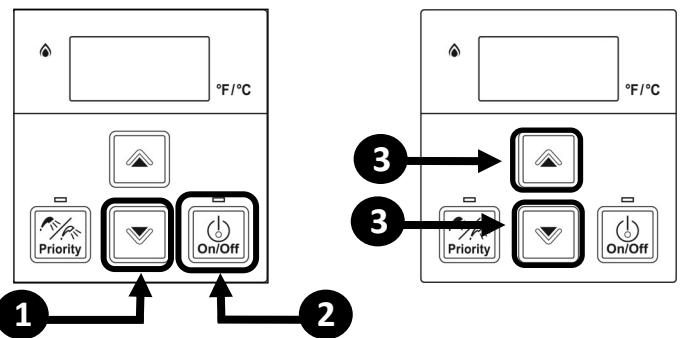


PERFORMANCE DATA**To Obtain Performance Data:**

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	HEX Outlet Temperature	°F
12	By-Pass Flow Control Position	Degrees of opening
17	Freeze Protection Temperature	°F
19	Pump Hours	x100 Hours
20	Pump Cycles	See following information
30	Upper Tank Thermistor Temperature	°F
31	Lower Tank Thermistor Temperature	°F
04	Combustion Cycles	
20	Pump Cycles	
DISPLAY	CYCLE COUNT	
000 to 999	x100 (0 to 99,900)	
100- to 99-	x10,000 (100,000 to 990,000)	
I- to 5-	x1,000,000 (1,000,000 to 6,000,000)	

05 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.

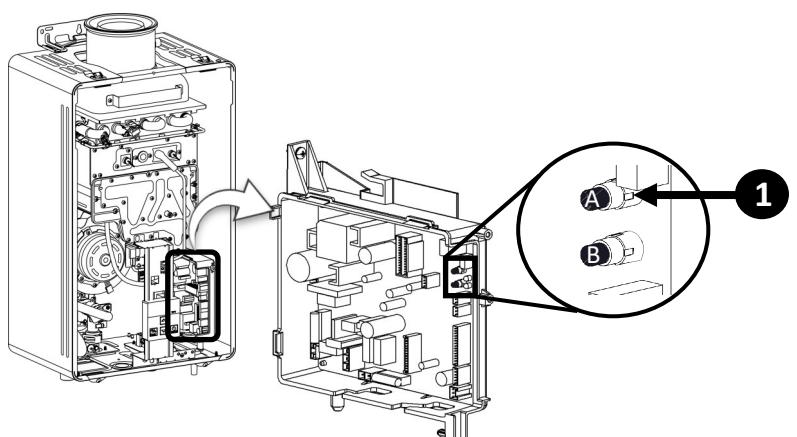
MANIFOLD PRESSURE SETTINGS

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 Settings section). (A=LP, 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. "1F" 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 the 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.

PARAMETER SETTINGS**To Adjust the Parameters:**

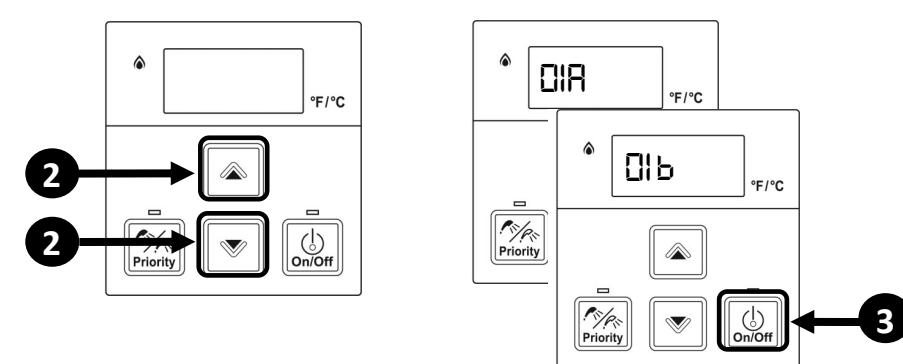
1. Press the "A" button for 1 second.



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			
		R	b	c	d
02	High Altitude (Installation Location)	0 - 2,000 ft (0 - 610 m)	2,001 - 5,400 ft (610 - 1,646 m)		
03*	Service Soon	Disable	0.5 Year	1 Year	2 Years
10**	Gas Type (Factory Set)	LPG	NG		
50***	Retrofit Application	Disable (Default)	Enable		

* See "Service Indicator (Service Soon, SS)" section in Installation and Operation Manual for more information Service Soon.

