



INSTALLATION & PARTS

3" Two-Stage E15 Valve A3982 – Series

LC CUSTOMER SERVICE:

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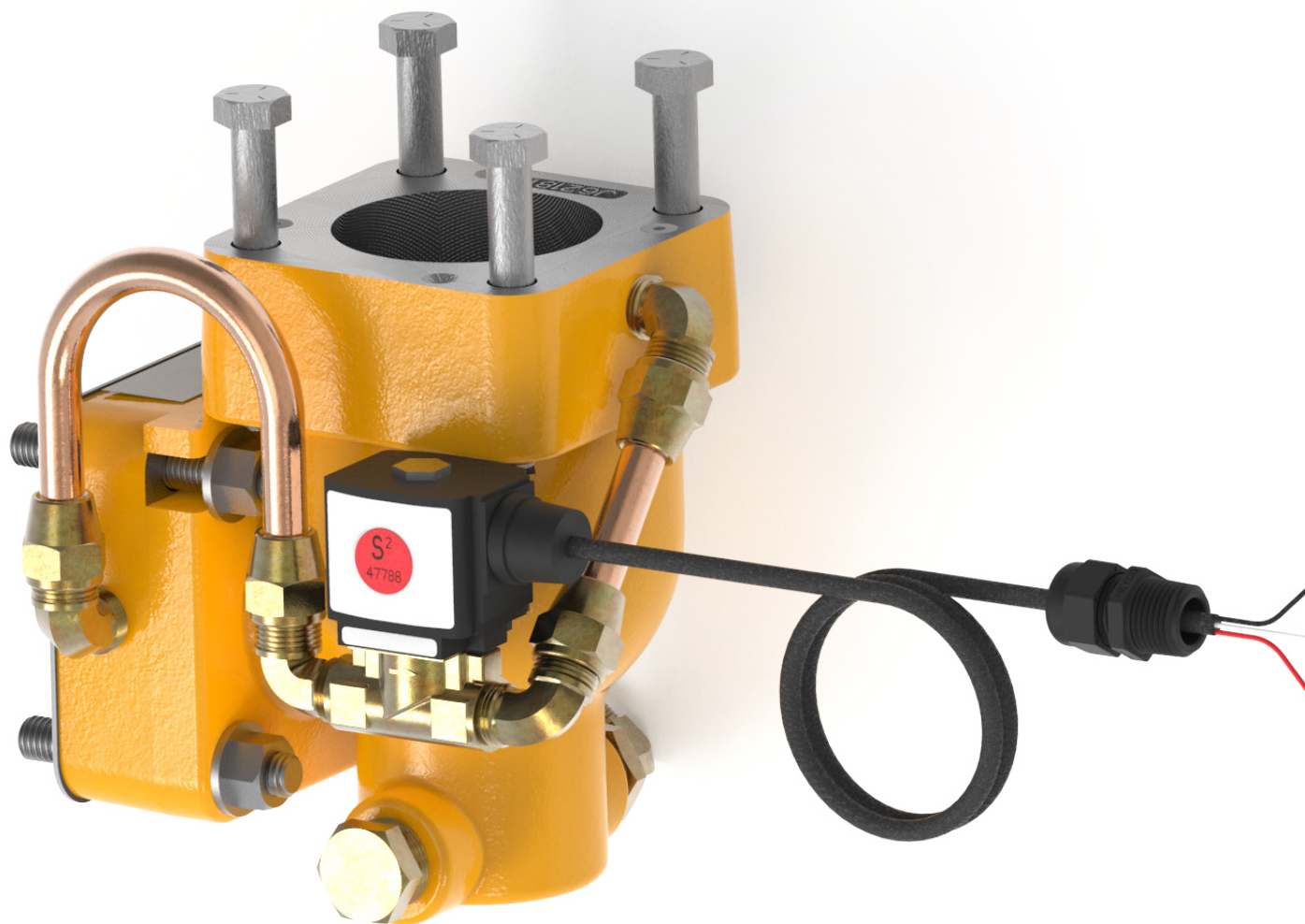
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Publication Updates and Translations

The most current English versions of all Liquid Controls publications are available on our web site, www.lcmeter.com. It is the responsibility of the local distributor to provide the most current version of LC manuals, instructions, and specification sheets in the required language of the country, or the language of the end user to which the products are shipping. If there are questions about the language of any LC manuals, instructions, or specification sheets, please contact your local distributor.

