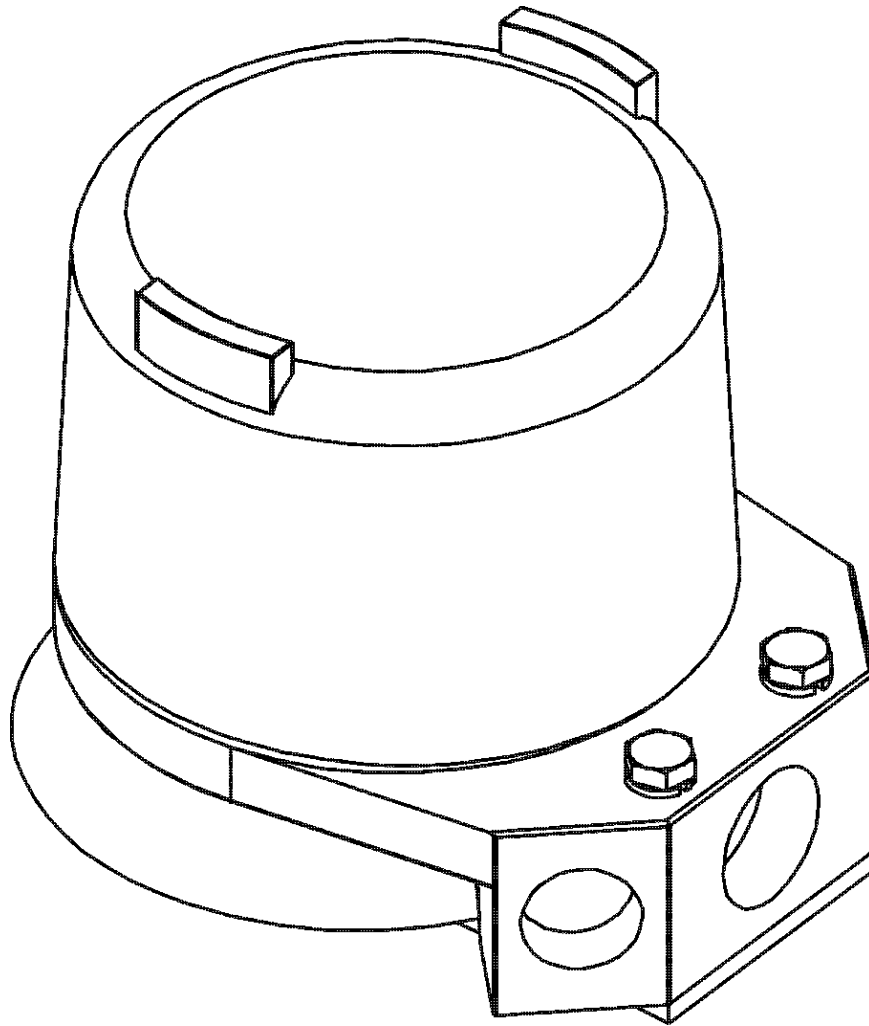


DEZURIK SWITCH AND POSITIONER TRANSMITTER



Instruction **D10350**
May 2014

Instructions

These instructions are for use by personnel who are responsible for the installation, operation and maintenance of DeZURIK valves, actuators or accessories.

Safety Messages

All safety messages in the instructions are identified by a general warning sign and the signal word CAUTION, WARNING or DANGER. These messages indicate procedures to avoid injury or death.

Safety label(s) on the product indicate hazards that can cause injury or death. If a safety label becomes difficult to see or read, or if a label has been removed, please contact DeZURIK for replacement label(s).

⚠WARNING

Personnel involved in the installation or maintenance of valves should be constantly alert to potential emission of pipeline material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous pipeline materials. Handle valves which have been removed from service with suitable protection for any potential pipeline material in the valve.

Inspection

Your DeZURIK product has been packaged to provide protection during shipment; however, items can be damaged in transport. Carefully inspect the unit for damage upon arrival and file a claim with the carrier if damage is apparent.

Parts

Replaceable wear parts are listed on the assembly drawing. These parts can be stocked to minimize downtime. Order parts from your local DeZURIK sales representative or directly from DeZURIK. When ordering parts please provide the following information:

If the valve has a data plate: please include the 7-digit part number with either 4-digit revision number (example: 9999999R000) or 8-digit serial number (example: S1900001) whichever is applicable. The data plate will be attached to the valve assembly. Also, include the part name, the assembly drawing number, the balloon number and the quantity stated on the assembly drawing.

