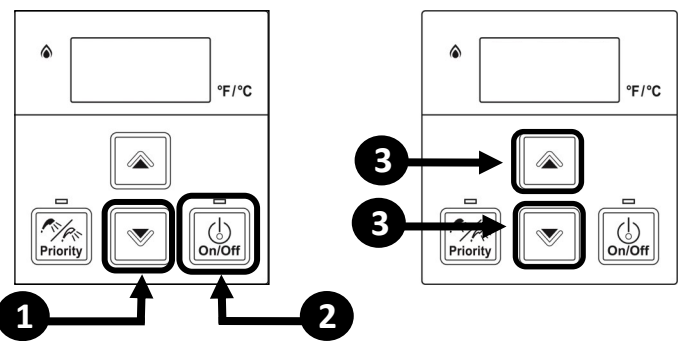


PERFORMANCE DATA

To Obtain Performance Data:

- 1. Press and hold the (Down) button.
2. While holding the (Down) button for 2 seconds, press and hold the "On/Off" button (hold both buttons simultaneously).
3. Use the (Up) and (Down) buttons to scroll to the desired performance information described below.



Performance Data Table

Table with 3 columns: #, DATA, UNIT. Rows include Water Flow Rate, Outgoing Temperature, Combustion Hours, Fan Frequency, etc.

Table with 2 columns: DISPLAY, CYCLE COUNT. Rows show ranges for 000 to 999, 10 to 99, and 1 to 5.

Table with 3 columns: CONTROLLER MODEL, CONNECTED, NOT CONNECTED. Rows include MC, BC, BSC & BSC2.

Default display is 000. depends on connection status of another controller.

MANIFOLD PRESSURE SETTINGS

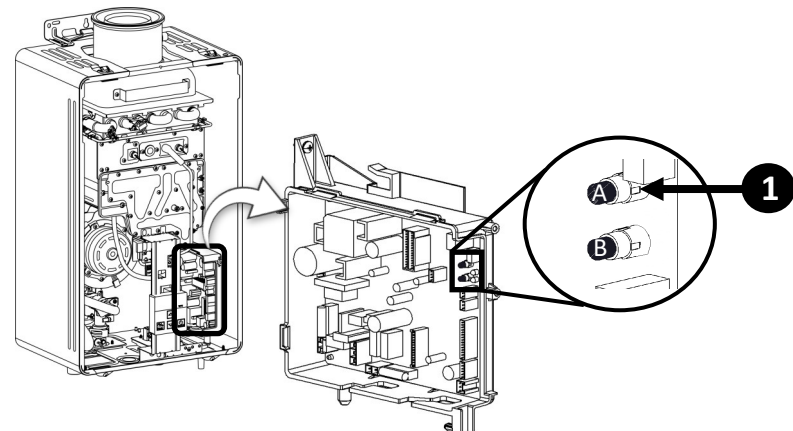
Ensure gas pressure check under Commissioning has been completed first! The regulator is electronically controlled and factory pre-set.

- 1. Turn off the gas supply.
2. Turn off the 120 V power supply.
3. Remove the front panel from the appliance.
4. Turn on the 120 V power supply.
5. Check the gas type using the data plate on the side of the unit and parameter setting 10 (refer to Parameter Settings section).

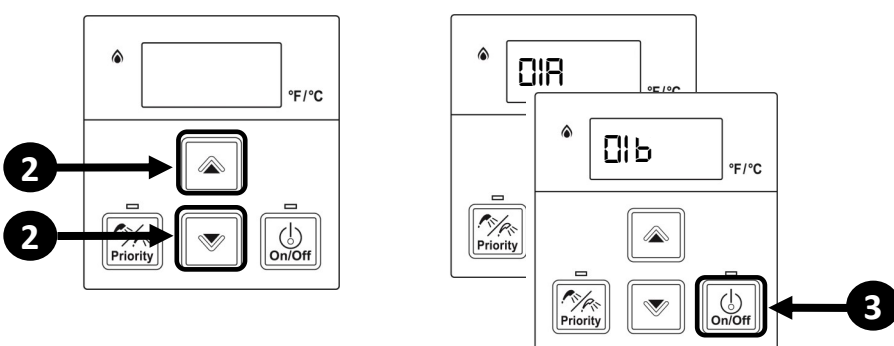
PARAMETER SETTINGS

To Adjust the Parameters:

- 1. Press the "A" button for 1 second.



