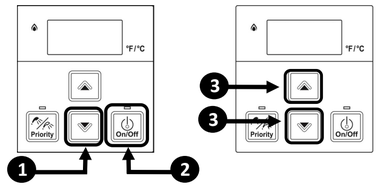
Rinnai®

U356-0755-4X02(00)
(E/P)
07000012332468

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

#	DATA	UNIT
01	Water Flow Rate	x0.1 gal/min
02	Outgoing Temperature	°F
03	Combustion Hours	x100 Hours
04	Combustion Cycles	See following information
05	Fan Frequency	Hz
06	Additional Controllers Connected	See following information
07	Water Flow Control Position	0=Mid, 1=Open, 2=Closed
08	Inlet Temperature	°F
09	Fan Current	x10 mA
10	Total Bath Fill Amount	gallons
11	HEX Outlet Temperature	°F
12	By-Pass Flow Control Position	Degrees of opening
14	Intake Thermistor Temperature *(Indoor Units Only)*	°F
17	Freeze Protection Temperature *(Outdoor Units Only)*	°F
19	Pump Hours	x100 Hours
20	Pump Cycles	See following information

04	**Combustion Cycles**
20	**Pump Cycles**

DISPLAY	CYCLE COUNT
000 to 999	x100 (0 to 99,900)
10- to 99-	x10,000 (100,000 to 990,000)
1-- to 6--	x1,000,000 (1,000,000 to 6,000,000)

06	**Controllers Connected**

CONTROLLER MODEL	CONNECTED	NOT CONNECTED
MC	_ _1	_ _0
BC	_1_	_0_
BSC & BSC2	1_ _, 2_ _ (QTY2)	0_ _

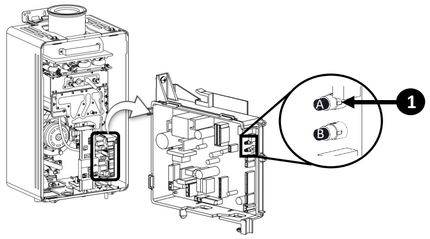
Default display is 100.

_ depends on connection status of another controller.

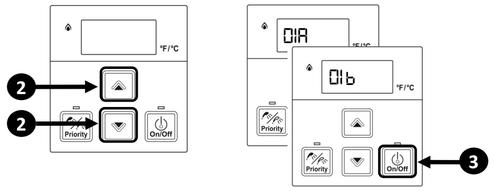
PARAMETER SETTINGS

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 (See *Parameter Settings Table*).
3. Once the desired setting number is selected, use the "On/Off" button on the controller to change the selection for the setting number.
   Example: Display will change from 01A to 01b for Maximum Temperature setting (as shown below).
4. To exit the parameters, press the "A" button on the PC board for 1 second.



Parameter Settings Table

SETTING #	SETTING DESCRIPTION	SELECTION			
		A	b	C	d
01	Maximum Set Temperature	120°F	140°F		
02	High Altitude (Installation Location)	0 - 2,000 ft (0 - 610 m)	2,001 - 5,400 ft (610 - 1,646 m)	5,401 - 7,700 ft (1,646 - 2,347 m)	7,701 - 10,200 ft (2,347 - 3,109 m)
03	Service Soon	Disabled	0.5 Year	1 Year	2 Years
04	Recirculation Settings	No Recirculation	Recirculation (Dedicated)	Recirculation (Crossover)	
05	Recirculation Mode	Economy	Comfort		
06	Control Switch	BMS	Air Handler (AH)		
07	Units in Standby	2	1		
10	Gas Type (Factory Set)	LPG	NG		
12	Water Heater Model (Factory set values and not adjustable)	Without Pump	With Pump		
13		199/160			
14		Indoor	Outdoor		
15	Low Activation Mode	On	Off		
16	Pump Speed	Max	High	Medium	Low
17	Continuous Recirc Logic Operation	Off	On		
18	Setting Temperature Table	Default	Alternate		
19	Adjust DHW Temperature Setting	0°F (0°C)	1.8°F (1°C)	3.6°F (2°C)	5.4°F (3°C)
99	Vent Length	Long	Short		

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. Only trained and qualified service technicians should attempt to repair this product. Before checking for resistance readings, disconnect the power source to the unit and isolate the item from the circuit (unplug it).

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. If you have continuity through each fuse then it is functioning. Otherwise the fuse is blown and must be replaced.

