

REPAIR KIT INSTRUCTIONS:

MIDLAND 2" ANGLE VALVE (K-721-B Series Kits)

SCOPE: These instructions are specific to installation of repair kits. For more extensive maintenance instructions refer to Midland's *Installation, Operating, Maintenance and Inspection Instructions* for 2" angle valves.

PREPARATION

- Exercise normal safety precautions for commodity involved.
- Disassemble valve completely per Midland's *Installation, Operating, Maintenance and Inspection Instructions* for 2" angle valves.
- Discard all soft parts being replaced.
- Inspect and clean all parts thoroughly per Midland's *Installation, Operating, Maintenance and Inspection Instructions* for 2" angle valves.

RE-ASSEMBLY

(See Parts List and Valve Diagram at end of Document)

- Install the flat, bottom packing washer (#9), spring (#5) and beveled top packing washer (#9) in the valve body. The beveled side of the top packing washer should face up when installed.
- Stack the five (5) packing rings (#11) together with all pieces facing the same direction. Holding them together, lightly lubricate the inside and outside diameter of the packing rings with a lubricant suitable for use with the tank-car commodity. **Assembling "dry" will result in increased torque.**
- Place the set of packing rings in the valve with the open side of the packing set filling over the beveled side of the top packing washer.
- Install new stem seal quad-ring (#12) in appropriate groove of the packing screw (#8).
- Lubricate the bottom threads on the packing screw and place on the valve. Depress the packing screw and turn until thread engagement is achieved. Using a wrench and holding by the flats on the packing screw, tighten an additional turn.
- Lightly lubricate the stem threads and surface area that comes into contact with the packing rings.
- Insert and push the stem through the bottom of the valve into the bonnet until the threads meet the valve body.
- By double-nutting the stem with two (2) ½" jam nuts at top after being inserted in the body, a wrench can be used to lift and rotate the stem into the valve. Then remove the double nuts.
- Place the new retainer assembly (**See Note**) in the valve with the retainer holes facing out and seat seal facing down.

Note: Retainer Assembly consisting of items 3, 6, 10, 19 and 20 can be purchased as an assembly: 720-301 CS/SS

- **If the retainer assembly is being assembled with individual parts, follow these steps:**
 - Place seat seal (item 10) in seal retainer (item 3).
 - Place retainer cover (item 6) over the seat seal and install retainer nut (item 20) hand tight.
 - Using a torque wrench with 1¼" socket, tighten nut to 30-35 ft-lbs and leave for 24 hours to allow seat material to pre-set.

- After 24 hours, re-tighten nut to 30-35 ft-lbs. If necessary, further tighten the nut until the slots line up with the pin hole in the center.
 - Insert retainer pin and press pin to center.
- Lower the stem until it contacts the retainer and holds it in position in the seating area of the valve body.
 - Insert the stem retainer u-bolt (#18) and tap into position.
 - Rotate retainer assembly by a half turn to allow for the stem retainer lock nuts (#18) to be installed.
 - Install and tighten the two stem retainer lock nuts (#18).
 - Tighten the packing screw (#8) to 60-65 ft/lbs by holding it by the flats. Then back off the packing screw $\frac{1}{8}$ to $\frac{1}{4}$ turn.
 - Install packing lock nut, hand wheel , hand wheel washer and nut.
 - Valve stem should travel up and down smoothly with one hand. If stiff, loosen packing screw lightly, but no more than $\frac{1}{4}$ turn.
 - Install the outlet flange (#7) making sure the gasket face is clean. Install a new outlet flange gasket (#13). No lubricant required.
 - Insert clean cap screws and lock washers (#15) using a small amount of lubricant, diagonally alternating sequence. Take care to not “cock” the flange.

PARTS LIST AND VALUE DIAGRAM:

ITEM NO.	PART NAME
1	HANDWHEEL
2	STEM
3	GASKET RETAINER
4	BODY
5	SPRING
6	RETAINER COVER
7	OUTLET FLANGE
8	PACKING SCREW W/INSERT
9	PACKING WASHER TOP
10	SEAT SEAL
11	PACKING
12	STEM SEAL
13	FLANGE GASKET
14A	HANDWHEEL NUT
14B	WASHER
15A	BOLT
15B	LOCK WASHER
16	OUTLET PLUG & CHAIN*
17	
18A	STEM RETAINER
18B	NUT
19	PIN
20	RETAINER NUT
21	PACKING LOCK NUT
22	NAME PLATE
23	SPACER

