



TECHNICAL TRAINING AND SERVICE MANUAL



IKONIC™ TANKLESS WATER HEATERS

RTGH-S11i

RTGH-S10i

RTGH-S84i

RTGH-SR11i

RTGH-SR10i

RTGH-SR84i

CRTGH-S11i

CRTGH-S10i

CRTGH-S84i

CRTGH-SR11i

CRTGH-SR10i

CRTGH-SR84i

RUTGH-S11i

RUTGH-S10i

RUTGH-S84i

RUTGH-SR11i

RUTGH-SR10i

RUTGH-SR84i

CRUTGH-S11i

CRUTGH-SR11i

CONTENTS

SAFETY AND INTRODUCTION	4
TROUBLESHOOTING TOOLS.....	5
MEASURING VOLTAGE AND RESISTANCE	5
GENERAL INFORMATION.....	6
CROSSOVER VALVE	6
FUEL CONVERSION	6
SPECIFICATIONS.....	7
FLOW RATE.....	8
PRESSURE DROP AND TEMPERATURE RISE CURVE	9
DIRECT-VENT GAS COMPONENTS	10
DIRECT-VENT GAS COMPONENTS RECIRCULATION MODEL	11
SPECIFICATIONS AND INSTALLATION GUIDELINES.....	12
GAS / CONDENSATION	14
CONTROL BOARD CONNECTORS.....	15
DIAGNOSTIC POINTS ON CONTROL BOARD	16
USER INTERFACE AND OPTIONS	18
QUICK LOOK MODE / MENU OPTIONS.....	18
LCD ON USER INTERFACE / SETTING TO ENABLE AND DISABLE.....	19
STATUS MENU	20
TANKLESS STATUS / WIFI STATUS	20
WIFI SETTING / WIFI SETUP.....	21
SETTINGS MENU	22
SET POINT TEMPERATURE	23
TEMPERATURE DISPLAY / BEEP ON ALARM	24
TANKLESS CONFIGURATION.....	25
RECIRCULATION – TIMER MODE	25
RECIRCULATION – ON DEMAND MODE	26
RECIRCULATION – MANUAL RECIRCULATION PUMP OPERATION.....	27
RECIRCULATION – SCHEDULE MODE.....	27
HIGH ALTITUDE ADJUSTMENT	28
WATER SAVING CONTROL.....	29
SETTING MANIFOLD HEATERS	29
NETWORK INSTANCE.....	30
SERVICE MENU.....	31
BURNER STAGING.....	32
VIEWING CURRENT ALARMS / CLEARING CURRENT ALARMS / ALARM HISTORY	33
CLEARING ALARM HISTORY / MANIFOLD ROTATE	33
RESET DEFAULT SETTINGS / SERVICE ALERTS	35
RESET WIFI SETTINGS.....	36
ERROR CODE DIAGNOSTICS.....	37
NO ERROR CODE AND NO HOT WATER	37
ERROR A011.....	38
ERROR A012	41
ERROR A014	43
ERROR A018	44

CONTENTS

ERROR A029	45
ERROR A031	46
ERROR A032	47
ERROR A033	48
ERROR A035	49
ERROR A036	50
ERROR A055	51
ERROR A061	52
ERROR A063	53
ERROR A065	54
ERROR A066	55
ERROR A070	56
ERROR A071	57
ERROR A072	58
ERROR A082	59
ERROR A090	60
ERROR A200	61
ERROR A2##	62
ERROR T110	63
NOTIFICATION T111	64
NOTIFICATION T113	65
NOTIFICATION T115 AND ERROR T116	66
HOW TO REMOVE COMPONENTS	67
FRONT COVER	67
GAS-AIR RATIO VALVE	68
FLAME AND IGNITER ROD	69
FLAME AND IGNITER ROD GASKET	70
WATER INLET CONNECTION	71
WATER CONTROL VALVE AND WATER BYPASS VALVE	72
CONDENSATION TRAP / OUTLET THERMISTOR	73
IGNITER COIL	74
BLOWER	75
DISPLAY	76
CONTROL BOARD	77
POWER CORD	78
THERMISTOR WIRING HARNESS	79
GAS CONTROL WIRING HARNESS	80
FAN CONTROL WIRING HARNESS / HIGH VOLTAGE GROUND WIRING	81
POWER CONTROL WIRING HARNESS	82
DISPLAY CONTROL WIRING HARNESS	83
ORIFICE PLATE	84
HOW TO CONNECT	86

SAFETY AND INTRODUCTION

The purpose of this manual is to provide technical and troubleshooting information to technicians and service professionals **ONLY**. Homeowners should consult the Use and Care Manual (AP22745) for general informational and installation inquiries or contact technical support prior to attempting to service to this tankless water heater.

It is imperative that all persons who are expected to install, repair or adjust this water heater read this and the Use and Care manual. This manual is intended solely for professional technicians intending to assist in repairing or servicing an IKONIC water heater. Any questions regarding the operation, maintenance, service or warranty of this water heater should be directed to the seller from whom it was purchased.

READ THE SAFETY INFORMATION

Before inspecting, diagnosing, repairing or operating any water heater, be sure to examine all of the safety and warning labels on the water heater. Follow the instruction on these warning labels. Read and understand the Use and Care Manual that was shipped with the water heater. Failure to do so can result in unsafe operation of the water heater resulting in property damage, bodily injury, or death. If you have any problems reading or following the instructions in the Use and Care Manual, seek the help of a licensed and qualified professional.

ELECTRICAL SHOCK

Troubleshooting and repairing this water heater can expose you to electrical shock. Some of the diagnostic procedures require the presence of AC and DC volt electricity. Use extreme caution when performing these procedures. When replacing a serviceable component, turn off all power to the water heater and check for the presence of power with a multi meter or test lamp.

The ignition cable carries more than 10,000 volts of electrical energy. Use extreme caution when diagnosing the Tankless Gas Water Heater.

FLAMMABLE LIQUIDS AND VAPORS

Gasoline, as well as other flammable material and liquids (adhesives, solvents, etc.), and their vapors are extremely dangerous. **DO NOT** handle, use or store gasoline or other flammable or combustible materials anywhere near or in the vicinity of a water heater. The spark ignition and burner assembly in the water heater controls can ignite these vapors. Failure to do so can result in property damage, bodily injury or death.

WATER TEMPERATURE ADJUSTMENT

Safety and energy conservation are factors to be considered when selecting the water temperature setting on the thermostat. Water temperatures above 125°F can cause severe burns or death from scalding. The chart shown here may be used as a guide in determining the proper water temperature for your application.

⚠ DANGER



Water temperature over 125°F (52°C) can cause severe burns instantly or death from scalds.

Children, disabled and elderly are at highest risk of being scalded.

See instruction manual before setting temperature at water heater.

Feel water before bathing or showering.

Temperature limiting valves are available, see manual.

The temperature of the water in the heater is regulated by the electronic control and surface mounted temperature sensors.

⚠ DANGER:
Hotter water increases the potential for Hot Water **SCALDS**.

Temperature	Time To Produce a Serious Burn
120°F (49°C)	More than 5 minutes
125°F (52°C)	1½ to 2 minutes
130°F (54°C)	About 30 seconds
135°F (57°C)	About 10 seconds
140°F (60°C)	Less than 5 seconds
145°F (63°C)	Less than 3 seconds

Table courtesy of Shriners Burn Institute

TROUBLESHOOTING TOOLS

SAFETY FIRST

Your safety and safety of others is very important. This manual is only intended for qualified service technicians. **ALWAYS USE CAUTION** while testing voltages and/or gas supply.



MULTI-METER

Used to measure Resistance and voltage.



MULTI-METER NEEDLE SET

Used on meter test leads to access connectors while measuring Resistance & Voltage.



MANOMETER

Used to measure gas pressure during standby and operation.



NEEDLE LEADS

Used to testing in compact connectors.

MEASURING VOLTAGE AND RESISTANCE

⚠ WARNING

WHILE MEASURING VOLTAGE, DO NOT cross/touch multi meter leads together. This will cause damage to electrical components.

WHEN INSERTING LEADS INTO WIRING CONNECTOR insert on the wiring side to prevent damage to connector.

BEFORE MEASURING RESISTANCE, TURN OFF all electrical power and make sure to REMOVE CONNECTOR from the circuit (control board). Check resistance on connector that was removed.

WHEN MEASURING VOLTAGE, DO NOT REMOVE CONNECTOR; insert multimeter leads prior to operating unit.

WHEN MEASURING DC VOLTAGE, if the meter displays the dash (-----) swap the position of your black and red leads on the connector.

⚠ **WARNING: DO NOT touch any grounding areas.**

GENERAL INFORMATION

GENERAL PRODUCT INFORMATION

CROSSOVER VALVE

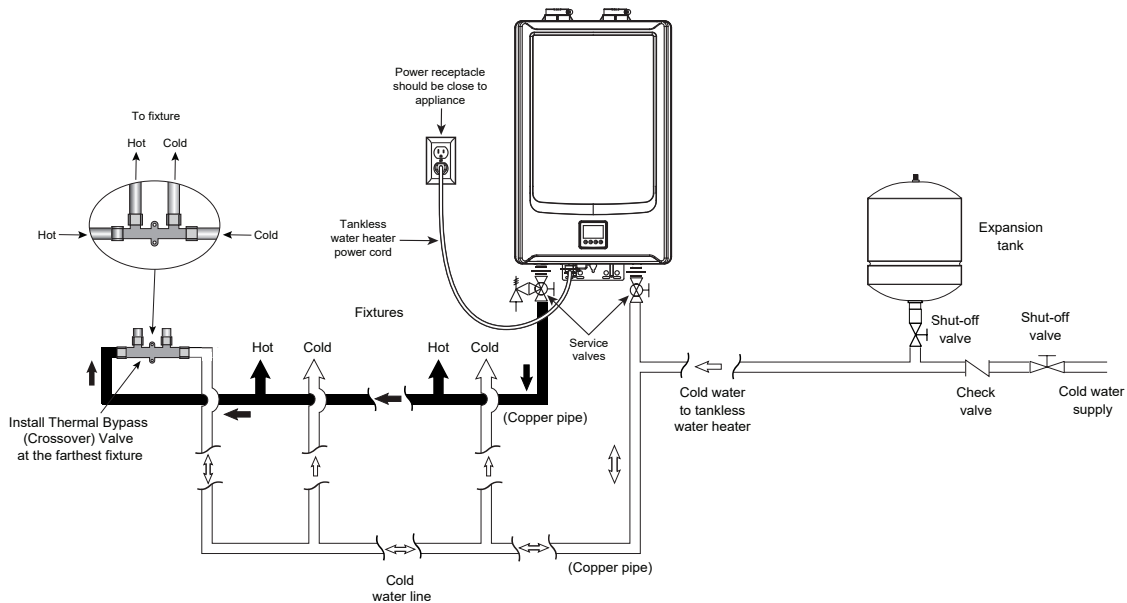
If a crossover valve is used, it should be located at the farthest faucet. See drawing below for information regarding crossover valve placement.

Approved Crossover Valves:

- Grundfos Comfort Valve - RTG20285
- Aquamotion - AMK-ODR
- Navien Navicirc - PFFW-SXX-001

NOTE: DO NOT install multiple crossover valves when using only one Tankless Water Heater.

NOTE: To ensure optimal performance and reliability, only one of the approved crossover valves should be used.



FUEL CONVERSION

Fuel conversion kits are shipped with wholesale units only and contain an LP orifice plate, an LP gas chip, and fuel conversion instructions (AP19636).

The conversion kit also includes a gas conversion label (pictured at the right).

Retail units are set up as either natural gas or LP. If installed on the wrong gas type a conversion kit may be available. Call Technical Support for information on conversion kits.

THIS WATER HEATER WAS CONVERTED ON
(DAY-MONTH-YEAR) (A)

TO LP GAS WITH KIT NO. (6)
BY (8)

(name and address of organization
making this conversion, who accepts
the responsibility for the
correctness of this conversion.)

TYPE OF GAS: LP GAS

MAX. INLET GAS PRESSURE: (1) "w.c.

MIN. INLET GAS PRESSURE: (2) "w.c.

MAX INPUT: (3) BTU/HR

MIN. INPUT: (4) BTU/HR

MANIFOLD PRESSURE: (5) "w.c.
(FOR MAX. INPUT)

CONVERTED TO LP GAS
WITH KIT NO. (6)

ORIFICE: (8) "w.c.

(7)

GENERAL INFORMATION

SPECIFICATIONS

SPECIFICATION		RTGH-S11i RTGH-SR11i	RTGH-S10i RTGH-SR10i	RTGH-S84i RTGH-SR84i
Dimensions	Width	17.3 in (440 mm)		
	Height	28.6 in (726 mm)		
	Depth	13.7 in (348 mm)		
Approval Gas Type		Natural (NG) and Liquid Propane (LP)		
Maximum Gas Consumption		199,900 Btu/h	180,000 Btu/h	157,000 Btu/h
Minimum Gas Consumption		11,000 Btu/h		
Gas Supply Pressure	NG	4.0 in w.c. - 10.5 in w.c.		
	LP	8.0 in w.c. - 13.0 in w.c.		
Minimum Activation Flow Rate		0.4 GPM		
Extinction Flow Rate		0.26 GPM		
Vent Size (Indoor Only)		2 in or 3 in		
Service Connections	Gas Supply	¾ NPT		
	Cold Water Inlet	¾ NPT		
	Hot Water Outlet	¾ NPT		
	Recirculation Fitting (Built-in Pump model only)	¾ NPT		
Electrical Consumption	Normal	100 W		
	Standby	3.5 W		
	Antifreeze Protection	200 W		

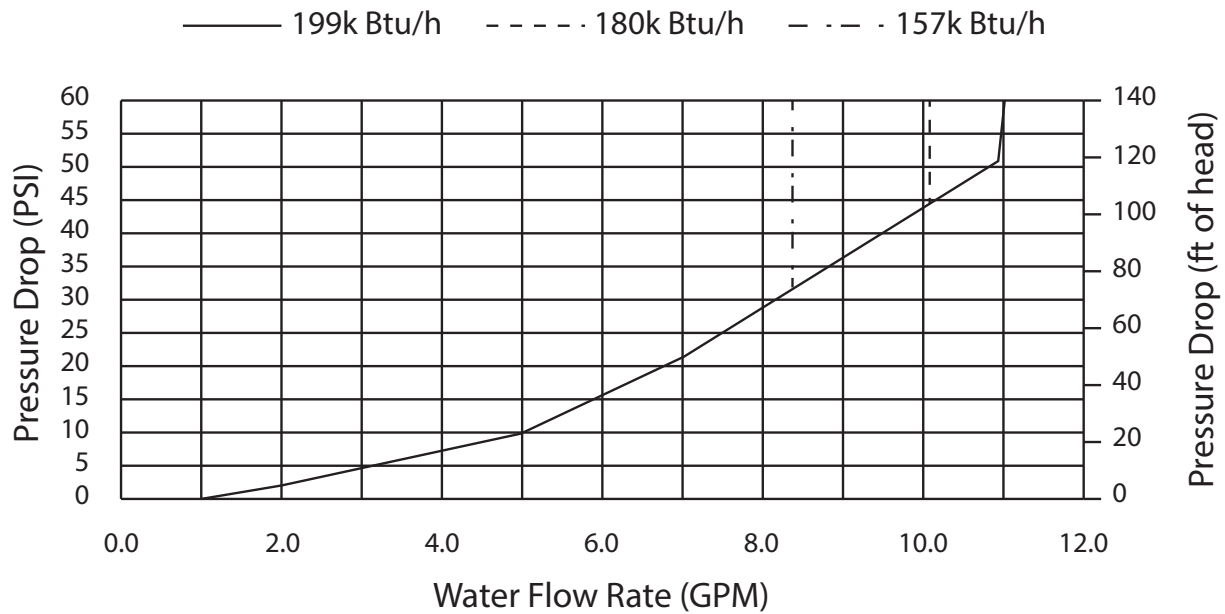
TEMPERATURE RISE (°F)								
35	45	50	60	70	78	80	90	100
8.4	6.9	6.2	5.2	4.4	4.0	3.9	3.4	3.1
Max Water Flow - GPM (gallons per minute)								

GENERAL INFORMATION

IKONIC PRESSURE DROP

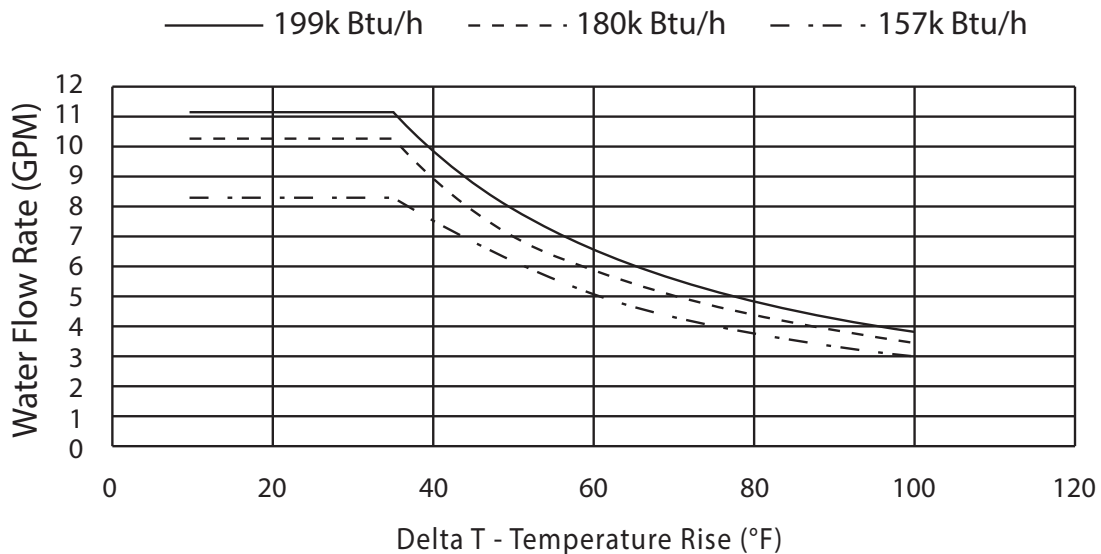
NOTE: Pressure drop curve for IKONIC is different from existing condensing model. See table below for IKONIC Pressure Drop information.

Pressure Drop Curve



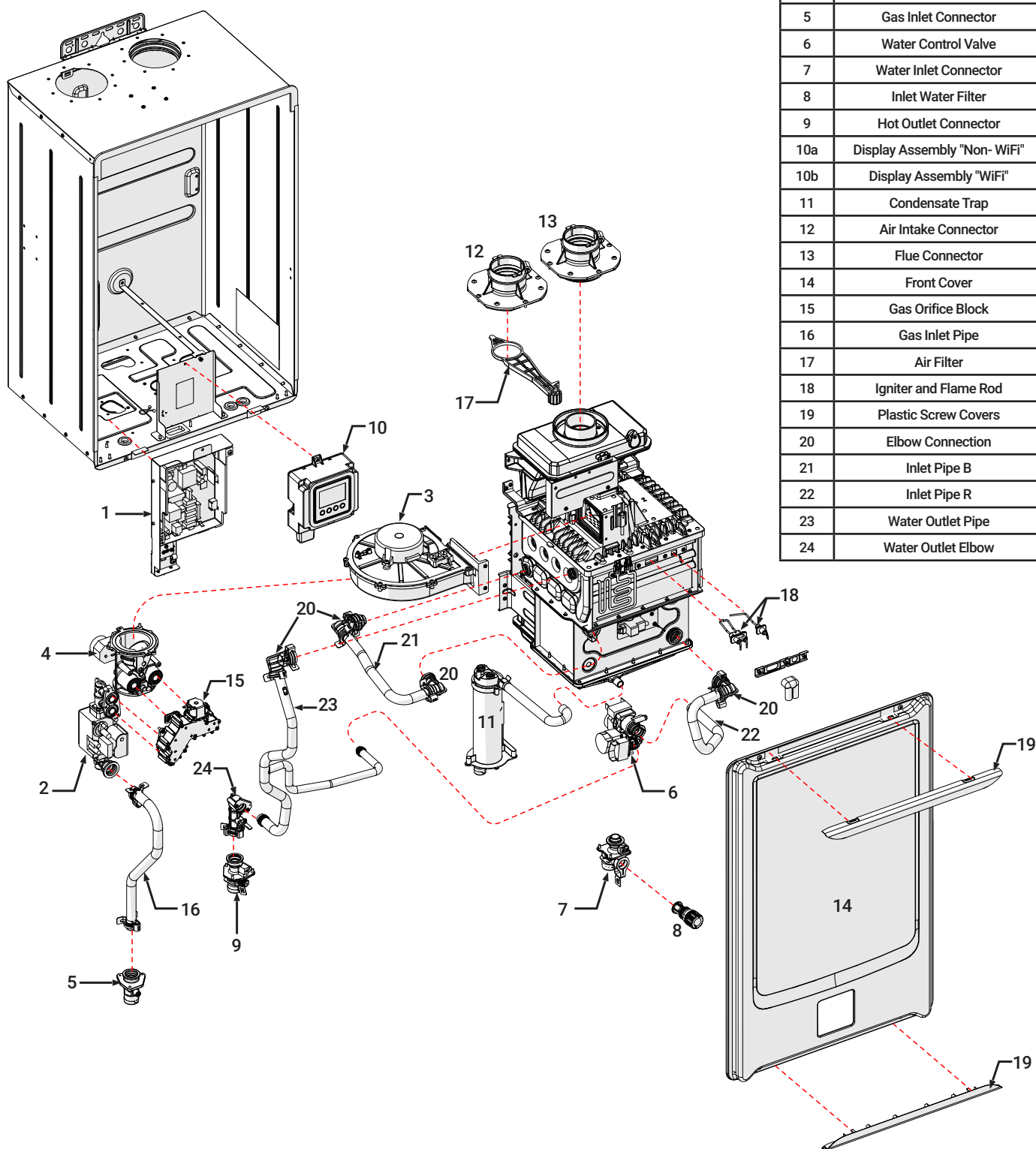
Graph above generated at 35°F Delta T. Graph below generated with 70°F (21°C) inlet water temperature

Temperature Rise Curve



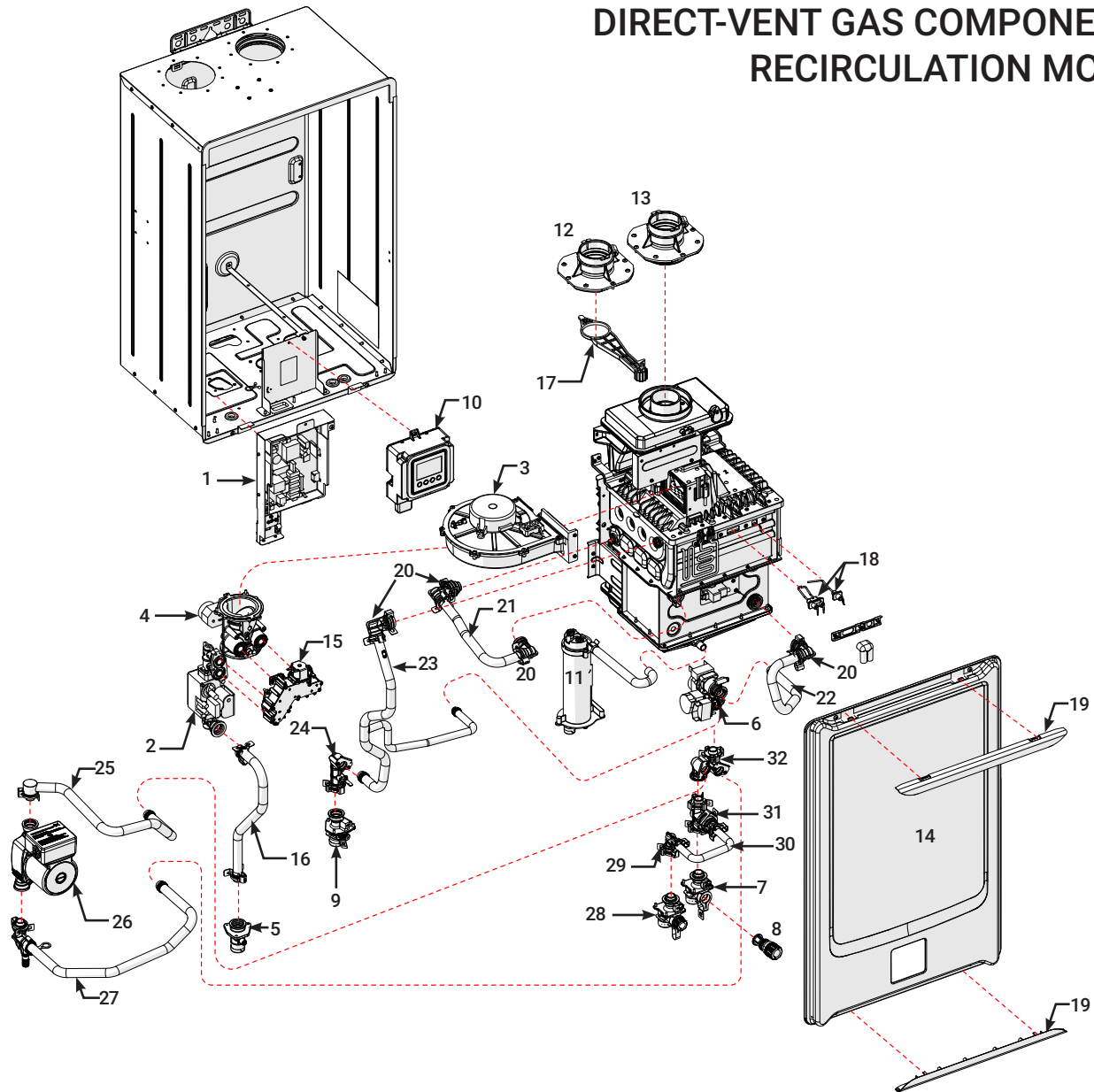
GENERAL INFORMATION

DIRECT-VENT GAS COMPONENTS



GENERAL INFORMATION

DIRECT-VENT GAS COMPONENTS RECIRCULATION MODEL



Ref #	Description
1	Control Board
2	Gas Valve
3	Blower Assembly
4	Venturi
5	Gas Inlet Connector
6	Water Control Valve
7	Water Inlet Connector
8	Inlet Water Filter
9	Hot Outlet Connector
10a	Display Assembly "Non- WiFi"
10b	Display Assembly "WiFi"
Ref #	Description

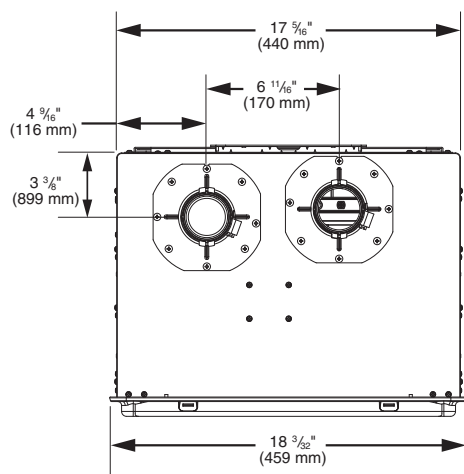
11	Condensate Trap
12	Air Intake Connector
13	Flue Connector
14	Front Cover
15	Gas Orifice Block
16	Gas Inlet Pipe
17	Air Filter
18	Igniter and Flame Rod
19	Plastic Screw Covers
20	Elbow Connection
21	Inlet Pipe B
Ref #	Description
22	Inlet Pipe R

23	Water Outlet Pipe
24	Water Outlet Elbow
25	Recirculation Pump Inlet Pipe
26	Recirculation Pump
27	Recirculation Pump Outlet Pipe
28	Recirculation Connector
29	Recirculation Return Elbow
30	Recirculation Return Pipe
31	Check Valve
32	Pump Connection Assembly

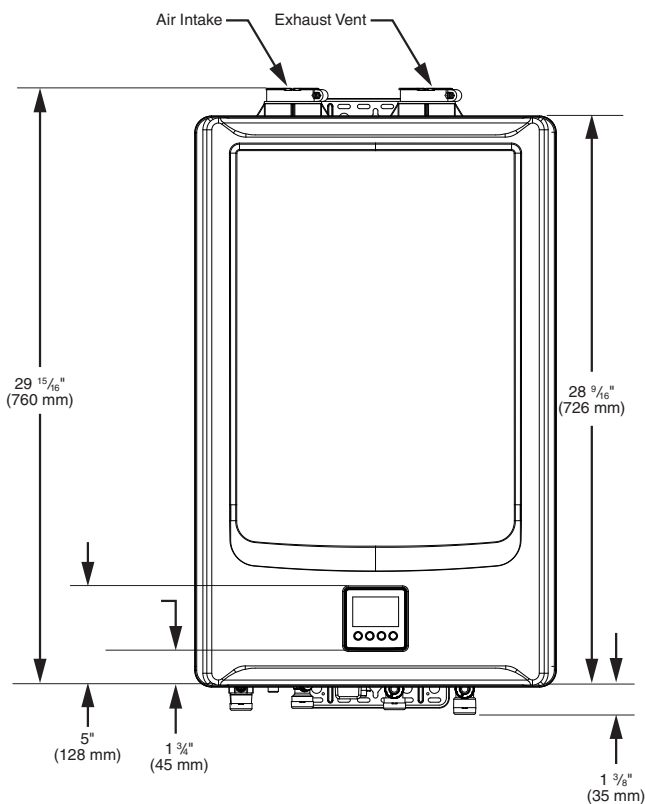
GENERAL INFORMATION

SPECIFICATIONS AND INSTALLATION GUIDELINES

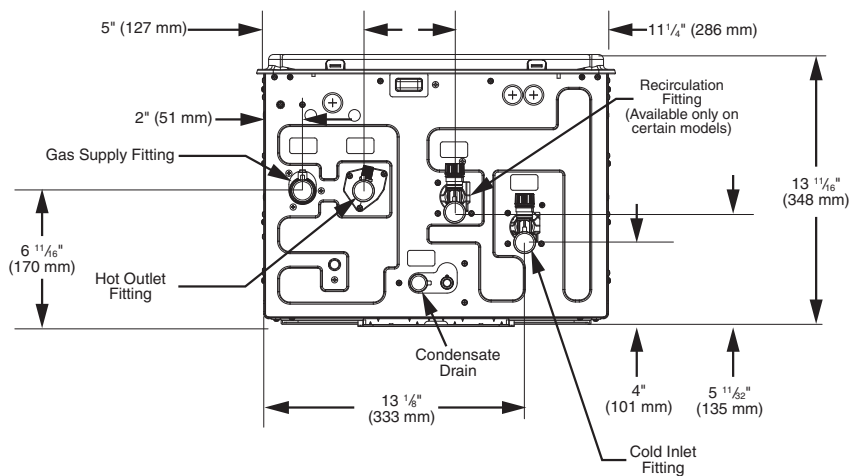
TOP VIEW



FRONT VIEW



BOTTOM VIEW



GENERAL INFORMATION

SPECIFICATIONS AND INSTALLATION GUIDELINES

VENTING FOR WATER HEATER

The vent exhaust and air intake shall terminate outside as described in these instructions for direct vent application. Combustion air requirements of room air application shall follow "Room Air Application" in this Use and Care Manual.

DO NOT vent this water heater through a chimney. It must be vented separately from all other appliances.

NOTICE

The unit can be vented using only the following recommended pipe material.

