

Installation, Start-Up and Service Instructions

INTRODUCTION

Before installing the furnace, refer to Procedures for Gas-Fired Furnaces (packaged with the equipment) for information concerning combustion, venting, piping and other standard installation practices. Further reference is made to the current edition of the American National Standard Z223.1 National Fuel Gas Code.

Each furnace is shipped from the factory completely assembled with multispeed direct-drive blower and wired ready for indoor heating installation. All sizes feature a printed-circuit board control center with easy-to-read, low-voltage terminal strip to ensure proper connections.

The efficiency rating of the furnace is a product thermal efficiency rating determined under continuous operating conditions independent of any installed system.

NOTE: The furnaces covered by these instructions are design-certified for use with a Carrier automatic vent damper. See instructions packaged with the vent damper for its installation.

The design of the upflow gas-fired furnace is A.G.A. certified for installation on combustible flooring in alcoves, basements, closets, or utility rooms. The design of this furnace line is *not* A.G.A. certified for installation in a mobile home, recreation vehicle, or outdoors.

⚠ CAUTION
Do not use rear of furnace for return air duct connection. Use side(s) or bottom only.

⚠ CAUTION
Do not install furnace in a corrosive or contaminated atmosphere. Make sure all combustion and circulating air requirements listed in Procedures for Gas-Fired Furnaces are adhered to, in addition to all local codes and ordinances.

⚠ CAUTION
Do not block openings in front of furnace or on furnace top along side vent pipe. These openings provide air for combustion and ventilation. Never store anything on or in contact with furnace, such as: aerosol cans, rags, brooms and mops, cleaning tools and aids, powders, bleaches, waxes, plastic items, gasoline, kerosene, lighter fluids, cleaning fluids, thinners, painting compounds or paper products.

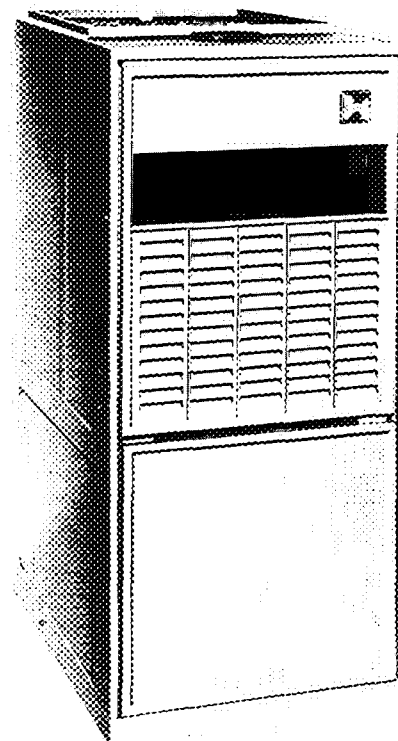


Fig. 1 — Model 58GSC

Table 1 — Clearances (in.)

| SIZES | 030,045 | 065-095 |
|----------------------------|---------|---------|
| Sides | | |
| Single-Wall Vent | 1 | 1 |
| Type B1 — Double-Wall Vent | 0 | 1 |
| Back | 0 | 0 |
| Top of Plenum | 1 | 1 |
| Vent Connector | | |
| Single Wall | 6 | 6 |
| Type B1 — Double Wall | 1 | 1 |
| Front* | | |
| Combustion Air | 6 | 6 |
| Service | 30 | 30 |

*Six in. front clearance is needed for combustion and ventilation air entry and drafthood relief.

Installation comprises the following:

- Inspection*
- Location, Ventilation, and Air for Combustion*
- Gas Piping*
- Venting*
- Electrical
- Sequence of Operation
- Filter
- Start-Up and Adjustment
- Care and Maintenance

*To perform these sections (or installation steps), refer to the appropriate sections of Procedures for Gas-Fired Furnaces booklet packaged with this unit.

For accessory installation details, refer to applicable installation literature.

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

→ Table 2 — Ratings and Performance*

| MODEL 58GSC | INPUT (Btuh) | HEATING CAPACITY (Btuh)† | TEMP RISE RANGE (F) | HEATING | | COOLING | | MOTOR HP (PSC) | APPROX SHIP WT (lb) |
|-------------|--------------|--------------------------|---------------------|--------------|-------|--------------|------|----------------|---------------------|
| | | | | ESP (in. wg) | Cfm | ESP (in. wg) | Cfm | | |
| 030-BB | 40,000 | 32,000 | 30-60 | .10 | 570 | 50 | 840 | 1/8 | 122 |
| 045-CB | 60,000 | 49,000 | 30-60 | .12 | 920 | | 1205 | 1/8 | 132 |
| 065-CB | 80,000 | 65,000 | 30-60 | .15 | 1310 | | 1220 | 1/8 | 154 |
| 065-DB** | 80,000 | 65,000 | 35-65 | .15 | 1234 | | 1610 | 1/2 | 167 |
| 080-CB | 100,000 | 81,000 | 50-80 | .20 | 1234 | | 1550 | 1/2 | 182 |
| 080-DB** | 100,000 | 81,000 | 40-70 | .20 | 1560 | 1950 | 1/2 | 191 | |
| 095-DB | 120,000 | 97,000 | 40-70 | .20 | 1851‡ | 2110‡ | 1/2 | 220 | |

PSC — Permanent Split Capacitor

*Ratings shown are for elevations up to 2000 ft above sea level. For above 2000 ft, reduce ratings 4% for each 1000 ft above sea level.

