





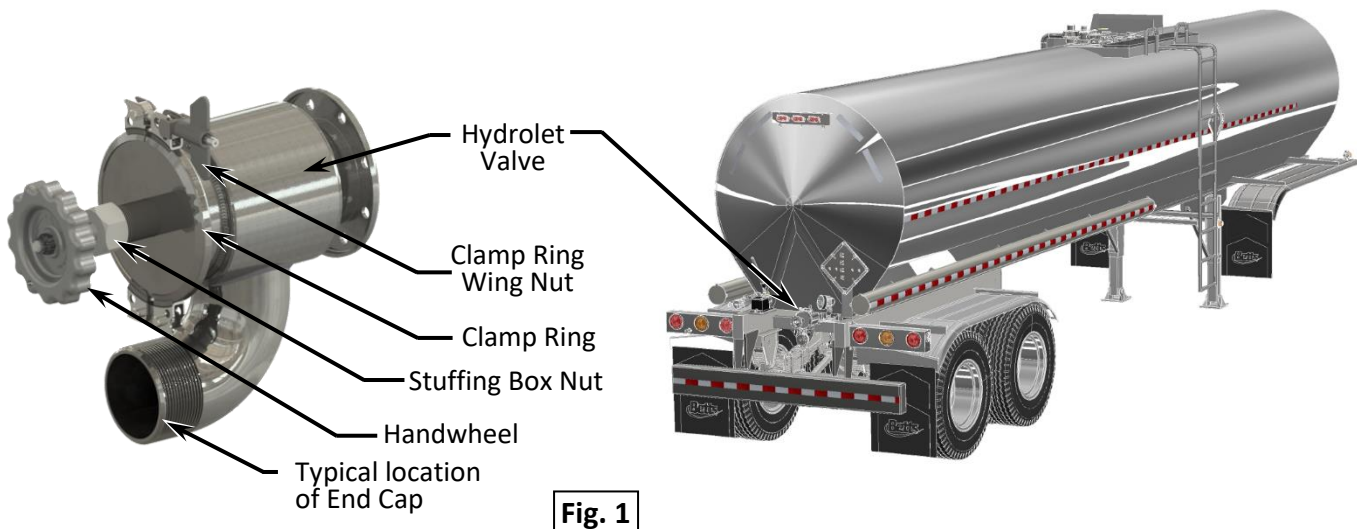
	Form Title:	<p align="center"><b>ENGINEERING BULLETIN</b></p>	Document #:	<p align="center"><b>EB-03-18</b></p> <small>(Form: DEF-003A-1)</small>
	Document Title:		<p align="center"><b>Procedure for Pneumatic Leak Test of Hydrolet Valve (Pre-Load Qualification)</b></p>	Revision:
			Date:	<p align="center"><b>Dec. 21, 2018</b></p>
			Page:	<p align="center"><b>1 of 3</b></p>


**Description of Bulletin:** This bulletin provides an acceptable method and general guide to pneumatically leak test a Betts' Hydrolet valve. The scope is not exhaustive of all general practices and Betts Industries has not undertaken any evaluation of all conceivable ways in which this testing procedure may be used or the consequences of such uses. Anyone who uses this procedure must first be satisfied that their safety, the safety of others, and 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, piping or valves 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, piping or valves may contain product that could present a risk of fire, explosion or other hazards resulting in death or serious injury.
 <b>WARNING</b>		<b>Corrosive Material</b> – Cargo tank, piping or valves may contain corrosive material. Protective clothing including gloves and face shield shall be worn.

**Background Details:** Loading or unloading facilities may require leak testing of the valve system prior to loading or unloading a cargo tank. It is important to ensure the test method is consistent with the valve manufacturer's recommendation and falls within the reasonable capabilities of the valve. Overly stringent testing requirements may significantly increase the maintenance cost of a valve without increasing the actual safety of the valve.


Betts' Hydrolet Valves have an MAWP of 35 psig [2.4 bar] but testing has shown that 10 psig [0.7 bar] compressed air is adequate to use as a pre-load qualification for detecting an issue that could potentially produce a liquid leak.



