

308-B Route 28  
Kingston, New York 12401  
845-340-0489  
845-334-9618 Fax

**Operation &  
Installation Guidelines of  
Salvin's  
High-Output  
CO2 Jet System**

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## **SAFETY**

The High-Output CO2 Jet uses liquid carbon dioxide to create a cold blast of fog. CO2 is a cryogenic fluid and must be handled and used with care. It is capable of freezing human tissue.

The High-Output CO2 Jet creates a substantial thrust. At no time should they be aimed directly at persons in close proximity to the device. The output of the Jet's nozzle must be kept clear of loose objects, dirt, hands, etc. at all times.

CO2 is an asphyxiant. It is capable of displacing oxygen and rendering the air unsafe to breathe. The Liquid CO2 supply must be stored in a well-ventilated place. If tank is placed in a basement or if venue is located below ground, there is a mandatory CO2 monitor system which provides automatic system shutdown in the case of poor air quality.

In the unlikely event of a hose rupture or solenoid valve failure, emergency shut-off on the CO2 Supply must be shut off at the tank. A quick response will minimize the amount of CO2 released.

The High- Output CO2 Jet uses Liquid CO2 that is very cold! The pressure of this system is typically 300 psi. Never operate system with less than 280 psi. Hoses should be disconnected and purged when servicing this equipment. Safety glasses and gloves must be used when servicing this equipment. Never orient your body in direct line with the output nozzles. Always play it safe with this system.

**It is the responsibility of the end user / system operator to ensure that the system is operated safely!**

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## High Output CO2 Jet Operation

The High Output CO2 Jet is designed to emit a plume of white Cryo fog at a high volume and fast rate of speed from an average ceiling height of 13-25 feet. Lower ceilings require special installation requirements (Call Salvin Co. for more information).

This effect can be used to reveal a specific item or give the appearance of someone mysteriously appearing/vanishing. You are only limited by your own imagination.

This system works by attaching a high pressure Cryo-Flex hose to the High Output CO2 Jet and then to any high-pressure liquid CO2 tank with a dip tube or a **low pressure refrigerated CO2 (Recommended for better effect)** tank, also known as a “Dewar Tank” (see literature for recommended tanks and suppliers). You can accomplish this by placing the brass CO2 nut, confirming the washer is inside the stem, to the CO2 tank and attaching the other end of the hose onto the cryogenic valve. **Never use a pressure regulator on this system!** It will restrict the liquid flow. The power source for the CO2 Jet can be any 120v non-dim source. Never 220 volt. Failure to do so may damage unit and void warranty.

Never install CO2 Jet system without Bi-Cryo Relief Valve as part of your system. Hose failure may occur.

By loosening a fitting located at the base of the nozzle of the High Output CO2 Jet, the nozzle can be rotated to any given position. The nozzle can then be set in place by simply re-tightening the fitting.

# Insulating the Hoses and Fittings

It is **VERY IMPORTANT** to insulate all the hoses and fittings completely with foam insulation and tape provided. Try to make it almost impossible for air to get between the hose and the foam insulation. This will cut down condensation and improve the systems operation!



Fig #1

A - Lay out the hosing on the floor.

B - Slide Insulation over hosing. (Fig #1) **Never Slit the Foam Sleeves,... they will slide on to the hoses.** Be sure to use the right size insulation for the right size hose. (Note the size or the hole on the inside of the foam sleeves)



Fig #2

C - Squeeze foam ends together (Figure #2) to assure tight fit. While still squeezing have someone run 2-3 turns of tape around the seam (Figure #3) . This will assure an air tight fit.



Fig #3

D - On all fittings and valves (Figure #4) cut foam to fit (Figure #5). Slide cut foam together (Figure #6) and tape in place (Figure #7). Make sure there are no openings



Fig #4

E - Tighten all **fittings** snugly. These are flared fittings and do not require excessive tightening. **DO NOT** use Silicone tale or any other type of leak stopper! Slide foam insulation over all fittings and choke foam closed with wire ties (provided) to insure that system is air tight.(figures 8&9)



