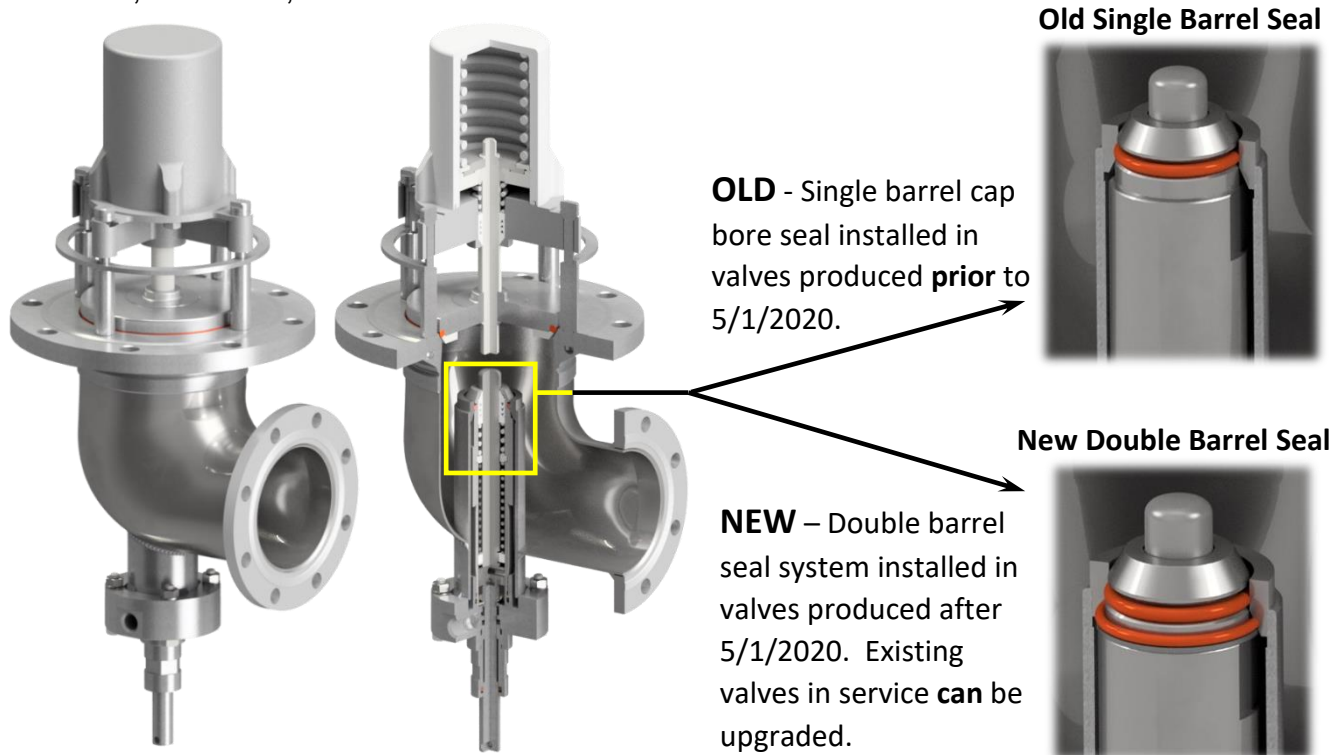
	Form Title:	<b>ENGINEERING BULLETIN</b>	Document #:	<b>EB-01-20</b>
				(Form: DEF-003A-1)
	Document Title:	<b>Important Maintenance and New Seal Design for Quick Clean Hydraulic Valve</b>	Revision:	<b>0</b>
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**Description of Bulletin:** This bulletin addresses an important maintenance procedure required to ensure increased performance of Betts Quick Clean Hydraulic Valves as well as introduces a new double barrel seal system that will improve the effectiveness of the bore seal joint.


**Background Details:** It has been observed that an issue is created if proper maintenance is not performed when seals are replaced on Quick Clean Hydraulic Valves. Some commodities create a build-up of residue at the joint of the barrel cap seal. If this residue is not properly cleaned, the replacement seal will potentially fail and the valve will leak product. A seal will NOT perform properly if the sealing surface of either the bore or the groove is inadequate.

**Bulletin Instructions:** These instructions are applicable to all Quick Clean Hydraulic Valve models and variations. Part numbers include but are not inclusive to models starting with: CH46861, CH46874, CH46867, CH46880 and CH46870.









The new double barrel seal system has proven to provide a more reliable seal option and can be easily installed as a retrofit in existing valves following one of these methods:

- 1) The preferred method is to remove valve from tank and perform a complete valve rebuild per maintenance manual MM CH002.
- 2) The alternate method is to remove the hydraulic actuator only and maintain the valve in-place following the instructions provided in this bulletin. Maintenance manual MM CH002 contains additional important details and should be reviewed carefully.

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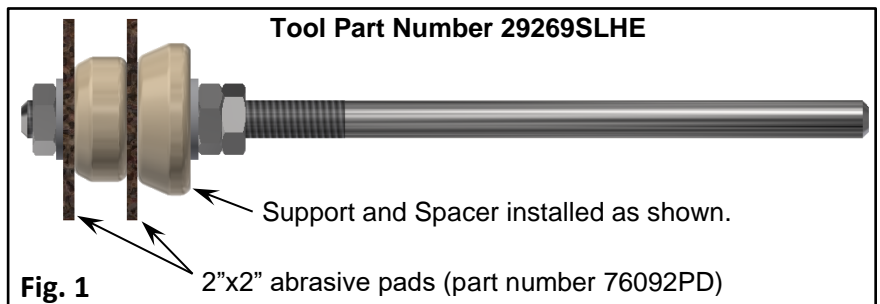
The following procedure should only be performed by trained and qualified Maintenance Personnel. Anyone who uses this procedure must first satisfy themselves that their safety, the safety of others, or the safety of the cargo tank and any other equipment will not be jeopardized by using information contained within this document.