 WARNING!

- Before using this product, read and understand the instructions.
- All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of equipment and/or systems in accordance with all applicable codes and ordinances.
- When handling electronic components and boards, always use proper Electrostatic Discharge (ESD) equipment and follow the proper procedures.
- Make sure that all necessary safety precautions have been taken.
- Provide for proper ventilation, temperature control, fire prevention, evacuation, and fire management.
- Provide easy access to the appropriate fire extinguishers for your product.
- Consult with your local fire department, state, and local codes to ensure adequate preparation.
- Read this manual as well as all the literature provided in your owner's packet.
- Save these instructions for future reference.
- Failure to follow the instructions set forth in this publication could result in property damage, personal injury, or death from fire and/or explosion, or other hazards that may be associated with this type of equipment.

Safety Procedures

WARNING!

Safely Evacuate Piping System

Before disassembly of any meter or accessory component:

ALL INTERNAL PRESSURES MUST BE RELIEVED AND ALL LIQUID DRAINED FROM THE SYSTEM IN ACCORDANCE WITH ALL APPLICABLE PROCEDURES

- Pressure must be 0 (zero) psi.
- Close all liquid and vapor lines between the meter and liquid source.

Failure to follow this warning could result in property damage, personal injury, or death from fire and/or explosion, or other hazards that may be associated with this type of equipment.

WARNING!

Observe National and Local Codes

Power, input, and output (I/O) wiring must be in accordance with the area classification for which it is used. This may require using connections or other adaptations in accordance with the requirements of the authority having jurisdiction.

WARNING: EXPLOSION HAZARD

- Substitution of components may impair suitability for Class I, Division 2 applications.
- When in hazardous locations, turn power **OFF** before replacing or wiring modules.
- **Do NOT** disconnect equipment unless power has been switched **OFF** or the area is known to be Non-Hazardous.

Specifications

Safety

Designed to meet Class 1, Division 2 requirements.

Materials of Construction

Valve Body: Anodized Aluminum.

Elastomers: Viton O-ring, PTFE Seal, Klinger Gasket.

Pilot Control System

Brass solenoid and fittings with flared copper tubing.

Temperature Rating

-40° F to 160° F (-40° C to 71° C)

Pressure Rating

Maximum non-shock working pressure.

- 150 PSI (10.3 BAR)

Maximum differential pressure.

- 100 PSI (6.9 BAR)

Pressure drop (dP).

- 8 PSI at 200 Gal/Min for 30 SSU product.

Maximum Flow Range

300 Gal/Min
(1136 L/Min) for 30 SSU products.

Viscosity Range

30 to 150 SSU.

Products

Refined Fuels – Gasoline, gasohol, diesel fuel and fuel oil.

Functionality

2 Stage preset valve with air check function.

Companion Flange Size

3" square flange (NPT and Weld Style)

Two-Stage Operation

Minimum recommended volume for second stage flow.

M15: 20 Gallons (76 Litres)

M25: 30 Gallons (114 Litres)

Solenoid Valve

Operation: (1) 2-way normally closed.

(1) 3-way normally open.

Voltage: +10.2 to 13.6 VDC

A3982 Series E15 Valve Overview

The Liquid Controls A3928 Series E15 Valves are designed for use with electronic registers.

