INSTRUCTIONS and PARTS LIST

for

Oxweld
Trade-Mark

C-61

DILUTE PREHEAT

MACHINE-CUTTING BLOWPIPE

Listed Under Label Service of Underwriters' Laboratories, Inc.

The C-61 is a special purpose machine-cutting blowpipe with an injector which draws air into the preheat acetylene stream within the blowpipe. It is designed for cutting steel up to 6 in. in thickness with standard OXWELD cutting nozzles. The C-61 comes with a size 73 injector nozzle installed for cutting thicknesses up to 4 inches. A size 62 injector is also supplied with the blowpipe for cutting thicknesses of 5 or 6 inches.

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 also found 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 welding equipment. It may be purchased from any LINDE office or from any LINDE distributor.)

IMPORTANT: The C-61 Cutting Blowpipe is for use with medium-pressure acetylene only. Cutting oxygen and preheat oxygen supplies must be controlled by separate oxygen regulators.

A. To Connect
1. Check to see that the injector nozzle is the correct size for the thickness to be cut (see pressure chart on Page 5). To change injector nozzle, see Section II-C, steps 1, 2, 6, 7, and 8.
2. Attach the correct size cutting nozzle to the blowpipe (see pressure chart on Page 5). Tighten the nozzle nut with a wrench.
3. Using your fingers, check the valve packing nuts to see that they are tight.
4. After connecting the cutting oxygen, preheat oxygen and acetylene hose to the blowpipe, check to see that they are gas-tight.

B. To Adjust Pressures
1. Cutting Oxygen: Open the cutting valve wide, adjust the oxygen regulator to the correct pressure (see chart on Page 5). Close the valve.
2. Preheat Oxygen (3 hose operation only): Open the preheat valve two full turns, adjust the pre-
heat oxygen regulator to the CORRECT preheat oxygen pressure (see chart on Page 5). Close the preheat oxygen valve.

3. Open the blowpipe acetylene valve one full turn. Turn the pressure-adjusting screw of the acetylene regulator until the delivery-pressure gauge indicates the correct pressure (see chart on Page 5). Close the acetylene valve.

C. To Light

1. Open the preheat oxygen valve a small fraction of a turn.
2. Open the acetylene valve about one full turn. Light the blowpipe using a friction lighter.
3. Open the preheat oxygen valve wide (at least one and one-half turns). DO NOT ATTEMPT TO ADJUST EITHER THE PREHEAT OXYGEN VALVE OR THE ACETYLENE VALVE TO SECURE A NEUTRAL FLAME. WITH THE C-61, AN OXIDIZING FLAME IS REQUIRED. If the instructions for adjusting pressures are carefully followed, the correct flame should be secured with both valves wide open.

D. To Shut Off

1. Close the oxygen cutting valve.
2. Close the acetylene valve.
3. Close the preheat oxygen valve.

E. Operating Precautions

1. BACKFIRE
   Improper handling of the blowpipe may make the flame backfire -- go out with a loud snap. This may be caused by one of the following:

   (a) Touching the work with the nozzle.
   (b) Overheating the nozzle.
   (c) Operating at incorrect pressures.
   (d) A loose nozzle.
   (e) Dirt on the nozzle seat.

When the trouble has been determined and corrected, the blowpipe may be relighted in the usual manner.

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 preheat oxygen valve.
   NOTE: This is an exception to the normal procedure for shutting off given in D.

   (b) Close the acetylene and cutting oxygen valves.

   (c) After a moment, relight the blowpipe in the usual manner.

   (d) Flashbacks are avoided by following correct operating procedure and maintaining correct pressures.

   If flashbacks occur, even after correcting the possible sources of trouble listed above under "backfire", send the blowpipe and nozzle to the nearest Linde Air Products Company repair station for a complete checkup.

II. MAINTENANCE INSTRUCTIONS

For all repairs and replacements other than those mentioned below, send the blowpipe to the nearest Linde Air Products Company repair station.

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. LINDE offers economical repair services through its district offices.

DO NOT USE OIL OR GREASE. OXYGEN UNDER PRESSURE MAY IGNITE AND BURN WITH EXPLOSIVE VIOLENCE.

The term "Oxweld" is a registered trade-mark of Union Carbide and Carbon Corporation.
A. Valve Leakage

1. If tightening the packing nut does not stop the leak, replace the valve packing washer. To do this:

   (a) Unscrew the packing nut and valve stem until the complete valve stem assembly can be removed from the blowpipe.

   (b) Cut the valve packing washer off the valve stem. Then place the split replacement washer around the stem between the two brass washers, making certain the split washer hugs the valve stem.

