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WEIL-McLAIN

GOLD

GV BOILER

USER'S INFORMATION MANUAL

Boiler installation is not complete until these instructions have been reviewed with the user and are attached adjacent to the boiler. The user is defined as the person responsible for care and maintenance.

Installation and service should be performed by a qualified service agency.

Maintenance as outlined in the minimum maintenance schedule can be performed by the user. Regular service by a qualified service agency and maintenance must be performed to assure maximum boiler operating efficiency.

FOR YOUR SAFETY

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

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult a qualified installer, service agency or the gas supplier.

FOR YOUR SAFETY

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.



Pay attention to these terms:

DANGER

indicates presence of hazard which will cause personal injury, death or substantial property damage if ignored.

WARNING

indicates presence of hazard which can cause severe personal injury, death or substantial property damage if ignored.

CAUTION

indicates presence of hazard which will or can cause minor personal injury or property damage if ignored.

NOTICE

indicates special instructions on installation, operation, or maintenance which are important but not related to personal injury hazards.

WHAT EVERY USER SHOULD KNOW

WARNING

To avoid electric shock, disconnect electrical supply before servicing.

To avoid severe burns, allow boiler to cool before servicing.

Do not block flow of combustion or ventilation air to boiler.

Should overheating occur or gas supply fail to shut off, do not turn off or disconnect electrical supply to boiler. Shut off gas supply outside the boiler and call your serviceman.

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 which has been under water.

COMBUSTION AIR QUALITY:

If GV is using inside air for combustion, do not store or use any of the following types of contaminating products in or near boiler area. They can contribute to shortened boiler/vent system life.

- 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
- anti-static fabric softeners used in clothes dryers
- chloride-type bleaches, detergents, and cleaning solvents found in household laundry rooms
- adhesives used to fasten building products
- ... and other similar products

BOILER WATER:

1. **Never use petroleum-based stop-leak compounds.** Water seal deterioration will occur, resulting in leakage between sections.
2. **DO NOT** use "homemade cures" or "boiler patent medicines." Serious damage to boiler, personnel and/or property may result.
3. Continual fresh make-up water will reduce boiler life. Mineral build-up 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 make-up water.

Boiler water pH of 7.0 to 8.5 is recommended.

For unusually hard water areas (above 7 grains hardness) or low pH conditions (below 7.0), consult local water treatment company.

4. **DO NOT** add large amounts of cold water to hot boiler. Thermal shock can cause sections to crack.
5. **DO NOT** drain boiler during periods of shutdown unless system is exposed to freezing temperatures. **DO NOT** drain boiler if anti-freeze is used. Repeated filling and draining has same effect as make-up water.

Freeze protection (when used):

Use antifreeze especially made for hydronic systems. Inhibited propylene glycol is recommended. **DO NOT** use undiluted or automotive antifreeze.

50% solution provides maximum protection to about -30°F.

Local codes may require a back-flow preventer or actual disconnect from city water supply.

Determine quantity according to system water content. Boiler water content is listed in boiler manual.

Follow antifreeze manufacturer's instructions.

COMMON PROBLEMS AND POSSIBLE SOLUTIONS:

COMMON SYMPTOMS	COMMON CAUSES	POSSIBLE CORRECTIONS
Rapid cycling - boiler turns on and off frequently.	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.
Frequent release of water through relief valve.	Expansion tank sized too small.	Call installer to check expansion tank operation and size.
	Flooded expansion tank.	Call installer to check expansion tank operation.
Need to frequently add make-up water.	Leaks in boiler or piping.	Have installer repair leaks at once to avoid constant use of make-up water. Make-up water can cause mineral deposits which, in turn, can cause boiler section failure. DO NOT use petroleum-based stop-leak compounds.
Popping or percolating noise heard in boiler.	Mineral deposits in sections due to constant use of make-up water.	Call installer to de-lime boiler, if necessary. In some cases, deposits will be too heavy to remove with de-liming procedures.
		Have installer repair leaks to eliminate need for constant make-up water.
	Incorrect pH of boiler water.	pH should be maintained between 7.0 to 8.5.
Metal flakes found in vent ell - flueway corrosion.	Contaminated combustion air supply. See page 2 in these instructions.	Remove any contaminating products. see page 2 in these instructions.
		Provide outside air for combustion. Kit available through Well-McLain distributor. Have installer pipe up kit.
	Condensation of combustion gases in boiler sections.	Have installer check operation of mixing valve. Repair/replace if necessary.
Some radiators or baseboard units do not heat or are noisy.	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 installer repair at once.
High limit set too low.	Adjust high limit to higher setting.	
Black Water Condition	Oxygen corrosion due to leaks in boiler and piping.	Have installer repair at once. Keep pH of water between 7.0 to 8.5

