INSTRUCTIONS and PARTS LIST
for
PUROX
TRADE-MARK

NO. 33
WELDING BLOWPIPE

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 while operating oxy-acetylene equipment. If you are not sure that you understand these principles fully, read the PUROX Instruction Manual, in addition to these instructions. You can get a copy of the Instruction Manual FREE from any LINDE Office. (The same basic information is in Chapters 5, 6, and 7 of "The Oxy-Acetylene Handbook." This handbook of more than 500 pages, also contains many valuable chapters on welding, cutting, and other uses of oxy-acetylene equipment. It may be purchased from any LINDE Office.)

A. To Connect
1. Check the packing nuts on the blowpipe to make sure they are tight.
2. Attach the oxygen and acetylene hoses to the blowpipe and to the regulators. Tighten all hose connections with a wrench.
3. Attach the proper size welding head to the blowpipe. (See the welding chart on page 4.) Tighten the connection nut with a wrench. DO NOT USE EXCESSIVE FORCE.
4. Make certain that all connections, including the hose connections are leak-tight. (When testing for leakage, always use a grease-free soap, such as Ivory soap.)

B. To Adjust Oxygen Pressure
1. Open the blowpipe oxygen valve one full turn.
2. Turn in the pressure-adjusting screw on the oxygen regulator until the delivery-pressure gauge indicates the correct pressure. (The welding chart on page 4 shows the correct gas pressures to use.)
3. Close the blowpipe oxygen valve.

C. To Adjust Acetylene Pressure
1. Open the blowpipe acetylene valve one full turn.
2. Turn in the pressure-adjusting screw on the acetylene regulator until the delivery-pressure
3. Immediately close the blowpipe acetylene valve.

D. To Light
1. Open the blowpipe oxygen valve one-fourth of a turn or less.
2. Open the blowpipe acetylene valve one turn and light the gas at the tip with a friction lighter. (Do not use a match.)
3. Open the blowpipe oxygen valve slowly until a neutral flame is obtained. Then carefully re-adjust both valves, if necessary, to obtain the flame length desired.
4. If the flame pops out as soon as lit, or if the flame burns away from the end of the tip, close the oxygen valve, reduce the acetylene valve opening, and immediately relight the blowpipe, then open the oxygen valve slowly and proceed as directed above in paragraph 3.

E. To Shut Off
1. Close the blowpipe acetylene valve.
2. Close the blowpipe oxygen valve.

F. Operating Precautions
1. BACKFIRE
   Improper operation of the blowpipe may cause the flame to go out with a loud snap or pop. This is called a backfire. Some of the most common specific reasons for backfires are:
   (a) Operating the blowpipe at incorrect pressures.
   (b) Touching the work with the tip of the welding head.
   (c) Overheating the tip.
   (d) A loose welding head connection.
   (e) Dirt on the head seat.
   The blowpipe may be relighted after a backfire if the trouble has been corrected.

2. FLASHBACK
   A flashback occurs when the flame burns back inside the blowpipe, usually with a shrill hissing or squealing. Should a flashback occur proceed as follows:
   (a) Immediately close the blowpipe oxygen valve.
   NOTE: This is an exception to the normal procedure for shutting off given in E.
   (b) Close the blowpipe acetylene valve.
   (c) After a moment, relight the blowpipe in the usual manner.
   (d) Flashbacks are avoided by following correct operating procedures and maintaining correct operating pressures.
   If flashbacks occur, even after correcting the possible sources of trouble listed above under "backfire", send the blowpipe and welding heads to the nearest apparatus repair station of The Linde Air Products Company for a complete checkup.

II. MAINTENANCE INSTRUCTIONS
For all repairs and replacements other than those mentioned below, send the blowpipe to the nearest Apparatus Repair Station of The Linde Air Products Company.

The specific repair information shown on the drawing is provided for experienced and qualified persons engaged in the repair of oxy-acetylene apparatus. Improperly repaired apparatus may be hazardous. The Linde Air Products Company offers economical repair services through its District Offices.

A. Valve Packing Nut Leakage
   If tightening the packing nut does not stop the leak, replace the valve packing washer. To do this:
   1. Unscrew the packing nut and valve stem until the complete valve stem assembly can be removed from the blowpipe.
   2. Cut the valve packing washer off the valve stem. Then place the split replacement washer around the stem, and push it into packing recess in the nut.
   3. Screw the valve assembly into the body, tighten the valve packing nut very tightly with a wrench. To seal properly, the packing material should be molded in place. To do this, the packing nut should be tightened until it is difficult to turn the valve. Next back off the packing nut slightly until the proper friction is obtained for satisfactory valve adjustment.
   4. Test for leakage around the nut and stem.

