CONCOA®
CERTIFIED ISO 9000

Universal Heating Tips Style 760/860

Safety
Install pressure regulators on cylinders (or pipeline branch). Read and follow procedures in CONCOA manual "Safe Practices in Welding & Cutting," ADE 872, and torch and regulator instruction manuals.

Fuel Gas Supply
Proper operation requires ample fuel and pressure. Be sure available pressure is slightly higher than shown in operating manual. To provide adequate gas flows, use:
- Manifolds for cylinders where required.
- Regulators that provide required flow capacity.
- Hose size as recommended in operating manual.
- Minimum hose lengths with minimum couplings. Use RMA-CGA Grade T Hose for fuel gas (including acetylene) to prevent hose failure. Grades R and RM are for use with acetylene only.
- Fittings (and check valves) with minimum flow passage diameter of 1/4 in. for B size.

Ignition Procedure
1. Avoid ignition delays. Ensure sparklighter is in good working order.
2. Ignite with average fuel flow --- NO oxygen.
3. Increase fuel flow substantially.
4. Carefully start oxygen flow and increase until flame goes from strongly carburizing to slightly carburizing.
5. For large tips, alternately repeat steps 3 and 4 until full flowrate is reached.
6. Trim flame to proper ratio by appearance (see guide for fuel being used).

To Prevent Tip Burnout
Keep the tip cool by using prescribed flowrates. Reducing flowrates or allowing flames to backwash over tip (by blind hole, etc.) will raise temperature. Severe back wash will burn tip.

Check Valves
Prevent the reverse flow of mixed gases, by using check valves on either regulator or torch, depending upon type of work and fuel gas in use. Regulator Check Valve 'B' size: 830-4199 (Oxy), 830-4200 (Fuel) Torch Check Valves 'B' size: 831-4146 (Oxy), 831-4138 (Fuel).

Flashback Arrestors
For maximum safety, use either regulator or torch mounted flashback arrestors, depending upon type of work and fuel gas in use.

WARNING

A flashback (oxygen-fuel mixture burning inside extension tube) can cause a severe burn hazard. To avoid injury in case of flashback, immediately close oxygen and (without delay) fuel valves tightly to extinguish flame. Do not touch mixer, extension tube or tip until they are cool.

For Efficient Low Cost Heating
1. Use proper size tip. A tip too small takes excessive time to reach desired temperature. A tip too large wastes fuel and oxygen without substantially reducing heating time. Make trial heats with different tips, comparing fuel consumption (CFH x elapsed time) to determine most economical tip.
2. Use the flowrate recommended in this guide. This rate gives the most efficient flame velocity, an important factor in transferring heat to the work. If heat is too small or too great, do not change flowrate, change to smaller or larger tip.

Visually Adjusting Flame
Experienced operators making frequent tip changes can take advantage of this simple method. See the recommended gas pressures and light torch as outlined above. When torch valves are wide open (1½ to 2 turns), alternately increase gas pressures on regulators until flame cone is of recommended length and ratio.

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Adjusting With Test Gauges

Install test gauges between hose and torch valves. Adjust delivery pressures as recommended in guide. Follow ignition procedure steps 1-4 and adjust delivery pressures while observing test gauges until recommended levels are reached.

NOTE: The regulator gauge will always show a higher pressure than the test gauges because of loss, or drag, in the hoses. A large disparity results from too small a diameter, too long a hose or old hose with too many splices.

Make final ratio adjustment while keeping recommended flame cone length and record regulator delivery pressures for future use. After shutdown, remove test gauges and reconnect hoses and check valves.

WARNING

Use in well-ventilated area. Operation in closed area can result in oxygen deficient atmosphere.

Oxygen/Acetylene Ratio 1.1:1

TIP SIZE	MIN HOSE SIZE ID (inches) 25' Long	TORCH INLET PRESSURE (PSIG)† 750 and 800 TORCH INLET FUEL	TORCH INLET PRESSURE (PSIG)† 750 and 800 TORCH INLET OXY	PRIMARY FLAME CONE LENGTH (inch)	FUEL FLOW RATE (CFH)	CONTINUOUS OPERATION (NUMBER OF CYLINDERS)	BTU
5	3/16	7	7.5	1/2	30	1	44,400
7	3/16	7.5	8	1/2	50	1	74,000
8	1/4	10	10	1/2	70	2	104,000
9	1/4	14	14.5	1/2	110	2	163,000
10	5/16	15	15	1/2	140	3	207,200

Oxygen/MAPP® Gas (Neutral Flame) Ratio 2.5:1

TIP SIZE	MIN HOSE SIZE ID (inches) 25' Long	TORCH INLET PRESSURE (PSIG)† 750 and 800 TORCH INLET FUEL	TORCH INLET PRESSURE (PSIG)† 750 and 800 TORCH INLET OXY	PRIMARY FLAME CONE LENGTH (inch)	FUEL FLOW RATE (CFH)	CONTINUOUS OPERATION (NUMBER OF CYLINDERS)	BTU
5	3/16	6	7	9/16	14	1	34,160
7	3/16	6	7	9/16	25	1	61,000
8	1/4	8	10	9/16	35	1	86,000
9	1/4	12	15	9/16	55	2	135,000
10	5/16	12.5	16.5	9/16	70	2	172,000

†Torch inlet pressure given only as a guide to set regulators - with torch valves wide open; and to check restrictions in fuel or oxygen supply systems. Oxyge/fuel ratio is set to flame appearance - when primary cones of length listed above are the shortest obtainable as ratio is varied.

‡Use cylinders with manifold.

CAUTION

Acetylene is limited to 15 PSIG. Withdrawal is limited to 10% of cylinder contents for intermittent use and 6% continuous withdrawal.

Use RMA-CGA grade T hose for all fuel gases to prevent hose failure

Use grades R and RM for acetylene only.

Oxygen/Propane Ratio 4:1

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5	3/16	5.5	6	1/2	10	1	25,000
7	3/16	7	10	1/2	15	1	37,000
8	1/4	10	16	1/2	25	2	63,000
9	1/4	14	20	1/2	40	2	100,000
10	5/16	15	20	1/2	50	3	125,000

Oxygen Natural Gas Positive Pressure Ratio 2:1

TIP SIZE	MIN HOSE SIZE ID (inches) 25' Long	TORCH INLET PRESSURE (PSIG)† 750 and 800 TORCH INLET FUEL	TORCH INLET PRESSURE (PSIG)† 750 and 800 TORCH INLET OXY	PRIMARY FLAME CONE LENGTH (inch)	FUEL FLOW RATE (CFH)	CONTINUOUS OPERATION (NUMBER OF CYLINDERS)	BTU
5	3/16	1	1.5	1/4	10	1	10,500
7	3/16	1.5	1.5	1/4	15	1	15,700
8	1/4	3.5	4.5	1/2	30	1	31,400
9	1/4	7.5	10	1/2	60	1	63,000
10	5/16	9	14	1/2	80	1	84,000

For Maximum Safety Use Flashback Arrestors

	Regulator Mounted	Torch Mounted
Model 78 Resettable	Model 53	Model 460
801-0786 'B' Size (Oxy)	801-0536 'B' Size (Oxy)	801-1466 'B' Size (Oxy)
801-0789 'B' Size (Fuel)	801-0539 'B' Size (Fuel)	801-1469 'B' Size (Fuel)
UL Listed	Meets OSHA Requirements	Complies with ISO 5175

CUSTOMER ASSISTANCE

In the event of equipment failure, call the CONCOA Customer Assistance Line: 1-800-225-0473. Please be prepared to provide the model number and serial number of the equipment involved, in addition to details regarding its application.

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