

TRAINING BULLETIN NO. 17
REVISED 6/66
PORTABLE CUTTING TORCHES

The portable oxy-acetylene cutting torch used by this Department will operate for approximately 15 minutes in normal usage and will cut metal up to 2 inches thick.

Welding goggles and gauntlet type gloves, provided with the unit, are to be used at all times while cutting. In addition to the member operating the torch, another member is to stand by with a suitable extinguisher, to protect the operator and watch for adjacent ignition. Do not cut in an area containing combustible gases or flammable liquids. Avoid inhalation of smoke released by cutting operation, particularly cadmium or lead plated material.

DO NOT USE OIL ON THIS APPARATUS. OIL AND GREASE ARE EASILY IGNITED AND BURN VIOLENTLY IN THE PRESENCE OF OXYGEN UNDER PRESSURE.

	<u>Normal Operating Pressure</u>		
<u>Metal</u>	<u>Oxygen Pressure</u>	<u>Acetylene Pressure</u>	<u>Working Time</u>
'0 - 1"	35 p.s.i.	7 p.s.i.	15 min.
1" - 2"	60 p.s.i.	7 p.s.i.	9 min.

OPERATING INSTRUCTIONS - REGULATORS, to Connect and Open

Open the cylinder valve slightly for an instant, and then close it. This "cracking" of the valve serves to blow away any dust or dirt which may have accumulated in the valve outlet. Never crack a cylinder valve near welding or cutting work, or near other possible sources of ignition.

All oxygen connections have right-hand threads.

Acetylene cylinder valves have right-hand threads for regulator connection, (true of small acetylene cylinders, type "C" and "B" -approximate dimension 4" x 14" and 6" x 20", respectively).

Acetylene hose connections at torch and regulator are left-hand thread.

Attach the regulator to the cylinder valve, and tighten the union nut securely with a wrench. .

Make sure the pressure-adjusting screw is released by turning the regulator handle to the left (counterclockwise) until it will turn no further.

CAUTION:- To avoid excessive discharge of acetone, unless absolutely necessary during emergencies, an acetylene cylinder should not be opened or used with the valve lower than the body of the cylinder.

Open the cylinder valve slowly a fraction of a turn. Watch the cylinder contents gauge pointer; when it stops moving, open the cylinder valve further:

- a) Open ACETYLENE cylinder valve 1 1/2 turns, no more.
- b) Open OXYGEN cylinder valve fully.

CAUTION: Never stand directly in front or back of regulator gauges when opening a cylinder valve.

Always leave the Key wrench in place on the valve of the acetylene cylinder when it is in use.

OPERATING INSTRUCTIONS - CUTTING

To adjust Gas Pressures:

Oxygen

Screw in the pressure-adjusting screw on the oxygen regulator until the desired delivery pressure is indicated on the delivery-pressure gauge. (If, when torch is lit and cutting-oxygen valve is held fully open, the desired pressure is not maintained, further adjustment may then be made.)

Acetylene

Screw in-the pressure-adjusting screw on the acetylene regulator until the desired pressure is indicated on the delivery-pressure gauge. (If, when the torch is lit, desired pressure is not maintained, further adjustment may then be made.)

Lighting:

1. Open the torch-oxygen valve ("B") FULLY. This valve must be kept FULLY OPEN. Partially closing this valve will affect the flow or cutting oxygen, causing a flashback and turn out the cutting oxygen valve.
2. Open the torch-acetylene valve ("D") 1/8 turn. Using a friction lighter, light the gas at the nozzle.
3. Open the preheat-oxygen valve ("C") a fraction of a turn. Adjust. preheat valve until flame is clean, with the inner cone sharp and to a point -- this is a "neutral" flame.

Open the cutting-oxygen valve ("A") (depress lever) and, if necessary, adjust flame.

NOTE: If the flame burns away from the end of the nozzle or blows off: (1) decrease the acetylene valve opening and immediately relight the cutting attachment; (2) adjust the preheat-oxygen valve to obtain a neutral flame.

Shutting Off:

Close the cutting-oxygen valve.

Close the torch-acetylene valve.

Close the preheat-oxygen valve.

Close the torch-oxygen valve.

CUTTING ATTACHMENT

NO PICTURE

OPERATING PRECAUTIONS

Backfire:

When the flame goes out with a sharp snap or pop; common causes are:

Incorrect operating pressures.

Touching the metal with the nozzle.

Loose-nozzle or dirt on the nozzle seat.

If a backfire occurs, close the preheat-oxygen valve and the torch acetylene valve. Relight after trouble has been located and corrected.

Flashback:

When the flame burns back inside the torch; usually with a shrill hissing or squealing.

If a flashback occurs:

Immediately close the preheat-oxygen valve.

Close the torch-acetylene valve.

After a moment, relight the torch. If flashbacks continue to occur, send the torch in for repair or replacement.

MAINTENANCE

On Apparatus:

The cutting torch assembly is to be carried on apparatus with the cylinders in a vertical position.

In Quarters:

Testing for leaks -- Using a soapy water solution, test hose connections, torch-oxygen and acetylene valve stems, and cutting attachment connections: In addition, on cutting attachment, test cutting-oxygen valve and preheat-oxygen valve. Always use a grease-free soap, such as Ivory brand.

Cylinders -- Always store spare acetylene cylinders in a vertical position. If stored in another position, the acetone solvent may be delivered to the torch when used, causing improper operation. Keep the cylinders clean and free from oil. A violent-explosion could occur if the oxygen came into contact with oil or grease. Keep packing nuts tight enough to avoid leakage.

Cutting torch-- Keep valve packing nut tight enough to avoid leakage. To clean the cutting tip and prevent clogging, use the tip cleaners provided -- #8 preheat hole, #22 cutting holes.