** Factory set. Only used with approved conversion kit.

*** Factory set. Do not adjust unless instructed by Technical Support.

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 0.5 VAC.

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. Note: RE140/e does not have a 4 amp fuse.

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

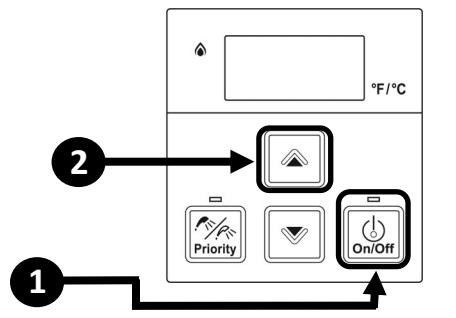
Electrical Circuit Table

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
	Red-Black	7~48VDC*	N/A	CN9	1-3
Combustion Fan	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		25-23	CN9	25-23
	Orange-Grey	11~14VDC	N/A	CN9	6-13
	Brown-Grey	limiter On: less than 1VDC limiter 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		33-31	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	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	N/A	CN7	11-13
Inlet Thermistor	White-White			CN7	4-5
Heat Exchanger Thermistor	White-White			CN7	9-6
Intake Thermistor (Indoor type only)	White-White			CN7	8-4
				CN7	12-6
Upper Tank Thermistor	White-White			CN7	6-7
Lower Tank Thermistor	White-White			CN7	3-4
Freeze Protection Thermistor (Outdoor type only)	White-White			CN7	10-6
Overheat Switch	Black-Black	less than 1VDC	less than 1Ω	CN9	10-16
	Red-Black	11~14VDC		CN9	7-11
Water Flow Sensor	Yellow-Black	4~7VDC*	N/A	CN9	9-11
DDP Pump	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)

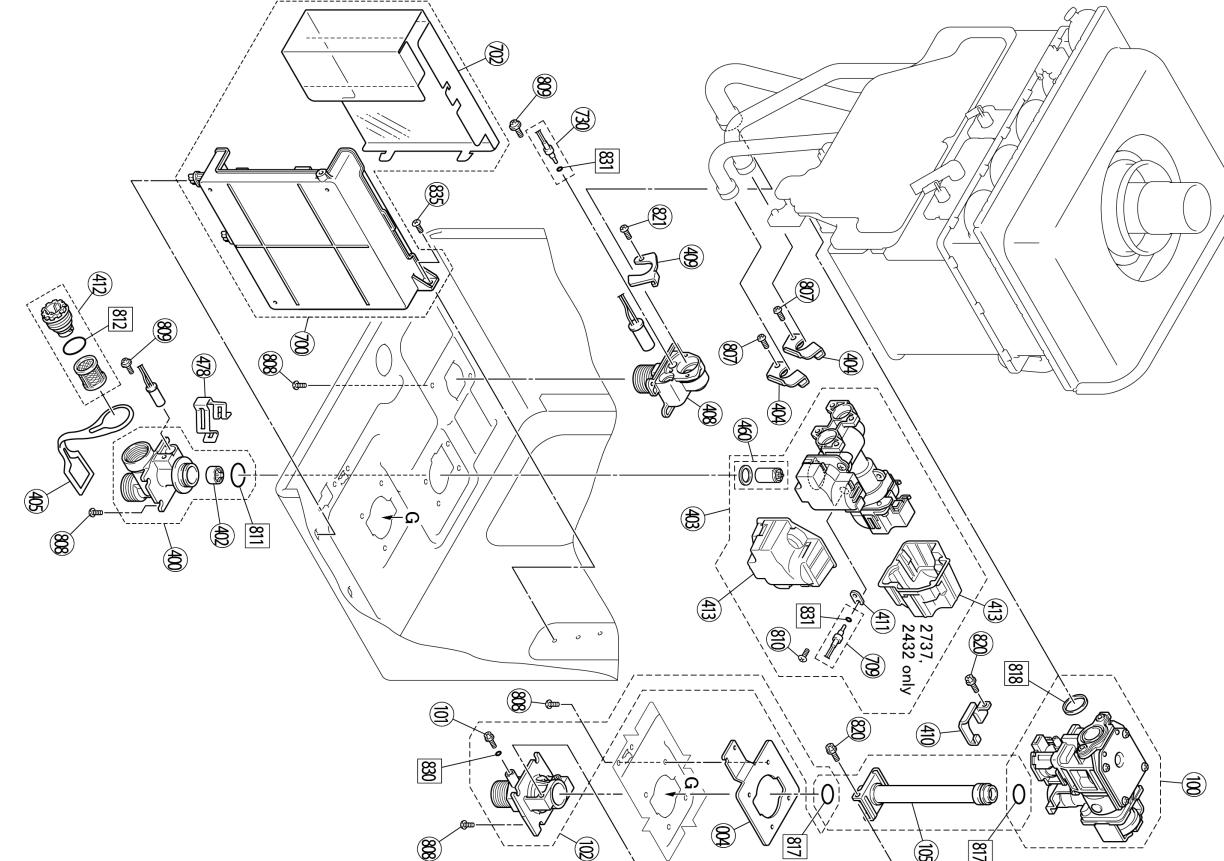
DIAGNOSTIC CODES**To Display Diagnostic Codes:**