Use only 2 or 3 inch diameter pipe. Refer to local codes for restrictions on the use of PVC, CPVC, or ABS pipe and fittings. All exhaust venting materials for product installed in Canada must meet ULC-S636. Acceptable materials or equivalent:

- PVC (Schedule 40, ASTM D-1785)
- CPVC (Schedule 40, ASTM F-441)
- ABS (Schedule 40, ASTM D-2661) (Not permitted in Canada)

The fittings other than the VENT TERMINAL should be equivalent to the following:

- PVC (Schedule 40, DMW, ASTM D-2665)
- CPVC (Schedule 40, DMW, ASTM F-438)
- ABS (Schedule 40, DMW, ASTM D-2661) (Not permitted in Canada)
- Category III Stainless Steel (proper transition part required)

Approved Polypropylene Vent Manufacturer/Trade Name:

InnoFlue® by Centrotherm

Single Wall Pipe: ISVL**** or ISVL****UV

Elbow: ISELS****ISELL**** or ISELL****UV

Adapter: ISAAL0202

Non-Return Valve (NRV): ISNRV****

Siphon: IASJBVS

Termination: ISLPT**** or ISTT****

(*Refers to variations in nominal size.)

All exhaust vent materials for product installed in Canada must meet ULC-S636.

DO NOT USE Schedule 20, Cell Core, Drain Pipe, Galvanized, Aluminum, or B-Vent.

VENT SYSTEM DIAMETER	MIN. ALLOWED EQUIVALENT VENT LENGTH		MAX. ALLOWED EQUIVALENT VENT LENGTH		VENT SYSTEM TERMINATION
	Feet	Meters	Feet	Meters	
2	1	0.3	70	21.3	90° Elbow
3	1	0.3	150	45.7	90° Elbow

A 90 elbow is equivalent to 6 ft.(1.83 m) of 2" diameter straight pipe, and to 5 ft.(1.52 m) of 3" diameter straight pipe.

A 45 elbow is equivalent to 3 ft. (0.9 m) of 2" diameter straight pipe, and to 2.5 ft. (0.75m) of 3" diameter straight pipe.

GENERAL INFORMATION

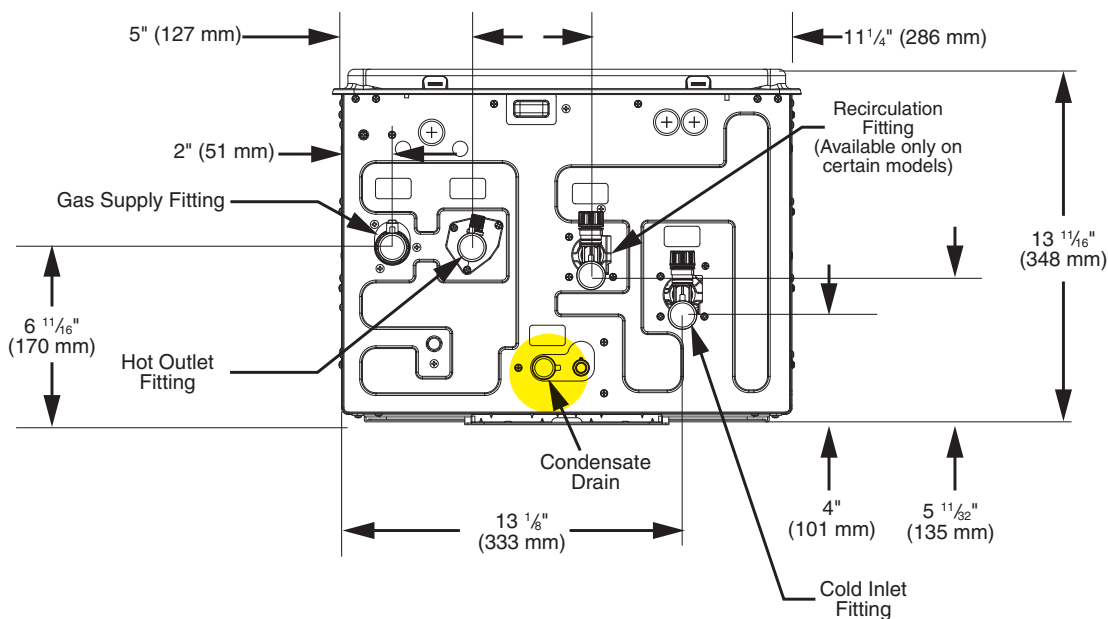
GAS

Proper gas size is imperative, as this unit may be able to get sufficient gas but other appliances on the same gas line may not. Alternatively, other appliances may cause insufficient gas to the unit if the gas line is undersized. Refer to U&C Manual for gas supply requirements.

CONDENSATION

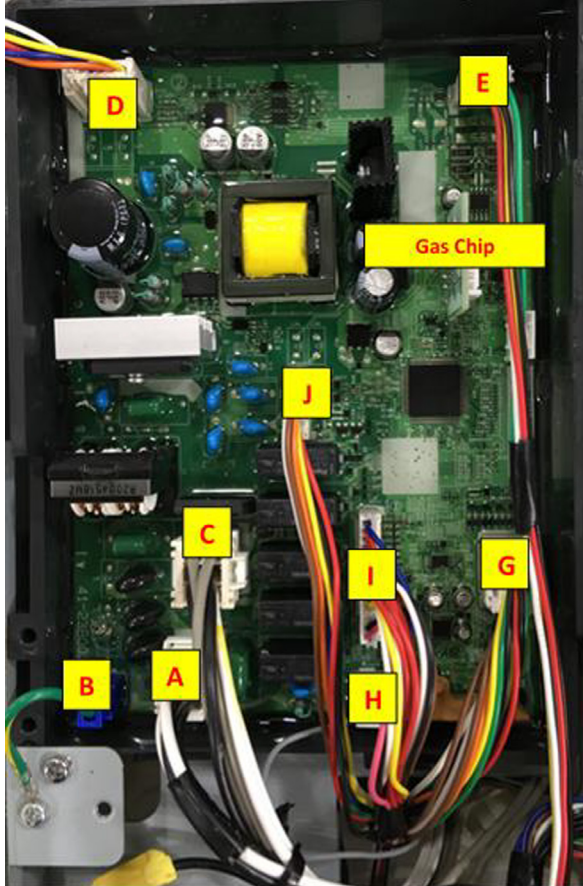
Remove the cap to prevent an A029 error code. Connect a $\frac{1}{2}$ " ID drain hose at the condensation drain (Shown in yellow in following illustration.)

BOTTOM VIEW



GENERAL INFORMATION

CONTROL BOARD CONNECTORS



*** GAS CHIP***

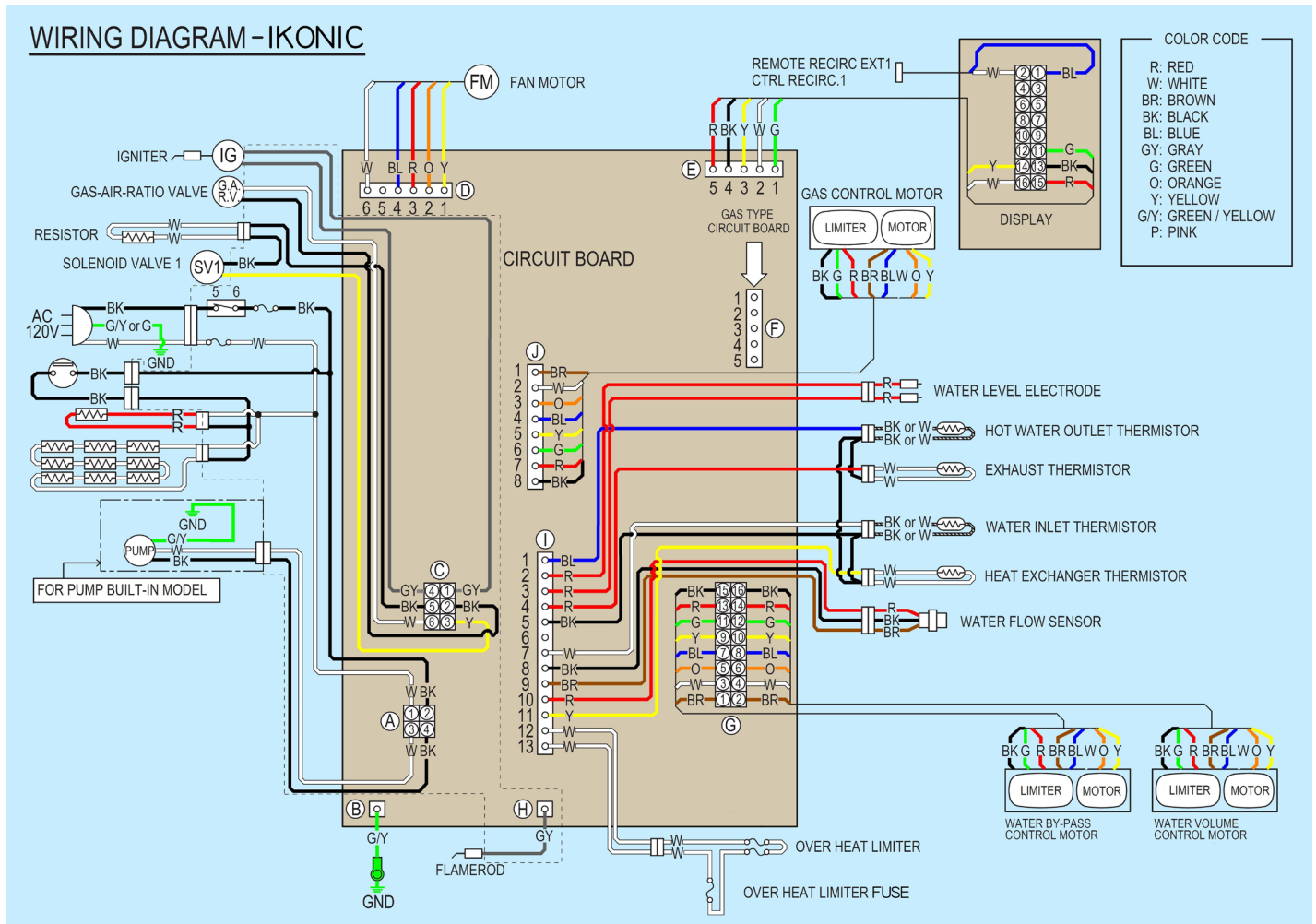
When replacing Control Board, you must use the original chip on the new Control Board.

New Control Board must be programmed.

CONNECTOR#	MOLEX COLOR	WIRE COLOR
A	White	White, Black, White, Black
B	Blue	Green / Yellow
C	White	Gray, Black, Yellow, Gray, Black, White
D	White	Yellow, Orange, Red, Blue, White
E	White	Green, White, Yellow, Black, Red
G	White	Brown, Brown, White, White, Orange, Orange, Blue, Blue, Yellow, Yellow, Green, Green, Red, Red, Black, Black
H	White	Gray
I	White	Blue, Red, Red, Red, Black, White, Black, Brown, Red, Yellow, White, White
J	White	Brown, White, Orange, Blue, Yellow, Green, Red, Black

GENERAL INFORMATION

DIAGNOSTIC POINTS ON CONTROL BOARD



CONNECTION #	WIRE COLOR	NORMAL VALUE	WHAT ARE YOU CHECKING?
A	W1-BK2	AC 108 - 132 V	Do you have power to the control board?
	W3-BK4	AC 108 - 132 V	Do you have power to the pump?
C	GY1-GY4	AC 108 - 132 V	Is the igniter working properly?
	Y3-BK5	DC 90 - 120V 0.8kΩ - 2.4kΩ	Solenoid valve 1 OK?
	W6-BK2	AC 108 - 132 V	Gas - Air - Ratio valve OK?

GENERAL INFORMATION

DIAGNOSTIC POINTS ON CONTROL BOARD

CONNECTION #	WIRE COLOR	NORMAL VALUE	WHAT ARE YOU CHECKING?
D	W6 - BL4	DC 144 - 192 V	Does the fan motor have the proper voltage?
	Y1 - BL4	DC 4 - 10 V (Pulse)	Is the fan motor producing regular pulse?
	R3 - BL4	DC 12 - 18 V	Does the fan motor have the proper voltage?
E	R5 - BK4	DC 11 - 17 V	Does the user interface have voltage?
H	GY1 - GND	AC 1 - 100 V	Flame rod detecting flame?
I	W12 - W13	5K Ω - 500K Ω	Is the Over Heat Limiter OK?
	BR9 - BK8	DC 2 - 5V (Pulse) More than 1,310 pulses/minute	Does the water flow sensor send a pulse? (Only when water is flowing thru the unit)
	R10 - BK8	DC 11 - 17V	Does the water flow sensor have voltage? (Power ON; no water flow)
	W7 - BK5	68°F = 10.3 k Ω 104°F = 4.9 k Ω	Is the water inlet thermistor working?
	BL1 - BK5	68°F = 10.3 k Ω 104°F = 4.9 k Ω	Is the water outlet thermistor working?
	Y11 - BK5	68°F = 10.3 k Ω 104°F = 4.9 k Ω	Is the heat exchanger thermistor working?
	R4 - BK5	68°F = 10.3 k Ω 104°F = 4.9 k Ω	Is the exhaust thermistor working?
G	W4-BK16	4-16 DC volts	Does water control valve have the proper voltage
	R14-BK16	4-16 DC volts	Does water control valve have the proper voltage
	G12-BK16	4-10 DC volts	Does water control valve have the proper voltage
	W3-BK15	4-16 DC volts	Does water bypass control valve have the proper voltage
	R13-BK15	4-16 DC volts	Does water bypass control valve have the proper voltage
	G11-BK15	4-10 DC volts	Does water bypass control valve have the proper voltage
J	W2-BK8	4-16 DC volts	Does Gas motor have the proper voltage
	R7-BK8	4-16 DC volts	Does Gas motor have the proper voltage
	G6-BK8	4-10 DC volts	Does Gas motor have the proper voltage

USER INTERFACE AND OPTIONS

QUICK LOOK MODE

Press and hold the “STATUS” Button for 5 seconds to access Quick Look Mode. Water Inlet Temperature, Water Outlet Temperature and Flow Rate values will be displayed on the screen sequentially.

To exit, press “BACK” button.

MENU OPTIONS

STATUS -->Tankless Status

- Tankless Mode
- Flow Rate
- Inlet Temp
- Outlet Temp
- HX Temp
- Exhaust Temp
- Water Valve Opening (%)
- Fan Speed (Actual)
- Set Fan Speed
- Flame Rod Status
- Burner Stage Status

STATUS -->WiFi Status

- WiFi Device Status
- WiFi Setup
- WiFi Software Version
- WiFi Module Software
- MAC Address
- WiFi Signal Strength (dB)
- SSID
- IP Address
- SubNet Mask
- Gateway

SERVICE

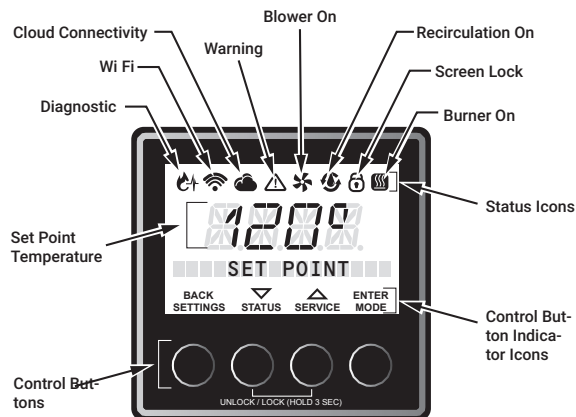
- Current Alarms
- Alarm History
- Software Version
- Heater Software Version
- Burner Staging
- Lifetime ON Hours
- Lifetime Water Used
- Total Pump Hours
- Total Pump Cycles
- Lifetime Gas Usage (kBtu)
- Successful Ignitions
- Failed Ignitions
- Flame Failures
- Bypass Ratio
- Max Input Rate (kCal/h)
- Flush Heater
- WH Model
- Manifold Rotate
- Reset Defaults
- Service Alert
- WiFi Reset

USER INTERFACE AND OPTIONS

LCD ON THE USER INTERFACE

This Tankless water Heater has the Liquid Crystal Display (LCD) on the user interface.

This user interface allows you to adjust the water temperature and view the operating status or error codes.



SETTING TO ENABLE/DISABLE TO WATER HEATER

This tankless water heater can set the enable/disable mode on the User Interface. When disabled the water heater will not operate.

1. Press the "MODE" button. After the LCD displays "ENABLE/DISABLE", press the "ENTER" button.
2. The factory setting is "DISABLE". Press the "▼" or "▲" button to select "ENABLE" or "DISABLE" and press the "ENTER" button.

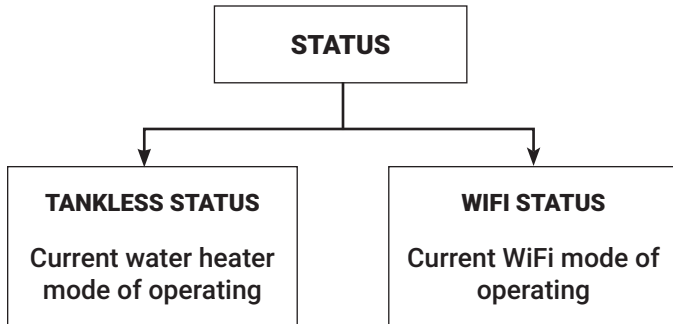


To exit this setting, press "BACK" button until Home screen is displayed.

USER INTERFACE AND OPTIONS

STATUS MENU

This tankless water heater can show the operating status with the LCD on the User Interface.

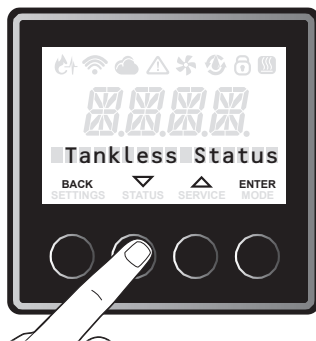


TANKLESS STATUS

1. Press the "STATUS" button as pictured below.



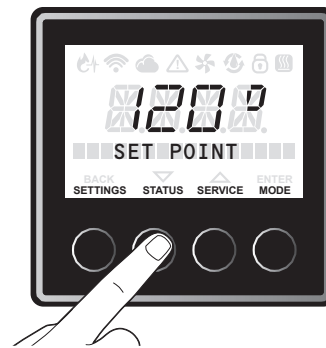
2. Press the "▲" or "▼" button until "Tankless Status" is displayed, and press the "ENTER" button.



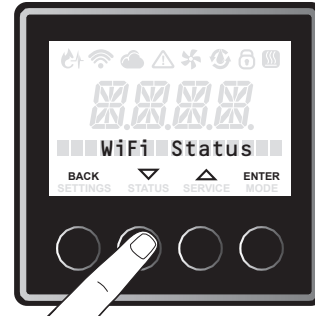
3. Press the "▲" or "▼" button to navigate through the menu items. The status menu items are in the next section.

WIFI STATUS

1. Press the "STATUS" button.



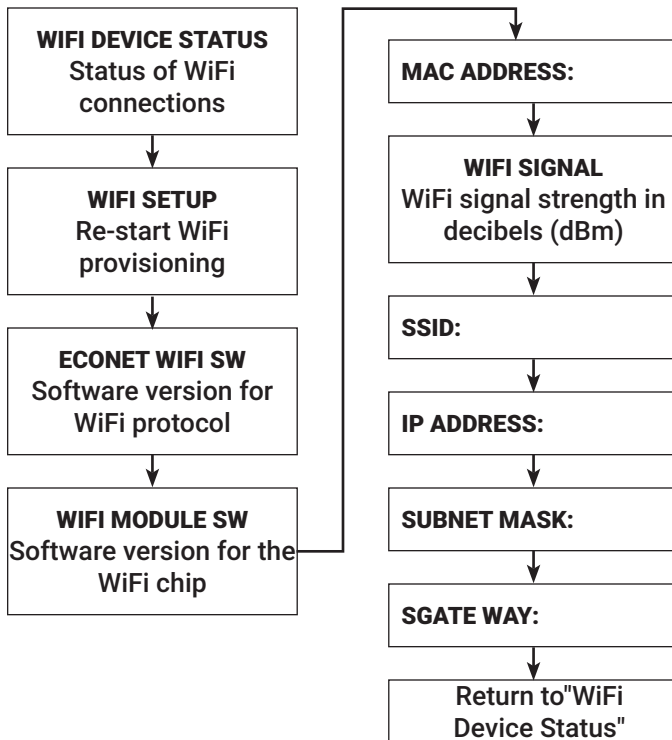
2. Press the "▲" or "▼" button until "WiFi Status" is displayed, and press the "ENTER" button.



USER INTERFACE AND OPTIONS

WIFI STATUS

- Press the “▲” or “▼” button to navigate through the menu items. The status menu items are below:

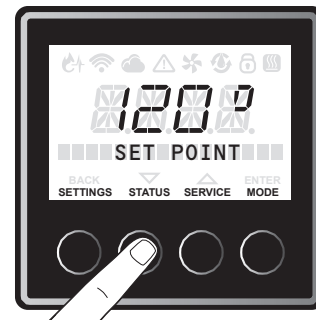


- To set up the WiFi connection, press “ENTER.” The WiFi signal is broadcasted for 30 minutes and the user should download and use the EconET Application, available on Android and iPhone, to continue the setup process.
- Follow the prompts in the application to complete set-up.

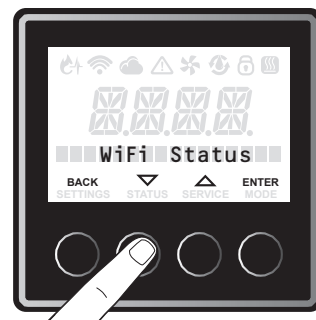
NOTE: If user chooses to NOT to set up WiFi, initially, press “BACK” button. WiFi signal will not be broadcasted until user goes to additional steps.

WIFI SETUP (AFTER INITIAL POWER UP)

- Press the “STATUS” button.



- Press the “▼” or “▲” button until “WiFi status” is displayed, and press “ENTER” button.



WIFI SETTING

WiFi Setup (At Initial Power Up) The display will prompt WiFi set up at initial power up.

- Press “ENTER” to continue WiFi setup or “BACK” to exit setup and turn OFF WiFi signal broadcast.

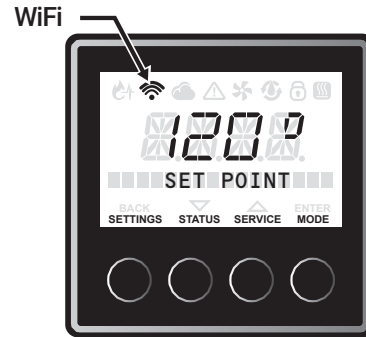


USER INTERFACE AND OPTIONS

3. Press the “▼” or “▲” button until “WiFi Setup?” is displayed, and press “ENTER” button.



5. In the event that WiFi credentials are changed, please follow WiFi setup steps again.



4. Press the “▼” or “▲” button until “Yes” is displayed, and press “ENTER” button.

WiFi signal will start to broadcast (WiFi icon will start to blink) for 30 minutes and user can use the EcoNet Application to setup WiFi. If setup is not completed within 30 minutes, WiFi will stop broadcasting.

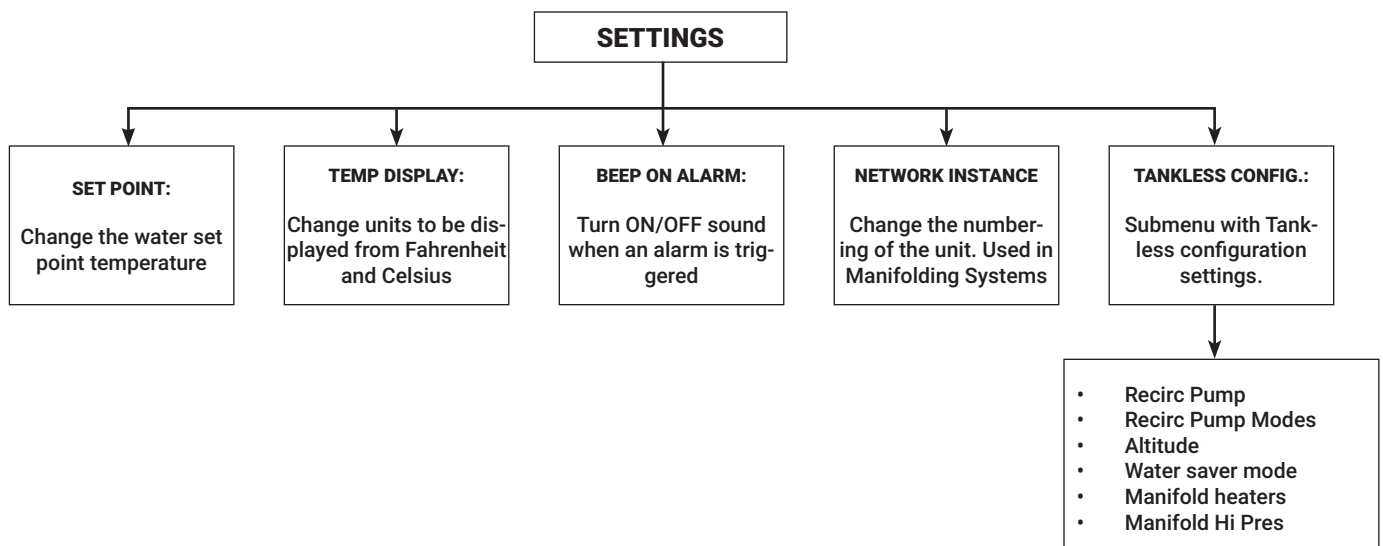
User should go to these steps again to restart WiFi setup.

Once WiFi is setup correctly, WiFi icon will become solid.

To reset WiFi setting, please refer to section “Reset WiFi setting”.

SETTINGS MENU ITEMS DESCRIPTION

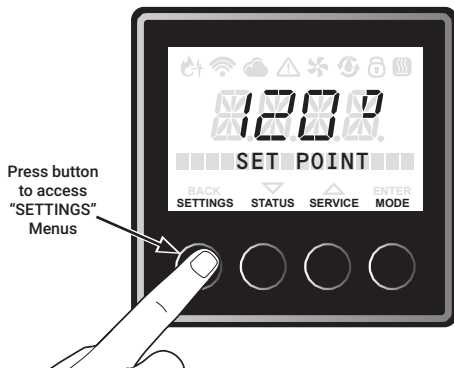
This Tankless water heater can set the several operations of this water heater with the Liquid Crystal Display (LCD) on the User Interface



USER INTERFACE AND OPTIONS

SET POINT TEMPERATURE

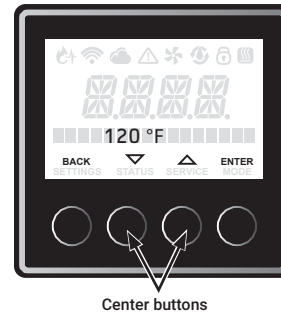
1. Press the "SETTINGS" button.



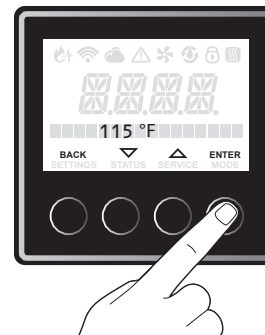
2. Scroll thru the menu to select "SET POINT", to enter the set point mode press "ENTER" button, which is the right most button.



3. Now press the "▼" or "▲" button in the center of the display to increase or decrease the temperature. Temperature can be changed in increments of 1°F. Temperature range is 85°F-140°F (29°C-60°C).



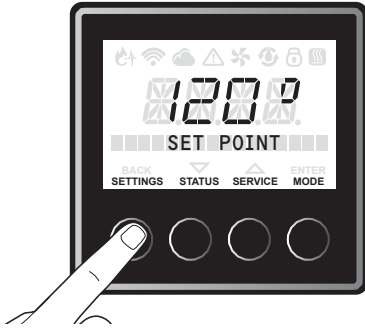
4. Once temperature is set to the desired value, press "ENTER" button, right most button to store value. To exit this setting, press "BACK" button until the Home screen is displayed.



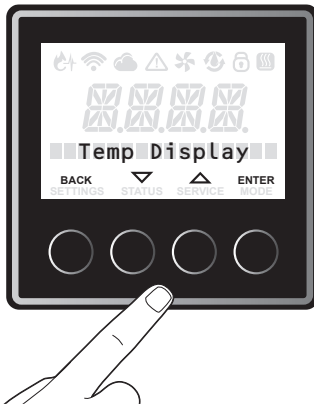
USER INTERFACE AND OPTIONS

TEMPERATURE DISPLAY

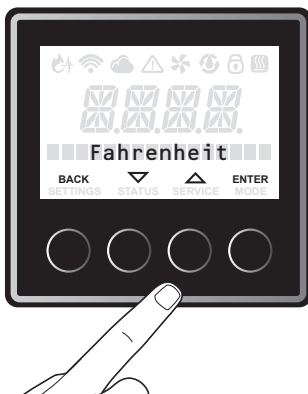
1. Press the "SETTINGS" button.



2. Press the "▼" or "▲" button until "Temp Display" is displayed, and press "ENTER" button.

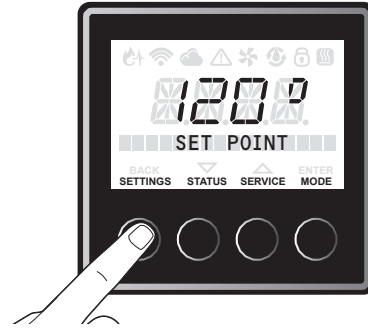


3. The factory setting is "Fahrenheit". Press the "▼" or "▲" button to select "Fahrenheit" or "Celsius", and press "ENTER" to confirm. To exit this setting, press "BACK" button until the initial screen is displayed.

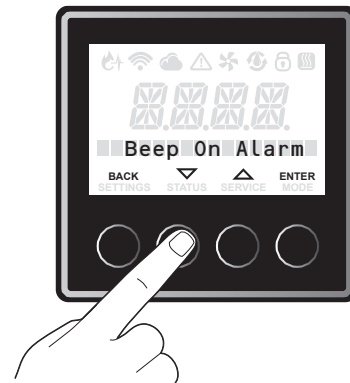


BEEP ON ALARM

1. Press the "SETTINGS" button.



2. Press "▼" or "▲" button until "Beep On Alarm" is displayed, and press "ENTER" button to confirm.



3. The Factory setting is "NO". Press the "▼" or "▲" button to select "NO" and "YES", and press "ENTER" to confirm. To exit this setting, press "BACK" button until the Home screen is displayed.



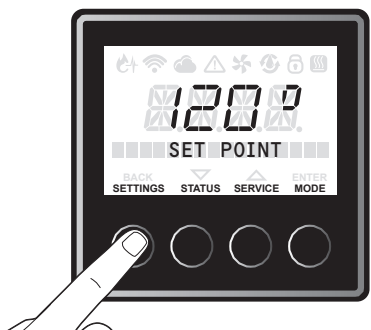
USER INTERFACE AND OPTIONS

TANKLESS CONFIGURATION

This section is applicable for pump built in models, and standard models with an external pump following the pump installation described in this Use and Care manual. If the external pump is installed independently from the water heater, this section is not applicable. For recirculation setting, timer mode, schedule mode, and on demand mode are available. Timer mode also has Performance mode and Energy Saver mode. Read next several pages to set most suitable mode. Contact service department if additional help is needed.

RECIRCULATION - TIMER MODE

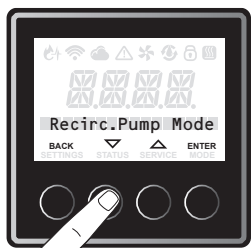
1. Press the "SETTINGS" button.