†In accordance with U.S. Government DOE test procedures

‡Air delivery above 1800 cfm, or systems with a total static pressure drop above 0.5 in. wg, require that both sides, or a combination of one side and the bottom, or the bottom only of the furnace be used for return air. A filter is required in each return.

**Data for 065DB and 080DB is preliminary, subject to change without notice and obligation.

→ Table 3 — Dimensions (in.)

| MODEL 58GSC | A | B | C | VENT DIAMETER |
|-------------|---------------------------------|---------------------------------|---------------------------------|---------------|
| 030-BB | 14 ³ / ₁₆ | 12 ⁹ / ₁₆ | 11 ¹ / ₁₆ | 4 |
| 045-CB | 14 ³ / ₁₆ | 12 ⁹ / ₁₆ | 11 ¹ / ₁₆ | 4 |
| 065-CB | 17 ¹ / ₂ | 15 ¹ / ₈ | 15 | 4 |
| 065-DB | 21 | 19 ³ / ₈ | 18 ¹ / ₂ | 4 |
| 080-CB | 21 | 19 ³ / ₈ | 18 ¹ / ₂ | 5 |
| 080-DB | 21 | 19 ³ / ₈ | 18 ¹ / ₂ | 5 |
| 095-DB | 24 ¹ / ₂ | 22 ³ / ₈ | 22 | 6 |

See Fig. 3 for wiring diagram showing the proper field high- and low-voltage wiring. Make all electrical connections in accordance with the National Electrical Code (NEC) and any local codes or ordinances that might apply.

Use a separate fused branch electrical circuit for this furnace. A disconnecting means must be located within sight from, and readily accessible from, the furnace.

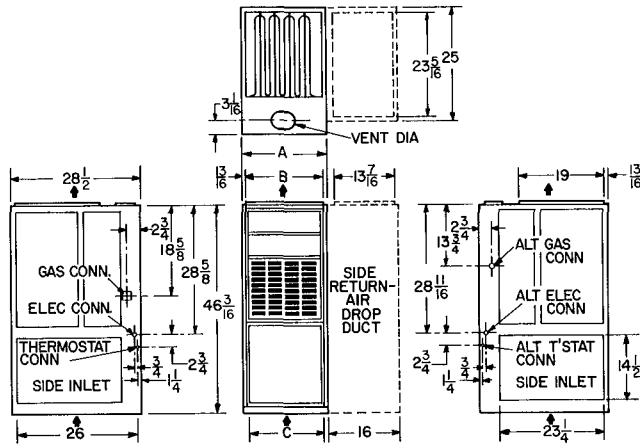
The auxiliary junction (J-) box can be moved to the right-hand side of furnace when a right-hand power supply is desired.

1. Remove 2 screws holding auxiliary J-box.
2. Drill 2 holes in same position on opposite side and mount auxiliary J-box.
3. Plug or cap unused electrical entry holes in left side of casing.

⚠ WARNING

The furnace must be electrically grounded in accordance with local codes, National Electrical Code, and ANSI C1-1978. Do not use gas piping as an electrical ground.

If line voltage wiring to the unit is encased in a non-metallic sheath, connect the incoming ground wire to the grounding wire inside the furnace J-box. If metallic conduit is used, it will serve as the ground.



→ Fig. 2 — Dimensions (in.)

INSTALLATION

NOTE: Some furnaces are shipped with paper across the supply air outlet. Remove the paper before installing furnace.

Electrical Connections

LINE VOLTAGE WIRING

IMPORTANT: Before proceeding with the electrical connections, make certain that voltage, frequency, and phase correspond to that specified on the unit rating plate. Also, check to be sure that the service provided by the utility is sufficient to handle the additional load imposed by this equipment. Refer to the unit rating plate for equipment electrical requirements.

LOW-VOLTAGE WIRING — Make field low-voltage connections at the low-voltage terminal strip. See Fig. 3.

