

# GWA Series 3

# GW1 Series 3

## Gas-Fired Water Boilers



# User's Information Manual

## Hazard definitions

**▲ DANGER** Hazards that **will cause severe** personal injury, death or substantial property damage.

**▲ WARNING** Hazards that **can cause severe** personal injury, death or substantial property damage.

**▲ CAUTION** Hazards that **will or can cause minor** personal injury or property damage.

**NOTICE** Special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.

**▲ WARNING** The Boiler manual is for use only by a qualified heating installer/service technician. Refer only to this User's Information Manual for your reference. Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury (exposure to hazardous materials) or loss of life. Installation and service must be performed by a qualified installer, service agency or the gas supplier (who must read and follow the supplied instructions before installing, servicing, or removing this boiler. This boiler contains materials that have been identified as carcinogenic, or possibly carcinogenic, to humans).

## Propane gas odorant

**▲ WARNING** **Propane boilers only** — Your propane supplier mixes an odorant with the propane to make its presence detectable. In some instances, the odorant can fade and the gas may no longer have an odor.

- Propane gas can accumulate at floor level. Smell near the floor for the gas odorant or any unusual odor. If you suspect a leak, do not attempt to light the pilot.
- Use caution when attempting to light the propane pilot. This should be done by a qualified service technician, particularly if pilot outages are common.
- Periodically check the odorant level of your gas.
- Inspect boiler and system at least yearly to make sure all gas piping is leak-tight.
- Consult your propane supplier regarding installation of a gas leak detector. There are some products on the market intended for this purpose. Your supplier may be able to suggest an appropriate device.

**▲ WARNING** **INSTALLER** — Please take time to review this User's Information Manual with the boiler owner. Explain all maintenance and service procedures and the correct "Operating Instructions".



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 technician or the gas supplier.

## Please read this page first

**▲WARNING** Failure to adhere to the guidelines on this page can result in severe personal injury, death or substantial property damage.

### Service and maintenance

- To avoid electric shock, disconnect electrical supply before performing maintenance.
- To avoid severe burns, allow boiler to cool before performing maintenance.
- You must maintain the boiler as outlined in the manual and have the boiler started up and serviced at least annually by a qualified service technician to ensure boiler/system reliability.

### Boiler operation

- DO NOT block flow of combustion or ventilation air to boiler.
- **GWA** and **GW**I boilers are equipped with controls which will automatically shut down the boiler should the vent be blocked. Should the boiler shut down due to blockage, the **GW**I device will automatically reset, but the **GWA** device must be reset or replaced only by a qualified installer/service technician.
- Should overheating occur or gas supply fail to shut off, do not turn off or disconnect electrical supply to pump. Instead, shut off the gas supply at a location external to the appliance.
- DO NOT use this boiler if any part has been under water. Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any gas control that has been under water.
- Have the building monitored when it is vacant for an extended period. Safety controls can shut down the boiler at any time. The loss of heat can result in significant damage due to freezing.

### Boiler water

- DO NOT use petroleum-based cleaning or sealing compounds in boiler system. Water seal deterioration will occur, causing leakage between sections and damage to heating system components. This can result in substantial property damage.
- DO NOT use “homemade cures” or “boiler patent medicines”. Serious damage to boiler, personnel and/or property may result.
- Continual fresh makeup water will reduce boiler life. Mineral buildup in sections reduces heat transfer, overheats cast iron, and causes section failure. Addition of oxygen and other gases can cause internal corrosion. Leaks in boiler or piping must be repaired at once to prevent makeup water.
- DO NOT add cold water to hot boiler. Thermal shock can cause sections to crack.

### Glycol — potential fire hazard —

- All glycol is flammable when exposed to high temperatures. If glycol is allowed to accumulate in or around the boiler or any other potential ignition source, a fire can develop. In order to prevent potential severe personal injury, death or substantial property damage from fire and/or structural damage:
- Never store glycol of any kind near the boiler or any potential ignition source.

- Inspect the boiler and system regularly for leaks. Have any leaks repaired immediately to prevent possible accumulation of glycol.
- Never use automotive antifreeze or ethylene glycol in the system. Using these glycols can lead to hazardous leakage of glycol in the boiler system.