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. Applying ice to the thermistor bulb should increase the resistance.
Below are examples of typical temperatures and resistance readings.

Temperature	Resistance Readings
59°F	11.4 - 14KΩ
86°F	6.4 - 7.8KΩ
113°F	3.6 - 4.5KΩ
140°F	2.2 - 2.7KΩ
221°F	0.6 - 0.8KΩ

Electrical Circuit Table

COMPONENT	WIRE COLOUR	VOLTAGE	RESISTANCE	PCB	
				Connector	PIN
Power Supply	Black-White	AC108～132V	N/A	CN100	1-3
Flame Rod	Yellow-Body	more than 0.5VAC	N/A	CN9	37
	Pink-Body	more than 0.5VAC	N/A	CN7	1
Spark Electrode	White-Black	11～14VDC*	N/A	CN9	5-8
Combustion Fan	Red-Black	7～48VDC*	N/A	CN9	1-3
	White-Black	2～14VDC*	N/A	CN9	2-3
	Yellow-Black	11～14VDC	N/A	CN9	4-3
Water Flow Control Device	Red-Pink	N/A	40～60Ω	CN9	21-19
	Blue-White			CN9	25-23
	Orange-Grey	11～14VDC	N/A	CN9	6-13
	Brown-Grey	limitter On：less than 1VDC limitter Off：4～6VDC	N/A	CN9	17-13
By-Pass Flow Control Device (2737, 2432 model only)	Red-Pink	N/A	40～60Ω	CN9	29-27
	Blue-White			CN9	33-31
Main Solenoid Valve	Black-Black	8～13.5VDC	15～25Ω	CN9	18-32
Modulating Solenoid Valve	Yellow-Yellow	2～17VDC*	10～20Ω	CN9	12-14
Solenoid Valve 1	Blue-Black	8～13.5VDC	20～30Ω	CN9	24-22
Solenoid Valve 2	Yellow-Black	8～13.5VDC	20～30Ω	CN9	26-22
Solenoid Valve 3	Red-Black	8～13.5VDC	20～30Ω	CN9	28-22
Solenoid Valve 4 (2737, 2432, 2730 model only)	Orange-Black	8～13.5VDC	20～30Ω	CN9	30-22
Outgoing Water Thermistor	White-White	N/A	59°F：11.4-14kΩ 86°F：6.4-7.8kΩ 113°F：3.6-4.5kΩ 140°F：2.2-2.7kΩ 221°F：0.6-0.8kΩ Disconnect the connector and measure at thermistor side.	CN7	11-13
	White-White			CN7	4-5
Inlet Thermistor	White-White			CN7	9-6
Heat Exchanger Thermistor	White-White			CN7	8-4
Intake Thermistor (Indoor type only)	White-White			CN7	12-6
Freeze Protection Thermistor (Outdoor type only)	White-White		32°F：38k-43k 50°F：22k-26k 68°F：14k-17k Disconnect the connector and measure at thermistor side.	CN7	10-6
Overheat Switch	Black-Black	less than 1VDC	less than 1Ω	CN9	10-16
Water Flow Sensor	Red-Black	11～14VDC	N/A	CN9	7-11
	Yellow-Black	4～7VDC* Comment：more than 6Hz (1.0L/min)		CN9	9-11
Integrated Pump (Integrated Pump type only)	White-Black	AC108～132V	N/A	C101	1-2
	Red-Brown	11～14VDC*	N/A	CN8	1-2
External Pump (Except for integrated pump and 1720 model)	White-Black	AC108～132V*	N/A	C101	1-2
Additional Controller(s)	White-White	11～14VDC	N/A	CN4	1-3
Thermal Fuse	White-White	less than 1VDC	less than 1Ω	CN9	20-34

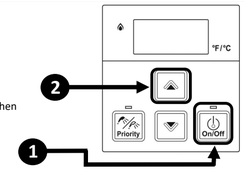
(Value to be measured while unit is in operation)*

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.



10 Air Supply or Exhaust Blockage
- Ensure approved venting materials are being used.
- Check that nothing is blocking the flue inlet or exhaust.
- Check all vent components for proper connections.
- Ensure vent length matches with the vent lengths set in the parameter settings.
- Verify High Altitude setting is set properly. (See Parameter Setting)
- Check fan for blockage.

