

Packaged Dual Fuel Units



Owner's Guide to Operating and Maintaining Your Gas/Electric Unit

⚠ WARNING

ELECTRICAL SHOCK HAZARD.

Failure to follow this warning could result in personal injury, death, and/or property damage.

Disconnect power at fuse box or service panel before performing recommended maintenance.

⚠ WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK HAZARD.

Failure to follow this warning could result in personal injury, death, and/or property damage.

Do not use this unit if any part has been under water. Immediately call a qualified service technician to inspect the unit and to replace any part of the control system which has been under water.

⚠ WARNING

FIRE OR EXPLOSION HAZARD

Failure to follow safety warnings exactly could result in serious injury, death, and/or property damage.

—Information in this manual **MUST** be followed exactly.

—Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

—**WHAT TO DO IF YOU SMELL GAS**

- Leave the building immediately.
- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in the building.
- Immediately call your gas supplier from a neighbors phone. Follow the gas suppliers instructions.
- If you cannot reach your gas supplier, call the fire department.

— Installation and service must be performed by a qualified installer, service agency or the gas supplier.

This manual should be left with the owner.

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags, and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguisher available for all brazing operations.

⚠ WARNING

FIRE AND ELECTRICAL SHOCK HAZARD


Improper installation, adjustment, alteration, service, maintenance, or use can cause fire or an explosion which could result in personal injury or unit damage. Consult a qualified installer, service agency, or gas supplier for information or assistance. The qualified installer or agency must use only factory-authorized kits or accessories when modifying this product.

⚠ WARNING

FIRE, AND ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury, death and/or property damage.

Before performing service or maintenance operations on unit, turn off gas supply to unit. Then turn off unit main power switch and install lockout tag.

Recognize safety information. This is the safety-alert symbol . When you see this symbol in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTE**. These words are used with the safety-alert symbol. **DANGER** identifies the most serious hazards which **will** result in serious injury or death. **WARNING** signifies a hazard which **could** result in serious injury or death. **CAUTION** is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. **NOTE** is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

It is the personal responsibility and obligation of the customer to contact a qualified installer to ensure that the installation is adequate and conforms to governing codes and ordinances.

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in the shorten life of unit components.

Do NOT operate unit in a corrosive atmosphere containing chlorine, fluorine, or any other corrosive chemicals.

TO LIGHT UNIT

Your combination heating/cooling unit is equipped with an automatic direct spark ignition and power combustion blower.

⚠ WARNING

FIRE AND/OR EXPLOSION HAZARD

Failure to follow this warning could result in personal injury, death and/or property damage.

Do not attempt to light by hand, personal injury may result.

⚠ WARNING

FIRE AND/OR EXPLOSION HAZARD

Failure to follow this warning could result in personal injury, death, and/or property damage.

Do not turn off the electrical power to unit without first turning off the gas supply.

Before attempting to start the gas heating section, familiarize yourself with all the procedures that must be followed.

Refer to Figure 2 for gas valve location.

1. Set the temperature selector on room thermostat to the lowest temperature setting and set system switch to HEAT.
2. Close the external manual shutoff valve.
3. Turn off the electrical supply to the unit.
4. Remove the front access panel with a 5/16 -in. nut driver.
5. Move the selector switch on the internal gas valve to the OFF position and wait 5 minutes.
6. Move the selector switch on the internal gas valve to the ON position.
7. Replace the front access panel.
8. Turn on the electrical supply to unit.
9. Open the external manual shutoff valve.
10. Set the temperature selector on room thermostat 7 degrees above room temperature to start unit. The induced-draft combustion-air fan will start. Main gas valve will open and burners should ignite the gas within 25 seconds. If burners do not light within 25 seconds, the ignition control will go into a Retry Mode that will take another 25 seconds. If the burners fail to ignite the gas in 4 consecutive attempts, the unit will lockout for 3 hours.
11. Set the temperature selector on room thermostat to desired setting.

⚠ WARNING

FIRE AND/OR EXPLOSION HAZARD

Failure to follow this warning could result in personal injury, death, and/or property damage.

