

OPERATION
HOT SURFACE PILOT
IGNITION
"A" SERIES

USER'S INFORMATION MANUAL

MULTI - POSITION GAS
WARM AIR FURNACE

MAINTENANCE

ISSUE
0002

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- 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:**
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's 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.

FOR PROPER AND SAFE OPERATION OF YOUR FURNACE

DO NOT

Place combustible materials, gasoline and/or other flammable vapors and liquids on, against or near the furnace or flue pipe.

DO NOT

Block or obstruct air openings on the furnace, air openings communicating with the area in which the furnace is installed and the spacing around the furnace. These provide air for combustion and ventilation.

DO NOT

Store anything near or in contact with the furnace such as: spray or aerosol cans, rags, brooms, dust mops, vacuum cleaners or other cleaning tools, soap powders, bleaches, waxes or other cleaning compounds, plastic or plastic containers, gasoline, kerosene, cigarette lighter fluid, dry cleaning fluids or painting compounds.

WARNING

Turn OFF all gas and electrical power to furnace before performing any maintenance or service on unit. Failure to take this precaution may result in personal injury due to electrical shock or uncontrolled gas leakage.

CAUTION

The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. If you are at all uncertain, contact your dealer for qualified maintenance and service.

The operation and care of your unit is simple and easy. By following these operating and maintenance procedures, you can expect to receive better, longer and more reliable service from your new appliance.

Here Are A Few "DO'S AND DON'TS"

- **DO** become familiar with the instructions.
- **DO** check to see that your home has adequate insulation, weatherstripping, caulking and storm windows. Elimination of infiltration of outside air and drafts can save up to 40% of your fuel bill.
- **DO** consider adding a humidifier to your heating system. Higher indoor humidity slows evaporation of perspiration, making the home seem warmer.
- **DON'T** waste fuel by setting your thermostat too high. Energy conservation experts recommend a daytime thermostat setting of 68°F, with a lower setting at night.
- **DON'T** turn off the furnace when you expect to be away for more than a day. Instead, lower the thermostat setting by a few degrees. You can then restore normal comfort level quickly and save fuel too.
- **DON'T** block registers with furniture.
- **DON'T** put a lamp, TV or radio too near your thermostat. This will cause it to give a false reading.

Here's How Your Heating System Works

The furnace operates automatically. A thermostat that you set at the temperature most comfortable to you controls the furnace. When the inside temperature drops below this setting, your thermostat will turn on the heating system.

When the thermostat calls for heat, power from the transformer energizes the fan control board. The fan control energizes the induced draft blower motor. The pressure switch(es) closes and initiates the ignition sequence: The SmartValve™ will energize the pilot gas valve. The SmartValve™ will light the pilot automatically. If the pilot flame is sensed, the main valve will open and the pilot flame will light the burners.

The electronic fan control will automatically turn on

the blower after 30 seconds. Fan ON control is not adjustable. The air moved over the heating element by the blower is warmed and passes through the ducts to the room registers.

WARNING

Should overheating occur, or the gas supply fail to shut OFF, turn off the manual gas valve to the appliance **BEFORE** turning off the electrical supply. A failure to adhere to this warning can result in a fire or explosion and bodily harm.

When the thermostat is satisfied, the circuit is de-energized and the main gas valve stops gas flow to the burners. The blower continues to run until the selectable fan OFF time period has expired.

The heat sensing switch performs as the high temperature limit switch. If the furnace overheats for any reason, the limit switch opens, breaking the circuit to the main gas valve. If the limit is activated, check for a restriction in the duct system (i.e., dirty filters, blocked ductwork, closed registers, etc.). The blower motor and inducer motor will be energized and the unit cools. As soon as the limit switch closes, the burners will re-light. The furnace will cycle on limit unless the overheating condition is corrected. If the furnace is cycling on the limit switch corrective action must be taken. Failure to correct this condition could possibly damage the heat exchangers and may not be covered by the warranty.