11 No Ignition (Heater Not Turning On)
- Check that the gas is turned on at the water heater, meter, or propane cylinder.
- If the system is propane, make sure that gas is in the tank.
- Bleed all air from the gas line
- Ensure appliance is properly grounded.
- Ensure gas type and pressure is correct.
- Ensure gas line, meter, and/or regulator is sized properly.
- Verify parameter setting are set properly.
- Ensure igniter is operational.
- Check igniter wiring harness for damage.
- Check gas solenoid valves for open circuits.
- Ensure flame rod wire is connected.
- Check flame rod for carbon build-up.
- Remove burner cover and ensure burners are properly seated.
- Remove burner plate; inspect burner surface for condensation/debris.
- Check the ground wire for the PC board.

12 No Flame
- Check that the gas is turned on at the water heater, meter, or cylinder.
- Check for obstructions in the flue outlet.
- If the system is propane, make sure that gas is in the tank.
- Ensure gas line, meter, and/or regulator is sized properly.
- Ensure gas type and pressure is correct.
- Bleed all air from gas lines.
- Ensure proper venting material was installed.
- Ensure condensation collar was installed properly.
- Ensure vent length is within limits.
- Verify parameter setting are set properly.
- Check power supply for loose connections.
- Check power supply for proper voltage and voltage drops.
- Ensure flame rod wire is connected.
- Check flame rod for carbon build-up.
- Disconnect and reconnect all wiring harnesses on unit and PC board.
- Check gas solenoid valves for open circuits.
- Remove burner plate; inspect burner surface for condensation/debris.

14 Thermal Fuse
- Check for restrictions in air flow around unit and vent terminal.
- Check gas type of unit and ensure it matches gas type being used.
- Check for low water flow in a circulating system causing short-cycling.
- Check for foreign materials in combustion chamber and exhaust piping.
- Check heat exchanger for cracks or separations.
- Check heat exchanger surface for hot spots which may be caused by scale build-up. Refer to instructions in manual for flushing heat exchanger. Hard water must be treated to prevent scale build up or damage to the heat exchanger.
- Measure resistance of safety circuit.
- Ensure high fire and low fire manifold pressure is correct.
- Check for improper gas conversion of product.

16 High Outgoing Temperature
- Check for restrictions in air flow around unit and vent terminal.
- Check for low water flow in a circulating system causing short-cycling.
- Check for foreign materials in combustion chamber and exhaust piping.
- Check for blockage in the heat exchanger.
- Check the thermistor sensor and clean sensor of scale build-up.

19 Electrical Grounding
- Check all components for electrical short.

32 Outgoing Water Temperature Thermistor
- Check sensor wiring for damage.
- Measure resistance of sensor. (See Electrical Diagnostics)
- Clean sensor of scale build-up.
- Replace sensor if necessary.

33 Heat Exchanger Thermistor
- Check sensor wiring for damage.
- Measure resistance of sensor. (See Electrical Diagnostics)
- Replace sensor if necessary.

34 Combustion Air Temperature Thermistor Fault
- Check for restrictions in air flow around unit and vent terminal.
- Check sensor wiring for damage.
- Measure resistance of sensor.
- Ensure fan blade is tight on motor shaft and is in good condition.
- Replace sensor if necessary.

41 Freeze Protection Thermistor
- Check sensor wiring for damage.
- Measure resistance of sensor. (See Electrical Diagnostics)
- Replace sensor if necessary.

**See "Electrical Diagnostics"*

51 Inlet Water Temperature Thermistor
- Check sensor wiring for damage.
- Measure resistance of sensor. (See Electrical Diagnostics)
- Replace sensor if necessary.

52 Modulating Solenoid Valve Signal
- Check modulating gas solenoid valve wiring harness for loose or damaged terminals.
- Measure resistance of valve coil.

61 Combustion Fan
- Ensure fan will turn freely.
- Check wiring harness to motor for damaged and/or loose connections.
- Measure resistance of motor winding.

63 Recirculation Low Flow
- Ensure the inlet water filter is clean and free of debris.
- Ensure parameter setting are correctly set for recirculation mode.
- Ensure pump supply voltage.
- Ensure pump speed parameter settings are set properly.
- Check the wiring harness to the pump and PCB for damaged and/or loose connections.
- Ensure air is removed from the recirculation line.

65 Water Flow Servo
- Measure the resistance values and voltage of the water flow control.*
- Ensure the harness and connector are not wet.
- If the voltage from the PC Board is abnormal, replace the PC Board; otherwise, replace the water flow servo valve.

