



User's Information Manual

Boiler, Heating Appliance, and VWH* Models



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 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 provided by a qualified installer, service agency, or the gas supplier.

WARNING

Improper installation, adjustment, alteration, service, or maintenance could void product warranty and cause property damage, severe personal injury, or death.

NOTICE

The manufacturer reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.

*VWH Models: The surfaces of these products contacted by potable (consumable) water contain less than 0.25% lead by weight as required by the Safe Drinking Water Act, Section 1417.

NOTE TO CONSUMER: PLEASE KEEP ALL INSTRUCTIONS FOR FUTURE REFERENCE.

SPECIAL ATTENTION BOXES

The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels or to important product information.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in serious personal injury or death.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in personal injury or death.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor personal injury.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

NOTICE is used to address practices not related to personal injury.

FOR YOUR SAFETY READ BEFORE OPERATING

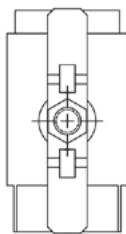
WARNING: If you do not follow these instructions exactly, a fire or explosion may result, causing property damage, personal injury or loss of life.

- A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- WHAT TO DO IF YOU SMELL GAS**
- Do not try to light any appliance
 - Do not touch any electric switch; do not use any phone in your building
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas suppliers' instructions.
- If you cannot reach your gas supplier, call the fire department.
- C. Use only your hand to turn the gas control knob. Never use tools. If the handle will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

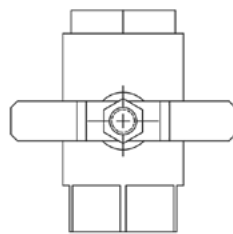
OPERATING INSTRUCTIONS

1. STOP! Read the safety information above.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
5. Remove front cover.
6. Turn gas shutoff valve to "off". Handle will be across the piping, do not force.
7. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to next step.
8. Turn gas shutoff valve to "on". Handle will be in line with piping.
9. Install Front Cover.
10. Turn on all electric power to appliance.
11. Set thermostat to desired setting.
12. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

GAS VALVE
ON



GAS VALVE
OFF



TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove Front Cover.
4. Turn gas shutoff valve to "off". Handle will be across the piping. Do not force.
5. Install Front Cover.

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Part 1 - Product and Safety Information

WARNING

Proper care of this appliance is the user's / owner's responsibility.

User - Have this appliance serviced / inspected annually by a qualified service technician.

FAILURE TO ADHERE TO THE GUIDELINES AND WARNINGS IN THIS MANUAL CAN RESULT IN SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.

The combustion chamber insulation in this product contains ceramic fiber material. Ceramic fibers can be converted to cristobalite in very high temperature applications. The International Agency for Research on Cancer (IARC) has concluded, "Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)." **DO NOT, UNDER ANY CIRCUMSTANCES, OPEN THE COMBUSTION CHAMBER OF THIS APPLIANCE!** The combustion chamber of this appliance may be opened by a qualified service technician **ONLY**. **FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.**

OPERATING INSTRUCTIONS

1. STOP! DO NOT use this appliance unless it is completely filled with water.
2. Ensure electrical power to the appliance is powered OFF.
3. This appliance is equipped with an ignition device which automatically lights the burner. DO NOT attempt to light the burner by hand.
4. Turn the gas shut-off valve clockwise to the "OFF" position. Do not force.
5. Wait five (5) minutes to clear out any gas. If you smell gas, STOP! Follow the information on page 2, this manual. If you don't smell gas, go to the next step.
6. Turn manual gas shut-off valve to the "ON" position.
7. Turn ON electrical power to the appliance.
8. Generate a call for hot water by opening a hot water faucet in the system.
9. If the appliance will not operate, follow the instructions on page 2 to turn off the gas to the appliance. Then call your service technician or gas supplier.

It is the user / owner's responsibility to know the location of the gas shut-off valve and how to operate it. Immediately close the gas shut-off valve if the appliance is subjected to fire, overheating, flood, physical damage, or any other damaging condition that might affect the operation of the unit. Have the appliance checked by a qualified technician before resuming operation.

DO NOT use this appliance if ANY part has been under water. Immediately call a qualified technician to inspect the appliance and replace any part of the control system or gas control which has been under water.

DO NOT power up the appliance unless the gas and water supply valves are fully opened. Make sure the fresh air intake pipe and exhaust vents are open and functional.

DO NOT attempt to install, repair, or service this appliance. Contact a qualified technician if the appliance needs repair or maintenance. Ask your gas supplier for a list of qualified service providers.

