

	Description: 4-Way Valve Stem Adjustment Procedure	Document Number: W102
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1.0 Purpose

If an SPS pump system exhibits low vacuum and has trouble clearing the hoses, it is very possible that the 4-Way Valve stem is not adjusted properly. This procedure defines the process for checking, and if necessary, correctly adjusting the 4-Way Valve Stem.

2.0 Scope

This work instruction is to be used for training and as a reference for Production personnel assembling the 4-Way Valve or for mechanics installing or servicing an SPS pump system in the field.

3.0 Responsibility

It is the responsibility of supervisory personnel to ensure that training and processes follow this procedure for adjusting the 4-Way Valve stem.

4.0 Required Equipment

4.1 $\frac{3}{4}$ " wrench

4.2 $\frac{1}{4}$ " Allen wrench

4.3 .001 inch feeler gauge (or strip of copier paper if .001 gauge is not available)

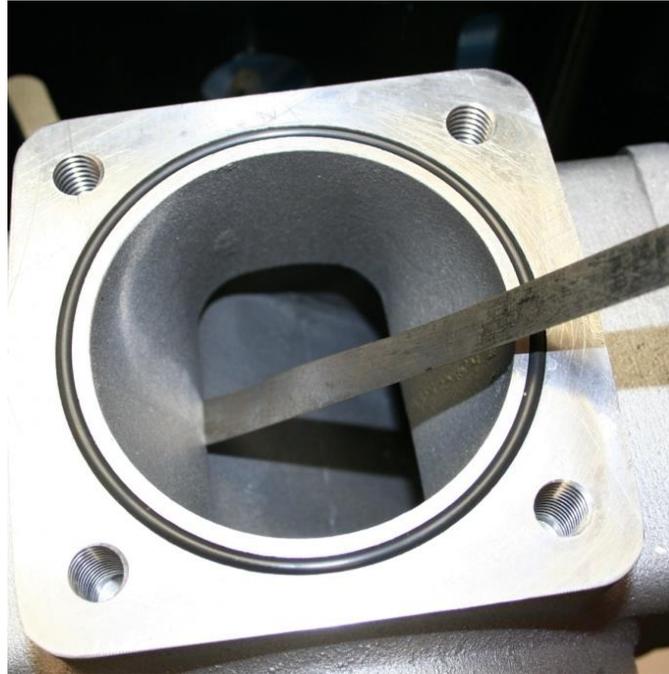
5.0 Checking the 4-way valve adjustment

The adjustment of the systems' 4-way valve is a critical adjustment. Symptoms that a 4-way valve is out of adjustment are: poor suction when pumping off, inability to clear the hoses and lines, poor pumping pressure (slower loading and unloading) and failure to clear retain from the truck's payload tank or hoses.

5.1 Remove the top fitting so that you have access to the inlet port of the 4-way valve. Alternatively, if it is too difficult to remove the inlet port fittings, you can simply readjust the valve by going to 6.0 below.

5.2 With the valve's handle in the neutral position, insert the .001 inch feeler gauge into the opening of the valve and move the handle to the Load Off position (to the right when facing the valve), see picture below.

5.3 Since a .001 inch feeler gauge is not part of most feeler gauge sets, you can use a strip of standard copier paper instead.



- 5.4 Move the handle until it hits the Load Off stop and then try to pull the feeler gauge (or strip of paper) out.
- 5.5 If the feeler gauge (or strip of paper) can be pulled out without any resistance, the valve is out of adjustment and must be adjusted using the procedure below.

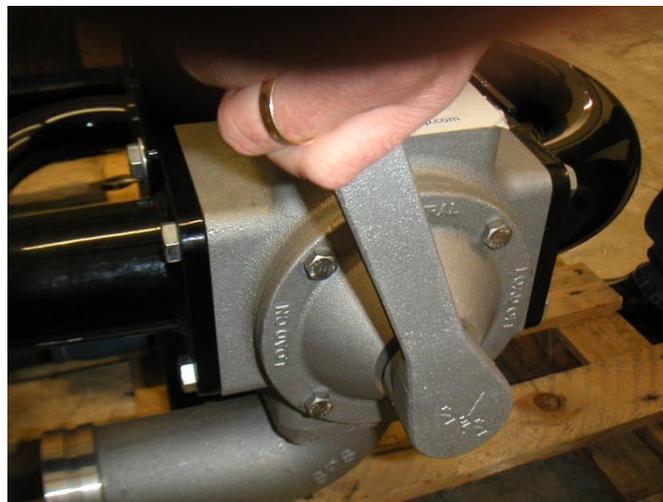
NOTE: Using a feeler gauge or strip of paper is the optimal method for adjusting the 4-Way Valve, but if top and bottom fittings are installed and not easily removed the adjustment can be made by tactile feel only, see step 6.5 below.