66 Bypass Flow Servo
- Measure the resistance values and voltage of the bypass servo valve.*
- Ensure the harness and connector are not wet.
- If the voltage from the PC Board is abnormal, replace the PC Board; otherwise, replace the bypass servo valve.

70 PC Board
- Check the connection harness at the connection on the PC board.
- Replace PC board.

71 Solenoid Valve Circuit
- Ensure dip switch on PC board is in the OFF position.
- Check gas solenoid valves for short circuits or grounding.
- Ensure heater circuit is not grounded.
- Replace PC Board.

72 Flame Sensing Device
- Verify flame rod is touching flame when unit fires.
- Check the flame rod and wire for damage.
- Remove flame rod; check for carbon build-up; clean with sand paper.
- Check inside burner chamber for any foreign material blocking flame at flame rod.
- Check the resistance to the cabinet.
- If there is no issue with the flame rod or wiring, replace the PC Board.

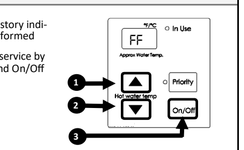
79 Water Leak Detected
- Turn off water supply and contact licensed professional.

LC Scale Build-up in Heat Exchanger (when checking maintenance code history, "00" is substituted for "LC"
- LC indicates that there is scale build up in the heat exchanger and that the heat exchanger needs to be flushed to prevent damage. Refer to the flushing instructions in the manual. Hard water must be treated to prevent scale build up or damage to the heat exchanger.
- After flushing, reset LC code as instructed.
- Please call Rinnai technical department.

55 (SS) Service Soon (Flush Heat Exchanger)
- 55 is a time-based service indicator set during installation. See section "4.10 Configure Parameter Settings" for additional details on setting and changing the 55 indicator.
- 55 indicates that it is time for service. The heat exchanger should be flushed to prevent damage (refer to section "6.2 Flushing the Heat Exchanger" for more information). **Hard water must be treated to prevent scale build-up or damage to the heat exchanger.**
- To reset the 55 code, push the On/Off button on the temperature controller 5 times in 5 seconds.

NO CODE - Nothing happens when water flow is activated
- Clean inlet water supply filter.
- On new installations ensure hot and cold water lines are not reversed.
- Verify you have at least the minimum flow rate required to fire unit.
- Check for cold to hot cross over. Isolate circulating system if present. Turn off cold water to the unit, open pressure relief valve; if water continues to flow, there is bleed over in your plumbing.
- Verify turbine spins freely.
- Measure the resistance of the water flow control sensor.
- If the display is blank and clicking is coming from the unit, disconnect the water flow servo motor (GY, BR, O, W, P, BL, R). If the display comes on then replace the water flow servo motor.

FF Maintenance Indicator
- Placeholder in Diagnostic code history indicating that a service provider performed maintenance or service.
- Enter this code after performing service by pressing ▲ (Up) , ▼ (Down) and On/Off simultaneously.
- FF is visible on the monitor.



MANIFOLD PRESSURE SETTINGS

Ensure gas pressure check under Commissioning has been completed first! The regulator is electronically controlled and factory pre-set. Under normal circumstances it does not require adjustment during installation. Make adjustments only if the unit is not operating correctly and all other possible causes for incorrect operation have been eliminated.

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 Setting section). (A=LPG, b=NG).
6. Remove test port screw and attach the manometer to the burner test point, located on the manifold.
7. Turn on the gas supply.
8. Flow water through the water heater at the maximum flow rate obtainable. (At least 3 gallons per minute is recommended. If there is not enough water flowing, the water heater could shut off or sustain damage due to overheating.)
9. Push and hold "B" button. "IF" will appear on the display.
10. Push and hold "A" button. "Forced Low" will appear on the display.
11. Push and hold "A" button again. "Forced High" will appear on the display.
12. While in "Forced Low" or "Forced High", use the Up button on the controller to increase the pressure. Use the Down button to decrease the pressure.
13. To exit "Forced Low" or "Forced High", push and hold "B" button. "2L" will appear on the display.
14. Push and hold "B" button again. "3C" will appear on the display. (Indoor models only)
15. Push and hold "B" button again. "4t" will appear on the display.
16. Push and hold "B" button again. The set temperature will appear on the display (indoor models only).
17. Close hot water taps.
18. Turn off the gas supply and 120 V power supply.
19. Remove the manometer and re-install sealing screw.
20. Turn on the gas supply and 120 V power supply.
21. Operate the unit and check for gas leaks.
22. Install the front panel.

