This document contains service instructions for all LD16 series valves.

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Tool Requirements

- 1/8 in. hex wrench
- 9/16 in. open-end wrench
- 3/4 in. open-end wrench
- 3/4 in. crowfoot wrench
- 2 in. open-end wrench
- 2 in. hex socket

Torque wrench

Capable of applying up to 1500 in. - lb (169.5 N - m) (1728 cm - kg) of torque

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Operation

OPEN

Center button UP

CLOSED

Center button DOWN (flush with the top of the handle)

To open the valve, turn the handle counterclockwise two and one half turns.

To close the valve, turn the handle clockwise two and one half turns.

Installation—Welding

⚠️ Notice: All welding should be done by qualified personnel.

⚠️ Notice: Disassembly of valve is not required for in-line welding if the steps listed below are followed. If valve disassembly is necessary, cover sealing surfaces to protect them from nicks and weld spatter.

1. If not using the Swagelok Welding System, use a heat sink to prevent excessive heating of internal components.
2. Actuate the valve to the OPEN position.
3. Connect purge gas so that flow exits out of the valve port being welded to keep the internal components cool.

⚠️ Notice: Use a high-purity purge gas to maintain cleanliness and reduce welding discoloration.

4. Perform the welding procedure.
5. With the valve in the OPEN position, continue to purge the valve and system of contamination.
6. Test the valve for leaktight integrity. See Testing section.

Testing

1. With the valve in the OPEN position, verify that flow passes through the valve.
2. With the valve in the CLOSED position, verify that no flow passes through the valve.
3. Leak test the diaphragm seal.
4. Leak test the seat seal.
Kit Contents

Diaphragm/Stem Subassembly Kit
- Diaphragm/stem subassembly
- Gasket
- Instructions

Gasket Kit
- Gasket
- Instructions

Replacing the Diaphragm/Stem Subassembly and the Gasket

Warning
⚠️ Before servicing any installed valve, you must
- depressurize system
- cycle the valve
- purge the valve

Disassembly
1. Turn the handle counterclockwise until the valve is fully OPEN. Then turn the handle clockwise 1/8 of a turn.
2. Loosen the handle set screw.
3. Remove the handle.
4. Unscrew and remove the bonnet nut.
5. Remove the actuator bearing.
6. Unscrew and remove the left-hand threaded actuator.
7. Remove the spring washer and stem assembly including the bonnet and bonnet bearing.
8. Unscrew the upper stem and clamp ring from the subassembly.
9. Discard the diaphragm/stem subassembly.
10. Remove and discard the gasket.

Reassembly
1. Clean the body surfaces where the gasket will sit.
2. Place a new gasket into the body.
3. Place the clamp ring, curved side down, on top of the new diaphragm/stem subassembly. Center the clamp ring over the diaphragm/stem subassembly.
4. Thread the upper stem through the clamp ring and into the diaphragm/stem subassembly. Align the locating diameter on upper stem with the inside diameter of the clamp ring.
5. Tighten the upper stem to 35 in.-lb (4 N·m) (40 cm·kg).
6. Place the bonnet and bonnet bearing over the upper stem, aligning the hex flats.
7. Place the stem assembly into the body.
8. Place the spring washer on top of the bonnet.
9. Apply a molybdenum disulfide-based lubricant to the internal threads of the actuator.
10. Thread the left-hand threaded actuator onto the upper stem until it slightly compresses the spring washer.
11. Place the actuator bearing onto the shoulder of the actuator.
12. Thread the bonnet nut into the body and tighten to 1500 in.-lb (169.5 N·m) (1728 cm·kg).
13. Place the handle on the actuator, aligning the flats on both parts.
14. Rotate the handle to the closed position. (Handle button should be flush with the top of the handle.)
15. Tighten the handle set screw.

Replacing the Gasket
Refer to the cutaway illustration on page 3.

Disassembly
1. Turn the handle counterclockwise until the valve is fully open. Then turn the handle clockwise 1/8 of a turn.
2. Loosen the handle set screw.
3. Remove the handle.
4. Unscrew and remove the bonnet nut.
5. Remove the actuator bearing.
6. Unscrew and remove the left-hand threaded actuator.
7. Remove the spring washer and the stem assembly, including the bonnet and the bonnet bearing.
8. Remove and discard the gasket.

Reassembly
1. Clean the body surfaces where the gasket will sit.
2. Place a new gasket into the body.
3. Place the stem assembly into the body.
4. Place the spring washer on top of the bonnet.
5. Apply a molybdenum disulfide-based lubricant to the internal threads of the actuator.
6. Thread the left-hand threaded actuator onto the upper stem until it slightly compresses the spring washer.
7. Place the actuator bearing onto the shoulder of the actuator.
8. Thread the bonnet nut into the body and tighten to 1500 in.-lb (169.5 N·m) (1728 cm·kg).
9. Place the handle on the actuator aligning the flats on both parts.
10. Rotate the handle to the closed position. (Handle button should be flush with the top of the handle.)
11. Tighten the handle set screw.
12. Test the valve for proper operation. See Testing section, page 2.

Caution: Do not mix or interchange parts with those of other manufacturers.