



INSTRUCTIONS

RATIO GAS TORCH



The Hauck "Ratio" Gas Torch combines a "Retain-A-Flame nozzle with an inspirator to produce a multi-purpose torch designed for use where gas pressures from 10 to 30 psig are available. The inspirator assists in maintaining the proper air-gas ratio under all operating conditions. This torch is designed for rugged duty in open air applications.

INSTALLATION:

1. Ensure that the torch gas control valve is fully closed.
2. Connect the torch gas inlet to the main gas supply line. Gas pressures ranging from 10 to 30 psig must be available at the constant pressure at the gas inlet valve of the torch. When using either a fuel other than natural gas or pressures less than 10 psig, consult your local Hauck engineer.
3. 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 fully the gas valve in the main supply line.
 - D. Open the torch gas flow valve slowly and light the burner by means of a small torch.
 - E. 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).
 - F. Adjust the air shutter until the desired flame is achieved. For best results, a blue, hard-driving flame is recommended.
 - G. Securely tighten the locking thumbscrew.
4. An increase or decrease in the gas operating pressure may require the readjustment of the air shutter.

OPERATION:

The torch 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.

If the gas pressure is altered, it may be necessary to adjust the air shutter to ensure the proper gas-air ratio is maintained. If reignition of the burner(s) is necessary, follow steps 5A thru 5G 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 severe injury to personnel.

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.

"Flash-back" occurs when a flame front moves back through the burner nozzle, and possibly back to the 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" water column for propane.
- B. .25" water column for natural gas, or
- C. .40" water column 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 your local Hauck engineer for recommendations.

MAINTENANCE:

All parts of the torch assembly are manufactured to close tolerances to insure 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 built-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.