B. Leakage through the Valve
   1. If either blowpipe valve does not shut off tightly remove the valve assembly from the blowpipe body.
   2. Wipe the seating surfaces of the valve stem and blowpipe body with a clean cloth. If the valve stem is damaged or the seat is marred, install a new valve stem assembly. If the valve still leaks the blowpipe body should be reseated at a LINDE Repair Station.

C. Clogging in the Welding Tip
   1. Always clean a welding tip by hand with the correct size drill. (See chart on page 4.) A copper or soft brass wire may be used but no
other tools of any kind as they may enlarge or bellmouth the orifice.

2. If the welding tip is so badly worn or damaged that replacement is necessary, grip the welding tip in a vise and unscrew the mixer tube by using a wrench on the flats of the hex. Screw the mixer tube on to the new tip and tighten it so that the connection is gas tight. Never use a different size tip. The size of the mixer and the size of the tip should always correspond.

D. To Clean the Mixer
1. Insert a knife blade in the slot in the hexagonal end of the welding head and force the mixer snap ring out of its groove. Then take the mixer out of the mixer tube.

2. Clean the passages with the correct size cleaning drill (see Chart on page 4), or soak the mixer in a solution of OXWELD Nozzle Cleaning Compound, then rinse it in clear water and blow out the passages with an air jet.

E. To Clean the Coupler Plug
1. Do not remove the coupler plug unless replacement is necessary because of damaged seats.

2. Use a soft copper wire of suitable size to clean the passages; never use anything else. Blow the passages clear with an air jet.

3. Clean the seats with a soft clean cloth wrapped around a stick of wood; never use anything else.

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**REPLACEMENT PARTS PICTURE**

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**Parts List**

**FOR**

NO. 33 "PUROX" WELDING BLOWPIPE

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
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<tr>
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<td>04M06</td>
<td>Front Body (Included in 03M04)</td>
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<td>09M03</td>
<td>Valve Stem Assembly (2 used) (Includes Part No. 03M04)</td>
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<td>(Includes Part No. 03M04)</td>
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<td>(Includes Part No. 03M04)</td>
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<td>Valve Packing Washer (Included in Part No. 09M03)</td>
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<td>Valve Packing Washer (Included in Part No. 09M03)</td>
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<td>Welding Head Connection Nut</td>
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<td>Welding Head Connection Nut</td>
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<td>03M04</td>
<td>Front Body and Tube Assembly (Includes Part Nos. (2) 05K05 and 04M06)</td>
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<tr>
<td>59K04</td>
<td>Wrench</td>
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WELDING HEADS AND PARTS

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<th>3</th>
<th>4</th>
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<tr>
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<td>LAC-002</td>
<td>06L07</td>
<td>LAC-003</td>
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<td>06L10</td>
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<td>Welding Tip</td>
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<td>LAC-008</td>
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<td>LAC-009</td>
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Radiator Soldering Tip Part No. C-246968

CLEANING DRILLS

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WELDING CHART

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<tr>
<th>Thickness of Metal</th>
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<th>Pressures for both Oxygen and Acetylene, lbs. per sq. in.</th>
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<td>26 gauge</td>
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<td>1-1/2</td>
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<td>24 gauge</td>
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<tr>
<td>24 gauge</td>
<td>3</td>
<td>2-3</td>
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<td>1/16-in.</td>
<td>3</td>
<td>2-4</td>
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<tr>
<td>1/16-in.</td>
<td>4</td>
<td>2-3</td>
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<tr>
<td>3/32-in.</td>
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<td>2-5</td>
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<tr>
<td>1/8-in.</td>
<td>4</td>
<td>3-5</td>
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<td>5</td>
<td>3-5</td>
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<td>3/16-in.</td>
<td>5</td>
<td>4-6</td>
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<td>1/4-in.</td>
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TO ADAPT THE NO. 33 WELDING BLOWPIPE FOR LIGHT CUTTING

The PUROX No. 33 Cutting Attachment, light in weight like the No. 33 Welding Blowpipe, can be attached directly to the handle of the No. 33 Blowpipe to adapt it for cutting steel, wrought iron, and cast iron up to a 1-in. thickness.

DO NOT USE OIL ON THIS BLOWPIPE. OIL AND GREASE, IF SUBJECTED TO OXYGEN UNDER PRESSURE, MAY IGNITE AND BURN WITH EXPLOSIVE VIOLENCE.

THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation

General Office: New York, N. Y. Offices in Principal Cities

In Canada: Dominion Oxygen Company, Limited, Toronto

Linde Oxygen · Prest-O-Lite Acetylene · Union Carbide Oxweld, Purox, Prest-O-Weld, and Unionmelt Apparatus Oxweld and Unionmelt Supplies

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