This furnace is equipped with a Honeywell SV9501 "Hot-Surface Pilot" ignition control. If the unit does not light due to a gas interruption, the system will continue attempting to light until the gas is restored and the unit lights or the system is turned "OFF". The sequence of lighting is as follows:

- 30 sec. Trial for ignition - igniter & pilot valve energizes
- 25 sec. Lockout - igniter & pilot valve de-energized
- 30 sec. Trial for ignition - igniter & pilot valve energized
- 5 min. Lockout - igniter & pilot valve de-energized

As long as the thermostat is calling for heat this cycle will repeat indefinitely until the pilot lights.

Flame Rollout Shutoff Switch

This furnace is equipped with one or more manual reset flame rollout shutoff switch(es) which attach near to the burners. In the event that a blockage prevents the venting of the flue gases from the heat exchanger, this switch(es) will detect the conditions that would produce a flame rollout and shut off power to the automatic gas valve before there is furnace damage or a flame rollout outside of the furnace cabinet. The loss of power to the gas valve will shut off the gas burners; however, the blower will still be controlled by the fan control limit switch and will operate until the heat exchanger temperatures are cooled.

The actuation of the flame rollout shutoff switch(es) indicates a blockage condition in the vent system or the heat exchanger. Before putting the furnace back into operation, the heat exchanger/venting system must be checked by a qualified serviceman and the blockage removed.

If the switch(es) has been activated, it will be necessary to push the red reset button(s), located on the back of the switch(es), to put the furnace back into operation.

WARNING

If the flame rollout shutoff switch or pressure switch are activated, failure to check and clear the heat exchanger assembly could lead to nuisance furnace shut down and/or a hazardous condition which may lead to bodily harm.

Preparing Furnace For Heating Operation

Before attempting to put your furnace into operation for the heating season you should perform the following procedures.

WARNING

If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

1. Open all warm air registers and make sure that all return air grills are unobstructed.
2. If a humidifier is installed with your system, open the water supply valve.
3. **IF YOU SMELL GAS**
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you can not reach your gas supplier, call the fire department.

Lighting Your Furnace

Lighting instructions are also on the front of the furnace on the blower door. Should you have any doubts in your mind concerning the proper lighting procedures, call your gas serviceman to light your furnace.

CAUTION

This furnace is equipped with an intermittent type electronic ignition system. **DO NOT ATTEMPT TO LIGHT PILOT WITH A MATCH. DANGER! HIGH VOLTAGE AT IGNITOR.**

1. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
2. After preparing the furnace for operation (See previous section) and checking for gas, proceed as follows.
3. For a heating/cooling system, set the thermostat system switch to "HEAT" and the fan switch to "AUTO". Set the thermostat to the desired room temperature and turn on the electrical power to the furnace.
4. Move the gas control switch to the "ON" position (See Figure 1). After a brief period, the main burners should light and the system should be controlled by the thermostat.

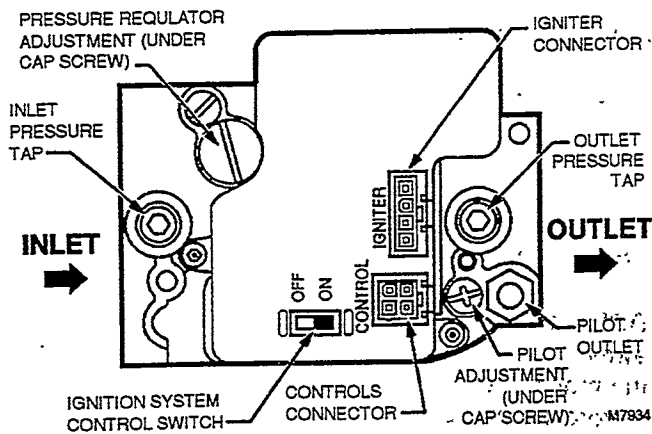


Figure 1

If the appliance will not operate, follow the instructions "Turn OFF Gas To Furnace" and call your service technician or gas supplier.