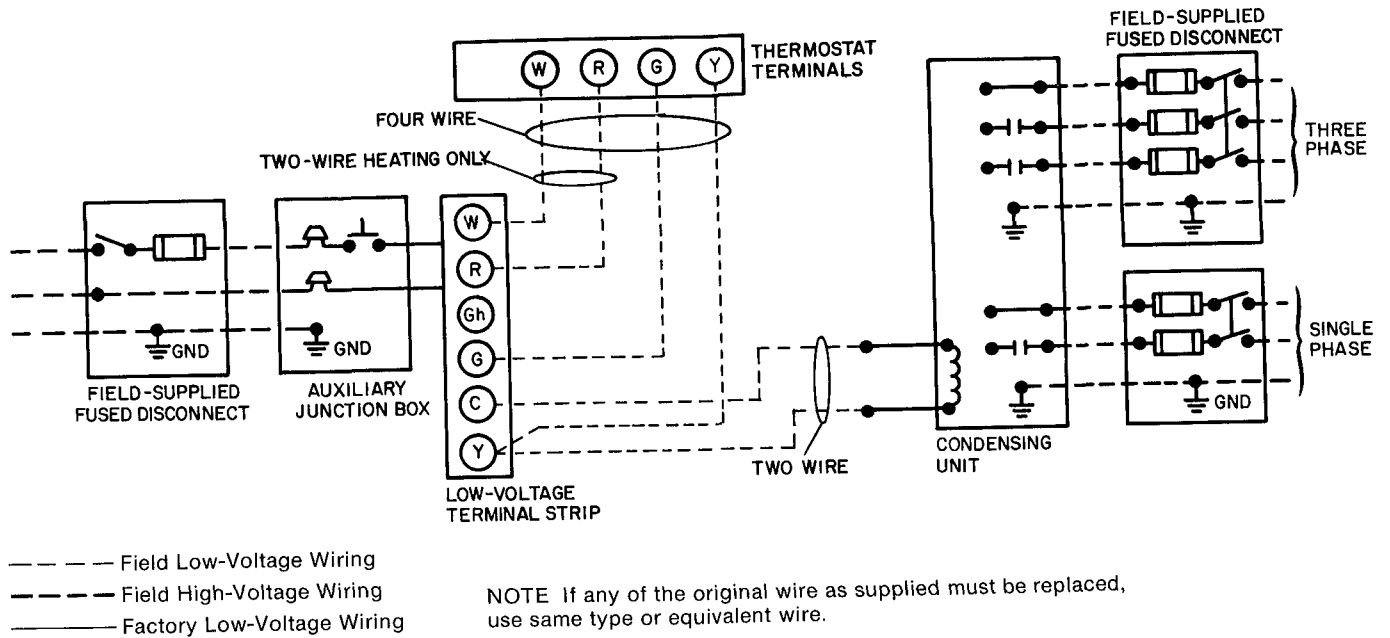
Set the thermostat heat anticipator at 0.6 for a furnace with a BDP Model 646 gas valve, and 0.2 when Model 58ES automatic vent damper is installed — no matter which gas valve is used. Refer to Installation Instructions for Accessory Vent Dampers for proper heat anticipator settings. If additional controls are connected in the thermostat circuit, their amp draw must be added to this setting.

For accurate reading, check the amp draw at the thermostat with an ammeter. A failure to make this setting will result in improper operation of the system.

The room thermostat should be located where it will be in the natural circulation path of room air. Avoid locations where the thermostat would be exposed to cold-air infiltration, drafts from windows, doors or other openings leading to the outside, or exposure to air currents from warm- or cold-air registers; or to exposure where the natural circulation of the air is cut off — such as behind doors, above or below mantels, shelves, etc.

⚠ CAUTION

Do not connect aluminum wire between disconnect switch and furnace.



→ Fig. 3 — Heating and Cooling Application Wiring Diagram

The thermostat should not be exposed to heat from nearby fireplaces, radios, televisions, lamps or rays from the sun. Nor should the thermostat be mounted on a wall containing pipes or warm-air ducts, or a flue or vent that could affect its operation and prevent it from properly controlling the room temperature. Any hole in the plaster or panel through which the wires pass from the thermostat should be adequately sealed with suitable material to prevent drafts from affecting the thermostat.

BLOWER CONTROL CENTER — Each furnace features a blower control center. This will aid the installer and serviceman when installing and servicing the unit. A low-voltage terminal board is marked for easy connection of field wiring. See Fig. 4.

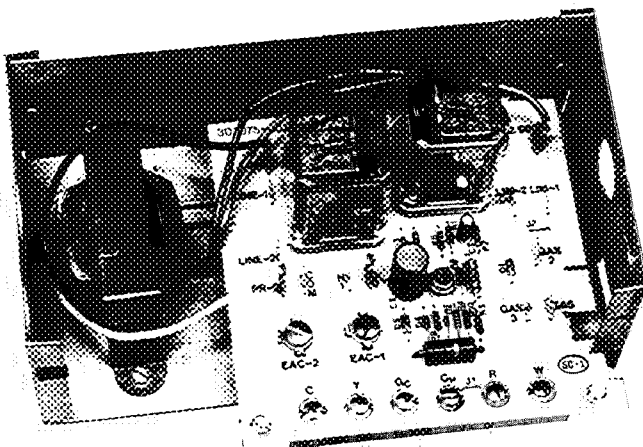


Fig. 4 — Blower Control Center (Heat/Cool Model Shown)