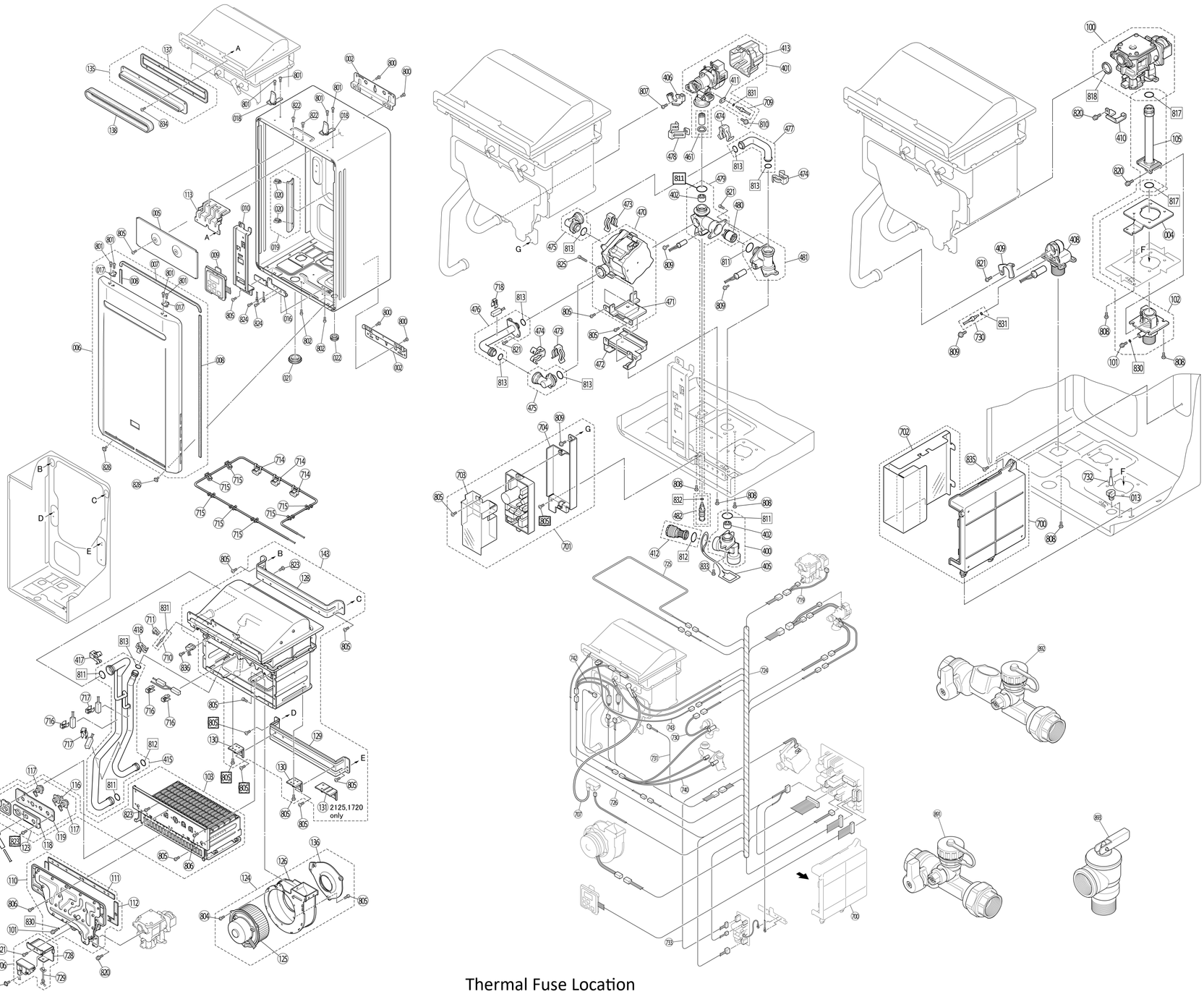
Note: For additional installation and commissioning information, refer to the Installation and Operation Manual.

⚠ WARNING This appliance must be installed, serviced and removed by a trained and qualified person. During pressure testing of the consumer piping, ensure gas valve is turned off before unit is shut off. Failure to do so may result in serious injury to yourself or damage to the unit.

