



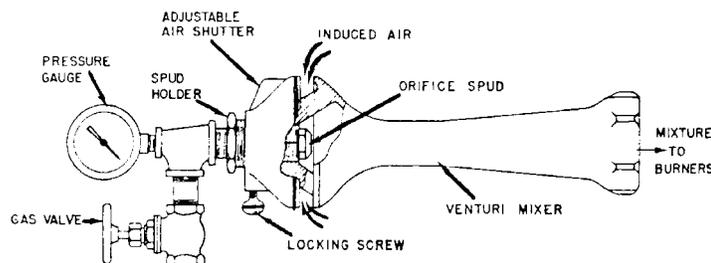
AIG HIGH PRESSURE GAS-AIR INSPIRATORS



The Hauck AIG Series High Pressure Gas-Air Inspirators are ideal gas-air mixers designed for use with gas pressures ranging from 5 to 30 psig. The AIG inspirator uses the gas's potential energy, which is converted at the jet to kinetic energy, to entrain atmospheric air for combustion. After an initial adjustment of the air shutter the desired gas-air ratio is maintained.

INSTALLATION

1. Install the AIG inspirator in any convenient position. Gas pressures ranging from 5 to 30 psig must be available at constant pressure at the gas inlet valve of the AIG. When using manufactured gas, pressures from 1 to 30 psig may be used (consult Hauck for pressures less than 5 psig).
2. Use as few elbows and bends as possible in the mixing piping. This will minimize the loss in mixture pressure. Mixture piping sizes should vary with the type and number of burners being served by one inspirator. Consult Hauck for piping recommendations.
3. Connect the necessary gas flow regulator. For gas pressures of 10 psig or less, use an indicating type cock. For gas pressures exceeding 10 psig, use a globe or globe needle type valve and a gas pressure gauge.
4. Ensure that the inspirator is properly and secured fastened to the burner or mixture piping.



5. Complete the initial adjustment of the air shutter in the following manner.
 - A. Loosen the locking thumbscrew and its associated fiber pad.
 - B. Close the air shutter by rotating the shutter around the spud holder.
 - C. Open the gas flow valve slowly and light the burner by means of a torch or electric ignition.
 - D. Adjust the gas flow valve until the desired operating pressure is reached. For best results, use the maximum pressure of the system (do not exceed 30 psig).

These instructions are intended to serve as guidelines covering the installation, operation, and maintenance of Hauck equipment. While every attempt has been made to ensure completeness, unforeseen or unspecified applications, details, and variations may preclude covering every possible contingency. **WARNING: TO PREVENT THE POSSIBILITY OF SERIOUS BODILY INJURY, DO NOT USE OR OPERATE ANY EQUIPMENT OR COMPONENT WITH ANY PARTS REMOVED OR ANY PARTS NOT APPROVED BY THE MANUFACTURER.** Should further information be required or desired or should particular problems arise which are not covered sufficiently for the purchaser's purpose, contact Hauck Mfg. Co.

- E. Adjust the air shutter until the desired flame is achieved.
 - F. Securely tighten the locking thumbscrew.
6. An increase or decrease in the gas operating pressure may require the readjustment of the air shutter.

OPERATION

The AIG inspirator converts high pressure gas into a high velocity stream which jets into the throat of a venturi mixer. As the high velocity stream enters the venturi it draws air along with it, compressing both the incoming air and the original jet stream. The air and gas are mixed in a combining tube in the throat of the venturi and then this mixture is expanded in the outlet nozzle.

The volume of atmospheric air which can be entrained by the inspirator is a function of the inlet pressure, the specific gravity of the entraining medium, the conversion coefficients of the particular inspirator and, most importantly, of the discharge static pressure at the mixture exhaust. This discharge pressure is a function not only of the type of burner used but also the **back pressure of the furnace** in which the system is being fired. Hauck inspirators are engineered and designed for a neutral (atmospheric) furnace back pressure. A negative furnace pressure adds to the negative pressure at the air intake causing an increase in the volume of the entrained air. Conversely, a positive furnace pressure causes a decrease in the volume of entrained air. At low input gas pressures, even minor fluctuations in the furnace back pressure can cause changes in the gas-air ratio. The existence of a positive furnace back pressure may make it impossible to entrain a sufficient volume of air to achieve the required gas-air ratio.

It may be necessary to adjust the air shutter to ensure that the proper gas-air ratio is maintained when there are variations in either the furnace pressure, the fuel flow rate or the gas pressure. If reignition of the burner(s) is necessary, following steps 5A thru 5F under INSTALLATION. When simply adjusting the ratio to optimize burning, accomplish the following.

- A. Loosen the locking thumbscrew
- B. Rotate the air shutter around the spud holder thus increasing or decreasing the air inlet as required.
- C. Retighten the locking thumbscrew.

CAUTION

A flash-back can cause not only serious damage to equipment but also can cause severe injury or even death to personnel.

“Flash-back” occurs when a flame front moves back through the burner nozzle, and possibly back to mixing point. It occurs when the flame velocity exceeds the mixture velocity through the burner nozzle. As a rule of thumb, to prevent an occurrence of flash-back the mixture pressure must exceed:

- A. .20 "wc for propane.
- B. .25 "wc for natural gas.
- C. .40 "wc for manufactured gas

However, **an uneven distribution of the gas/air mixture through the nozzle, an oversized nozzle, or an obstruction can cause a flash-back to occur when the pressure is greater than that stated above.**

If a flash-back occurs, immediately stop the flow of gas through the mixer/burner system. If necessary, allow the mixer, mixture piping and/or the nozzle to completely cool before attempting to reignite the burner. If the flash-back occurred with mixture pressures greater than those indicated above, inspect the nozzle and remove any obstructions or residue build-up. If the conditions persist, it may be due to the piping configuration or the nozzle being used. Consult Hauck for recommendations.

MAINTENANCE

All parts of the AIG inspirator are engineered and manufactured to ensure correct alignment. Since there are no internal moving parts to jam or get out of alignment, this unit is relatively maintenance free. It is sometimes necessary, however to clear the gas spud orifice of any dirt build up as this can greatly reduce mixer capacity. The spud orifice is easily cleaned by removing the pressure gauge or plug and running a wire into the tee opening and through the spud.