### ▲ DANGER

**If any part of a boiler, burner or its controls has been sprayed with or submerged under water, either partially or fully, DO NOT attempt to operate the boiler until the boiler has been either replaced or completely repaired, inspected, and you are sure that the boiler and all components are in good condition and fully reliable.** Otherwise, by operating this boiler, you will cause a fire or explosion hazard, and an electrical shock hazard, leading to serious injury, death, or substantial property damage.

**Saltwater Damage** — The exposure of boiler components to saltwater can have both immediate and long-term effects. While the immediate effects of saltwater damage are similar to those of freshwater (shorting out of electrical components, washing out of critical lubricants, etc.), the salt and other contaminants left behind can lead to longer term issues after the water is gone due to the conductive and corrosive nature of the salt residue. Therefore, Williamson-Thermoflo equipment contaminated with saltwater or polluted water will no longer be covered under warranty and should be replaced.

**Electrical Damage** — If any **electrical component** or **wiring** came into contact with water, or was suspected to have come into contact with water, replace the boiler with a new Williamson-Thermoflo boiler.

### Freeze protection fluids —

- NEVER use automotive or standard glycol antifreeze. Use only freeze-protection fluids made for hydronic systems. Follow all guidelines given by the antifreeze manufacturer. Thoroughly clean and flush any replacement boiler system that has used glycol before installing the new boiler.

### ▲ CAUTION Frozen Water Damage Hazard

Residences or buildings that are unattended in severely cold weather, boiler system components failures, power outages, or other electrical system failures could result in frozen plumbing and water damage in a matter of hours. For your protection, take preventative actions such as having a security system installed that operates during power outages, senses low temperature, and initiates an effective action. Consult with your boiler contractor or a home security agency.

**Air contamination**

To prevent potential of severe personal injury or death, check for products or areas listed in table below before installing boiler. If any of these contaminants are found, do one of the following:

- Remove contaminants permanently. — or —
- Isolate boiler and provide outside combustion air. See applicable codes for further information.

<b>Products to avoid</b>
Spray cans containing chloro/fluorocarbons
Permanent wave solutions
Chlorinated waxes/cleaners
Chlorine-based swimming pool chemicals
Calcium chloride used for thawing
Sodium chloride used for water softening
Refrigerant leaks
Paint or varnish removers
Hydrochloric acid/muriatic acid
Cements and glues
Antistatic fabric softeners used in clothes dryers
Chlorine-type bleaches, detergents, and cleaning solvents found in household laundry rooms
Adhesives used to fasten building products and other similar products
Airborne particulates (drywall dust, fiberglass particles, road or gravel dust, lint, etc.)

<b>Areas likely to have contaminants</b>
Dry cleaning/laundry areas and establishments
Swimming pools
Metal fabrication plants
Beauty shops
Refrigeration repair shops
Photo processing plants
Auto body shops
Plastic manufacturing plants
Furniture refinishing areas and establishments
New building construction
Remodeling areas
Garages with workshops
Buildings under construction (where air is contaminated with particulates)

## To locate Operating Instructions:

Find your boiler model number on boiler nameplate (begins with GWA or GWI). GWA model number will include a suffix indicating pilot ignition —“I” for spark-ignited pilot. Read the valve manufacturer’s model and name on the boiler gas valve. Locate the correct “Operating Instructions” using the table below. Use only the instructions applying to your boiler model and gas valve. If you are in doubt which to use, please contact your boiler installer/technician for assistance.