1. If the main burners fail to light, or the blower fails to start, shut down gas heating section and call your dealer for service.
2. Never attempt to manually light the main burners on unit with a match, lighter, or any other flame. If the electric sparking device fails to light the main burners, refer to the following shutdown procedures, then call your dealer as soon as possible.

TO SHUT UNIT OFF

⚠ WARNING

FIRE AND/OR EXPLOSION HAZARD

Failure to follow this warning could result in personal injury, death, and/or property damage.

Do not turn off the electrical power to unit without first turning off the gas supply.

NOTE: If unit is being shut down because the heating season has ended, make sure to turn on power to cooling system.

If unit is being shut down because of a malfunction, call your dealer as soon as possible.

Should the gas supply fail to shut off or if overheating occurs, shut off the manual gas valve to the unit before shutting off the electrical supply.

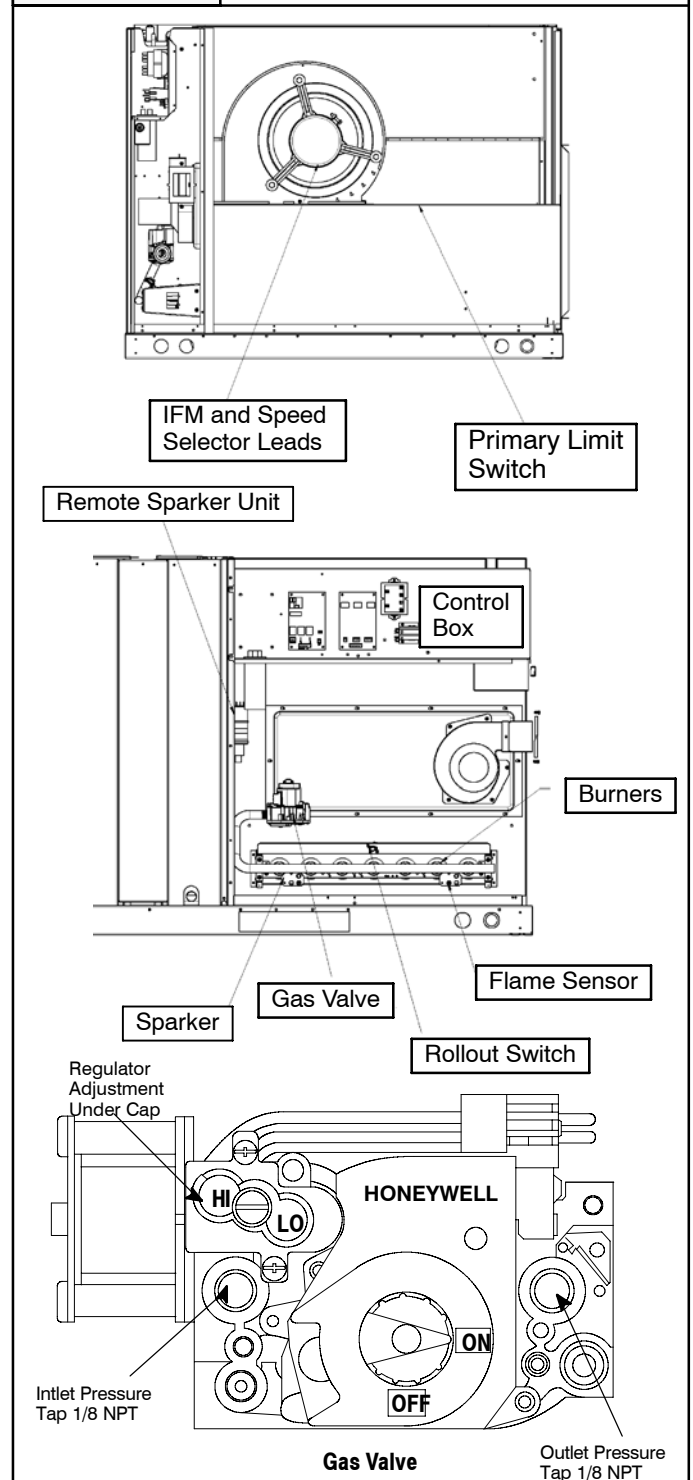
Do not use this furnace if any part has been under water. A flood-damaged furnace is extremely dangerous. Attempts to use the furnace can result in fire or explosion. A qualified service agency should be contacted to inspect the furnace and to replace all gas controls, control system parts, electrical parts that have been wet or the furnace if deemed necessary.