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.

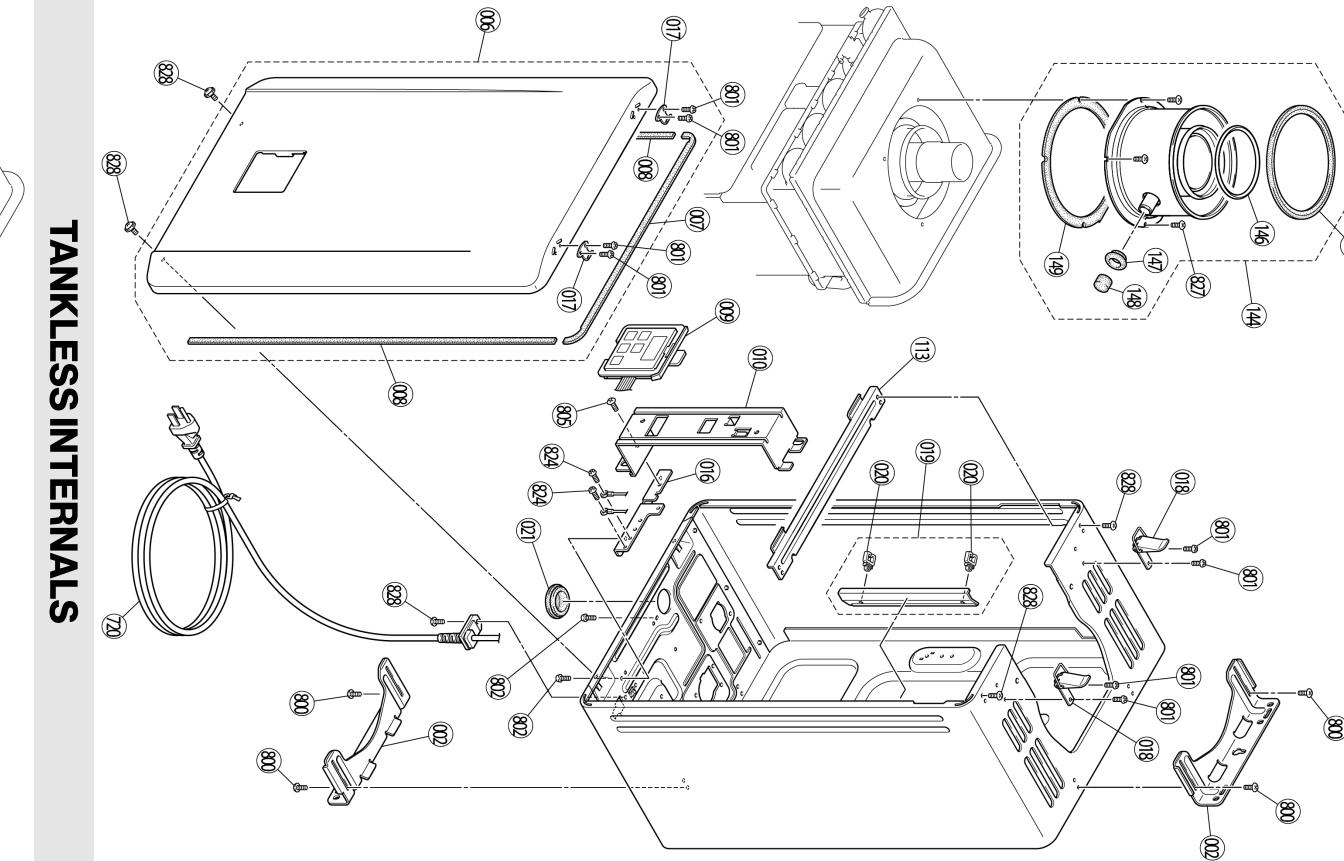
**10 Air Supply or Exhaust Blockage**