GWA Spark-ignited pilot	Page	GWI Spark-ignited pilot	Page
Honeywell VR8204/VR8304 White-Rodgers 36C or 36 E	5	Honeywell VR8204/VR8304 White-Rodgers 36C or 36 E	7
Robertshaw 7200	6		

## Maintain your boiler using this schedule:

<b>Service technician</b> (covered in Boiler Manual – for use only by a qualified service technician)		<b>Owner maintenance</b> (see following pages for instructions)	
<b>ANNUAL START-UP</b>	<b>Inspect:</b>	<b>Daily</b>	<ul style="list-style-type: none"> <li>• Check boiler area</li> <li>• Check air openings</li> <li>• Check boiler pressure/temperature gauge</li> </ul>
	<ul style="list-style-type: none"> <li>• Reported problems</li> <li>• Boiler area</li> <li>• Air openings</li> <li>• Flue gas vent system</li> <li>• Pilot and main burner flames</li> <li>• Water piping</li> <li>• Boiler heating surfaces</li> <li>• Burners, base and inlet air box</li> <li>• Condensate drain system (GWI, if used)</li> </ul>	<b>Monthly</b>	<ul style="list-style-type: none"> <li>• Check boiler interior piping</li> <li>• Check venting system (GWI only)</li> <li>• Check condensate drain system (GWI, if used)</li> <li>• Check air vents</li> <li>• Check boiler relief valve</li> <li>• Check automatic air vents (if used)</li> </ul>
	<b>Service:</b>	<b>Periodically</b>	<ul style="list-style-type: none"> <li>• Test low water cutoff (if used)</li> <li>• Oil inducer motor (GWI only)</li> </ul>
	<ul style="list-style-type: none"> <li>• Inducer motor (GWI only)</li> <li>• Oiled-bearing circulators</li> <li>• Temperature sensor</li> </ul>	<b>Every 6 months</b>	<ul style="list-style-type: none"> <li>• Operate relief valve</li> </ul>
	<b>Start-up:</b>	<b>End of season</b>	<ul style="list-style-type: none"> <li>• Shut down procedure</li> </ul>
<ul style="list-style-type: none"> <li>• Perform start-up per manual</li> </ul>			
<b>Check/test:</b>			
<ul style="list-style-type: none"> <li>• Gas piping</li> <li>• Cold fill and operating pressures</li> <li>• Air vents and air elimination</li> <li>• Limit controls and cutoffs</li> <li>• Expansion tank</li> <li>• Boiler relief valve</li> </ul>			
<b>Review:</b>			
<ul style="list-style-type: none"> <li>• Review with owner</li> </ul>			

# Operating Instructions

# GWA — Spark-ignited pilot

## Gas valve — Honeywell VR8204 or VR8304 — White-Rodgers 36C or 36E

### 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.

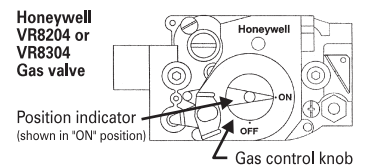
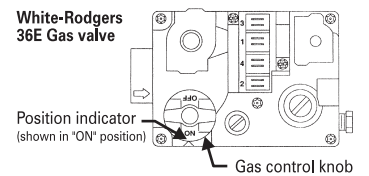
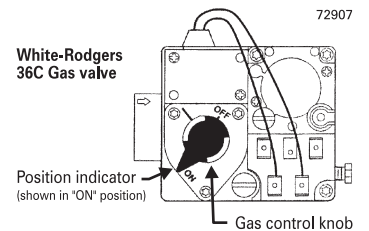
- A. This appliance is equipped with an ignition device which automatically lights the pilot. **Do not** try to light the pilot by hand.
- B. Before **OPERATING**, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. See below.
- C. Use only your hand to depress or move the selector arm. Never use tools. If the selector arm will not depress or move 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.

#### 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 supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

### OPERATING INSTRUCTIONS

1. **Stop!** Read the safety information above on this label. Vent damper operations below apply only to GWA boilers. Find vent damper manufacturer and model on vent damper nameplate.
2. Set the thermostat to lowest setting.
3. Turn off all electrical power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the pilot. **Do not** try to light the pilot by hand.
5. Turn gas control knob clockwise ↻ to **OFF**. (Press down on White-Rodgers 36C valve knob to turn.)
6. When equipped with vent damper, verify damper blade is in full open position.
7. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, **STOP!** Follow "B" in the safety information above. If you don't smell gas, go to the next step.
8. Turn gas control knob counterclockwise ↺ to **ON**. (Press down on White-Rodgers 36C valve knob to turn.)
9. Turn on all electric power to the appliance.
10. When equipped with **Effikal** vent damper, place service switch in **Automatic Operation** position.
11. Set thermostat to desired setting.
12. If the appliance will not operate, follow the instructions **To Turn Off Gas To The Appliance** and call your service technician or gas supplier.
13. Replace front panel.