Fig #5



Fig #9



Fig #8



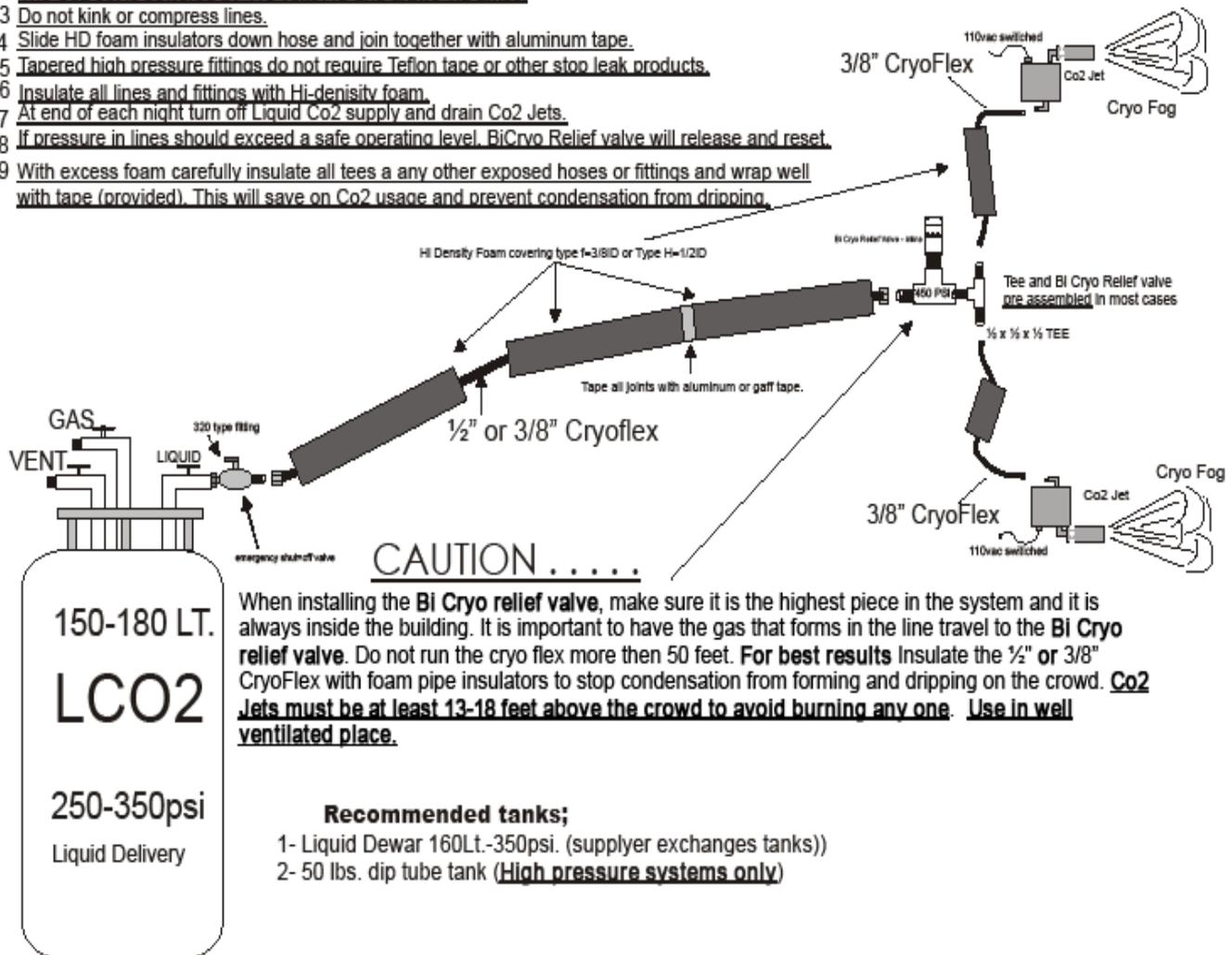
Fig #7



Fig #6

## Typical Low Pressure Liquid Co2 System

- 1 Co2 Jets require Liquid Co2 and not Co2 Gas
- 2 The Co2 Jet is powered by 110 volts AC and draws 1.2 amps.
- 3 Do not kink or compress lines.
- 4 Slide HD foam insulators down hose and join together with aluminum tape.
- 5 Tapered high pressure fittings do not require Teflon tape or other stop leak products.
- 6 Insulate all lines and fittings with Hi-density foam.
- 7 At end of each night turn off Liquid Co2 supply and drain Co2 Jets.
- 8 If pressure in lines should exceed a safe operating level. BiCryo Relief valve will release and reset.
- 9 With excess foam carefully insulate all tees a any other exposed hoses or fittings and wrap well with tape (provided). This will save on Co2 usage and prevent condensation from dripping.



## **High Output CO2 JET Maintenance and Warranty Service**

The High Output CO2 Jet is a fairly low maintenance item. At the end of each night purge the system. This will relieve any high-pressure build up in the system until the next use.

To purge the system start by first;

A - Turning off Liquid CO2 supply tank.

B - Energize one or more High Output CO2 Jets until pressure is dissipated.

### **Other Recommended Procedures**

A - Never operate any High Output CO2 Jet for longer then 60 seconds.

B - Keep inlet on hoses free from debris during tank changeovers.

C - Try to keep Cryo Fog below the heads of patrons. It's hard to see and some people may be claustrophobic. Respect your clients and be aware or their reactions.

D - Never operate system from the Liquid CO2 tank.

E - In the case of a High Output CO2 Jet needing repair, and it is one of many in a system, use the **Service Plug** (provided on multi head systems) to plug hose. This will allow the rest of the system to operate.

### **Warranty Service**

All High Output CO2 Jet Systems are warranted for a period of one year from the original date of purchase. Salvin will fix or replace the High Output CO2 Jet at its own discretion. Any updates will be applied to repaired units at no additional cost.

All returns must be called in for return authorization. Freight to Salvin must be prepaid. Salvin will pay return ground freight. Any other return shipping method other then stated will be paid by the customer. Never attempt to repair units!

**Removal or tampering of Warranty sticker will void any and all Warranty suggested.**