DO NOT use spray paint, hair spray, or any other flammable sprays near the appliance or near the exterior fresh air intake pipe termination. DO NOT place any items in or around the exterior exhaust vent termination and/or fresh air intake pipe that could restrict or block the flow in or out of the vent system.

DO NOT attempt to disassemble this appliance. If repairs are required, contact a qualified service technician.

WARNING

All safety devices must be tested after the appliance is installed.

Always verify proper appliance operation after servicing.

If an Error or Fault Code is displayed on the appliance contact a qualified service technician.

The gas ignition system components must be protected from water (dripping, spraying, rain, etc.) during appliance operation and service (circulator replacement, condensate trap, control replacement, etc.)

This appliance features a factory installed overheating prevention device. This limit provides appliance shutdown in the event that the appliance water temperature exceeds the set point of the limit control. Certain local codes require additional water temperature limiting devices.

Attempting to operate this appliance on a gas supply other than specified on the rating plate will result in improper appliance operation, and could result in property damage, personal injury, or death.

Call a qualified service technician if repair of the gas pipeline or replacement of the gas regulator is necessary.

Exhaust gas entering the living space can cause carbon monoxide poisoning. If exhaust gas should leak into the living space:

- Shut down the appliance.
- Close the gas valve.
- Open windows for ventilation.

Immediately call a qualified service technician to inspect the appliance and exhaust vent pipe. Any damages to the exhaust vent pipe should be repaired immediately.

DO NOT store flammable or combustible materials near this appliance.

DO NOT wipe the appliance or control panel with a wet cloth.

DO NOT shut off the appliance for long periods of time during potentially freezing conditions.

Ensure exposed water pipes are thermally insulated to prevent damage due to freezing conditions. If the appliance is not to be used for an extended period of time during freezing conditions, shut down the system and completely drain the appliance.

If the water pipes should freeze, thaw the pipes with a hair dryer or other electric heating device. If this does not work, call a qualified service technician.

DO NOT touch the exhaust vent or hot water pipes during appliance operation.

If using indirect water heating be careful when opening a hot water faucet. Always be careful when draining water from the appliance. Water temperature over 125°F can instantly cause severe burns, or death, from scalds. Children, disabled, and elderly are at the highest risk of being scalded. See instruction manual before setting temperature at appliance. Feel water before bathing or showering!

Failure to follow the warnings in this manual could result in property damage, personal injury, or death.

A. Appliance Operation

- Do not block flow of the appliance exhaust vent or intake pipe.
- Should overheating occur or gas supply fail to shut off, do not turn off or disconnect electrical supply to the circulator. Instead, shut off the gas supply at a location external to the appliance following the instructions on page 2.
- Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and replace any part of the control system or gas control that has been under water.

B. Primary Water

- Do not attempt to clean the heating system. Call a qualified service technician for service.
- If you notice any leaks, immediately call a qualified service technician. Leaks in appliance or piping must be repaired at once.

C. Freeze Protection Fluids

WARNING

Closed loops that use glycol as heat transfer fluid must be serviced periodically. Glycol can break down over time, become acidic, and attack gaskets and seals in appliances. This can result in property damage, severe personal injury, or death.

Each glycol manufacturer has different recommendations for testing and replacement. Do not test glycol quality yourself. Have your qualified service technician check glycol quality during annual servicing. If you are unsure when your glycol was last tested, call a qualified service technician to test and replace glycol, if necessary.

Part 2 - Combustion Air Contamination Prevention

DANGER

Do not operate the appliance if its combustion air intake is located in or near one of the areas or in the vicinity of products listed in Table 1. These areas will always contain hazardous contaminants that can form strong acids while passing through the burner and vent system. These acids will corrode the appliance's heat exchanger, burner components and vent system, resulting in flue gas spillage and/or water leakage, possible substantial property damage, severe personal injury, or death. If the appliance combustion air intake is located in any area likely to cause or contain contamination, or if products which would contaminate the air cannot be removed, the intake must be re-piped and terminated to another location.


DO NOT re-pipe ventilation system on your own. Call a qualified service provider for assistance.