### TO TURN OFF GAS TO THE 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 panel.
4. Turn gas control knob clockwise ↻ to **OFF**. Do not force. (Press down on 36C valve knob to turn.)
5. Replace front panel.

# Operating Instructions

# GWA — Spark-ignited pilot

## Gas valve — Robertshaw 7200

### 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.

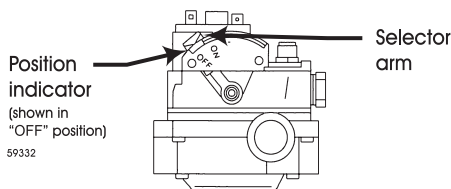
- A. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
- B. BEFORE OPERATING, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. See below.
- C. Use only your hand to depress or move the selector arm. Never use tools. If the selector arm will not depress or move 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.

### 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 supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

### OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. Turn off all electrical power to the appliance.
4. Remove front panel.
5. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
6. Depress and move selector arm left ↶ to "OFF." Note: Selector arm cannot be moved to "OFF" unless selector arm is depressed slightly. Do not force.
7. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above. If you don't smell gas, go to the next step.
8. Move selector arm right ↷ to "ON."
9. Turn on all electric power to the appliance.
10. Set thermostat to desired setting.
11. If the appliance will not operate, follow the instructions "To Turn Off Gas To The Appliance" and call your service technician or gas supplier.
12. Replace front panel.



### TO TURN OFF GAS TO THE 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 panel.
4. Depress and move selector arm to "OFF." Do not force.
5. Replace front panel.

550-223-044(0511)



# Operating instructions

**GW**

## All gas valves

### FOR YOUR SAFETY READ BEFORE OPERATING



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

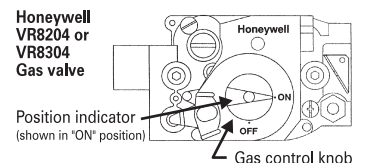
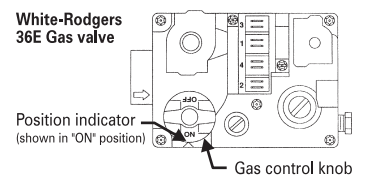
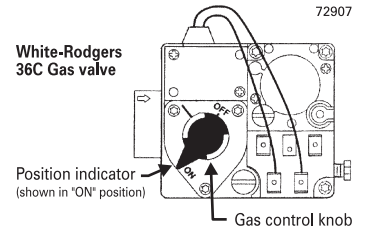
- A. This appliance is equipped with an ignition device which automatically lights the pilot. **Do not** try to light the pilot by hand.
- B. Before **OPERATING**, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. See below.
- C. Use only your hand to depress or move the selector arm. Never use tools. If the selector arm will not depress or move 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.

#### WHAT TO DO IF YOU SMELL GAS

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- 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 supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

### OPERATING INSTRUCTIONS

1. **STOP!** Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. Turn off all electrical power to the appliance.
4. Remove jacket front panel.
5. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
6. Turn **Gas control knob** clockwise ↻ to **OFF**.
7. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, **STOP!** Follow "B" in the safety information above. If you don't smell gas, go to the next step.
8. Turn **Gas control knob** counterclockwise ↺ to **ON**.
9. Turn on all electric power to the appliance.
10. Set thermostat to desired setting.
11. If the appliance will not operate, follow the instructions "**TO TURN OFF GAS TO APPLIANCE**" below and call your service technician or gas supplier.
12. Replace jacket front panel.



### TO TURN OFF GAS TO THE 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 jacket front panel.
4. Turn **Gas control knob** clockwise ↻ to **OFF**. Do not force.
5. Replace jacket front panel.

