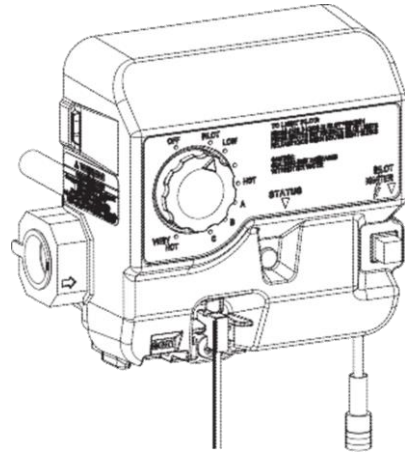


695 NGA

USE AND INSTALLATION INSTRUCTIONS



FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLING OR OPERATING THIS CONTROL COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE

DESCRIPTION

The **695 NGA** water heater control is a combination gas valve and thermostat for use on atmospheric water heaters. The microcontroller equipped electronics monitor the water heater and indicates the status via a green status LED on the front of control.

Fixed Adjustment Regulator Controls: the gas regulator on this control requires no field service. The regulator automatically controls and maintains the burner gas pressure.

PRECAUTION

⚠ WARNING

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

⚠ WARNING

Pay attention to use the gas controller with the correct gas:

- The 695 NGA with **BLACK** thermostat knob (see Figure 2) is allowed to be used with **Natural Gas only**
- The 695 NGA with **RED** thermostat knob (see Figure 2) is allowed to be used with **LP Gas only**

Improper operation could occur, resulting in personal injury and/or death due to Carbon Monoxide (CO) poisoning, fire, or explosion. Check for proper gas type as listed on the rating plate affixed to the water heater.

⚠ WARNING

FIRE AND EXPLOSION HAZARDS

- Shut off main gas to appliance for service or until installation is complete
- Replace existing control with recommended model
- Protect the control from direct contact with water (dripping, spraying, rain, etc.)
- If the control has been in direct contact with water, replace the control
- Label all wires before disconnection when servicing controls; wiring errors can cause improper and dangerous operation
- Route and secure wiring away from flame
- Do not use tools to operate this control
- Do not take control apart, there are no serviceable parts inside
- Do not use control if it has been flooded
- Never stand on the control or use as a step

SPECIFICATIONS

	NATURAL GAS	LPG
Range of Regulation (Btu/Hr)	4" outlet: Min 25,000 Max 75,000	10" outlet: Min 30,000 Max 100,000
1.0" Pressure Drop Capacity	55,000 Btu/Hr (4" outlet) ^a	70,000 Btu/Hr (10" outlet) ^b
Maximum Inlet Pressure	1/2 PSI	
Ambient Temperature Rating	20°F to 170°F (-7°C to 76°C)	
Automatic High Temperature Cutoff	Resettable Type, 195°F (90°C)	
Body Configuration	Right angle with a 1/2" NPT inlet and a 1/2" inverted flare outlet	
Control Input	Voltage Minimum: 435 mV dc, open circuit Voltage Maximum: 1200 mV dc, open circuit	
Mounting	Upright	

^a Based on 1000 Btu/ft³, 0.64 specify gravity natural gas

^b Based on 2500 Btu/ft³, 1.53 specify gravity LP gas

INSTALLATION

NOTE

1. This control must be installed or serviced only by a qualified service person.
2. For your safety, this control is supplied with tamper resistant screws. Do not attempt to repair or adjust the control. If you experience problems, replace the control immediately. Continuing to use a damaged control could result in fire and/or explosion.
3. An odorant has been added to the gas to help you detect it. Before lighting, search for the odor of gas by sniffing at floor level around the water heater.
4. In some situations, the gas may lose its odor. To detect unodorized gas, you must have a gas detector, which can be purchased from your gas company. If you do not have a detector and have the slightest suspicion that gas may be present, get out of the house and call the gas company. **DO NOT RELY TOTALLY ON YOUR NOSE.**

REMOVING THE OLD CONTROL

1. Locate the gas control. Before performing any maintenance, turn the gas control thermostat knob to the OFF setting. (Figure 3)
2. Close gas shut off valve.
3. Remove the two electrical connections that are plugged into the control (Figure 2).
4. Shut off the water at the cold water inlet.
5. Connect a hose to the water heater drain cock. Drain the water to a nearby drain. Open a hot water faucet for faster draining.
6. Disconnect the gas line at the union (Figure 1). Remove the piping from the old control.
7. Disconnect main burner tube fitting and pilot tube fittings (Figure 2).
8. Remove the control by turning counter clockwise (↺) if needed, a short piece of 1/2" black iron pipe can be screwed into the control inlet to increase leverage.