6.0 4-Way Valve Stem Adjustment Procedure

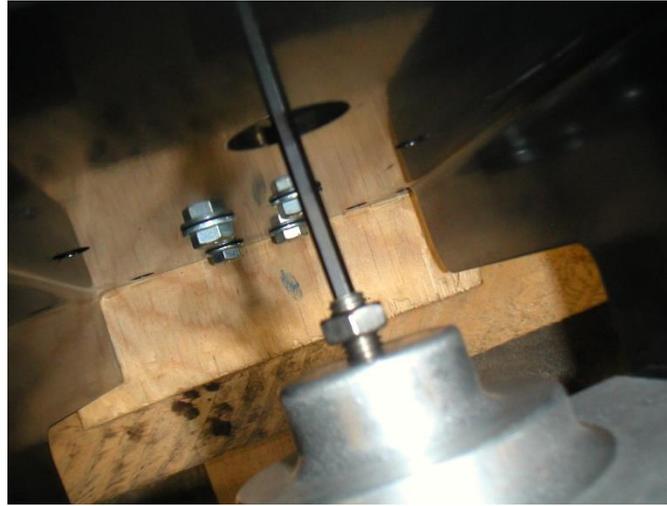
- 6.1 Using the $\frac{3}{4}$ " wrench, loosen the locking nut at the back of the valve by turning it clockwise (as viewed from the front of the valve), reference picture below.



- 6.2 Insert the Allen wrench through the adjustment hole in the pump system bracket into the stem adjustment Allen bolt and turn clockwise (as viewed from the front of the valve).
- 6.3 Move the valve handle back and forth while continuing to back out the adjustment Allen bolt until the handle “locks” and gets difficult to move. It is now seated.



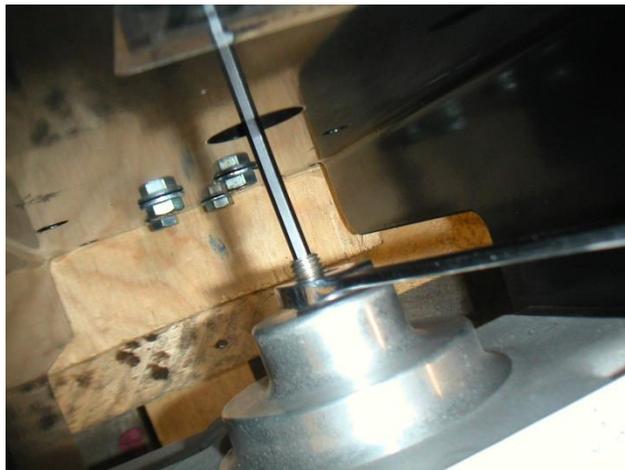
- 6.4 While turning the Allen screw counter-clockwise (as viewed from the front of the valve), move to the handle back and forth. The handle will be difficult to move during this step.



- 6.5 Continue turning the Allen bolt counter-clockwise until the handle stops “rubbing” and begins to move freely. **The optimum adjustment is at the exact point where the friction stops.**

IMPORTANT: STOP AT THIS POINT. Do not keep turning the Allen adjustment screw. If you turn the Allen bolt too far during this step, the valve will be out of adjustment. A 1/2 or 3/4 turn beyond the point where the handle moves without friction is the difference between a pump system working properly or not clearing the lines.

- 6.6 To insure that the valve stem remains in proper adjustment, hold the Allen bolt from moving with the Allen wrench and tighten the locking nut using the 3/4” wrench until tight.



- 6.7 If you have access to the top port of the 4-Way Valve, repeat step 5.0 above using the feeler gauge (or strip of paper) to confirm that the 4-way valve is still properly adjusted after tightening the locking nut.

PROCEDURE COMPLETE