ECR International

USER'S INFORMATION MANUAL

THESE INSTRUCTIONS APPLY TO THE MODEL GTH NATURAL GAS AND LP GAS HIGH EFFICIENCY (CONDENSING) WARM AIR FURNACE.

⚠ This symbol indicates important Safety Related Information

⚠WARNING

If the information in these instructions is not followed exactly, a fire or explosion may result, causing property damage, personal injury or death.

⚠WARNING

FOR YOUR SAFETY

⇨ **Do not store or use gasoline or other flammable vapors and liquids, or other combustible materials 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, or a cellular phone from a location well away from the building. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.
- Do not re-enter the building until authorized to do so by the gas supplier or the fire department.

⇨ **Improper installation, adjustment, alteration, service or maintenance can cause injury, property damage or death. Refer to this manual.**

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

DO NOT DESTROY THIS MANUAL

Please read carefully and keep in a safe place for future reference.

SAFETY ISSUES

IMPORTANT:

READ THESE INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING TO OPERATE THIS FURNACE.

This furnace has been designed to deliver many years of efficient, dependable service. With regular maintenance, some of which requires the attention of a qualified installer, service agency or gas supplier, some of which you may do yourself, the furnace will operate satisfactorily over many heating seasons.

Please read this manual to familiarize yourself with safety procedures, operation, and routine maintenance procedures.

Figure 1 is provided to help identify the components of your furnace.

⚠WARNING

IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH

FOR ASSISTANCE OR ADDITIONAL INFORMATION, CONSULT A QUALIFIED INSTALLER, SERVICE AGENCY, OR YOUR GAS SUPPLIER.

⚠WARNING

DEVICES ATTACHED TO EITHER THE VENT OR COMBUSTION AIR INTAKE FOR THE PURPOSES OF EXCEEDING THE LIMITATIONS DESCIBED IN THE INSTALLATION MANUAL, INCLUDING FIELD INSTALLED INDUCED BLOWER FANS HAVE NOT BEEN TESTED AND ARE NOT INCLUDED IN THE DESIGN CERTIFICATION OF THE FURNACE.

WE, THE MANUFACTURER CANNOT AND WILL NOT SPECULATE ON THE EFFECTS OF SUCH MODIFICATIONS, AND CANNOT AND WILL NOT BE RESPONSIBLE FOR INJURY OR DAMAGE CAUSED BY THE USE OF SUCH UNTESTED AND/OR UNCERTIFIED DEVICES, ACCESSORIES OR COMPONENTS.

Most natural gas systems and all LP gas systems have a service regulator located near the point where the gas piping enters the building.

The propane tank will normally have an additional first stage regulator located at the tank outlet valve. All of these regulators (located outdoors) will have a vent; see Fig. 2.

It is important for these vents to remain clear. Do not allow moisture, which could freeze, to build up in the vent. If you see moisture building up in the regulator vent, contact your gas supplier.

FIGURE 1: FURNACE COMPONENTS

1. Combustion Air Intake Fitting
2. Flame Roll-out Switch
3. Burner Assembly
4. Gas Valve
5. Vent Drain Assembly
6. Pressure Switch - Recovery Coil
7. Pressure Switch - Induced Draft
8. Induced Blower Assembly
9. Condensate drain - Recovery Coil
10. Drain Trap Assembly
11. Control Panel / Drawer
12. Door Switch
13. Circulating Blower
14. Junction Box

FIGURE 2: GAS REGULATOR VENT

Regulator Vent

Keep free of ice, snow and debris.

⚠WARNING

OBSTRUCTION OF THE AIR VENT ON AN LP (PROPANE) CYLINDER OR TANK REGULATOR CAN CAUSE EXPLOSION OR FIRE RESULTING IN PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.

YOUR GAS SUPPLIER SHOULD PERIODICALLY INSPECT AND CLEAN THE AIR VENT SCREEN TO PREVENT ANY OBSTRUCTION. KEEP PROTECTIVE REGULATOR COVER IN PLACE, AS EXPOSURE TO THE ELEMENTS CAN CAUSE ICE BUILDUP AND REGULATOR FAILURE.