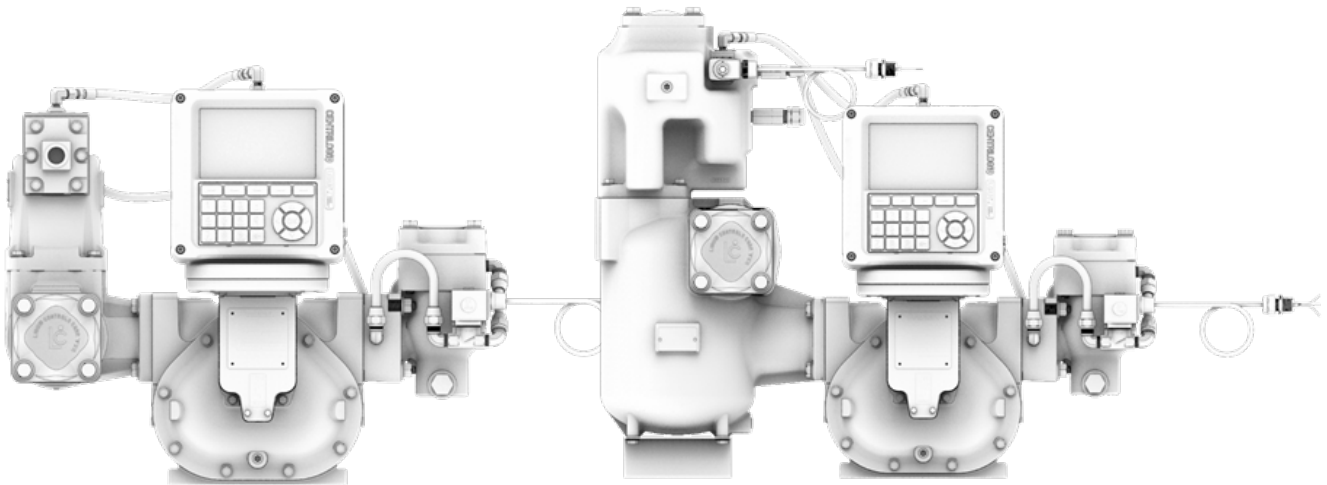
Two models are available:

A3982-11 and A3982-21

Model	Flow Direction	Outlet Orientation
A3982-11	L-R	Up, Back
A3982-11	R-L	Down , Front
A3982-21	R-L	Up, Back
A3982-21	L-R	Down , Front

New Installations

When ordered with a new meter, the A3982 Series E15 valves are mounted to the meter at the factory. The valve solenoids are prewired to the LCR-II, LCR600 or LCR.iQ electronic register and optical or mechanical air eliminators at the factory. Connect the system piping to the 3" flange on the outlet side of the valve.



WARNING!

Safely Evacuate Piping System

Before disassembly of any meter or accessory component:

ALL INTERNAL PRESSURES MUST BE RELIEVED AND ALL LIQUID DRAINED FROM THE SYSTEM IN ACCORDANCE WITH ALL APPLICABLE PROCEDURES

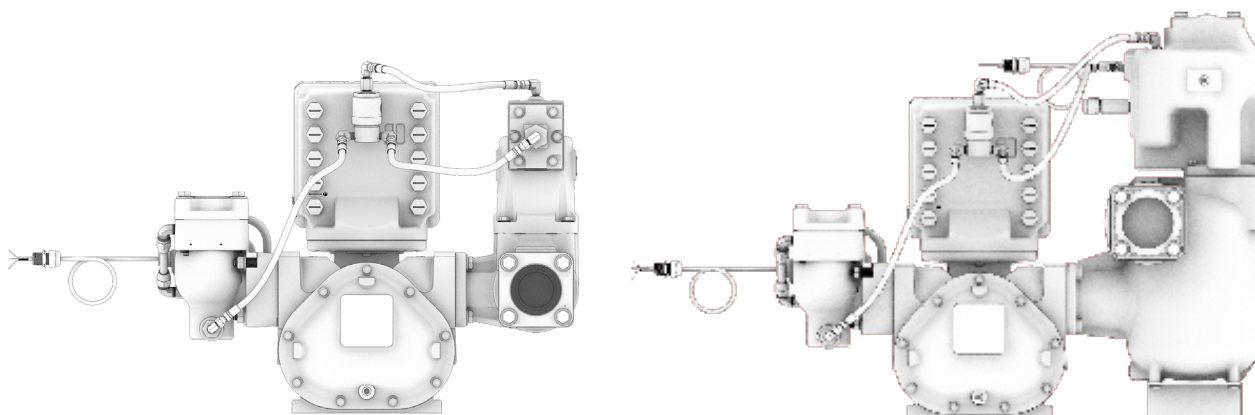
- Pressure must be 0 (zero) psi.
- Close all liquid and vapor lines between the meter and liquid source.

Failure to follow this warning could result in property damage, personal injury, or death from fire and/or explosion, or other hazards that may be associated with this type of equipment.