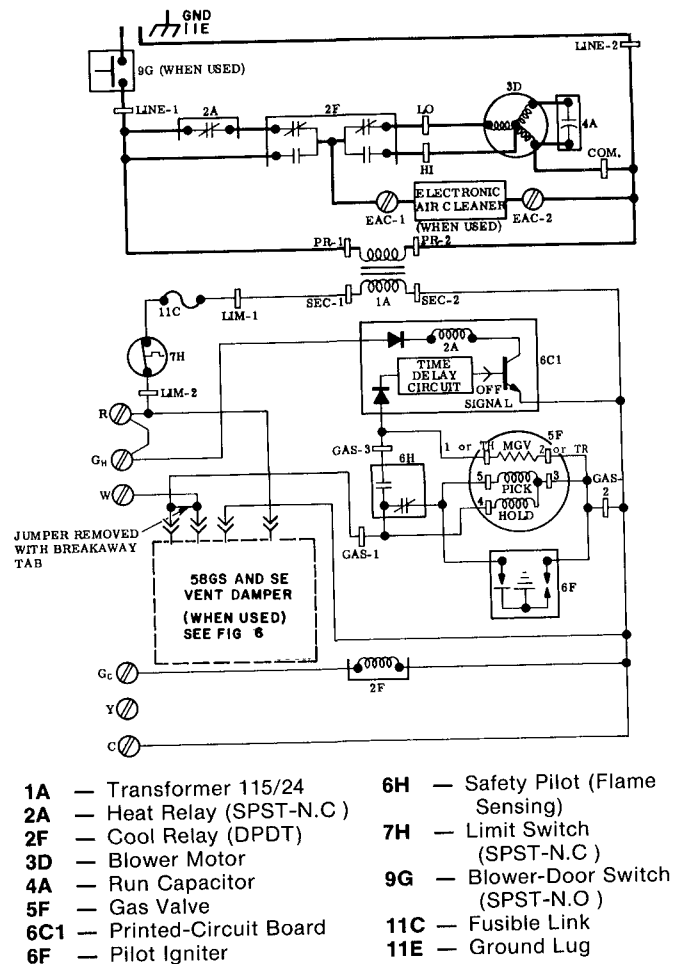


Fig. 5 — Line-to-Line Wiring Diagram for Sizes 030-095; (IID Pilot) Natural Gas with BDP 646 Gas Valve

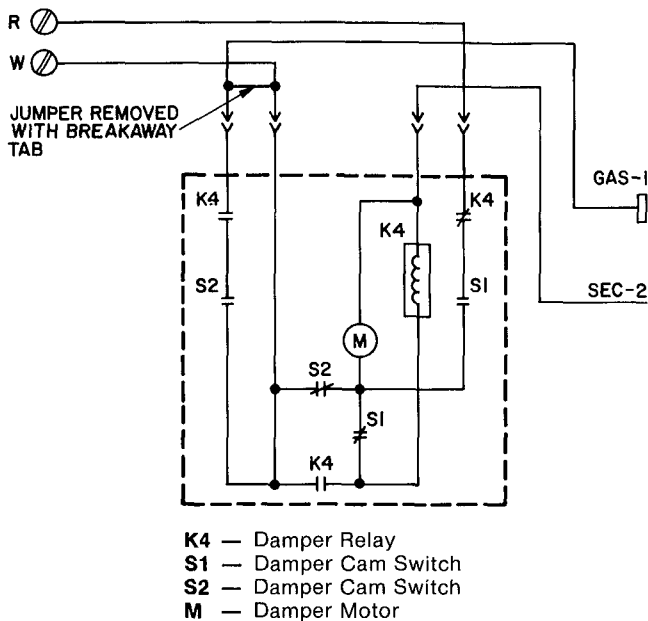


Fig. 6 — Circuit for Accessory 58GS/SE Vent Damper

Sequence of Operation

NOTE: The wiring diagram shown in Fig. 5 is heating/cooling.

HEATING — Gas and electrical supplies must be turned on at the furnace.

NOTE: When power is applied to heat relay coil 2A in the control circuit, the normally closed contacts in the supply circuit will open.

BDP 646 Gas Valve (IID Models) — When the thermostat calls for heat, the control circuit is closed between terminals R and W. Power from transformer 1A through fusible link 11C and limit switch 7H energizes the pilot valve portion of automatic gas valve 5F and pilot igniter 6F. The pilot valve opens, permitting gas flow to the pilot burner where it is ignited.

The pilot valve portion of automatic gas valve 5F is a solenoid consisting of a PICK and a HOLD coil. Both the PICK and the HOLD coils are energized to open the valve, but only the HOLD coil must be energized to keep it open.

When the pilot flame is established, pilot 6H switches its contacts in approximately 40 to 60 seconds, energizing the main valve portion of gas valve 5F and de-energizing pilot igniter 6F and the PICK coil of the pilot solenoid portion in gas valve 5F.

The main valve portion of gas valve 5F is heat motor operated; therefore, after approximately 10 seconds, this portion of the valve opens, permitting gas flow to the main burners where the gas is ignited by pilot 6H.

Table 4 — Pilot Gas Consumption

| PILOT | GAS | BTUH | IN. WG |
|---------|-----|------|--------|
| BDP 740 | Nat | 875 | 5.0 |

BLOWER CIRCUIT — With power through the solid-state time-delay circuit on printed-circuit board 6C1 and heat relay 2A, blower motor 3D is energized on heating speed approximately 75 seconds after the pilot flame has been proven.

