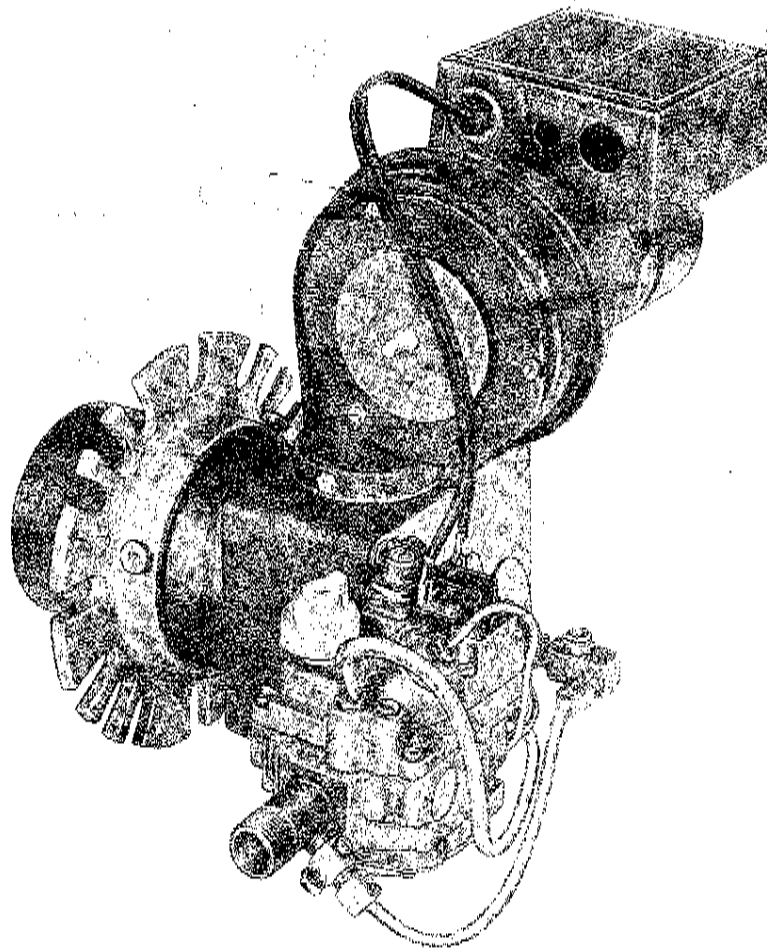


# INSTALLATION INSTRUCTIONS

## INSHOT

### POWER GAS BURNER



These instructions were prepared for the guidance of those installing this particular gas conversion burners. While they apply in principle to all installations, they should not be interpreted as meaning the only safe and economical way to install a conversion burner. It may be necessary to deviate from these instructions in some instances in order to comply with local gas company rules or codes in effect in the area in which the installation is made. It is recommended that dealers confer with the local gas company and with the proper municipal officials regarding any specific rules or regulations governing the installation of gas conversion burners. It is also recommended that in applying

these instructions, reference be made to American Gas Association requirements ANSI Z21.17.

Safe and economical operation of the burner throughout its service life is dependent to a large extent upon its proper installation in the heating appliance. Therefore, may we impress upon the dealer that good clean workmanlike installations mean satisfied customers. Any questions or problems relative to the installation or operation of this burner, not contained herein, will be welcomed by the-

# INSTALLATION INSTRUCTIONS

## INSHOT POWER GAS BURNER

THESE INSTRUCTIONS SHOULD BE AFFIXED TO THE BURNER OR ADJACENT TO THE HEATING APPLIANCE.

### SPECIFICATIONS

| B.T.U. INPUT<br>L.P. OR NAT. GAS |         | VOLTAGE |       |       | GAS<br>CONN. | MOUNT              | BLAST TUBE |                 |
|----------------------------------|---------|---------|-------|-------|--------------|--------------------|------------|-----------------|
| Min.                             | Max.    | Valve   | Stat. | Motor |              |                    | dia.       | Lgth.           |
| 65,000                           | 200,000 | 110V    | 24V   | 110V  | 1/2"         | Flange<br>See Note | 4"         | 4-1/8 to 11-1/8 |

NOTE: Mounting flange is standard. Pedestal mount optional. Add one inch to above tube lengths when using pedestal mounting.

### INSPECTION OF HEATING SYSTEM AND APPLIANCE

It is recommended that the heating appliance be inspected at the time the heat loss survey is made.