Retrofit Installations

Depending on the existing configuration, adding a 2-stage E15 valve may require modification of the outlet piping. After the internal pressure is relieved from the system, the outlet line can be disconnected from the existing valve being replaced. The new E15 valve assembly can then be connected to the outlet side of the positive displacement meter. Use the four studs, nuts, and washers to fasten the valve assembly to the meter. The valve housing has an arrow showing the direction of flow. Ensure that the valve is properly oriented. Tighten the nuts in a crossing pattern. Once this is complete, the outlet piping may be reconnected to the outlet side of the E15 preset valve. The valve mating flange is 3" (NPT or Weld). Wiring schematics for each of the models are covered on page 7.

NOTE: If used with a mechanical air eliminator, new valve plates (Buna: 42822, 42844 or Viton 43778, 43934) will need to be ordered and installed for proper operation of the E15 valve.



WARNING! *

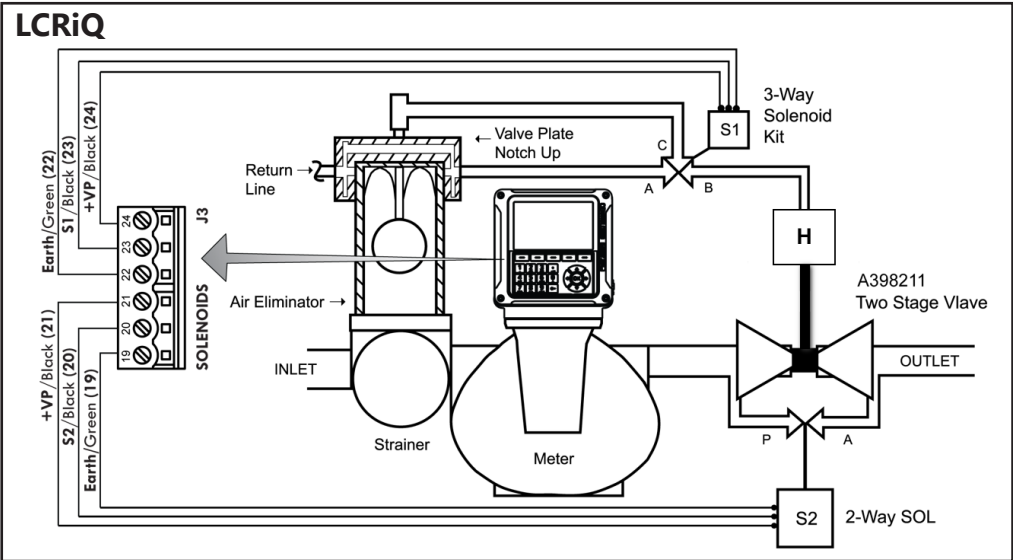
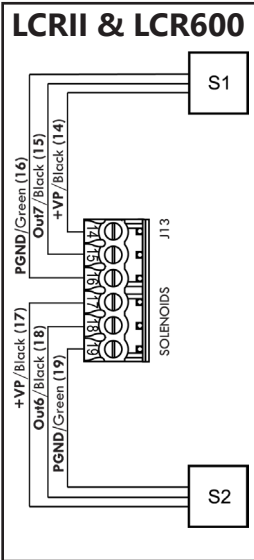
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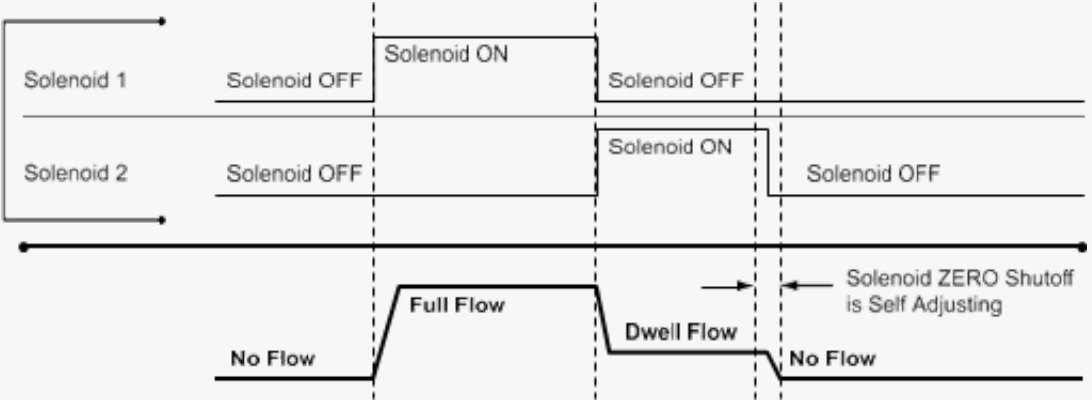
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Wiring System Schematic



Electrical Sequencing

LectroCount LCR
LectroCount LCR-II™
LCR.iQ®



! WARNING!

