

MIS R31: Functional Description

Wiring Diagram #114958

Partial Stroke – System with Electric Failsafe Feature

Schematic 5225-S

05/09/11

Shafer Partial Stroke System with Electric Failsafe Feature

Wiring Diagram #114958 (Used in connection with Schematic #5225-S)

**Description: Energize both solenoids to open.
De- Energize both solenoids to close.
Partial stroke test feature.**

To Open the Valve:

1. Apply power to “ESD SIGNAL” (terminals 17 & 18)
 - a. This will supply power to the closing solenoid. This supply will run through R-1 contacts 2 & 10.
 - b. This will also supply power to the opening solenoid. This supply will run through R-1 contacts 1 & 9. It will also run through limit switch “ZSOD”. When the valve reaches the end of the opening stroke, the limit switch contacts change and de-energize the opening solenoid.

To Close the Valve:

1. Remove power from “ESD SIGNAL” (terminals 17 & 18)
 - a. This will remove power from both the opening and the closing solenoids. The closing solenoid is a normally open solenoid. When it is de-energized, it will cause the valve to close.

Partial Stroke Test:

1. Power needs to be available going to “ESD POWER” (terminals 17 & 18)
2. Adjust closing speed control to appropriate setting. (**NOTE:** This will vary depending on actuator and valve combination. It will also depend upon pressure in the pipeline. Therefore, the appropriate setting must be determined once the actuator and valve are installed in the field. The speed control should be set so valve will close slow enough to eliminate coasting)
3. Push the “START” Button.



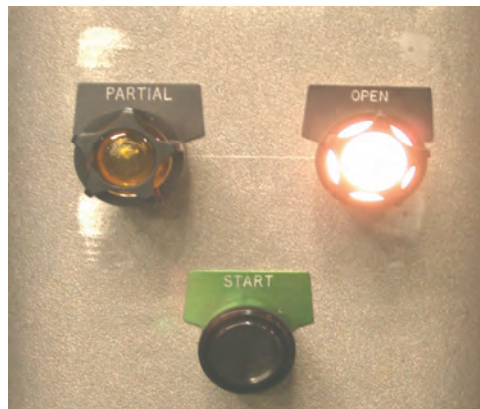
- a. This will energize the coil (13 & 14) of relay R-1. This will make contacts 8 & 12 of R-1, which will keep the coil of R-1 energized.
- b. This will also break the contacts 1 & 9, and 2 & 10 of R-1. This de-energizes both solenoids.

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4. "PARTIAL" light will come on and stay on until valve reaches partial stroke



5. When the valve reaches 5 degrees, the contacts of limit switch "ZSCD" change and cause the coil of R-1 to be de-energized. This causes the contacts in R-1 to change and energize both the opening and the closing solenoids as explained above in "To Open the Valve"
6. The "OPEN" light will come on and stay on until valve reaches full open.



Partial Stroke Override Feature:

If at any time power is lost from "ESD SIGNAL" (terminals 17 & 18), both solenoids will be de-energized and the closing operation will then take place as described under the heading "To Close the Valve".

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