   (c) Screw the valve assembly partly into the body. Use a small screwdriver to press the valve packing washer down until it uniformly engages the recess in the valve boss. 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 must be tightened until it is difficult to turn the valve. If possible set the blowpipe aside for three or four hours (preferably overnight). Then back off the packing nut slightly, until the proper friction is obtained for satisfactory valve adjustment.

   (d) Test for leakage around the nut and stem.

2. If either valve does not shut off tightly, remove the valve assembly from the blowpipe body.

3. Wipe the seating surface of the valve stem and blowpipe body with a clean cloth. If the 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.

6. Screw the sealing plug into position and tighten to form a gas-tight seal.

C. Cleaning Air-Acetylene Injector Nozzle

To clean the air-acetylene injector nozzle proceed as follows:

1. Remove the injector nozzle retaining plug (located between the acetylene and preheat oxygen hose connection).

2. Remove "O" ring, gently tap blowpipe on the bench (or a block of wood), the injector nozzle and injector nozzle body will fall out.

3. Clean the recess in the body with a clean cloth.

4. Clean the injector nozzle body orifice with a No. 55 drill.

5. Clean the injector nozzle orifice as follows:
   (a) Injector nozzle stamped 73 — clean with a size 73 drill.
   (b) Injector nozzle stamped 62 — clean with a size 62 drill.

6. Replace injector nozzle body into blowpipe and place injector nozzle into injector nozzle body. Place "O" ring onto injector nozzle (replace "O" ring with a new "O" ring if it is damaged).

7. Screw the injector nozzle retaining plug into position and tighten.

   NOTE: Replace the "O" ring assembled to retaining plug, if "O" ring is damaged.

D. To Replace Air-Acetylene Diaphragm and Seat

To replace air-acetylene diaphragm and seat proceed as follows:

1. Remove the body plug 38Z08 (located between the acetylene and cutting oxygen hose connection) and the injector locking ring.

2. If gentle tapping of the blowpipe on the bench (or a block of wood) does not cause the injector to fall out, screw a No. 10-32 machine screw into the end of the injector and pull it out.

3. Clean the recess in the blowpipe body with a clean cloth.

4. Clean the injector with a No. 69 drill.

5. Replace the injector in the blowpipe, and lock it securely in place with the locking ring.

E. Cleaning Cutting Nozzles

To clean nozzles, use the CORRECT size drill or cleaning tool shown in Nozzle Data (Page 5). For longest life, nozzles should be cleaned periodically in a solution of OXWELD Nozzle Cleaning Compound, made up and used as directed on the jar in which it is packed.
**Replacement Parts List**

FOR

"Oxweld" C-61 Machine-Cutting Blowpipe

PART NO. 02X82

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<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
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<tr>
<td>26A21</td>
<td>Oxygen Connection</td>
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<td>26A22</td>
<td>Acetylene Connection</td>
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<td>33A56</td>
<td>Nozzle Nut</td>
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<tr>
<td>*01Y01</td>
<td>Injector</td>
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<td>*16Y03</td>
<td>Mixer Tube</td>
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<tr>
<td>33Y06</td>
<td>Cutting Oxygen Valve Stem Assembly</td>
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<td>Includes: 78204 Packing Washer</td>
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<td>33Y08 Valve Stem Assembly (2 used)</td>
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<td>Includes: 77297 Packing Washer</td>
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<td>50Y04</td>
<td>1/4 in. x 1/4 in. - 32 Pitch Rack Assembly</td>
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<td>Head</td>
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<tr>
<td>24Z10</td>
<td>Casing</td>
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<td>34Z14</td>
<td>Injector Locking Screw</td>
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<td>35Z08</td>
<td>Body Plug</td>
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<td>71255</td>
<td>No. 89 Wrench</td>
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<td>71256</td>
<td>No. 90 Wrench</td>
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<td>Air-Acetylene Injector Retaining Plug &quot;O&quot; Ring Seal</td>
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<td>Air-Acetylene Injector Nozzle &quot;O&quot; Ring Seal</td>
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<td>Air-Acetylene Injector Nozzle Retaining Plug</td>
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<td>Air-Acetylene Injector Nozzle Size 73</td>
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<td>D-247138</td>
<td>Air-Acetylene Injector Body</td>
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<tr>
<td>D-247183</td>
<td>Diaphragm and Seat Assembly Retaining Plug</td>
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<td>C-247194</td>
<td>Diaphragm and Seat Assembly</td>
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<td>D-264570</td>
<td>Air-Acetylene Injector Nozzle Size 62</td>
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**ACCESSORY**

32Y08 Cam-Type Cutting Valve Assembly

**HARDWARE**

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<tr>
<td>S-FL-B-105</td>
<td>No. 6-32 x 3/8 in. Flat Head Brass Machine Screw (2 used)</td>
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*For replacement at Repair Station.*
**CUTTING NOZZLE DATA**

This table includes data only on those nozzles specifically recommended for use with the C-61.

