OSHA Training Toolbox Talk: Cutting, Welding, & Compressed Gas Safety – Using a Torch

[Reference: 1910.253 / 1926.350]

There are many ways to light an oxy-fuel torch. But, not all of them are safe. In fact, your greatest exposure to having a torch accidentally explode is when it is initially being lit. Before you use a torch for the first time, your supervisor must show you know the proper procedures to use a torch, and then evaluate you afterwards to ensure you are doing it the right way. Here is a general overview of commonly used steps to light and extinguish an oxy-fuel cutting torch.

• Before turning on the gas cylinders, make certain to turn the adjusting screws on both regulators counter-clockwise until they begin to feel loose. This prevents gas from flowing through the regulators at too high of a pressure before final adjustments are made at a later time.

• Next, make sure the pre-heat oxygen valve and the acetylene gas needle valve on the torch are closed so gasses do not flow through the torch unintentionally when the cylinders are turned on.

• While standing to the side (and never in front of) the regulators, slowly open the oxygen cylinder valve completely, then slowly open the acetylene valve no more than one-half of a turn.

• Fill and purge the hoses and torch by turning on, and then off, the oxygen valves on the torch; then, do the same with the fuel-gas needle valve.

• Next, open the oxygen valves on the torch, and turn the adjusting screw on the oxygen regulator clockwise until the reading on the pressure gauge reads 40 PSI maximum, unless your supervisor instructs you to use a different setting. Then, close the pre-heat oxygen valve on the torch.

• Then, open the acetylene needle valve on the torch, and adjust the regulator to read 3-5 PSI maximum on the fuel gas gauge by turning the adjusting screw on the fuel-gas regulator clockwise. Then, close the acetylene needle valve on the torch.

• To light the torch, slightly open the acetylene gas needle valve on the torch, then light the flame at the torch tip using a flint striker or other device approved for lighting a torch. NEVER use an open flame, cigarette lighter, welding rod, or other unapproved device to light a torch. Next, adjust the acetylene valve on the torch to bring the flame down to where it is almost touching the tip.

• Next, slowly open the oxygen pre-heat valve on the torch until the flame is feathered. Then, adjust both valves until the flame is burning properly.

• Look at the regulator pressure gauges to confirm the oxygen pressure is set to approximately 40 psi, and the acetylene pressure is set at 3 to 5 psi. If necessary, fine tune the working pressure readings for oxygen and acetylene by slowing turning the adjusting valves on the regulators.

• Once you are finished using the torch, first close the oxygen valve on the torch, followed by the acetylene valve. Then, once the flame is completely extinguished, turn off the cylinder valves. Next, purge the system by first opening the oxygen valve on torch to bleed off residual pressure, then closing the torch valve. Also, depress the cutting oxygen lever on the torch, where equipped. Repeat the procedure of turning on and then off the acetylene gas needle valve to bleed off residual fuel gas.

• Remember to keep the cylinder valves on the gas cylinders turned off when use of the torch is completed, as well as any time the equipment will not be used for an extended period of time. Same thing goes for when you need to move the gas cylinders to a different location.

Workers with no previous experience lighting and using a torch must do so only under the direct supervision of a qualified person until they are deemed competent to perform this task. Does anyone have a question about today's toolbox talk on the use of an oxy-fuel gas torch? Please sign the training certification form to ensure you get credit for attending today's training session.

Oxy-Acetylene Cutting Torch

Preheat Oxygen Valve

Cutting Oxygen Lever

Oxygen (OXY) Needle Valve

Acetylene (GAS) Needle Valve
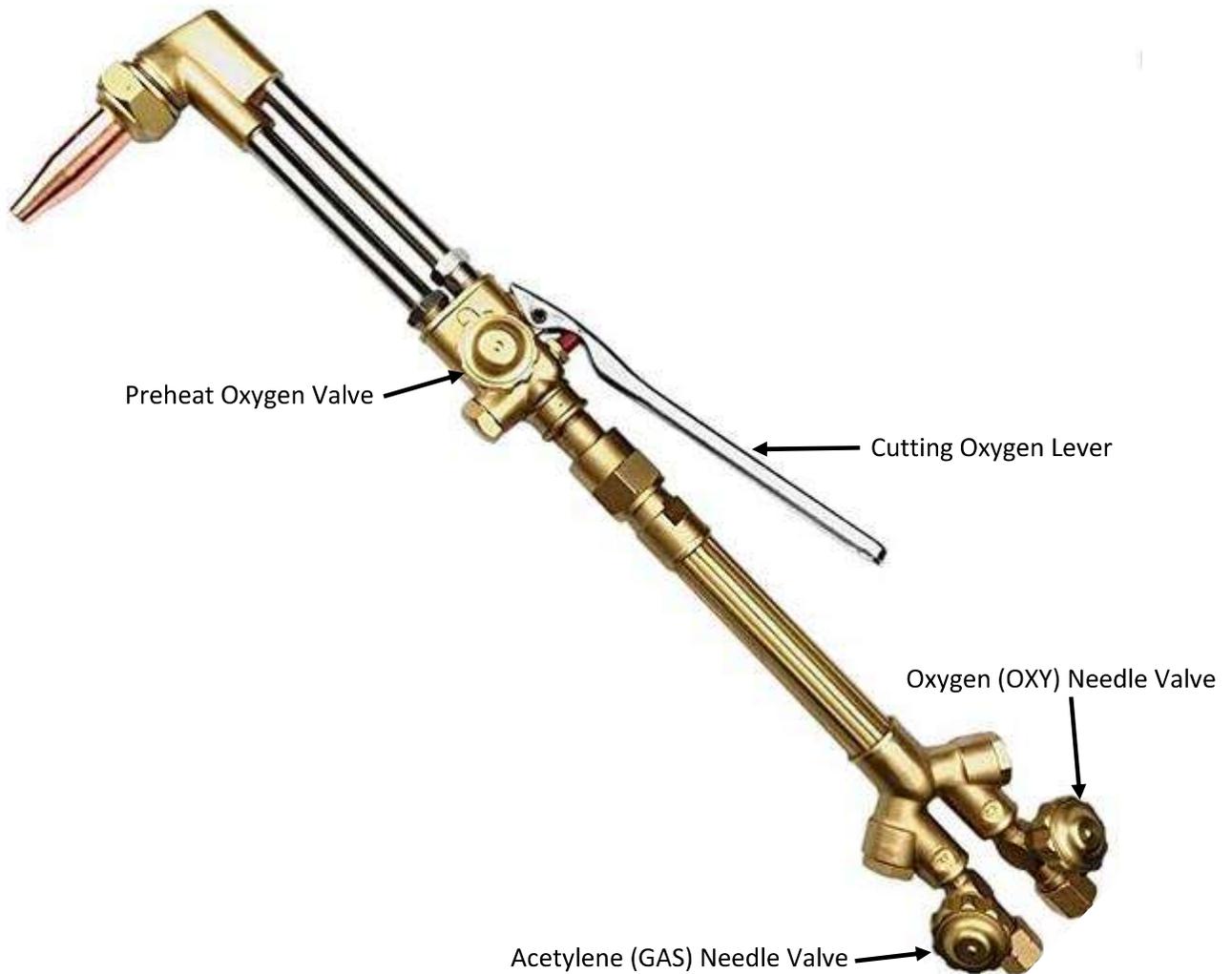
Note: This is a general representation of an oxy-acetylene cutting torch. Some equipment may vary.