2. Press the "▼" or "▲" button until "Tankless Config" is displayed, and press "ENTER" button to confirm.



3. Press "▼" or "▲" button until "Recirc Pump Mode" is displayed, and press "ENTER" button to change the setting.



4. The Factory setting is "None". Press the "▼" or "▲" button to select "Timer Perf" or "Timer E Saver" and press "ENTER" to confirm. To exit this setting, press "BACK" button until the Home screen is displayed.



TIMER MODE RECIRCULATION OPERATION

The water heater is turned ON when the recirculation pump starts operation. The water heater produces hot water at the setting temperature. When the return water temperature reaches approximately 15°F below the setting temperature, the water heater and the pump will turn OFF.

The cycle will restart at the approximate time based on the temperature thermistor readings.

PERFORMANCE MODE (TIMER PERF)

The performance mode operates as below;

- Higher energy consumption due to more pump cycles.
- Pump cycles ON Every 15 to 30 minutes.

ENERGY SAVER MODE (TIMER E SAVER)

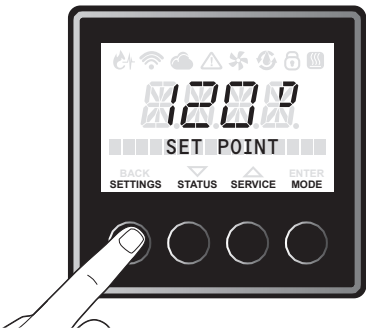
The Energy Saver mode operates as below;

- Less energy consumption due to less pump cycles.
- Pump cycles ON Every 30 to 60 minutes.

USER INTERFACE AND OPTIONS

RECIRCULATION - ON DEMAND MODE

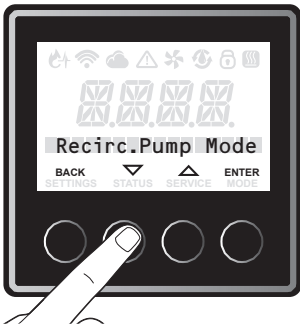
1. Press the “SETTINGS” button.



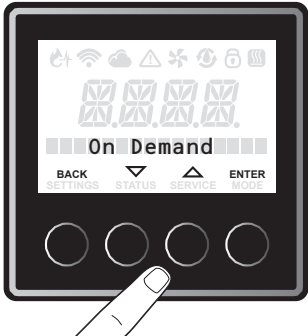
2. Press the “▼” or “▲” button until “Tankless Config” is displayed, and press the “ENTER” If incorrect setting is entered at any steps, press the “BACK” button to return to the Home screen. Redo from step 1.



3. Press the “▼” or “▲” button until “Recirc. Pump Modes” is displayed, and press “ENTER” to confirm.



4. The Factory setting is “None”. Press the “▼” or “▲” button until “On Demand” is displayed, and press “ENTER” to confirm. To exit this setting, press “BACK” button until the Home screen is displayed.



ON DEMAND RECIRCULATION OPERATION

One of the following accessories are needed to use the On Demand recirculation activation.

RHEEM PART NUMBER	DESCRIPTION
SP20862	Motion Sensor Kit
SP20863	Wired Push Button

When set to "On Demand" mode, the recirculation pump is ON for 5 minutes when the signal from the Motion Sensor or Wired Push Button is received, or until the return water temperature reaches approximately 15°F below the setting temperature.

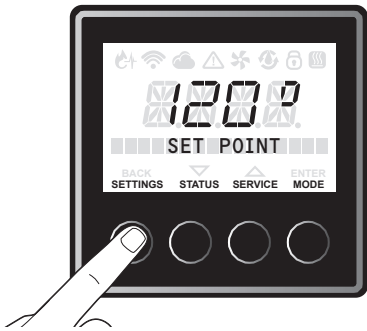
For information about On Demand accessories, refer to the last page of this service manual for the telephone number to speak to a Customer Service Representative.

USER INTERFACE AND OPTIONS

MANUAL RECIRCULATION PUMP OPERATION (FOR ON DEMAND)

On demand mode allows the user to turn ON the recirculation pump manually.

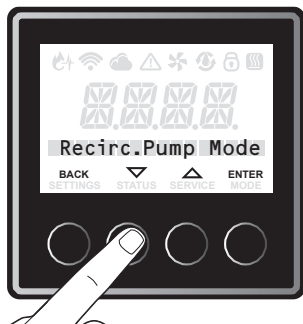
1. Press the "SETTINGS" button .



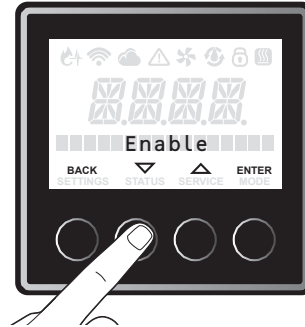
2. Press the "▼" or "▲" button until "Tankless Config." is displayed, and press the "ENTER" button. If incorrect setting is entered at any steps, press the "BACK" button to return to the Home screen. Redo from step 1.



3. Press the "▼" or "▲" button until "Recirc . Pump" is displayed, and, press "ENTER" to confirm.

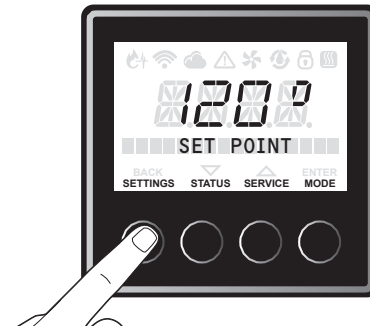


4. The Factory setting is "Disabled". Press the "▼" or "▲" button until "Enable" is displayed and press the "Enter" button. To exit the setting, press "BACK" button until the Home screen is displayed.



SCHEDULE MODE

1. Press the "SETTINGS" button.

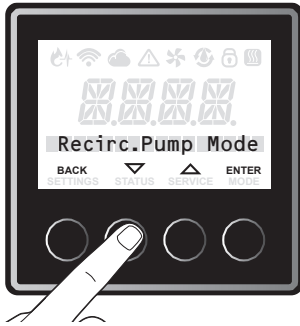


2. Press the "▼" or "▲" button until "Tankless Config" is displayed, and press the "ENTER" button.

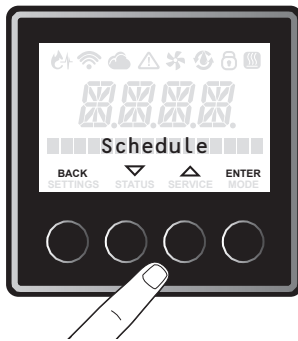


USER INTERFACE AND OPTIONS

- Press the "▼" or "▲" button until "Recirc. Pump Modes" is displayed, and press "ENTER" to confirm.



- The Factory setting is "None." Press the "▼" or "▲" button until "Schedule" is displayed, and press "ENTER" to confirm. To exit this setting, press "BACK" button until the Home screen is displayed.



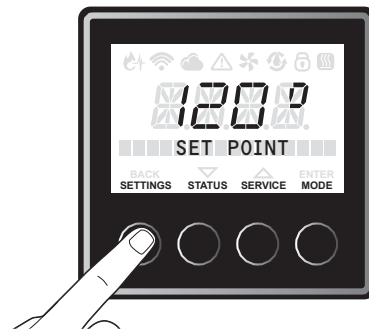
NOTE: To use this schedule mode, Wi-Fi is required on this user interface. The specific application should also be downloaded to your smart phone. Please see "Wi-Fi Setting" in the U&C manual to set Wi-Fi on this user interface and to download the application.

MANUALLY OPERATE RECIRCULATION PUMP

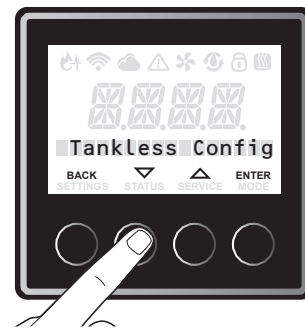
When set the "Recirc Pump" is set to "ENABLE", the recirculation pump is on for 5 minutes or until the return water temperature reaches approximately 15°F below the set temperature.

HIGH ALTITUDE ADJUSTMENT

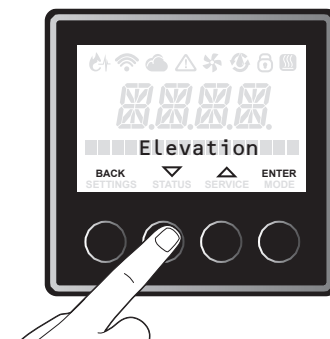
- Press the "SETTINGS" button.



- Press the "▼" or "▲" button until "Tankless Config" is displayed, and press "ENTER" to confirm.



- Press the "▼" or "▲" button until "Elevation" is displayed, and press the "ENTER" button.



USER INTERFACE AND OPTIONS

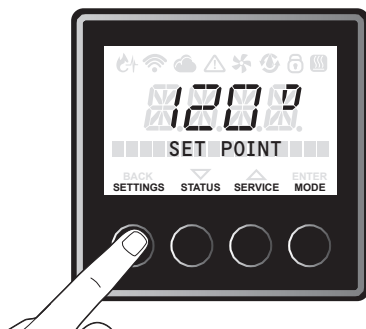
4. The factory setting is "Sea Level" Press the "▼" or "▲" button to select "Low Altitude", "Med. Altitude" and "High Altitude", and press "ENTER" to confirm.



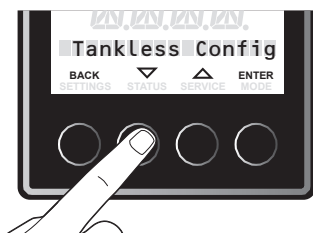
SECTION	HIGH-ALTITUDE
Sea Level	0 – 2,000 ft (0 m – 610 m)
Low Altitude	2,001 ft – 5,400 ft (610 m – 1,650 m)
Med. Altitude	5401 ft – 7,900 ft (1,650 m – 2,410 m)
High Altitude	7,901 ft – 10,200 ft (2,410 m – 3,110 m)

WATER SAVING CONTROL

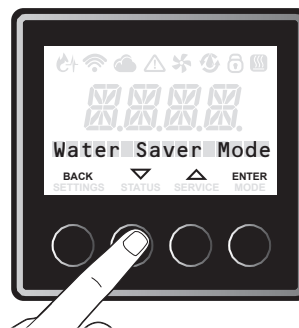
1. Press the "SETTINGS" button.



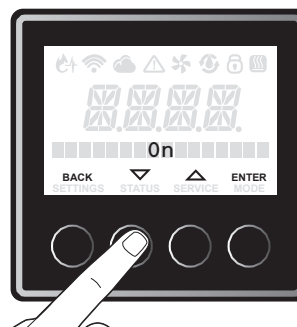
2. Press the "▼" or "▲" button until "Tankless Config." is displayed, and press "ENTER" to confirm.



3. Press the "▼" or "▲" button until "Water Saver Mode" is displayed, and press "ENTER" to confirm.



4. The Factory setting is "Off" Press the "▼" or "▲" button to select "On" and press the "ENTER" button to confirm. To exit this setting, press "Back".

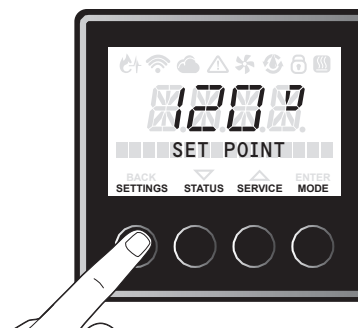


NOTE: Water saving control can reduce waste water at initiation of hot water demand by reducing flow until outlet hot water reaches the set temperature.

SETTING MANIFOLD HEATERS

This setting is used to tell the "Manager" (unit with instance number 1) in a series of manifold heaters how many manifold heaters it will be managing. Refer to the following steps to set this.

1. Press the "SETTINGS" button.

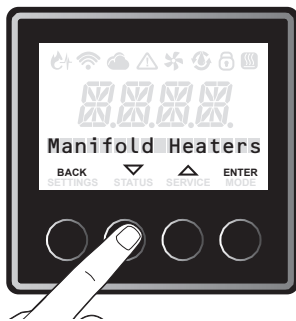


USER INTERFACE AND OPTIONS

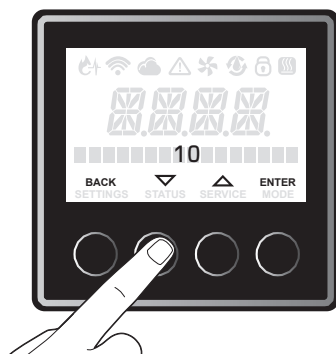
2. Press the “▼” or “▲” button until “Tankless Config” is displayed, and press “ENTER” to confirm.



3. Press the “▼” or “▲” button until “Manifold heaters” is displayed, and press “ENTER” to confirm.

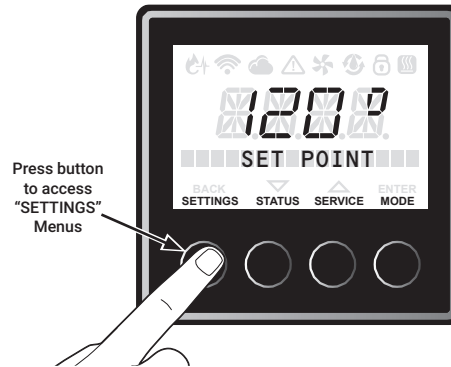


4. The factory setting is “1”. Press the “▼” or “▲” button to select the number of heaters of be managing “1” to “20”, and press “ENTER” to confirm. To exit this setting, press “BACK”.

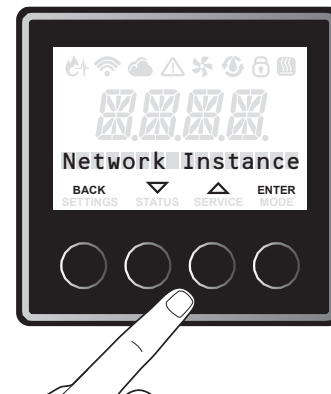


NETWORK INSTANCE

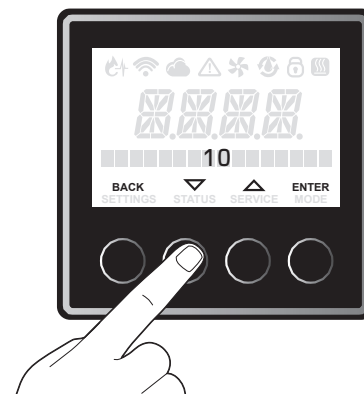
1. Press the “SETTINGS” button.



2. Press the “▼” or “▲” button until “Network instance” is displayed, and press “ENTER” button to confirm.



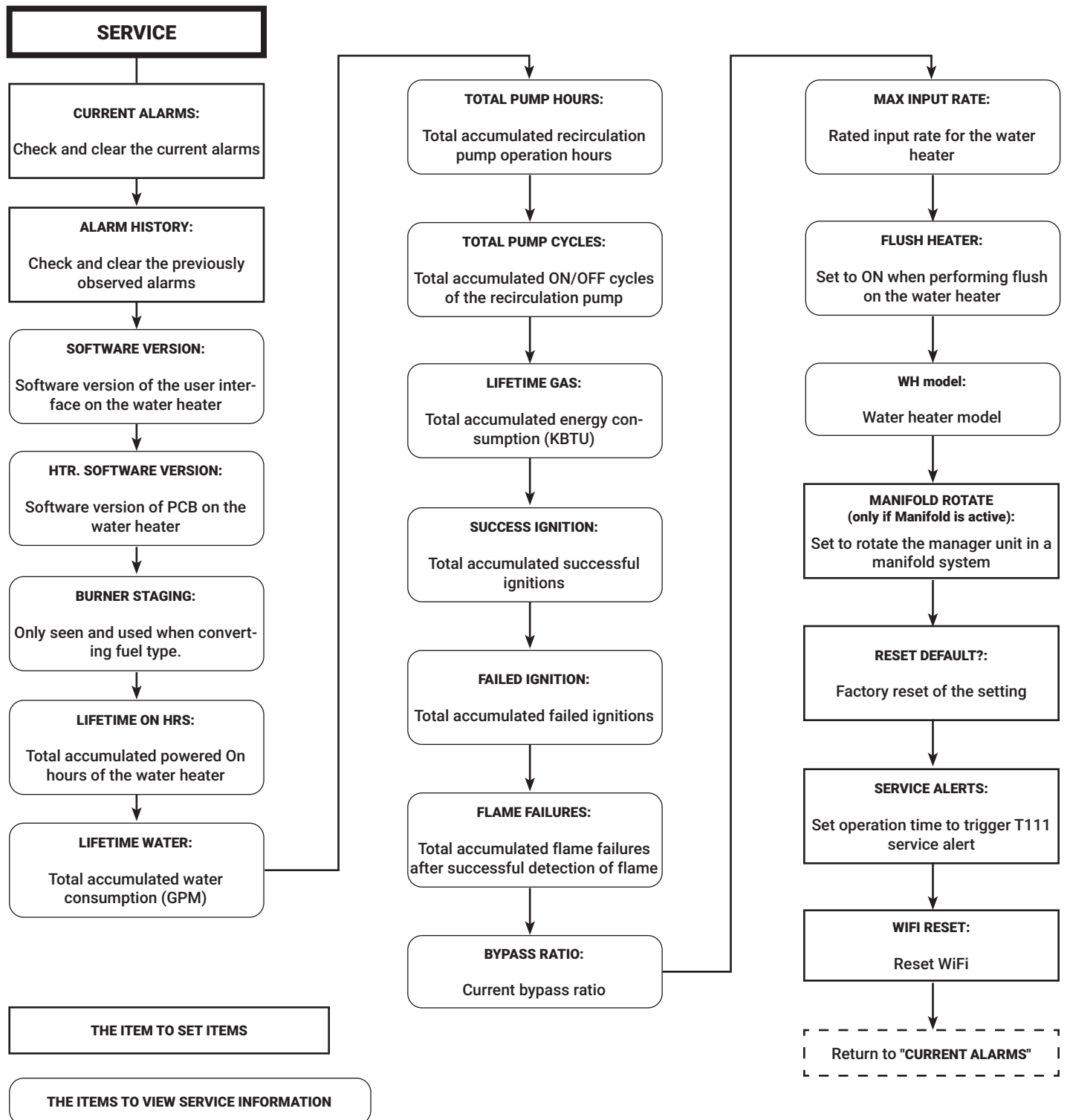
3. The factory setting is “1”. Press the “▼” or “▲” button to select “1” to “20” for each water heater, and press “ENTER” to confirm. To exit this setting, press “BACK” button until the Home screen is displayed.



USER INTERFACE AND OPTIONS

SERVICE MENU

This tankless water heater can set several operations and display all service information of this water heater with the Liquid Crystal Display (LCD) on the User Interface.



USER INTERFACE AND OPTIONS

BURNER STAGING

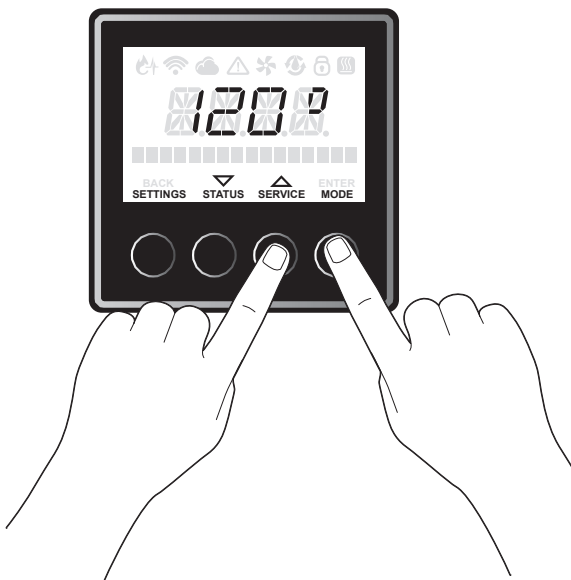
When converting this tankless water heater from one gas type to the other or replacing the gas-air ratio valve, you must check the settings using the Burner Staging option. Adjustment may be required.

Refer to the fuel conversion instructions provided with the conversion kit for complete information on proper fuel conversion.

1. Display may need to be unlocked before the settings can be changed. Push and hold two buttons in center until beeping sound is heard. Once unlocked the "SETTINGS", "STATUS" or "SERVICE" menus can be accessed.



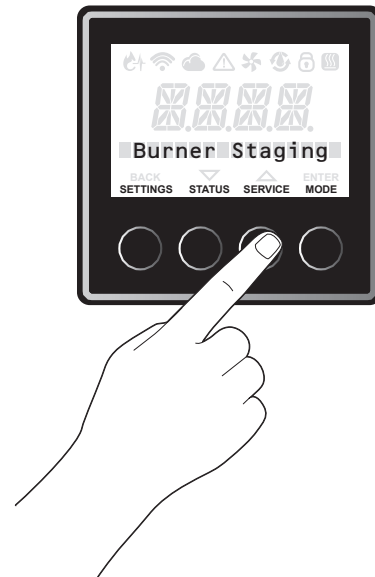
2. On the user interface, Press and hold the right-most 2 buttons for 5 seconds until a beeping sound is heard.



3. Press the "SERVICE" button. Press the "▼" or "▲" button until "Burner Staging" is displayed, and press the "ENTER" button.

The factory setting is "No". Push "▼" or "▲" button for several times until "1L" or "2H" is shown and push "ENTER" to confirm the operation mode. To go back to the factory setting, push "▼" or "▲" button for several times until "No" is shown and push "ENTER" to confirm

To exit the operation mode and return the water heater to normal operation, press the "BACK" button.

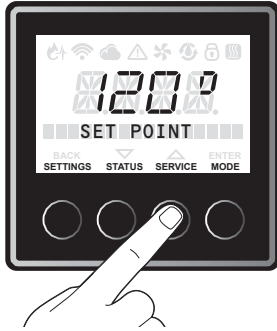


USER INTERFACE AND OPTIONS

VIEWING CURRENT ALARMS

This water heater can display up to 4 active alarms. Users may clear these alarms on the user interface by completing the following steps.

1. Press the "SERVICE" button



2. Press the "▼" or "▲" button until "Current Alarms" is displayed, and press "ENTER" to confirm.



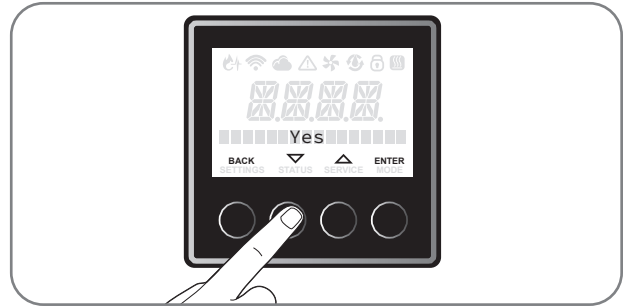
3. Press the "▼" or "▲" button and the LCD displays current alarm 1 to 4.

CLEARING THE CURRENT ALARMS

1. Redo from above step.2, and press the "▼" or "▲" button until "Clear Alarms?" is displayed. Press "ENTER" to confirm.



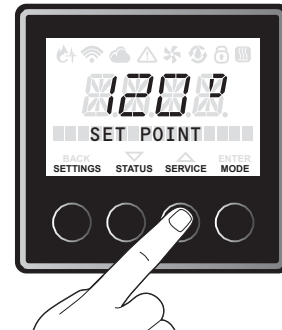
2. Press the "▼" or "▲" button until "Yes" is displayed, and press the "ENTER" To exit this setting, press "BACK" until the initial screen is displayed.



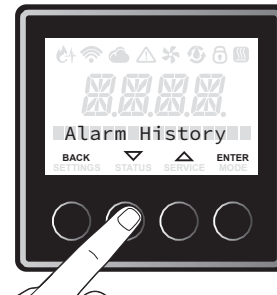
ALARM HISTORY

This water heater can display up to 6 previously observed alarms. Users may clear these alarms on the user interface by completing the following steps:

1. Press the "SERVICE" button.



2. Press the "▼" or "▲" button until "Alarm History" is displayed. Press "ENTER" to confirm.



3. Press the "▼" or "▲" button, the LCD displays previously observed alarm 1 to 6.

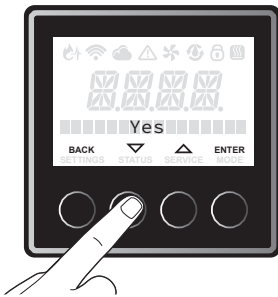
USER INTERFACE AND OPTIONS

CLEARING ALARM HISTORY

1. Redo from above step.2, and press the “▼” or “▲” button until “Clear History?” is displayed, and press “ENTER” to confirm.



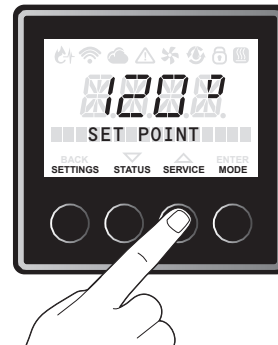
2. Press the “▼” or “▲” button until “Yes” is displayed, and press the “ENTER” button. To exit this setting, press “BACK” button until the Home screen is displayed.



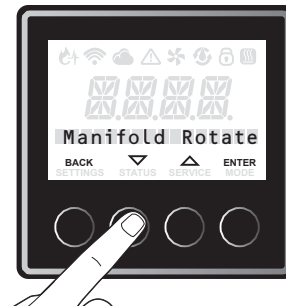
MANIFOLD ROTATE

This tankless water heater can be set to rotate the “Manager” unit in a manifold system by completing the following steps:

1. Press the “SERVICE” button on the instance 01 heater.



2. Press the “▼” or “▲” button until “Manifold rotate?” is displayed, and press the “ENTER” button.



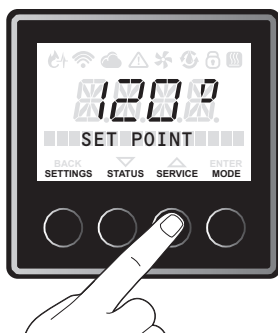
3. The factory setting is “No”. Press the “▼” or “▲” button until “Yes” is displayed, and press the “ENTER” button. To exit this setting, press “BACK” button until the Home screen is displayed.

USER INTERFACE AND OPTIONS

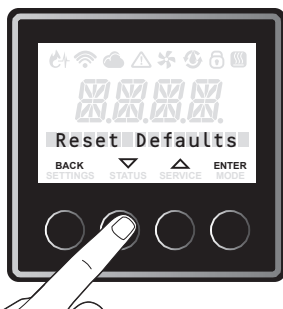
RESET DEFAULT SETTINGS

This tankless water heater can be reset to the default settings of the water heater by completing the following steps: (This will not affect accumulated values)

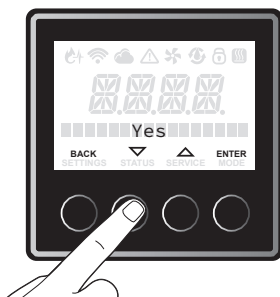
1. Press the "SERVICE" button.



2. Press the "▼" or "▲" button until "Reset Defaults" is displayed, and press the "ENTER" button.



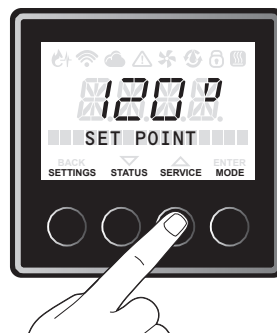
3. The factory setting is "No". Press the "▼" or "▲" button until "Yes" is displayed, and press the "ENTER" button. To exit this setting, press "BACK" button until the Home screen is displayed.



SERVICE ALERTS

Service alerts remind users of water heater maintenance activities such as flushing the heat exchanger or replacing the water treatment filter (if applicable) in order to maximize the life of your tankless water heater.

1. Press the "SERVICE" button.



2. Press the "▼" or "▲" button until "Service Alert" is displayed, and press the "ENTER" button.



3. The factory setting is "500 Hours". Every 500 combustion hours, a service alert is provided. Press the "▼" or "▲" button to choose "500 Hours", "750 Hours" or "1000 Hours" and press the "ENTER" button to confirm.

To exit this setting, press "BACK" button until the Home screen is displayed.



NOTE: Changing default 500 hours is NOT recommended.

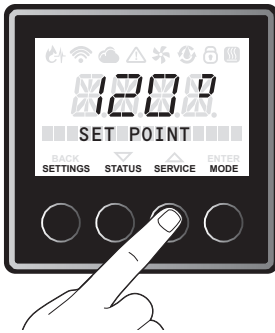
USER INTERFACE AND OPTIONS

RESET WIFI SETTING

These steps are to reset the WiFi chip, in the event that WiFi stops working and WiFi credentials are NOT changed.

In the event that WIFI credentials are changed please follow WIFI setup steps again, on page 22.

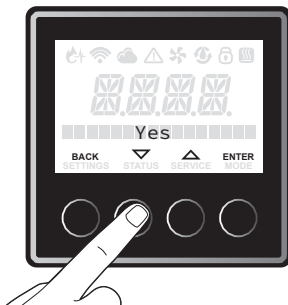
1. Press the "SERVICE" button.



2. Press the "▼" or "▲" button until "WiFi reset" is displayed, and press the "ENTER" button.

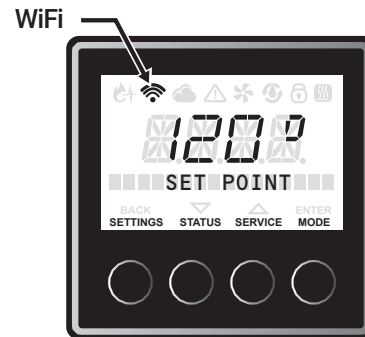


3. Press the "▼" or "▲" button until "Yes" is displayed, and press the "ENTER" button.



4. WiFi signal will reset and WiFi will start blinking again. WiFi will try to reconnect to the stored WiFi network using the same credentials. Once WiFi is connected again correctly, WiFi icon will become solid.

In the event that WIFI credentials are changed please follow WIFI setup steps again, on page 21.



ERROR CODE DIAGNOSTICS

2.1 NO ERROR CODE AND NO HOT WATER

EXPLANATION

No hot water is delivered when water is flowing through unit and with LCD displaying the hot water temperature setting.

NOTE: For “NO POWER” complaint (LCD will not turn on) Check wall outlet for 120V. If voltage is present, check the two 10 amp fuses at the control board.

When replacing a serviceable component, turn off all power to the water heater and check for the presence of power with a multimeter or test lamp.

POSSIBLE CAUSE

- Low or no Water flow (minimum 0.4 GPM to activate)
- Unit was not set to “Enable”.
- Debris in Inlet filter or Water Control Valve
- Water flow sensor.

FINAL CHECK: Water flow sensor in water volume control valve.

Check the voltage between #10 wire (Red) and #8 wire (Black) at the connector “I”.

- With the unit turn ON and no water flow, you should read 11 to 17 DC volts.
- If reading is not 11 17 DC Volts, replace the control board.

WATER FLOW SENSOR

1. Use cold water shutoff valve to turn OFF water supply to unit.
2. Turn power switch to OFF position. Wait 10 seconds.
3. Turn power switch to ON position. Wait 20 seconds, Confirm Mode is Enabled.
4. Turn water supply ON; check the nearest hot water fixture for hot water.
5. Go to status mode and check the flow rate with one or more hot water faucets running.
 - If the unit shows above 0.4 gpm, and the unit does not fire, replace the control board.
 - If the unit shows 0.4 gpm or less, check the water inlet filter, other plumbing fixtures, and flush the water heater.
 - If the unit shows no flow detected, flush the water heater and remove any debris from the water inlet filter and from the water control valve.