Products to Avoid	Areas Likely to Have Contaminants
Spray cans containing fluorocarbons	Dry cleaning / laundry areas and establishments
Permanent wave solutions	Swimming pools
Chlorinated waxes / cleaners	Metal fabrication plants
Chlorine-based swimming pool chemicals	Beauty shops
Calcium chloride used for thawing	Refrigeration repair shops
Sodium chloride used for water softening	Photo processing plants
Refrigerant leaks	Auto body shops
Paint or varnish removers	Plastic manufacturing plants
Hydrochloric or Muriatic acid	Furniture refinishing areas and establishments
Cements and glues	New building construction
Antistatic fabric softeners used in clothes dryers	Remodeling areas
Chlorine-type bleaches, laundry detergents, and cleaning solvents	Garages and workshops
Adhesives used to fasten building products	

Table 1 - Products and Areas Likely to Have Contaminants

NOTE: DAMAGE TO THE APPLIANCE CAUSED BY EXPOSURE TO CORROSIVE VAPORS IS NOT COVERED BY WARRANTY. (Refer to the limited warranty for complete terms and conditions.)

DANGER



Flammable Vapors

⚠ Vapors from flammable liquids will explode and catch fire causing death or severe burns.
Do not use or store flammable products such as gasoline, solvents or adhesives in the same room or area near the water heater.
Keep flammable products:
1. far away from heater,
2. in approved containers,
3. tightly closed and
4. out of children's reach.

Water heater has a main burner and pilot flame. The pilot flame:
1. which can come on at any time and
2. will ignite flammable vapors.
Vapors:
1. cannot be seen,
2. are heavier than air,
3. go a long way on the floor and
4. can be carried from other rooms to the pilot flame by air currents.

Installation:
Do not install water heater where flammable products will be stored or used unless the main burner and pilot flames are at least 18" above the floor. This will reduce, but not eliminate, the risk of vapors being ignited by the main burner or pilot flame.

Read and follow water heater warnings and instructions. If owners manual is missing, contact the retailer or manufacturer.

DANGER



HOT

BURN

Water temperature over 125°F can cause severe burns instantly or death from scalds. Children, disabled and elderly are at highest risk of being scalded.

See instruction manual before setting temperature at water heater.

Feel water before bathing or showering.

Temperature limiting valves are available, see manual.

Part 3 - Maintenance Schedule

A. Service Technician

The following maintenance should be performed by a qualified service technician annually:

General

- Attend to any reported problems.
- Inspect the interior of the appliance; clean and vacuum if necessary.
- Clean the condensate trap and fill with fresh water.
- If applicable, check the condensate neutralizer and ensure it is full of condensate neutralizing marble chips.
- Check for leaks: Water, gas, flue, and condensate.
- Verify exhaust vent and intake piping are in good condition and sealed tight.
- Check exhaust vent and intake pipe bracing. Ensure bracing is undamaged and in good condition.
- Check appliance water pressure, piping, and expansion tank.
- Check control settings.
- Check ignition electrode. Sand off any white oxide. Clean and reposition.
- Check ignition and ground wiring.
- Check all control wiring and connections.
- Check burner flame pattern (stable and uniform).

Additional Items if Combustion or Performance is Poor

- Ensure appliance is connected to the proper gas type.
- Ensure appliance is connected to proper electrical power supply.
- Check the water valves and gas shut-off valve. Ensure all are fully open.
- Clean heat exchanger and flue ways.
- Remove burner assembly and clean burner head using compressed air only.

The service technician should review service with the owner after the maintenance items are completed.

B. Owner Maintenance

Periodically

- Check area around the appliance.
- Check and remove any blockage from the outdoor exhaust vent and intake pipe terminations. DO NOT perform this maintenance if exhaust vent and intake pipe terminations are in difficult to reach locations.
- Check the temperature / pressure gauge.

Monthly

- **VERY IMPORTANT:** Check / test carbon monoxide detectors to ensure proper operation per the manufacturer's instructions.
- Check exhaust vent and intake piping.
- Check exhaust vent and intake pipe bracing. Ensure bracing is undamaged and in good condition.
- Check the pressure relief valve.
- Check the condensate drain system.
- If applicable, check the condensate neutralizer and ensure it is full of condensate neutralizing marble chips.

Every 6 Months

Check appliance piping and gas supply piping for corrosion or signs of potential leakage.

Part 4 - Maintenance Procedures

⚠ DANGER

The appliance must be inspected and serviced annually, preferably at the start of the heating season, by a qualified service technician. In addition, the maintenance and care of the appliance as outlined in this manual must be performed by the user/owner to assure maximum efficiency and reliability. Follow the maintenance procedures given throughout this manual. Failure to perform the service and maintenance or follow the directions in this manual could damage the appliance or system components, resulting in substantial property damage, severe personal injury, or death.

A. Daily Maintenance

Check the Surrounding Area

⚠ DANGER

To prevent the potential of substantial property damage, severe personal injury, or death, eliminate the materials listed in Table 1 from the area surrounding the appliance and the vicinity of the combustion air intake. If contaminants are found:

- Remove products immediately from the area.
- If contaminants have been there for an extended period, call a qualified service technician to inspect the appliance for possible damage from acid corrosion.

