

# CS8800 Water Heater Pilot Burner Assembly

## INSTALLATION INSTRUCTIONS

### APPLICATION

The CS8800 Pilot Burner Assemblies provides standing pilot ignition of the main burner and power for the WT8800 control module and VT8800 valve. The CS8800 is a primary aerated pilot burner.

On some models a temperature cut out switch (TCO) is provided to sense a clogged flame arrestor or a flammable vapor incident. When the TCO opens, the power to the control is interrupted and pilot goes out. There are separate LP and natural gas models.

The CS8800 Pilot Burner was designed for gas fired hot water tank heating applications.

### SPECIFICATIONS

#### Maximum Temperature Ratings:

Target (flame hood)	1575°F
Orifice	600°F (800°F for models using stainless steel gas connections)
Bracket Assembly	1000°F

**Appliance Operating Ambient Temperature Range:**  
32°F to 140°F (0°C to 60°C)

#### Orifice Requirements:

CS8800A Natural Gas:	0.013 to 0.0143 in. (480 BTU/hr to 580 BTU/hr at 4.5 in. WC)
CS8800B LP Gas:	0.007 to 0.0083 in. (340 BTU/hr to 480 BTU/hr at 10 in. WC)
CS8800C Natural Gas:	0.0155 to 0.0165 in. (685 BTU/hr to 776 BTU/hr at 4.5 in. WC)
CS8800D LP Gas:	0.0115 to 0.0125 in. (910 BTU/hr to 1075 BTU/hr at 10 in. WC)

#### Models:

- There are four models available:
- CS8800A: "U" channel bracket for burner base mounting.
  - CS8800B: Angle bracket for main burner tube mounting.
  - CS8800C: Angle bracket similar to CS8800B except designed to light burner from above.
  - CS8800D: Angle bracket same as CS8800B.

### WARNING

#### Oxygen Depletion Hazard.

**Can cause injury or death due to asphyxiation.**

1. Use this pilot burner on vented appliances only.
2. Replace pilot burner with same exact part number. If equipped with a TCO switch, it must be installed in the location provided on the pilot burner. If the TCO switch is mounted on the appliance, connect the thermopile leads to the TCO switch. Follow the Instructions provided with replacement pilot burner.

### INSTALLATION

#### When Installing This Product...

1. Read these instructions carefully. Failure to follow the instructions can damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Make sure the installer is a trained, experienced service technician.
4. After completing the installation, use these instructions to check out the product operation.

### WARNING

#### Fire or Explosion Hazard.

**Can cause property damage, severe injury or death.**

Follow these warnings exactly:

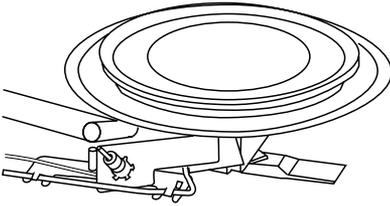
1. Avoid dangerous accumulation of fuel gas by turning off gas supply at the appliance service valve before starting the installation procedure.
2. Perform the Gas Leak Test (see page 2) after the completion of the installation.
3. Do not bend pilot tubing at the gas control or pilot burner after the compression nut is tightened. Gas leakage at the connection can result.

Follow the appliance manufacturer instructions if available; otherwise, use the instructions provided below.

#### Location

1. Position the pilot burner for easy access and observation. In replacement applications, replace the pilot burner with an identical unit and position the new pilot burner in the same location and orientation as the original pilot burner. If the model has a TCO, position and attach the TCO in the exact location as the original TCO. If the model has terminals to connect a TCO, connect the TCO.
2. Mount the pilot burner on the main burner. See Fig. 1. Mounting surfaces other than the main burner can shift, bend, or warp as the water heater tank expands and contracts during operation.





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Fig. 1. Mount pilot burner on main burner.

3. Mount the pilot burner so the ignition flame remains properly positioned with respect to the main burner flame.
4. Supply the pilot flame with ample air that is free of combustion products.
5. Do not impinge the pilot flame on adjacent parts. Do not impinge the main burner flame on the pilot burner.
6. Do not expose the pilot flame to falling scale that could impair ignition of the main burner.
7. Do not expose the pilot burner to the main burner rollout while igniting or extinguishing.
8. Do not expose the pilot flame to drafts that push or pull the pilot flame away from the thermopile.

5. With the main burner in operation, paint the pipe joints (including the adapters) and gas control inlet and outlet with a rich soap and water solution.
6. If another leak is detected, tighten the adapter screws, joints and pipe connections.
7. Replace the part if the leak cannot be stopped.

### Pilot Flame

The pilot flame should envelop 3/8 in. to 1/2 in. (10 to 13 mm) of the thermopile tip.

### Ignite Pilot Burner

1. Before lighting the pilot burner, turn the knob to its lowest setting. Wait for unburned gas to vent.

### WARNING

**Explosion or Fire Hazard.**  
**Can cause severe injury, death or property damage.**

LP gas is heavier than air and does not vent upward. Smell for LP gas next to the floor. If you smell gas, shut off the main valve in the gas piping or "ON LP" at the tank. Perform the Gas Leak Test to recheck the connections.

2. Light the pilot burner according to the appliance manufacturer instructions.

## STARTUP AND CHECKOUT

### Perform Gas Leak Test

### WARNING

**Fire or Explosion Hazard.**  
**Can cause property damage, serious injury or death.**  
Check for gas leaks with soap and water solution any time work is done on a gas system.

### Gas Leak Test

1. Ensure that the gas supply is turned on at the appliance service valve.
2. Paint the pipe connections upstream from the pilot burner with a rich soap and water solution. Bubbles indicate a gas leak.
3. If a leak is detected, tighten the pipe connections.
4. Stand clear of the main burner while lighting to prevent injury from hidden leaks that could cause flashback in the appliance vestibule. Light the main burner.

## SERVICE

### WARNING

**Fire or Explosion Hazard.**  
**Can cause property damage, serious injury or death.**  
Perform Gas Leak Test anytime work is done to the system.

### Thermopile Performance

Thermopiles require proper temperature differential between the hot-junction (tip) and cold-junction (base) to provide satisfactory operation of millivoltage gas controls. Thermopiles perform less effectively when exposed to excessive cold-junction or hot-junction temperatures.

Excessive cold-junction temperatures can be caused by heat radiation from adjacent surfaces or high ambient air temperatures. Excessive cold-junction temperatures can be eliminated by shielding the pilot flame, or construct a baffle to direct secondary air over the pilot burner base.

Excessive hot-junction temperatures can be eliminated by proper flame adjustment.

### Automation and Control Solutions

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