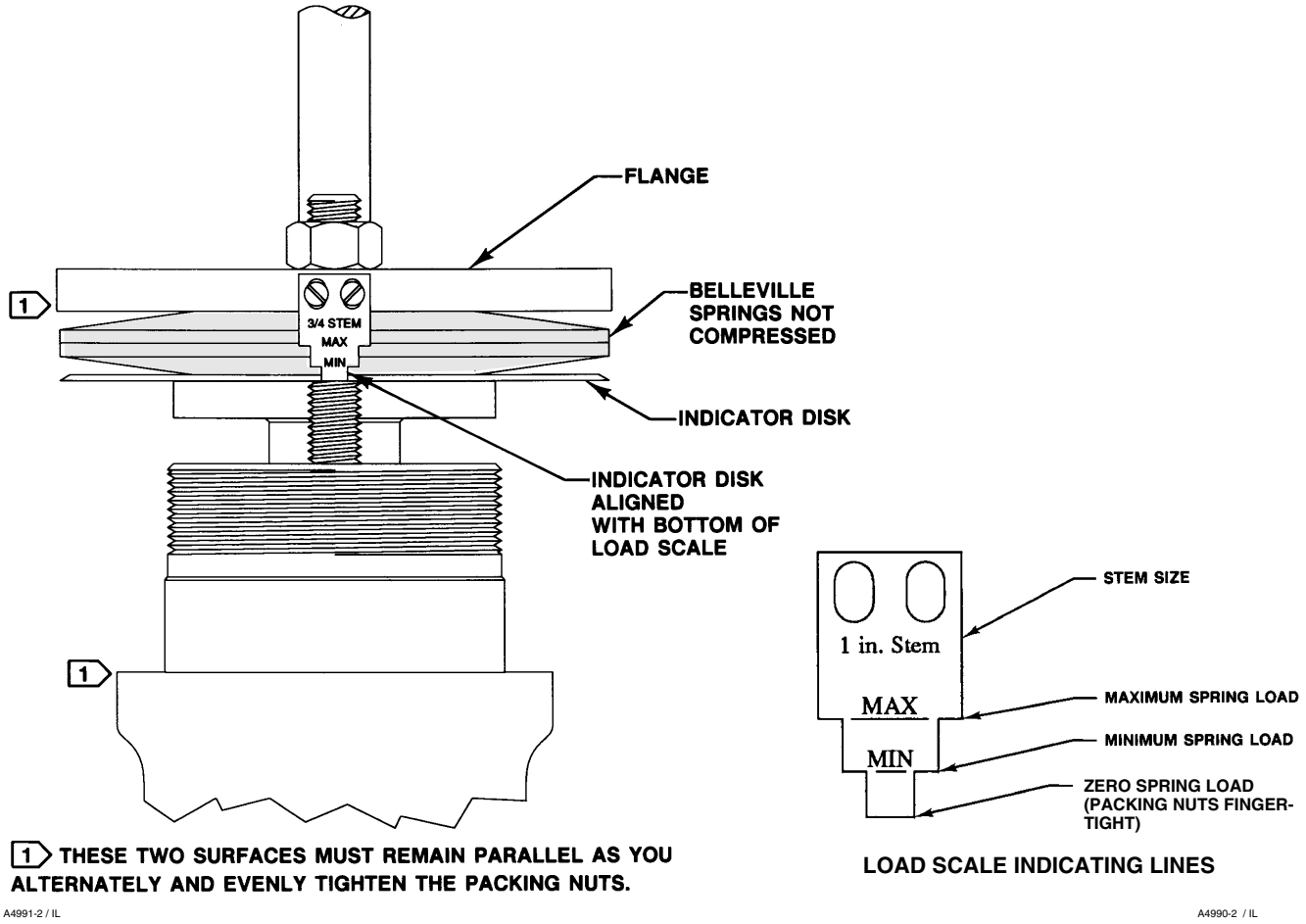

Figure 2. HIGH-SEAL ULF Packing Assembly Showing the Load Scale Properly Adjusted for Decompressed Springs

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