Commissioning

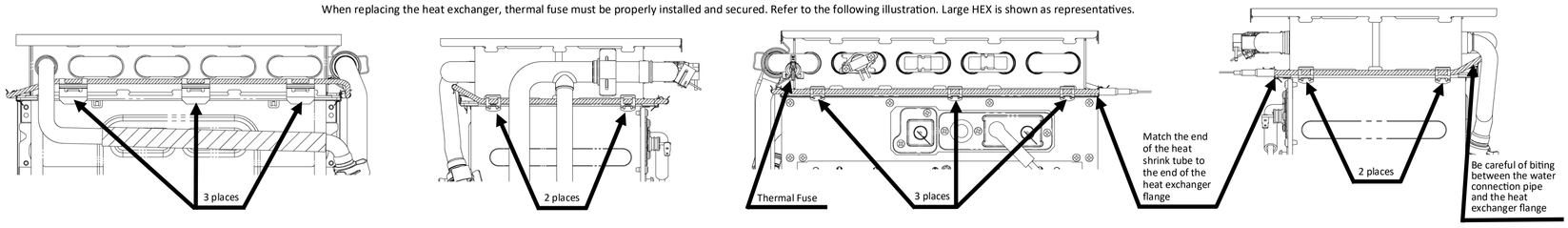
With all gas appliances in operation at maximum gas rate, the following inlet gas pressure at the incoming test point on the Rinnai water heater should read 4 in. wc - 10.5 in. wc on natural gas and 8 in. wc - 13.0 in. wc on propane gas. If the pressure is lower, the gas supply is inadequate and the unit will not operate to specification. Check the gas meter regulator and pipework for correct operation/sizing and correct as required.

Model #	Maximum Water Pressure	Gas Supply Pressure Min./Max.		(FL) Forced Low		(FH) Forced High	
		NG	LPG	NG	LPG	NG	LPG
				inH2O(wc)	inH2O(wc)	inH2O(wc)	inH2O(wc)
REP199e	150 PSI	4.0/10.5	8.0/13.0	0.62	1.02	2.52	4.31
REP160e				0.64	0.99	2.71	4.23



Thermal Fuse Location

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



ITEM	DESCRIPTION	PART NUMBER	REP199e	REP160e
002	Wall Bracket	109000281	2	2
004	Reinforcement Plate	109001248	1	1
005	Heat Protection Plate	109001249	1	1
006	Front Panel	109001251	1	1
007	Front Panel Upper Packing	109001252	1	1
008	Front Panel Lower Packing	109001253	2	2
009	Temperature Control	105000952	1	1
010	Temperature Control Plate	109001255	1	1
013	Thermistor Packing	109000490	1	1
016	Earth Plate	109001257	1	1
017	Latch Hook	109001258	2	2
018	Latch	109001259	2	2
019	Clamp Fixing Plate	109001260	1	1
020	Clamp	109001261	2	2
021	Rubber Stop	109000634	1	1
022	Rubber Stop	109001262	1	1
100	Gas Control Assembly	106000248	1	1
101	Test Port Set Screw	C10D-5	2	2
102	3/4 Gas Inlet	106000119	1	1
103	Burner Unit Assembly	106000249	1	
103	Burner Unit Assembly - Small	106000250		1
105	Gas Pipe	106000251	1	1
110	27 Manifold Assembly - LPG	106000252	1	
110	27 Manifold Assembly - NG	106000253	1	
110	21 Manifold Assembly - LPG	106000254		1
110	21 Manifold Assembly - NG	106000255		1
111	Manifold Upper Packing	106000256	1	
111	Manifold Upper Packing - Small	106000257		1
112	Manifold Lower Packing	106000258	1	
112	Manifold Lower Packing - Small	106000259		1
113	Top Side Reinforcement	109001264	1	1
116	Electrode	105000953	1	1
117	Flame Rod	105000954	2	2
118	Electrode Bracket - Right	109001265	1	1
119	Electrode Packing	109001266	1	1
120	Electrode Bracket - Left	109001267	1	1
123	Electrode Bracket Assembly	109001268	1	1
124	Fan Motor Assembly	105000955	1	1
125	Fan Motor	105000992	1	1
126	Fan Casing	108000128	1	1
128	Exhaust Duct Bracket	109001269	1	1
129	Combustion Chamber - Body Bracket	109001270	1	1
130	Combustion Chamber Bracket	109001271	2	1
131	Combustion Chamber Bracket - Small	109001272		1