1502 Series
(6 Preheat Holes)

<table>
<thead>
<tr>
<th>Size</th>
<th>Part No.</th>
<th>Cleaning Drill Sizes</th>
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1512 Series
(6 Preheat Holes)

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<td>31</td>
<td>08270</td>
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<td>.031 in.</td>
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1514 Series
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<td>.081 in.</td>
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*The cutting oxygen orifice of this type nozzle should be cleaned only with tapered cleaning tools as listed in the table. These tools may be ordered from any LINDE office.*

**PRESSURE CHART**

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<thead>
<tr>
<th>Nozzle Series</th>
<th>Steel Thickness (in.)</th>
<th>Cutting Nozzle Size</th>
<th>Air-Injector Nozzle Size</th>
<th>Cutting Speed (lpm)</th>
<th>Oxygen Pressure (psi)</th>
<th>Acetylene Pressure (psi)</th>
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High Speed Nozzle

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<th>Oxygen Pressure (psi)</th>
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Hose

For thicknesses of metal up to 5 in., 1/4-in. hose is the minimum size recommended. For thicknesses above 5 in., 3/8-in. hose is recommended for cutting oxygen.

**These data are for use with equipment that is in good condition. If further assurance of maximum economy is desired, communicate with the nearest representative or office of Linde Air Products Company.**
INDUSTRIAL GASES
LINDE Oxygen, Nitrogen, Argon, Neon, Helium, Krypton, Xenon, Hydrogen
PREST-O-LITE Acetylene
CALCIUM CARBIDE
UNION Carbidic
CARBIC Processed Carbidic

OXY-ACTYLENE EQUIPMENT
OXWELD Apparatus for Cutting, Joining,Treating, and Forming Metals Acetylene Generators Manifolds, Regulators and Valves Welding Rods and Supplies
PREST-O-WELD Welding and Cutting Apparatus PUROX Welding and Cutting Apparatus PREST-O-LITE Air-Acetylene Apparatus and Small Tanks CARBIC Acetylene Flood Lights Acetylene Generators

ELECTRIC WELDING EQUIPMENT
UNIONMELT Automatic Welding Apparatus and Supplies
HILARC Welding Torches LINDE Sigma Welding Equipment

SPECIAL EQUIPMENT
LINDE Jet-Piercing Equipment Plate-Edge Preparation Equipment Polystyrene Powder and Flame-Spraying Equipment Steel-Conditioning Machines Sub-Zero Cold Treatment Equipment

OXWELD Oxy-Acetylene Cutting Machines Pressure-Welding Machines

OXYGEN THERAPY SUPPLIES
LINDE Oxygen U.S.P. Oxygen Therapy Regulators Oxygen Therapy Manifolds and Valves

SYNTHETIC CRYSTALS
LINDE Synthetic Sapphire, Ruby, Sphene, and Titania Synthetic Calcium- and Cadmium Tungstates Fine Alumina Abrasive

ORGANOSILICONES
LINDE Silane Monomers Polysiloxane Polymers and Resins


LINDE AIR PRODUCTS COMPANY
A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

DOMINION OXYGEN COMPANY, LIMITED, TORONTO

In Canada

Dominion Oxygen Company, Limited
TORONTO • MONTREAL • WINNIPEG • VANCOUVER

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Boston 16, Mass. 441 Stuart Street
Buffalo 2, N. Y. 250 Delaware Ave.
Charleston 3, W. Va. 2 Virginia Street
New York 17, N. Y. 205 East 42nd Street
Philadelphia 22, Pa. 1421 North Broad Street
Pittsburgh 19, Pa. 311 Ross Street

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Cincinnati 29, Ohio 709 Fifth Avenue
Cleveland 14, Ohio 1513-17 Superior Avenue
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Milwaukee 44, Wis. 1633 South 35th Street
Minneapolis 2, Minn. 822 Second Avenue, South
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Jacksonville 3, Fla. 2450 Dennis Street
Memphis 5, Tenn. 48 West McLennan Avenue
New Orleans 13, La. 828-32 Howard Avenue

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Tulsa 3, Okla. 614 National Bank of Tulsa Bldg.

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Phoenix, Ariz. 401 East Buchanan Street
Portland 9, Ore. 1205 Northwest Marshall Street
Salt Lake City 1, Utah 362 Pierpont Avenue
San Francisco 6, Calif. 22 Battery Street
Seattle 4, Wash. 2501 First Avenue, South
Spokane 12, Wash. 2023 West Maxwell Avenue

In Canada

Dominion Oxygen Company, Limited
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