Refer to Fig. 2 while proceeding with the following steps.

1. Set the temperature selector on room thermostat to lowest temperature setting and set system switch to OFF.
2. Close the external manual shutoff valve.
3. Turn off the electrical power supply to the unit.
4. Remove the front access panel.
5. Move the selector switch on the internal gas valve to the OFF position.
6. Replace the burner access panel.
7. Restore electrical power to the unit and set system switch to COOL to ensure operation of the cooling system during the cooling season.

Figure 2

Access to Gas Valve



SEQUENCE OF OPERATION

Cooling Mode:

1. Adjust thermostat setting below room temperature and set thermostat selector to COOL.
2. The compressor and condenser fan will immediately energize.
3. The evaporator motor will either immediately start on full speed or wait approximately 30 seconds to reach full speed (field-selectable).

The air conditioner has 2 stages of cooling and will automatically pick the correct cooling stage based on the difference between the actual indoor temperature and the set point temperature on the thermostat. For maximum efficiency, avoid frequent changes to the set point temperature.

4. When the cooling setpoint has been satisfied
 - a. The compressor and condenser fan will de-energize immediately.
 - b. The evaporator motor will either immediately turn off or run for an additional 90 seconds before turning off (field-selectable).

Cooling Cycle - When operating in the cooling cycle, your air conditioner will run until the indoor temperature is lowered to the level you have selected. On extremely hot days, your air conditioner will run for longer periods at a time and have shorter "off" periods than on moderate days.

The following are typical conditions that add extra heat and/or humidity to your home. Your air conditioner will work longer to keep your home comfortable under these conditions:

- Entrance doors are frequently opened and closed
- Laundry appliances are being operated
- A shower is running
- More than the usual number of people are present in the home
- More than the normal number of electric lights are in use
- Drapes are open on the sunny side of the home

GAS HEATING START-UP PROCEDURE

1. Temporarily set balance point warm enough to lock out heat pump. Adjust thermostat setting above room temperature and set thermostat selector to HEAT. The combustion air blower will energize on high speed.
2. The combustion air blower will run on high speed for 15 seconds to purge the combustion chamber.
3. After the 15 second purge, the combustion air blower will remain on. The sparker will turn on to ignite the gas at the same time the gas valve is energized on low stage. Make sure the gas valve is in the "ON" position (Refer to Figure 14 and the instruction label located on the inside of the burner access panel.
4. The sparker will remain energized for 7 seconds or until a flame is detected by the flame sensor. It may take several ignition attempts to purge the air out of the gas line at the initial start-up of the unit.
5. Once flame is proven, the ignition control will switch the combustion air blower to low speed. The unit will run in low stage gas heat for 10 minute or until the thermostat is satisfied, whichever is shorter. If the thermostat is not satisfied after 10 minutes, the unit will go to second stage gas heat and run until the thermostat is satisfied.
6. 30 seconds after the burners light, the circulating air blower will begin to run.
7. After checking start up, return balance point temperature to desired setting.

NOTE: Regardless of whether the thermostat is calling for low stage gas heat or high stage gas heat, the unit will always start with the high inducer speed and low stage gas valve operation.

The gas heating system has 2 stages of heating and will automatically pick the correct heating stage based on the difference between the actual indoor temperature and the set point temperature on the thermostat. For maximum efficiency, avoid frequent changes to the set point temperature.