- 2. Use the (Up) and (Down) button on the controller to select a setting number.
3. Once the desired setting number is selected, use the "On/Off" button on the controller to change the selection for the setting number.
4. To exit the parameters, press the "A" button on the PC board for 1 second.



Parameter Settings Table

Table with 6 columns: SETTING #, SETTING DESCRIPTION, R, b, c, d. Rows include Maximum Set Temperature, High Altitude (Installation Location), Service Soon, Recirculation Settings, etc.

Default display is 000. depends on connection status of another controller.

ELECTRICAL DIAGNOSTICS

NOTE: Wiring diagram is available in manual and on the inside front cover.

Important Safety Notes

There are a number of (live) tests required when performing electrical diagnostics on this product. Proceed with caution at all times to avoid contact with energized components inside the water heater.

Freeze Protection

This unit has freeze protection heaters mounted at different points to protect the water heater from freezing. All of them should display a positive resistance reading.

Flame Rod

Place one lead of your meter to the flame rod and the others to ground. When the unit is attempting to ignite, you should read more than 0.5VAC.

Amp Fuses

This unit has two glass fuses located on the PC Board, one inline (10) amp and one (4) amp glass fuse. Remove the fuses and check continuity through it.

Thermistors

Check all thermistors by inserting meter leads into each end of the thermistor plug. Set your meter to the 20 K scale and read resistance. Applying heat to the thermistor bulb should decrease the resistance.

Table with 2 columns: Temperature, Resistance Readings. Rows show 59°F, 86°F, 113°F, 140°F, 221°F and their corresponding resistance values.

Electrical Circuit Table

Table with 6 columns: COMPONENT, WIRE COLOUR, VOLTAGE, RESISTANCE, PCB Connector, PIN. Rows include Power Supply, Flame Rod, Spark Electrode, Combustion Fan, Water Flow Control Device, etc.

(* Value to be measured while unit is in operation)

DIAGNOSTIC CODES

Visit www.rinnai-lms.com for additional troubleshooting resources

To Display Diagnostic Codes:

- 1. Turn off the water heater by pressing the "On/Off" button.
2. Press and hold the "On/Off" for 2 seconds and then the (Up) button simultaneously.
3. The last 9 maintenance codes display and flash one after the other.
4. To exit diagnostic codes and return the water heater to normal operation, press and hold the "On/Off" button for 2 seconds and then the (Up) button simultaneously.
5. Turn on the water heater by pressing the "On/Off" button.