## ❑ Maintenance procedures

**⚠ WARNING** The boiler should be inspected and started annually, at the beginning of the heating season, only by a qualified service technician. In addition, the maintenance and care of the boiler designated on page 4 and explained on the following pages must be performed to assure maximum boiler efficiency and reliability. Failure to service and maintain the boiler and system could result in equipment failure, causing possible severe personal injury, death or substantial property damage.

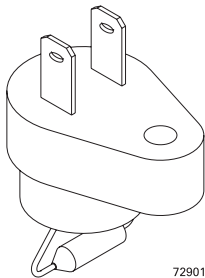
**NOTICE** The following information provides detailed instructions for completing the maintenance items listed in the maintenance schedule, page 4. In addition to this maintenance, the boiler must be serviced and started up at the beginning of each heating season by a qualified service technician. See page 11 for **troubleshooting** procedures for common problems.

## ❑ Component information

### Rollout thermal fuse element

The Rollout TFE is located above the burners. It cuts off gas flow should flame rollout occur.

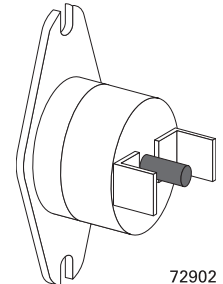
**⚠ WARNING** Do not attempt to place boiler in operation if rollout thermal fuse element cuts off gas flow. Immediately call a service technician. Failure to do so can cause severe personal injury, death or substantial property damage.



### Spill switch (GWA only)

The Spill switch is attached to the draft hood. It cuts off gas flow if the vent system becomes blocked.

**⚠ WARNING** Do not attempt to place boiler in operation if spill switch cuts off gas flow. Immediately call a service technician. Failure to do so can cause severe personal injury, death or substantial property damage.



## ❑ Check daily

### Boiler area

**⚠ WARNING** To prevent potential of severe personal injury, death or substantial property damage, eliminate all materials discussed below from the boiler vicinity. If found:

- Remove products immediately from the area. If they have been there for an extended period, call a qualified service technician to inspect the boiler and vent system for possible damage from acid corrosion.
- If products cannot be removed, immediately call a qualified service technician to install an outside combustion air source for the boiler (if not already installed).

1. Combustible/flammable materials — Do not store combustible materials, gasoline or any other flammable vapors or liquids near the boiler. Remove immediately if found.
2. Air contaminants — See listing of contaminants on page 3.

## ❑ Check daily

### Pressure/temperature gauge

1. Make sure the pressure reading on the boiler pressure/temperature gauge does not exceed 24 psig. Higher pressure may indicate a problem with the expansion tank or gauge.
2. Contact a qualified service technician if problem persists.

### Air openings

1. Verify that combustion and ventilation air openings to the boiler room and/or building are open and unobstructed.
2. **GW** boilers — Verify that boiler vent discharge is clean and free of obstructions. Remove any debris on the air intake or flue exhaust openings.



## ☐ Check monthly

### Boiler piping

1. Visually inspect for leaks around piping, circulators, relief valve and other fittings. Immediately call a qualified service technician to repair any leaks.

**⚠ WARNING** Have leaks fixed at once by a qualified service technician. Continual fresh makeup water will reduce boiler life. Minerals can build up in sections, reducing heat transfer, overheating cast iron, and causing section failure.

**⚠ WARNING** Do not use petroleum-based cleaning or sealing compounds in boiler system. Severe damage to boiler and system components can occur, resulting in possible severe personal injury, death or substantial property damage.

### Venting system

1. Visually inspect all parts of the flue gas venting system for any signs of blockage, leakage or joints or deterioration of the piping.
2. **GWA boilers** — Check vent system operation:
  - a. With boiler firing, hold a candle or match below lower edge of draft hood “skirt.” If flame does not blow out, but burns undisturbed, the vent system is working properly. If flame blows out or flickers severely, the vent system must be checked for obstructions or other causes of improper venting.
  - b. Verify the vent damper opens before burners ignite.
3. Notify your qualified service technician at once if you find any problem.