7. When the heating setpoint has been satisfied:
 - a. The gas valve will turn immediately off.
 - b. The combustion air blower will run for an additional 15 seconds to purge exhaust gas.
 - c. The circulating air motor will continue to run an additional 60, 100, 140, or 180 seconds (field-selectable) before turning off to extract additional heat from the heat exchanger.

<p>⚠ WARNING</p> <p>FIRE AND/OR EXPLOSION HAZARD</p> <p>Failure to follow this warning could result in personal injury, death, and/or property damage.</p> <p>Do NOT attempt to light the pilot or burner with a match or flame of any kind.</p>
--

ROUTINE MAINTENANCE

All routine maintenance should be handled by skilled, experienced personnel. Your dealer can help you establish a standard procedure.

For your safety, keep the unit area clear and free of combustible materials, gasoline, and other flammable liquids and vapors.

To assure proper functioning of the unit, flow of combustion and ventilating air must not be obstructed from reaching the unit. Clearance of at least 30 in. is required on all sides except the duct side.

MAINTENANCE AND CARE FOR THE EQUIPMENT OWNER

Before proceeding with those things you might want to maintain yourself, please carefully consider the following:

- **TURN OFF GAS SUPPLY AND ELECTRICAL POWER TO YOUR UNIT BEFORE SERVICING OR PERFORMING MAINTENANCE.**
- Do not turn off electrical power to this unit without first turning off the gas supply.
- When removing access panels or performing maintenance functions inside your unit, be aware of sharp sheet metal parts and screws. Although special care is taken to reduce sharp edges to a minimum, be extremely careful when handling parts or reaching into the unit.

AIR FILTERS - Air filter(s) should be checked at least every 3 or 4 weeks and changed or cleaned whenever it becomes dirty. Dirty filters produce excessive stress on the blower motor and can cause the motor to overheat and shut down. Table 1 indicates the correct filter size for your unit.

When installing the new filter(s), note the direction of the airflow arrows on the filter frame.

If you have difficulty in locating your air filter(s), or if you have questions concerning proper filter maintenance, contact your dealer for instructions. When replacing filters, always use the same size and type of filter that was supplied

originally by the installer. **NEVER OPERATE THE UNIT WITHOUT FILTERS IN PLACE. FAILURE TO OPERATE WITHOUT FILTERS COULD RESULT IN DAMAGE TO THE BLOWER MOTOR AND/OR COMPRESSOR.**

TABLE 1		Filter Data		
Model	Disposable Filters		Washable Filters ¹	
	Nominal Size (qty x w x d)	Minimum Area (sq. inches)	Nominal Size (w x d) (inches)	Minimum Area (sq. inches)
PDX424040	1 x 20" x 20"	384	1 x 10" x 20"	192
PDX430060	1 x 20" x 24"	480	1 x 12" x 20"	240
PDX436080	2 x 15" x 20"	576	1 x 15" x 20"	288
PDX442080	2 x 18" x 20"	672	1 x 18" x 20"	336
PDX448100	2 x 20" x 20"	768	1 x 20" x 20"	384
PDX460100	2 x 20" x 24"	960	1 x 20" x 24"	480

¹ Washable filter size is based on an allowable face velocity of 600 ft/min. Refer to filter manufacturer's specifications for allowable face velocity and required filter area.

HEAT EXCHANGER - To ensure dependable and efficient heating operation, the heat exchanger should be checked by a qualified maintenance person before each heating season, and cleaned when necessary. This checkout should not be attempted by anyone not having the required expertise and equipment to properly do the job. Checking and/or cleaning the heat exchanger involves removing the gas controls assembly and the flue collector box cover and, when completed, reinstalling the gas controls assembly for proper operation. Also, the flue collector box cover must be replaced correctly so that a proper seal is maintained. Contact your dealer for the required periodic maintenance.

FANS AND FAN MOTOR - Periodically check the condition of fan wheels and housings and fan-motor shaft bearings. No lubrication of condenser- or evaporator-fan bearings or motors is required or recommended.

EVAPORATOR AND CONDENSER COILS - Cleaning of the coils should only be done by qualified service personnel. Contact your dealer for the required annual maintenance.