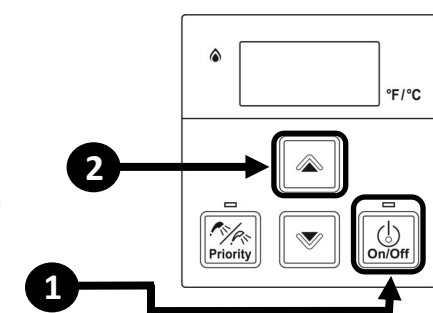
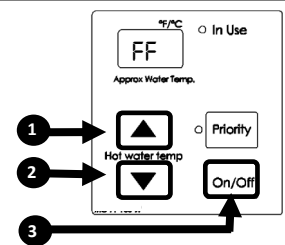
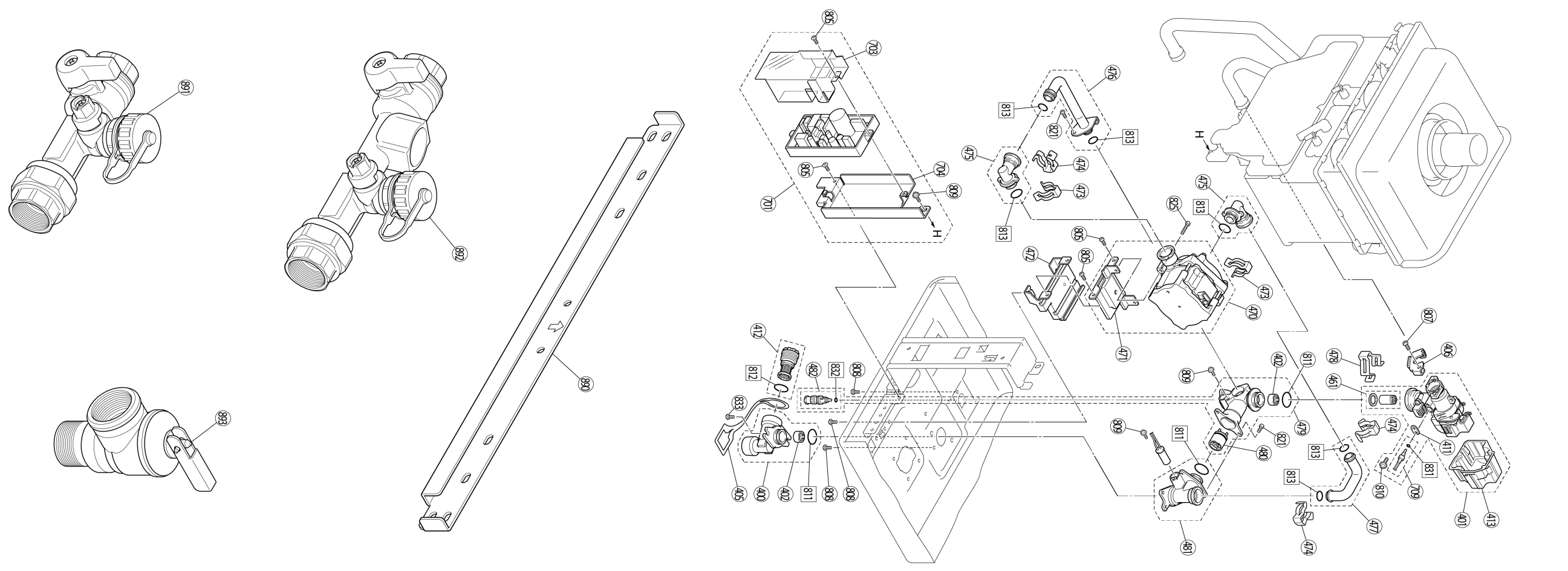
