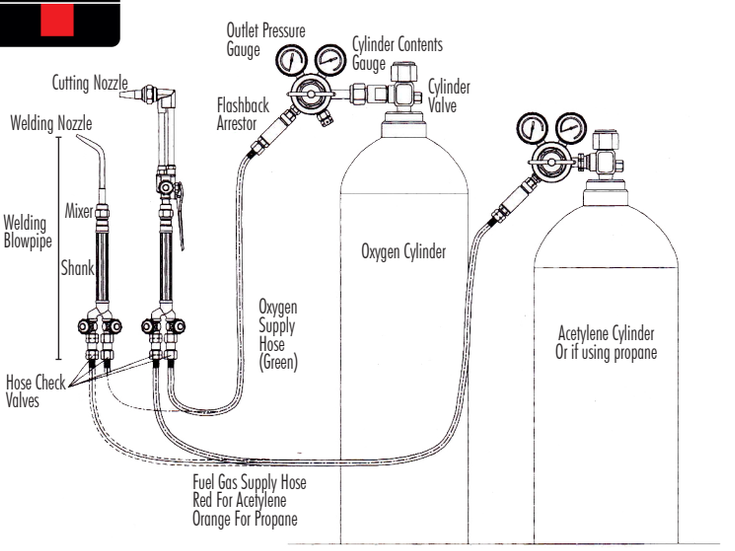
READ ALL INSTRUCTIONS BEFORE USE



TERMINOLOGY

Snifting: -The practice of opening and closing cylinder valves quickly to remove debris before fitting regulators.
Cutter: -A piece of equipment that facilitates the mixing and control of the gases to perform a welding or cutting operation.
Regulator: -A device fitted to the cylinder outlet to reduce the cylinder pressure to that required by the cutter.
Hose Assemblies: -Used to connect the regulator to the cutter. Hoses are color coded to match the gas type.
Non Return Valve: -A valve that prevents reverse gas flow(Hose check valve).
Flashback Arrester: -Quenches a flame front and prevents it from reaching the Cylinder.
Pressure Relief Valve: -Vents excess pressure from the regulator when the system pressure exceeds a predetermined level.
Backfire: -Return of the flame into the cutter, usually accompanied by a hissing sound or a bang.

Important safeguards

When using Oxy-Fuel Gas Torches, basic safety precautions should always be followed:

a) Never use Acetylene gas at a pressure over 15 PSI.
b) Never use damaged equipment.
c) Never use oil or grease on or around Oxygen equipment.
d) Never use Oxygen or fuel gas to blow dirt or dust off clothing or equipment.
e) Never light a torch with matches or lighter. Always use a striker.
f) Always wear the proper welding goggles, gloves and clothing when operating Oxy-acetylene equipment. Pants should not have cuffs.
g) Do not carry lighters, matches or other flammable objects in pockets when welding or cutting.
h) Always be aware of others around you when using a torch.
i) Be careful not to let welding hoses come into contact with flame or sparks from cutting.
j) SAVE THESE INSTRUCTIONS.

CONNECTION OF THE SYSTEM

- Check to make sure the cylinder valves are clean and the threads are in good condition. Snift the valve to remove debris from the valve seat. (Never snift Hydrogen cylinders).
- Connect the pressure regulator to the cylinder, ensure the regulator is the correct type for the gas and cylinder pressure .
- Ensure the regulator knob is fully unscrewed.
- Connect the flashback arrester to the outlet of the regulator.
- For hoses greater than 6.3mm bore or longer than 3m, the following is recommended:
  Non-return valves fitted to the blowpipe ends of the hose and a flash back arrester connected to the regulator outlet that has the following functions: -Flame arrester, Temperature activated cut-off, Pressure activated cut off.
- Connect the gas hoses to the flashback arrester outlet, ensure the non return valve is fitted to the blowpipe end of the hose, connect the blowpipe to the hose connections and fit the correct nozzle and mixer (welding/heating) and ensure all control valves are closed.
- Slowly open each cylinder valve (only open acetylene cylinder valves 1 turn) and adjust the regulator to the correct operating pressure for the operation (turn clockwise to increase pressure).
  Never stand in front of the regulator when opening the Cylinder valve.
- Check the system for leaks using a suitable leak detection fluid. Recheck the pressures with the gas flowing.
- Purge each hose to ensure the hoses and blowpipe are primed with gas. Ensure this is conducted in a well-ventilated place away from sources of ignition. Purging should be carried out after each.

OPERATING PROCEDURES-BLOWPIPE

Lighting up

- Check all valves on the blowpipe to make sure they are closed.
- Open the fuel gas knob and light the gas using a spark lighter, adjust the gas flow until the flame stops smoking.
- Open the Oxygen valve and adjust the flame to a neutral condition.
- Press the cutting lever and adjust the flame as necessary.

Shutting down

- Close the fuel gas control valve on the blowpipe.
- Close the oxygen gas control valve on the blowpipe.
- Close both cylinder valves.
- Reopen the control valves on the blowpipe to vent the gas in the system.
- Unscrew the pressure adjusting knobs on the regulators, and when the system is fully relieved of pressure, close the gas control knobs on the blowpipe.

