INSTRUCTIONS for LINDE
TRADE MARK
AC-6
POWDER SCARFING TORCH

Listed under Re-examination Service of Underwriters’ Laboratories, Inc.

FILE COPY
REVISED EDITION
DESTROY OLD STOCK AND ORDER NEW EDITION

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-fuel gas 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.

The AC-6 Torch is similar to a conventional torch except for the additional powder parts. The powder and cutting oxygen valves are actuated by a single dual-control lever (oxy-powder valve lever).

The AC-6 is for use with medium-pressure fuel gases only.

A. To Connect

1. Using your fingers, check the valve packing nuts to see that they are tight.
2. Attach the correct nozzle to the torch and tighten it with a wrench. (See chart on page 4.)
3. Assemble the nozzle bracket (50Y73) to the nozzle so that the flat plate to which the powder nozzle (15X49) attaches is on the same side of the torch as the powder tube. Fasten it securely being sure the slot in the nozzle bracket lines up with the center line of the torch.
4. Attach the powder nozzle to the flat plate of the nozzle bracket, fitting the "U" clamp (68Z26) into the 1/4-in. radius (located about 2-1/2-in. from the end) on the powder nozzle. Fasten the "U" clamp securely.
5. Connect powder hose (11Y07) between the powder nozzle and powder tube (47Z43) and tighten nuts at both ends with a wrench.
6. Attach the oxygen, fuel gas and powder hoses to the torch. Tighten all connections with a wrench. Use 3/16-in. powder hose for lengths up to 25 feet and 1/4-in. hose for lengths from 25 to 50 feet. Length of powder hose should never exceed 50 feet. NOTE: Powder hose should be blown out with compressed air or nitrogen before making connections between torch and dispenser. This removes any moisture which may have formed inside hose.

B. To Adjust Dispenser

Refer to the Instruction Booklet supplied with the Powder Dispenser.

C. To Adjust Torch Pressures

1. Depress the torch oxy-powder valve lever and adjust the oxygen regulator to the correct pressure. (The chart on Page 4 shows the correct pressure to use.) Release the valve lever.

Be sure this information reaches the operator. You can get extra copies through your supplier.
2. Open the torch fuel gas valve about one full turn and adjust the fuel gas regulator to 5 psi. Close the fuel gas valve.

D. To Light

1. Open the preheat oxygen valve a small fraction of a turn.
2. Open the fuel gas valve one-quarter of a turn and using a lighter, light the gas at the nozzle.
3. Open the oxy-powder valve and adjust the flames to neutral with the preheat oxygen valve.
4. If the flames burn away from the end of the nozzle, or blow off as soon as lit, or if the flame is too long, close the fuel gas valve slightly and readjust to neutral with the preheat oxygen valve. If the flame is too short, open the fuel gas valve slightly and readjust to neutral with the preheat oxygen valve.

E. To Shut Off

1. Release oxy-powder valve lever.
2. Close the fuel gas valve.
3. Close the preheat oxygen valve.
4. Shut off the air supply line valve or release the pressure in the air regulator.
5. Open the torch oxy-powder valve.
6. Vent the dispenser by opening the bib cock.

F. Operating Precautions

1. BACKFIRE
   Improper handling of the torch 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 torch may be relighted in the usual manner.

2. FLASHBACK
   A flashback occurs when the flame burns back inside the torch, 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 E.
   (b) Close the fuel gas and cutting oxygen valves.
   (c) After a moment, relight the torch in the usual manner.
   (d) Flashbacks are avoided by following correct operating procedures and maintaining correct pressures.

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

II. Maintenance Instructions

For all repairs and replacements other than those mentioned below, send the torch to the nearest Linde apparatus repair station.

The specific repair information shown on the parts drawing is provided for experienced and qualified persons engaged in the repair of oxy-fuel gas apparatus. Improperly repaired apparatus may be hazardous. Linde offers economical repair services through its region offices.

A. Preheat 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 torch.
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.

If possible, set the torch aside for 3 or 4 hours (preferably over-night); then 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 Preheat Valve

1. If either preheat valve does not shut off tightly, remove the valve assembly from the torch body.
2. Wipe the seating surfaces of the valve stem and torch 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 torch body should be reseated at a Linde repair station.

