



**“RB-2”
DUAL PILOT RELAY
MODEL 16D2
OPERATION MANUAL
MANUAL # OMP – 16D2 12/13
(SEE SPEC SHEET 16D2)**

I. PRINCIPLE OF OPERATION

The Ruelco **‘Dual Pilot’** is a double pilot operated automatic relay. It is a three (3) way universal valve. The relay operates via two pilot signals that will actuate the shaft in the direction dictated by which pilot port is receiving a signal.

When the relay sees a pilot signal on “Pilot Supply 1”, the valve will shift to seal “Port A” and then connect “Port B” to “Common”. When a pilot signal is applied to the “Pilot Supply 2” port the valve will shift to close “Port B” and will then connect “Port A” to “Common”.

The “Pilot Supply” ports require a minimum pressure of 35 psi supplied to them in order to shift the relay. The relay is typically used with only one pilot supply active at a time, though it can also be used by supplying a large enough pressure differential across the two “Pilot Supply” ports. Since the Dual Pilot Relay has no spring mechanism to return it to a normal state, the relay will remember the last position it was moved into until acted on by the opposing pilot supply. Thus the relay will shift due to a momentary button press, and will not shift again until the opposing pilot cap is given a signal.

Caution must be used when applying the pilot signals to prevent both pilot ports from seeing a signal with the same pressure at the same time. If the relay sees a signal at both pilot caps it may shift into an intermediate position that will potentially cause all 3 ports to become connected. If the relay is put into this position, it will then be necessary for another priming signal to be applied to one of the pilot caps to return it to regular service.

II. INSTALLATION

The **‘Dual Pilot’** can be mounted either vertically, horizontally, mounted on the inside of a panel (with optional mounting bracket), or supported by piping from any of its ports. If it is supported by piping, care should be taken that the strength of the pipe fittings used is adequate to prevent the fitting from breaking off in the relay body should the relay be inadvertently struck.

Proper pipe thread sealant should be used on any pipe fittings threaded into the relay ports. If stainless steel fittings are used, a sealant that will prevent galling is required. Supply gas flowing through the relay body should be free of large dirt particles. If compressed air is used, it does not have to be lubricated. If natural gas is used, it should contain as little condensate as possible; this will extend the life of the seals.



**“RB-2”
DUAL PILOT RELAY
MODEL 16D2
OPERATION MANUAL
MANUAL # OMP – 16D2 12/13
(SEE SPEC SHEET 16D2)**

III. DISASSEMBLY (REFER TO SPEC. SHEET #)

Tools required are as follows:

- Suitable adjustable wrench for unthreading the base.
- Needle nose pliers to remove the piston.

A. DISASSEMBLY

- 1) To replace the four (4) shaft O-rings (Item #6) and the piston O-Rings (Item #2), remove any piping connections from the body and bases (Item #7 and #1) that would prevent them from being removed from the body and unthread one base from the relay body.
- 2) Using the needle nose pliers, grab the screw head of the piston to remove the piston.
- 3) Remove the other pilot cap and repeat for the 2nd piston.
- 4) Push the spool through the other side with a screwdriver and remove the spool. The seals on the shaft and piston may now be replaced as per instructions given in the repair section of this manual.

IV. REPAIR AND ASSEMBLY

- 1) Remove the piston and shaft seals from the shaft and pistons.
- 2) Remove the base O-rings (Item #8) from the body (Item #7).
- 3) Using an appropriate safety solvent, clean all parts.
- 4) Inspect the shaft and pistons for any major damage such as burrs and nicks. Also inspect the shaft for straightness. Replace the shaft or pistons if damaged.
- 5) Examine the relay body for any damage such as burrs, nicks, etc. Replace if damaged.
- 6) Replacement seals from a Ruelco product repair kit are required for proper relay performance. It is recommended that all seals be lubricated before and after installation with a high quality silicon base grease.
- 7) Install the piston seals (Item #2 and 3) onto the pistons with one uncut seal in the groove by the screw head. Then install the cut seal in the remaining groove. Be sure that all seals are seated properly.
- 8) Lubricate the shaft O-rings (Item #6) and install on the shaft.



**“RB-2”
DUAL PILOT RELAY
MODEL 16D2
OPERATION MANUAL
MANUAL # OMP – 16D2 12/13
(SEE SPEC SHEET 16D2)**

- 9) Lubricate the large and small bores in the relay body (Item #7).
- 10) Slide the shaft into the relay body followed by one piston (installed with the cut o-ring in first).
- 11) Lubricate the base O-ring (Item #8) and install onto the valve body.
- 12) Rotate the base clockwise onto the body and use an appropriate wrench to tighten.
- 13) Install the other piston into the remaining open end. Repeat steps 11 and 12 for installing the second base.

V. RECOMMENDED MAINTENANCE

PROCEDURE

Operate Manually.
Disassemble, inspect and lubricate.
Replace all seals.

INTERVAL

Every 30 days.
Yearly or as required.
Every two (2) years or as required.