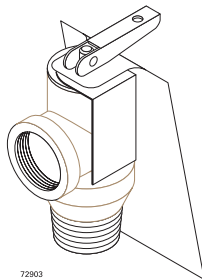
**⚠ WARNING** Failure to inspect the vent system as noted above and have it repaired by a qualified service technician can result in vent system failure, causing severe personal injury or death.

### Check condensate drain system (GWI, if used)

1. Inspect condensate drain fittings and tubing. Verify that condensate can flow freely to drain.

### Boiler relief valve

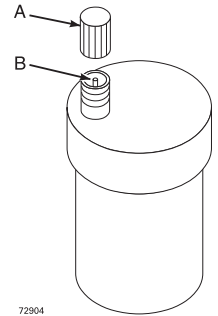
1. Inspect the boiler relief valve and the relief valve discharge pipe for signs of weeping or leakage.
2. If the relief valve often weeps, the expansion tank may not be working properly.
  - Immediately contact your qualified service technician to inspect the boiler and system.



## ☐ Check monthly

### Automatic air vents (if used)

1. Remove the cap from any automatic air vent in the system and check operation by depressing valve **B** slightly with the tip of a screwdriver.
2. If the air vent valve appears to be working freely and not leaking, replace cap **A**, twisting all the way on. Loosen cap **A** one turn to allow vent to operate.
3. Have vent replaced if it does not operate correctly.



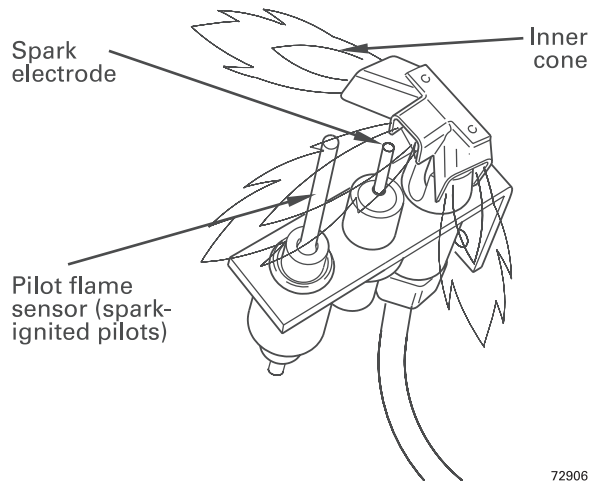
### Pilot burner flame

#### Proper pilot flame (see below):

1. Blue flame.
2. Inner cone engulfing pilot flame sensor (spark-ignited pilot).
3. Pilot flame sensor glowing cherry red.

#### Improper pilot flame:

1. Overfired — Large flame lifting or blowing past pilot flame sensor.
2. Underfired — Small flame. Inner cone not engulfing pilot flame sensor.
3. Lack of primary air — Yellow flame tip.
4. Incorrectly heated pilot flame sensor.



## ☐ Check monthly

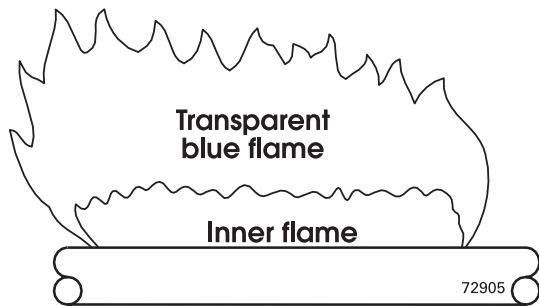
### Main burner flame

Proper main burner flame (see below):

1. Yellow-orange streaks may appear (caused by dust).

Improper main burner flame:

1. Overfired — Large flames.
2. Underfired — Small flames.
3. Lack of primary air — Yellow tipping on flames (sooting will occur).



## ☐ Periodically

### Test low water cutoff (if installed)

1. If the boiler or system is fitted with a low water cutoff device, test the device following the cutoff manufacturer’s instructions.