GENERAL SAFETY RULES

1. Combustible materials should not be stored against or around the furnace. Keep the furnace area clear and free from all combustible materials such as newspapers, rags, cardboard, clothing, etc. This applies especially to gasoline and other flammable vapors and liquids.
2. A furnace needs adequate amounts of combustion and ventilation air to operate properly. Do not block or obstruct air openings on the furnace, or air openings supplying combustion or ventilation air to the area where the furnace is installed. There are many areas from which your furnace could be receiving combustion and ventilation air including from within the heated area (inside air), from outdoors, from an attic or crawl space. If renovations are done, be sure that air supply openings are not inadvertently covered over with insulation, vapor barrier, or similar construction material.
3. All doors and panels must be in place during normal furnace operation. Attempting to operate the furnace with missing doors or panels could lead to the creation of carbon monoxide gas.
4. If the furnace is installed in a confined space or if you intend to build a furnace room where insulation is present, be aware that some insulating materials are combustible. Do not allow building insulating materials to come into contact with the furnace.
5. Any additions, alterations or conversions required in order for the furnace to properly match the application requirements must be done by a qualified installation contractor, service agency or gas supplier, using factory specified or approved parts.
6. Familiarize yourself with the location of the furnace gas manual shut-off valve and any electrical switches , fuse or circuit breaker associated with the furnace.
7. Should over-heating occur, or if the gas valve fails to shut off the burners, shut off the gas supply with the furnace manual shut-off valve, then shut off the electrical supply to the furnace. In the case of the latter, call a qualified installation contractor, service contractor, or gas supplier.
8. If the furnace has been subjected to flood conditions, i.e., if any part of the furnace has been under water, call a qualified installer, service agency or gas supplier for a complete inspection. Electronic controls and gas train components may become unstable and unreliable. The furnace must not be used until the furnace has been checked, and any affected parts have been replaced.
9. Do not allow snow, ice or debris to accumulate around the outdoor furnace exhaust and combustion air intake terminals. Blockage of the exhaust or combustion intake terminals can result in inadequate performance or nuisance shutdowns.
10. Familiarize yourself with the location of your furnace filter or filters. A blocked air filter will reduce efficiency, increase fuel consumption, raise the furnace operating temperature, and shorten the life of furnace components.
11. Do not cover return air grills and supply air registers with drapes, curtains, throw rugs, etc.
12. Avoid shutting off supply air registers in the interests of saving heat. While there is some validity to this practice with space heating, there is little to be gained in central heating systems. The furnace requires a quantity of air passing over the heat exchanger to operate within design temperatures. Reducing the number of supply air registers available for air delivery may have the unforeseen consequence of raising the furnace operating temperature, reducing furnace efficiency, and shortening the life of the furnace components.

FURNACE OPERATION INFORMATION

During the heating season, the operation of the furnace is fully automatic.

TO START THE FURNACE:

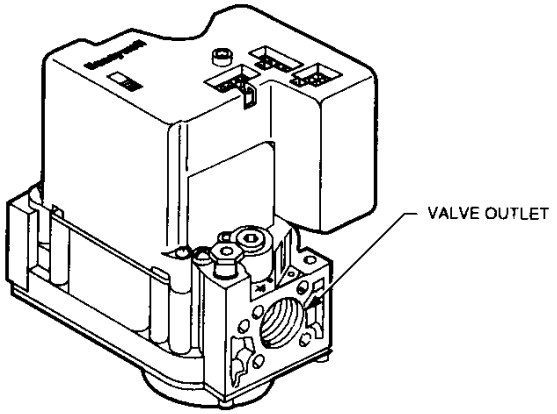
1. First read these instructions and safety notices thoroughly.
2. Set the thermostat to the lowest setting.
3. Ensure that all supply air registers and return air grilles are open.
4. Turn off the electric power to the furnace.
5. Remove the burner access door.
6. Ensure that the appliance manual shut-off valve is in the "ON" position. The valve handle is normally in-line with the gas pipe and valve body when it is in the "ON" position; perpendicular to the gas piping and valve body when it is in the "OFF" position.
7. Honeywell gas valve: no action required. White-Rodgers gas valve: turn the manual gas control knob to the "OFF" position (see Fig. 5).
8. Wait 5 minutes to clear out any gas. If, after this time you smell gas, **STOP**. Turn the appliance manual shut-off valve to the "OFF" position. If burning propane or other LP gas, smell for gas near the floor since propane and butane are both heavier than air. If after this time you do not smell gas, continue to the next step.
9. Honeywell gas valve: Ensure that the "I*gnition System Control Switch*" is in the "ON" position (see Fig. 4). White-Rodgers gas valve: turn the manual gas control knob to the "ON" position.

⚠WARNING

Never use tools to turn the manual gas control knob. If the control knob will not turn by hand, do not attempt to force it. Doing so could result in explosion or fire resulting in serious property damage, personal injury or death. Call a qualified installation contractor, service agency or gas supplier.

