INSTRUCTIONS
for
PUROX
TRADE MARK
R-205, R-206
OXYGEN REGULATORS
and
R-1934, R-1935
NITROGEN REGULATORS

Listed under Re-examination Service of Underwriters' Laboratories, Inc.
Approved and Listed by Factory Mutual Laboratories

I. Operating Instructions

The instructions contained in this booklet are for experienced operators. They assume that the operator knows the general principles of operation and safe practices to be followed in operating oxy-acetylene equipment. If you are not sure that you understand these principles fully, we urge you to read Linde's booklet "Precautions and Safe Practices," in addition to these instructions. You can get a copy of "Precautions and Safe Practices" (F-2035) without charge from any Linde office. (The same basic information on operating principles and safe practices is in Chapters 5, 6, and 7 of "The Oxy-Acetylene Handbook." This handbook of more than 500 pages contains many valuable chapters on welding, cutting, and other uses of oxy-acetylene equipment. It may be purchased from any Linde office or from any Linde Distributor.)

Nitrogen

Unlike oxygen, nitrogen is an inert gas and will not support combustion. Like oxygen, it is usually supplied in high-pressure cylinders. The precautions for handling high-pressure cylinders and pressure-reducing equipment, as described in Form 2035, should be observed when using the R-1934 and R-1935 Nitrogen Regulators.

A. To Connect

1. Open the cylinder valve slightly, for only an instant, to blow dust or dirt from the valve outlet.
2. Attach the regulator to the cylinder valve.
3. Make sure the regulator pressure-adjusting screw is released by turning it to the left (counter-clockwise) until it spins freely.
4. Open the cylinder valve slowly a fraction of a turn, then open it fully. Do not stand directly in front of the gauges when opening the cylinder valve.
5. Attach the oxygen (or nitrogen) hose to the regulator outlet and to the torch (or nitrogen apparatus). Make sure that all connections are gastight.

B. To Adjust Pressure

Open the torch oxygen valve (or the valve on the nitrogen apparatus). This valve should always be open when the pressure-adjusting screw is being turned to adjust pressure. Turn the pressure-adjusting screw to the right (clockwise) to increase pressure, to the left (counter-clockwise) to decrease pressure.

C. To Release Pressure

If work is to be stopped for a half-hour or more, release pressure from the regulator as follows:

1. Close the cylinder valve.
2. Open the valve on the torch (or on the nitrogen apparatus).
3. Release the pressure-adjusting screw.
4. Close the valve on the torch (or on the nitrogen apparatus). Follow the same procedure before removing the regulator from a cylinder.

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

1. If a regulator is to be out of use for a few weeks or more, turn in the pressure-adjusting screw enough to move the valve stem off the metal seat.

2. Unless cylinders are mounted on a suitable truck, always remove regulators before moving cylinders.

3. Remember that your regulator is a precision instrument designed to control gas at high pressures. If used in accordance with these instructions and otherwise given reasonably good care, it should give satisfactory service for many years.

II. Maintenance Instructions

For all repairs and replacements other than those mentioned below, send the apparatus to the nearest Linde Company repair station or Linde Distributor. The specific repair information shown on the drawing is provided for experienced and qualified persons engaged in the repair of this apparatus. Improperly repaired apparatus may be hazardous. Economical repair service is available through Linde Region Offices or through the nearest Linde Distributor.

A. To Disassemble the Regulator

1. Hold the regulator upright in a vise by means of the flat surfaces on the under side of the body.

2. Turn the pressure-adjusting screw out (counterclockwise) until it spins freely.

3. Unscrew the regulator cap and lift it off. Lift off the spring and spring washer.

4. Lift off the diaphragm assembly and diaphragm rings.

5. Using a socket wrench, unscrew the valve seat locking screw and lift out the parts located within it. Lift out the valve closing spring.

6. Hold the diaphragm assembly in a vise by means of the clamping screw and unscrew the 5/16-in. hex nut. Lift off all parts.

B. To Inspect the Regulator Parts

1. Using a clean cloth, wipe all the parts clean, then examine them for defects or excessive wear. Here is what you look for:

   (a) Diaphragm: Should be free from cracks and signs of excessive wear. (It should compare favorably with a new one.)

   (b) Valve Seat and Stem: Should be clean, straight and unmarred. Examine especially the plastic seating surface which closes against the valve screw.

   (c) Valve Seat Locking Screw: Examine especially the seating corner against which the valve stem seats. It should be clean and unmarred.

   (d) Valve Closing Spring: Should not have acquired a permanent set. It should be full length (compare it with a new one).