LIMIT CONTROL — If the furnace overheats for any reason, limit control 7H switches, breaking the circuit to automatic gas valve 5F. The gas valve closes immediately, stopping gas flow to the main burners and the pilot. In addition, blower motor 3D continues to operate because heat relay 2A is de-energized to cool down the furnace.

Fusible link 11C is provided in the transformer 1A secondary circuit as protection from overheating conditions in the vestibule area of the furnace. Should this condition exist, the fuse opens and de-energizes gas valve 5F and heat relay 2A, stopping the gas flow to the burners and starting blower motor 3D.

When the thermostat is satisfied, the circuit between R and W is broken, de-energizing automatic gas valve 5F, pilot 6H and the solid-state time-delay circuit on printed-circuit board 6C1. The gas flow stops immediately to the pilot and main burners with the BDP 646 gas valve. After approximately 105 seconds, heat relay 2A is energized and blower motor 3D stops.

MODEL 58GS AND SE VENT DAMPER (WHEN USED) — With gas and electrical power supplied to the furnace, the vent damper is in the closed position. On a call for heat by the thermostat, the vent damper motor is energized and the damper opens. When the damper reaches full open position, the transformer energizes the gas valve.

When the thermostat is satisfied, it de-energizes the gas valve and stops the gas flow. The vent damper motor energizes and closes the damper. The damper remains closed until the next thermostat cycle.

COOLING (COOLING MODELS ONLY) — When the thermostat calls for cooling, power from transformer 1A energizes the condensing unit contactor, cooling relay coil 2F, closing its contacts and energizing blower motor 3D on its cooling speed. It continues to operate until the thermostat is satisfied.

When the thermostat is satisfied, the circuit to terminal Gc is broken, de-energizing cooling relay coil 2F which, in turn, opens its contacts, stopping blower motor 3D.

Filter

FILTER ARRANGEMENT

▲ CAUTION

Air delivery above 1800 cfm or systems with a total static pressure drop above 0.5 in. wc require that both sides, or a combination of one side and the bottom, or the bottom only of the furnace be used for return air. A filter is required in each return.

The filter is factory-installed in the bottom of the furnace. This is for bottom inlet application. See Fig. 7.

NOTE: Remove and discard bottom closure panel when bottom inlet is used.

NOTE: Filter shipped with 14-3/16 in. furnace casing must be trimmed to properly fit the bottom opening.

For side inlet application, see Fig. 2 for the opening size. Remove the filter and retainer spring from the bottom opening. Install the retainer spring in the holes provided — one in the blower deck and the other in the

retainer spring bracket. Install the filter (the filter must be trimmed to clear the J-box on some sizes) as shown in Fig. 8.

⚠ CAUTION

Be sure the filter retainer spring is behind the flange of the casing side.

This appliance shall *not* be installed directly on carpeting, tile, or combustible material other than wood flooring.

BOTTOM CLOSURE PANEL — When the side inlet is used, the bottom opening must be properly sealed by installing a bottom closure panel shipped under the filter in each furnace. To install the bottom closure panel, perform the following steps:

1. After filter has been installed for side return, remove bottom closure panel from furnace.
2. With furnace either tilted or raised, install panel in opening from bottom of furnace.
3. Apply appropriate material around bottom closure to obtain airtight seal.

⚠ WARNING

Never operate unit without a filter or with filter access door removed.

START-UP AND ADJUSTMENT

In addition to the following information, refer to Procedures for Gas-Fired Furnaces packaged with the unit.

NOTE: The furnace blower door must be in place to complete 115-volt circuit to the furnace.

⚠ CAUTION

This furnace is equipped with a fusible link in the vestibule area that will melt if an overheating condition caused by an inadequate combustion-air supply or improper venting practices develops. *Do not* jumper this fuse. Correct the condition and replace the fuse with an identical part.

The gas service pressure must not exceed 14 in. wc (8.1 oz) for natural gas, or 11 in. wc (6.3 oz) for LP (propane).

NOTE: The gas valve regulator has been factory-set at 3.5 in. wc for natural gas and 10.5 in. wc for LP (propane). Refer to Procedures for Gas-Fired Furnaces for re-adjusting when checking input.

Adjustment of Blower Speed

⚠ WARNING

Disconnect the electrical power before changing the speed tap.

To change motor speed taps, remove the motor tap lead (see Fig. 7 and Table 5) and relocate it on the desired terminal on the plug-in terminal block/speed selector located on the blower.

⚠ CAUTION

When adjusting the blower speed, make certain that the temperature rise across the heat exchanger does not exceed that specified on the rating plate.