10. Replace the burner access door, ensuring that it is properly in place.
11. Restore the electric power to the furnace.
12. Adjust the thermostat to the desired setting. If the thermostat also controls an air conditioning system, ensure that the thermostat system switch is in the "HEAT" or "AUTO" mode.

Figure 3: Honeywell Gas Valve



If this is the first time that the furnace has undergone a trial ignition since installation, or if there has been work done on the gas lines, the furnace might not light because of air trapped in the gas supply line.

Simply turn the thermostat down to its lowest setting, wait 5 minutes, then adjust the thermostat to the desired setting. If the problem persists, proceed to the Furnace Shut-Down Procedure and call your installer, service agency or gas supplier.

FURNACE SHUT-DOWN PROCEDURE

1. Set the thermostat to its lowest setting.
2. Shut off electric power to the furnace.
3. Turn the appliance manual shut-off valve to the "OFF" position.
4. If your furnace is equipped with the White-Rodgers gas valve, remove the burner access door, turn the manual gas control knob to the "OFF" position, then re-install the burner access door.

If you intend to be away from home for lengthy periods of time during the non-heating season, it is advisable to follow the furnace shut down procedure.

Figure 4: Honeywell Valve

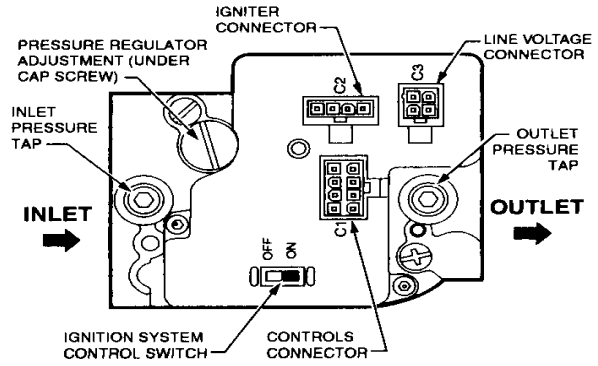
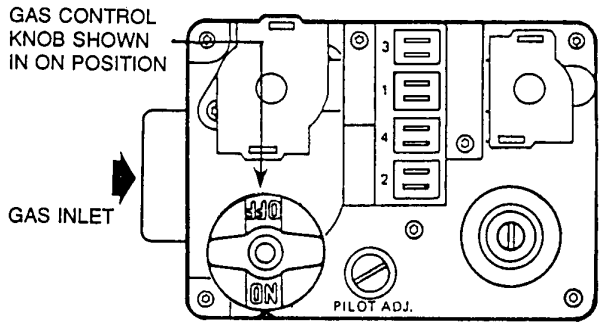


Figure 5: White-Rodgers Valve



MAINTENANCE

ROUTINE MAINTENANCE BY HOMEOWNER

AIR FILTER

⚠CAUTION

DO NOT OPERATE YOUR FURNACE (OR AIR CONDITIONER) FOR EXTENDED PERIODS OF TIME WITHOUT AN AIR FILTER.

A portion of the dust entrained in the air may temporarily lodge in the air duct runs and the supply registers. Any recirculated dust particles will be heated and charred by coming into contact with the heat exchanger. This residue will soil ceilings, walls, drapes, carpets, furniture, and other household articles.

⚠WARNING

DISCONNECT THE ELECTRICAL POWER TO THE FURNACE BEFORE ATTEMPTING ANY MAINTENANCE. FAILURE TO DO SO MAY CAUSE ELECTRICAL SHOCK RESULTING IN SEVERE PERSONAL INJURY OR DEATH.

The furnace is supplied with a semi-permanent 16 x 25 x 1 air filter. The filter medium is synthetic sponge, which allows for several cleanings before the filter requires replacement.

REMOVING FILTER

1. Disconnect electrical power to the furnace.
2. Remove the blower compartment access door.
3. Lift filter out of the bottom retainer rail, allow the filter to drop to the base panel which will disengage it from the top retainer rail.
4. Pull the filter out the front.
5. Clean or replace the filter, then re-install by reversing steps 1 through 3.
6. Replace blower access door.

If the filter is installed on the bottom, to remove, follow the above guide skipping step 3.

FILTER CLEANING

Vacuum the loose dirt from the filter, then wash it using a mild detergent and water. Please handle carefully. The synthetic sponge medium can be easily punctured and made unsuitable for air filtration.

Figure 6: Side Positioned Filter

⚠CAUTION

ALLOW THE FILTER TO DRY THOROUGHLY BEFORE RE-INSTALLATION. NEVER OPERATE THE BLOWER FAN WITH A WET FILTER.

Consult your installation contractor or service technician if you have any questions on filters.