C. To Reassemble the Regulator

1. Reassemble the diaphragm and associated parts to the diaphragm attaching screw to form a sub-assembly. To do this:

   (a) Hold the diaphragm screw in a vise.

   (b) Wash the diaphragm in clear water and dry it with a clean cloth.

   (c) Assemble the parts to the screw in this order: diaphragm, plate, guide and hex nut. Tighten the hex nut securely — but don’t use excessive force.

   (d) Lay the sub-assembly aside.

2. Hold the regulator upright in a vise.

3. Place the valve closing spring (large end down) in the regulator.

4. Place the valve seat and stem on the valve closing spring so that the 3/32-in. diameter of the stem is located inside the top of the spring.

Do not use oil on this apparatus. Oil and grease are easily ignited and burn violently in the presence of oxygen under pressure. Although nitrogen does not react as oxygen does in the presence of oil and grease, regulator performance can be seriously affected by oil, grease and dirt.

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How To Order Replacement Parts

The drawings below show all available replacement parts. Inlet connections are shown in the upper left hand corner of each drawing. To order, identify the required parts from the drawing and specify by part number and name.

R-205 OXYGEN (04X40; CGA 540 Inlet)  R-206 OXYGEN (04X45; CGA 540 Inlet)  R-1935 NITROGEN (53L04; CGA 580 Inlet)

R-1934 NITROGEN (53L03; CGA 580 Inlet)

HARDWARE

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>8858-0075</td>
<td>Cap Bushing Retaining Ring, National Lock Washer Co.'s No. XRC-330</td>
</tr>
<tr>
<td>6330-9122</td>
<td>5/16-24 Hex. Steel Nut</td>
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</tbody>
</table>
5. Place the valve seat locking screw over the parts so that the valve stem protrudes through the hole in the top of the screw.

6. Press down and screw the valve seat locking screw in a few threads. (To start the valve seat locking screw into the body, it is necessary to depress the valve spring until the valve seat locking screw "catches.")

7. Screw the valve seat locking screw home and tighten it securely with a socket wrench.

8. Before going further, test the valve assembly for leaks. To do this:
   (a) Connect the regulator to a full cylinder of oxygen (or nitrogen if testing the R-1934 or R-1935). Tighten the connection nut.
   (b) Open the cylinder valve slowly. Stand to one side, not in front of the regulator.
   (c) Using a solution of soap (Ivory brand) and water, test around the valve for leakage.
   (d) Close the cylinder valve and remove the regulator from the cylinder.

9. Place the diaphragm sub-assembly in position.

10. Place the two diaphragm slip rings in position (the paper ring against the diaphragm).

11. Assemble the spring, spring washer, and cap. Tighten the cap securely with a wrench.

**D. To Replace the Safety Release Disc**

If the safety disc ruptures, close the cylinder valve and remove the regulator from the cylinder. Remove the safety release cap and place a new disc between the two washers in place of the old disc.

**IMPORTANT:** NEVER use more than one disc on the R-205, R-206 or R-1935. On the R-1934 only, use two discs — never use more than two.

Replace the safety cap. Then disassemble the regulator, replace all worn parts, reassemble and test before returning the regulator to service.

**E. To Replace the Inlet Nipple Filter**

If the filter becomes plugged to such an extent as to materially reduce the capacity of the regulator, it may easily be removed and replaced. For reasons of safety and continuous good regulator operation, an oxygen or nitrogen regulator should never be connected to a source of supply unless the filter is in place in the inlet nipple. To replace the filter: Insert a No. 1 "EZ-I-OUT" (or a No. 6 wood screw, 2-in. long) into the filter and pull it out. Place the new filter in the nipple and press it into position against the shoulder with a 1/4-in. metal rod.

**F. To Test for Leakage**

1. Connect the regulator to a full cylinder of oxygen (or nitrogen if testing the R-1934 or R-1935).

2. Fully release the regulator pressure-adjusting screw.

3. Slowly open the cylinder valve.

4. Place a film of soapy water (use only a grease-free soap, such as Ivory soap) over the regulator outlet. If bubbles form and burst, it indicates that the regulator valve seat and stem and valve seat locking screw is not forming a perfect seat, and that the regulator should again be disassembled, and one or both parts replaced.

5. Blank off the regulator outlet. This can be done by connecting the torch (or nitrogen apparatus) to the regulator and closing the valve on the torch.

6. Set the regulator pressure at 100 psi and test for leaks around the regulator cap threads and at the vent holes in the cap.

7. Release the regulator pressure-adjusting screw, close the cylinder valve, and open the valve on the torch (or nitrogen apparatus).