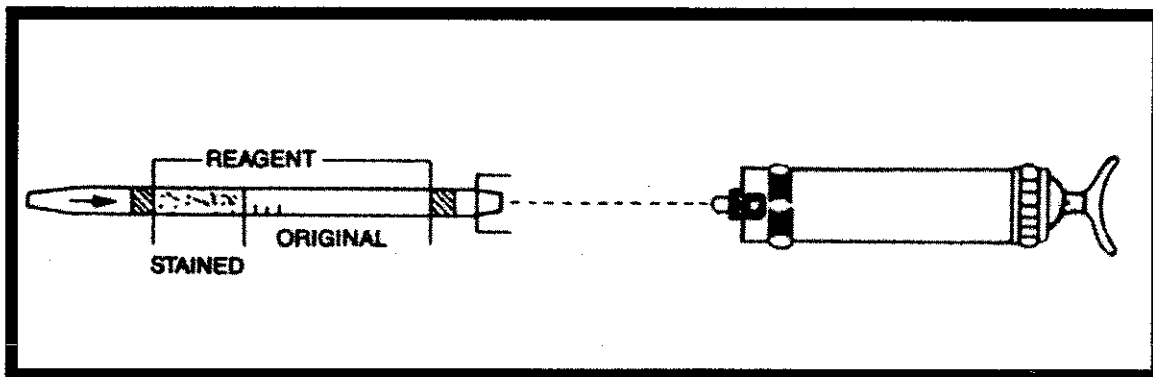
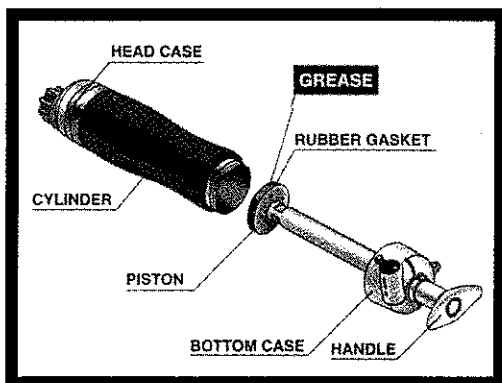


# MATHESON-KITAGAWA MODEL 8014-400B TOXIC GAS DETECTOR

## OPERATING INSTRUCTIONS FOR MATHESON-KITAGAWA DETECTOR TUBES\*



1. Cut off the tips of a fresh tube by snapping each tube end in the tip cutter.
2. If the pump handle is not in all the way, push it in. Insert the detector tube into the pump inlet, with the arrow pointing towards the pump. On chart comparison tubes (no graduations), insert the end of the tube marked with the red dot into the pump.
3. Line up the red line on the pump handle with the red line on the bottom case. Pull the handle to its full 100cc locking position. If the sample calls for a half stroke, pull out the pump handle until the 50cc. line appears and lock it there. Draw the sample gas for the specified time at the desired sampling location.
4. The Model 400B pump utilizes an exclusive vacuum indicator as an aid in sampling. Before sampling, the red indicator button is completely extended. When the pump handle is pulled out, the red indicator fully retracts. As sampling progresses, this red indicator rises toward the fully extended position. The sampling cycle is complete when the red indicator is again fully extended.
5. When sampling is complete, remove the tube from the pump and read the concentration directly from the tube scale. For chart comparison tubes, place the tube on the concentration chart. Position the tube with the stained end down, so that the boundary between the end plug and the resin at the inlet (point 0) is over the 0-0, and point X is over the X-X lines. Read the air concentration corresponding to the length of the stain.



### MAINTENANCE

In normal use, the pump should be taken apart, cleaned and re-lubricated after about 100 to 200 samples have been drawn. To disassemble, unscrew the cylinder and cover, and slowly pull the pump handle until the piston leaves the cylinder. Clean all the bearing surfaces carefully using a clean, soft cloth. Lubricate the rubber gasket with the special silicone grease (P/N 8014-003B) supplied with the pump. Reassemble the pump carefully, making sure that abrasive particles which could score the walls do not get inside the pump.

\*Complete instructions are packed in each box of tubes.

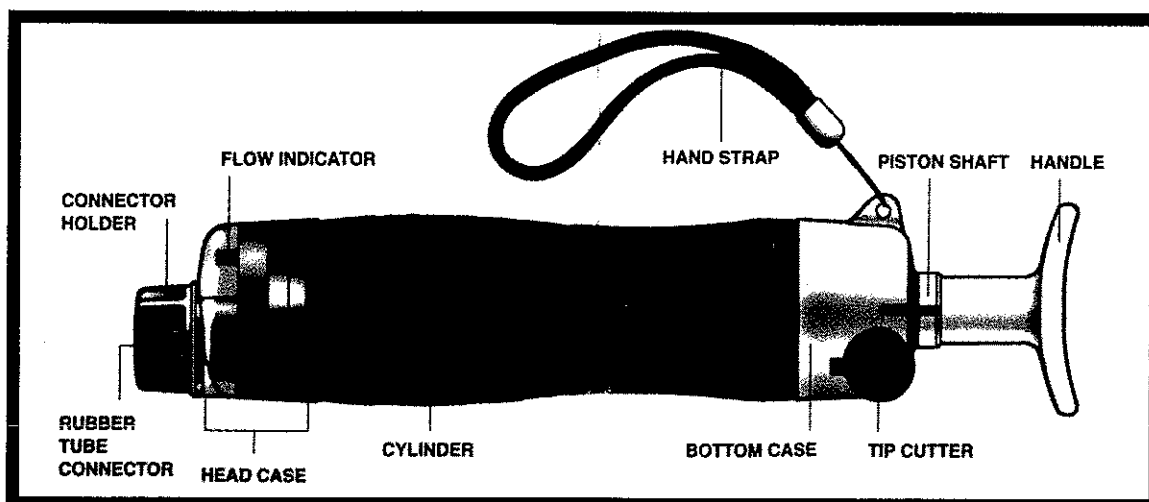


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World Leader in Specialty Gases & Equipment  
166 Keystone Road, Montgomeryville, PA 18936  
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## CHECKING PUMP PERFORMANCE



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Before making gas concentration determinations, the pump should be checked for proper performance in the following manner:

### CHECK FOR LEAKAGE:

- a) Insert an unused sealed detector tube in the pump inlet.
- b) Align the red line on the handle with the red line on the bottom case.
- c) Pull back the pump handle all the way until it locks.
- d) Wait one minute. Release the pump handle carefully by turning it 1/4 turn.  
CAUTION! The handle will normally snap back rapidly into the pump. Keep fingers clear.

When the handle is released, the piston should spring back all the way to the original position. If it does not, the pump is not leak-tight, and the amount of leakage is indicated by the position of the handle as it comes to rest. If there is more than 5cc. of leakage in one minute, the accuracy of any concentration determination made will be subject to error.

If excessive leakage is found, it usually takes place either at the pump inlet, or between the piston and cylinder walls. The latter source of leakage is much less likely than the former, and can usually be eliminated simply by cleaning and re-lubrication of the piston gasket (see Maintenance Instructions). Leakage at the inlet may result from a poor seal between the detector tube and the rubber tube connector, or between the tube connector and the pump body. To check for leakage at the tip, reposition the sealed detector tube or replace it with another one, and repeat steps a-d. If the leakage persists, it is probably at the second location, and simply tightening down the connector holder may suffice to eliminate it. If not, remove the tube connector and examine it for cracks and/or foreign matter on its bearing surface. If it is clean and undamaged, replace it in the pump inlet, and repeat the leak test. If necessary, replace the worn rubber tube connector with a new one (P/N 8014-002B).