SUGGESTED MINIMUM MAINTENANCE SCHEDULE:

Beginning of each heating season:

1. Annual service call by qualified service agency.
2. Visually check top of vent ell for soot. Call service technician to clean. Some sediment at bottom of vent ell is normal.
3. Visually inspect venting system for proper function, deterioration or leakage.
4. Check that boiler area is free from combustible materials, gasoline, and other flammable vapors and liquids.
5. Check for and remove any obstruction to the flow of combustion or ventilation air to boiler. This boiler will shut down if vent or air intake is blocked. If red PURGE light on control panel is flashing, call a qualified service technician.
6. Follow "To Place in Operation," page 7.
7. Visually inspect burner flame and ignitor glow. See page 7.
8. Check operation of safety devices. Refer to manufacturer's instructions.
9. Follow oil-lubricating instructions on circulator. Over-oiling will damage circulator. Water-lubricated circulators do not need oiling.
10. Visually inspect condensate drain hose for proper operation or deterioration. Check for plugged condensate drain by checking for more than 1 inch of water in vent ell.
11. Check operation of mixing valve. On cold start-up, return piping between mixing valve and circulator inside boiler will feel warmer than return piping outside jacket from system.

WARNING

To avoid potential of severe burn, **DO NOT rest hands or grasp pipes.** Use a light touch-return piping will heat up quickly.

If mixing valve does not seem to be working, the spring and thermostat may need to be replaced. Call a qualified service technician.

12. Open jacket top panel and check for piping leaks around circulator, mixing valve, relief valve and other fittings. Repair, if found. **DO NOT use petroleum-based stop-leak compounds - leakage between sections will occur.**

Daily during heating season:

1. Check that boiler area is free from combustible materials, gasoline and other flammable vapors and liquids.
2. Check for and remove any obstruction to the flow of combustion or ventilation air to boiler. This boiler will shut down if vent or air intake is blocked. If red PURGE light on control panel is flashing, call a qualified service technician.

Monthly during heating season:

1. Open jacket top panel and check for piping leaks around circulator, mixing valve, relief valve, and other fittings. **DO NOT use petroleum-based stop-leak compounds - leakage between sections will occur.**
2. Visually inspect burner flame and ignitor glow, page 7.
3. Visually inspect venting system for proper function, deterioration or leakage.
4. Check air vents for leakage.

Periodically during heating season:

1. Check relief valve. Refer to manufacturer's instructions on valve.
2. Test low water cut-off, if used. Refer to manufacturer's instructions.
3. Visually inspect condensate drain hose for proper operation or deterioration. Check for plugged condensate drain by checking for more than 1 inch of water in vent ell.
4. Clean screen in vent termination and air intake.