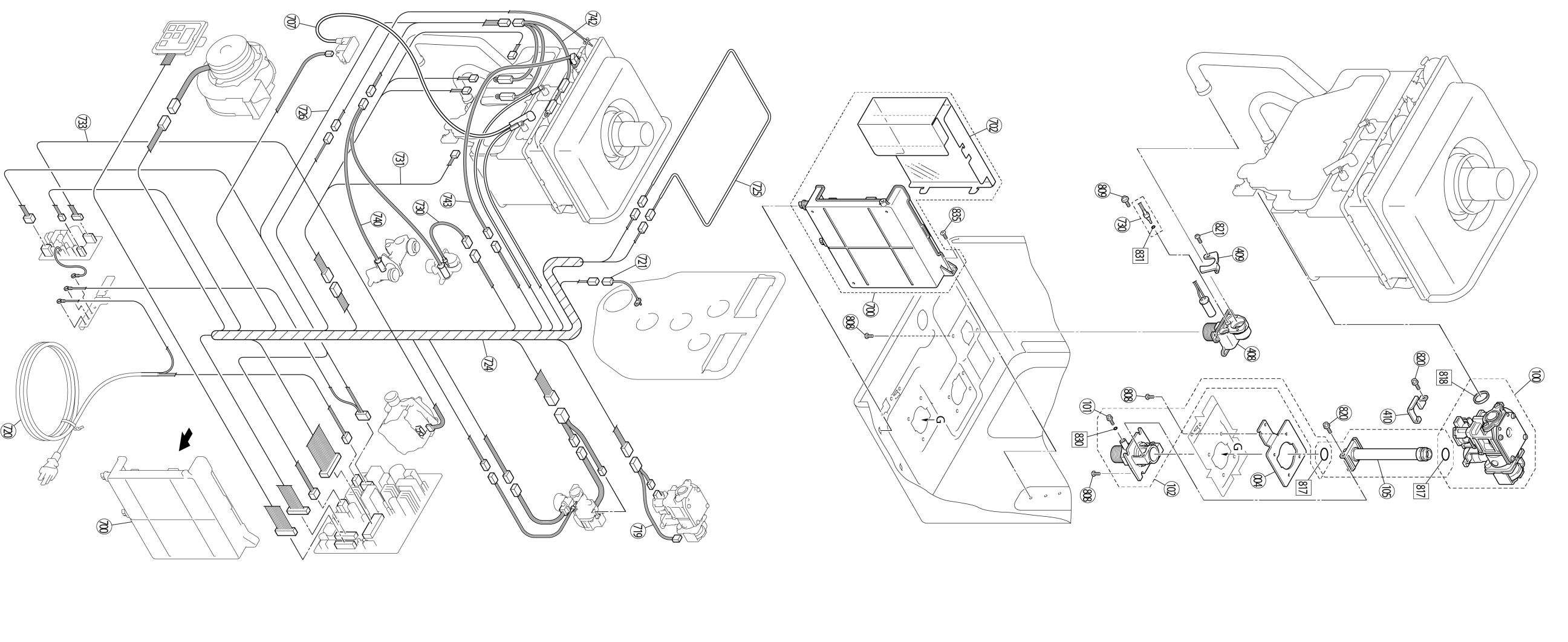
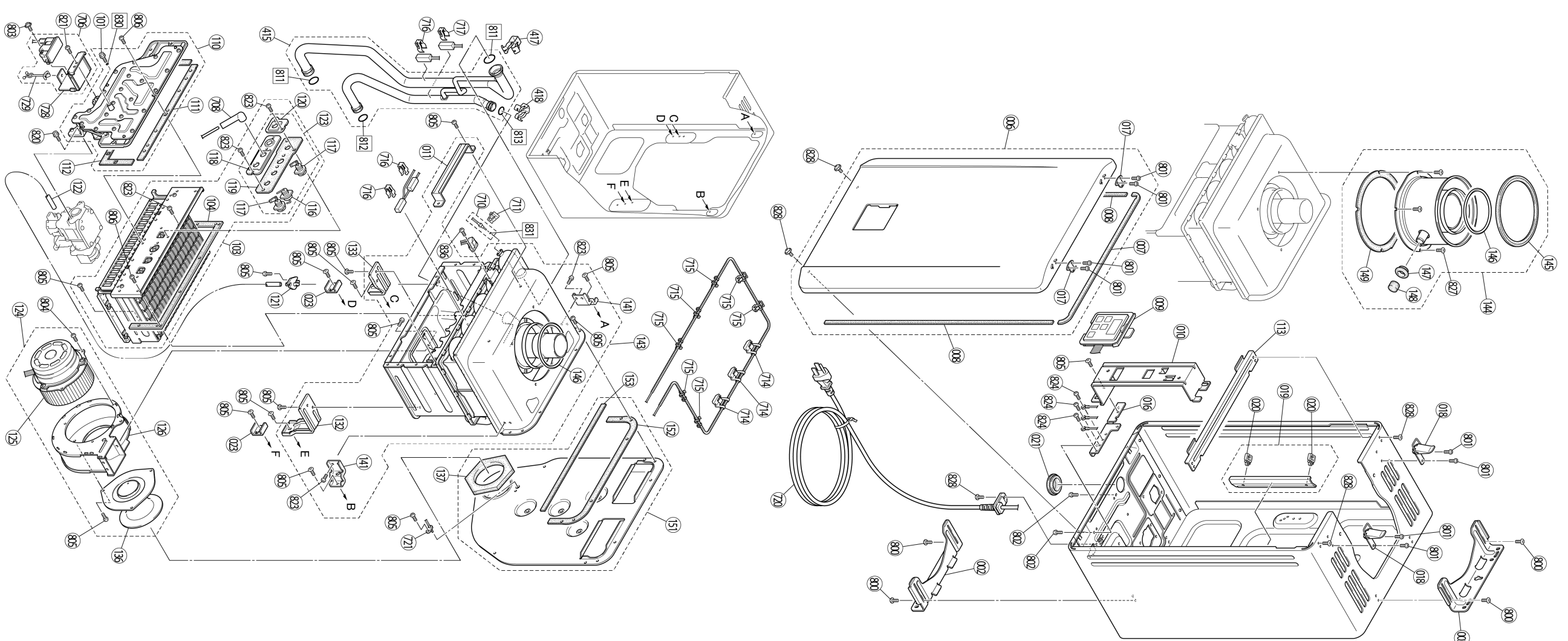