⚠ WARNING

Dirt or contamination in the gas line can block the control from operating creating a risk of explosion, injury, or death. To protect the control from dirt and contamination, a drip leg or sediment trap (see Figure 1) must be installed in the piping leading to the control.

INSTALLING THE NEW CONTROL

All piping must comply with local and state ordinances or with the National Fuel Gas Code (ANSI Z223.1-NFPA 54), whichever applies.

1. Apply pipe compound to the male threads that screw into the tank, leaving the first two or three threads clean.
2. Install control in the tank. Turn clockwise (↻). Use a short piece of pipe to help in turning. Align the control so that the burner tube may be connected.
3. Reconnect the main burner and pilot tube connection. **Do not use pipe joint compound or Teflon tape.**
4. Connect the gas line. Use new black iron pipe that has been properly reamed. If old pipe is used, be sure it is clean and free from rust and scale. Use pipe joint compound on male threads only. (Use pipe joint compound approved for natural and LP gas service.) **Do not use Teflon tape.** Do not apply compound to the first two threads.
5. Reconnect gas line at the union. **DO NOT use joint compound or tape on the union connection.**
6. Reconnect the electrical connections to the control. There are three connections for the control. Connect the positive lead from control to the thermal switch on the tank. Connect negative lead (white) from pilot generator to the negative terminal on control. Connect piezo spark connector to igniter wire connector (Figure 2).

NOTE

The cold water supply valve **MUST** be left open when the water heater is in use



INSTALLATION

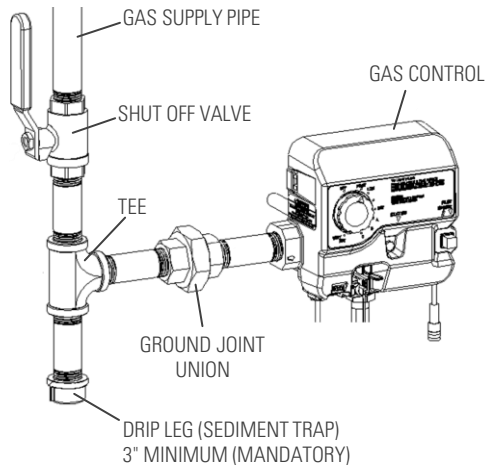


Figure 1. Typical gas connection

7. To fill the water heater with water:
 - a. Close the water heater drain valve. The drain valve is on the lower front of the water heater.
 - b. Open the cold water supply valve to the water heater.
 - c. Close the water heater drain valve. The drain valve is on the lower front of the water heater.
 - d. Open the cold water supply valve to the water heater.
8. Open the gas shutoff valve
9. **BEFORE TURNING ON THE APPLIANCE, CHECK THE GAS LINES FOR LEAKS.**
 - a. Use a soapy water solution. **DO NOT test for gas leaks using a match or open flame.**
 - b. Brush the soapy water solution on all gas pipes, joints and fittings. Use care that excess solution does not enter the control's plastic housing.
 - c. Check for bubbling soap. This means you have a leak. Close gas shutoff valve and make the necessary repairs.
 - d. Open gas shutoff valve and recheck for leaks. Repeat this process until you are sure the system is gas-tight. If repeated work on a part does not stop the leak, the part must be replaced.
 - e. Rinse off the soapy solution and wipe all the plumbing parts dry.

TO LIGHT APPLIANCE

1. **STOP!** Before lighting, read the water heater's safety information label.
2. Turn temperature setting knob to OFF position (Figure 3).
3. Wait at least five minutes to clear out any gas, and then smell around the appliance area near the floor. **If you smell gas, STOP!** Follow the instructions "What to do if you smell gas" on the first page of the instruction sheet. If you do not detect gas, continue with the next step.

4. To expose inner door sight glass, remove outer door and insulation (if applicable). Do not attempt to remove inner door assembly.
5. Rotate the combination gas control thermostat knob clockwise (↻) to the "PILOT" position (Figure 3).
6. Depress and hold the gas control thermostat knob all the way in while immediately depressing the "PILOT IGNITER" button. Repeat pressing the "PILOT IGNITER" button until a pilot flame can be seen through the inner door sight glass.
7. Once the "STATUS" indicator light begins to blink once, release the combination gas control thermostat knob.
 - If the gas control thermostat knob does not spring back, stop immediately and call a qualified service person or your gas supplier.
 - If the "STATUS" indicator light does not start blinking once after 90 seconds or the pilot is not lit, repeat steps 2 through 6.
 - If "STATUS" indicator light does not start blinking once after 3 attempts, call a qualified service person.
8. Verify the pilot remains lit by viewing the pilot flame through the sight glass window located on the inner door.
9. Replace the inner door insulation (if applicable) and the outer door.
10. Set the gas control thermostat knob to the desired setting (Figure 3).

