IMPORTANT: There are two different models of the PREST-O-WELD W-112 Lead Burning Blowpipe:

Part No. 360-A - for use with acetylene gas
Part No. 360-HG - for use with city gas, natural gas, or hydrogen gas.

The only difference between these models is the mixer. The mixer for acetylene is marked “ACET” and the mixer for natural, city and hydrogen gases is marked “INJ”. (See parts illustration on page 5.) Do not attempt to use the acetylene mixer with city gas, natural gas or hydrogen gas. Do not use the mixer for city gas, natural gas and hydrogen gas with acetylene.

Unless specifically stated otherwise, any statements concerning acetylene in the following instructions refer also to natural, city and hydrogen gases.

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.)
A. To Set up the Outfit

1. Secure cylinders in upright position.

2. Take off the oxygen cylinder cap. If it sticks, insert the corner of a block of wood in one of the slots in the cap, and tap the block with a hammer.

3. Blow out the cylinder valves. Quickly (with a twist of the wrist) open and close each cylinder valve to blow out dirt and dust. Stand to the side of the valves when you open them.

4. Attach the regulators. Turn the pressure-adjusting screws to the left until they turn freely.

5. Open each cylinder valve slowly until the hand on the cylinder pressure gauge just starts to move upward. Then open the oxygen cylinder valve all the way; open the acetylene cylinder valve only 1-1/2 turns. (Always leave the "T" wrench in place on the acetylene cylinder valve while the valve is open.)

6. Test the regulator connections for leaks. Use Ivory soap and water. If a connection leaks, close the cylinder valve, disconnect the regulator, and wipe the seats of the connection with a clean rag.

7. Attach the oxygen and acetylene hoses to the blowpipe and to the regulators. The oxygen hose is green; the acetylene hose is red. Tighten the hose connections to the regulators with a wrench. (Acetylene connections have left handed threads.)

8. Connect the tip to the blowpipe. Place the proper size tip on the blowpipe. (See table on page 6.) Tighten snugly, but DO NOT USE EXCESSIVE FORCE.

9. Test all connections for leaks.
   a. Close all blowpipe valves.
   b. Check to see that the packing nuts on the valves are snug.
   c. Turn in the pressure-adjusting screw on the oxygen regulator until the delivery pressure gauge shows 10 lb. per sq. in. pressure.
   d. Turn in the pressure-adjusting screw on the acetylene regulator until the delivery pressure gauge shows 10 lb. per sq. in. pressure.
   e. Now paint all connections and valve packing nuts generously with an Ivory soap solution, using a clean brush. Bubbling indicates leakage. Leakage at connections usually can be eliminated by tightening the connections a slight bit more. Fix all leaks before you use the equipment.
   f. Back out the regulator pressure adjusting screws until they turn freely.

The terms "Oxweld," and "Prest-O-Weld" are registered trade-marks of Union Carbide and Carbon Corporation.
B. To Adjust the Oxygen Pressure
1. Open the blowpipe oxygen valve one full turn.
2. Turn the pressure-adjusting screw on the oxygen regulator until the delivery-pressure gauge indicates the desired pressure. (See table on page 6.)
3. Close the blowpipe oxygen valve.

C. To Adjust Fuel-Gas Pressures
Acetylene and Hydrogen
1. Open the blowpipe fuel-gas valve one full turn.
2. Turn in the pressure-adjusting screw on the fuel-gas regulator until the delivery-pressure gauge indicates the desired pressure. (See table on page 6 for acetylene pressures.)
3. Close the fuel-gas valve promptly.

Natural and City Gases
1. Close the blowpipe fuel-gas valve.
2. Open the shutoff valve at the hydraulic back-pressure valve.

D. To Light
Acetylene:
1. Open the blowpipe oxygen valve 1/4 turn.
2. Open the acetylene valve one full turn and light the gas with a friction lighter. DO NOT USE A MATCH.
3. Open both valves wide.
4. Adjust the acetylene valve slowly until the flame shows a very slight excess of acetylene. The inner cone will appear slightly feathered.

Hydrogen, Natural and City Gases:
1. Open the blowpipe oxygen valve one full turn.
2. Open the fuel-gas valve one full turn and light the gas at the tip with a friction lighter. DO NOT USE A MATCH.
3. Open both valves wide. If hydrogen is used at two to three pounds per square inch pressure, the fuel-gas valve should be opened 1/4 to 1/2 turn only.
4. Adjust the fuel-gas valve until the desired heat is obtained.

There is no well-defined inner cone as when acetylene is used. In a neutral flame the hottest part of the flame is away from the tip. As the proportion of fuel gas is increased, the hot point becomes less concentrated and moves away from the tip. As the proportion of fuel gas is decreased, the hot point becomes more concentrated and moves nearer the tip.

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.
(c) Overheating the tip.
(d) A loose tip.
(e) Dirt on the tip 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 to the nearest apparatus repair station of the Linde Air Products Company for a complete check-up.

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

For all repairs and replacements other than those mentioned below, send the blowpipe to the nearest Linde Air Products Company apparatus repair station. The specific repair information shown on the parts drawing is provided only for experienced and qualified persons engaged in the repair of oxy-acetylene apparatus. Improperly repaired apparatus may be hazardous.