If there isn't any data plate visible on the valve: please include valve model number, part name, and item number from the assembly drawing. You may contact your local DeZURIK Representative to help you identify your valve.

DeZURIK Service

DeZURIK service personnel are available to maintain and repair all DeZURIK products. DeZURIK also offers customized training programs and consultation services. For more information, contact your local DeZURIK sales representative or visit our website at DeZURIK.com.

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Description

This valve accessory provides electrical functions in response to the open, closed, and intermediate positions of a 2-way valve or a 2-position 3-way valve. Electrical switching and variable current functions are provided in selected combinations. The adjustable sensing devices are mechanically linked to a valve, a valve actuator, or a positioner.

Components are located in a sealed and accessible aluminum enclosure, constructed to comply with NEMA types 4, 4X, 7 and 9. The position of the valve is visibly displayed in two windows at 180° viewing angles. Three basic options consisting of mechanical switches, proximity switches, and a position transmitter are provided individually or in selected combinations. The three options are described below.

Electrical Connections

Field wiring enters through 3/4" and 1/2" NPT electrical connections to a prewired and labeled terminal strip as described in the following sections. One 1/2" pipe plug is provided with the unit. If the 1/2" connection is not used, install the pipe plug tightly in the connection. Do not use thread sealant.

Mechanical Switches

The two SPDT or four SPDT mechanical snap-acting switches each have a rating of:

- Silver Contacts -10 Amps at 125/250 VAC, or 0.5 Amp at 125 VDC.
- Gold Contacts - 1 Amp at 125 VAC, or 0.5 Amp at 30 VDC

With two SPDT switches, the top switch is factory set to trip as the valve reaches the closed or clockwise position, and the bottom switch is factory set to trip as the valve reaches the open or counterclockwise position. The internal wiring from the switches to the terminal strip is shown in Figure 1.

With four SPDT switches, the top (first) switch is factory set to trip as the valve reaches the closed or clockwise position, and the bottom (fourth) switch is factory set to trip as the valve reaches the open or counterclockwise position. The second and third switches are not factory set, but may be set in the field. The internal wiring from the switches to the terminal strip is shown in Figure 2.