The burner should not be installed in a worn out or burned out appliance, nor in an appliance located in a room where the normal facilities for ventilation will not permit proper combustion of the gas, unless special provisions such as outlined in Fig. 1, are made for supplying sufficient air.

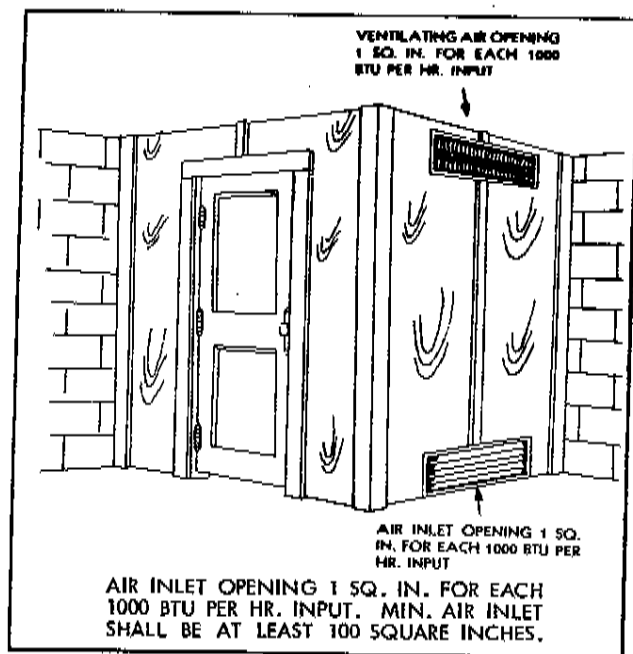


Figure 1

Where a building is of unusually tight construction or where a ventilating fan is used for exhausting air to the

outside, it is recommended that combustion air be supplied to the furnace room through intakes extending to the outside and terminating in down-turned fittings arranged to prevent obstructions from snow or rain, and equipped with a protective screen over the opening.

Before installing the burner it should be determined that the heating system is sufficient to properly heat the building or supply the required amount of steam or water. If the heating system is deficient with respect to the above, the deficiencies should be corrected. It may be necessary in some instances to replace obsolete parts, storm windows, insulation, etc. in order to reduce the heat loss to a point where the existing heat system will be adequate.

NOTE: The burner must be installed in such a manner that the unit and all controls will be readily accessible for inspection, cleaning, adjustment and repairs.

### Gravity Warm Air Systems

The supply and return ducts and registers should be so sized and arranged that the building can be heated without excessive furnace temperatures. The industries standards of good practice are outlined in detail in the National Warm Air Heating and Air Conditioning Association's Bulletin No. 5, "Gravity Code and Manual for the Design and Installation of Gravity Warm Air Heating Systems."

### Forced Warm Air Systems

Inspection should also show whether the electrical characteristics of the fan and limit switch are satisfactory and whether the air filters and fan are in condition for continued proper service with the gas burner. The industries standards of good practice are outlined in detail in the National Warm Air Heating and Air Conditioning Association's Bulletin No. 7, "Code and Manual for the Design and Installation of Warm Air Winter Air Conditioning System."

NOTE: Copies of the above-mentioned guides may be purchased for .80¢ from the National Warm Air Heating and Air Conditioning Association, 145 Public Square, Cleveland 14, Ohio.

### Hot Water Systems

The boiler thermometer and altitude gauge should be in good order. On a closed system, the feed and pressure relief valves must be in proper operating condition. If there is an expansion tank on a closed system, inspection

firmly cemented to masonry. A thimble may be used to facilitate removal of flue pipe for cleaning, in which event the thimble should be permanently cemented in place with mortar or other fireproof material that will not crack or check. The flue pipe or thimble, whichever is used, should be sealed into the chimney liner.

Flue connections from two or more appliances should not enter opposing or adjacent sides of the chimney at the same level.

Under no circumstances should the flue pipe be connected into a flue of an open fireplace.

#### INSTALLATION OF BURNER AND CONTROLS

This Inshot power gas burner was designed especially for converting compact gun fired oil designed furnaces and boilers. Due consideration was given to making it as simple and easy to install and service as possible, without weakening its durability or efficiency. The burner is supplied as a completely assembled package unit.

#### SIZING OF INPUT IN RELATION TO FURNACE

Figure 120,000 B.T.U.'s per gal. of oil input. Example: Furnace rating 0.60 G.P.H. - then -  $0.60 \times 120,000 = 72,000$  B.T.U.'s input rate.