CAUTION

All access panels must be in place when furnace is in operation.

Turn OFF Gas To Furnace

Follow these simple procedures to put your furnace into "retirement" for the summer.

1. Set the thermostat to the lowest setting.
2. Turn off all electric power to the appliance.
3. Move the gas control switch to the "OFF" position. Do not force switch. See Figure 1.
4. If applicable, turn off water supply to humidifier.
5. If furnace blower will be necessary for cooling system, remember to turn electric power back on when needed for air conditioning.

Maintaining Your Unit

The life of your system depends on the care you give it. Proper care assures good performance; lack of it can damage the unit.

Here are the things you should do, or have your dealer serviceman do for you.

NOTE: Before you start, turn OFF all electrical power to unit and turn thermostat to "OFF".

Filters

A filter and filter rack may be supplied with the furnace or may be supplied as optional equipment. In either case it is **NECESSARY THAT ALL FURNACES BE EQUIPPED WITH A FILTER.**

If filter rack is optional, follow the instructions with the filter rack. If the filter rack is supplied with the furnace the following instructions will apply.

Minimum filter size and suggested filter material. If different type filter is used, it must be an equivalent high airflow capacity.

MODEL	SIDE RETURN	BOTTOM/END RETURN
050B2	15 1/2 X 25	12 X 25
050B3		
075B2		
075B3		
075B4	15 1/2 X 25	15 1/2 X 25
100B3		
100B4		
100B5	15 1/2 X 25	19 X 25
125B5		



3. Clean the filter. The filter (optionally) supplied with the furnace is a permanent filter that may be washed with water. Allow the filter to dry before re-installing it into the furnace.
4. To re-install the filter, slide filter (with screen side of the filter facing the blower) into the furnace underneath the blower. The filter should slide under the angle retainer pieces at the sides of the cabinet, under the blower, and be inserted against the back of the cabinet.
5. Replace the blower door and the control box access panel.

WARNING

Never operate unit without a filter or with filter access door removed. Failure to adhere to this warning could lead to a hazardous condition which could lead to equipment damage and bodily harm.

Keeping Filters Clean

As a homeowner, this is your most important responsibility. A dirty filter reduces the efficiency of your system, causes erratic performance of controls and could result in damage to the motor or heating element.

Inspect filters at regular intervals, depending upon dirt conditions. For new homes, check filters every week for 4 consecutive weeks. In all cases, inspect your filters at least every 3 to 4 weeks when the system is in constant operation. Replace or clean filter at least at the beginning of each season (heating & cooling) and thereafter as needed.

Lubricating Motors

Direct drive motor and blower assemblies are factory lubricated and normally do not require oiling. If oiling is required, lubrication of the blower motor is to be performed only by a qualified service agency.

CAUTION

A furnace that is installed in an attic or other insulated space must be kept free and clear of insulating materials. After the furnace is installed, or whenever additional insulation is added, check that all combustion air intakes are free and clear and that all clearance dimensions are maintained. **INSULATING MATERIALS MAY BE COMBUSTIBLE.**

Filter Removal Procedure for Factory Supplied Filter

1. Remove the blower door from the front of the furnace by first removing the control box access panel, then removing the two screws in the top of the blower door, then pull the top of the blower door away from the unit and lift it "up" and away from the unit.
2. Lift up on the front edge of the filter and pull it straight forward, out of the unit.

Cleaning Heat Exchanger, Burners & Venting Systems

CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

VERIFY PROPER OPERATION AFTER SERVICING.

WARNING

The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. If you are at all uncertain, contact your dealer for qualified maintenance and service since improper service could lead to furnace shutdown or a hazardous condition which could lead to an unsafe condition and bodily harm.

The heat exchanger, gas burners and venting system must be checked each year, prior to the heating season, by a qualified dealer/serviceman.