If the gas control thermostat knob does not allow rotation from the pilot position to a temperature setting, do not use tools or excessive force, call a qualified service person or your gas supplier.

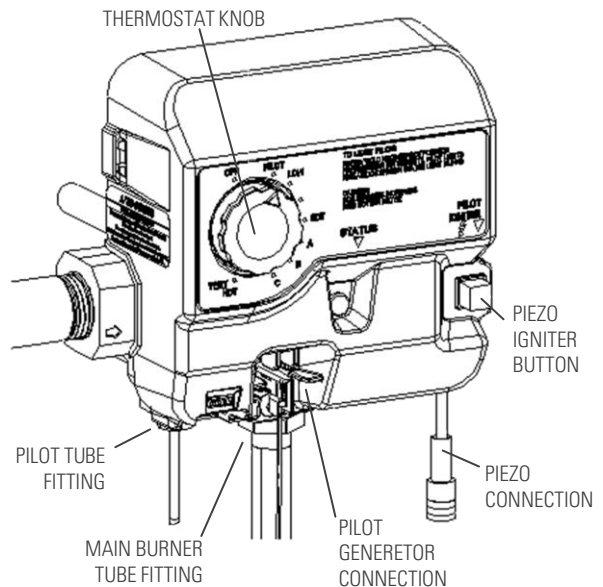


Figure 2. Gas control features



OPERATION

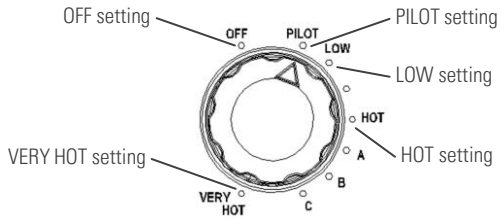


Figure 3. Thermostat knob settings

After the gas and electric connections are made and the water heater tank is full of water, the control must be set to the desired water temperature. **The recommended thermostat knob setting is the "HOT" setting.** This is approximately the 125°F setting and the safest and most economical setting for the water heater. If you want hotter water rotate the thermostat knob clockwise (↻) to a higher setting. If you want cooler water, rotate the thermostat knob counter clockwise (↺) to a lower setting (Figure 3)

SETTING	APPROXIMATE TEMPERATURE	APPROXIMATE TIME TO CAUSE INJURY
HOT	125°F	5 minutes
A	133°F	30 seconds
B	140°F	5 seconds
C	148°F	1.5 seconds
VERY HOT	155°F	Under 1 second

Table 1. Approximate temperature settings

⚠ WARNING

The hotter the water the greater the risk of scald injury and the shorter the time to cause injury.

If you use hot water frequently and in short spurts, water temperature can occasionally exceed the temperature setting by up to 30°F because of the dynamics of the appliance.

Keep this in mind when you are selecting a temperature higher than the factory default setting.

Be sure to protect babies, small children, and the infirm or other with impaired mobility who cannot get out of the hot water quickly. They are people most commonly hurt in scald injuries and in need of lower temperature and other protection like supervision, point of use temperature control equipment or a system mixing valve. A point of use valve or system mixing valve can be obtained from your local plumber.

To avoid scald injury, set the control to the lowest setting which will deliver your needed hot water. Refer to Table 1 to determine the approximate temperature setting, and the approximate time for scald injury at that temperature

⚠ WARNING

Scald burns occur in under one second with 155°F water, which this thermostat will deliver if the temperature is set at "VERY HOT". Lower settings of the temperature will reduce the risk of scald and will reduce your fuel bill.

⚠ WARNING

Never allow small children to use a hot water tap, or to draw their own bath water. Never leave a child or impaired person unattended in a bathtub or shower. Scald burns can result.

SHUTTING OFF GAS TO THE APPLIANCE

Rotate the temperature setting knob counter-clockwise to the "OFF" position. Note: The "STATUS" indicator light will briefly turn green then go off after a short period of time (Figure 3).

TROUBLESHOOTING

The status indicator monitors the control system and indicates fault conditions via the status light. Fault conditions are indicated by a flash sequence that identifies the probable cause of the fault. Note the status flash code and call your service technician or gas service supplier.

STATUS CODE	DIAGNOSTIC
No LED	Gas Control OFF - Pilot not Lit
1 Flash Every 4 Seconds	Normal operation, Burner OFF
1 Flash Every 1 Second	Normal operation, Burner ON
Solid LED	Gas Control Recently Turned OFF - Thermopile Voltage Decreasing
2 Flashes	Pilot Lit - Insufficient Voltage to Power & Run Gas Control
4 Flashes	Water Temperature too High - Control Reset
5 Flashes	Gas Control Problem - Replace Control