The orifice spud supplied with all burners is the size for the minimum B.T.U. input of the burner for the type gas shown on the requirements plate. Figure 3 shows the different size orifice spuds for various inputs.

The correct manifold pressure for natural gas is 3.0" to 3-1/2" W.C.P. The correct manifold pressure for liquefied petroleum gas is 11" W.C.P. Only minor adjustments and rates can be made by adjusting the regulator when the burner is operating on natural gas.

NOTE: When the burner is sold by an oil appliance manufacturer or their authorized dealers, the correct size orifice has been installed.

| B.T.U.<br>INPUT<br>PER HOUR | NATURAL GAS<br>3-1/2" W.C.P.<br>Orifice Size | PROPANE GAS<br>11" W.C.P.<br>Drill Size | REPLACES<br>G.P.H. OIL |
|-----------------------------|--|---|------------------------|
| 65,000                      | #20  | #42                                     | 0.5                    |
| 72,000                      | #18  | #38                                     | 0.6                    |
| 84,000                      | #13  | #7/64                                   | 0.7                    |
| 102,000                     | #13/64                                       | #31                                     | 0.85                   |
| 120,000                     | #2   | #30                                     | 1.0                    |
| 160,000                     | #1/4   | #26                                     | 1.35                   |
| 200,000                     | #9/32  | #2                                      | 1.65                   |

Figure 3

NOTE: The above B.T.U. input valves show the approximate Hr. B.T.U. input of the burner for the various orifice sizes shown in the above columns. To determine the actual B.T.U. input of the burner, multiply the number of cubic feet of gas per hour being consumed by the burner, by the B.T.U. rating per cubic foot of the gas being used. This can be done by clocking the meter. In no case should the min. and max. B.T.U. input shown on the requirements plate be exceeded.

#### ELECTRICAL WIRING

The power burner is shipped completely wired. It is only necessary to supply the 115 volt circuit, thermostat and limit circuit if used. All wiring and connections must conform with the rules of the National Electrical Code or the code legally authorized in the locality where the installation is being made. The wiring should be installed in a neat and orderly manner and secured well to prevent sagging. Where wiring is along the gas supply drop it should be securely attached to the piping. In no case should the wire be carried through leaders, cold air returns or clothes chutes. The limit control switch can be either of the low voltage type in the thermostat circuit or line voltage in the hot line of the line voltage supply to the burner. (See Figure 4)

#### LIMIT CONTROL SWITCHES

Limit Control settings recommended by the manufacturer of the oil appliance should be used.

It is recommended that on a steam or vacuum vapor boiler, means be provided to guard against firing a dry

boiler or one in which the water is dangerously low.

#### GAS PIPING

A tee fitting with the bottom capped should be used at the bottom of the riser to catch any foreign material. A ground joint type union should be placed in the gas line before the regulator.

NOTE: Some localities required a manual shut-off valve external to the appliance. Local authorities should be consulted.

The gas line should be a separate supply direct from the meter to the burner. It is recommended that new pipe always be used and located so that a minimum amount of work will be required in future servicing. The piping should be so installed as to be durable, substantial and gas tight. It should be clear and free from cutting burrs and defects in structure or threading. The most common material for house piping is wrought iron or steel and malleable iron pipe fittings. Cast iron fittings or aluminum tubing should not be used for the main gas circuit, nor should sweated or soldered connections be used. Joint