The following procedures should be performed:

1. Make sure that all utilities (gas and electricity) to the furnace are turned **OFF**.
2. Disconnect the gas line from the valve. Remove all wiring from the gas valve.
3. Remove the burner removal cover and the manifold retention plate.
4. Remove the burner manifold assembly.
5. Place the burner/manifold assembly on a flat work area and vacuum the burner ports. It might be necessary to use a soft bristle brush to remove dirt and then vacuum. While manifold assembly is out, check pilot location.
6. Remove the manifold retention plate from the back side of the unit.
7. Remove the burner opening inlet plate.
8. Using a small rubber mallet, gently tap the burner opening of each tube in order to break loose any possible obstruction within each tube.
9. Using a straight attachment on the vacuum, vacuum the length of each heat exchanger tube and the burner box.
10. Replace the burner opening inlet plate, the back manifold retention plate, the burners and the front manifold retention plate and burner removal covers.
11. Reattach all piping and wiring as per wiring diagram.
12. Turn on utilities and check for leaks using soapy water and a brush.

WARNING

Never use an open flame when testing for gas leaks! Use of an open flame could lead to a fire or explosion.

CAUTION

Many soaps used for leak testing are corrosive to certain metals. Piping must be rinsed thoroughly with clean water after leak check has been completed.

13. A visual check of the main burner and pilot flame should be made at the beginning of each heating season. See Figure 2 for proper flame.

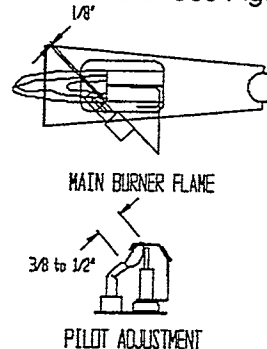


Figure 2

Inspecting The Furnace, Flueways, & Ductwork

It is the homeowner's responsibility to have the furnace, all flue carrying areas, and the ductwork inspected on a periodic basis. This inspection should be performed by a qualified service agency and it is highly recommended to be done on a yearly basis.

WARNING

Failure to have these inspections performed could lead to a hazardous furnace operating condition that could result in bodily injury.

The following items should be checked during the required inspections:

1. All air intake and flue product carrying areas external to the furnace (i.e., vent terminals, etc.) are clear and free of obstructions before placing the unit into operation.

2. The vent is in place, slopes upward and is physically sound without holes or excessive corrosion and installed in accordance with the manufacturer's instructions.
3. The return-air duct connection is physically sound, is sealed to the furnace casing, and terminates outside the space containing the furnace.
4. The physical support of the furnace is sound without sagging, cracks, gaps, etc., around the base so as to provide a seal between the support and the base.
5. There are no obvious signs of deterioration of the furnace.
6. The pilot and burner flames are in good adjustment (by comparison with the pictorial sketches of the main burner flame and the pilot burner flame, as shown in Figure 2).

Here's A Handy Checklist

If your furnace fails to operate properly, first check the following. It may save you the cost of a service call:

1. Is your room thermostat set correctly? On heating/cooling systems, the thermostat system switch should be turned to "HEAT", the fan switch to "AUTO" or "CONT" (continuous fan operation).
2. Are the power and gas both on?
3. Are the filters clean?

If the answer to these questions is "YES" and the furnace still doesn't operate properly, call your authorized dealer for service.

WARNING

Do not use this furnace if any part has been under water. Immediately call a qualified service technician to inspect the furnace and to replace any part of the control system and any gas control which has been under water. Failure to comply with this warning could lead to equipment failure, electrical shock and a hazardous condition which may lead to bodily harm.

WARNING

The unit cabinet must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. This may consist of electrical wire or approved conduit when installed in accordance with existing electrical codes. Do not use gas piping as an electrical ground. Failure to follow this warning can result in an electrical shock, fire or bodily harm.

WARNING

Return air must not be taken from the room in which the appliance is installed. All duct connections to the furnace must be airtight to avoid a "negative" pressure condition within the room. Incorrect ductwork termination and sealing will create a hazardous condition which could lead to bodily harm.