Table with 2 columns: ID, Description. Rows include Air Supply or Exhaust Blockage, No Ignition (Heater Not Turning On), No Flame, Thermal Fuse, High Outgoing Temperature, Electrical Grounding, Outgoing Water Temperature Thermistor, Heat Exchanger Thermistor, Combustion Air Temperature Thermistor Fault, Freeze Protection Thermistor.

*See "Electrical Diagnostics"

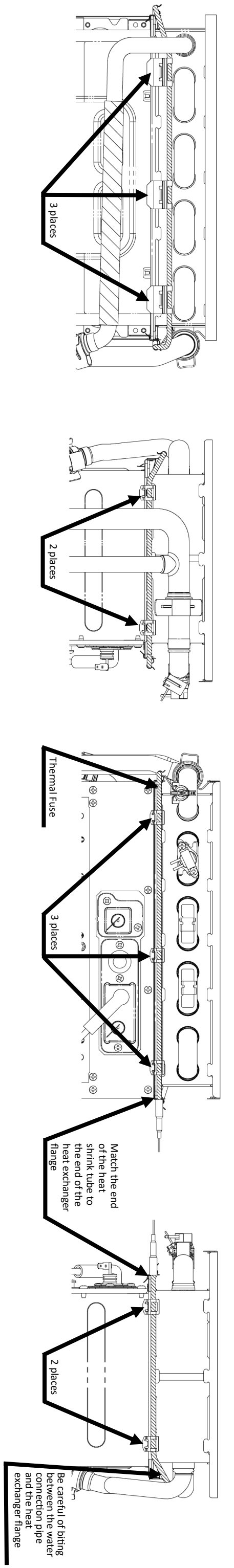
Table with 2 columns: ID, Description. Rows include Inlet Water Temperature Thermistor, Modulating Solenoid Valve Signal, Combustion Fan, Recirculation Low Flow, Water Flow Servo, Bypass Flow Servo, PC Board, Solenoid Valve Circuit, Flame Sensing Device, Water Leak Detected, Scale Build-up in Heat Exchanger, (SS) Service Soon (Flush Heat Exchanger), Maintenance Indicator.





When replacing the heat exchanger, thermal fuse must be properly installed and secured. Refer to the following illustration. Large HEX is shown as representatives.

Thermal Fuse Location



ITEM	DESCRIPTION	PART NUMBER	REP199i	REP160i
002	Wall Bracket	109001247	2	2
004	Reinforcement Plate	109001248	1	1
006	Front Panel	109001250	1	1
007	Front Panel Upper Packing	109001252	1	1
008	Front Panel Lower Packing	109001253	2	2
009	Temperature Control	109001250	1	1
010	Handle	109001256	1	1
011	Earth Plate	109001257	1	1
016	Latch Hook	109001258	2	2
018	Latch	109001259	1	1
019	Clamp Fitting Plate	109001260	1	1
020	Clamp	109001261	1	1
021	Rubber Stop	109001262	2	2
023	Combustion Chamber Stay	109000247	2	2
000	Gas Control Assembly	106000248	1	1
101	Test Port Set Screw	C100-5	2	2
102	3/4 Gas Inlet	106000119	1	1
103	Burner Unit Assembly	106000249	1	1
104	Combustion Gasket	109000972	1	1
104	Combustion Gasket - Small	109000974	1	1
105	Gas Pipe	106000251	1	1
110	Manifold Assembly - LPG	106000252	1	1
110	Manifold Assembly - NG	106000253	1	1
110	Manifold Assembly - LPG	106000254	1	1
111	Manifold Upper Packing	106000256	1	1
111	Manifold Upper Packing - Small	106000257	1	1
112	Manifold Lower Packing	106000258	1	1
112	Manifold Lower Packing - Small	106000259	1	1
113	Top Side Reinforcement	109001263	1	1
116	Electrode	109000954	1	1
117	Flame Rod	109000954	2	2
118	Electrode - Right	109001265	1	1
119	Electrode - Left	109001266	1	1
120	Back Pressure Connector	109001267	1	1
121	Tube H	U242-312	1	1
122	Electrode Bracket Assembly	106000260	1	1
124	Fan Motor Assembly	105000935	1	1
125	Fan Motor	105000939	1	1
126	Fan Casing	109000128	1	1
132	Combustion Chamber Bracket - Right	109001273	1	1
133	Combustion Chamber Bracket - Left	109001274	1	1
133	Combustion Chamber Bracket - Left Small	109001275	1	1
136	Fan Bracket	109001276	1	1
137	Seal Packing	109001279	1	1
141	Duct Bracket	107000070	2	2