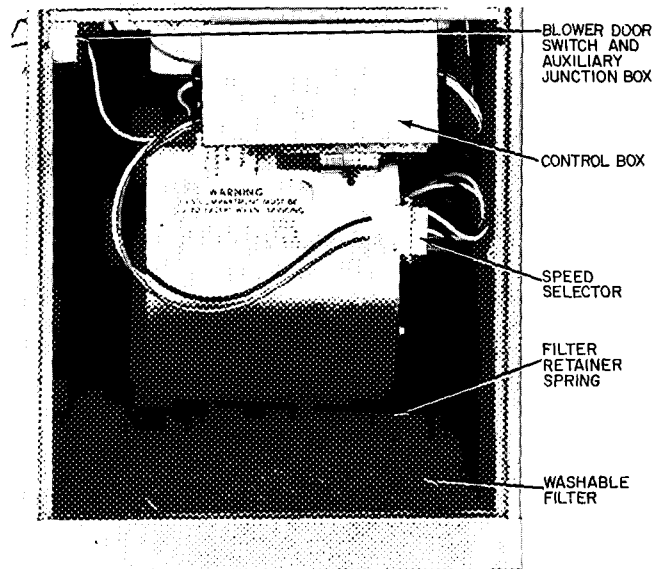


Fig. 7 — Filter Installed for Bottom Inlet

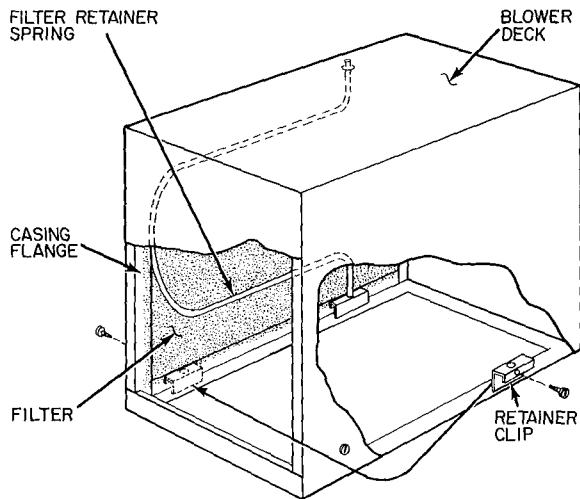


Fig. 8 — Filter Installed for Side Inlet

Table 5 — Speed Selector

| SPEED | COLOR | TAP NO. |
|---------|--------|---------|
| Common | White | C |
| Hi | Black | 1 |
| Med-Hi | Yellow | 2 |
| Med-Low | Blue | 3 |
| Low | Red | 4 |

Automatic Gas Control Valve (Fig. 9) — These units are equipped with an automatic gas control valve. If not already checked when lighting the main burner, check the proper operation of this valve by moving the

room thermostat pointer above and below room temperature and observing that the main burners light on call for heat and go off when the pointer is moved below room temperature setting

NOTE: For ease of adjusting the pilot flame, disconnect one power lead at main gas valve. For Model 646 valve, disconnect terminal No. 1. This will prevent main burner ignition and allow time to adjust the pilot. Reconnect the power lead after adjustment.

⚠ CAUTION
Follow start-up and pilot safety check procedures outlined in Procedures for Gas-Fired Furnaces booklet packaged with the furnace.

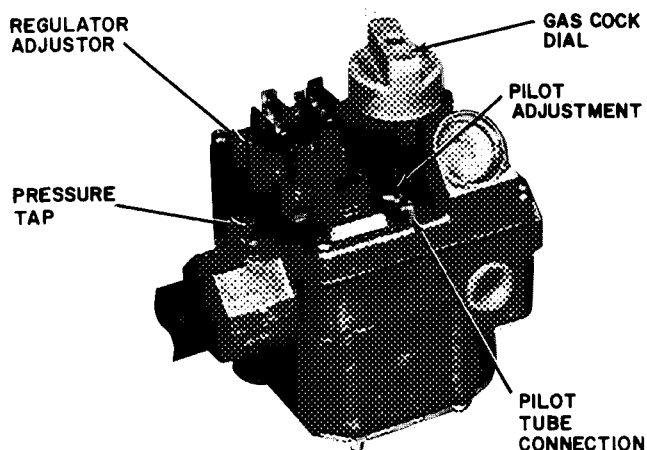


Fig. 9 — BDP Model 646 Gas Valve

CARE AND MAINTENANCE

⚠ CAUTION
Because of possible damage to the equipment or personal injury, maintenance should be performed by qualified persons only.

⚠ WARNING
Never store anything on, or in contact with the furnace, such as.

1. Spray or aerosol cans, rags, brooms, dust mops, vacuum cleaners or other cleaning tools.
2. Soap powders, bleaches, waxes or other cleaning compounds, plastic or plastic containers, gasoline, kerosene, cigarette lighter fluid, dry cleaning fluids, or other volatile fluids
3. Paint thinners and other painting compounds, paper bags or other paper products.

For continuing high performance, and to minimize possible equipment failure, it is essential that periodic maintenance be performed on this equipment. Consult your local dealer as to the proper frequency of maintenance and the availability of a maintenance contract.

The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. If you do not possess these, contact your dealer for maintenance.

⚠ WARNING
Turn off gas and electrical supplies to unit before performing any maintenance or service on unit. Follow relighting instructions on plate attached to furnace.

