# TOPWORKS CONVERSION

WATCH

## HOW TO CONVERT FROM FAIL-CLOSE TO FAIL-OPEN OPERATION

### ADJUSTING SCREW, PIVOT, BREATHER PLUG, BONNET, SPRING PLATES & SPRING

1. Start by removing the adjusting screw with an adjustable wrench.
2. Remove the pivot from the adjusting screw. Sometimes the pivot will separate and sit on top of the spring plate. If so, we'll remove it later.
3. Next, use a 9/16" wrench to remove the breather plug.
4. Use a 9/16" wrench or socket and 11/16" wrench to remove the bonnet bolts, then remove the bonnet.
5. If the pivot separated from the adjusting screw, it can now be removed, followed by the upper spring plate, spring, and lower spring plate.

### COUPLING BLOCK

1. Remove the bolts from the coupling block with a 7/16" wrench.
2. Then remove the block and indicator tag from the stem.

### DIAPHRAGM PLATE ASSEMBLY & STEMS

1. Next, use a 3/8" wrench on the flats of the upper stem to loosen the stem from the diaphragm assembly.
2. Unthread the diaphragm plate, leaving the stem in the lower adjusting screw.
3. Raise the upper stem until only a small amount is exposed. This will prevent the oil in the topworks from spilling out.
4. Next, we need to raise the lower stem so that we can attach the two stems later without needing a supply source to compress the spring. A helpful way to do this is to attach the coupling block to the lower stem – using only one screw will be enough. Then, using a screwdriver or similar tool, pry the lower stem into the highest position you can get. Remove the coupling block to continue assembly.

### ASSEMBLY FOR FAIL OPEN

1. To assemble for fail-open operation, first install the pivot over the upper stem with the bevel side facing up.
2. Apply primer and Loctite to the threads of the upper stem.
3. Install the lower spring plate, spring, and upper spring plate.
4. Grease the upper spring plate if needed.
5. Flip the diaphragm assembly over and install it so that the diaphragm nut is on top. Be careful not to push down on the assembly which will lower the stem that we previously raised.
6. Using a 3/8" wrench on the stem flats, thread the assembly onto the upper stem.
7. Replace the bonnet, aligning the pressure port and breather plug hole.
8. Install the bolts and lifting rings using a 9/16" and 11/16" wrench. Kimray recommends tightening to 25-30 ft-lbs. Use a crisscross pattern and do not overtighten.
9. Grease the O-ring of the upper adjusting screw if needed and thread it into the bonnet with an adjustable wrench.
10. Install the breather plug into the bottom pressure port, so that the hole faces the bonnet.
11. Use a 7/16" socket to attach the indicator tag and travel indicator onto the coupling block with the flats on top. Make sure that "pressure closes" is shown.


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### ADJUSTING SCREW, BREATHER PLUG, BONNET

1. Start by removing the adjusting screw with an adjustable wrench.
2. Next, use a 9/16” wrench to remove the breather plug.
3. Use a 9/16” wrench or socket and 11/16” wrench to remove the bonnet bolts, then remove the bonnet.

### COUPLING BLOCK

1. Remove the bolts from the coupling block with a 7/16” wrench.
2. Then remove the block and indicator tag from the stem.

### DIAPHRAGM ASSEMBLY, SPRING PLATES, SPRING & PIVOT

1. Next, use a 3/8” wrench on the flats of the upper stem while you unthread and remove the diaphragm assembly.
2. Then remove the upper spring plate, spring, lower spring plate, and pivot. You may need a pick to get the pivot out.

### ASSEMBLY FOR FAIL OPEN

1. To assemble for fail-close operation, first apply primer and Loctite to the threads of the upper stem.
2. Thread the diaphragm assembly to the upper stem with the diaphragm nut facing down.
3. Use a 3/8” wrench on the stem flats to fully tighten it to the diaphragm plate.
4. Push down on the diaphragm plate to fully seat the assembly.
5. Then install the lower spring plate, spring, and upper spring plate. Add grease to the top of the upper spring plate if needed.
6. Replace the bonnet, aligning the pressure port and breather plug hole.
7. Make sure the spring plate is aligned.
8. Install the bolts and lifting rings using a 9/16” and 11/16” wrench. Kimray recommends tightening to 25-30 ft-lbs. Use a crisscross pattern and do not overtighten.
9. Install the breather plug on the top of the bonnet, so the breather hole faces the bonnet.
10. Attach the indicator tag and travel indicator onto the coupling block with the flats on top. Use a 7/16” socket to tighten the bolts. Make sure that “pressure opens” is exposed.
11. Place the pivot onto the adjusting screw. Add grease if necessary to help them stay together.


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