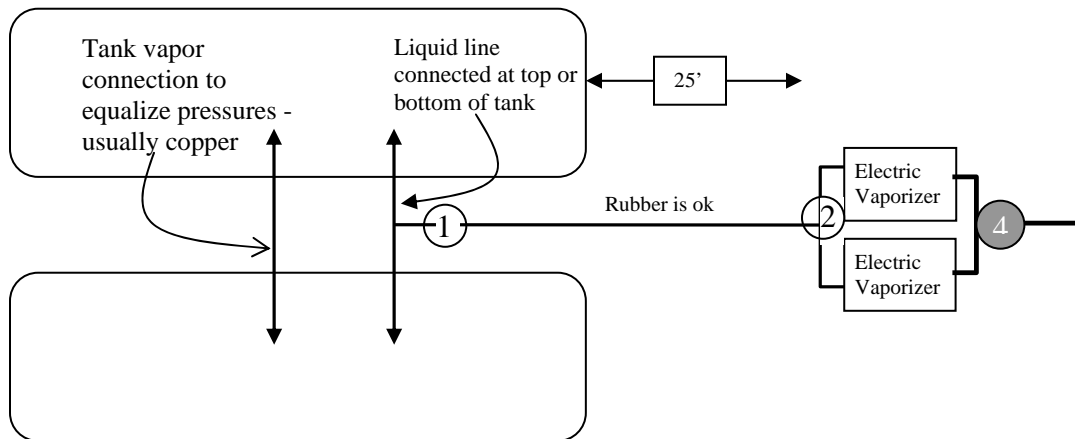
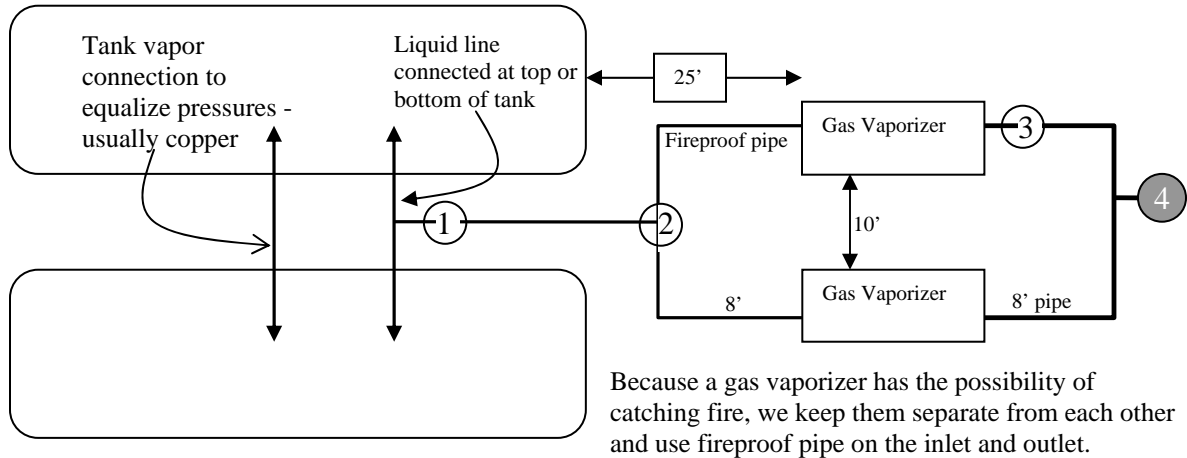


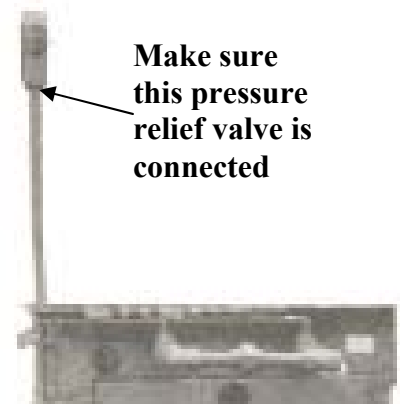
Propane Setup guide

Connecting tanks & vaporizers



Caution: never place a vaporizer in a building or under a roof. If the pressure relief valve opens high pressure propane will blow off the top of the vaporizer.

- ①. Liquid line by propane company; can be ¾" copper, schedule 80 iron, or high pressure liquid hose
- ②. Two vaporizers must be connected to two tanks with a tee to keep supply balanced.
- ③. Vapor outlets to be 8' (for gas vaporizers) schedule 80 metal pipe all the way to the regulator – high pressure!
- ④. Hotwork regulator pressure must be set at 10 psi if ambient temperature is below freezing to prevent propane recondensing in the line to the AC box.



Startup

Keep your face away when lighting vaporizer burners! Keep the propane tanks at maximum temperature. Not all tanks need to burn unless the capacity is needed.

Shutdown

1. Allow the vaporizer burners to come up to temperature and shut off. Pilot will remain lit.
2. Turn the thermostat control knob to the “OFF” position (white dot aligned with arrow).
3. Close the inlet supply line at the tank.
4. Burn off the pressure.
5. Make sure all pilots are out before connecting any propane line. Heavy propane gas will run out of the low end of the line. There may be a smelly flammable liquid residue in the vapor lines.