The minimum maintenance that should be performed on this equipment is as follows:

1. Check and clean or replace air filter each month or as required.
2. Check blower motor and wheel for cleanliness and lubrication each heating and cooling season. Clean and lubricate as necessary.
3. Check electrical connections for tightness and controls for proper operation each heating season. Service as necessary.

⚠ WARNING
As with any mechanical equipment, personal injury can result from sharp metal edges, etc.; therefore, be careful when removing parts.

Air Filter — Remember to disconnect electrical power before removing access panels. To clean or replace air filter, proceed as follows:

1. Remove blower access door.
2. Release filter retainer spring from behind flange of furnace casing.
3. Slide out filter.
4. Clean filter with tap water.
5. Rinse and let dry. Oiling or coating of filter is not required.
6. Place filter in furnace with cross-sectional binding up or facing blower.

Blower Motor and Wheel — For long life, economy, and high efficiency, clean accumulated dirt and grease from blower wheel and motor annually.

Lubricate motor every 5 years if motor is used on intermittent operation (thermostat FAN switch in AUTO position), or every 2 years if motor is in continuous operation (thermostat FAN switch in ON position).

Remember to disconnect electrical supply before removing access panels.

Clean and lubricate as follows:

1. Remove access panels.
2. Remove control box from bottom side of blower deck and lay it on top side. (Two clips are provided on back side of control box for hanging box on blower deck flange when desired.)
3. Remove electrical leads from numbered side of Molex speed selector. See Fig. 7 and Table 5. Note location of wires for reassembly.
4. Remove screws holding blower assembly against blower deck and slide blower assembly out of furnace.
5. Squeeze side tabs of Molex speed selector and pull it from blower housing.
6. Loosen a screw in strap holding motor capacitor to blower housing and slide capacitor from under strap.

7. Mark blower wheel(s), motor and motor support in relation to blower housing(s) before disassembly, to ensure proper reassembly.
8. Loosen setscrew holding blower wheel(s) onto motor shaft.
9. Remove bolts holding motor mount to blower housing and slide motor and mount out of housing. Some motors have a ground wire attached to blower housing; disconnect it also.
10. Lubricate motor.
 - a. Remove dust caps or plugs from oil ports located at each end of motor.
 - b. Use a good grade of SAE 20 nondetergent motor oil and put one teaspoon, 5 cc, 3/16 oz or 16 to 25 drops in each oil port.
 - c. Allow time for total quantity of oil to be absorbed by each bearing.
 - d. After oiling motor, be sure to wipe excess oil from motor housing.
 - e. Replace dust cap or plugs on oil ports.
11. Remove blower wheel(s) from housing.
 - a. Mark blower wheel(s) orientation and cutoff location to ensure proper reassembly.
 - b. Remove screws holding cutoff plate and remove cutoff plate from housing.
 - c. Lift blower wheel(s) from housing through opening.
12. Clean blower wheel(s) and motor by using vacuum with soft brush attachment. Care must be exercised not to disturb balance weights (clips) on blower wheel vanes. Also do not drop or bend wheel, as balance will be affected.
13. Reassemble blower by reversing procedures 11a through c. Be sure wheel is positioned for proper rotation.
14. Reassemble motor and blower by reversing procedures 5 through 9. If motor has ground wire, be sure it is connected as before.
15. Reinstall blower assembly in furnace.
16. Connect electrical leads to Molex speed selector. Please note that connections are polarized for assembly — *do not force*.
17. Reinstall control box on bottom side of blower deck.
18. Turn on electrical power and check for proper rotation and speed changes between heating and cooling.

Cleaning Heat Exchanger — If it becomes necessary to clean the heat exchanger because of carbon deposits, soot, etc., proceed as follows:

1. Turn off gas and electrical supply.
2. Remove access panels.
3. Remove vent connector and draft diverter. Screws are located inside draft diverter opening.
4. Remove flue chokes (2 across flue outlets) and baffles from flue outlets of heat exchanger. See Fig. 10.
5. Remove secondary-air baffle and burners. To remove pilot burner, disconnect pilot supply tube at gas valve.

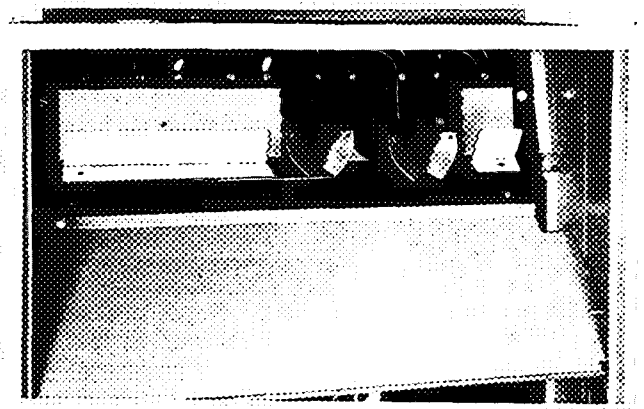


Fig. 10 — Removing Baffles

6. Clean flue ways with brush and/or vacuum. Check heat exchanger for leaks and cracks. Replace if necessary.
7. Using vacuum with soft brush attachment, clean burners. Reinstall burners after cleaning.
8. Replace flue baffles. Be sure all screws are in place and tight.
9. Replace draft diverter and vent connector. Be sure screws are replaced and tight.
10. Replace secondary-air baffle and burners.
11. Turn on gas and electricity. Check for gas leaks.