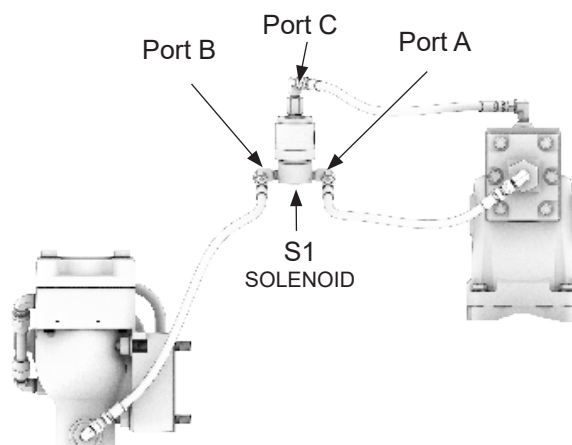
SOLENOID WARNING: The earth ground to the green screw on the solenoid terminal block is not essential for the operation of the device. In a truck application the solenoid is automatically grounded to the truck chassis via the liquid carrying piping. Check any applicable electrical codes to comply with proper grounding procedures.

Operation

Solenoid	De-Energized	Energized
S1	Port C and Port B Connected	Port B and Port A Connected
S2	Valve Closed	Valve Open

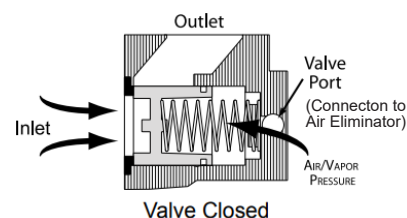
Two-Stage Closure

The E15 Valve has two solenoids to control the two-stage closure of the valve. During full flow, solenoid valve one S1 is energized and solenoid valve two S2 is de-energized. During dwell flow, S2 de-energizes to end delivery. Shut-off during dwell flow reduces the risk of liquid hammer and accurately ends preset deliveries.



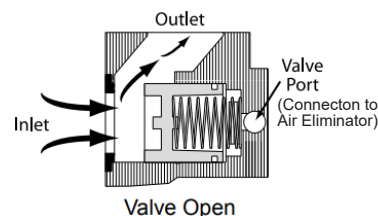
Valve Closed

When the E15 Valve is closed, the S1 and S2 solenoid valves are both de-energized and it is not possible to make a delivery. Fluid pressure from the pump enters the S1 solenoid valve at Port C and exists through Port B to the back side of the E15 piston. Pressure from the internal compression spring and pressure from the pump seal the piston against the inlet port of the valve.



Full Flow

At the start of a delivery, the S1 solenoid valve energizes. This opens the path between port B and Port A, resulting in the liquid pressure on the back side of the piston to escape through the limited bleed hole in the Air Eliminator. This allows the pump pressure at the inlet port of the E15 Valve to push on the piston, compress the spring and force the piston toward the back of the valve housing. This opens a path for the liquid to pass through the valve. The S1 solenoid valve remains energized during the full flow portion of a delivery.



Dwell Flow

When making a preset delivery, the system will transition from full flow to dwell flow near the end of delivery. At the point when dwell flow begins, the S1 solenoid valve de-energizes at the same instant the S2 solenoid valve energizes. After the S1 solenoid de-energizes, the piston and compression spring move back into position and close the flow path through the E15 Valve. When the S2 solenoid valve energizes, it opens a flow path for the liquid from the inlet end of the E15 Valve, through the P to A ports of the S2 solenoid valve and to the outlet end of the E15 Valve.

