

Title HDI Plug-In Installation Instructions

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Abstract:

This procedure details the preferred installation method for The Lee Company’s 2-Port and 3-Port HDI Plug-In style valves. The recommended method of valve extraction is also presented.

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Contents

1. PURPOSE.....	3
2. APPLICABLE DOCUMENTS	3
3. LUBRICANT	3
4. INSTALLATION.....	4
5. EXTRACTION	5



1. Purpose

This document provides instructions for installation and extraction of the 2-Port and 3-Port HDI Plug-In style valves into their respective standard bosses.

Installation of the HDI Plug-In solenoid valve is particularly important. By executing a best practice for the installation and extraction thereof, the valves are most likely to provide optimal service.

2. Applicable Documents

The reader is encouraged to have the following documents available to reference when reading this report.

1. LDOC0201049A – HDI Plug In, Boss Manufacture Specifications.
2. LCFX0300100B – HDI Plug-In, 3 Port, Boss Specification.
3. LCFX0300250B – HDI Plug-In, 2 Port, Boss Specification.
4. LTTA0300000A – HDI Installation and Extraction Tool.

3. Lubricant

It is recommended that the installation of the valves be performed with a small amount of lubrication. It is critical to follow these guidelines when using an installation lubricant.

The Lee Company recommends the use of either clean distilled water, or a solution of one part P-80[®] Emulsion Temporary Rubber Assembly Lubricant diluted with five parts distilled water. P-80[®] Emulsion Temporary Rubber Assembly Lubricant is a water-based liquid that evaporates after a period of time. It is free of silicones, alcohols, petroleum distillates, or other persistent ingredients. Be sure to follow P-80[®] Emulsion Temporary Rubber Assembly Lubricant manufacturer guidelines for storage and use.

Follow these guidelines when applying lubrication:

- 3.1 Review Section 10: Stability and reactivity of the P-80[®] Emulsion safety data sheet if using this product.
- 3.2 Use a non-shedding foam-tipped applicator to apply the lubricant to the valve's O-rings. Do not over-apply.
- 3.3 Wet the foam with the lubricant.
- 3.4 Before applying lubricant to the valve, compress the foam such that most of the lubricant leaves the foam.
- 3.5 Rotate the valve 360° such that the O-rings tangentially brush against the foam tip applicator.
- 3.6 The appropriate amount of lubricant will leave the valve's O-rings with a sheen, but the surface will not appear saturated. There should be no liquid in the O-ring gland.
- 3.7 Install the valve soon after applying the lubricant.

Caution: Over application of lubricant may cause valve performance variation and/or valve failure. Use the minimum amount necessary to achieve installation.



4. Installation

Ensure that the manufactured boss meets the specifications of the appropriate Boss Specification Drawing for the selected solenoid valve. Make sure the boss is clean and dry. Note the location of the solenoid valve's alignment flange, as shown in Figure 1.

- 4.1 Hold the valve as shown in Figure 2. Using the LTTA0300000A tool, grip the valve such that the nose of the tool abuts the alignment flange of the HDI.
- 4.2 Insert the valve straight down into the boss. Use alternating quarter turn rotations when applying this force. The combination of axial load and rotation provides the best installation. Insert valve until the alignment flange abuts the boss surface. See Figures 3 and 4.
- 4.3 Apply the retention bracket (Lee part number LLWX0307140A) with #2 socket head cap screw (Lee part number LHWX0503010A) if needed. See Figure 5. Retention requirements are included on the LCFX series of boss specification drawings.

Figure 1:

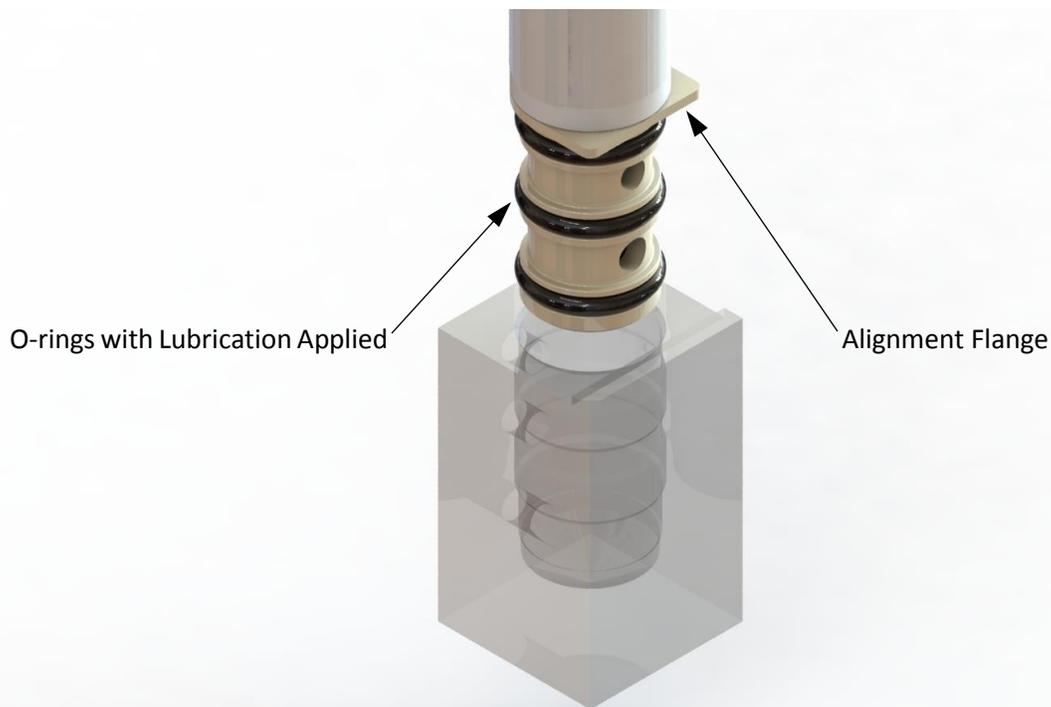


Figure 2: Grip the valve.

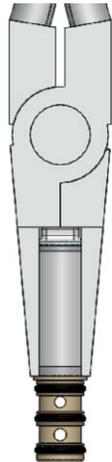


Figure 3: Insert valve into Boss. Use a back and forth rotation while loading. Use caution not to rotate valve during the final .025" of installation to prevent damage to the alignment flange.

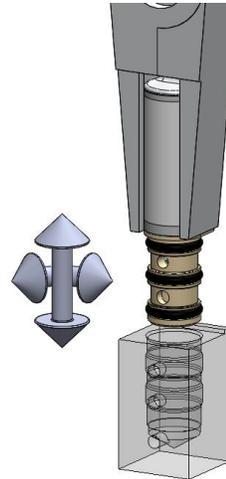


Figure 4: Load until the alignment flange mates to the manifold.

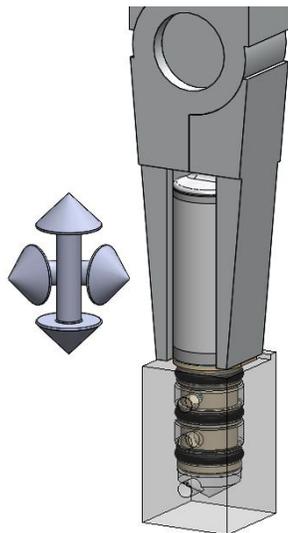
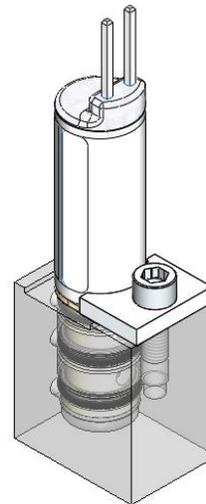


Figure 5: Install valve retention bracket if the valve's NC port is to be subjected to 15 PSIG or greater.



5. Extraction

Removal of the valve follows the reverse of the installation method. It is essential to use the LTTA0300000A tool with a firm grip on both the tool and the work piece. Extraction forces can be much greater than the installation forces. Be sure to apply an even axial load to the valve during the extraction.



If possible, use quarter turn rotations while extracting. Be very careful not to impart side loading of the valve while executing extraction as it can irreversibly damage the valve.

A valve that has been installed for an extended period of time may be more difficult to remove, and may require additional extraction force, than a valve which was more recently installed.