Troubleshooting

- **System pressure loss:** if the tank liquid lines are frosty the internal tank excess flow valve has shut. Reset this by closing the tank valve, wait a couple of minutes and open slowly. If you hear a “click” it has closed again. Call the propane company to replace the tank because the excess flow valve is either too small or defective. These valves are rated in gallons per minute. We would need a valve in the order of 1 to 16 gallons per minute.
- **Frost:** after the regulator is normal and at a high firing rate our lines can frost all the way to the burner. The system is maxed out when the vapor outlet from the vaporizer is the same as the supply tank temperature.
- **Hot liquid supply line** is normal while the vaporizer burners are on – the pressure in the vaporizer pushes excess liquid back into the supply tanks. Don’t close the tank valve while the vaporizer burners are running – the vaporizer can overpressurize.
- **Pressure surge:** the big regulator in the cage can surge at low firing rates.
- **Burner backfire:** if the Hotwork burner makes a loud backfire or begins burning at a high rate for no reason there is liquid propane in the line. Reduce the firing rate at the burner and lower the vaporizer pressure to prevent the propane gas from recondensing in the supply line.
- **Vaporizer pilot won’t stay lit:** make sure it is in the pilot flame. There may be dirt in the orifice. Disconnect the pilot line and clean the small hole in the orifice.
- **Sludge and heavy ends:** sometimes sludge from a tank makes its way into a vaporizer and regulator causing vaporizer burners to go out. There is a drain valve on the back of each tank and a drip line from the bottom of the small vaporizer regulator that are used to drain liquids from the vaporizer. The liquid that comes out is highly flammable and very smelly. Make sure pilot lights are out before opening any of these valves.
- **If one vaporizer tank goes out and our supply line freezes up right to the burner:** shut down our burners, relight the vaporizer tank and wait a few minutes for the vaporizer to stabilize. When the vaporizer reaches temperature and the main burners go off then relight the Hotwork burners.



223 Gold Rush Rd
Lexington, KY 40503
Ph: 859 276 1570

13 AUG 2009

Jobsite Propane Checklist

Vaporizer No: _____ **Jobsite Location:** _____ **OE No.** _____

Technicians: _____

Item	Date	Initials	Safety Task To Be Confirmed By Lead Technician
1			Propane Tank minimum 25' from ignition source.
2			Last 8' of vaporizer(s) inlet hard piped using no Q D's.
3			Liquid lines between vaporizers hard piped.
4			Minimum 10' spacing between vaporizers.
5			Hard piping between vaporizer vapor lines.
6			Minimum 8' of hard pipe on vaporizer outlet. Must be union fitting to vaporizer.
7			All fittings (including vaporizer internals) checked for leaks with soap water. Do pre-light off and once per 12 hr. shift.
8			Area around propane tank and vaporizer(s) roped off with barrier tape.
9			Fire extinguisher(s) placed at perimeter of roped off area.
10			All QD ears wired closed pre-light off.

Lead Technician Signature: _____

Print Name: _____

Date: _____

Note: This document must be returned to Hotwork Lexington office upon project completion.

Propane Company Setup Instructions

March 5, 2008
S.Ralsten

Tank prep - tank shall be clean and free of sediments.

Tanks shall be leveled when set.

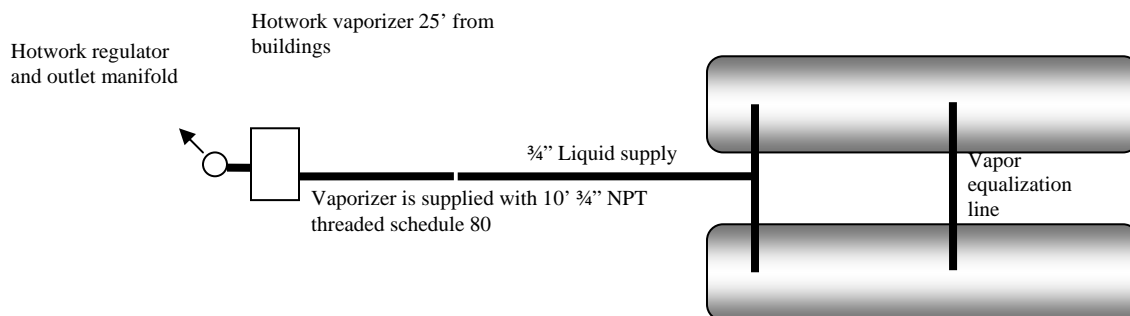
Hotwork uses the liquid from the propane tank to feed our vaporizer, which generates the gas used by our burners. We regulate pressure to our burners at the vaporizer outlet with our own regulators.

We can pull off the top or the bottom liquid line. The excess flow valve should be capable of passing a minimum of 8 GPM. In the event a weak excess flow valve causes slugging at low flows, the tank will have to be replaced.

If more than one tank is used, the tank liquid outlet lines need to be connected to a "T" and a 3/4" minimum line of approved material brought to the Hotwork vaporizer. This vaporizer has a 1" schedule 80 inlet line that extends at ground level 10 feet from the vaporizer and ends in a standard 1" union. Please make this connection and leak check all joints - the vaporizer has liquid inlet and vapor outlet shutoff valves.

Important: No regulators or check valves are to be installed between the tank and the vaporizer. Liquid must be free to flow both into the vaporizer and from the vaporizer back into the tank.

To equalize the tanks during operation the vapor lines need to be connected together. This should be by a 1/2" minimum line of an approved material.



Tank filling may be necessary at any time during days, nights or weekends. Suitable phone contacts will be necessary

No code should be violated by this temporary setup and any safety concerns should be brought to the attention of the Hotwork crew or the site owner. A Hotwork manager can always be reached at 859-276-1570.