If products cannot be removed, immediately call a qualified service technician to re-pipe the combustion air intake piping away from the contaminated areas.

Combustible/Flammable Materials


Do not store combustible materials, gasoline, or other flammable vapors or liquids near the appliance. If found, remove these materials immediately.

Air Contaminates

If allowed to contaminate combustion air, products containing chlorine or fluorine will produce acidic condensate that will cause significant damage to the appliance. Read the list of potential contaminants and areas likely to have these contaminants in Table 1, Part 2. If any of these contaminants are in the room where the appliance is located, or

⚠ WARNING

Breathing Hazard - Carbon Monoxide Gas



- Do not operate heater if flood damaged.
- Install vent system in accordance with local codes and manufacturers installation instructions.
- Do not obstruct heater air intake or exhaust. Support all vent piping per manufacturers installation instructions.
- Do not place chemical vapor emitting products near unit.
- According to NFPA 720, carbon monoxide detectors should be installed outside each sleeping area.
- Never operate the heater unless it is vented to the outdoors.
- Analyze the entire vent system to make sure that condensate will not become trapped in a section of vent pipe and therefore reduce the open cross sectional area of the vent.

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Breathing carbon monoxide can cause brain damage or death. Always read and understand instruction manual.


combustion air is taken from one of the areas listed, the contaminants must be removed immediately or the intake pipe must be relocated to another area.

Check Exhaust Vent and Intake Pipe Terminations

Verify that the appliance exhaust vent and intake pipe terminations are clean and free of obstructions. Remove any debris from the exhaust vent and intake pipe openings. If removing the debris does not allow the appliance to operate correctly, contact your qualified service technician to inspect the appliance and the vent system.

⚠ WARNING

Breathing Hazard - Carbon Monoxide Gas



- Do not operate heater if flood damaged.
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- Do not obstruct heater air intake or exhaust. Support all vent piping per manufacturers installation instructions.
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LP-304-FR

Breathing carbon monoxide can cause brain damage or death. Always read and understand instruction manual.

Ensure the Appliance Cabinet is Closed

Ensure the appliance cabinet is closed. Tighten the two upper and lower screws to secure it. The cabinet must be closed while the appliance is running.

Check the Status of the Display Panel

Observe the Display Panel to ensure the appliance is powered on and check for any error codes. Clear any debris from the panel.

Check the Power Source

Make sure the power cord is properly connected. The main power line is connected to the manual switch box.

Check Temperature Display and Pressure Gauge

- Ensure the pressure reading on the gauge does not exceed 25 psig on the central heating loop of heating and combination appliance models; 145 psig on VWH models. Higher pressure readings may indicate a problem with the expansion tank.
- Ensure the temperature on the display panel does not exceed the appliance setpoint. Higher temperature readings may indicate a problem with the thermostat operating controls.
- Contact a qualified service technician if problem persists.

B. Monthly Maintenance

VERY IMPORTANT: Check / test carbon monoxide detectors to ensure proper operation per the manufacturer's instructions.

Check Exhaust Vent and Intake Piping

Visually inspect the exhaust vent piping for any signs of blockage, leakage, or deterioration of the piping. Inspect the exhaust vent bracing. Ensure bracing is undamaged and in good condition. Notify a qualified service technician immediately if any problems are found.

⚠ WARNING

Failure to inspect the venting system and have it repaired by a qualified service technician can result in vent system failure, causing severe personal injury or death.

Visually inspect the intake piping for any signs of blockage. Inspect the entire length of the intake pipe to ensure piping is intact and all joints are properly sealed. Inspect the intake pipe bracing. Ensure bracing is undamaged and in good condition. Notify a qualified service technician if any problems are found.

Check Pressure Relief Valve

- Visually inspect the primary pressure relief valve and discharge pipe for signs of weeping or leakage.
- If the pressure relief valve often weeps, the expansion tank may not be operating properly. Immediately contact a qualified service technician to inspect the appliance and system.

Check Exhaust Vent Condensate Drain System

- While the appliance is running, check the discharge end of the condensate drain tubing. Ensure no flue gas is leaking from the condensate drain tubing by holding your fingers near the opening.
- If you notice flue gas leaking from the opening, this indicates a dry condensate trap. If problem persists, contact a qualified service technician to inspect the appliance and condensate line and refill the condensate trap.
- If applicable, check the condensate neutralizer and ensure it is full of condensate neutralizing marble chips.