NOTE: If water is flowing backward through the unit it will not be able to detect flow. Ensure water supply lines are connected correctly.

ERROR CODE DIAGNOSTICS

ERROR A011

EXPLANATION

Flame Not Detected From Flame Rod.

In the case of ignition failure, the water heater will attempt ignition 10 times (Including the post purge every 3 times).

If no flame is detected, the water heater displays the "A011" error code on the User Interface.

Diagnostic Check

- Gas supply pressure
- Gas filter
- Air filter
- Venting
- Igniter rod
- Flame rod
- Gas air ratio valve
- Solenoid valve (SV)

Check Method

Gas supply pressure

1. Check the gas supply pressure and regulator at the gas connection of the water heater.

The correct gas pressures are below;

- Natural Gas (NG); 4.0"-10.5" W.C
 - Liquid Propane (LP); 8.0"-13.0" W.C
2. While the static pressure is normal, the use of another gas appliance may cause a possible drop to the water heater. Therefore, it is required to check static and dynamic gas pressure.
- Static pressure: Gas pressure during standby
 - Dynamic pressure: Gas pressure at max combustion

Gas Filter

Check the gas filter at the gas connection of the water. Ensure the filter is not blocked by some foreign substance.

If the gas filter is blocked by something, clean the gas filter and remove the cause.

ERROR CODE DIAGNOSTICS

ERROR A011

Air Filter

Check with the air filter at the inlet air connection of the water heater that airflow is not blocked. If the air filter is blocked, clean the air filter and remove debris and or blockages.

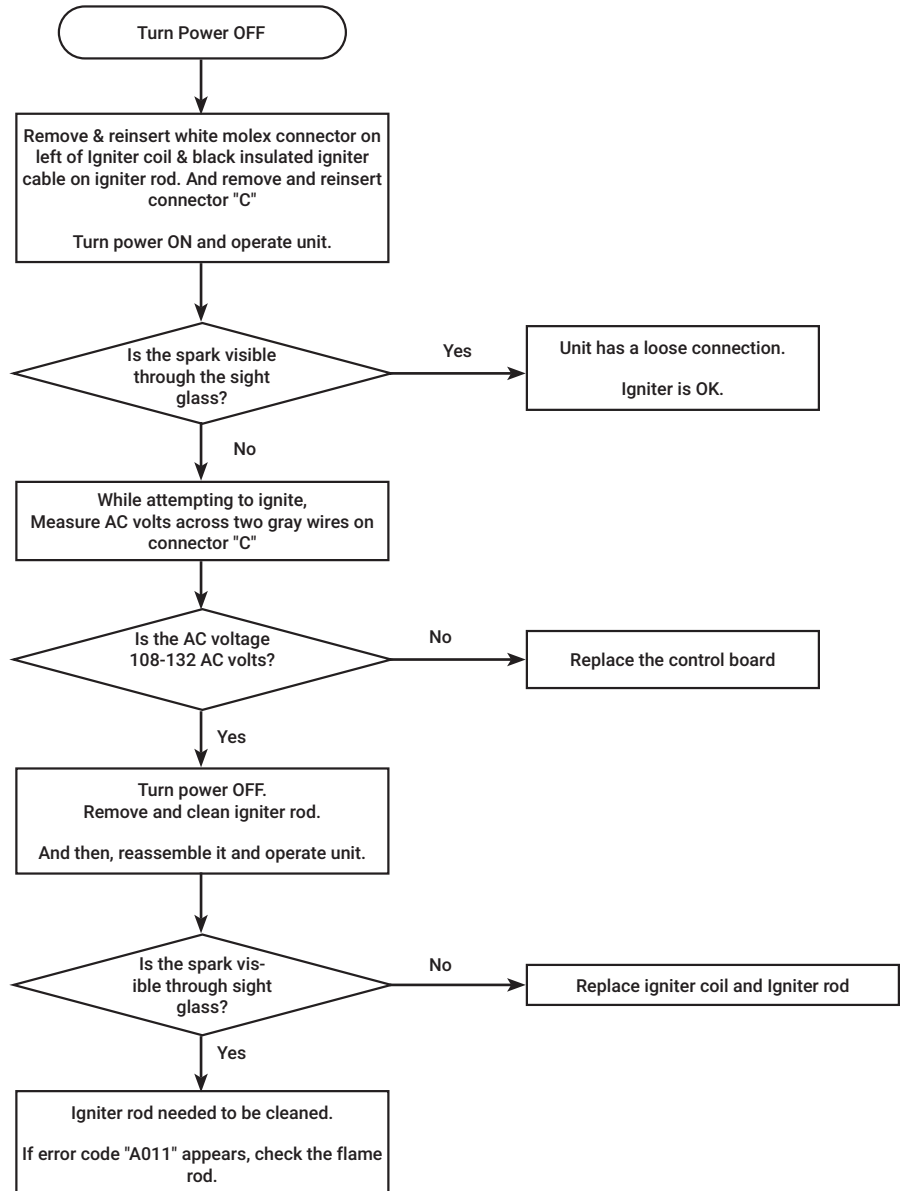
Venting

Check the condition of venting (Ex The connections of vents, the vent terminal). If the connection of venting is removed or the terminal vent top is blocked, reconnect the vents or clean the vent (Both inlet side and exhaust side)

Refer to section "Venting for direct vent water heater" in this manual and refer to U&C manual for installation instructions.

Igniter rod (Spark is not visible)

If the spark is not visible through the sight glass, refer to the following steps to check igniter rod and coil.



ERROR CODE DIAGNOSTICS

ERROR A011

Flame rod (Flame is visible)

If the spark is visible through the sight glass, refer to the flow chart below to check flame rod.

Go to "STATUS" mode and use the "▼" or "▲" to "Tankless Status", and press "ENTER".

Use the "▼" or "▲" to "Flame Rod Status" while the unit is operating.

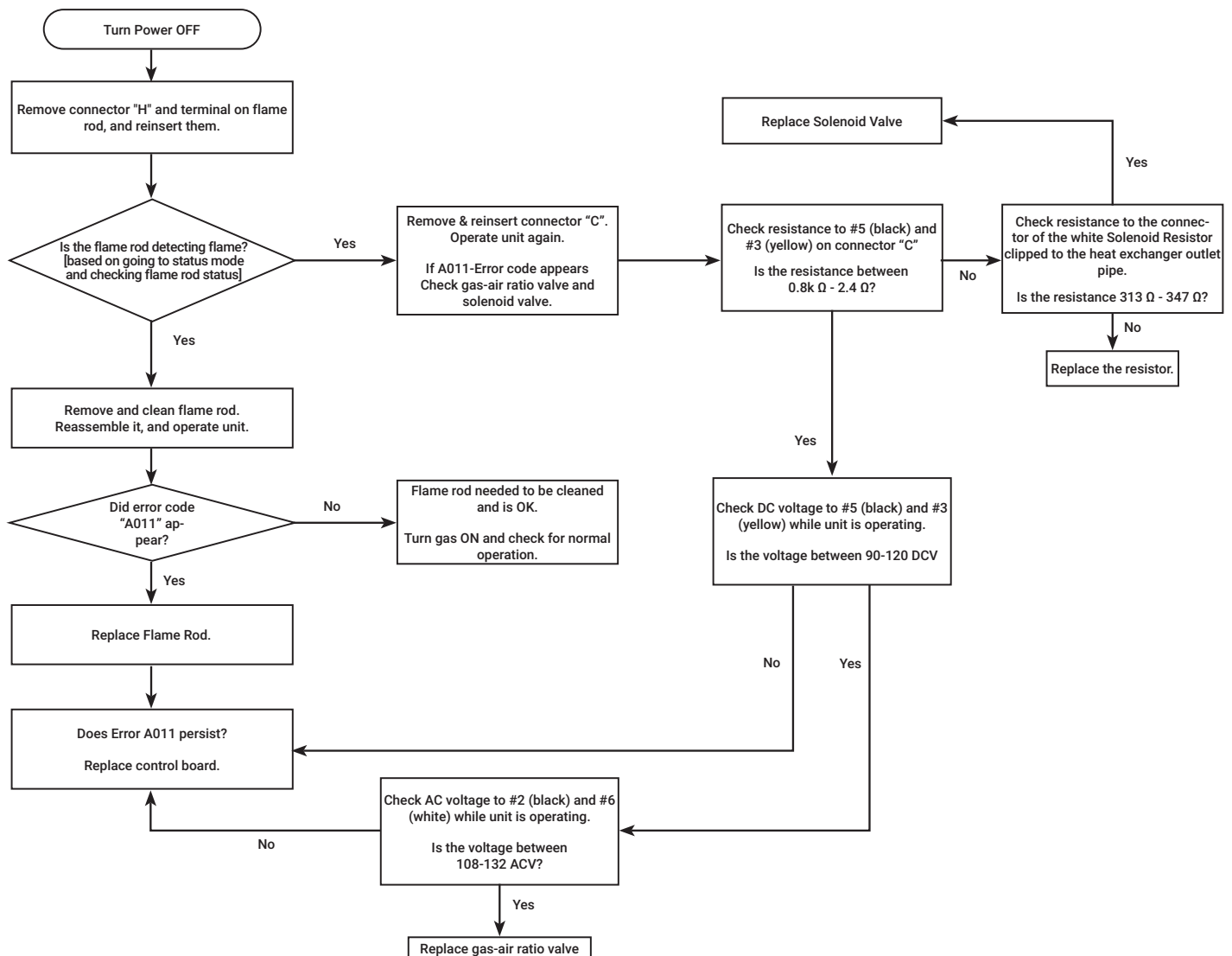
Gas solenoid valve

If the spark is not visible through the sight glass, refer to the steps to check solenoid valve.

Gas air ratio valve

If the spark is not visible through the sight glass, refer to the steps to check gas air ratio valve.

⚠ WARNING: When cleaning or replacing the flame rod/igniter rod, you must replace the gasket with the Rheem approved gasket (a spare gasket is provided with the unit). Improper sealing of the flame rod/igniter rod due to a damaged or missing gasket can cause unsafe operation or damage the OHL.



ERROR CODE DIAGNOSTICS

ERROR A012

EXPLANATION

Unit Detected Flame and Lost It.

If the water heater detects loss of flame during combustion, the water heater stops supplying fuel, attempts to restart, counts the number of flame loss incidents. If the incident occurs 15 times consecutively, the water heater displays the "A012" error code on the User Interface.

Diagnostic check items.

- Gas supply pressure
- Gas filter
- Air filter
- Venting
- Flame rod
- Gas air ratio valve
- Solenoid valve (SV)

Check method

Gas supply pressure

1. Check the gas supply pressure at the gas connection of the water heater.

The correct gas pressures are below;

- Natural Gas (NG); 4.0"-10.5" W.C.
 - Liquid Propane (LP); 8.0" -13.0" W.C.
2. While the static pressure is normal, the use of another gas appliance may cause a possible drop to the water heater. Therefore, it is required to check the dynamic pressure.
 - Static pressure: Gas pressure during standby.
 - Dynamic pressure: Gas pressure at max combustion.

Gas filter

Check the gas filter at the gas connection of the water. Ensure the filter is not blocked by some foreign substance.

If the gas filter is blocked by something, clean the gas filter, and remove the cause.

Air filter

Check the air filter at the inlet air connection of the water heater. Ensure the filter is not blocked by some foreign substance.

If the air filter is blocked by something, clean the air filter, and remove the cause.

ERROR CODE DIAGNOSTICS

ERROR A012

Venting

Check the condition of venting (Exp. The connections of vents, the terminal vent top)

If the connection of venting is removed or the terminal vent has a blockage, reconnect the vents or clean the vent (Both inlet side and exhaust side)

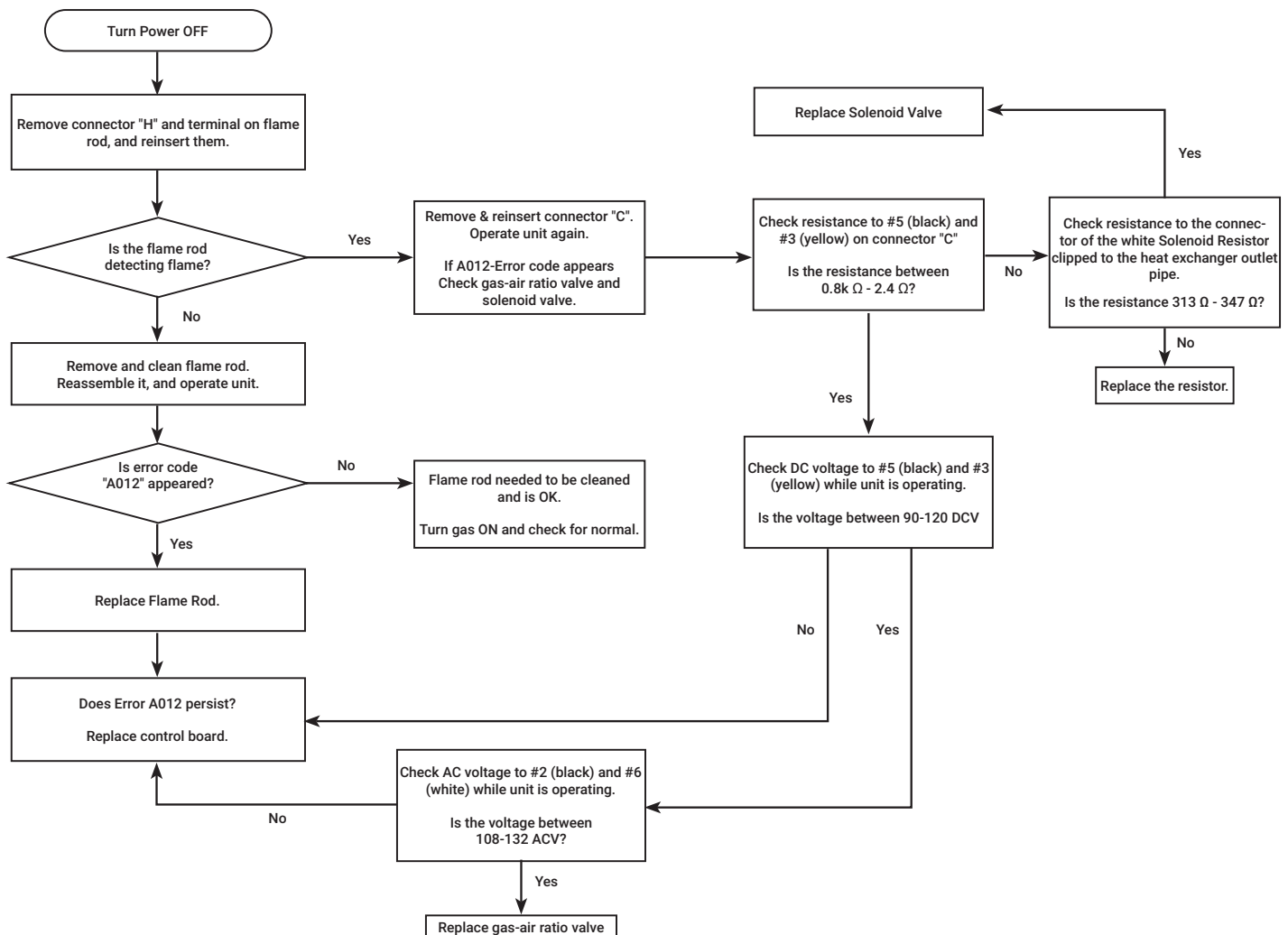
Refer to section "Venting for direct vent water heater" in this manual and refer to U&C manual for installation instructions.

Flame rod (Flame is visible)

Go to "STATUS" mode and use the "▼" or "▲" to "Tank-less Status", and press "ENTER".

Use the "▼" or "▲" to "Flame Rod Status" while the unit is operating.

⚠ WARNING: When cleaning or replacing the flame rod/igniter rod, you must replace the gasket with the Rheem approved gasket (a spare gasket is provided with the unit). Improper sealing of the flame rod/igniter rod due to a damaged or missing gasket can cause unsafe operation or damage the OHL.



ERROR CODE DIAGNOSTICS

ERROR A014

EXPLANATION

Over Heat Limiter (OHL) activated.

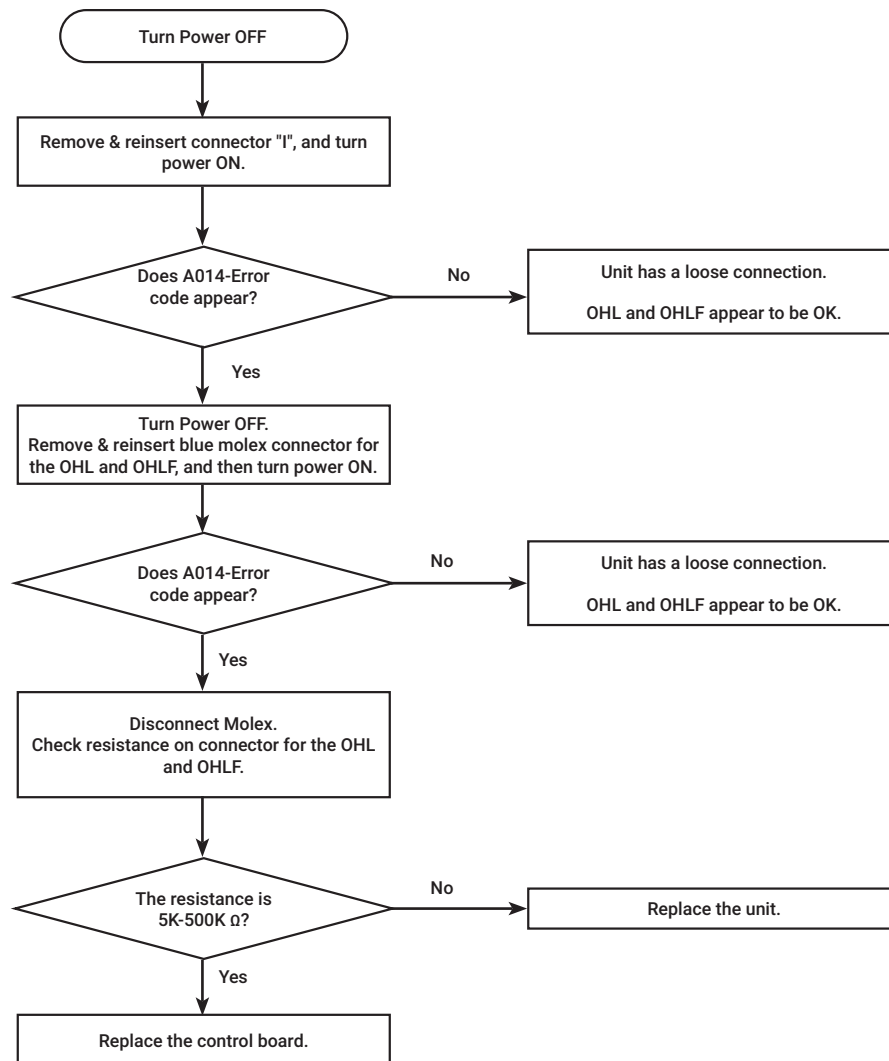
This tankless water heater has an Over Heat Limiter (OHL) and an Over Heat Limit Fuse (OHLF).

If the OHL or OHLF has been activated, the water heater displays the "A014" error code on the User Interface. This is normally caused by inadequate/wrong GAS SUPPLY and/or VENTING.

Diagnostic Check

- Over Heat Limiter (OHL)
- Over Heat Limit fuse (OHLF)

⚠ WARNING: When cleaning or replacing the flame rod/igniter rod, you must replace the gasket with the Rheem approved gasket (a spare gasket is provided with the unit). Improper sealing of the flame rod/igniter rod due to a damaged or missing gasket can cause unsafe operation or damage the OHL.



ERROR CODE DIAGNOSTICS

ERROR A018

EXPLANATION

Lime build-up inside the heat exchanger

To prevent permanent damage to the unit, the unit must be drained and flushed. Flushing procedure may need to be repeated for excessive lime and scale build up.

Before starting flushing process, go to SERVICE and set "Flush Heater?" to YES. When flushing is completed return the "Flush Heater?" setting to NO.

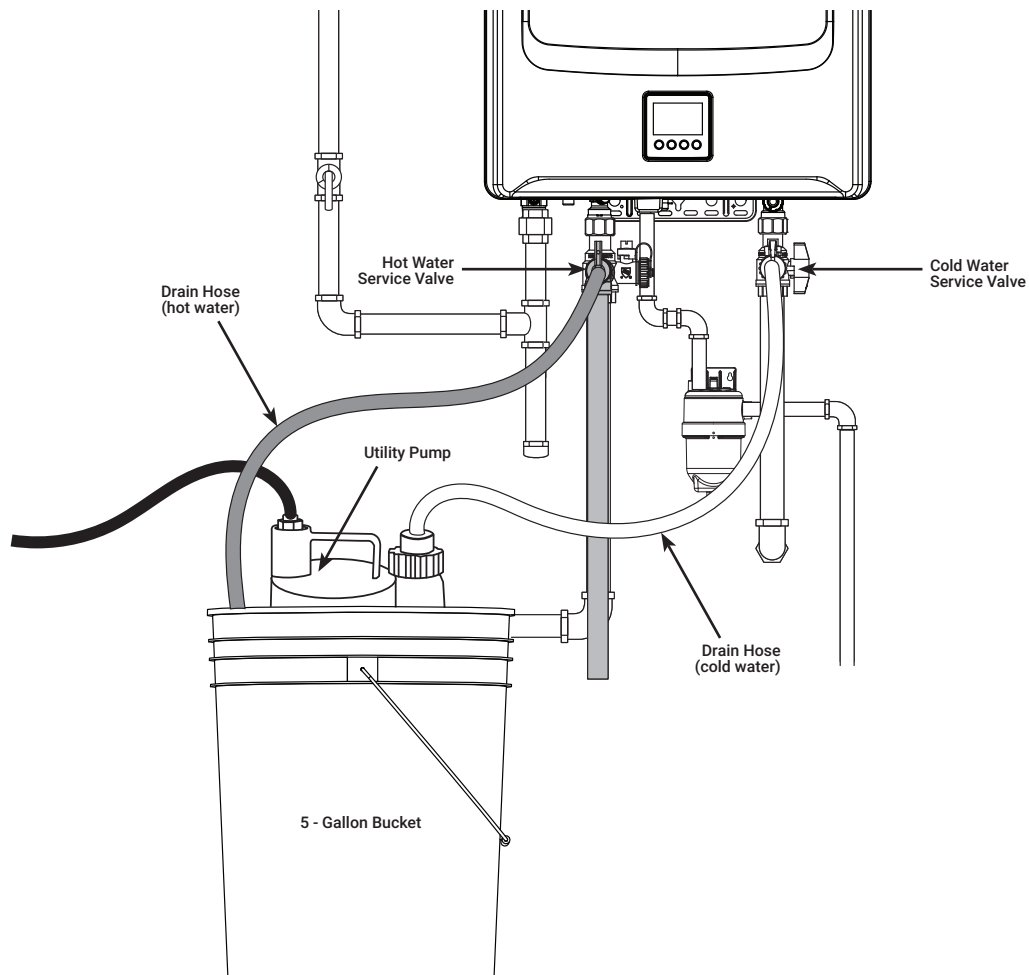
Refer to the Use & Care manual provided with the water heater for complete flushing instructions.

After flush procedure has been done, clear the alarm. Refer to "Clearing Current Alarms".

NOTE: Flushing instructions utilize a submersible utility pump.

(Provided with the Rheem/Ruud Tankless Flush Kit - RTG20124)

Flushing frequency is based on water conditions and average usage and should be conducted annually or as recommended by a professional.



ERROR CODE DIAGNOSTICS

ERROR A029

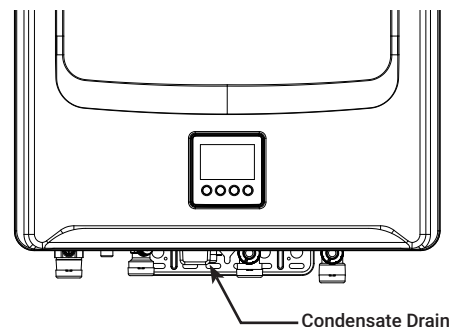
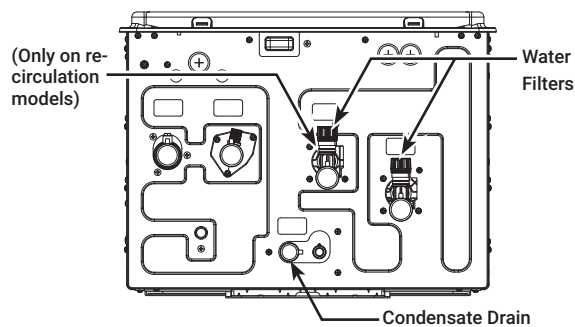
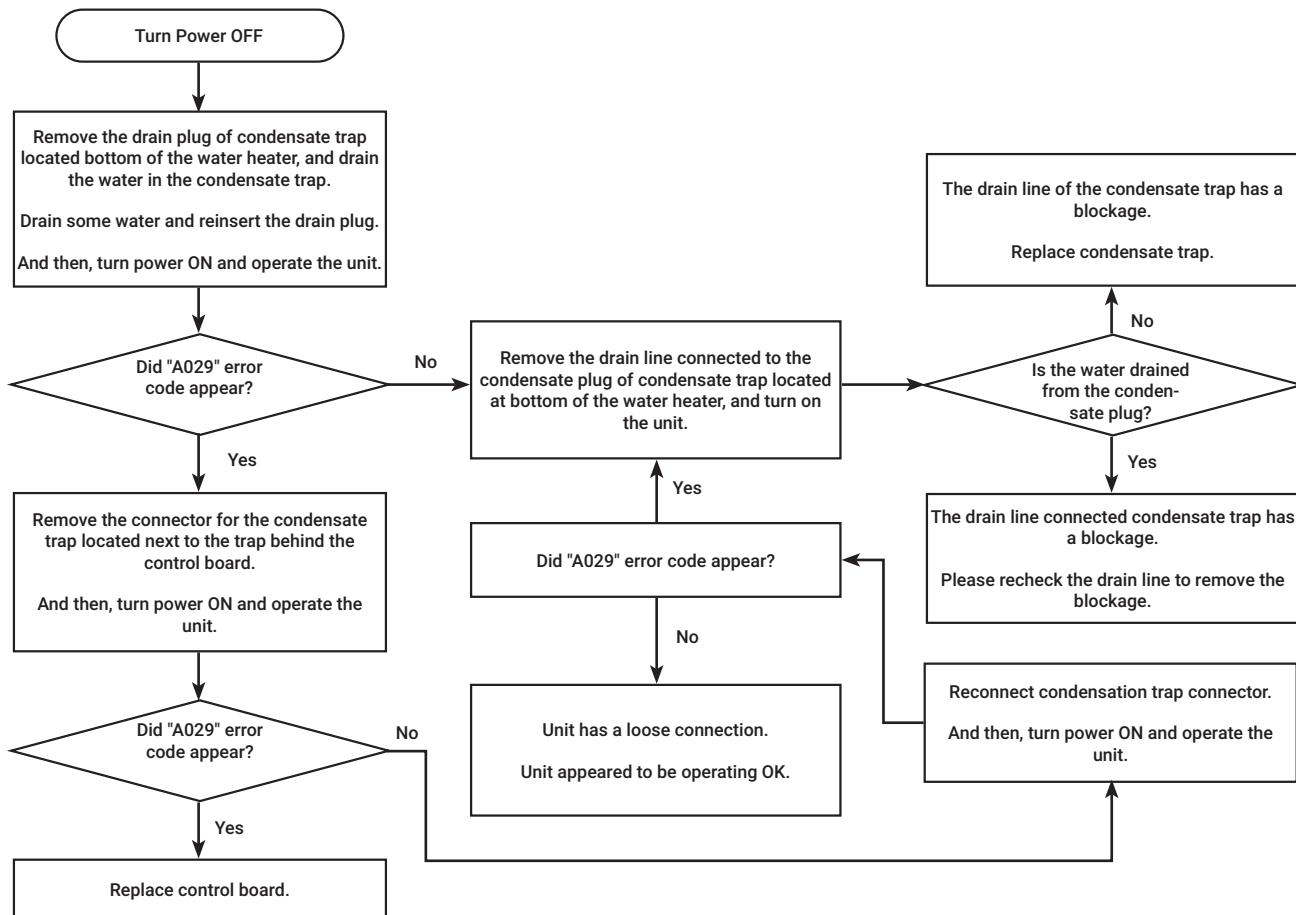
EXPLANATION

Condensate blockage

This water heater has a built in condensate trap. If the electrode on the condensate trap detects the water level is full, or cannot detect the water level in the condensate trap the water heater displays the "A029" error code on the User Interface.

Diagnostic check items

- External condensate trap.
- Drain line from unit condensate trap.



ERROR CODE DIAGNOSTICS

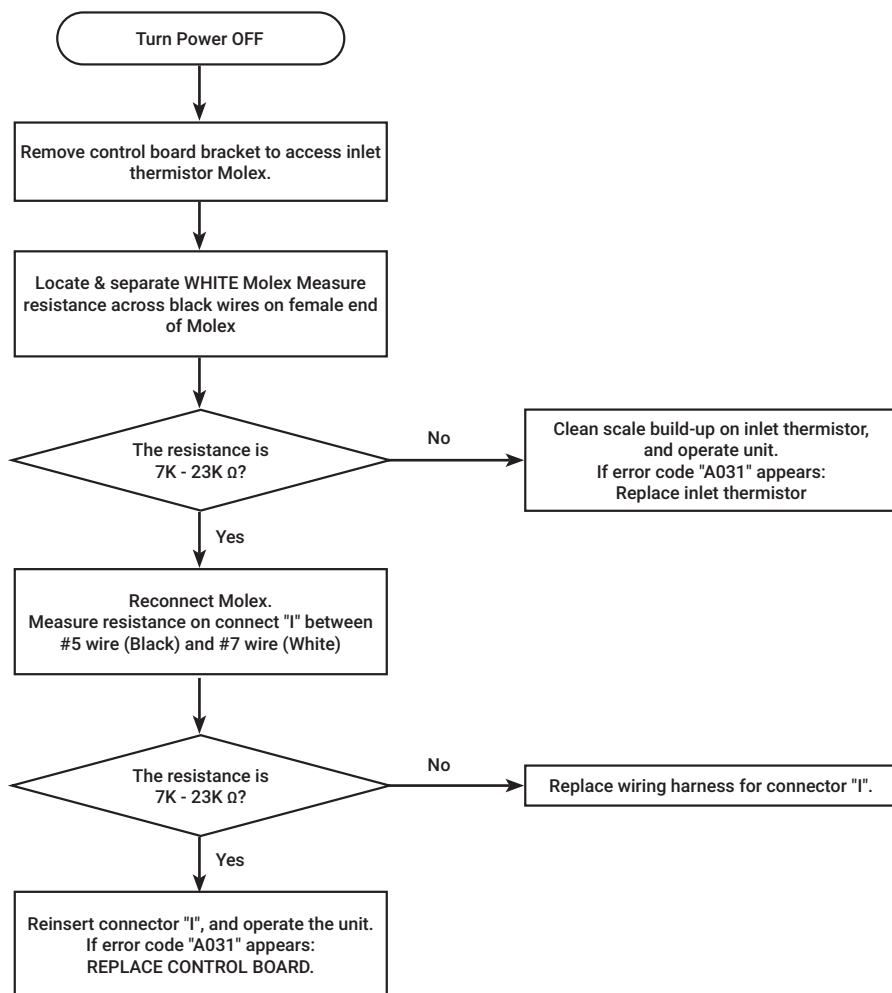
ERROR A031

EXPLANATION

Inlet Thermistor Malfunction.