CAUTION

If cleaning rather than replacing the filter, unless the filter is thoroughly washed and dried, be sure that the filter is re-installed with the airflow direction identical to its previous use. Reversing the filter will cause dust trapped within the filter to break free and recirculate within the duct system.

LUBRICATION

Minimal lubrication is required for your furnace. The induced blower assembly motors have sealed bearings. The bearings contain permanent special purpose lubricants. Attempting to force common oil into the induced blower motor bearings will deteriorate the original lubricant and shorten bearing life.

⚠WARNING

DISCONNECT ELECTRICAL POWER TO THE FURNACE BEFORE ATTEMPTING TO LUBRICATE THE BLOWER MOTOR. FAILURE TO DO SO COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH.

The circulating fan may have permanently lubricated ball bearings or sleeve bearings. If the blower motor is equipped with sleeve bearings, periodic oiling is required. If the fan motor runs continuously, the bearings should be oiled yearly. If the fan runs occasionally, (automatically), the bearings may be oiled after the second year. 4 - 6 drops of SAE 20 non-detergent oil is ideal. The oiling ports are normally (but not necessarily) located on the outside edge of the motor end bells. The inner oil port is difficult to reach without a "tele-spout" or similar type oiler. If you cannot see an oil port, we recommend that you leave this part of the maintenance to your service contractor.

⚠CAUTION

Do not use automotive motor oil, household oil, general purpose oil, etc. These oils will shorten the life of the motor.

⚠CAUTION

Do not over-oil the electric motor. Excess oil will shorten the life of the motor.

ROUTINE EXAMINATION

It is good practice to give a quick inspection of your furnace each time you inspect or clean the air filter. Things to check:

- Check the furnace for obvious signs of deterioration.
- Check the venting and combustion air piping to ensure that it is still fastened to the furnace. It should not sag, and should have a ¼ inch to the foot slope upwards to the chimney or outlet terminal.
- There should be no water marks on the floor under the venting. Water marks may indicate a leaking pipe joint.
- All ductwork should be secured to the furnace, and all ductwork should be solidly supported throughout the heating system.
- Water should flow easily through the condensate drain line. You may be able to observe this while the furnace is operating if your condensate drain line from the drain trap assembly terminates at a floor drain or sump pit. If clear plastic was used, it may yellow with age; however, the contents should be reasonably clear. Excess debris in the drain line may indicate a problem which should be referred to your service contractor. If the drain lines are opaque, your service technician will check them during the annual servicing.
- The gas burner should be observed from time to time during the heating season to ensure that the flames are clean and blue. A bit of orange color in the flame is not likely to be a problem and is probably dust particles burning. If you observe lazy yellow flames, call your heating or service contractor immediately. The yellow flames inevitably lead to soot-ups.

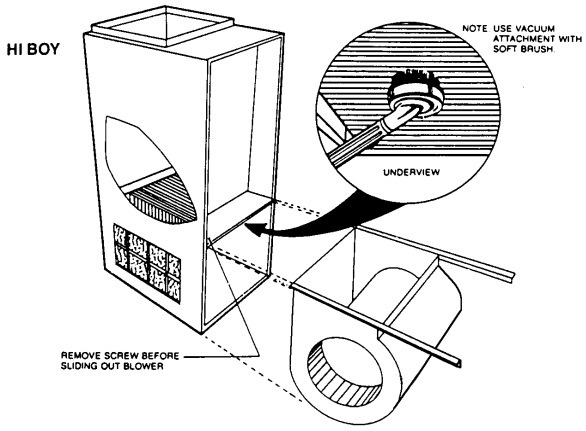


Figure 7: Recovery Coil Access

FURNACE APPEARANCE

The furnace exterior finish is a durable automotive like coating. It may be washed with mild soap if necessary. Galvanized metal surfaces require no maintenance.

CLEANING

It is advisable to keep dust build-up on warm surfaces to a minimum, since dust, in some cases, can be a combustible.

Dust build-up in the circulating fan can impair blower performance; therefore, reduce efficiency.

The recovery coil is located immediately above the blower assembly. Over time, it may become coated with dust.

Steps to clean the recovery coil:

1. Disconnect electrical power to the furnace.

2. Remove the blower access door
3. Remove the screws fastening the blower assembly to the blower division panel.
4. Pull the blower assembly out.
5. Once the blower assembly has been removed, the coils may be vacuumed with the soft brush attachment, (see Figure 7).