**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.

**Clogging**

If the tips become clogged, clean them by hand with the correct size OXWELD tip cleaners (see page 6 for table of sizes), or with a copper or soft brass wire. No other tools should be used, as they might enlarge or bellmouth the orifices and thus reduce the efficiency of the tips.

If the mixer becomes clogged, it should be removed and cleaned. Unscrew the front end assembly from the body, then unscrew the mixer from the body with a wrench. Clean the mixer by hand with the correct size OXWELD tip cleaners. Do not use any other tool or instrument for this purpose.

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**SPECIAL PRECAUTIONS IN LEAD BURNING**

Observe all precautions recommended by safety authorities for those who work with lead. Working places should be roomy and so ventilated that the lead burning operator, and others in the room or nearby, will not breathe lead fumes. Suction ventilation may be adequate in roomy or outdoor locations if suction is so arranged that all lead fumes are withdrawn as soon as produced at the lead burning point. Where lead burning is carried on continuously or in confined spaces, the operator and others in or near the working area should wear a suitable fresh-air mask supplied with air from an uncontaminated source.
Replacement Parts List

FOR

"PREST-O-WELD" W-112 (SERIES 2) LEAD BURNING BLOWPIPE
(For use with Acetylene - Part No. 03L08,
For use with other Fuel Gases - Part No. 03L09)

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>365-A</td>
<td>Mixer for Acetylene</td>
<td>1022</td>
<td>5-in. Front End Assembly (Includes 366 and 367)</td>
</tr>
<tr>
<td>365-INJ</td>
<td>Mixer for Hydrogen; Natural or City Gas</td>
<td>1024</td>
<td>Needle Valve Stem (2 Used)</td>
</tr>
<tr>
<td>366</td>
<td>Front End Connection Nut (Included in 1022)</td>
<td>10K13</td>
<td>Washer</td>
</tr>
<tr>
<td>367</td>
<td>Front End Connection Nut Retaining Ring (Included in 1022)</td>
<td>*18K04</td>
<td>Hose Connection Nipple (2 Used) (Included in 04M12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>04M12</td>
<td>Body Assembly (Includes 18K04)</td>
</tr>
</tbody>
</table>

NOT ILLUSTRATED

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6407</td>
<td>Wrench</td>
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</tbody>
</table>

ACCESSORIES

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1023</td>
<td>3-in. Front End Assembly (Includes 366 and 367)</td>
</tr>
<tr>
<td>1025</td>
<td>7-in. Front End Assembly (Includes 366 and 367)</td>
</tr>
<tr>
<td>78252</td>
<td>Anti-Friction Compound</td>
</tr>
</tbody>
</table>

NOTE: Series 1 design has a threaded nipple Part No. 366 which is available. To replace body on Series 1 design order Body Assembly 04M12.

* The inlet hose connection nipples (18K04) of the Series 2 design are silver soldered into the body. It is recommended that the nipples be replaced at Linde Repair Station.
MIXER CLEANING DRILLS

<table>
<thead>
<tr>
<th>Acetylene Mixer (marked &quot;ACET&quot;)</th>
<th>Center Drill</th>
<th>Side Drill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen, Natural or City Gas Mixer (marked &quot;INJ&quot;)</td>
<td>68</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>67</td>
<td>50</td>
</tr>
</tbody>
</table>

**TIPS FOR ACETYLENE**

The PREST-O-WELD W-112 Lead Burning Blowpipe may be used for light welding jobs. The chart below lists the various thicknesses of metals that can be welded and the oxygen and acetylene pressures necessary to weld them in addition to the tip sizes and part numbers.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Size</th>
<th>Thickness of Metal (gauge)</th>
<th>Pressures in lb. per sq. in.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Oxygen</td>
</tr>
<tr>
<td>368-1A</td>
<td>1</td>
<td>28</td>
<td>1</td>
</tr>
<tr>
<td>368-2A</td>
<td>2</td>
<td>22</td>
<td>2</td>
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<tr>
<td>368-3A</td>
<td>3</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>368-4A</td>
<td>4</td>
<td>13</td>
<td>4</td>
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<tr>
<td>368-5A</td>
<td>5</td>
<td>11</td>
<td>5</td>
</tr>
</tbody>
</table>

**FOR HYDROGEN, NATURAL GAS OR CITY GAS**

The PREST-O-WELD W-112 Lead Burning Blowpipe cannot be used for welding with city or natural gas and is used only in rare instances for welding with hydrogen.

<table>
<thead>
<tr>
<th>Size</th>
<th>1HG</th>
<th>2HG</th>
<th>3HG</th>
<th>4HG</th>
<th>5HG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No.</td>
<td>368-1HG</td>
<td>368-2HG</td>
<td>368-3HG</td>
<td>368-4HG</td>
<td>368-5HG</td>
</tr>
</tbody>
</table>

**TIP CLEANING DRILLS**

<table>
<thead>
<tr>
<th>Tip Size</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>1HG</th>
<th>2HG</th>
<th>3HG</th>
<th>4HG</th>
<th>5HG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drill Size</td>
<td>76</td>
<td>70</td>
<td>62</td>
<td>56</td>
<td>54</td>
<td>60</td>
<td>53</td>
<td>49</td>
<td>43</td>
<td>35</td>
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