

# Regulator Installation and Startup Tips Script

Installing a regulator is a fairly straight forward process, but some precautions should be observed to avoid problems during the regulator operation. The first step in installing a regulator is to read the manufacturer's installation manual to be sure all instructions are closely followed.

The second step concerns the choice of pipe sealant. It is recommended that a natural gas grade pipe dope be used as opposed to Teflon Tape. Pieces of Teflon Tape can and have fallen off the pipe threads and fouled the regulator. This can result in poor regulator performance and failure of the regulator to lock up because the pieces of Teflon Tape get between the Seat and orifice.

When applying pipe dope only apply it to the pipe threads, do not apply it to the threads in the regulators. Use pipe dope sparingly. Excessive pipe dope can migrate into the regulator and also cause performance issues.

Pipe nipples should be threaded into the regulator with unions on the ends to ease future maintenance and positioning of the regulator.

Thread the nipples into the regulator and tighten by hand. Snug the regulator with a wrench but do not over tighten. The pipe threads are tapered and overtightening can break the regulator body.

Be sure to position the regulator in accordance with the manufacturer's instructions. Some regulators may be installed in any position while others are limited to a horizontal position.

Before installing the regulator and nipples into the gas train, check the existing pipe for any debris that may be left from the pipe line constructions. If any debris is present it must be removed or it will cause damage to the regulator.

Having installed the regulator it is time to address the vent. If the regulators are not CSA certified to be vent limited, a pipe has to be run from the upper diaphragm case to outside. This vent pipe serves several purposes. It allows the regulator diaphragm to move freely, drawing air in as the diaphragm moves down and expelling air as the diaphragm move up. It also allows an escape path for gas in the event of the opening of the internal relief valve or diaphragm failure.

While the concept of running a vent pipe is straight forward, it must be understood that the length and diameter of the vent pipe has a direct influence on the performance of the regulator. If the vent pipe is too long, has too many elbows or is too narrow poor performance will result. This poor performance is indicated by unsteady flows and fluctuating pressures. Identifying a vent problem may be accomplished by simply removing the spring cap. If the regulator's operation stabilizes then re-plumbing the vent is necessary.

There are no hard fast rules from any manufacturer for running a vent pipe because atmospheric conditions will affect the performance of a vented regulator. What works in Texas may not work Maine. A common rule of thumb is to increase the pipe diameter for every length of pipe. Minimize use of elbows because each elbow is roughly the equivalent of 3' of straight pipe. Good advice on vent lines is to keep the vent pipe as short and straight as possible.

Some models of regulators require an external control line, also known as a sensing line. This tube runs from the lower diaphragm case of the regulator to a downstream location approximately 8 to 10 pipe diameters downstream from the regulator. It is very important that the control line be located in a straight section of pipe, away from any Tees, Elbows or changes in pipe diameter. The control line must be located on top of the pipe and also must slope downwards from the regulator to the pipe. This will allow any condensates that form to drain back into the pipe.

Once the regulator is completely installed, turn on the gas...slowly. Turning the gas on quickly will result in damage to the regulator.

Once the regulator is installed and the gas is turned on it is time to check for leaks. Leak check solutions are available that form bubbles in the presence of a leak. Soap all thread joints and observe for several minutes. No bubbles, no troubles.