### Oil inducer motor (GWI boilers)

1. Use only SAE 20 motor oil. DO NOT use household universal oils.

**⚠ WARNING** Use only SAE 20 motor oil to lubricate the inducer motor. Do not use common universal household oils.

2. Place a few drops of oil in each of the two oiler cups on the inducer motor.

## ☐ Every 6 months

### Operate boiler relief valve

**⚠ WARNING** To avoid water damage or scalding due to valve operation, a metal discharge line must be connected to relief valve outlet and run to a safe place of disposal. This discharge line must be installed by a qualified heating installer or service technician in accordance with the instructions in the Boiler Manual. The discharge line must be terminated so as to eliminate possibility of severe burns should the valve discharge.

1. Before proceeding, verify that the relief valve outlet has been piped to a safe place of discharge, avoiding any possibility of scalding from hot water.
2. Read the boiler pressure/temperature gauge to make sure the system is pressurized.
3. Lift the relief valve top lever slightly, allowing water to relieve through the valve and discharge piping.
4. 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 time to drain. If the valve weeps, lift the seat again to attempt to clean the valve seat. If the valve continues to weep afterwards, contact your qualified service technician to inspect the valve and system.
5. If water does not flow from the valve when you lift the lever completely, the valve or discharge line may be blocked. Immediately shutdown the boiler, following the instructions on the inside jacket top “Operating Instructions”. Call your qualified service technician to inspect the boiler and system.

## ☐ End of season shutdown

1. Follow “TO TURN OFF GAS TO APPLIANCE” on the Operating Instructions” on the inside of the jacket panel. You will also find these instructions on pages 5 through 7 of this manual. Use the “Operating Instructions” for the gas valve model installed on the boiler.
2. Do not drain system unless exposure to freezing temperatures will occur.
3. Do not drain the system if it is filled with an antifreeze solution.
4. Do not shut down boilers used for domestic water heating. They must operate year-round.

## ☐ Troubleshooting

1. See page 11.

## ❑ Troubleshooting

<b>Troubleshooting – Common problems and possible solutions</b>		
<b>Symptom</b>	<b>Common Causes</b>	<b>Possible Corrections</b>
<b>Rapid cycling — boiler turns on and off frequently</b>	Thermostat installed where drafts or heat affect reading.	Locate thermostat on inner wall away from heat sources or cool drafts.
	Heat anticipator in thermostat adjusted incorrectly.	Adjust thermostat per manufacturer's instructions.
	Incorrect limit setting.	Set limit according to system needs. Maximum setting is 220°F. Increase limit setting to decrease cycling.
	Insufficient water flow through boiler.	Check all valves to and from boiler. Return to proper setting. Confirm circulator size.
<b>Frequent release of water through relief valve</b>	Expansion tank sized too small.	Call qualified service technician to check expansion tank operation and size.
	Flooded expansion tank.	Call qualified service technician to check expansion tank operation.
	Inoperative limit control.	Call qualified service technician to replace limit control.
<b>Need to frequently add makeup water</b>	Leaks in boiler or piping.	Have qualified service technician repair leaks at once to avoid constant use of makeup water. Makeup water can cause mineral deposits which, in turn, can cause boiler section failure. Do not use petroleum-base stop-leak compounds.
<b>Black water condition</b>	Oxygen corrosion due to leaks in boiler and piping.	Have qualified service technician repair at once. Keep pH of water between 7.0 to 8.5.
<b>Popping or percolating noise heard in boiler</b>	Mineral deposits in sections due to constant use of makeup water.	Call qualified service technician to de-lime boiler, if necessary. In some cases, deposits will be too heavy to remove with de-liming procedures.
		Have qualified service technician repair leaks to eliminate need for constant makeup water.
	Incorrect pH of boiler water.	Call qualified service technician to check pH level and correct. pH should be maintained between 7.0 to 8.5.
<b>Metal flakes found in vent outlet or vent — flueway corrosion</b>	Contaminated combustion air supply — See page 3 in this manual.	Remove any contaminating products. See page 3 in this manual.
		Provide outside air for combustion.
<b>Some radiators or baseboard units do not heat or are noisy</b>	Air in system.	Bleed air from system through air vents in radiators or baseboard units.
	Low system pressure.	Fill to correct pressure.
		Check for leaks in boiler or piping. Have qualified service technician repair at once.
High limit set too low.	Adjust high limit to higher setting.	