Every 6 months:

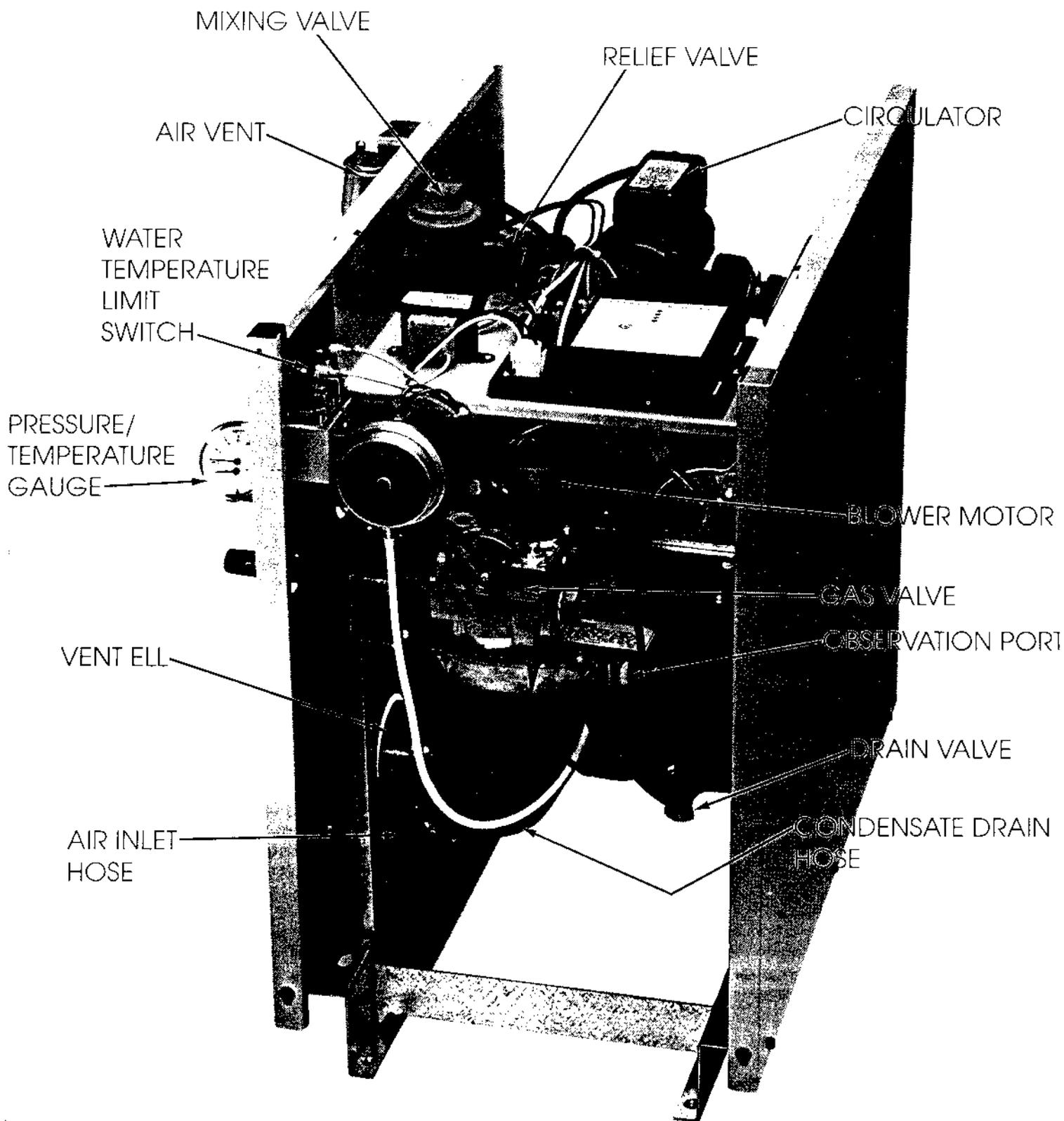
1. Oil blower motor with a few drops of S.A.E. 20 motor oil. See detailed instructions, page 6.

