

SUPACUT

Oxy-Gasoline/Petrol Cutting System

INITIAL STARTUP

and

GENERAL OPERATION GUIDE

STARTUP:

1. Select the appropriate model cutting torch and cutting nozzle and **connect the fuel and oxygen hoses to the torch, fuel tank and Oxygen cylinder** as per manual instructions.
2. Check BOTH Oxygen and Gasoline/petrol/Gasoline valves and controls are in the CLOSED/OFF position.
3. Fill the explosion proof fuel tank with clean REGULAR grade gasoline/petrol, replace and close the tank cap.
4. **IF** this is the very first use the tank will now be full of fuel but the fuel hose will be empty and will require a simple initial priming process.
5. To prime the fuel line firstly **turn on the OXYGEN SUPPLY tank** and adjust the Regulator pressure to between 10 and 40psi (varies depending on size of tip in use). This pressure may need to be increased when using larger torches and tips to cut thicker material (Consult full user manual).
6. While the oxygen **supply** is left on open the fuel tank cap $\frac{1}{4}$ to $\frac{1}{2}$ a turn and LEAVE as slightly open position. This is to prevent a vacuum forming in the fuel tank when the torch is in use.
7. Now **open the Petrol Tank fuel outlet valve**.
8. Next **while elevating the cutting torch** (3-6ft or 1.5-1.8m so the nozzle is above waist height) open the **torch preheating/Oxygen control valve** and let the oxygen flow while **NEXT** opening **the torch fuel control valve**. During an initial startup no fuel will initially exit the tip but the flow of Oxygen will soon draw the fuel to the torch and a fuel mist will begin to spray from the torch tip and liquid fuel may even drip from the nozzle.
9. Once fuel sprays from the torch tip promptly turn off **TORCH fuel valve** then the **TORCH oxygen valve**. The oxygen line should now be purged of AIR and the fuel line should now be full of fuel and "Ready For Use"
10. Before continuing it is good work practice to check the tank, hoses, torch etc for any oxygen or fuel leaks.
11. If everything is OK the torch is now ready to be ignited.
12. To ignite the torch **FIRST** slowly turn on preheating/**oxygen** control valve. Yes **OXYGEN FIRST**
13. **SECONDLY** turn on Gasoline/petrol control valve and then ignite the oxy/gasoline/petrol mist with an igniter. Note: If a spark igniter is used ignition can be a little difficult as liquid gasoline/petrol wont burn ! Gasoline/petrol needs to vaporise to ignite so if your source of ignition is too close to the nozzle and the gasoline/petrol is still liquid you cant light it... Try a little further away. (A naked flame can be easier to achieve ignition than spark igniters – BBQ flame gas lighter is quite good or pocket size mini butane torch or similar flame lighters)

14. Once lit.... for correct operation the cutting nozzle needs to be heated to a minimum of around 120-140F - 50-60°C so the gasoline/petrol instantly vaporises on exiting the tip. To preheat the tip, adjust the controls for a small flame (**increase the fuel flow, reduce the preheating oxygen**) and maintain a small flame for 5-10 seconds depending on the tip size. IF the tip is not hot enough OR the gasoline/petrol flow is too great some fuel may actually drip from the tip (even while the torch is ignited) Remember LIQUID gasoline/petrol wont burn...only the vapour will. Reduce fuel flow to allow adequate heating. (A tips full operating temperature is 750-930F or 400-500°C)
15. Once the tip has been preheated further open the oxygen valve to increase the flame cone size to about 3-5mm (or larger on larger torches and tips) and if the flame appears reddish.... reduce the Gasoline/petrol flow until the red flame disappears. Now the flame cone should be bright state. If not 'bright', you should slightly open the Gasoline/petrol control valve base until the flame cone brightness is at maximum brightness but before it turns reddish colour. The flame should now be long and have stable combustion. (Greater details in manual)
16. To cut... first preheat the start point of the work piece to the steel melting temperature then depress the torch cutting oxygen valve lever to ignite the steel and begin cutting.

SHUTDOWN:

- After finishing cutting **first close the torch gasoline/petrol valve** until the flame is completely extinguished and then close torch oxygen valve and the oxygen cylinder valve.
- Once finished the system can be left "as is" or in a "Ready For Use" state so repriming is then not typically necessary to restart the torch and its simply a matter of turning on the oxygen and then fuel, igniting the fuel/oxygen mixture.
- However **IF** the torch is not to be used again for some time it is recommended the operator drain the gasoline/petrol in the fuel hose back to the tank, turn off the fuel outlet valve, close the filling cap vent and oxygen cylinder valve, remove the oxygen regulator and cutting torch. Clean all items before storing ready for future use.

SAFETY:

- Use the cutting/heating system with the appropriate care due to a precision piece of equipment ensuring it is kept clean and free of any damage. Protect the fuel tank from damage and ensure the workplace is kept clear and free of potential operating hazards.
- Any high temperature cutting operation using an open flame should ALWAYS be used with great care paying careful attention to safety issues related to a potentially hazardous working environment.
- An open flame cutting/heating system MUST only be used in a well ventilated area and NEVER in close proximity to oxygen cylinders, gasoline/petrol tanks or any flammable material. (Preferably at least 10 meters away).
- Pay careful attention that the torch, gasoline/petrol hose and oxygen hose are kept clean, free of grease or oil or grease in order to prevent oil-oxygen reaction, fire or explosion. Ensure hoses are protected from contact by melting or burning steel, heavy or sharp objects etc .
- Never pull on the Gasoline/petrol hose and oxygen hose. Should there be any signs of cracking, softening or hardening the hose should be immediately repaired or replaced.
- NEVER heat or damage the Gasoline/petrol tank in any way.

- The Gasoline/petrol supply must be clean regular Gasoline/petrol. (to prevent risk of fuel line or nozzle blockage).
- The torch cutting nozzle fitting surface should be protected from any damage to prevent a poor seal possibly causing a leak so affecting safe operation.
- NEVER place a burning torch on the work piece or the ground.
- NEVER block the cutting nozzle with anything so as to avoid oxygen reverse flow into the Gasoline/petrol supply system, resulting in air resistance or dangerous incidents.

TIP CHART (Typical Performance)

Cutting nozzle No.	Cutting Oxygen Aperture (mm)	Oxygen Pressure (Mpa)	Cutting thickness (mm)	Cutting Speed (mm/min)	Oxygen consumption (m ³ /h)	Petrol/Gasoline consumption (L/hour)
30-1#	0.7	0.2-0.3	3-10	600-400	0.8-1.0	0.44-0.88
30-2#	0.9	0.3-0.4	10-20	400-300	1.2-1.4	0.55-0.99
30-3#	1.1	0.4-0.5	20-30	300-240	1.6-2.2	0.88-1.21
100-1#	1.0	0.3-0.4	10-25	300-240	1.4-2.2	0.77-1.10
100-2#	1.3	0.4-0.5	30-50	210-170	2.4-4.0	0.99-1.32
100-3#	1.6	0.5-0.6	50-100	180-140	5.0-7.0	1.10-1.76
300-1#	1.8	0.5-0.6	100-150	160-120	8-10	1.54-1.87
300-2#	2.2	0.6-0.7	150-200	130-110	11-14	1.65-1.98
300-3#	2.6	0.8-0.9	200-250	110-90	14-18	1.76-2.20
300-4#	3.0	1.0-1.1	250-300	100-80	18-32	1.87-2.53

(TIPS are marked on their sides)

100 Series torch can use 30-1# thru 100-3# tips (May require adapter nut for 30 series tips)

300 Series torch can use 100-1# thru 300-4# tips (May require adapter nut for 100 series tips)