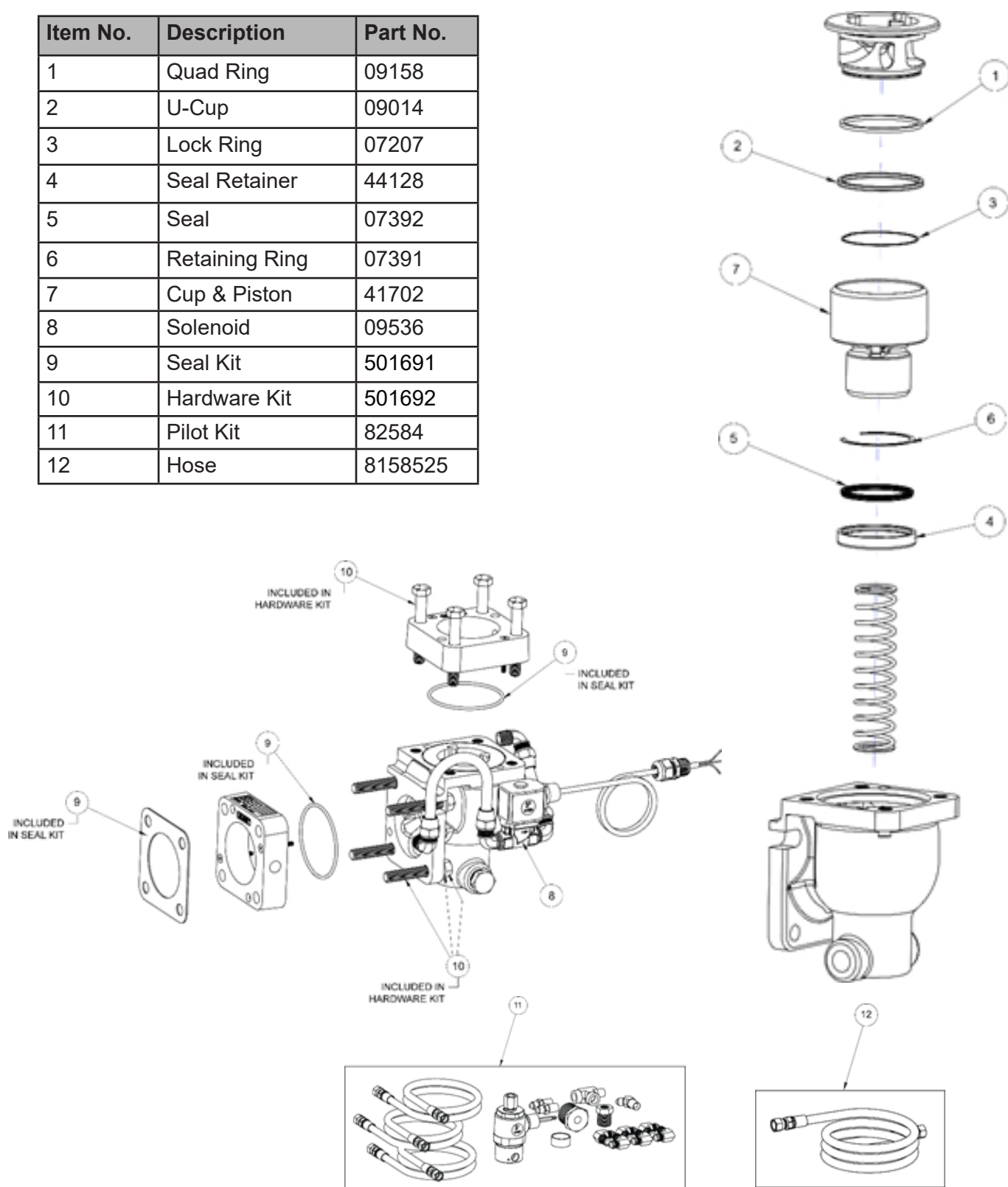
Air Check Functionality

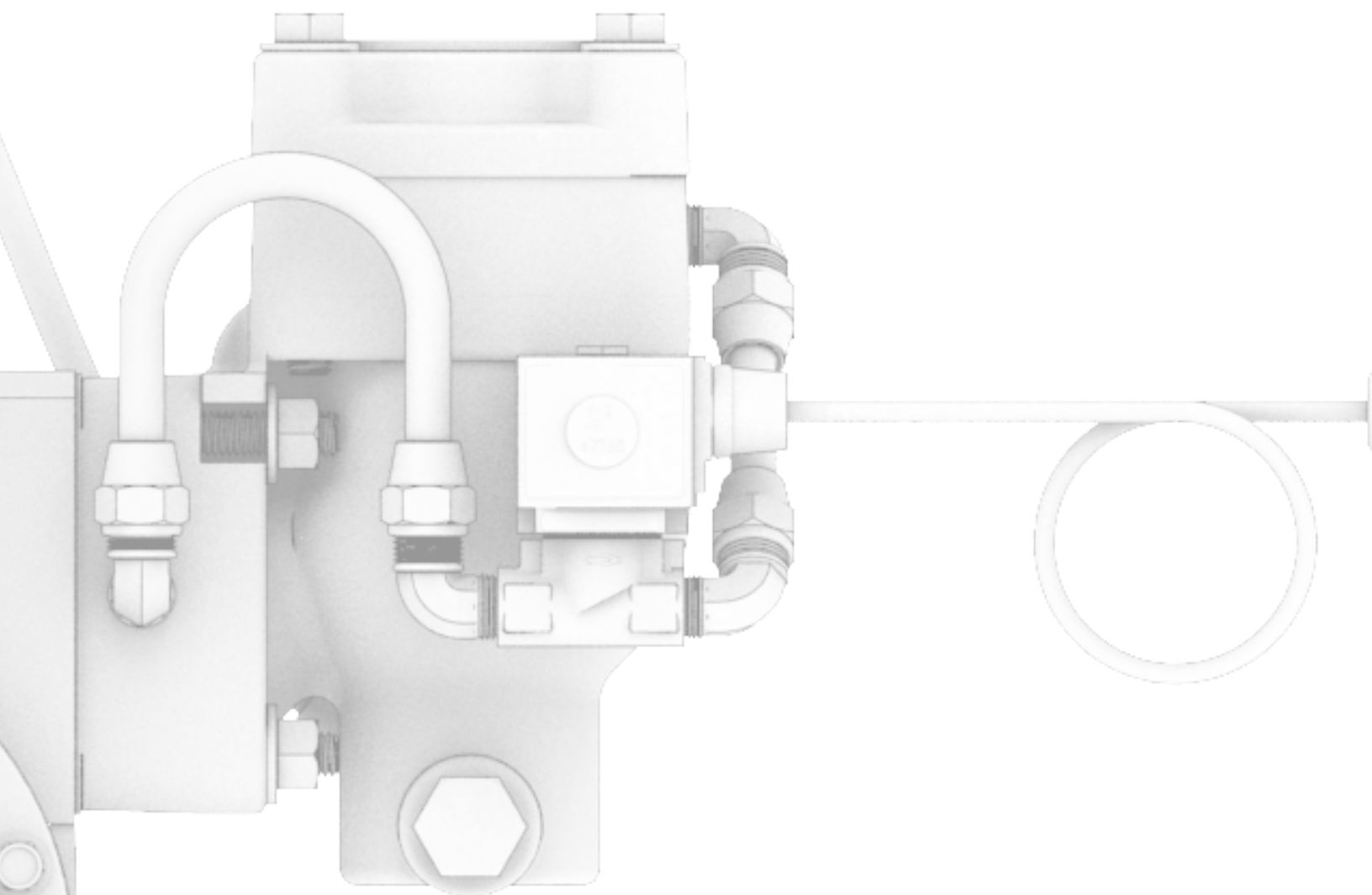
The A3982 series E15 Valve also acts as an Air Check Valve enabling removal of slugs of air, if introduced prior to the meter. Air is sensed by the Air Eliminator float dropping in a mechanical system or by the optical sensor in an Optical Air Eliminator. During delivery, if air is introduced upstream of the meter, the system pressure from the Air Eliminator passes through the A to B ports of the S1 solenoid valve and is allowed to build pressure on the rear side of the valve piston. The system pressure along with spring pressure is greater than the pressure of the liquid entering the E15 Valve, thus closing the valve. Once the air has been removed by the Air Eliminator, the pressure on the rear side of the valve is bled off through the limited bleed port in the Air Eliminator, allowing the delivery to resume. This ensures utmost accuracy when performing split compartment testing or in case air is introduced upstream of the meter.

ILLUSTRATED PARTS BREAKDOWN

A3982 SERIES VALVE ASSEMBLY

Item No.	Description	Part No.
1	Quad Ring	09158
2	U-Cup	09014
3	Lock Ring	07207
4	Seal Retainer	44128
5	Seal	07392
6	Retaining Ring	07391
7	Cup & Piston	41702
8	Solenoid	09536
9	Seal Kit	501691
10	Hardware Kit	501692
11	Pilot Kit	82584
12	Hose	8158525





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