INSTRUCTIONS for

OXWELD

L-23 ARGON FLOWMETER
L-28 HELIUM FLOWMETER
L-31 NITROGEN FLOWMETER

IMPORTANT: The L-23, L-28 and L-31 are designed to operate at a constant pressure of 20 lb. per sq. in. (plus or minus 1 lb. per sq. in. on the upstream (pipeline or regulator side) of the flowmeter to assure accurate readings on the calibrated scale of the flowmeter.

I. Operating Instructions

A. To Connect the Flowmeter
DO NOT GRASP THE FLOWMETER BY THE TUBE GUARD OR USE THE TUBE GUARD AS A HANDLE.

1. When gas is supplied from an individual cylinder. Attach the flowmeter to the outlet connection of the regulator. Position the regulator on the cylinder so that the flowmeter can be connected in a vertical position.

2. When gas is supplied from a pipeline. Open the station valve momentarily to blow out any dust or dirt that might otherwise clog the flowmeter filter. Then connect the flowmeter to the outlet of the station valve.

B. To Adjust the Flow
All changes in flow must be made by adjustment of the flowmeter flow-adjusting valve. TO INCREASE FLOW, turn the valve handle to the left (counter-clockwise). TO DECREASE FLOW, turn the valve handle to the right (clockwise).

1. Open the flow-adjusting valve about a quarter of a turn. Then turn in the pressure-adjusting screw of the regulator until the regulator delivery-pressure gauge reads exactly 20 lb. per sq. in.

2. Adjust the flowmeter flow-adjusting valve until the flowmeter float indicates the exact flow desired. Always read the scale across the top of the ball float.

Be sure this information reaches the operator. You can get extra copies through your supplier.

II. Maintenance Instructions

A. To Replace Parts Located Within Tube Guard

1. Hold the flowmeter upright in a vise by placing the flat sides of the body between wooden or fiber jaws.

2. Take off the aluminum tube guard by removing the screws at the bottom of the guard.

3. Unscrew the plastic tube by hand and remove it from the flowmeter body.

4. Unscrew the gland (82Z43). (A special wrench (Tool No. 5220065) designed for this purpose is available from Linde.) Lift out the calibrated tube, gland, and sealing washer (78Z60). Slide the gland and washer off the calibrated tube.

5. With one hand, tilt the flowmeter carefully, to permit the ball float and screens (05Z36) to drop into the other hand. Be sure all 5 screens drop out.

6. Examine all parts, and discard any that are worn or damaged.

7. To reassemble the parts, first insert the screens (5), carefully fitting them into place. Slide the gland over the bottom end of the calibrated tube with the small diameter of the gland toward the bottom of the tube. Replace the washer, locating it about 1/8-in. from the bottom end of the tube.
8. Position the calibrated tube in the flowmeter so that the calibrations are in line with the flow-adjusting valve. Tighten the gland, but do not use excessive force.

9. Drop the ball float gently into the tube from the top.

10. Place the "O" ring on the plastic tube and screw the tube into place, tightening it firmly by hand.

11. Replace the aluminum tube guard and tighten screws.

B. To Clean External Tube

Use only a mild solution of soap and water (or detergent and water) to clean the plastic external tube. Do not use organic solvents such as alcohol, carbon tetrachloride, and ether.

C. Valve Leakage

1. If the flow-adjusting valve will not shut off tight, turn the valve handle out all the way (counterclockwise) and loosen the valve assembly packing nut using a wrench. The valve can then be screwed out by hand. Clean the seating surface with a clean cloth. If the seat is marred, the valve should be replaced. If the old valve assembly was packed with a plastic washer, the flowmeter must be sent to a Linde repair station, where the body will be counterbored to receive the new "O" packing ring.

2. If a packing leak develops (around the outside threads) tighten the valve stem packing nut with a wrench. If this does not stop the leakage, remove the valve stem assembly and replace the "O" packing ring.

**IMPORTANT NOTE ON TUBE BREAKAGE**

We suggest that the nylon bumper (52Z34) be inspected from time to time. When the bumper is cracked or chipped the ball rebounds at an angle against the top of the tube, cracking the glass. A damaged bumper should be removed from its rubber holder and reversed to provide a new flat surface. The bumper is a relatively inexpensive part and can easily be replaced during any time the flowmeter is shut down.