C. Scarfing Oxygen Valve Leakage

If leakage develops around the oxygen valve stem, replace the valve packing bushing. If leakage develops through the oxygen valve, replace the valve seat. Replacement procedure follows:
1. Unscrew the lever attaching screw and lift the lever off.
2. Unscrew the valve stem guide and remove the valve assembly from the guide.
AC-6 Powder Scarding 02X87

HARDWARE LIST

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6110-1877</td>
<td>No. 8-32 x 5/16&quot; Lg, Rd, Hd, Brass Mach. Screw</td>
</tr>
<tr>
<td>6110-2824</td>
<td>No. 4-40 x ¼&quot; Lg, Dual Hd, Brass Mach. Screw</td>
</tr>
<tr>
<td>6120-0090</td>
<td>¼&quot;-20 x 1&quot; Lg, Fil, Hd, Mach. Screw</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6312-0916</td>
<td>No. 10-24 Hex. Brass Cap Nut</td>
</tr>
<tr>
<td>6325-0100</td>
<td>¼&quot;-20 Square Mach. Screw Nut</td>
</tr>
<tr>
<td>6420-3937</td>
<td>No. 1212 Shakeproof Lockwasher</td>
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</tbody>
</table>
3. Use soapy water to moisten the stem head, then remove the packing bushing and ferrule. Remove the sealing ring from the bushing. Lift off the spring and spring support.
4. Replace the valve seat (stem) if necessary and any other parts which are worn or damaged.
5. Reassemble the valve following the above instructions in reverse order.

**D. Powder Valve Leakage**

If leakage develops around the powder valve stem, replace the powder valve diaphragm. If leakage develops through the powder valve, replace the valve seat. Replacement procedure follows:
1. Unscrew the lever attaching screw and lift the lever off.
2. Unscrew the valve stem guide and remove the valve assembly from the guide.
3. Remove the spring, spring cap and two diaphragm slip rings. Pull the diaphragm free of the valve stem.
4. Replace the valve seat stem if necessary and any other parts which are worn or damaged.
5. Reassemble the valve following above instructions in reverse order, being sure the two diaphragm slip rings are in place.

**NOTE:** Lubricate diaphragm slip rings and valve stem guide with soapy water.

**E. Cleaning the Mixer**

To clean the mixer proceed as follows:
1. Remove the rear plug and the two springs.
2. If gentle tapping of the torch on the bench (or a block of wood) does not cause the mixer to fall out, screw a 10–32 machine screw into the end of the nozzle and pull it out.
3. Clean the recess in the torch with a soft cloth.
4. Clean the mixer with a No. 35 drill.
5. Replace the rubber mixer packing washers with two new ones, reassembling in original order.
6. Insert the mixer in the torch and press into position.
7. Place packing compression spring on the packing ring and the mixer compression spring inside of it against the mixer.
8. Screw the sealing plug into position and tighten to form a gas-tight seal.

### NOZZLE DATA

<table>
<thead>
<tr>
<th>Series</th>
<th>Size</th>
<th>Part No.</th>
<th>Cleaning Drill Preheat Holes</th>
<th>Slotted Orifice Size</th>
<th>Oxygen Pressure</th>
<th>Acetylene Pressure</th>
<th>Fuel Gas Pressure</th>
<th>Powder Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>1803</td>
<td>SL-53</td>
<td>15X45</td>
<td>No. 60</td>
<td>3/16-in. x 1-15/64-in.</td>
<td>100 psi.</td>
<td>10 psi.</td>
<td>---</td>
<td>75 lb. per hr.</td>
</tr>
<tr>
<td>1803</td>
<td>SL-67</td>
<td>15X83</td>
<td>No. 56</td>
<td>1/4-in. x 1-3/8-in.</td>
<td>120 psi.</td>
<td>10 psi.</td>
<td>---</td>
<td>75 lb. per hr.</td>
</tr>
<tr>
<td>1804</td>
<td>SL-67</td>
<td>15X84</td>
<td>No. 55</td>
<td>1/4-in. x 1-3/8-in.</td>
<td>120 psi.</td>
<td>---</td>
<td>20</td>
<td>15</td>
</tr>
</tbody>
</table>

_Do not use oil on this apparatus. Oil and grease are easily ignited and burn violently in the presence of oxygen under pressure._

**CAUTION**

Powder cutting and scarfing should be done in well-ventilated locations due to the volume of fumes produced by these operations. The fumes are generally of low toxicity; however, they may be irritating to the operator's nose, throat and eyes unless controlled by ventilation or by use of respirators approved by the United States Bureau of Mines. If respirators are used, select those specified for the particular fumes encountered in your work.

Remember that in the powder cutting or scarfing of certain metals (chromium, lead, cadmium, beryllium), or where sand is being removed from castings, toxic fumes or dangerous sand dust may be evolved. Extra precautions against excessive exposure to these materials should be adopted. Air-supplied helmets or carzier masks approved by the Bureau of Mines for the particular material involved are recommended.