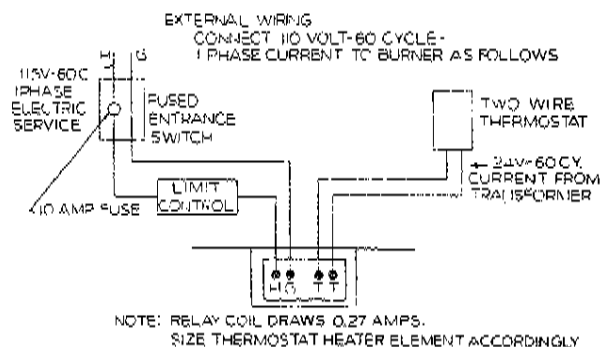
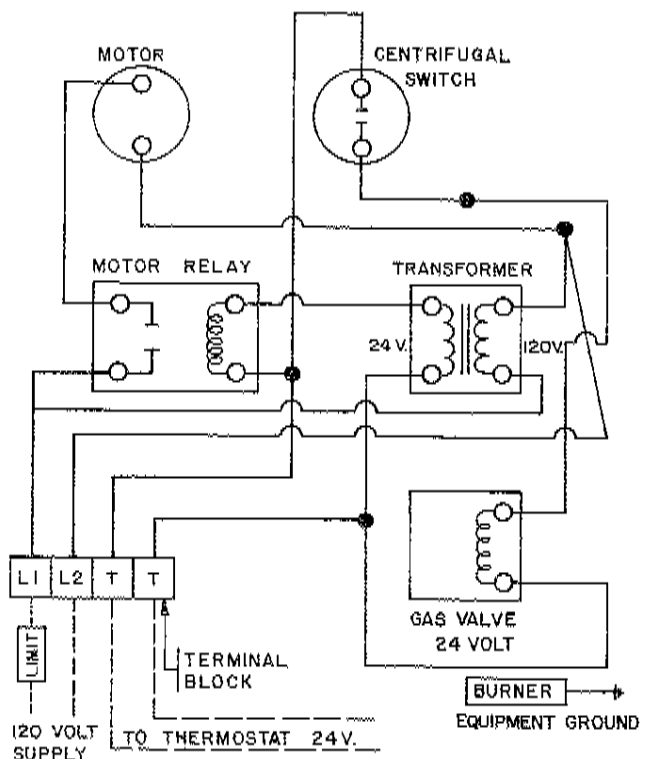


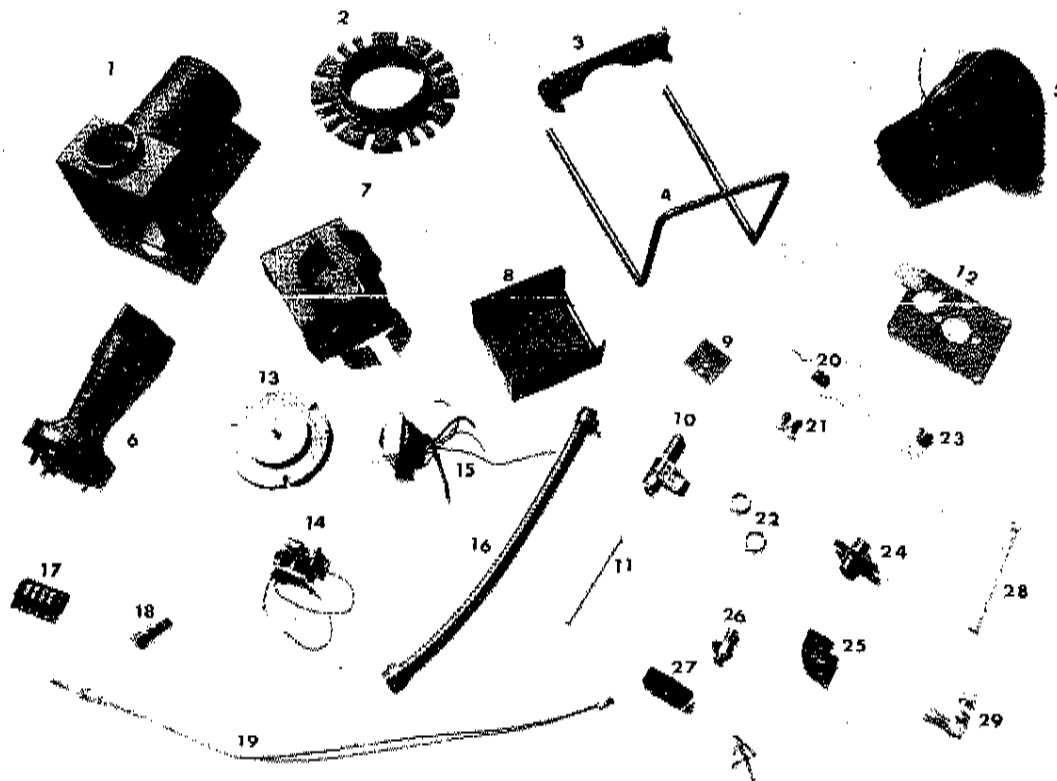
Figure 4

compounds (pipe dope) should be used sparingly on male threads only and should be of the type approved for all gases.

