

Title of Training	Gas Cutting Torch	
Equipment Info.	Make/Type/Size/Model	
Material Needed	Operators Manual	Leather Gloves, # 5 Goggles & Face Shield, Hearing Protection, Leather Jacket/Sleeves or Apron. Fire watch same shaded lens.
	Designated Area to hook up and attached Regulator, Fuel Gas & Oxygen hoses. Cutting optional	

OPERATION

BEFORE CONNECTING THE REGULATOR TO A COMPRESSED GAS CYLINDER, THE CYLINDER VALVE SHOULD BE OPENED SLIGHTLY AND CLOSED IMMEDIATELY. (THIS ACTION IS GENERALLY TERMED "CRACKING" AND IS INTENDED TO CLEAR THE VALVE OF DUST OR DIRT THAT MIGHT OTHERWISE ENTER THE REGULATOR). THE PERSON CRACKING THE VALVE SHALL STAND TO ONE SIDE OF THE OUTLET, NOT IN FRONT OF IT. THE VALVE OF A FUEL GAS CYLINDER SHALL NOT BE CRACKED WHERE THE GAS WOULD REACH WELDING WORK, SPARKS, FLAME, OR OTHER POSSIBLE SOURCES OF IGNITION.



- THE CYLINDER VALVE SHALL ALWAYS BE OPENED SLOWLY TO PREVENT DAMAGE TO THE REGULATOR. FOR QUICK CLOSING, VALVES ON FUEL GAS CYLINDERS **SHALL NOT BE OPENED MORE THAN 1 ½ TURNS**. WHEN A SPECIAL WRENCH IS REQUIRED, IT SHALL BE LEFT IN POSITION ON THE STEM OF THE VALVE WHILE THE CYLINDER IS IN USE SO THAT THE FUEL GAS FLOW CAN BE SHUT OFF QUICKLY IN CASE OF AN EMERGENCY. IN CASE OF MANIFOLD OR COUPLED CYLINDERS, AT LEAST ONE SUCH WRENCH SHALL ALWAYS BE AVAILABLE FOR IMMEDIATE USE. NOTHING SHALL BE PLACED ON TOP OF A FUEL GAS CYLINDER, WHEN IN USE, WHICH MAY DAMAGE THE SAFETY DEVICE OR INTERFERES WITH THE QUICK CLOSE OF THE VALVE.
- COMPRESSED GAS SHALL NOT BE USED FROM CYLINDERS THROUGH TORCHES OR OTHER DEVICES WHICH ARE EQUIPPED WITH SHUTOFF VALVES WITHOUT REDUCING THE PRESSURE THROUGH A SUITABLE REGULATOR ATTACHED TO THE CYLINDER VALVE OR MANIFOLD. **FLASHBACK ARRESTORS MUST BE USED.**
- **BEFORE A REGULATOR IS REMOVED FROM A CYLINDER VALVE, THE CYLINDER VALVE SHALL ALWAYS BE CLOSED AND THE GAS RELEASED FROM THE REGULATOR.**
- IF, WHEN THE VALVE ON A COMPRESSED GAS CYLINDER IS OPENED, THERE IS FOUND TO BE A LEAK AROUND THE VALVE STEM, THE VALVE SHALL BE CLOSED AND THE GLAND NUT TIGHTENED. IF THIS DOES NOT STOP THE LEAK, THE USE OF THE CYLINDER SHALL BE DISCONTINUED, AND IT SHALL BE PROPERLY TAGGED AND REMOVED FROM THE WORK AREA. IN THE EVENT THAT COMPRESSED GAS SHOULD LEAK FROM THE CYLINDER

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VALVE, RATHER THAN FROM THE VALVE STEM, AND THE GAS CANNOT BE SHUT OFF THE CYLINDER SHALL BE PROPERLY TAGGED AND REMOVED FROM THE WORK AREA. IF THE REGULATOR ATTACHED TO A CYLINDER VALVE WILL EFFECTIVELY STOP A LEAK THROUGH THE VALVE SEAT, THE CYLINDER NEED NOT BE REMOVED FROM THE WORK AREA.

- **THE FUEL GAS HOSE AND THE OXYGEN HOSE ARE EASILY DISTINGUISHABLE FROM EACH OTHER. THE FUEL GAS HOSE IS RED AND THE OXYGEN HOSE IS GREEN.** OXYGEN AND FUEL GAS HOSES SHALL NOT BE INTERCHANGEABLE. FUEL GAS HOSE HAS A LEFT HAND THREAD AND THE OXYGEN HOSE HAS A RIGHT HAND THREAD.
 - WHEN PARALLEL SECTIONS OF OXYGEN AND FUEL GAS ARE TAPED TOGETHER, NOT MORE THAN 4 INCHES SHALL BE COVERED BY TAPE.
 - YOU MUST THOROUGHLY INSPECT THE HOSES AND TORCH PRIOR TO USE. CHECK FOR LEAKING SHUT OFF VALVES, HOSE COUPLINGS
 - AND TIP CONNECTIONS. CLOGGED TIP OPENINGS SHALL BE CLEANED WITH SUITABLE CLEANING WIRES.
- 8.NEVER USE OIL ON OXYGEN CYLINDER OR REGULATOR.
 - TORCHES SHALL BE LIGHTED BY FRICTION LIGHTERS AND NOT BY MATCHES OR FROMHOT WORK
 - FOR LIGHT CUTTING UP TO 1” A SHADE OF 3 TO 4 IS RECOMMENDED
 - FOR MEDIUM CUTTING 1 INCH TO 6 INCHES A SHAD OF 4 OR 5 IS RECOMMENDED.