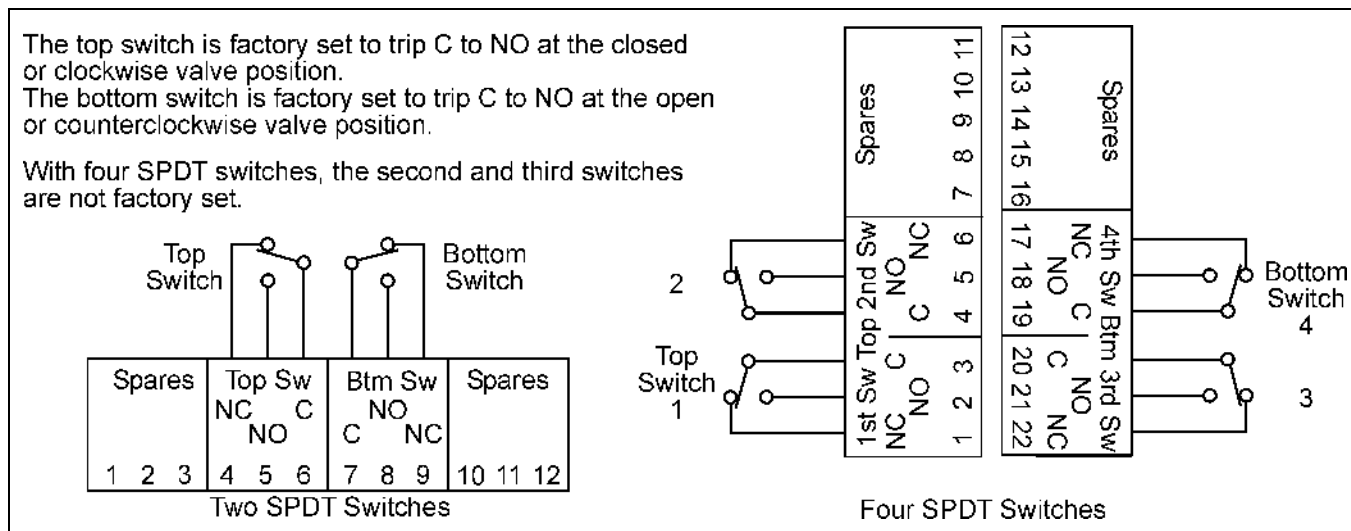


Figure 1— Mechanical Switches

Mechanical Switches *(Continued)*

Each switch is actuated by a rotating cam. To adjust a top switch, push the top cam down, rotate it to the desired position, and release the cam so it engages into the new position on the spline. To adjust a bottom switch, repeat the process with the bottom cam, but lift the cam upwards to rotate it to the desired position. Each cam may be further fine-tuned between spline positions by turning the set screw on the cam with a 1/16" hex driver. The set screw is limited to adjustment of no more than one full turn.

Proximity Switches

The two SPDT proximity switches each has a rating of 0.3 amp at 120 VAC, or 0.2 amp at 30 VDC. The switch contacts are sealed for low-energy switching of solid-state signal circuits.

The top switch is factory set to trip as the valve reaches the closed or clockwise position, and the bottom switch is factory set to trip as the valve reaches the open or counterclockwise position. The internal wiring from the switches to the terminal strip is shown in Figure 2.

Each switch is actuated as the white stripe on its rotating cam aligns with the white stripe on the switch. To adjust the top switch, push the top cam down, rotate it to the desired position, and release the cam so it slides into the new position on the spline. To adjust the bottom switch, repeat the process with the bottom cam, but lift the cam upwards to rotate it to the desired position.

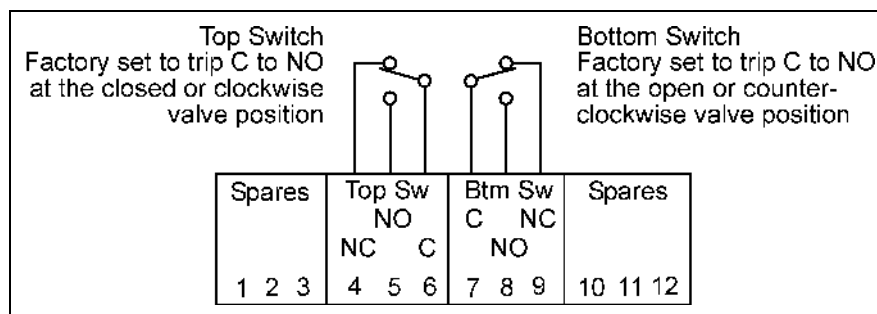


Figure 2—Proximity Switches

Position Transmitter

The position transmitter provides a 4 to 20 mA output signal with the plus and minus terminals connected in series with an external 24 VDC power supply. Voltage variations from 10 VDC to 40 VDC do not affect the current signal. The maximum load is 700 ohms at 24 VDC. The unit is calibrated as shown in the following steps. Refer to Figure 3 for component identification.

1. Plug the 3-pin potentiometer connector into the appropriate 3 pins on the 5-pin block as described in Figure 3. The 5-pin block is located next to the span adjustment.
2. Place the valve in the position desired for 4 mA output. Do not connect power until step 4. If the valve is in the closed or clockwise position, connect an ohmmeter to terminals 2 and 3 of the potentiometer; if the valve is in the open or counterclockwise position, connect an ohmmeter to terminals 1 and 2 of the potentiometer.
3. Loosen the coupling that drives the potentiometer shaft, and rotate the potentiometer so that the ohmmeter reads 500 ± 100 ohms. Then tighten the coupling, and disconnect the ohmmeter from the potentiometer.
4. Connect a 20 mA ammeter and a 24 VDC power supply to terminals + and – as shown in Figure 3.
5. Adjust the zero trimpot so that the ammeter reads 4 ± 0.1 mA.
6. Place the valve in the position desired for 20 mA output. Adjust the span trimpot so that the ammeter reads 20 ± 0.1 mA. The zero and span adjustments are not interactive.

