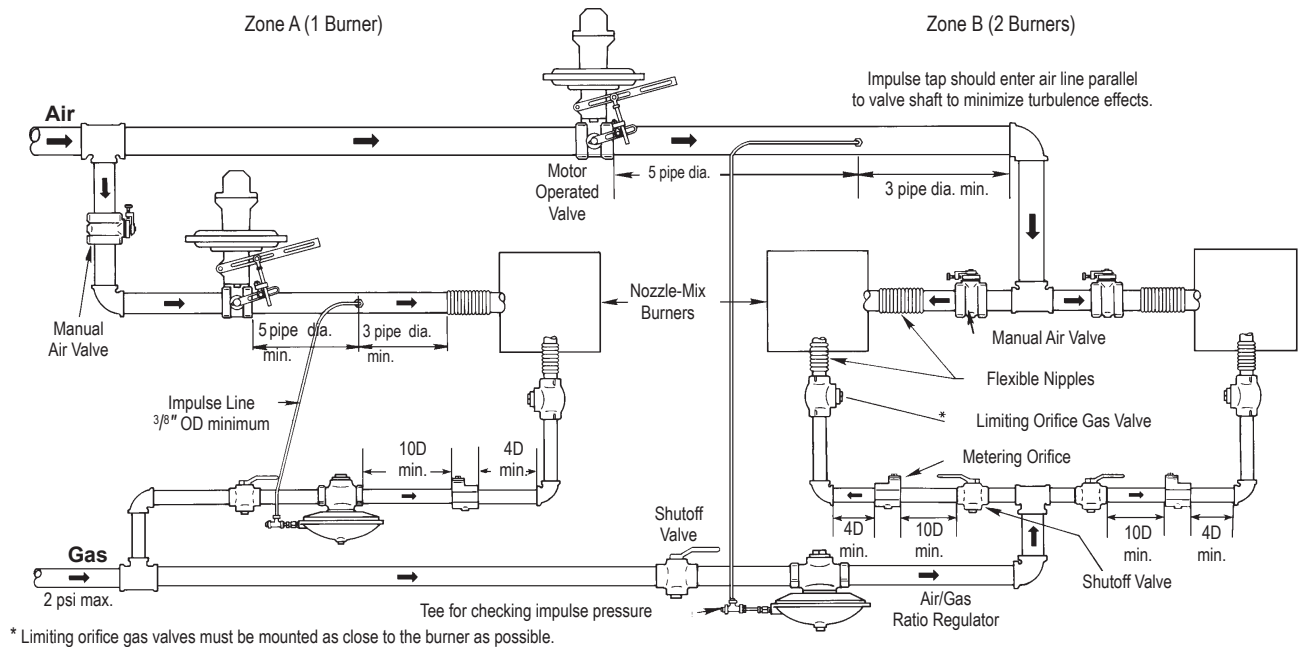


SUGGESTED PIPING



INSTALLATION

To minimize leaks around tile and to prevent cracking of tile by thermal expansion in the wall, see Supplements DF-M1 (for hard refractory lined furnaces) and DF-M2 (for fiber lined furnaces) for installation recommendations.

LIGHTING AND ADJUSTMENT

Warning: Startup and adjustment of combustion equipment should only be done by trained personnel familiar with combustion technology, combustion equipment, and with the particular burner system, equipment, and controls.

1. BASIC

- a) All manual and automatic fuel valves (gas and oil) must be closed.
- b) Open all furnace doors and flue dampers. Lock all burner air valves in full open position.
- c) Start combustion air blower and check rotation.
- d) Adjust control motor/air valve linkage(s) for low and high fire.
- e) Set control motor(s) at high fire allowing furnace to purge for several minutes prior to lighting. Check motor amps with all burners at high fire. If in overload, adjust linkage to reduce the high fire air flow.
- f) Return the control motor to low fire. Linkage must not bind.

2. PILOTS

- a) Light the pilots in accordance with the pilot instruction sheet.

3. MAIN BURNER

- a) Open limiting orifice valve five turns (CCW) from full closed position.
- b) Open gas shutoff valve(s). If burner does not light within a few seconds, close gas shutoff valve and open limiting orifice valve one more turn; then open gas shutoff valve. Repeat purge/ignition attempts as necessary until burner lights.

- c) Slowly open main air valve to high fire position, adjusting limiting orifice valve as necessary.
- d) Return control valve to low fire position. Adjust air/gas ratio regulator for desired flame.
- e) Repeat Steps (c) and (d) if necessary. Replace cover on limiting orifice valve.
- f) For multiple burner zones, approximate limiting orifice valve settings can be made by counting the number of turns open on the first valve.

4. TROUBLE-SHOOTING

- a) Gas supply pressure too high or too low (see appropriate regulator literature.)
- b) Impulse pressure too low to ratio regulator--check for dirt in line or connections; check method of connecting impulse line to air pipe (see regulator literature).
- c) Regulator not controlling--check method of connecting impulse line to air pipe; check regulator diaphragms (see regulator literature); if bleeder is used, check orifices for dirt.

Note: Prior to the first, and each subsequent lighting attempt, the main air valve must be fully opened for a period of time sufficient to provide for a minimum of (4) changes of atmosphere in the combustion chamber and flue. Failure to do so can result in the ignition of residual gas from previous lighting attempts, resulting in an uncontrolled fire or explosion and causing property damage and/or personal injury.

WARNING: Situations dangerous to personnel and property may exist with the operation and maintenance of an combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American Combustion, Inc. urges compliance with National Safety Standards and insurance Underwriters recommendations, and care in operation.