Diagnostic Check

Inlet Thermistor.



ERROR CODE DIAGNOSTICS

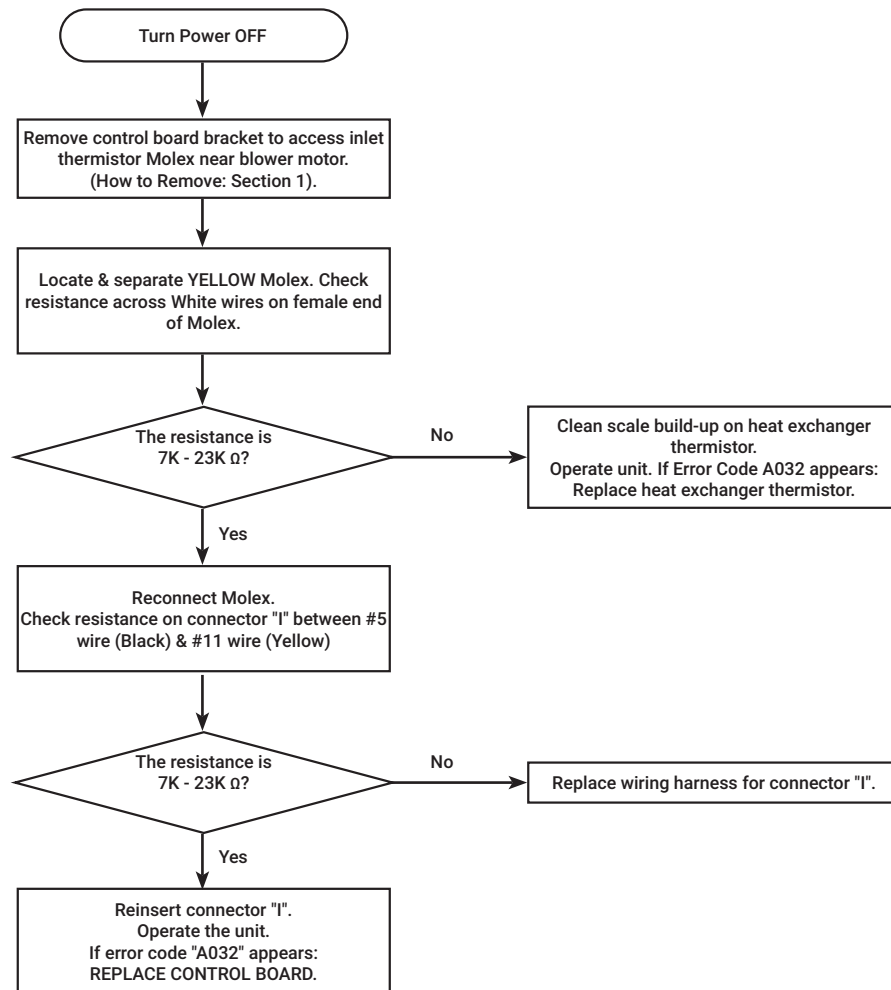
ERROR A032

EXPLANATION

Heat Exchanger Thermistor Malfunction.

Diagnostic Check

Heat Exchanger Thermistor.



ERROR CODE DIAGNOSTICS

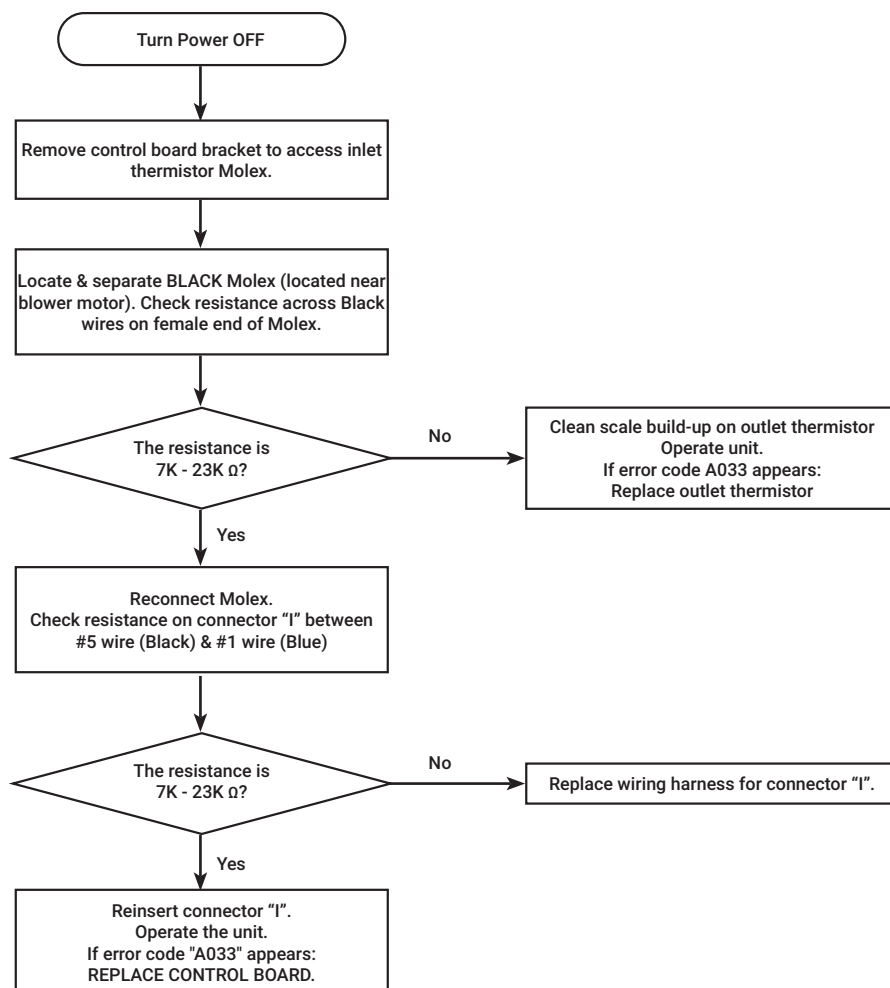
ERROR A033

EXPLANATION

Outlet Thermistor Malfunction.

Diagnostic Check

Outlet Thermistor.



ERROR CODE DIAGNOSTICS

ERROR A035

EXPLANATION

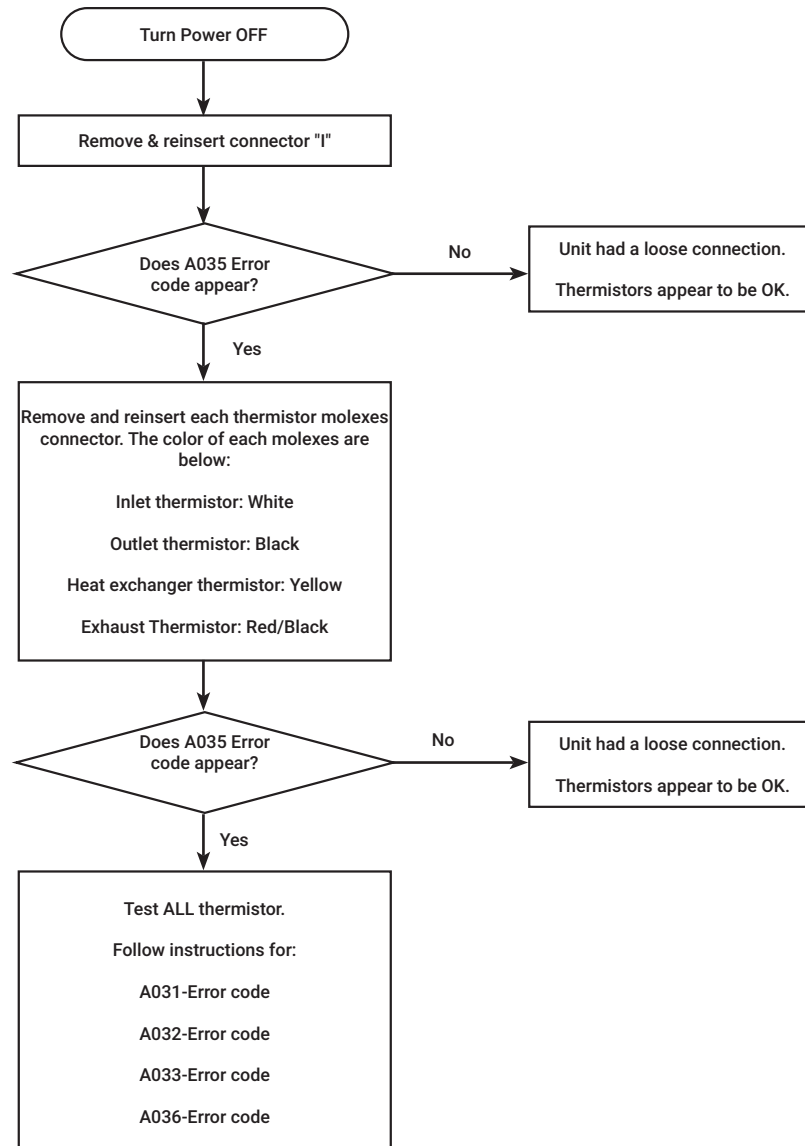
Improper thermistor connection

This tankless water heater has three thermistors (Inlet, Outlet and Heat exchanger thermistor)

If one or more possibly has a poor connection or not connected in proper location, the water heater displays the "A035" error code on the Liquid Crystal Display (LCD) on the User

Diagnostic Check

- Inlet thermistor
- Outlet thermistor
- Heat exchanger thermistor
- Exhaust Thermistor



ERROR CODE DIAGNOSTICS

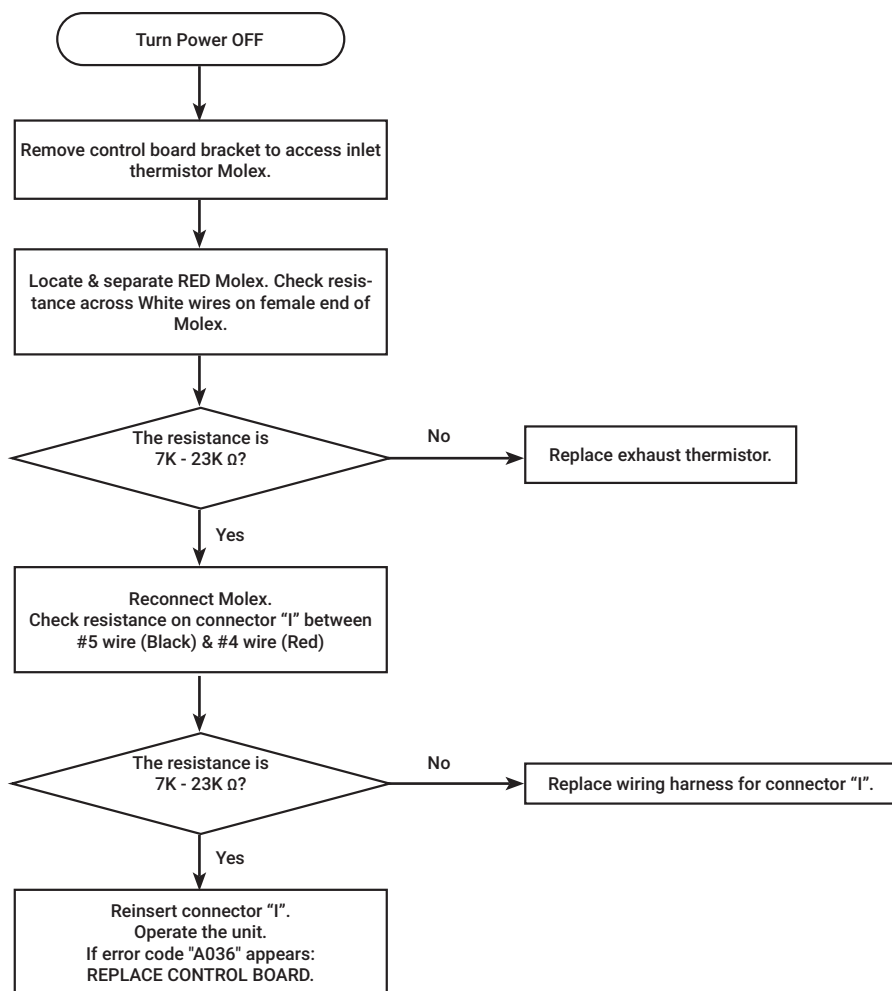
ERROR A036

EXPLANATION

Exhaust Thermistor Malfunction.

Diagnostic Check

Exhaust Thermistor.



ERROR CODE DIAGNOSTICS

ERROR A055

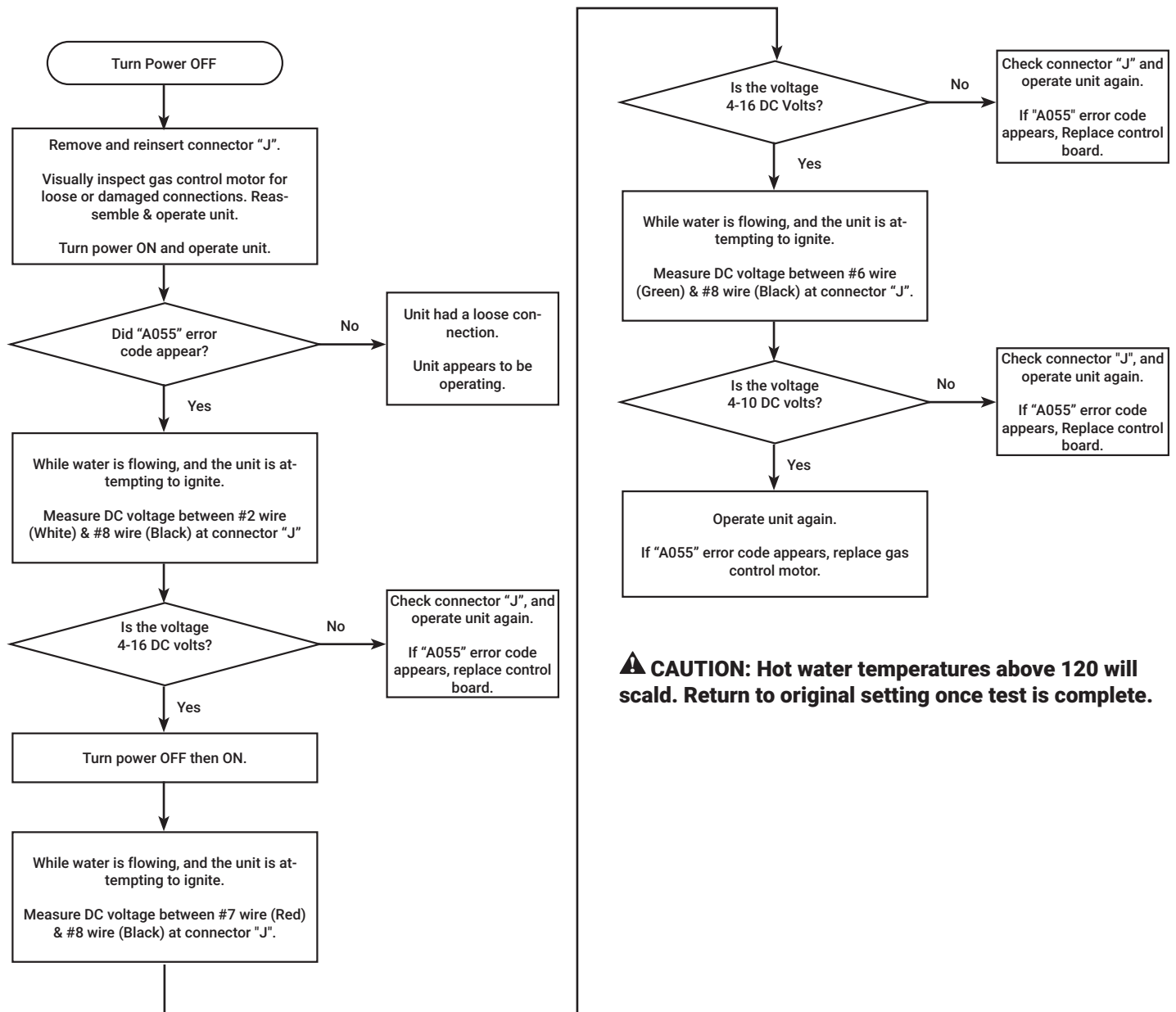
EXPLANATION

Gas motor failed.

The venturi in this water heater has a butterfly valve to control air volume. The motor adjusts the position of this butterfly valve. If the motor controlling the butterfly valve does not work properly, the water heater displays the "A055" error code on the User Interface.

Diagnostic check items

- Gas control motor on the Venturi assembly



⚠ CAUTION: Hot water temperatures above 120 will scald. Return to original setting once test is complete.

ERROR CODE DIAGNOSTICS

ERROR A061

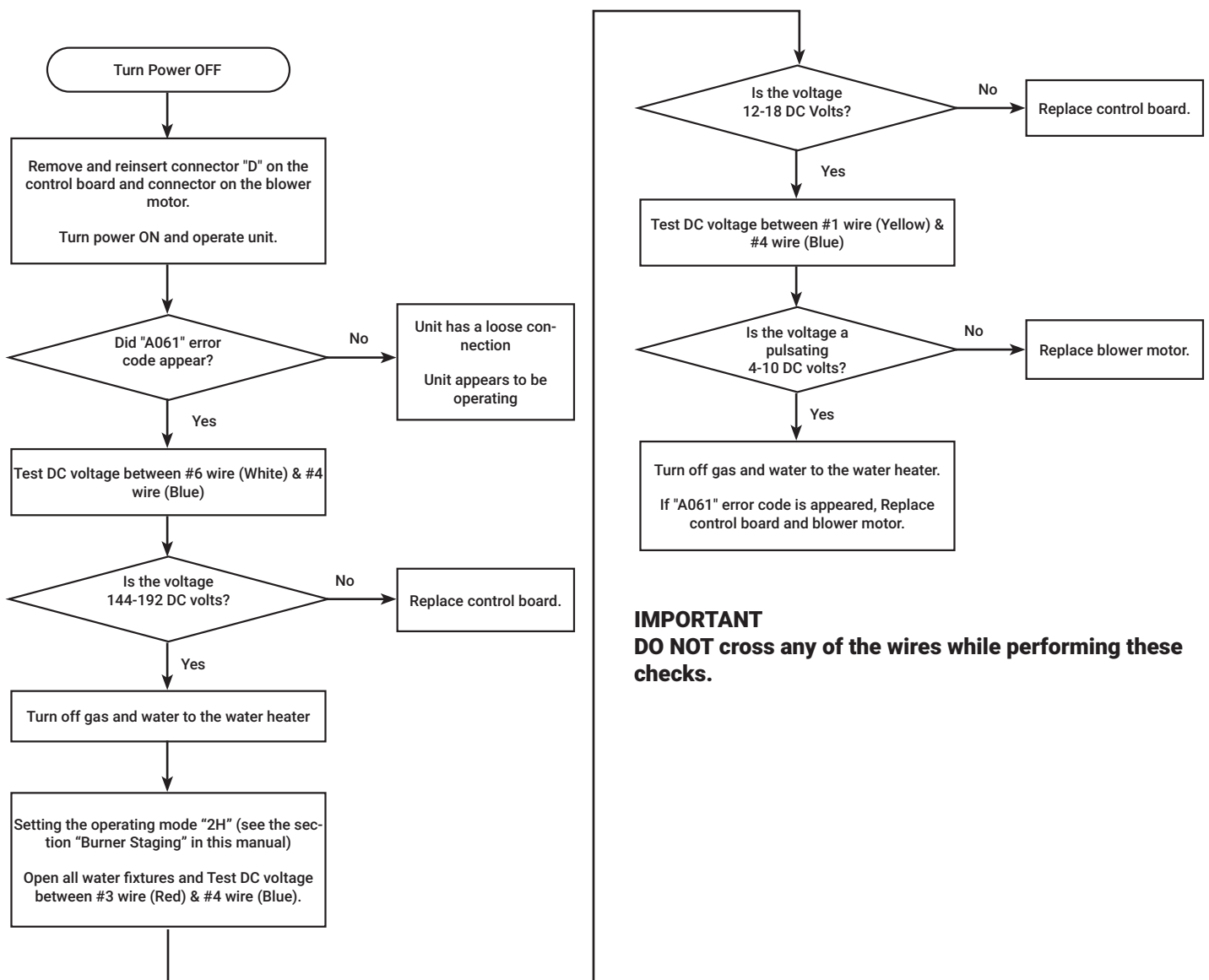
EXPLANATION

This water heater checks the RPM signal after the fan starts to run.

If the RPM signal is incorrect after the fan to starts, the water heater displays the "A061" error code on the User Interface.

Diagnostic check items

- Blower motor



IMPORTANT

DO NOT cross any of the wires while performing these checks.

ERROR CODE DIAGNOSTICS

ERROR A063

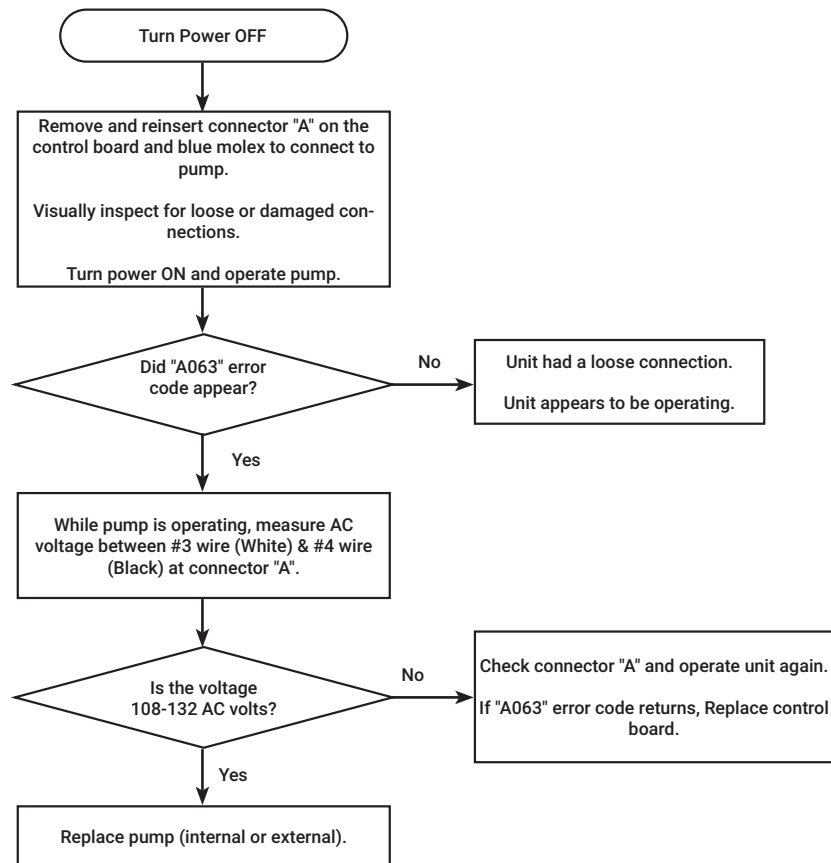
EXPLANATION

Pump abnormality

If the water flow sensor does not detect water flow when the recirculation pump is working, the water heater displays the "A063" error code on the User Interface.

Diagnostic check

- Recirculation Pump (Internal or external).



ERROR CODE DIAGNOSTICS

ERROR A065

EXPLANATION

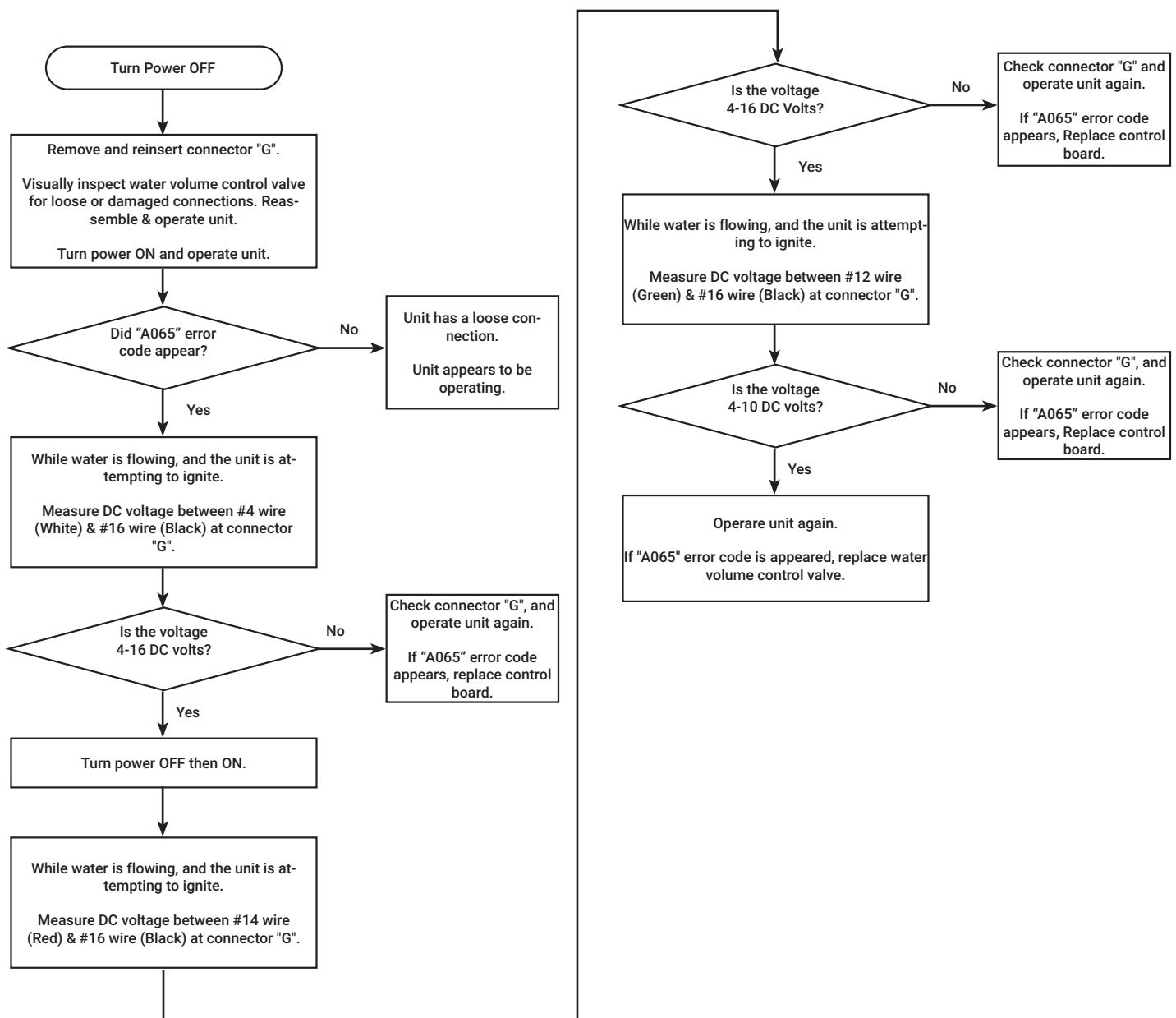
Water volume control valve malfunction

The water volume control valve will only activate IF demand for hot water EXCEEDS the unit's limitations.

If water flow is within the unit's limitations, you will not get a voltage reading for diagnostics.

Diagnostic check items

- Water volume control valve.

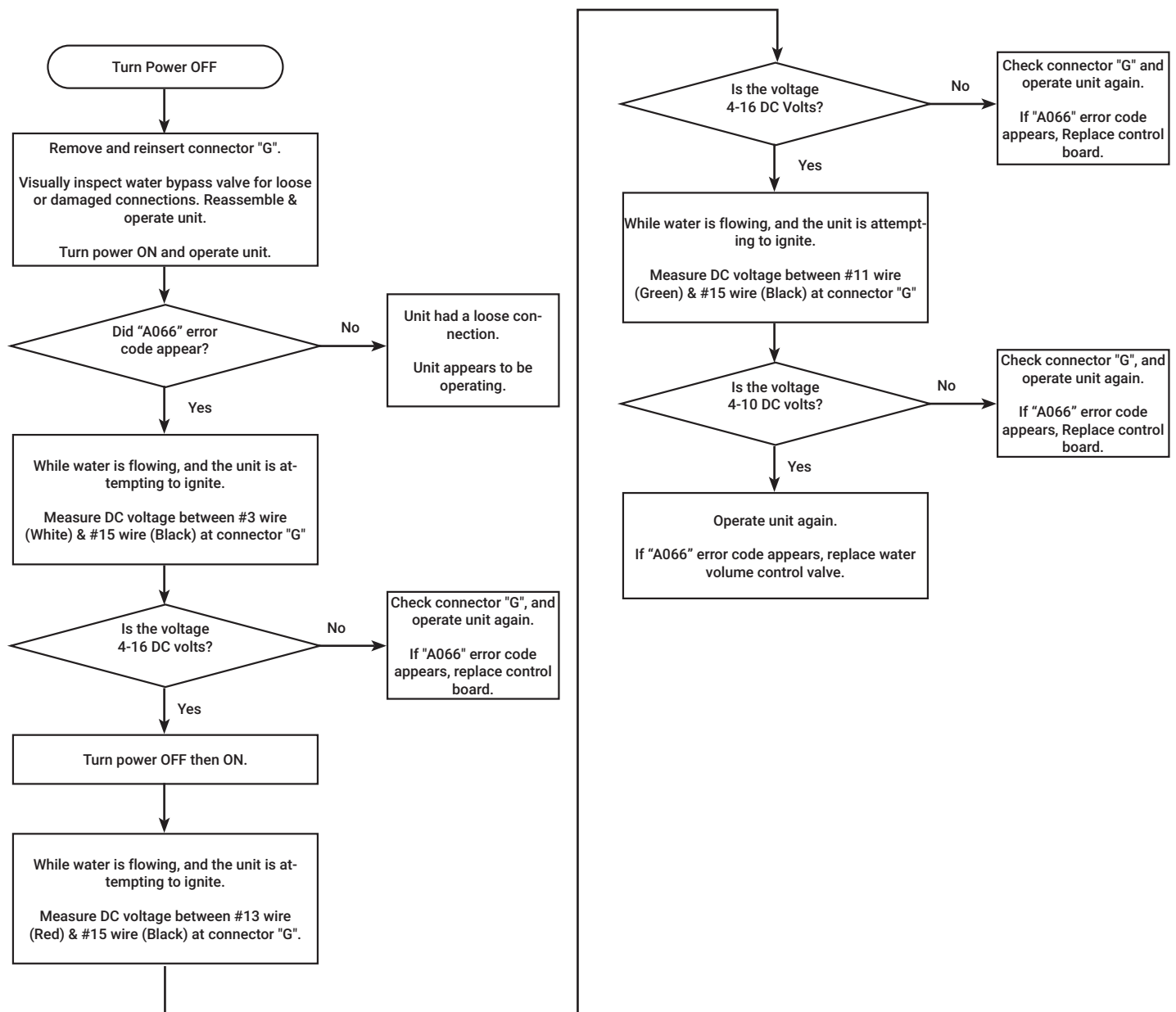


ERROR A066

Water bypass control valve malfunction

NOTE: : Prior to measuring voltage, turn set temperature down to 102. Water bypass valve will activate at this temperature setting.