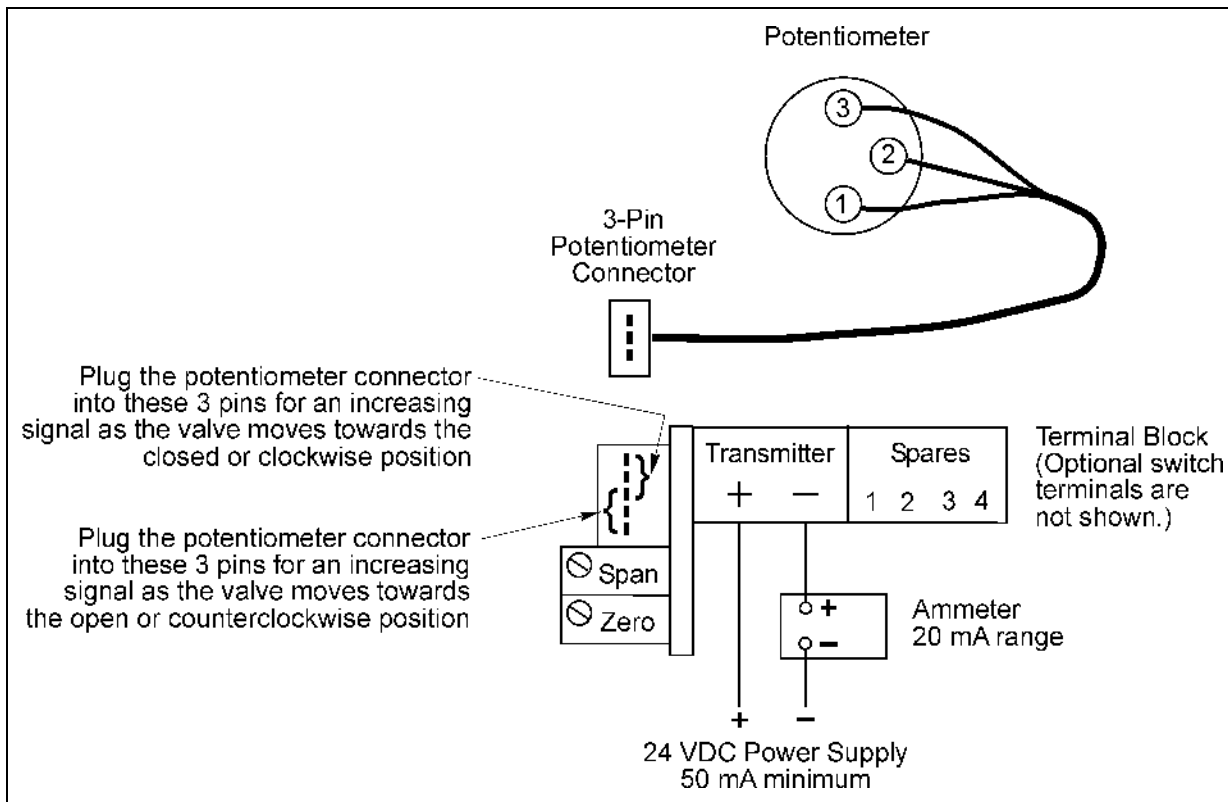


Figure 3—Position Transmitter

Indicator Adjustment

The open-closed indicator on all units, shown in Figure 4 as indicator drum (A4), may be re-indexed on the input shaft as follows:

1. Remove the two mounting screws and washers near the conduit connection, and lift the unit from position so that the bottom of the unit is accessible.
2. Loosen the screw (A5) about 3 turns.
3. Pull out the spacer (A6) and shaft adaptor (A1) so that the spacer pins are disengaged from the timing holes in the indicator drum (A4). (The shaft adaptor may be a different size and/or shape than shown in Figure 3.)
4. Rotate the indicator drum (A4) to the desired position, and push the shaft adaptor (A1) and spacer (A6) towards the indicator drum (A4) to engage the spacer pins with the nearest timing holes in the indicator drum. Tighten the screw (A5) to 8 ± 2 inch pounds.
5. Replace the unit in the same mounting position with the two screws and washers, and tighten the screws to 80 ± 5 inch pounds.
6. To fine-tune the position of the indicator cover (A3), loosen the set screw (A2), and rotate the indicator cover to the desired position. Tighten the set screw.