End of each heating season:

ANNUAL SHUT-DOWN PROCEDURE

1. Follow "To Turn Off Gas To Appliance" instructions on back cover.
2. **DO NOT drain system unless exposure to freezing temperatures will occur. DO NOT drain system if antifreeze is used.**

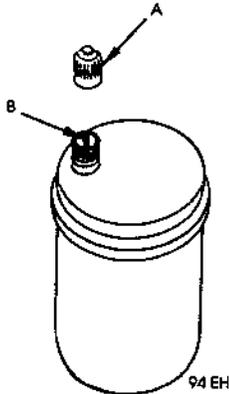
SEE PAGES 6 AND 7 FOR DETAILED MAINTENANCE INSTRUCTIONS



DETAILED MAINTENANCE INSTRUCTIONS

Automatic Air Vent:

Air is released when cap is unscrewed two turns. Automatic vents can be installed in air vent tapping on boiler or at high points in system.

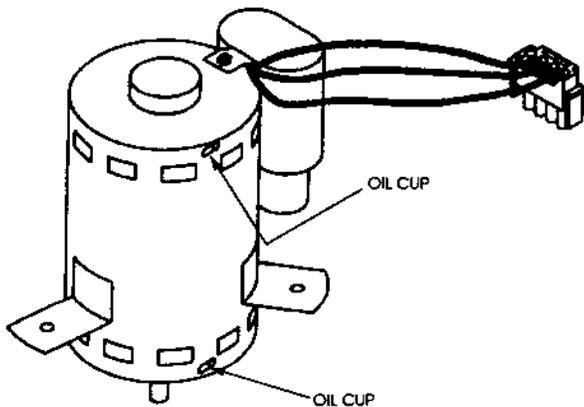


Maintenance:

1. If leaking, remove cap A and briefly push valve B in by hand and then release to clean valve seat.
2. Replace cap A by twisting all the way onto valve B and then unscrew 2 turns.

Blower Motor:

Operates blower wheel to mix combustion air and gas.



Maintenance:

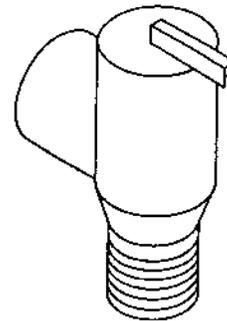
1. Shut off power to boiler.
2. Remove top jacket panel. Lift up control tray located inside boiler. Be sure wiring does not come loose.
3. Place a few drops of S.A.E. 20 motor oil in 2 blower motor oil cups. Do not use common universal household oils.
4. Replace control tray and restore boiler to original operating condition.

Relief Valve:

Provides safe discharge through piping near floor or close to floor drain if boiler water pressure exceeds 30 psi.

WARNING

To avoid scalding or water damage, relief valve must be piped near floor or close to floor drain. Do not pipe to any area where freezing temperatures could occur.



Maintenance:

Refer to manufacturer's instructions on valve.

Circulator and Mixing Valve:

Circulator provides forced water circulation through boiler and piping system.

Mixing valve lets some warmer supply water from boiler combine with cooler return water from system. This mixing keeps water returning to boiler sections above 140°F.

Maintenance:

See instructions on page 4, item 11 under "Beginning of Each Heating Season."

High Temperature Limit Control:

In case of high boiler water temperature, control shuts down burner but lets circulator run as long as there is a call for heat. Limit should be set higher than the temperature needed for the system. Maximum setting is 220°F.

Expansion Tank:

As water heats up, it expands. Tank provides a place for increased water volume. May be open, closed, or diaphragm type.

1. Open type - located above highest radiator or base-board unit, usually in the attic or closet. Has a gauge glass and overflow pipe to a drain.
2. Closed type - Welded gas tight and located above boiler. Tank is partially filled with water, leaving an air cushion for expansion.
3. Diaphragm type - welded gas tight with a rubber diaphragm to separate air from water. May be located at any point in system, but usually close to the boiler.

An air vent must be installed in air vent tapping on boiler when this type of tank is used. This eliminates air in system.

Normal cold water fill pressure for a residential system is 12 psi. Tank pressure may be checked with an air pressure gauge. Heated water expansion causes the diaphragm to push against the air cushion, providing space for increased water volume.