ITEM	DESCRIPTION	PART NUMBER	REP199e	REP160e
135	Flue Outlet	102000068	1	
135	Flue Outlet - Small	102000069		1
136	Bellmouth	109001278	1	1
137	Seal Packing	109001280	1	
137	Seal Packing - Small	109001281		1
138	Front Panel Seal Packing	109001282	1	1
143	Heat Exchanger Assembly	104000313	1	
143	Heat Exchanger - Small	104000315		1
400	Water Inlet	107000615	1	1
401	Water Flow Servo ＆ Sensor	105000957	1	1
402	Rectifier	107000105	2	2
405	Plug Band	109000018	1	1
406	ϕ16 Pipe Bracket	109001285	1	1
408	Hot Water Outlet (3/4 NPT)	107000092	1	1
409	Stop Bracket	109001286	1	1
410	Gas Pipe Bracket	109000635	1	1
411	Bracket	109001287	1	1
412	Filter Assembly	H98-510-S	1	1
413	Cover	107000093	1	1
415	Hot and Cold Water Pipe Assembly	107000618	1	
415	Hot and Cold Water Pipe Assembly	107000619		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 Fixing 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	109001291	1	1
480	Check Valve	107000134	1	1
481	Water Supply Connection	107000626	1	1
482	Drain Plug	107000058	1	1
700	PC Board - Large	105000959	1	
700	PC Board - Small	105000960		1
701	Pump Circuit	105000962	1	1
702	Cover	109001292	1	1
703	Pump Circuit Cover	109001293	1	1
704	Pump Circuit Plate	109001294	1	1
706	Ignitor	105000963	1	1
707	High Tension Cord	105000964	1	1
708	Electrode Sleeve	AU206-218	1	1
709	Water Inlet Thermistor	805000081	1	1
710	Heat Exchanger Thermistor	105000965	1	1
711	Clip	105000090	1	1
714	Fuse Holder	109001295	3	3
715	Fuse Holder	109000786	7	7
716	Heater Clip	AU124-618X01	3	3
717	Heater Clip	109000795	2	2

ITEM	DESCRIPTION	PART NUMBER	REP199e	REP160e
718	Heater Clip	AU100-721	1	1
719	Gas Control Harness	105000966	1	1
724	Sensor Harness - 6	105000973	1	
724	Sensor Harness - 8	105000975		1
725	Fuse Harness - 1	105000976	1	
725	Fuse Harness - 2	105000977		1
726	Power Supply Harness - 4	105000981	1	1
728	Ignitor Bracket	109001296	1	1
729	Cable Clip	109001297	1	1
730	Twin Thermistor	105000982	1	1
731	Solenoid Harness	105000983	1	
731	Solenoid Harness - Small	105000984		1
732	Outside Temperature Thermistor	105000296	1	1
733	Pump Harness	105000985	1	1
740	Heater	105000987	1	1
742	Heater	105000990	1	1
743	Over Heat Switch	105000991	1	1
800	Screw	109001298	4	4
801	Screw	109000649	8	8
802	Screw	ZBA0408UK	2	2
803	Screw	CP-80452	1	1
804	Screw	ZFAB0408SZ	3	3
805	Screw	109000598	30	30
806	Screw	109001299	9	9
807	Screw	809000179	1	1
808	Screw	809000177	17	17
809	Screw	U217-449	3	3
810	Screw	109001300	1	1
811	O-ring	109001301	5	5
812	O-ring	M10B-2-16	2	2
813	O-ring	M10B-2-14	7	7
817	O-ring	109000252	2	2
818	Packing	109000181	1	1
820	Screw	108000021	4	4
821	Screw	CP-20883-410UK	5	5
822	Screw	CP-30583	3	3
823	Screw	109000641	19	19
824	Screw	109000793	4	4
825	Screw	109001302	2	2
828	Screw	109001306	2	2
830	O-ring	M10B-13-4	2	2
831	O-ring	M10B-2-4	3	3
832	O-ring	109000182	1	1
833	Screw	ZAG0512UK	3	3
834	Screw	109001304	5	5
835	Screw	109000648	1	1
836	Screw	109001305	2	2
888	Manual	100000726	1	1
889	Tech Sheet	100000736	1	1
891	Isolation Valve - Cold	107000627	1	1
892	Isolation Valve - Hot	107000628	1	1
893	Pressure Relief Valve	107000629	1	1