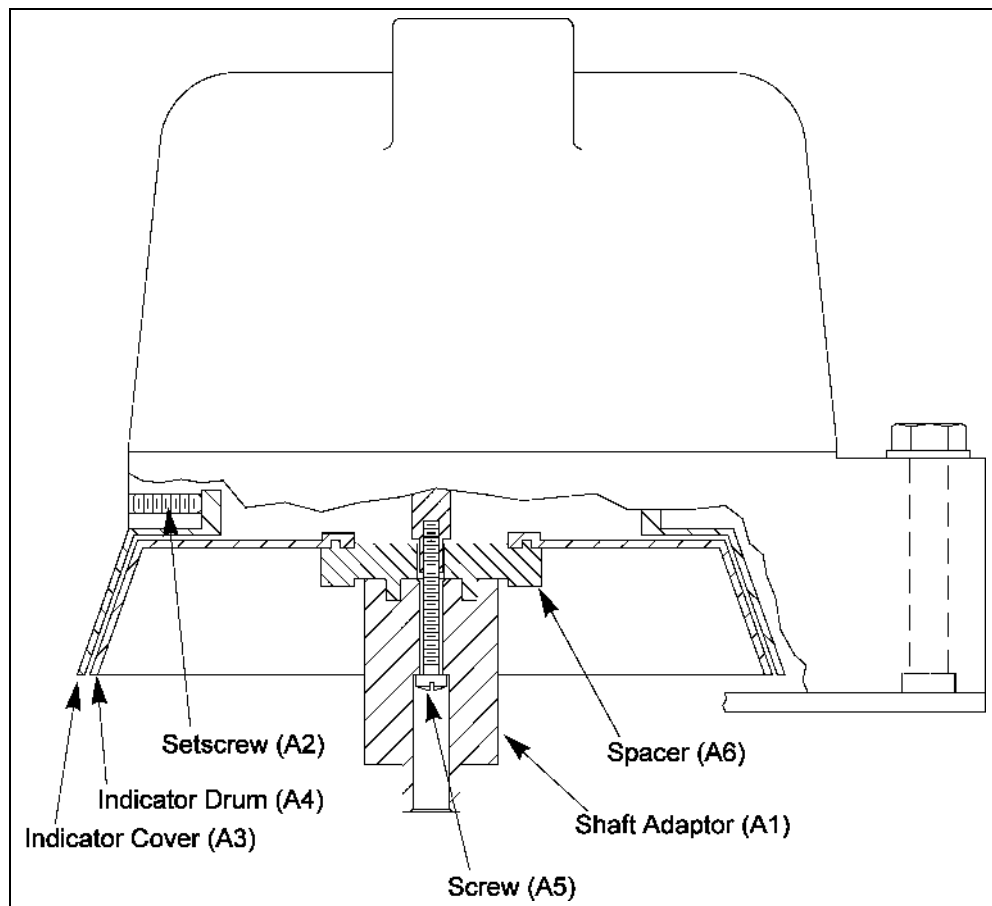


Figure 4 - Indicator Adjustment Components

Switch Mounting Kit used on PMV Positioner

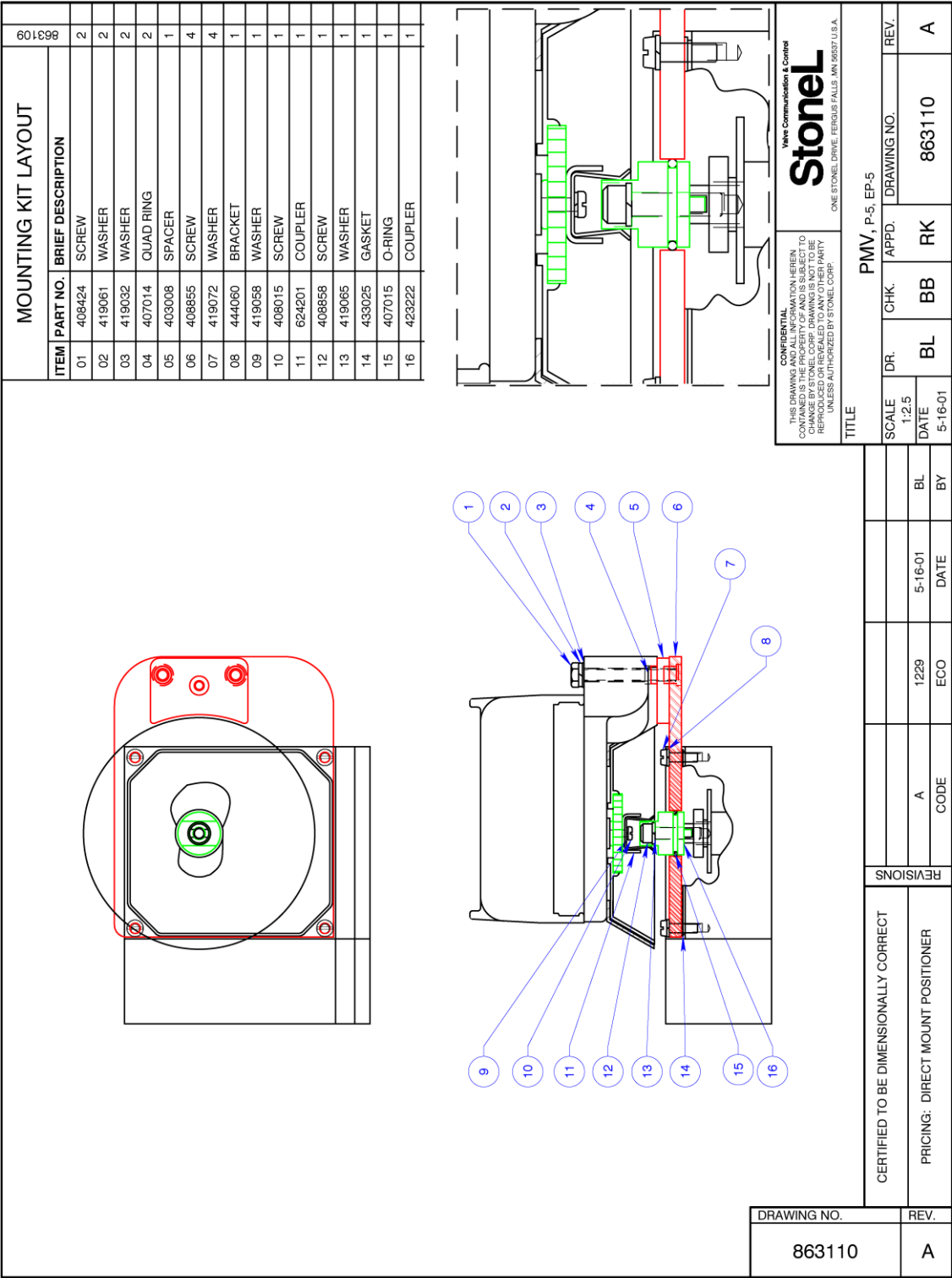


Figure 5 – Switch Mounting Kit used on PMV Positioner

Limited Warranty

DeZURIK, Inc. ("Seller") manufactured products, auxiliaries and parts thereof that we manufacture for a period of twenty-four (24) months from date of shipment from Seller's factory, are warranted to the original purchaser only against defective workmanship and material, but only if properly stored, installed, operated, and serviced in accordance with Seller's recommendations and instructions.

For items proven to be defective within the warranty period, your exclusive remedy under this limited warranty is repair or replacement of the defective item, at Seller's option, FCA Incoterms 2020 Seller's facility with removal, transportation, and installation at your cost.

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No claim for transportation, labor, or special or consequential damages or any other loss, cost or damage is being provided in this limited warranty. You shall be solely responsible for determining suitability for use and in no event shall Seller be liable in this respect.

This limited warranty does not warrant that any Seller product or part is resistant to corrosion, erosion, abrasion or other sources of failure, nor does Seller warrant a minimum length of service.

Your failure to give written notice to us of any alleged defect under this warranty within twenty (20) days of its discovery, or attempts by someone other than Seller or its authorized representatives to remedy the alleged defects therein, or failure to return product or parts for repair or replacement as herein provided, or failure to store, install, or operate said products and parts according to the recommendations and instructions furnished by Seller shall be a waiver by you of all rights under this limited warranty.

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The foregoing limited warranty shall be null and void if, after shipment from our factory, the item is modified in any way or a component of another manufacturer, such as but not limited to; an actuator is attached to the item by anyone other than a Seller factory authorized service personnel.

All orders accepted shall be deemed accepted subject to this limited warranty, which shall be exclusive of any other or previous warranty, and this shall be the only effective guarantee or warranty binding on Seller, despite anything to the contrary contained in the purchase order or represented by any agent or employee of Seller in writing or otherwise, notwithstanding, including but not limited to implied warranties.

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Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

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