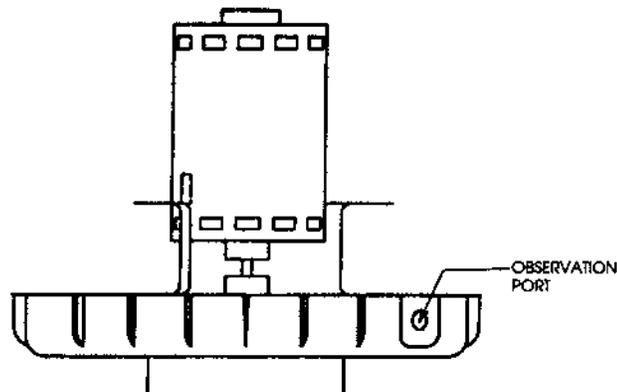
Maintenance:

If relief valve opens frequently, expansion tank may be waterlogged. Call a qualified service technician to drain tank and re-establish proper air cushion.

Combination Pressure/Temperature Gauge:

Water pressure and temperature can be read on face of gauge. In general, cold water fill pressure is 12 psi for residential systems. As water heats, pressure will rise. Maximum pressure is 30 psi. Temperature will vary according to system and daily heating demands. The range will be from room temperature up to high limit control setting.

Checking Burner Flame and Ignitor Glow:



1. Look through observation port in blower housing:
 - a. ignitor glow is seen as yellow-orange.
 - b. flame is seen as round blue dot.

ADDITIONAL INFORMATION

Fill the System:

1. Close manual and automatic air vents and drain cock.
2. Fill to correct system pressure. Correct pressure will vary with each system. Normal cold water fill pressure for a residential system is 12 psi.
3. Open automatic air vent two turns.
4. Slowly feed water to boiler.
 - a. Starting on lowest floor, open air vents one at a time until water squirts out. Close vent.
 - b. Repeat with remaining vents.
5. Close manual water feed valve when correct boiler pressure is reached.

To Place in Operation:

1. Verify boiler is filled with water.
2. Follow lighting instructions on back cover.
3. Check system piping for leaks. If found, repair immediately.
4. Vent air from system. Repeat steps 4 and 5 under "Fill the System." Air in system can interfere with water circulation and cause improper heating.

FOR YOUR SAFETY READ BEFORE LIGHTING

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 supplier's instructions.

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

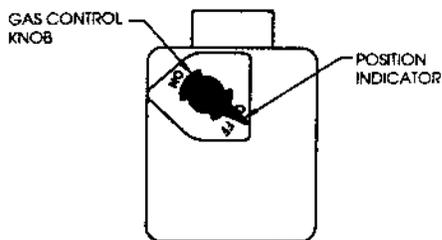
- C. Use only your hand to push in or turn the gas control knob or move the selector arm. Never use tools. If the knob or arm will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D. Do not use this 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

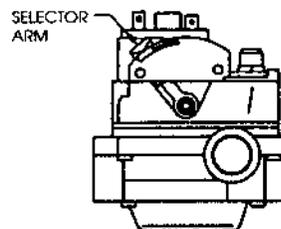
1. STOP! Read the safety information above.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

NOTE: Use the picture that corresponds with your valve.

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5. Push in gas control knob slightly and turn clockwise to "OFF".
NOTE: Knob cannot be turned to "OFF" unless knob is pushed in slightly. Do not force.
 6. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above. If you don't smell gas, go to next step.
 7. Turn gas control knob counterclockwise to "ON."
 5. Depress and move selector arm left to "OFF."
Note: Arm cannot be turned to "OFF" unless arm is pushed in slightly. Do not force.
 6. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above. If you don't smell gas, go to next step.
 7. Depress and move selector arm right to "ON."
8. Turn on all electric power to the appliance.
 9. Set thermostat to desired setting.
 10. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.
 11. Replace control access panel.

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. To turn boiler "OFF" follow 5 in "Operating Instructions" above that corresponds with your valve.
4. Replace control access panel.

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