CUTTING TORCH SAFETY

- ✚ Employees will be properly and thoroughly trained before attempting to do any work with or on any Cutting Torch.
- ✚ Before igniting the flame of a torch:
- ✚ Open the oxygen valve on the torch.
- ✚ Wait until all air has been discharged from the oxygen hose and torch.
- ✚ Close the valve.
- ✚ Open the fuel gas valve on the torch handle.
- ✚ Wait until all air has been discharged from the fuel gas hose and torch

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- ✚ Then light the fuel gas and open the oxygen valve on the torch handle. Adjust the oxygen to produce the required flame for the job.
- ✚ Light torches with friction lighters or other suitable lighters and not matches. Point the tip away from people.
- ✚ Never put down a torch until the gases have been completely shut off.
- ✚ Never open or turn the pressure adjusting screws on the regulators all the way out. Always adjust flames at torch valves, not with regulator adjusting screws.
- ✚ ALWAYS use fuel gases at safe pressures. Many gauges permit higher, unsafe pressures. If you find a gauge that permits unsafe pressures, take it out of service immediately.
- ✚ Oxygen is not a fuel and will not burn, but contact with it can cause combustible materials such as oil and grease to burn rapidly at room temperature. Therefore, keep oxygen away from grease or oil on surfaces such as gloves, clothes, cylinders, valves, couplings, regulators, and hoses. Do not use oxygen instead of compressed air in pneumatic tools, in oil preheating burners, to start internal combustion, to blow out pipelines, to dust clothing or work, or to create pressure for ventilation.
- ✚ Oxygen and fuel gas hoses must be different in color (green for oxygen and red for fuel gas) or otherwise identified.
- ✚ Inspect hoses and connections every day for leaks. Look for holes, cracks, and loose cylinder fittings or track connectors. To check for leaks: close the oxygen and fuel gas torch valves, then turn the regulator pressure adjusting screws clockwise to give normal working pressure on oxygen valves and about 10 PSIG on fuel gas valves. Use non-fat soapy water or approved leak test solution to test for leaks. At the same time, check regulators for creeping.
- ✚ If a torch backfires frequently, inspect it and clean the tip. If it continues to backfire or you find other problems, remove it from service immediately. Take it to a qualified technician for repair.
- ✚ Do not use steel wire or similar materials to clean tip orifices.
- ✚ "Flashback" occurs when a flame burns back inside a torch, tip, hose, or regulator and can cause a fire or explosion if it reaches the cylinder. Flashbacks usually make high-pitched squealing or hissing sounds. Flashback arrestors at torch handles and check valves at gas sources help prevent flashbacks.

In case of flashback:

- ✚ Close the oxygen valve at once.
- ✚ Close the fuel valve.

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- ✚ Let the torch cool off.
- ✚ Have the torch repaired or replaced.
- ✚ Wear PERSONAL PROTECTIVE EQUIPMENT as required to include tinted eye protection, gloves, etc.

TRANSPORTING, MOVING AND STORING COMPRESSED GAS CYLINDERS.

1. VALVE PROTECTION CAPS SHALL BE IN PLACE AND SECURED.
 2. WHEN CYLINDERS ARE HOISTED, THEY SHALL BE SECURED ON A CRADLE, SLING BOARD, OR PALLET. THEY SHALL NOT BE HOISTED OR TRANSPORTED BY MEANS OF MAGNETS OR CHOKER SLINGS.
 3. CYLINDERS SHALL BE MOVED BY TILTING AND ROLLING THEM ON THEIR BOTTOM EDGES. THEY SHALL NOT BE INTENTIONALLY DROPPED, STRUCK, OR PERMITTED TO STRIKE EACH OTHER VIOLENTLY.
 4. WHEN POWERED VEHICLES TRANSPORT CYLINDERS, THEY SHALL BE SECURED IN A VERTICAL POSITION.
 5. VALVE PROTECTIONS CAPS SHALL NOT BE USED FOR LIFTING CYLINDERS FROM ONE VERTICAL POSITION TO ANOTHER.
 6. UNLESS CYLINDERS ARE FIRMLY SECURED ON A SPECIAL CARRIER INTENDED FOR THIS PURPOSE, REGULATORS SHALL BE REMOVED AND VALVE PROTECTION CAPS PUT IN PLACE BEFORE CYLINDERS ARE MOVED.
 7. A SUITABLE CYLINDER TRUCK, CHAIN, OR OTHER STEADYING DEVICE SHALL BE USED TO KEEP CYLINDERS FROM BEING KNOCKED OVER WHILE IN USE.
 8. PLACING CYLINDERS, CYLINDERS SHALL BE KEPT FAR ENOUGH AWAY FROM THE ACTUAL CUTTING OPERATION SO THAT SPARKS, HOT SLAG, OR FLAME WILL NOT REACH THEM. WHEN THIS IS IMPRACTICAL, FIRE RESISTANT SHIELDS SHALL BE PROVIDED.
 9. CYLINDERS CONTAINING OXYGEN OR ACETYLENE OR OTHER FUEL GAS SHALL NOT BE TAKEN INTO CONFINED SPACES.

This Safety Training Topic (STT) does not necessarily cover all possible hazards associated with this equipment and should be used in conjunction with equipment manual. It is designed as a guide to be used to compliment training in the field at Brieser Construction and as a reminder to users prior to equipment use.

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