   Be careful not to bend the fins when cleaning. You may wish to leave this maintenance procedure to your service technician.
6. Match up the blower rails with the hangers on the underside of the blower division panel, then slide the blower assembly back into position
7. Replace the screws fastening the blower assembly to the blower division panel.
8. Replace the blower access door.
9. Restore electrical power to the furnace.

Routine cleaning the interior of the recovery coil should not be necessary. If evidence develops indicating that a cleaning is necessary, it should be done by a trained and qualified service technician. Evidence may include large amounts of dirt or debris building up in the condensate drain line.

The burner area should be inspected and cleaned periodically. Be careful when cleaning around the burner area. The hot surface igniter is fragile and will break easily. Do not touch the hot surface igniter or flame rod

⚠WARNING

NEVER ATTEMPT TO CLEAN THE BURNER AREA WHILE THE BURNERS ARE OPERATING. DOING SO MAY RESULT IN EXPLOSION OR FIRE RESULTING IN SEVERE PERSONAL INJURY OR DEATH.

ALWAYS DISCONNECT THE ELECTRICAL SUPPLY TO THE FURNACE BEFORE REMOVING THE BURNER COMPARTMENT ACCESS DOOR.

⚠CAUTION

The furnace gas train is designed to operate as a sealed unit. Be sure that the burner compartment access door is properly in place before attempting to restart the furnace.

The furnace achieves its high efficiency in three general areas. First, there is no wasteful standing pilot. The furnace consumes no gas in between cycles. Secondly, the furnace is designed to allow very small amounts of excess air in the combustion process. Older furnaces had heat exchangers which were commonly 40% larger than necessary for complete combustion. While this prevented the creation of carbon monoxide, the heated excess air was expelled up the chimney where it could not benefit the interior of the home. Special safety controls now prevent the formation of carbon monoxide.

The third general area is the recovery of the latent heat contained in the flue gas, which is comprised of water vapor and carbon dioxide. By condensing the flue gas in the furnace recovery coil, heat that would otherwise be wasted to the outdoors, is captured and redirected into the duct system where it contributes to home comfort. Each pound of condensation formed releases approximately 970 BTU's Your furnace may condense up to ½ gallon (5 pounds) of water per hour if running continuously.

This condensation must be properly disposed into a sump or drainage system. The condensate lines must remain clear and free flowing. Do not allow plastic drain lines to become pinched or kinked. A blocked drain line can cause the furnace to operate erratically, or not at all.

IMPORTANT

Your furnace should be cleaned and inspected annually by a trained and qualified service technician.

Your service technician has the knowledge and test equipment to determine the condition of your furnace.

SEQUENCE OF OPERATION

1. Thermostat, responding to cool room, calls for heat.
2. Combustion air blower begins.
3. After 15 second pre-purge, hot surface igniter warms up. (Its glow can be seen through burner compartment sight glass.
4. After approximately 5 seconds, the gas valve will open, burners ignite.
5. Thirty seconds after the burners ignite, the main blower starts on the heating speed.
6. System remains in this state until the room air temperature rises causing the thermostat to terminate its call for heat.
7. The gas valve shuts off; the burners extinguish.
8. After brief post-purge period, (5 seconds), the combustion air fan stops. The main blower continues to run.
9. Approximately 2 minutes after the burners extinguish, the main blower stops. Elapse time ranges from 60 seconds to 150 seconds, depending on the installer's adjustments.
10. The furnace remains idle until the next call for heat.

VARIATIONS

If your system includes air conditioning, your thermostat (supplied by the installer) will likely have two switches. The first switch is the system switch. The switch settings usually include HEAT, COOL, and OFF. Some thermostats have system switches which include HEAT, COOL, AUTO, and OFF. The system switch must be in the HEAT or AUTO position for the furnace to run.

The second switch is the fan switch. It usually has settings of ON and AUTO. The fan switch may be in either position when using the furnace. If the fan switch is set to ON, the main blower will run continuously, and the blower delays mentioned in the sequence of operation points 5 and 9 will be ignored.

Home Owner Information

To help remember important information,

Please fill in the chart below:

Model No.:	
Serial No.:	
Installer:	
Address:	
City:	
Postal Code:	

Telephone Numbers

Installer:	
Serviceman:	
After Hr. Phone:	
Fuel Supplier:	

ECR International

6800 Base Line, Wallaceburg, Ontario, N8A 5E5, Can. Tel: (519) 627-0791 Fax: (519) 627-4719
2201 Dwyer Avenue, Utica, New York, 13504, USA. Tel: (315) 797-1310 Fax: (315) 724-9319
85 Middle Road, Dunkirk, New York, 14048, USA. Tel: (716) 366-5500 Fax: (716) 366-1209
www.ecrinternational.com