TORCH HANDLE WITH WELDING OR HEATING NOZZLE

Lighting up

- Check all valves on the blowpipe to make sure they are closed.
- Open the fuel gas knob and light the gas using a spark lighter, adjust the gas flow until the flame ceases to smoke.
- Open the Oxygen valve and adjust the flame to a neutral condition.

Note some operations may require a different flame configuration as detailed in Figure 1.

Shutting down

- Close the fuel gas control valve on the blowpipe.
- Close the oxygen gas control valve on the blowpipe.
- Close both cylinder valves.
- Reopen the control valves on the blowpipe to vent the gas in the system.
- Unscrew the pressure adjusting knobs on the regulators and when the system is fully relieved of pressure, close the gas control knobs on the blowpipe.

TORCH HANDLE WITH CUTTING ATTACHMENT AND NOZZLE

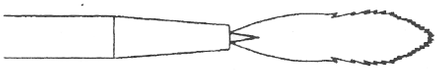
Lighting up

- Check all valves on the blowpipe to make sure they are closed.
- Open the fuel gas knob and light the gas using a spark lighter, adjust the gas flow until the flame ceases to smoke.
- Open the Oxygen valve on the shank fully, and adjust the flame to a neutral condition using the oxygen valve on the cutting attachment.
- Press the cutting lever and readjust the flame Accordingly.

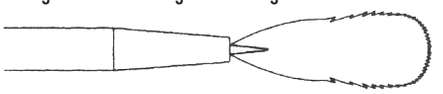
Shutting down

- Close the fuel gas control valve on the blowpipe.
- Close the oxygen gas control valve on the blowpipe.
- Close both cylinder valves.

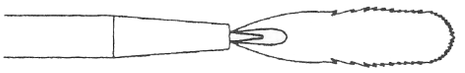
FIGURE 1: FLAME TYPES



Oxidizing flame: -Sharp center cone,
roaring flame for Brazing and welding brass



Neutral flame: -Rounded center cone, for welding and heating.



Carbonizing flame: -Double center cone, for hard facing.

Flash Back Arresters

- Ensure the flash back arrester is fitted in the direction of gas flow arrow on the unit.
- Ensure the flash back arrester is the correct type for the gas in use.

TROUBLE SHOOTING

- Torch Bangs or snaps out during ignition:
  A-Ensure hoses are purged correctly.
  B-Increase fuel gas flow before lighting
  C-Check torch for leaks
  D-Check that nozzle is properly seated
  E-Ensure sufficient flow of Acetylene for the nozzle size in use
- Torch bangs or snaps during use:
  A-Check to make sure gas flow and pressure are correct for the nozzle size.
  B-Check to make sure the nozzle is not blocked, clean with nozzle cleaners
  C-Replace nozzle
- Torch bangs when switching off: Ensure the fuel gas supply is switched off first

MAINTENANCE

Daily

Check the condition of all equipment; checking for damage, especially hose sets

Weekly

Pressure test the system and check the system for leaks using a 0.5% Teepol detergent solution in water (or other oil free leak detection fluid)

WELDING NOZZLE FLOW DATA

Metal Thickness	Tip Size	Drill Size	Oxygen Pressure (PSIG)		Acetylene Pressure (PSIG)		Acetylene Consumption (SCFH)	
			Min.	Max.	Min.	Max.	Min.	Max.
1/32-5/64"	0	65(.035)	3	5	3	5	2	4
1/16-1/8"	2	56(.045)	3	5	3	5	5	10
1/8-3/16"	3	VH53(.060)	4	7	3	6	6	18
3/16-1/4"	4	49(.073)	5	10	4	7	10	25
1/4-1/2"	5	VH43(.089)	6	12	5	8	15	35

TYPE MFA HEATING NOZZLES

Tip Size	Acetylene Pressure Range PSIG	Oxygen Pressure Rance PSIG	Acetylene Cubic Feet per hour		Oxygen Cubic Feet per hour	
			Min.	Max.	Min.	Max.
8	10-15	20-30	30	80	33	88
Tip size and pressure may vary according to operator choice						

TYPE 1-101, 3-101 (Oxy-Acetylene)

Metal Thickness	Tip Size	Cutting Oxygen		Pre-heat Oxygen* PSIG	Acetylene		Speed IPM	Kerf Width
		Pressure** PSIG	Flow** SCFH		Pressure PSIG	Flow SCFH		
3/4"	1	30-35	80-85	4-7	3-5	8-13	15-20	.07
Tip size and pressure may vary according to operator choice								

TYPE GPN. (1-1-GPN)

Metal Thickness	Tip Size	Cutting Oxygen		Preheat Fuel Gas		Speed IPM	Kerf Width
		Pressure** PSIG	Flow** SCFH	Pressure PSIG	Flow SCFH		
3/4"	1	30-35	70-80	4-6	10-12	15-20	.08
Tip size and pressure may vary according to operator choice							