Study Guide for Oxyacetylene Setup

1. Follow manufacturer instructions and teacher demonstrations to install gauges, check valves, hoses, and blow pipes (Cracking Valves and Testing for Leaks).
   a. Acetylene is left-handed threads and Oxygen is right-handed threads.
   b. Acetylene uses red markings and hoses and Oxygen uses green markings and hoses.
   c. Acetylene fittings have notches and Oxygen fittings do NOT have notches.
   d. Acetylene is unstable at pressures that exceed 15 PSI, so the working pressure regulator gauge red lines at 15 PSI (Pounds per Square Inch).
   e. The Acetylene tank is not hollow. It is packed with a substance that keeps acetylene from becoming unstable. The tank gauge will register pressures up to 200 PSI (full). (Danger=Highly Explosive)
   f. The oxygen tank can hold as much as 2000 PSI (full). If the tank valve breaks on the Oxygen cylinder, it will take off like a rocket. (Example: The movie Gone in 60 Seconds)
   g. Oxygen, Acetylene, Argon, and Argon/02 tanks must be chained at all times, while the protector cap is removed.

2. Select welding tip according to need.

3. Check O-rings.

4. All acetylene welding and cutting tips and welding nozzles of welding machines must be cleaned with cleaners and polished with Scotch-Brite, every time they are used. (DO NOT INSTALL TIP YET)

5. Turn regulator adjusting knob counter-clockwise, until it is almost loose.

6. Stand to the side, and SLOWLY open the OXYGEN TANK VALVE (turn Counter-clockwise). If the hose press registers above 25 PSI, shut it off immediately and proceed with this step (a) and (b).
   a. Bleed the system until the pressure is just below 25 PSI and STOP.
   b. Go back to step 5.

If the tank pressure stays below 25 PSI, open the oxygen tank valve all the way and go to step 7 NOW:

7. Turn on blowpipe oxygen valve and turn the oxygen regulator knob clockwise until you can hear oxygen flow through the blowpipe. (This will blow out dust and lint.) Shut off the blowpipe.

8. Turn the acetylene regulator adjusting screw counter clockwise until it is almost loose.

9. Slowly open acetylene tank valve (counter clockwise). If the hose pressure exceeds 10 PSI, shut if off immediately and proceed with this step (a) and (b).
   a. Open acetylene blowpipe valve until acetylene hose pressure is just less than 10 PSI, and STOP.
b. Go back to step 8

If hose pressure stays below or at 10 PSI, open acetylene tank valve until it is open one full turn. **DO NOT** open the acetylene tank valve more than one turn. Proceed to step 10 NOW.

10. Insert the welding tip into the blowpipe, turning it clockwise until it seats. Then, continue turning it clockwise until it is aligned with the blowpipe valves. Tighten the hex sleeve.

11. Open acetylene valve on the blowpipe. Turn the acetylene regulator screw **QUICKLY**, until the acetylene hose pressure gauge reads almost 10 PSI. Close blowpipe valve **QUICKLY**, so that you do not allow too much acetylene gas to escape into the room.

12. Open oxygen valve on the blowpipe. Turn the Oxygen regulator screw **QUICKLY**, until the oxygen hose pressure gauge reads almost 25 PSI. Close the blowpipe valve **QUICKLY**, so that you do not allow too much oxygen to escape into the room.

13. Put on your goggles, gloves, apron.

14. Check the striker flint.

15. Open the acetylene blowpipe valve **slightly**, and light the torch.

16. Adjust acetylene blowpipe valve until the primary and secondary combustion is correct.

17. Open the oxygen blowpipe valve **slowly**, until you achieve a neutral **flame**.

18. To shut off the torch, **close** the acetylene blowpipe valve **first**. The flame should blow out. Then, close the oxygen blowpipe valve. **NEVER** close the oxygen valve first. If you make that mistake, the flame will not blow out. If you try to shut off the acetylene without oxygen, the flame could burn back into the blowpipe. Simply turn the oxygen valve back on and do it right.

19. To bleed the hoses, close both tank valves. Then, open the acetylene blowpipe valve until the acetylene gauges read zero (0). Repeat the process for oxygen system. **BLEED THE ACETYLENE FIRST**, so the oxygen will blow the acetylene out of the system.
Oxy-Acetylene Welder Notes

Requirements:

Proper eye protection must be worn—operate only with instructor’s permission and after proper instructions have been received.

1. Be sure cylinders are fastened with a chain as a protection against falling or rolling.
2. Always close the cylinder valve and replace protective cover before moving the cylinder.
3. Keep welding equipment free of oil and grease.
4. Protective googles and spark-resistant clothing must be worn when welding.
5. Make sure that hoses are properly connected and all connections are tight.
6. Keep all flammable material away from working area.
7. Do not weld or cut on a closed container without instructor’s approval.
8. The acetylene must never exceed 15-psi outlet pressure.
9. Only use a friction torch lighter to ignite the torch.
10. Close the acetylene valve first if the torch backfires.
12. The exhaust system must be turned on prior to igniting the torch.