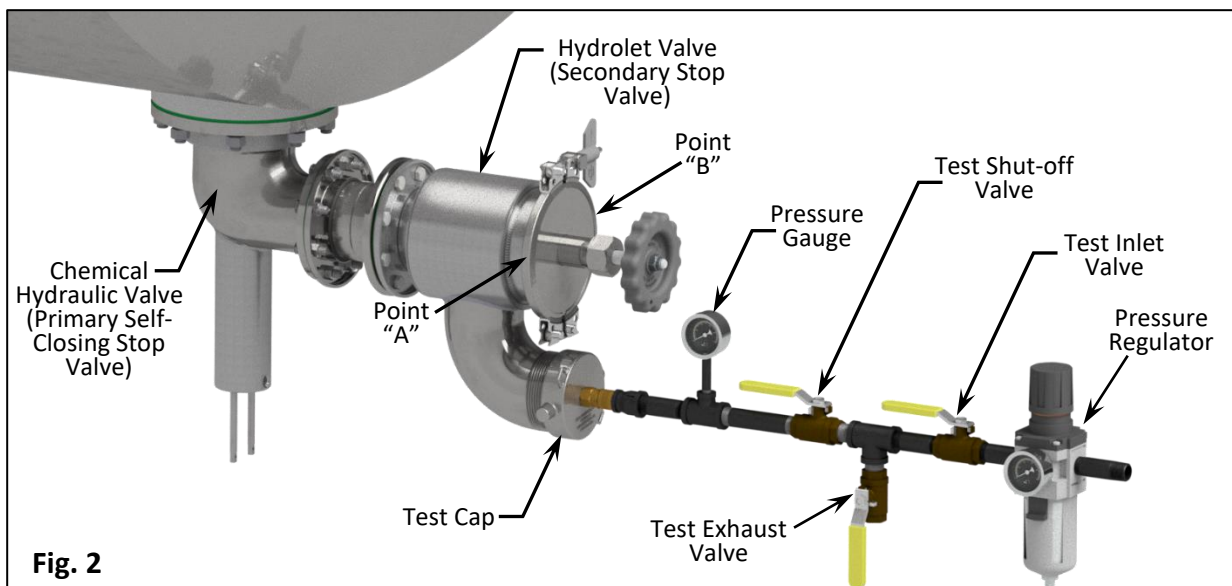
	Form Title:	<p style="text-align: center;"><b>ENGINEERING BULLETIN</b></p>	Document #:	<b>EB-03-18</b>
				(Form: DEF-003A-1)
	Document Title:	<p style="text-align: center;"><b>Procedure for Pneumatic Leak Test of Hydrolet Valve (Pre-Load Qualification)</b></p>	Revision:	<b>1</b>
				Date:
			Page:	<b>2 of 3</b>

**Inspection and Testing Instructions:**


1. Visually inspect valve, piping and flange joint for any damage, corrosion or leakage. This may be an indicator of a more serious issue and the valve may need to be repaired or replaced.
2. Inspect valve to ensure all components are genuine Betts' parts and not "look-alike" replacements. Non-Betts' parts may impede the proper function and safety of the valve.
3. Verify the *Clamp Ring* is installed correctly and properly seated.
  - a. If the piping behind the *Hydrolet* is confirmed to be empty, turn the *Handwheel* one turn counterclockwise. This will relieve tension on the *Clamp Ring*.
  - b. Gently tap each *Clamp Ring* half at point "A" and point "B" (see Fig. 2) with a non-sparking and non-marring hammer to help "seat" the *Clamp Ring*.
  - c. Tighten the *Clamp Ring Wing Nut* hand tight to **no more than** 7.5 lbf-ft [10.2 N·m] torque.