▲ WARNING

Never use a match or other open flame to check for gas leaks. Use a soap-and-water solution.

Pilot (Fig. 11) — Check the pilot and clean if necessary at the beginning of each heating season. The pilot flame should be high enough for proper impingement of the safety element and to light the burners. Remove the accumulation of soot and carbon from the sensing probe.

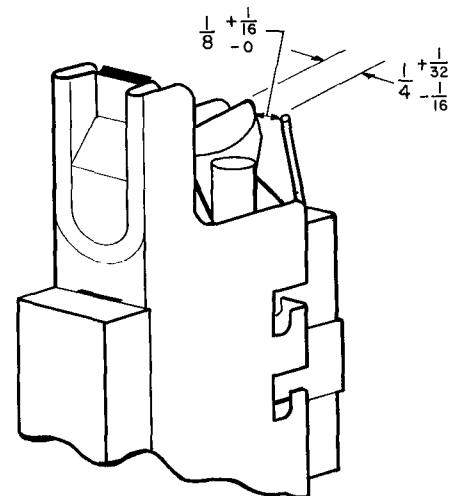


Fig. 11 — Position of Electrode to Pilot (in.)

Electrical Controls and Wiring

NOTE: There may be more than one electrical supply to unit.

With power disconnected to unit, check all electrical connections for tightness. Tighten all screws on electrical connections. If any smoky or burned connections are

noticed, disassemble the connection, clean all parts and stripped wire, and reassemble properly and securely. Electrical controls are difficult to check without proper instrumentation; therefore, reconnect electrical power to unit and observe unit through one complete operating cycle. If there are any discrepancies in the operating cycle, contact your dealer and request service.

Table 6 — Trouble Analysis Chart

⚠ WARNING

Turn off gas and power supply to unit before servicing (unless specific test requires gas and electric supplies).

| SYMPTOM | CAUSE | REMEDY |
|---|---|--|
| Furnace will not operate | No 115-volt power to furnace | Connect to power supply Check fuse, wiring, or circuit breaker. |
| | Blower door not in place | Install furnace blower door |
| | Defective blower door switch | Replace switch |
| Pilot will not light | No spark at electrode | Readjust, if necessary, so that gap between electrode tip and pilot burner is as shown in Fig 11 |
| | | Clean dirt or moisture accumulation from electrode ceramic with cloth |
| | | Cracked ceramic — replace pilot electrode assembly |
| | | Check for loose or broken wiring at and between spark generator and electrode Replace wire or tighten connection as necessary |
| | | Check fuse or circuit breaker for 115-volt supply to furnace. |
| | | Check 24-volt input to spark generator If you read 24 volts and above steps have been completed, replace spark generator assembly |
| | Spark shorting out to main burner | Readjust electrode as specified |
| No gas at pilot burner | Clean pilot orifice | |
| | Check voltage to terminals 3 and 5 of gas valve | |
| | Check for proper opening of pilot valve, broken wires, or loose connections If no deficiency is found, replace valve assembly | |
| Burners will not ignite | No 115-volt power to furnace | Connect to power supply. Check fuse, wiring or circuit breaker |
| | No 24-volt power to control circuit | Replace transformer |
| | Miswired or loose connections | Check all wiring and all wire nut connections |
| | No gas at main burners | Check voltage to terminals 1 and 2 of gas valve. |
| | | Check for proper opening of main gas valve, broken wires, or loose connections If no deficiency is found, replace gas valve assembly |
| Dirty pilot — yellow flame | Clean pilot orifice | |
| Blower operates continuously | Thermostat fan switch in ON position | Move thermostat fan switch to AUTO. position. |
| | Fusible link blown | Correct combustion air and venting practice — replace fuse link with identical part |
| | Dirty filter causing limit operation | Clean dirty air filter — reinstall |
| | Defective heat relay | Replace printed-circuit board |
| Inadequate heating | Furnace undersized for application | Replace with proper size furnace |
| | Gas input to furnace too low | Check gas pressure at manifold Clock gas meter for input If too low, increase manifold pressure or install correct orifices |
| | Limit switch cycles main burners | Clean dirty air filter — reinstall |
| | | Increase blower speed. Open registers — ductwork restricted |
| Thermostat anticipator set too low | Check thermostat circuit amps and set anticipator accordingly | |
| Aldehyde odors, (CO), sooting flame — floating flame. | Incomplete combustion — poor flame characteristics | Adjust air shutter on burners to provide soft, blue flame. Check all screws around flue outlets and burner compartment. Tighten |
| | | See Location & Air for Combustion & Ventilation (Procedures for Gas-Fired Furnaces). |
| | | Replace cracked heat exchanger. |
| | | Reduce input and check orifices — furnace overfired |
| | | Check vent for restriction |

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