- **Water Bypass control valve.**



ERROR CODE DIAGNOSTICS

ERROR A070

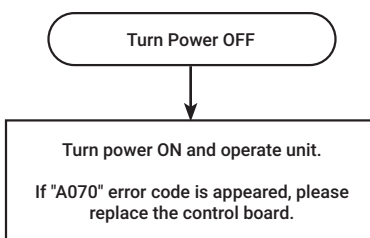
EXPLANATION

Microcomputer Abnormality.

If the microcomputer on the control board is not working properly, the water heater displays the "A070" error code on the User Interface.

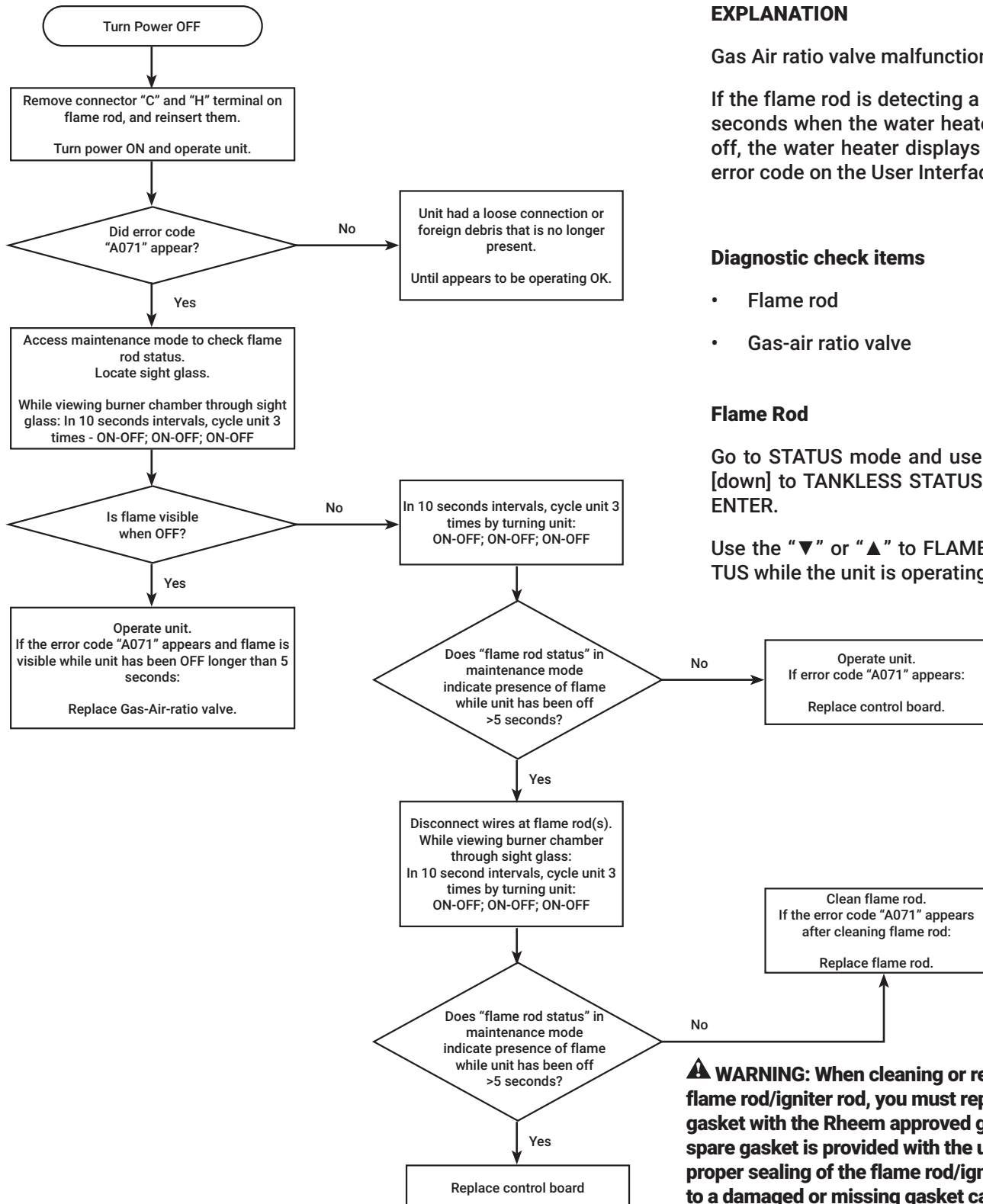
Diagnostic check items

- Control board



ERROR CODE DIAGNOSTICS

ERROR A071



EXPLANATION

Gas Air ratio valve malfunction.

If the flame rod is detecting a flame for 8 seconds when the water heater is turned off, the water heater displays the "A071" error code on the User Interface.

Diagnostic check items

- Flame rod
- Gas-air ratio valve

Flame Rod

Go to STATUS mode and use the [up] or [down] to TANKLESS STATUS, and press ENTER.

Use the "▼" or "▲" to FLAME ROD STATUS while the unit is operating.

⚠ WARNING: When cleaning or replacing the flame rod/igniter rod, you must replace the gasket with the Rheem approved gasket (a spare gasket is provided with the unit). Improper sealing of the flame rod/igniter rod due to a damaged or missing gasket can cause unsafe operation or damage the OHL.

ERROR CODE DIAGNOSTICS

ERROR A072

EXPLANATION

Flame rod malfunction

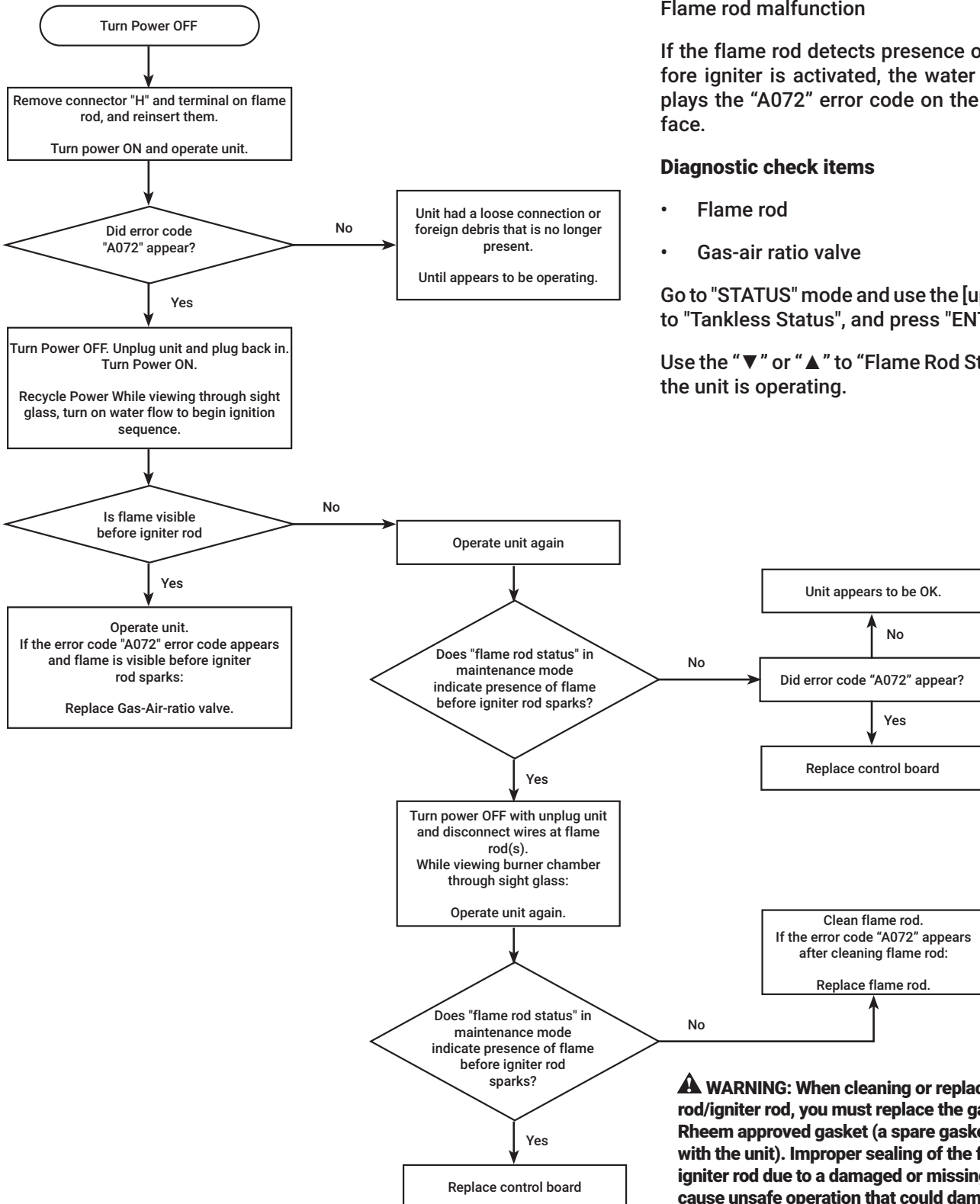
If the flame rod detects presence of flame before igniter is activated, the water heater displays the "A072" error code on the User Interface.

Diagnostic check items

- Flame rod
- Gas-air ratio valve

Go to "STATUS" mode and use the [up] or [down] to "Tankless Status", and press "ENTER".

Use the "▼" or "▲" to "Flame Rod Status" while the unit is operating.



⚠ WARNING: When cleaning or replacing the flame rod/igniter rod, you must replace the gasket with the Rheem approved gasket (a spare gasket is provided with the unit). Improper sealing of the flame rod/igniter rod due to a damaged or missing gasket can cause unsafe operation that could damage the OHL and permanently disable the water heater.

ERROR CODE DIAGNOSTICS

ERROR A082

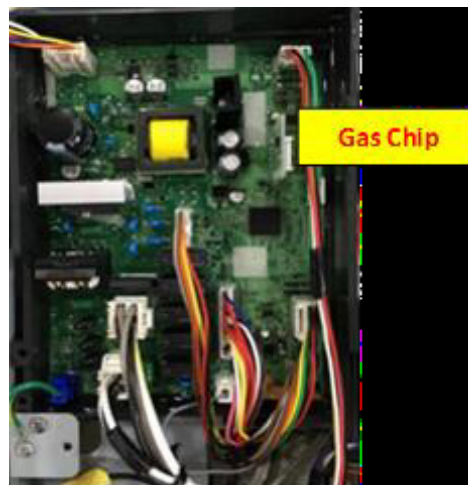
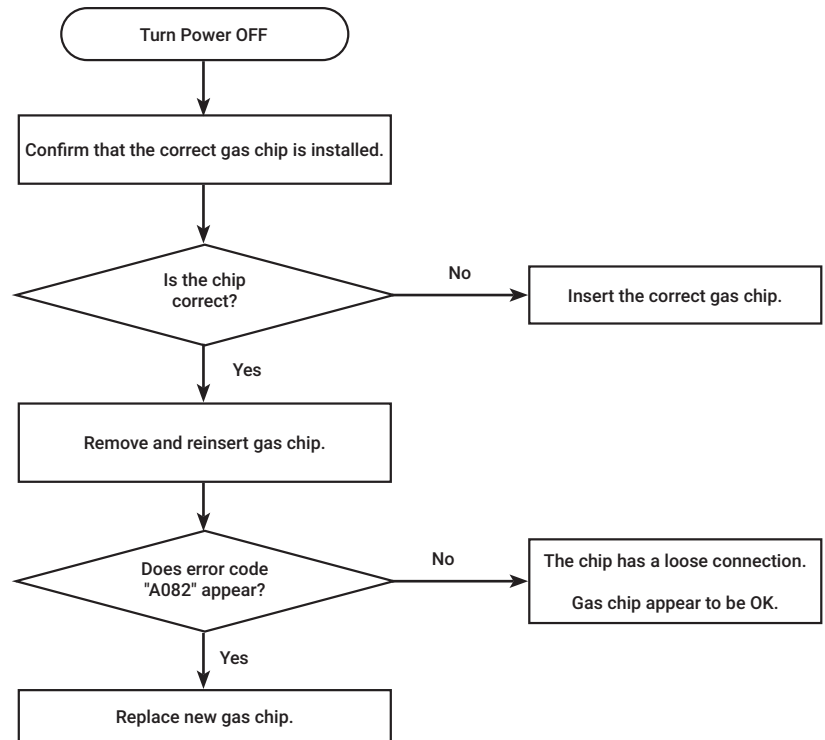
EXPLANATION

Installed Chip Error

This tankless water heater has a gas chip on the control board. If the gas chip has a poor connection or the data that gas chip has is inadequate/wrong, the water heater displays the "A082" error code on the User Interface.

Diagnostic check items

- Gas chip



ERROR CODE DIAGNOSTICS

ERROR A090

EXPLANATION

Detected Blockage in Venting

If the water heater detects a blockage in the venting, the water heater displays the "A090" error code on the User Interface.

Diagnostic check items

- Venting
- Air filter
- Gas inlet pressure

Check method

Venting

Check the condition of venting (Exp. The connections of vents, the vent termination) If the connection of venting is removed or the vent is blocked by something, reconnect the vents or clean the vent (Both inlet side and exhaust side)

Refer to section "Venting for direct vent water heater" in this manual and refer to U&C manual for installation instructions.

Air filter

Check with the air filter at the inlet air connection of the water heater. Ensure the filter is not blocked by some foreign substance.

If the air filter is blocked by something, clean the air filter, and remove the cause.

Gas supply pressure

1. Check the gas supply pressure at the gas connection of the water heater.

The correct gas pressure are below;

- Natural Gas (NG); 4.0"-10.5" W.C
 - Liquid Propane (LP); 8.0"-13.0" W.C
2. While the static pressure is normal, the use of another gas appliance may cause a possible drop to the water heater. Therefore, it is required to check the dynamic pressure.
- Static pressure : Gas pressure during standby
 - Dynamic pressure : Gas pressure at max combustion

ERROR CODE DIAGNOSTICS

ERROR A200

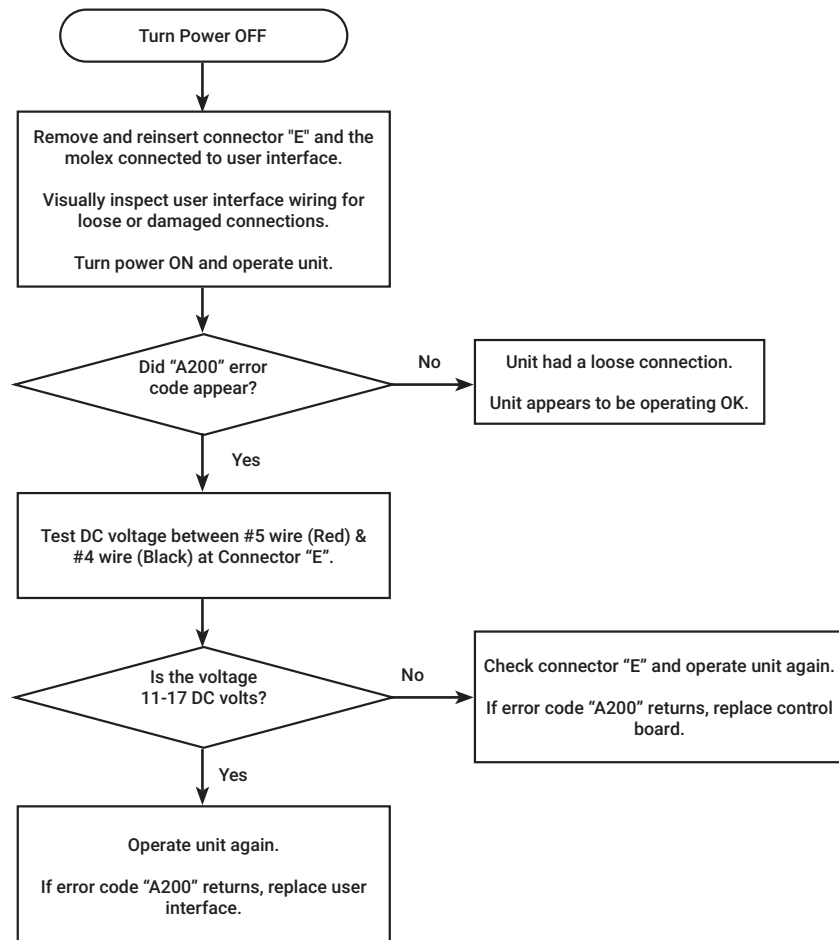
EXPLANATION

Water Heater Communication Failure.

User Interface is not communicating with control board.

Diagnostic check items

- User interface.



ERROR CODE DIAGNOSTICS

ERROR 2##

A2## ERROR CODE WATER HEATER COMM. FAILURE INSTANCE ## (## IS NO.02 TO NO.20)

EXPLANATION

This water heater can manifold up to 20 units. In this case, these water heaters have to have a set instance for each unit. To set the instance for each unit, refer to section "Network instance"

If one of the water heaters in the manifold unit displays an error code, the manager water heater displays the "A2##" error code on the Liquid Crystal Display (LCD) on the User Interface.

For example, if 20 water heaters are in a manifold and the unit of instance, No.5, displays the same error code, the manager water heater (instance No.1) displays "A205" error code.

DIAGNOSTIC CHECK ITEMS

- Water heater error code is displayed.

CHECK METHOD

Confirm the water heater error code displayed, and make a diagnosis corresponding to the error code.

ERROR CODE DIAGNOSTICS

ERROR T110

EXPLANATION

WiFi chip communication error

If the WiFi chip is not communicating with the user interface, the water heater displays the "T110" error code on the user interface.

Diagnostic check items

- User interface.

Check method

If the LCD displays "T110" error code, reset WiFi setting and set WiFi again.

To reset the WiFi setting, please refer to section "1.7.6 Reset WiFi setting" (pg 36).

If "T110" error code is displays even after setting WiFi again, please replace the user interface.

ERROR CODE DIAGNOSTICS

NOTIFICATION T111

T111 ERROR CODE

Service reminder alert

If the water heater has the service alert set up, and the life cycle of water heater is reached the set time,, the water heater displays the "T111" error code on the user interface.

This is a warning code and the unit will eventually shut down to protect unit.

To set this service alert, refer to section "Service Alerts".

Diagnostic check items

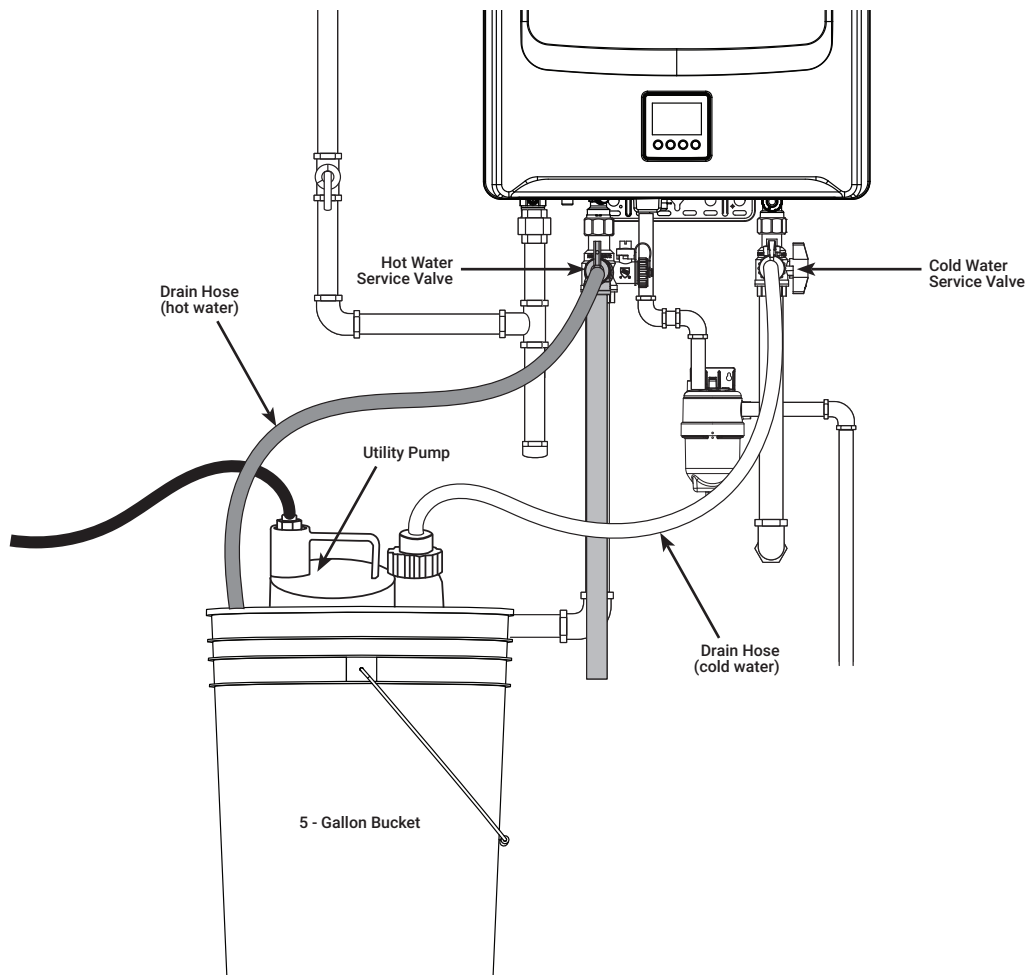
- User interface.

Check method

If the LCD displays "T111" error code, the unit must be drained and flushed.

NOTE: Flushing instructions utilize a submersible utility pump. (Provided with the Rheem/Ruud Tankless Flush kit RTG20124). After flush procedure has been done, clear the alarm. Refer to "Clearing Current Alarms" after flush procedure has been done, clear the alarm. Refer to section "Clearing Current Alarms".

For more information on flushing the water heater, refer to "Error A018" in this manual.



ERROR CODE DIAGNOSTICS

NOTIFICATION T113

EXPLANATION

The water heater is detecting that the flow rate is less than 0.4 GPM, and the heater will not activate. The water heater displays the "T113" error code on the on the user interface.

This water heater needs a minimum 0.4 GPM flow rate to activate the water heater.

To check the water flow rate through the unit, refer to section "Tankless Status".

Diagnostic check items

- Not enough water flow
- Water supply line (Hot and Cold)
- Water filter

Check method

1. Your water lines might be crossed. Make sure your hot and cold water supply lines are connected to the appropriate hot and cold water connections on the unit.
2. The water lines in the unit may be blocked by scale. Drain and flush the unit. To flush the unit, refer to section "Error A018".
3. Your water flow may be restricted by a dirty In-Line Water Filter. Remove the water filter and inspect. Clean if necessary.
4. The water flow sensor may have a blockage. Remove the water control valve and clean if necessary.
5. Possible plumbing cross-over in the home. Turn OFF hot water valve to the water heater. Go to each water fixture in the home and turn ON the hot water ONLY (test washing machine by setting it to hot ONLY). If water flows freely through the hot water side of the fixture, this is a plumbing crossover. HINT: During this test, to prevent scalding, pressure-balancing valves on single-handle fixtures will not allow any water to flow if there is a plumbing crossover.
6. Water flow might be too low. Open multiple hot water fixtures. If unit fires then there is not enough water flow to engage the unit at a particular fixture. Check your fixture aerator screen(s) for debris. Clean if necessary. FOR RECIRCULATION LINES: check pump size, aqua-stat, check valve, and operation.

ERROR CODE DIAGNOSTICS

NOTIFICATION T115 AND ERROR T116

T115 EXPLANATION

Pump schedule disable - No time received.

If the user interface does not receive the scheduled time to operate the pump when a schedule has been set (if installed with a recirculation line) the water heater displays the "T115" error code) on the user interface.

Diagnostic check

- Set to "SCHEDULE" in "Recirc Pump Mode".

NOTICE: If this error code is displayed on the LCD, recheck the scheduled time setting in the EcoNet app. To set the schedule mode for recirculation on this unit, please refer to section "Schedule mode".

T116 EXPLANATION

Manifold unit fault.

If the water heaters are installed in a manifold and some units in the manifold cannot communicate to the manager unit, the water heater displays the "T116" error code on the user interface of manager unit.

Diagnostic check

- Connecting cable between water heaters.

Check method

Remove and reinsert the connecting cable between water heaters.

If the "T116" appears again, switch the communication cables with another water heater.

> If the "T116" appears on a different unit after switching the communication cables, replace the communication cable.

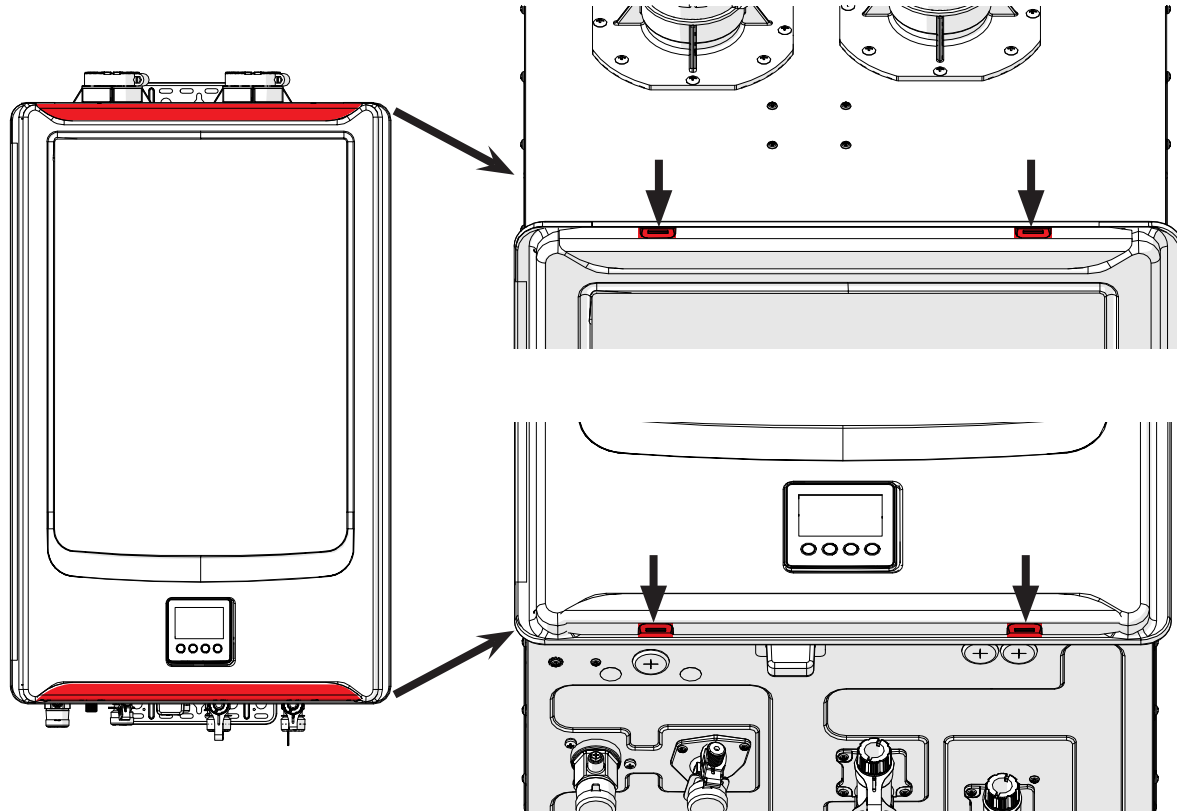
> If the "T116" appears on the same unit after switching the communication cables, replace the user interface and/or control board.

HOW TO REMOVE COMPONENTS

FRONT AND PLASTIC SCREW COVER

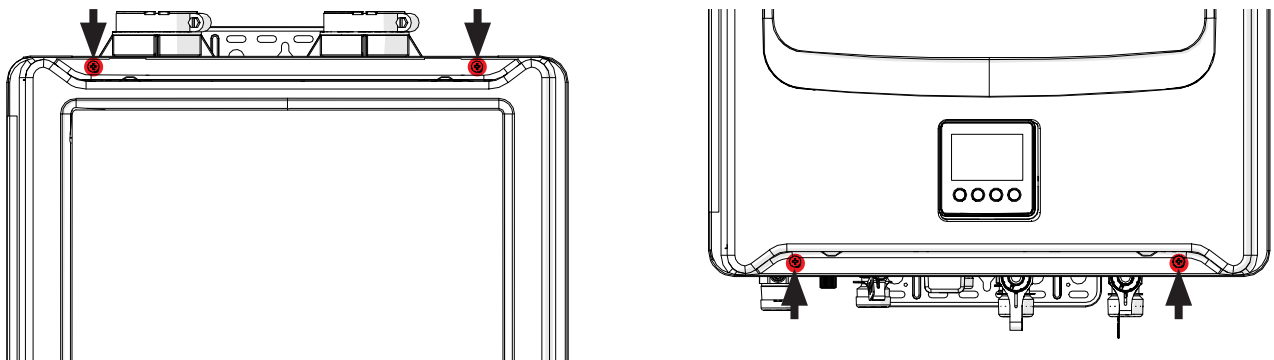
The plastic screw covers are located on the top and bottom of the front cover.

Gently press and release these parts indicated by the arrows below.



REMOVE FRONT COVER

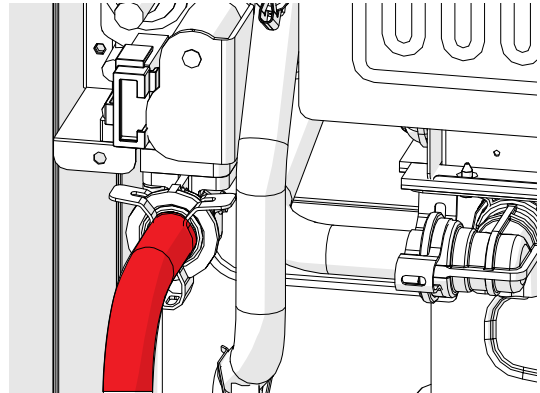
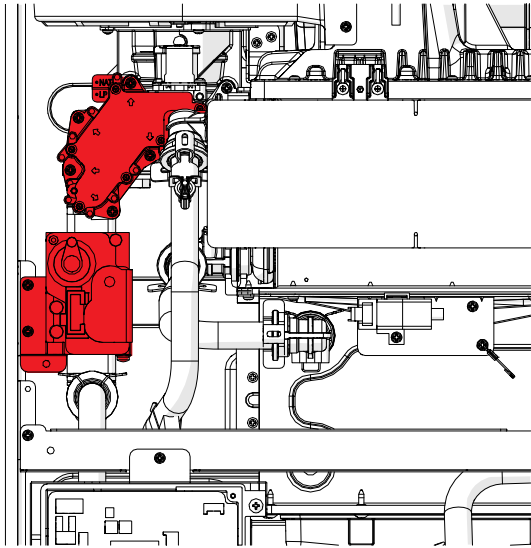
The front cover is tightened by 4 screws. To release the front cover, remove these screws, as pictured below.



HOW TO REMOVE COMPONENTS

GAS-AIR RATIO VALVE

1. Remove 3 screws connected to gas orifice block and 2 screws connected to gas-air ratio valve bracket.
2. Remove quick fastener connected to the gas-air ratio valve and gas pipe.
3. Pull the pipe from gas-air ratio valve.