 <b>WARNING</b>	<p><b>Do not exceed 7.5 lbf-ft torque on <i>Clamp Ring Wing Nut</i>. Greater torque can damage clamp ring assembly causing failure of <i>Clamp Ring</i>.</b></p>
--	--



- d. See Engineering Bulletin EB-09-99 for additional *Clamp Ring* procedures and details.
4. Verify the *Stuffing Box Nut* is tightened in a clockwise direction. The *Stuffing Box Nut* should be tightened sufficiently to seal the stem but not over-tightened to the point the *Handwheel* cannot be turned by hand. Do not exceed 25 lbf-ft [34 N·m] of torque on *Stuffing Box Nut*.
5. Rotate the *Handwheel* clockwise and firmly tighten to verify the main seat is closed.
6. Ensure the *Hydrolet* does not contain pressure and is free of any residual product prior to removing the *End Cap*. (With most typical cargo tank valve configurations, the *Hydrolet Valve* is a secondary stop valve. A primary self-closing stop valve is bolted to a mounting pad on the belly of the tank in line with the *Hydrolet*.)
7. Place a catch bucket under the *End Cap* and slowly remove the *End Cap*.
  - a. If any product leaks from the outlet, stop and reinstall *End Cap*. Resolve issue of product in valve body prior to proceeding.
8. Install test cap and testing apparatus consisting of a pressure regulator, ball valves, and pressure gauge. (See Fig. 2)



**Fig. 2**

	Form Title:	<p align="center"><b>ENGINEERING BULLETIN</b></p>	Document #:	<b>EB-03-18</b>
				Revision:
	Document Title:	<p align="center"><b>Procedure for Pneumatic Leak Test of Hydrolet Valve (Pre-Load Qualification)</b></p>	Date:	<b>Dec. 21, 2018</b>
				Page:

9. To start the test, close the *Test Exhaust Valve*.
10. Open *Test Shut-off Valve* and *Test Inlet Valve*.
11. Do not stand in front of the valve during a pressure test. Position body to the side of the valve prior to proceeding.

 <b>WARNING</b>		<p><b>Pressure Hazard</b> – Position body away from the front of the valve. Sudden loss of pressure could cause death or serious injury.</p>
--	---	--

12. Using the *Pressure Regulator*, slowly apply air pressure to the *Hydrolet Valve*.
13. When the *Pressure Gauge* reads 10 psig [.7 bar], close the *Test Shut-off* and the *Test Inlet Valve*.
14. Open the *Test Exhaust Valve* to ensure the system is not being fed air with a slow ball valve leak.
15. Monitor gauge for 60 seconds for detectable pressure drop.
16. If the system holds 10 psig [.7 bar] with no pressure drop:
  - a. The integrity of the *Stem Packing Seal*, *Top Head Seal* and *Disc* has been verified and the Hydrolet is leak free. (See Fig. 3)
  - b. Open *Test Exhaust Valve* to relieve pressure.
  - c. Remove test apparatus.
  - d. Replace *End Cap*.
  - e. Please note: This method of testing does not test the mounting flange joint or the piping behind the Hydrolet.
17. If a pressure drop is detected:
  - a. Spray all joints including *Stem Packing Seal* around *Stuffing Box Nut*, *Top Head Seal* around *Clamp Ring*, *Test Cap*, and all the test apparatus joints with a soapy water solution.
  - b. Apply 10 psig [.7 bar] to inspect for leakage.
  - c. Leakage at the test cap or test apparatus requires fixture repair.
  - d. Leakage at the stem may require *Stuffing Box Nut* to be tightened, *Stem Packing Seal* replaced, or indicate corrosion or damage to the stem or bonnet bore. (See Maintenance Manual [MM-HY001](#))
  - e. Leakage at the *Top Head Seal* may require the *Clamp Ring Wing Nut* to be tightened, replacement of the *Top Head Seal*, or indicate corrosion in the groove or Top Plate. (See Maintenance Manual [MM-HY001](#))
18. If no visible leak is found and pressure is still dropping, the *Disc* of the Hydrolet may be leaking. Tighten the *Handwheel*, replace the *Disc*, or investigate the *Valve Seat* or *Disc Holder* for corrosion.
19. Repeat valve test.
20. If the Hydrolet Valve still does not hold pressure and the leak cannot be located and repaired, it is recommended that the Hydrolet Valve be replaced.