# Parts List

## POWER GAS BURNER

65,000 to 200,000 BTU



| ITEM NO. | NO. REQ'D | DESCRIPTION                                 | PART NO. | ITEM NO. | NO. REQ'D | DESCRIPTION                              | PART NO. |
|----------|-----------|---|----------|----------|-----------|--|----------|
| 1        | 1         | Air Tube & Housing Assy. 5" Burner .....    | 60945    | 21       | 2         | Venturi Mounting Bolt 8" Burner .....    | 60083    |
| 1        | 1         | Air Tube & Housing Assy. 8" Burner .....    | 60946    | 21       | 2         | Venturi Mounting Bolt 11" Burner .....   | 60085    |
| 1        | 1         | Air Tube & Housing Assy. 11" Burner .....   | 60947    | 22       | ..        | OBSOLETE .....                           | ..       |
| 2        | 1         | Mounting Flange .....                       | 60952    | 23       | 1         | Orifice—Natural Gas .....                | 61057    |
| 3        | 1         | Mounting Pedestal .....                     | 60214    | 23       | 1         | Orifice—L.P. Gas .....                   | 61056    |
| 4        | 1         | Cast Pedestal Mounting Bracket .....        | 60215    | 24       | 1         | Orifice Holder Assembly 5" Burner .....  | 60155    |
| 5        | 1         | Motor & Fan Assembly .....                  | 60172    | 24       | 1         | Orifice Holder Assembly 8" Burner .....  | 60249    |
| 6        | 1         | Venturi .....                               | 60944    | 24       | 1         | Orifice Holder Assembly 11" Burner ..... | 60250    |
| 7        | 1         | Control Box Base .....                      | 60933    | 25       | 1         | Elbow—1/2" Pipe—Black Iron .....         | 60001    |
| 8        | 1         | Control Box Cover .....                     | 60934    | 26       | 1         | Lighter Tube Shut Off Valve .....        | 60006    |
| 9        | 1         | Pilot Shield .....                          | 60198    | 27       | 1         | Nipple—1/2" Pipe Special .....           | 60013    |
| 10       | 1         | Pilot Assembly .....                        | 60194    | 28       | 1         | Runner Lighter Valve .....               | 60676    |
| 11       | 1         | Pilot Tube 5" Burner .....                  | 60728    | ..       | 1         | Runner Lighter Tube— 5" Burner .....     | 60239    |
| 11       | 1         | Pilot Tube 8" Burner .....                  | 60254    | ..       | 1         | Runner Lighter Tube— 8" Burner .....     | 60240    |
| 11       | 1         | Pilot Tube 11" Burner .....                 | 60257    | ..       | 1         | Runner Lighter Tube—11" Burner .....     | 60241    |
| 12       | 1         | Housing Coverplate Assembly .....           | 60943    | 29       | ..        | SEE ABOVE .....                          | ..       |
| 13       | 1         | Air Shutter—Casting (Stationary Part) ..... | 60232    |          |           |  |          |
| ..       | 1         | Air Shutter — Disc (Movable Part) .....     | 60233    |          |           |  |          |
| 14       | 1         | Motor Relay .....                           | 60227    |          |           |  |          |
| 15       | 1         | Transformer 120V/24V .....                  | 60186    |          |           |  |          |
| 16       | ..        | OBSOLETE .....                              | ..       |          |           |  |          |
| 17       | 1         | Terminal Block .....                        | 60228    |          |           |  |          |
| 18       | 1         | Bulkhead Union .....                        | 60156    |          |           |  |          |
| 19       | 1         | Thermocouple .....                          | 60154    |          |           |  |          |
| 20       | 2         | Venturi Spacer 8" Burner .....              | 60252    |          |           |  |          |
| 20       | 2         | Venturi Spacer 11" Burner .....             | 61054    |          |           |  |          |
| 21       | 2         | Venturi Mounting Bolt 5" Burner .....       | 60072    |          |           |  |          |

### MAJOR PARTS NOT ILLUSTRATED

|    |   |       |
|----|---|-------|
| 1  | Combination Gas Valve—Robertshaw<br>Natural Gas ..... | 60270 |
| 1  | Combination Gas Valve—Robertshaw<br>L.P. Gas .....    | 60996 |
| 1  | Combination Gas Valve—Honeywell<br>Natural Gas .....  | 60272 |
| 1  | Combination Gas Valve—Honeywell<br>L.P. Gas .....     | 60705 |
| .. | Gas Valve Cord Assembly .....                         | 60182 |