A. Troubleshooting

1. If the error code is indicated on the 3-digit 7-seg LED on the PCB (Part #701) of the water heater (and/or the remote controller), refer to Section B.

2. If it takes long time to get hot water at the fixtures

   - The time to heat the water from the water heater to your fixtures depends on the length of piping between the two. The longer the distance or the bigger the pipes, the longer it will take 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.

3. The water heater is not hot enough or turns cold and stays cold

   - Check the flow and temperature. Refer to the "Output temperature chart" of the instruction manual.
   - Check cross-plumbing between cold water lines and hot water lines.
   - Check if the gas line is sized properly for the flow rate of the appliance.
   - Check for cross-connection between cold water lines and hot water lines.
   - Refer to the "Water circuit" in this section.
   - If you can use the remote controller, turn the power button on and then the LED light will be.
   - Check if the filter on the cold water inlet cleaned. (Part #804)

B. Error codes

101: Warning for the "991" error code

- Check the display settings on the PCB. Refer to Section D.
- Check the gas type (if the water heater is H model; type gas type code, replace the water heater to correct one.)
- If there is any blockage (for example, Damper sticking, Vent Flaps installed on the terminal, Snow build up around terminal, Insulation removed or ventilation not free). Check the "Vent temperature clearance" of the instruction manual.
- If the water heater is installed as a direct-vent system, check whether there are enough distance between the water heater and the exhaust terminal. Refer to the "Vent temperature clearance" of the installation manual.
- If the total vent length doesn’t exceed 50 ft and the # of elbows is less than 15a.
- Check the altitude/area of installation of the appliance. Check the wire to the "High-altitude function" of the Section D. And change the display settings.
- If there is grease and/or dirt in the burner (Part #801), and the fan motor (Part #814), especially if the water heater has been installed in a contaminated area.
- Check if there is dust and lint in heat exchanger.
- Check the manifold pressure of the water heater. Refer to installation manual.

111: Ignition failure

- Check if the Hi-limit switch (Part #424) is properly functioning.
- Check if the gas supply and inlet gas pressure.
- Check if there is any sparking spark ignition sound coming from the burner (Part #801) when the water heater prepares for combustion.
- Check if there is dust and lint in heat exchanger.
- Check if the gas flow rate (Part #801). Refer to the #8 at "Appendix A" in Section C.

121: Loss of flame

- Check gas supply and inlet gas pressure.
- Check if the gas supply is properly functioning.
- Check for connection/breakage of wires (Part #104, 204, 704, 705, 719, 719) marks on the computer board (Part #801), and/or on the flame rod (Part #816). And then if O.H.C.F (Part #808 and/or #404) is breakage, replace the computer board.
- Check if there is a sparking spark ignition sound coming from the burner (Part #801) when the water heater prepares for combustion.
- Check if there is dust and lint in heat exchanger.
- Check if the gas flow rate (Part #801). Refer to the #8 at "Appendix A" in Section C.

C. Wiring Diagram and check point of the Water heater

Appendix B (for code error 611 & 661)

Check point "G1" and "G4" in the diagram to the left and followings.
Check voltage between red wire and blue wire (Normal: DC 110 to 160 V)
Check voltage between yellow wire and blue wire (Normal: DC 12 to 16 V)
Check voltage between blue wire and red wire (Normal: DC 78 to 100 V)
Check voltage between blue wire and orange wire (Normal: DC 78 to 100 V)
Check voltage between blue wire and wire (Normal: DC 78 to 100 V)
Check all points are normal

Appendix C (for code error 510 & 551)

Check point "C1" and "C9" in the diagrams to the left and followings.
Check voltage on the each valve on the gas valves assembly.
Between blue wire and light blue wire (Normal: DC 110 to 120 V)
Between blue wire and green wire (Normal: DC 78 to 100 V)
Between blue wire and orange wire (Normal: DC 78 to 100 V)
Between blue wire and red wire (Normal: DC 78 to 100 V)
Check all points are normal

Appendix D (for error code 311, 321, 331, 341 and 941)

Mixing thermostat (Find the marking of No.01 on the connector)
Check voltage on the each valve on the gas valves assembly.
Check point "E2" on Input thermostat (Find the marking of No.02 on the connector)
Check point "H" on Inlet thermostat (Find the marking of No.42 on the connector)
Check temperature range.

Appendix E (for code 741)

Check point "J" on the wiring diagram above. Check voltage between water valve terminals (Normal: DC 110 to 25 V)
Check all points are normal

Appendix F (for code error 651 & 661)

Check point "J" on the wiring diagram above. Check voltage between water valve terminals (Normal: DC 110 to 25 V)
Check all points are normal

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

Change the dipswitch settings when the power supply is turned on.
The dark square is the direction the dipswitch should be set.
DEFAULT is the factory setting.

<Left bank of dipswitches>
- The Gas Type and Model dipswitches should already be properly preset from the factory.

<Right bank of dipswitches>