 <b>WARNING</b>		<b>Pressure Hazard</b> – Cargo tank may contain residual pressure and failure to safely relieve could result in sudden loss of pressure causing death or serious injury.
 <b>WARNING</b>		<b>Flammable Product</b> – Cargo tank may contain product that could present a risk of fire, explosion, asphyxiation or other hazards resulting in death or serious injury.
 <b>WARNING</b>		<b>Corrosive Material</b> – Cargo tank may contain corrosive material. Protective clothing including gloves and face shield shall be worn.

1. **Ensure valve and piping are free of residual commodity and pressure.**

2. Remove the hydraulic actuator following procedures found in MM-CH002

3. The valve's stuffing box bore must be cleaned of all residual commodity build-up and properly dressed to ensure proper seal function. Betts recommends the use of the



Quick Clean Hydraulic Stuffing Box Bore Clean-out Tool part number 29269SLHE. **\*\* Improper seat condition is one of the leading causes of valve failure. \*\***

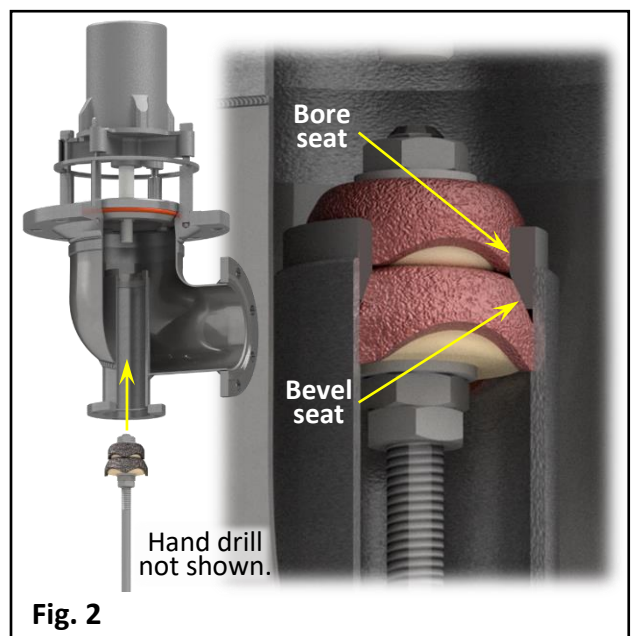
4. Ensure the clean-out tool has new sanding pads installed. The pads should be 2"x2" fine grit abrasive pads installed as shown in figure 1. Make sure the nuts are tightened down to ensure the pads do not spin on the tool.


5. The bore clean-out tool is designed to be attached to and operated with a hand-held drill.

6. Insert the bore clean-out tool into the bore of the Quick Clean Hydraulic stuffing box (See Fig. 2). Run the drill at a slow speed of roughly 200 to 400 RPM while applying moderate force to the tool.

7. Insert the sanding hub fully into the bore several times to ensure the bore and bevel seat are adequately cleaned and polished. (See Fig. 2)

8. After using the tool, blow out the stuffing box with compressed air and clean the bevel seat and barrel cap bore seat with a clean rag.



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9. Inspect bevel seat and barrel cap bore to ensure the surfaces are free of damage, residue, sanding grit or corrosion.
10. Replace the valve if the seats cannot be adequately polished.
11. Test and inspect the actuator per maintenance manual MM CH-002.
12. Take extreme caution not to scratch or damage the actuator O-ring groove by using a small pick or needle nose pliers to carefully remove the old barrel cap O-ring or u-cup. **\*\* Damaged groove due to improper seal removal is one of the leading causes of valve failure. \*\***
13. Inspect groove for damage or commodity build-up. Use a fine grit abrasive pad or sandpaper to completely clean and dress the groove sealing surface. The surface of the groove should be smooth and free of all scratches or commodity build-up.
14. See figure 3 for a view of an unacceptable groove and a view of the same groove that has been polished to an acceptable state. Replace the actuator if the groove cannot be repaired.
15. Inspect the large lead-in chamfer of the actuator as shown in figure 4. Chamfer must be smooth and free of all nicks or sharp edges.
16. The Quick Clean Hydraulic Valve Barrel Cap Seal Upgrade Kit is part number 76084SSTS. It includes a shoulder washer (76084SS), a shoulder O-ring (18592TS/PFA) and a barrel cap O-ring (18858TS/PFA).
17. Always handle Tef-Sil (PTFE encapsulated silicone) O-rings with great care. Do not allow the O-rings to get dirty or to be pinched, scratched or nicked. **\*\* Mis-handled, dirty or damaged O-rings are one of the leading causes of valve failure. \*\***
18. As shown in figure 4, install the shoulder washer followed by the shoulder O-ring.
19. Next carefully stretch the barrel cap O-ring over the lead-in chamfer and install into the barrel cap groove. For detailed instructions see manual MM CH002.
20. Install the actuator into the valve and test for leaks as detailed in manual MM CH002.