C. 6 Month Maintenance

Check Primary and Gas Piping

- Remove the appliance cover and perform a gas leak inspection following Operating Instructions, page 2, this manual. If gas odor or leak is detected, follow procedures on page 2. Call a qualified service technician.
- Visually inspect for leaks around the internal appliance water connections and around the heat exchanger. Visually inspect the external system piping, circulators, and system components and fittings. Immediately call a qualified service technician to repair any leaks.

⚠ WARNING

Have leaks fixed at once by a qualified service technician. Failure to comply could result in substantial property damage, severe personal injury, or death.

Operate Pressure Relief Valve

- Before proceeding, verify that the relief valve has been piped to a safe place of discharge, avoiding any possibility of scalding from hot water.

⚠ WARNING

To avoid water damage or scalding due to relief valve operation, a discharge line must be connected to the valve outlet and directed to a safe place of disposal. This discharge line must be installed by a qualified service technician or heating/plumbing installer in accordance with the appliance installation manual. The discharge line must be terminated so as to eliminate possibility of severe burns or property damage should the valve discharge.

- Read the temperature and pressure gauge to ensure the system is pressurized. Minimum is 10 psi. Maximum is 25 psig on the central heating loop of heating and combination appliance models; 145 psig on VWH models. Lift the relief valve top lever slightly, allowing water to relieve through the valve and discharge piping.
- If water flows freely, release the lever and allow the valve to seat. Watch the end of the relief valve discharge pipe to ensure that the valve does not weep after the line has had hard time to drain. If the valve weeps, lift the lever again to attempt to clean the valve seat. If the valve does not properly seat and continues to weep, contact a qualified service technician to inspect the valve and system.
- If water does not flow from the valve when you completely lift the lever, the valve or discharge line may be blocked. Immediately shut the appliance down per instructions on page 2 and call a qualified service technician to inspect the valve and system.

D. Annual Maintenance - To be performed by a Qualified Service Technician

Check the Burner

The burner should be checked and cleaned only by a qualified service technician.

Cleaning the Cold Water Inlet Filter (Draining the Appliance) (If Applicable)

The Cold Water Inlet Filter should only be cleaned by a qualified service technician.

Flushing the Appliance

Flushing the Appliance heat exchanger is a complicated procedure that should only be performed by a qualified service technician.

NOTE: Improper maintenance WILL VOID appliance warranty.

To save time and money, review the following initial diagnostic steps before calling for service.

Problem	Possible Solution
Burner Does Not Ignite	Make sure the the appliance is turned ON
	If the control panel display is blank, ensure the power cord is intact. Check the circuit breaker or fuse box. Ensure the appliance fuses are good.
	Make sure that the appliance is supplied with and full of water
	Make sure the cold and hot water lines are not plumbed in reverse
	Make sure the water inlet and outlet and gas supply lines are open
	Make sure the water lines are not frozen
Water Is Not Hot Enough (VWH Models or Systems with Indirect Water Heaters)	Make sure the temperature setting on the appliance / indirect water heater is not too low
	Make sure any water supply line filtration devices are not clogged with debris
	Make sure the appliance is connected to the correct gas supply
	Check that supply and manifold gas pressures are in accordance with specifications
	Make sure that water temperature sensor wires are intact and properly connected
Water is Too Hot (VWH Models)	Make sure the temperature setting is not too hot on the appliance or indirect water heater
	Make sure any filters in the cold water supply line are not clogged with debris
	Make sure the appliance is connected to the correct gas supply
Hot Water Temperature Fluctuates (VWH Models)	Make sure any filters in the cold water supply line are not clogged with debris
	Make sure the appliance is connected to the correct gas supply
	Make sure the supply gas pressure is sufficient
Blower Continues to Operate After Combustion Stops	This is normal. The blower operates for one minute after combustion has stopped to vent the remaining exhaust gas from the flue.
Appliance Makes Abnormal Sounds During Operation	There is a leak of combustion gas between the sealed chamber and exhaust tube inside the unit.
	Make sure the venting installation complies with the installation manual.
	Make sure supply gas pressure is sufficient. Insufficient gas pressure will cause unstable burner flame and noise.

Table 2 - Troubleshooting Chart

⚠ WARNING

This appliance is equipped with a control system that will shut down and lock the appliance out if certain operating conditions occur. If the appliance locks out, turn off the gas valve at the manual shutoff. Check the vent terminations for obstructions. If no obstructions are found, call a qualified service technician or the gas supplier to check the appliance. Failure to follow these instructions could result in property damage, personal injury, or death.

Maintenance Notes

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