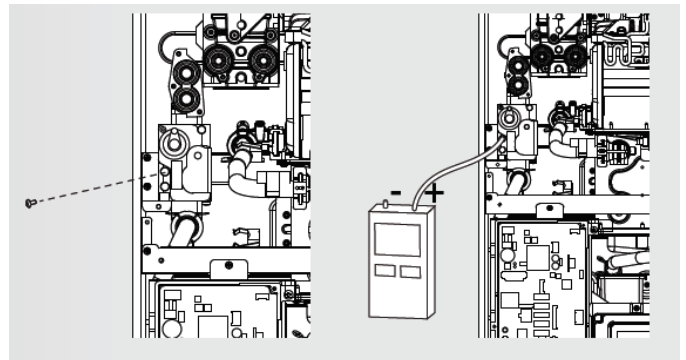
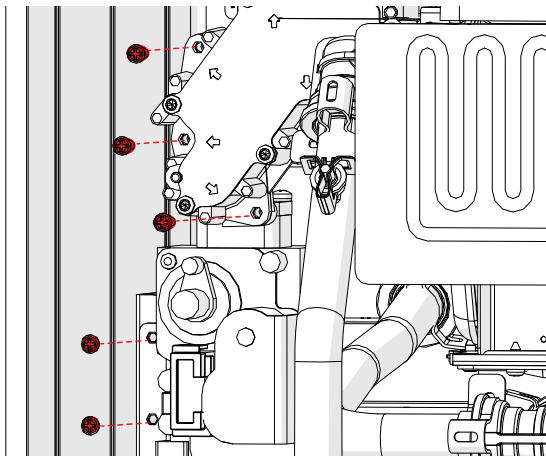
NOTE: If the gas-air ratio valve is replaced, please recheck that the manifold pressure is 0.00 in. W.C at 1L operation mode.

To measure the manifold pressure, remove the screw from the outlet tap on the gas valve.

Connect manometer to the outlet tap to measure manifold pressure as shown in figure below.

Reinstall screw after measurement is completed.

To set 1L operation mode, please refer to section "Burner Staging".

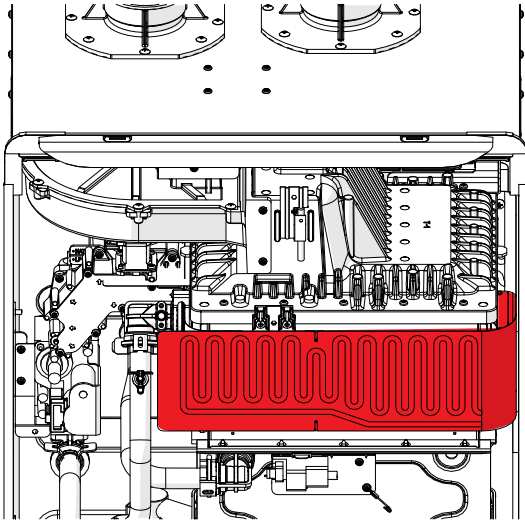


HOW TO REMOVE COMPONENTS

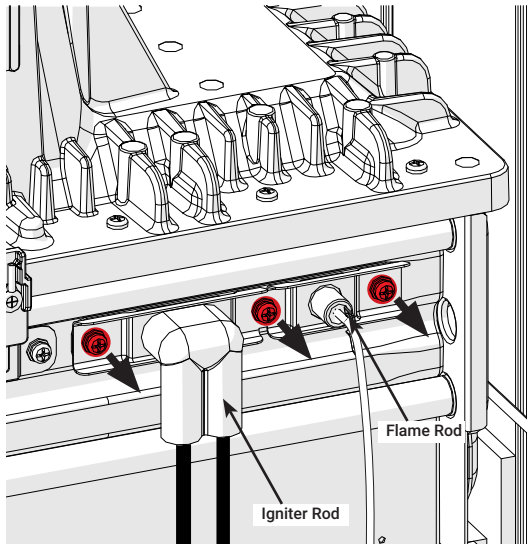
FLAME AND IGNITER ROD

1. Remove the hook film part of the Over Heat Limiter (OHL). DO NOT cut the film.

NOTE: When reassembling flame and igniter rods, please use a spare gasket if the condition of the gasket is not good.
The spare gasket is located at lower left in the unit.



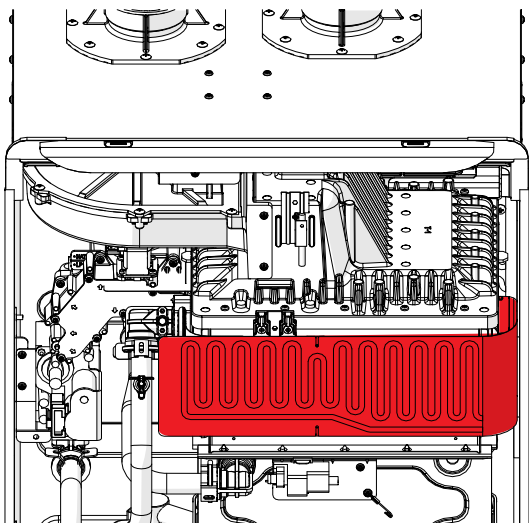
2. Remove flame rod and igniter rod wires wire from the rods.
3. Remove 3 screws from flame rod bracket, and pull the rod bracket.



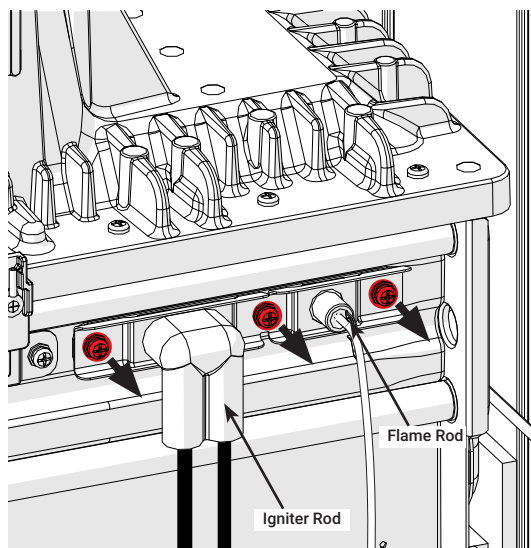
HOW TO REMOVE COMPONENTS

FLAME AND IGNITER ROD GASKET

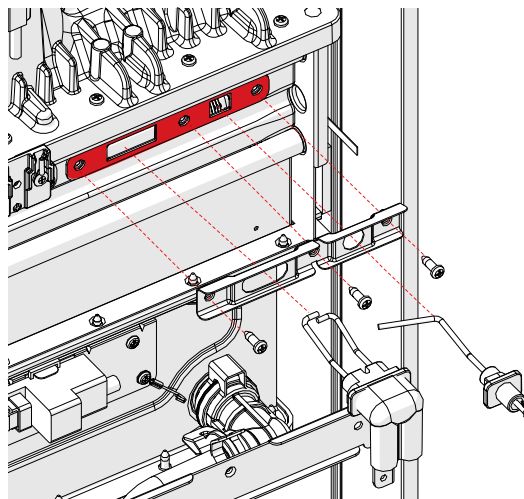
1. Remove the hook film part of the Over Heat Limiter (OHL). DO NOT cut the film.



2. Remove flame and igniter rod wires from the rods.



3. Remove 3 screws from flame and igniter rod bracket, and pull the flame and igniter rods
4. The gasket is located between the heat exchanger and flame rod bracket.



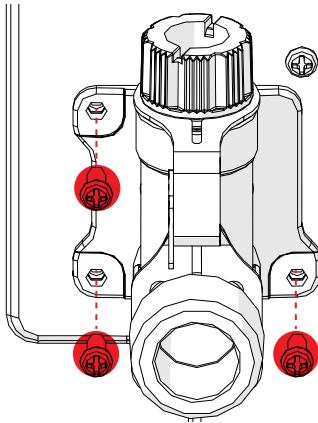
NOTE: The spare gasket is located at lower left in the unit.

HOW TO REMOVE COMPONENTS

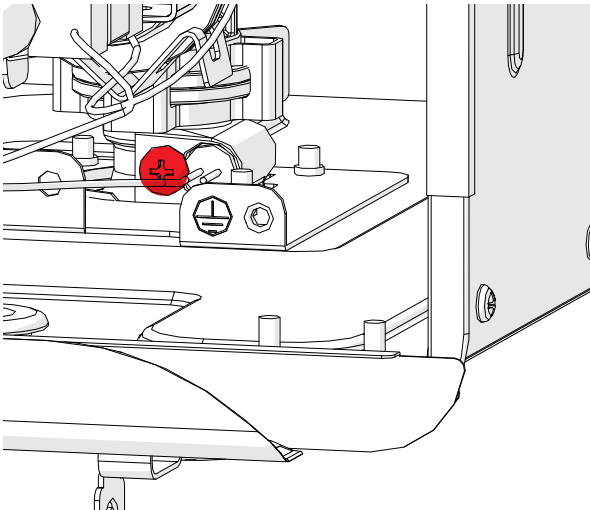
WATER INLET CONNECTION

NOTE: Before removing water inlet connection, turn off water to the water heater by closing the shut off valve and drain the heater.

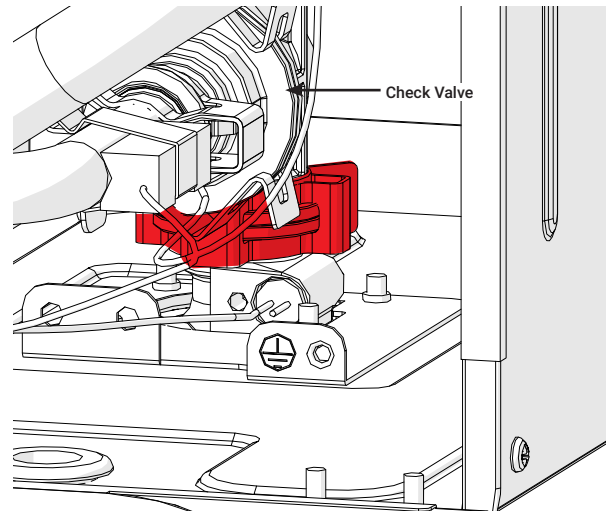
1. Remove 3 screws from the bottom plate, as pictured below.



2. Remove a screw holding freeze protection heater from water inlet connection, and pull the freeze protection heater.



3. Remove quick fastener connected to check valve.



NOTE: For non recirculation model, remove quick fastener connected to water control valve.

HOW TO REMOVE COMPONENTS

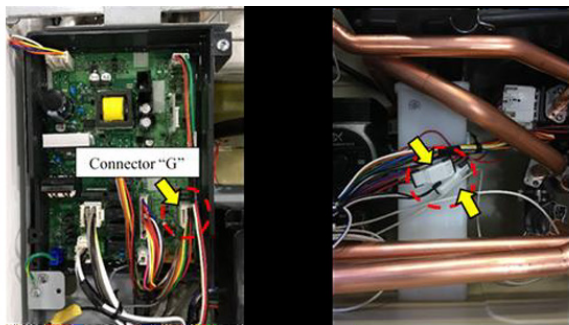
WATER CONTROL VALVE/WATER BYPASS VALVE

NOTE: Before removing water control valve, turn off water to the water heater by closing the shut off valve and drain the heater.

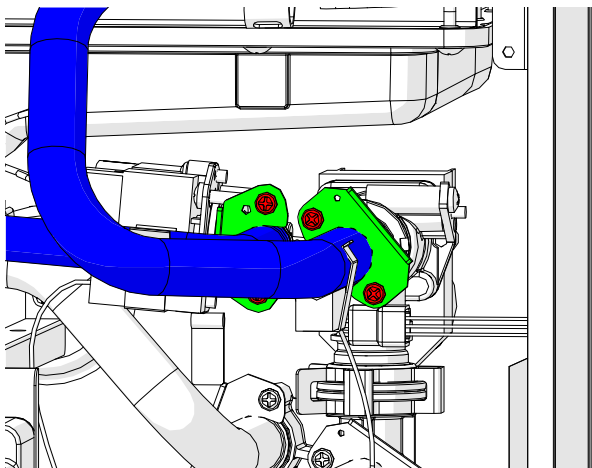
1. Remove user interface from the water heater.

NOTE: To remove the interface , refer to section “Display”.

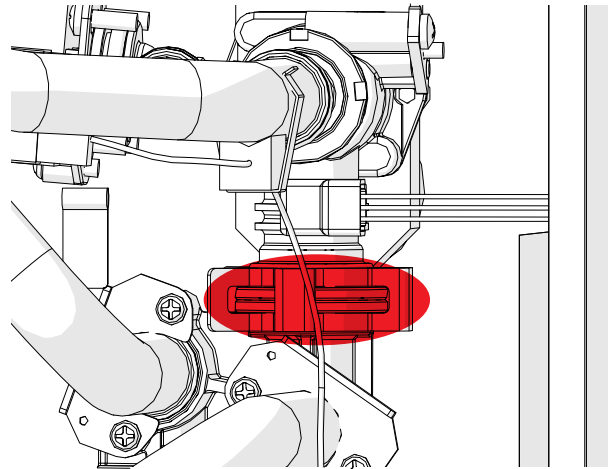
2. Remove the two white Molex connectors for the water control valve and water bypass valve located behind the user interface.



3. Remove the four **screws** and two **flange bracket**. Then, remove **water inlet pipe** and **bypass pipe**.

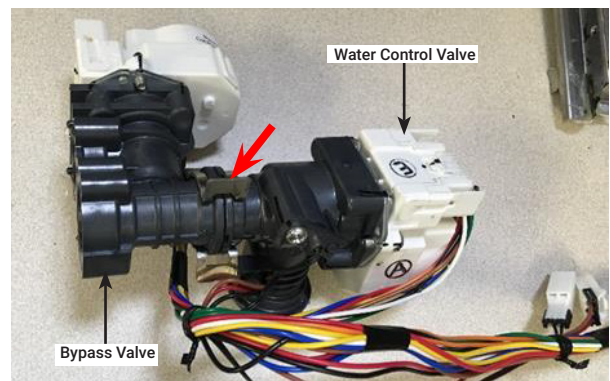


4. Remove quick fastener connected to check valve.



NOTE: for non-recirculation model, remove quick fastener connected to water inlet connection.

5. Remove quick fastener connected to bypass valve.



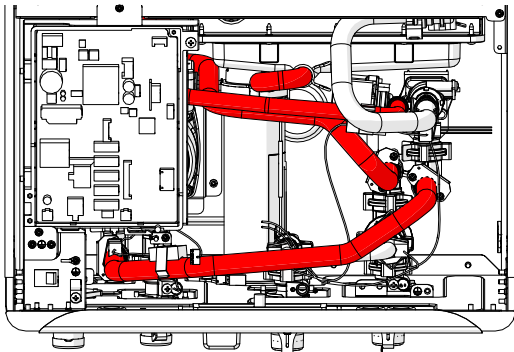
HOW TO REMOVE COMPONENTS

CONDENSATE TRAP

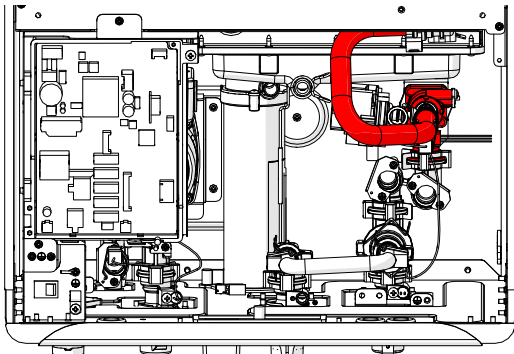
1. Remove control board and display.

NOTE: To remove the control board and display, refer to section "Control Board" and section "Display."

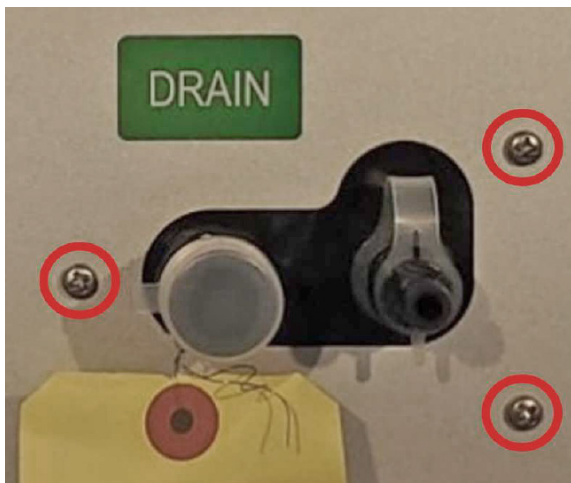
2. Remove four pipes across the front of condensate trap.



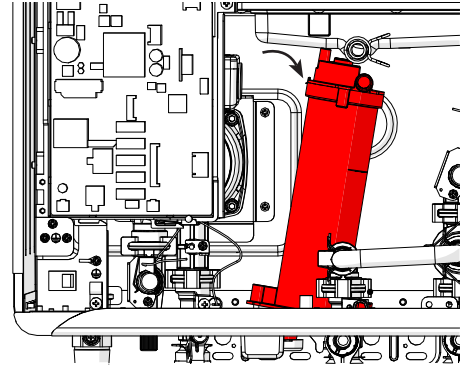
3. Remove water valve and water inlet pipe.



4. Remove the 3 screws under the unit for the condensation trap.



5. Tilt the condensate trap to the right and remove it.



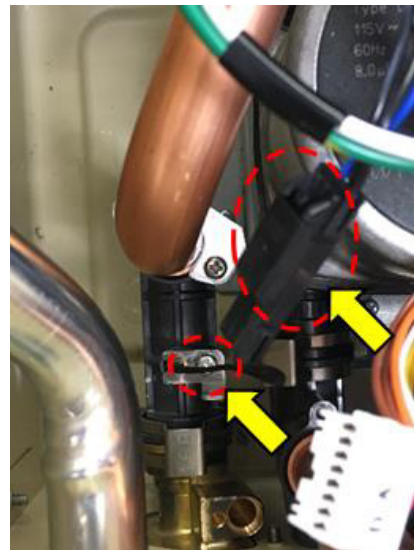
OUTLET THERMISTOR

NOTE: Before removing outlet thermistor, turn off water to the water heater by closing the shut off valve and drain the water heater.

1. Remove control board and display.

NOTE: To remove the control board and display, refer to section "Control Board" and section "Display".

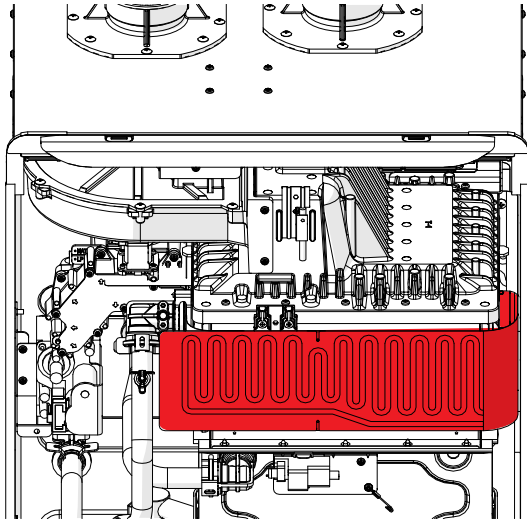
2. Remove black Molex connector from thermistor wiring harness, and remove a screw holding outlet thermistor.



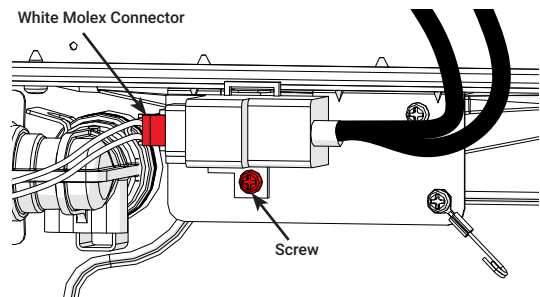
HOW TO REMOVE COMPONENTS

IGNITER COIL

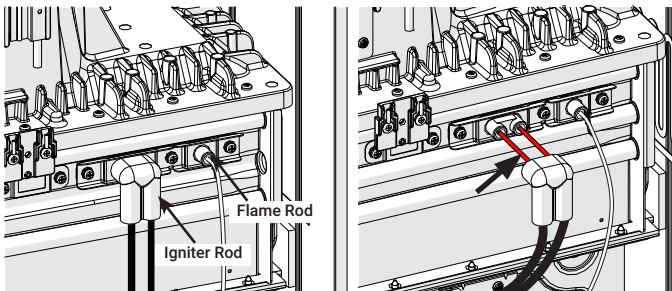
1. Remove the hook film part of the Over Heat Limiter (OHL).



5. Remove the screw (pictured below) from the igniter bracket.



2. Remove Igniter rod cover.
3. Remove igniter coil wire from igniter rod (left side).

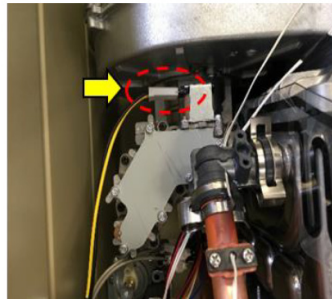
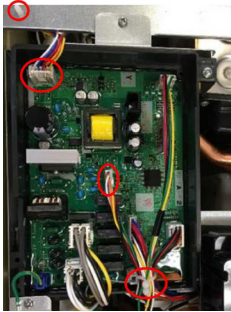


4. Remove white Molex connector from igniter coil.

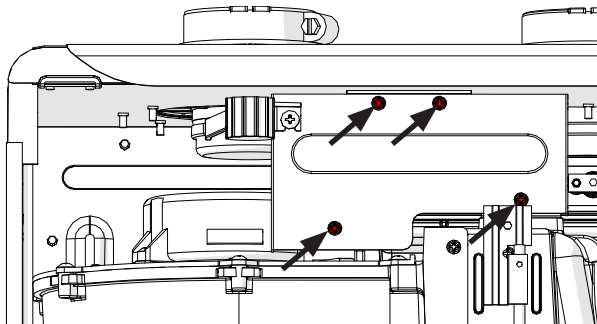
HOW TO REMOVE COMPONENTS

BLOWER

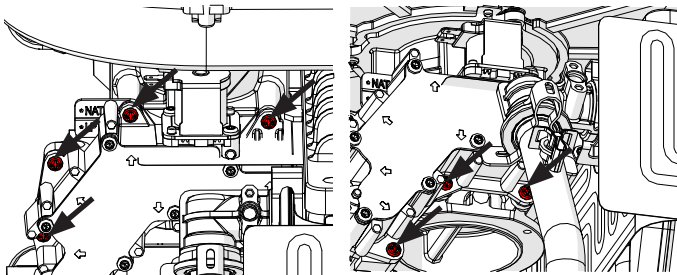
1. Remove fan control wiring harness (Connector "D") and gas control motor harness (Connector "J") from the control board. Remove wire holder from the brace bar and the wire tie as shown below.
2. Remove solenoid valve wiring connecting to gas orifice block.



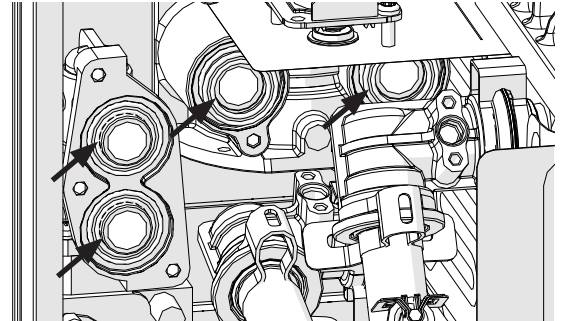
3. Remove heat exchanger bracket located top center of water heater.



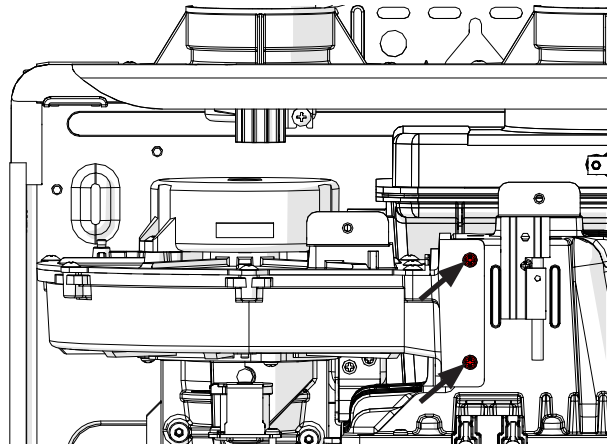
4. Remove the gas orifice block by removing the seven black screws holding it in place.



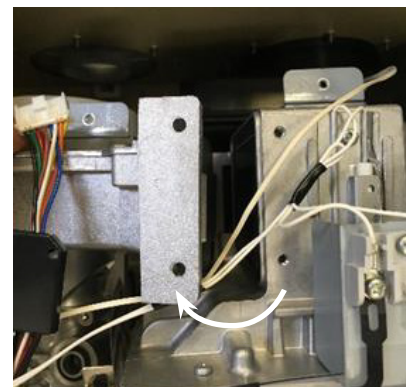
NOTE: After removing the gas orifice block, secure four (4) gaskets in a safe location to avoid loss.



5. Remove the two screws securing the fan assembly.



6. Remove fan assembly according to the following graphic.

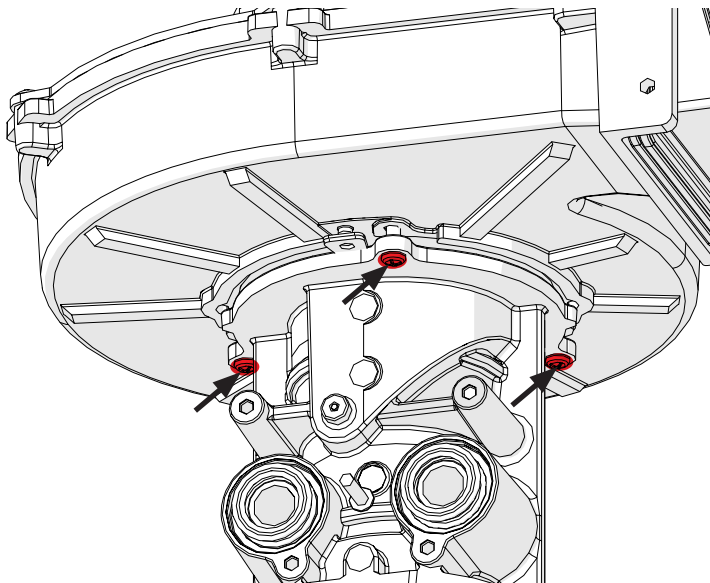


NOTE: Be careful not to damage the plastic Heat exchanger elbow in front of the orifice block when removing the blower assembly.

HOW TO REMOVE COMPONENTS

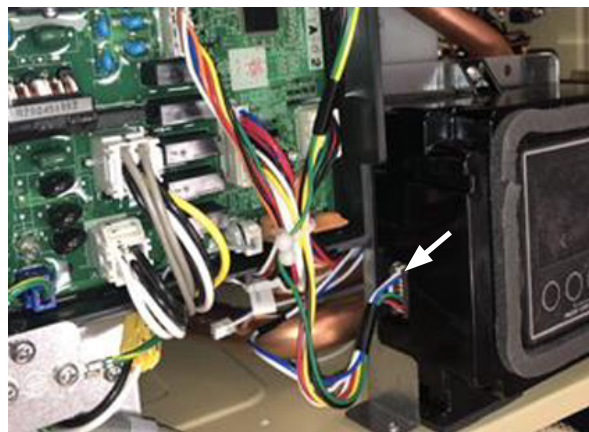
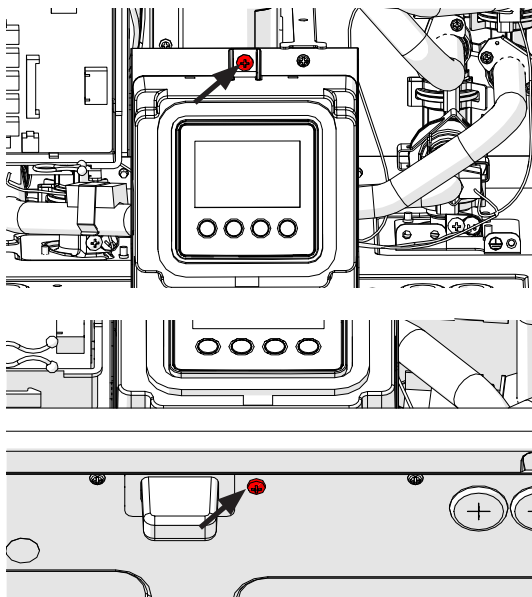
3.12 BLOWER CONT'D

7. Remove three screws and Venturi assembly.



3.13 DISPLAY ONLY

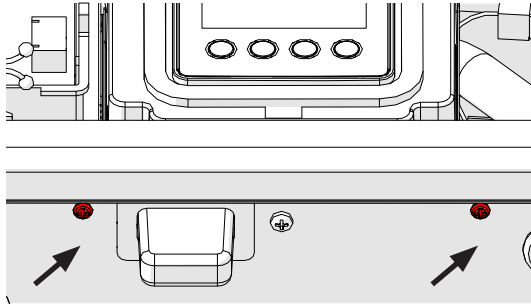
1. Remove top center screw from the display mounting bracket, and the screw located at the bottom of the unit, as pictured below.
2. Remove connector connected to display. (Located at left side of display).



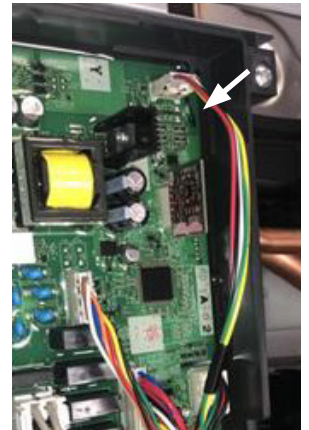
HOW TO REMOVE COMPONENTS

DISPLAY WITH DISPLAY MOUNTING BRACKET

1. Remove two screws located at the bottom of the unit.



2. Remove the connector "E" from the control board and from the display (located left side of display).



CONTROL BOARD ONLY

1. Remove all 9 connectors from the control board.



2. Remove the 2 screws from control board mounting bracket. (See picture below)



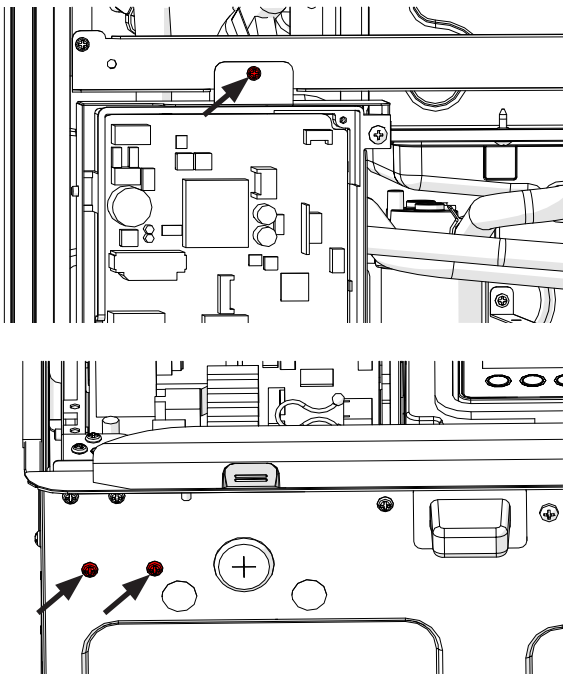
HOW TO REMOVE COMPONENTS

CONTROL BOARD BRACKET

1. Remove all 9 connectors from the control board.



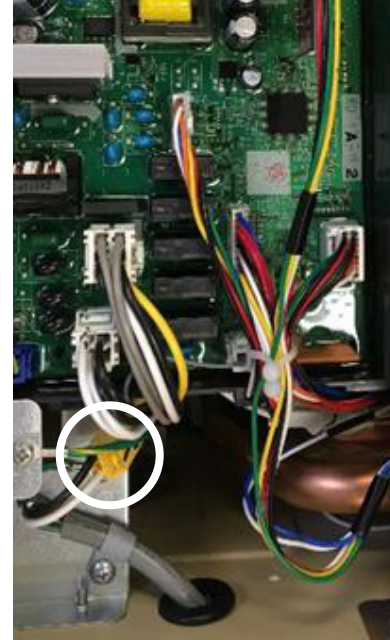
2. Remove top center screw from control boardmounting bracket, and 2 screws located on bottom.