ITEM	DESCRIPTION	PART NUMBER	REP199i	REP160i
141	Duct Bracket - Small	102000071	2	2
143	Heat Exchanger Assembly	104000312	1	1
143	Heat Exchanger Assembly - Small	104000314	1	1
144	Flue Connection Assembly	108000068	1	1
145	Inlet Seal	108000017	1	1
146	O-ring	108000018	2	2
147	Pipe Seal	1090001283	1	1
148	Cap	1090000171	1	1
149	Packing	109000240	1	1
151	Air Inlet Assembly	109000126	1	1
152	Duct Packing Upper - Small	102000072	1	1
153	Duct Packing Upper	102000073	1	1
153	Duct Packing Lower - Small	102000074	1	1
153	Duct Packing Lower	102000075	1	1
400	Water Inlet	1070000615	1	1
401	Water Flow Servo & Sensor	105000097	1	1
402	Rectifier	M8D1-115	2	2
405	Plug Band	109000018	1	1
406	Ø216 Pipe Bracket	109001285	1	1
408	Hot Water Outlet (3/4 NPT)	107000092	1	1
409	Stop Pipe Bracket	109001286	1	1
410	Gas Pipe Bracket	109000635	1	1
411	Bracket	109001287	1	1
412	Filter Assembly	H98-510-5	1	1
413	Cover	1070000618	1	1
415	Hot and Cold Water Pipe Assembly	1070000619	1	1
417	Clip	109001288	1	1
418	Clip	109000244	1	1
461	Water Flow Turbine	107000088	1	1
470	Recirculation Pump	107000622	1	1
471	Anti-vibration Stand	109001289	1	1
472	Pump Fitting Stand	109001290	1	1
473	Clip	109000132	2	2
474	Clip	109000639	3	3
475	Pump Connection	107000623	2	2
476	Pump Outlet Pipe	107000624	1	1
477	Pump Inlet Pipe	107000625	1	1
478	Clip	109000636	1	1
479	Joint Connection with Check Valve	107000134	1	1
480	Check Valve	107000066	1	1
482	Drain Plug	105000959	1	1
700	PC Board - Large	105000960	1	1
701	PC Board - Small	105000962	1	1
702	Cover Circuit	109001292	1	1
703	Pump Circuit Cover	109001293	1	1

ITEM	DESCRIPTION	PART NUMBER	REP199i	REP160i
704	Pump Circuit Plate	109001294	1	1
706	Igniter	105000963	1	1
707	High Tension Cord	105000964	1	1
708	Electrode Sleeve	AU206-218	1	1
709	Water Inlet Thermistor	80500081	1	1
710	Heat Exchanger Thermistor	105000980	1	1
711	Clip	109001295	1	1
716	Fuse Holder	109001296	3	3
716	Fuse Holder	109000786	3	3
717	Heater Clip	AU124-818X01	7	7
719	Gas Control Harness	105000795	1	1
720	Power Cord Assembly	105000238	1	1
721	Inlet Air Thermistor	105000965	1	1
724	Sensor Harness - 5	105000972	1	1
724	Sensor Harness - 7	105000974	1	1
725	Fuse Harness - 1	105000977	1	1
726	Power Supply Harness - 2	105000980	1	1
728	Igniter Bracket	109001296	1	1
729	Cable Clip	109001297	1	1
730	Twin Thermistor	105000982	1	1
731	Solenoid Harness	105000983	1	1
733	Solenoid Harness - Small	105000984	1	1
740	Heater	105000986	1	1
742	Heater	105000988	1	1
743	Over Heat Switch	105000991	1	1
800	Screw	109001298	8	8
801	Screw	109000649	2	2
802	Screw	Z8A4081K	8	8
803	Screw	CP-80452	1	1
804	Screw	209000203	3	3
806	Screw	109001299	9	9
807	Screw	809000179	3	3
808	Screw	809000177	20	20
809	Screw	U217-449	1	1
810	Screw	109001300	5	5
811	O-ring	109001301	1	1
812	O-ring	M10B-2-16	7	7
817	O-ring	M10B-2-14	2	2
818	Packing	109000181	2	2
820	Screw	108000021	4	4
821	Screw	CP-20983-410UK	5	5
823	Screw	209000206	17	17
824	Screw	109000793	4	4
825	Screw	109001302	2	2

ITEM	DESCRIPTION	PART NUMBER	REP199i	REP160i
827	Screw	ZF800408UK	10	10
828	Screw	109001306	4	4
830	O-ring	M10B-13-4	2	2
831	O-ring	M10B-2-14	3	3
832	O-ring	109000182	1	1
833	Screw	Z0AAG512UK	3	3
835	Screw	109000648	1	1
836	Screw	109001305	2	2
838	Manual	100000734	1	1
888	Technical Sheet	100000736	1	1
890	Wall Mount Bracket	109000738	1	1
891	Isolation Valve - Cold	107000627	1	1
892	Isolation Valve - Hot	107000628	1	1
893	Pressure Relief Valve	107000629	1	1