A. Troubleshooting

If the error code is indicated on the Red LED (Refer to the Section C) on the PCB (Part #0710) of the water heater (and/or the remote controller), refer to Section B.

It takes long time to get hot water at the fixtures

- The time to get hot water depends on your fixtures depending on the length of piping between the two. The longer the distance or the bigger the pipes, the longer it will be to get hot water.
- If you would like to receive hot water to your fixtures quicker, you may want to consider a hot water recirculation system.

The water is not hot enough or turns cold and stays cold

- Compare the flow and temperature. Refer to the "Output temperature chart" of the installation manual.
- Check cross plumbing between cold water lines and hot water lines.
- Check if the old gas supply is properly and the gas supply pressure is enough. Refer to the "Gas and supply piping size" of the installation manual.
- Check the set temperature, and change the dispatch setting. Refer to Section D. Refer to "Water circuit" in this section.

The water is not available when a fixture is opened

- Refer to the "Power supply circuit" and "Water circuit" in this section.
- Check the water inlet. (Part #0406)

B. Error codes

The numbers in parentheses below are the numbers of blinking of the Red LED on the PCB to indicate the error codes.

03 (One Time): Incorrect dispatch setting

Check the dispatch settings on the PCB. Refer to Section B.

10 (Five Times): Warning for the "99" error code

Check the gas type of the water heater. If it is not a gas type model, replace the water heater to correct one.

If there is any blockage (For example, Damper sticking, Vent flaps, installed on the water heater, etc.) Check the error is the "termination clearance" of the installation manual.
- If the water heater is installed as a direct-vent system, check whether there is enough distance between the intake air terminal and the exhaust terminal. Refer to the "termination clearance" of the installation manual.
- Check if the water heater is installed in an area where the wind velocity is 50 m/s or less. Refer to the "terminations" of the installation manual.
- Check the altitude/elevation of area of where the water heater is installed. Refer to the "high altitude" function of the water heater (Part #0540).
- Check if there is a loss of pressure and change the dispatch settings.
- Check there is no pressure and/or problem on the water heater. Refer to "Water circuit" in this section.
- Check the voltage on each gas valve and gas assembly (Part #0201). Refer to the "Water circuit" in this section.

31, 32 (Two Times): Disconnected/short-circuited thermostat

Check for connection of the thermostat (Refer to the Appendix D in Section C).

39 (Five Times): Gas Supply blockage of wires and/or on the computer board (Part #0070). Gas will not ignite.

Check for connection of wires and/or on the computer board (Part #0070). Gas will not ignite.

51, 55 (Six Times): Abnormal Gas Solenoid Valve and Main Gas Valve

Check for connection of wires between each wire of the computer board (Part #0070). Gas will not ignite.

41 (Four Times): Fan motor fault

Check for connection of wires, dust buildup in the fan motor (Part #0070) and/or burns on the pins of the computer board (Part #0070). Gas will not ignite.

70 (One Time): Computer board fault

Check for connection of wires between each wire of the computer board (Part #0070). Gas will not ignite.

72 (Six Times): Gas feedback flame detection

1. Clean the flame rod (Part #0188).
2. For indoor models, check if condensate drain is installed on the vent collar of the water heater.
3. Check if there is leaking from heat exchanger (Part #0401).
4. Check if there is dust and lint in nozzles of the manifold (Part #0201).
5. Check if there is dust and lint in nozzles of the manifold (Part #0201).
6. Check current on the flame rod (Part #0188). Refer to the #5 in "Appendix A in Section C.

12 (Three Times): Loss of flame

1. Check gas supply and inlet gas pressure.
2. Check if the Hi-limit switch (Part #0402) is properly functioning.
3. Check for connection of wires (Part #4183, 708, 709, 712), burn marks on the computer board (Part #0170), and/or on the flame rod (Part #0508). Then check if the D.C.F. (Part #0411) is broken. Consult the manufacturer.
4. Check if there is a buzzing spark ignition sound coming from the burner (Part #0101) when water heater is working, but not when the power supply is turned on.
5. Listen for the double "clunk" sound coming from the gas valves assembly (Part #0202) when water heater goes into combustion.
6. Only no sparking and/or kick sound. Check voltage on each wire to gas valve assembly (Part #0030) and then check if the Hi-limit switch (Part #0402) is properly functioning.
7. Check if there is dust and lint in nozzles of the manifold (Part #0201).
8. Check if there is dust and lint in nozzles of the manifold (Part #0201).
9. Check current on the flame rod (Part #0188). Refer to the #5 in "Appendix A in Section C.

99 (Five Times): Imperfect combustion

- Refer to the "59" error code in this section.

C. Wiring Diagram and check point of the Water heater

Change the dispatch settings when the power supply is turning off. The dark square is the direction the dipswitch is should be set to.

The dipswitches have certain special functions and generally should not need adjustment. They have settings for four functions, shown below.:

1. HIGH ALTITUDE
2. COOL/HEAT RANGE
3. GAS TYPE
4. GAS GAS

Appendix B (for error code 61)

Refer to the dispatch setting to the left and followings.
- Check voltage between red wire and blue wire. (Normal: DC 110 to 170 V)
- Check voltage between yellow wire and blue wire. (Normal: 113 V to 17 V)
- Check voltage between orange wire and blue wire. (Normal: DC 2.0 to 6.5 V)
- All check points are normal? Yes >> Replace the fan motor. (Part #0701)
No >> Replace the PCB. (Part #0701)

Appendix C (for error code 51 and 55)

Refer to check point "C" in the diagram to the left and followings.
- Check voltage on the each valve on the gas valve assembly.
  - Between blue wire and light blue wire (K3). (Normal: DC 78 to 100 V)
  - Between blue wire and green wire (K2). (Normal: DC 78 to 100 V)
  - Between blue wire and orange wire (K5). (Normal: DC 78 to 100 V)
  - Between blue wire and white wire (K1). (Normal: DC 1 to 15 V)
- All check points are normal? Check yes >> Replace the valves assembly. (Part #0408, 0407)
No >> Replace the PCB. (Part #0701)

Appendix D (for error code 31 and 32)

Outlet thermistor (Find the marking of No.113 on the connector) Check point "K2" in Section C.
- Inlet thermistor (Find the marking of No.42 on the connector) Check point "K2".
- Check resistance between black wire and white wire.
- All check points are normal? Check yes >> Replace the PCB. (Part #0701)
No >> Replace the thermistor. (Parts #0408, 0407)

Appendix E (for error code 74)

Check to point check "P" on the wiring diagram above.
- Check voltage on the remote control terminal on the PCB. (Normal: DC 11 to 25 V)
- This check point is normal? No >> Replace the remote controller. No >> Replace the PCB. (Part #0701)

D. Dipswitch Settings on the computer board of the water heater

Pr pbrane

Gas type

Model type

High-altitude function

Basic temperature setting

Pbrane

Gas type

Model type

Over 6,000 ft: Consult the manufacturer.