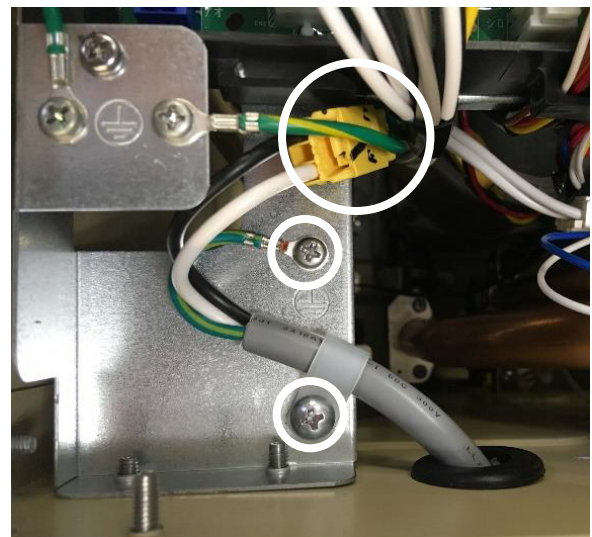
3. Pull control board bracket out of the way to access components.

POWER CORD

1. Locate YELLOW Molex connector attached to power cord.



2. Disconnect YELLOW Molex connector and remove two screws from control board bracket as pictured below.



3. Pull grommet and cord through bottom of water heater cabinet.

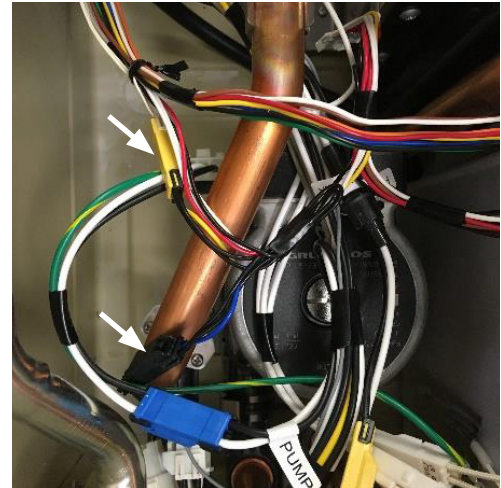
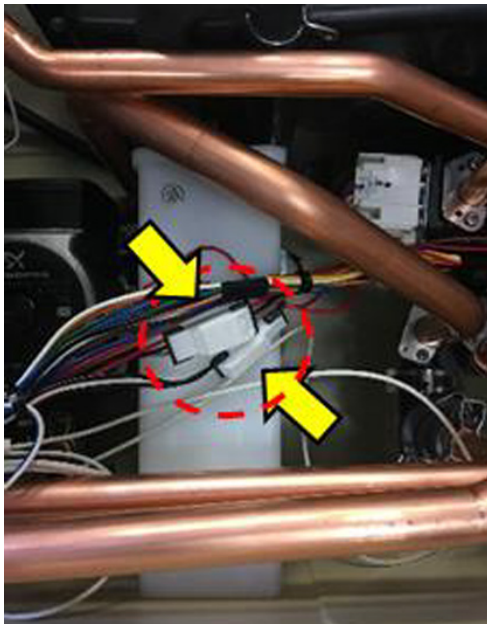
HOW TO REMOVE COMPONENTS

THERMISTOR WIRING HARNESS

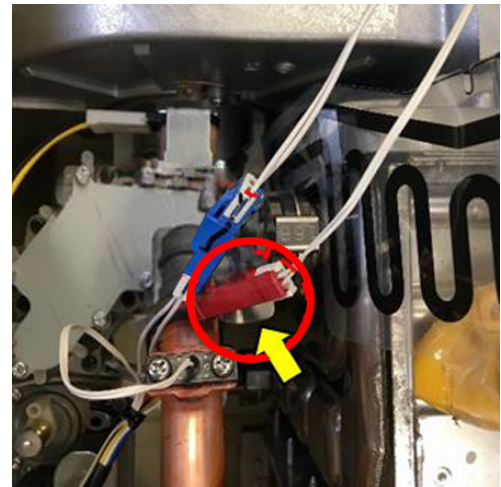
1. Remove connector "I" from control board.
2. Remove display, and control board with bracket from water heater.
4. Remove BLACK Molex connector connected to outlet thermistor and YELLOW Molex connector connected to heat exchanger thermistor.

NOTE: To remove control board with bracket, refer to section "Display" and "Control board".

3. Remove the two (2) WHITE Molex connectors located at the front of the condensate trap.



5. Remove RED connector connected to exhaust thermistor.



HOW TO REMOVE COMPONENTS

THERMISTOR WIRING HARNESS

NOTE: Before removing outlet thermistor, turn off water to the water heater by closing the shut-off valve and drain the heater.

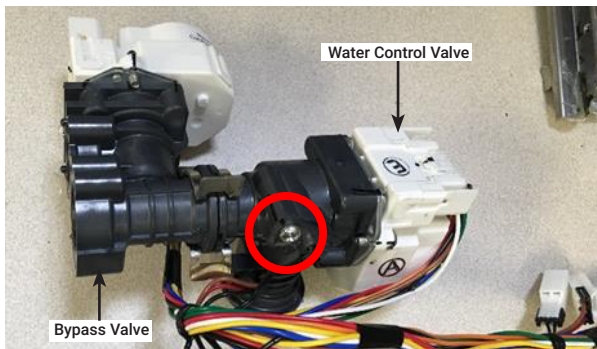
1. Remove user interface (Display) from the water heater.

NOTE: To remove the interface, refer to section "Display."

2. Remove water control valve and bypass valve.

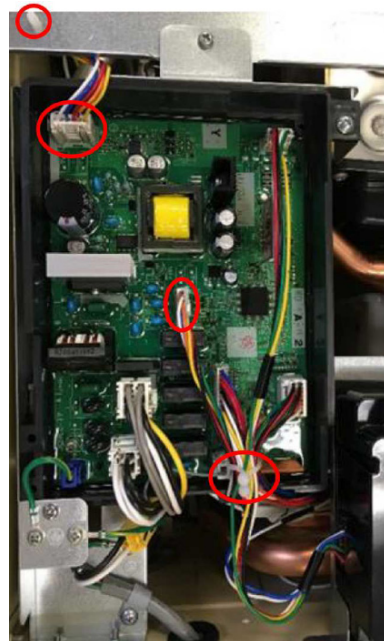
NOTE: To remove Water Control Valve and water Bypass valve, refer to section "3.6 Water control valve".

3. Remove inlet thermistor by loosening the screw holding it to WCV.



GAS CONTROL WIRING HARNESS

1. Remove fan control wiring harness (Connector "D") and gas control motor harness (Connector "J") from the control board. Remove wire holder from the bracket bar and the wire tie as shown below.



2. Remove blower and venturi assembly.

NOTE: To remove blower and venturi assembly, refer to section "3.12 Blower"

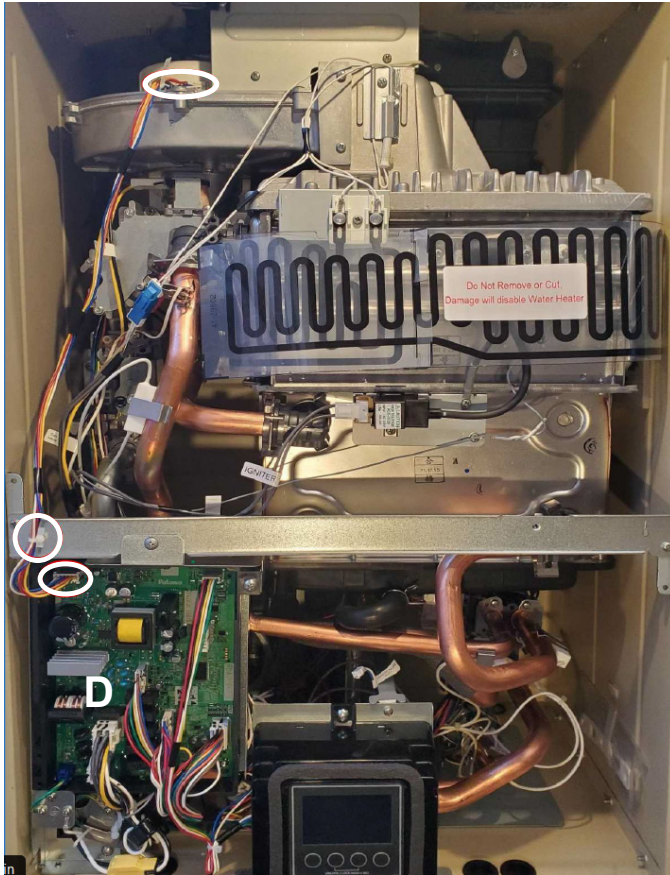
3. Remove gas control wiring harness from the motor located on venturi assembly.



HOW TO REMOVE COMPONENTS

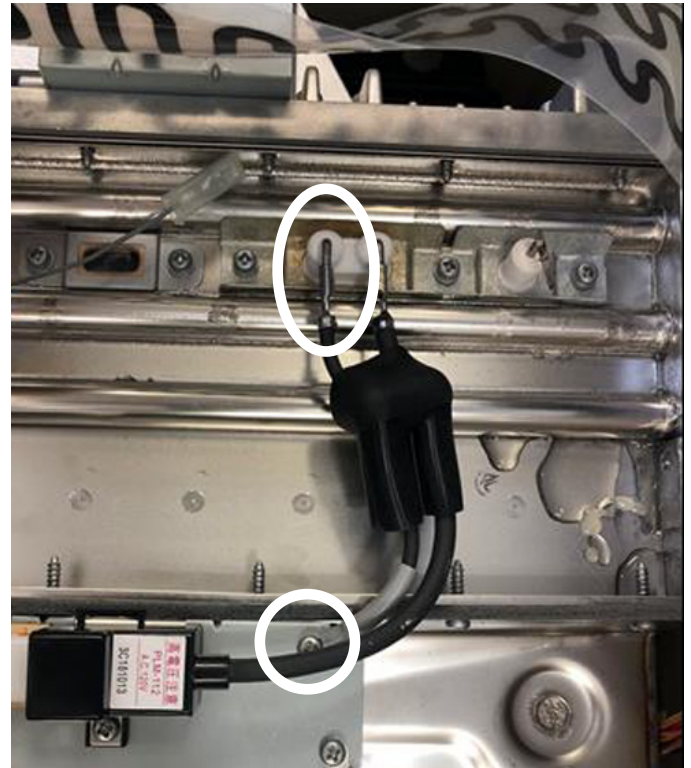
FAN CONTROL WIRING HARNESS

1. Remove two the molex connectors from the control board (connector "D") and from the blower motor.
2. Remove wire holder from the bracket.



HIGH VOLTAGE GROUND WIRING

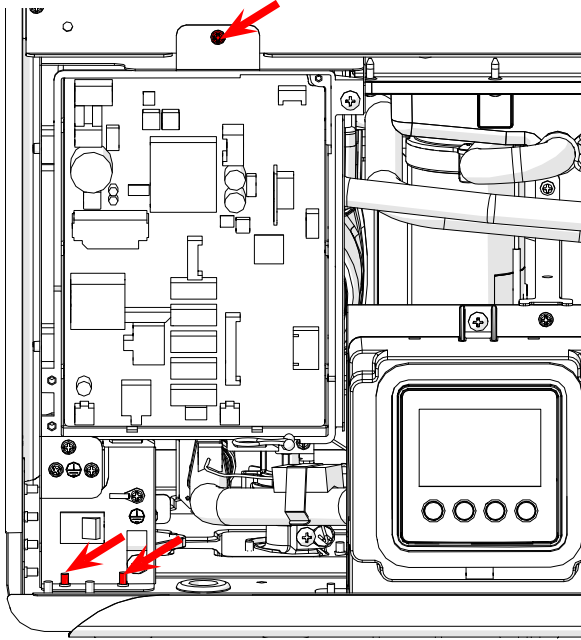
1. Remove the screw on the bracket and the cable on the LEFT.



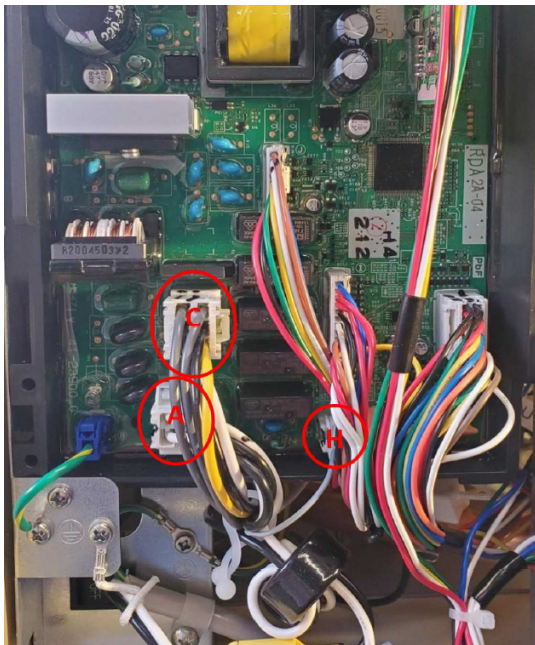
HOW TO REMOVE COMPONENTS

POWER CONTROL WIRING HARNESS

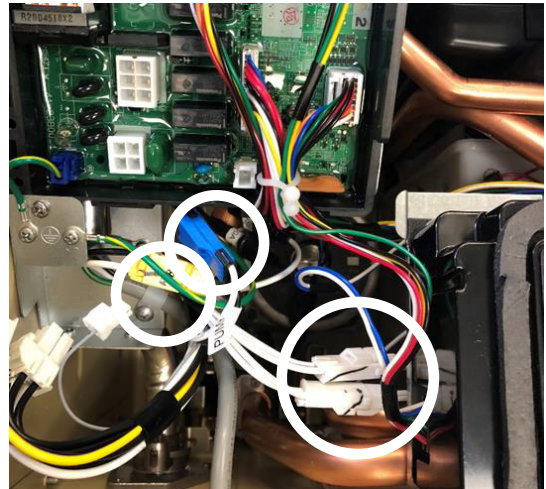
1. Remove total of three (3) screws; one (1) screw on the bracket on top, and two (2) screws below to detach the control board.



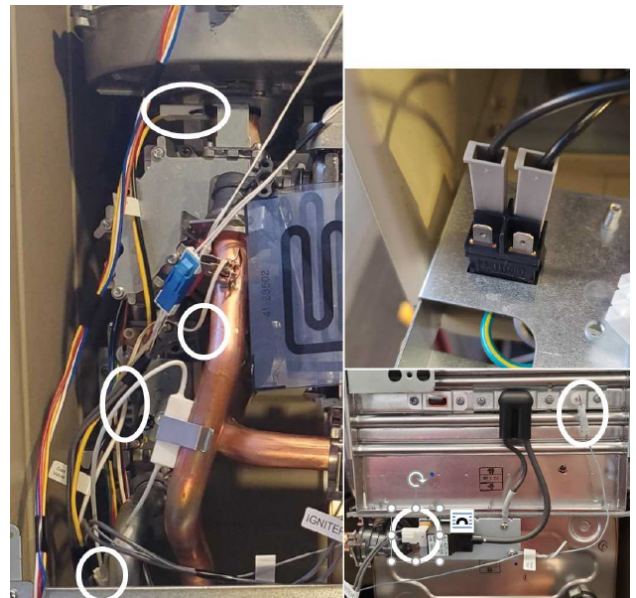
2. Remove total of three (3) connectors; A, C, H.



3. Shift the control board and locate total of four (4) Molex connectors; one (1) blue, one (1) yellow, two (2) white behind the control board.
4. Remove Molex connectors.



5. Trace the wiring harness and locate nine (9) connectors; solenoid valve, solenoid resistor, gas-air ratio valve, two (2) white Molex freeze protection connectors, igniter module, flame rod, and two (2) grey Molex for the toggle switch.
6. Remove connectors.



HOW TO REMOVE COMPONENTS

DISPLAY CONTROL WIRING HARNESS

1. Remove the WHITE connector on the left side of the display.
2. Remove the connector E.

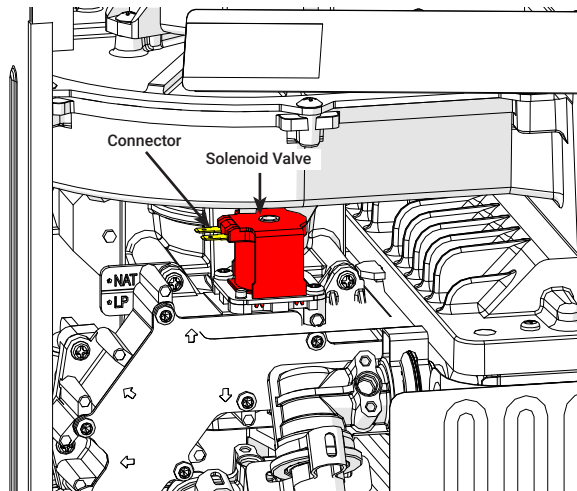


HOW TO REMOVE COMPONENTS

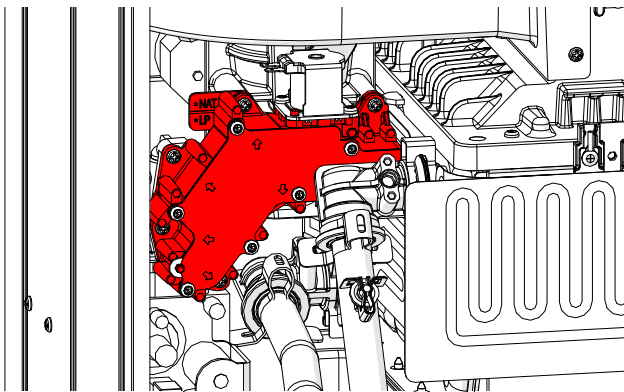
ORIFICE PLATE (NAT/LP)

1. Locate the solenoid valve shown in figure below and remove the connector with BLACK and YELLOW wires.

NOTE: There is no need to remove any other wires or connectors.



2. Locate the gas orifice block shown in the figure below.

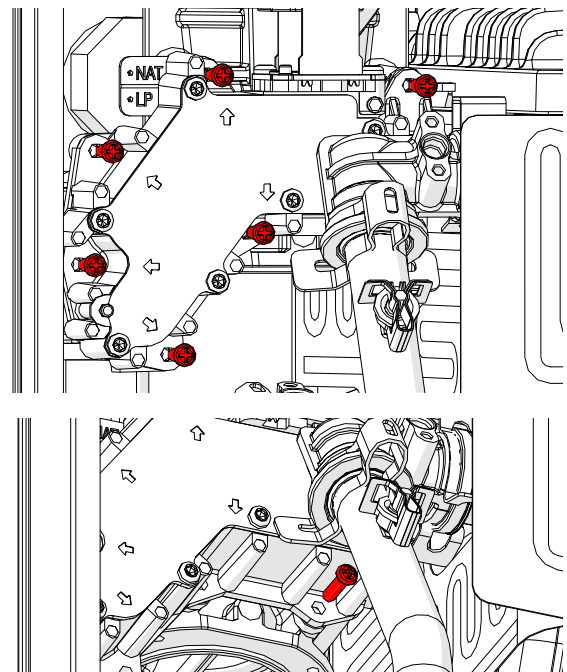


3. This component needs to be removed first, before the orifice plate can be replaced. There is no need to remove any other components
4. Remove gas orifice block by loosening the seven "Pan Phillips head" screws shown above.

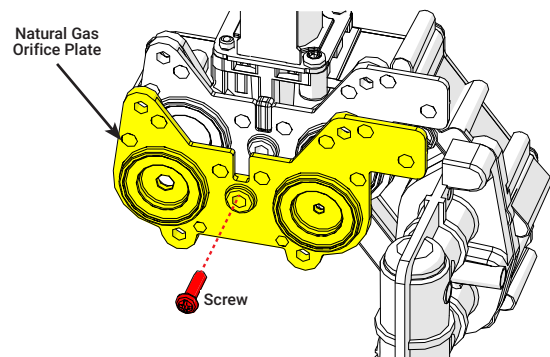
NOTE: Be careful not to damage the plastic Heat exchanger elbow in front of the orifice block when removing the orifice block.

NOTE: Arrows on the front plate of the gas orifice block shows the screws that need to be removed. DO NOT try to remove any other screws.

5. The following figure shows the location of screws and arrows. Once the screws are loose, carefully remove the gas orifice block so as not to damage the solenoid valve or other parts. Save the screws that were removed in a safe place.



6. Turn the gas orifice block so you can see the orifice plate and the screw holding the orifice plate to the gas orifice block.
7. Remove the screw in the middle and remove the natural gas (or LP gas) orifice plate.

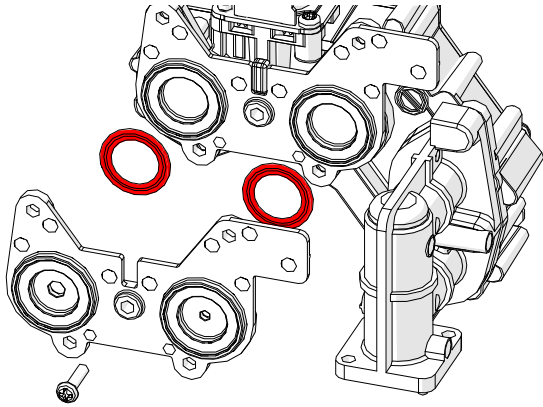


Gas Orifice Block back view.

HOW TO REMOVE COMPONENTS

ORIFICE PLATE (NAT/LP)

8. Place two (2) gaskets on the LP (or NAT) orifice plate.



9. Install the LP (or NAT) orifice plate on to the gas orifice block, for use with LP (or NAT) gas.

NOTE: To ensure a leak free joint, verify that both gaskets on the gas orifice block are in place and are in good condition, before attaching the LP (or NAT) orifice plate.

10. Use the 7/16" long screw removed at step 7 to secure the orifice plate to the gas orifice block, DO NOT use different screw type or length.

NOTE: Install the orifice plate in the right orientation.

HOW TO CONNECT

CONNECTING TO WIFI

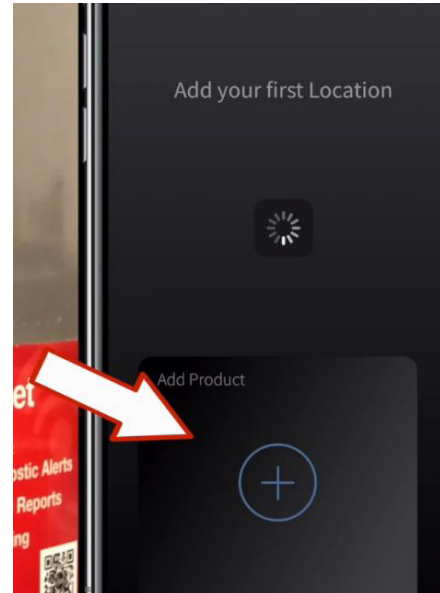
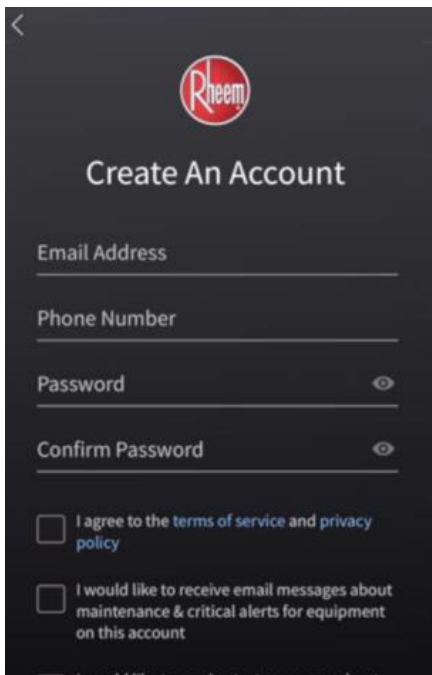
1. Scan the QR Code located on the side of the heater to download the EcoNet application.
4. Select "Add Product on the Home screen.



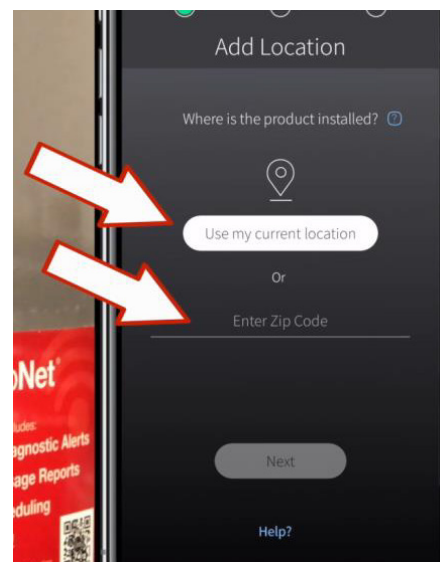
2. Follow directions in "WiFi Setting".

NOTE: WiFi Setup begins on initial power up. If connecting after initial power up follow steps in "WiFi Setup (After Initial Power Up)."

3. Create an account in the EcoNet Application, and click "Submit."



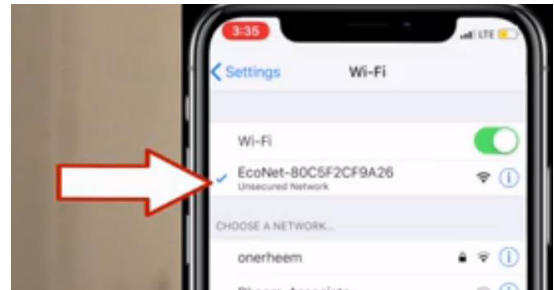
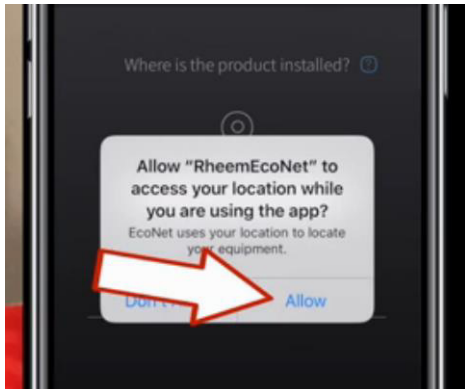
5. Enter your zip code or allow the app to use your location. When available, select NEXT.



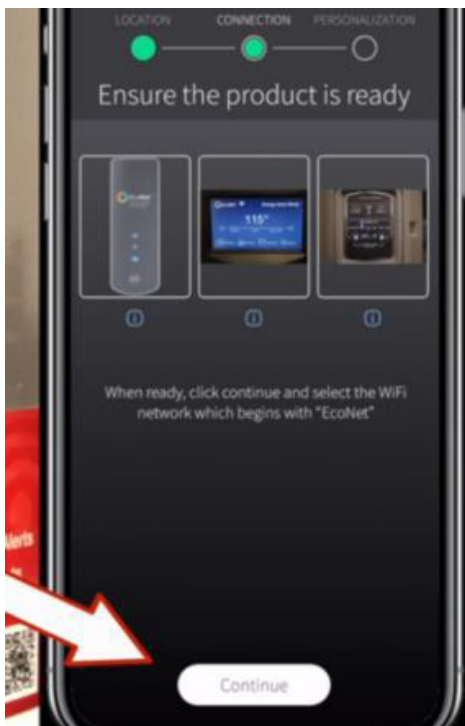
HOW TO CONNECT

CONNECTING TO WIFI

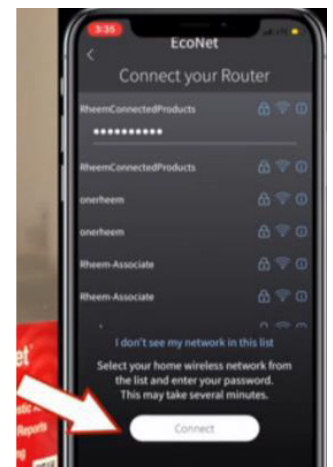
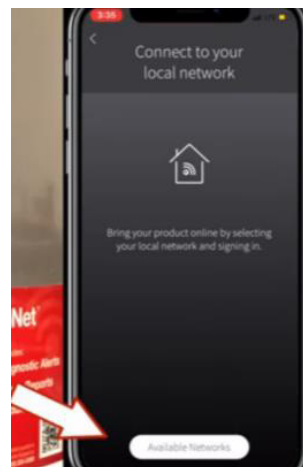
6. If using current location, select "ALLOW" when prompted to allow Rheem EcoNet to access your location while you are using the application.
8. Go to the WiFi settings on your phone, and connect to the EcoNet network for your device.



7. Ensure the product is ready to connect.



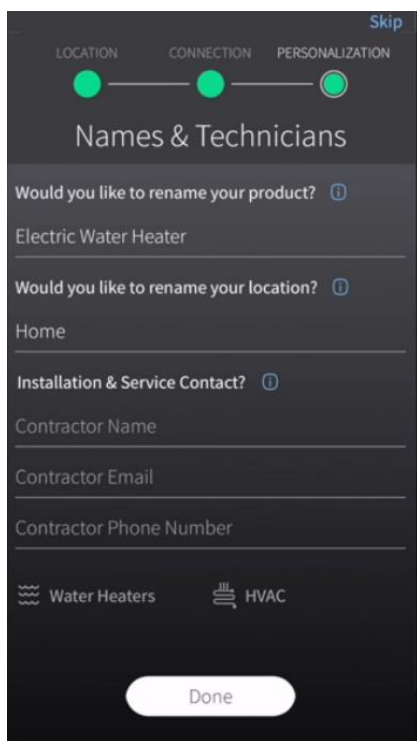
9. Connect to your local network by clicking Available Networks and selecting your home Wifi network. Once you have selected your network, click Connect.



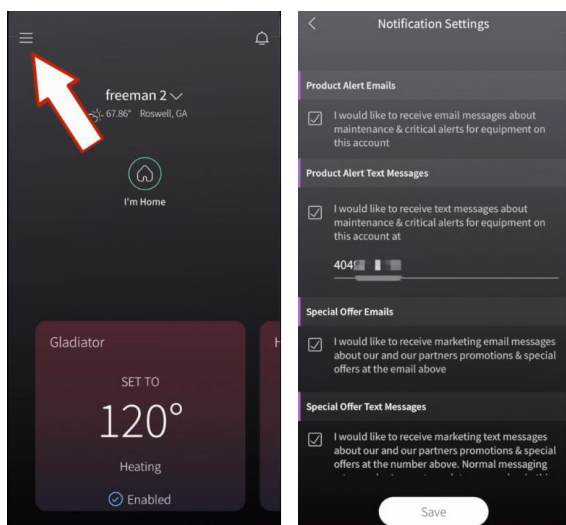
HOW TO CONNECT

CONNECTING TO WIFI

10. Once connected, the user may fill in the preferences, customizations, and contractor information.



11. Go to Settings, select Account, then select Notification Settings to adjust preferences.



12. Click Save to save notification settings and the set up will be complete.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

NOTES

[illegible]

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



TECHNICAL SUPPORT LINE

Phone: 800-432-8373

Fax: 334-260-1341

ORDER CENTER

1-800-621-5622

RHEEM WATER HEATERS

800 Instate Park Dr.

Montgomery, AL 36109

Website: www.Rheem.com

e-mail: Techserv@Rheem.com