CONDENSATE DRAIN - The drain pan and condensate drain line should be checked and cleaned at the same time the cooling coils are checked by your dealer.

COMPRESSOR - All compressors are factory-shipped with a normal charge of the correct type refrigeration grade oil in them and should rarely require additional oil. The service person must be certain the proper oil level is maintained in the compressor when it is installed and running.

CONDENSER FAN -The fan must be kept free of all obstructions to ensure proper cooling. Contact your dealer for any required service.

ELECTRICAL CONTROLS and WIRING - Electrical controls are difficult to check without proper instrumentation; therefore, if there are any discrepancies in the operating cycle, contact your dealer and request service.

REFRIGERATION CIRCUIT - The refrigerant circuit is difficult to check for leaks without the proper equipment;

therefore, if inadequate cooling is suspected, contact your local dealer for service.

COMBUSTION AREA and VENT SYSTEM - The combustion area and vent system should be inspected visually before each heating season. The normal accumulation of dirt, soot, rust, and scale can result in loss of efficiency and improper performance if allowed to build.

UNIT PANELS - After performing any maintenance or service on the unit, be sure all panels are fastened securely in place to prevent rain from entering unit cabinet and to prevent disruption of the correct unit airflow pattern.

REGULAR DEALER MAINTENANCE

In addition to the type of routine maintenance you might be willing to perform, your unit should be inspected regularly by a properly trained service technician. An inspection (preferably each year, but at least every other year) should include the following:

1. Inspection of all flue product passages - including the burners, heat exchanger, and flue collector box.
2. Inspection of all combustion- and ventilation-air passages and openings.
3. Close inspection of all gas pipes leading to and inside of your unit.
4. Inspection and, if required, cleaning of the condenser and evaporator coils.
5. Inspection and, if required, cleaning of the evaporator drain pan.
6. Inspection and cleaning of blower wheel housing and motor.
7. Inspection of all supply-air and return-air ducts for leaks, obstructions, and insulation integrity. Any problems found should be resolved at this time.
8. Inspection of the unit base to ensure that no cracks, gaps, etc., exist which may cause a hazardous condition.
9. Inspection of the unit casing for signs of deterioration.
10. Inspection of all electrical wiring and components to assure proper connection.

11. Inspection for leaks in the refrigerant circuit. Pressure-check to determine appropriate refrigerant charge.
12. Inspection of compressor oil level.
13. Operational check of the unit to determine working conditions. Repair or adjustment should be made at this time.

Your servicing dealer may offer an economical service contract that covers seasonal inspections. Ask for further details.

Complete service instructions can be found in the unit Installation, Start-Up and Service Instructions.

BEFORE YOU CALL FOR SERVICE, CHECK FOR THESE EASILY SOLVED PROBLEMS

Check the indoor and outdoor disconnect switches. Verify that circuit breakers are ON.

Check for sufficient airflow. Check the air filter(s) for any accumulations of dirt. Check for blocked return-air or supply-air grilles. Be sure grilles are open and unobstructed.

Check the settings on your indoor thermostat. If you desire cooling, see that the temperature control selector is set below room temperature and the SYSTEM switch is on the COOL or AUTO position. If you require warmth, be sure the temperature control selector is set above room temperature and the SYSTEM switch is at HEAT or AUTO. The FAN switch should be set at ON for continuous blower operation or AUTO if you wish the blower to function only while the unit is operating.

If your comfort system still fails to operate, contact your servicing dealer for troubleshooting and repairs. Specify your apparent problem, and state the model and serial numbers of your equipment. (You should have them recorded on page 4 of this booklet.) With this information, your dealer may be able to offer helpful suggestions over the phone, or save valuable time through knowledgeable preparation for the service call.

INSTALLATION DATA

Date Installed _____
 Dealer Name _____
 Address _____
 City _____
 State _____ Zip _____
 Telephone _____

UNIT DATA

Product No. _____
 Model No. _____
 Serial No. _____