- Ensure approved venting materials are being used.
- Check that nothing is

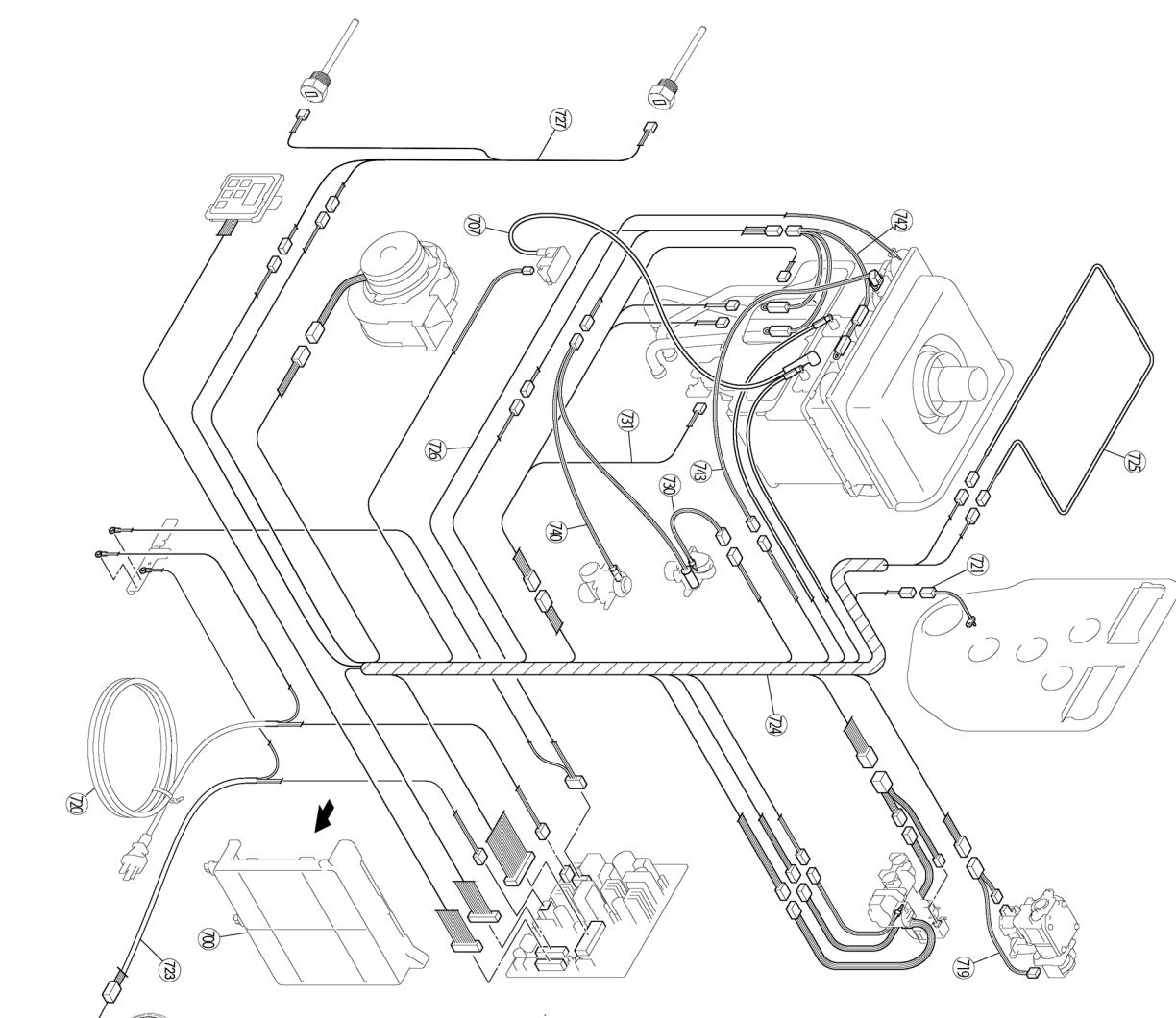
TANKLESS CABINET



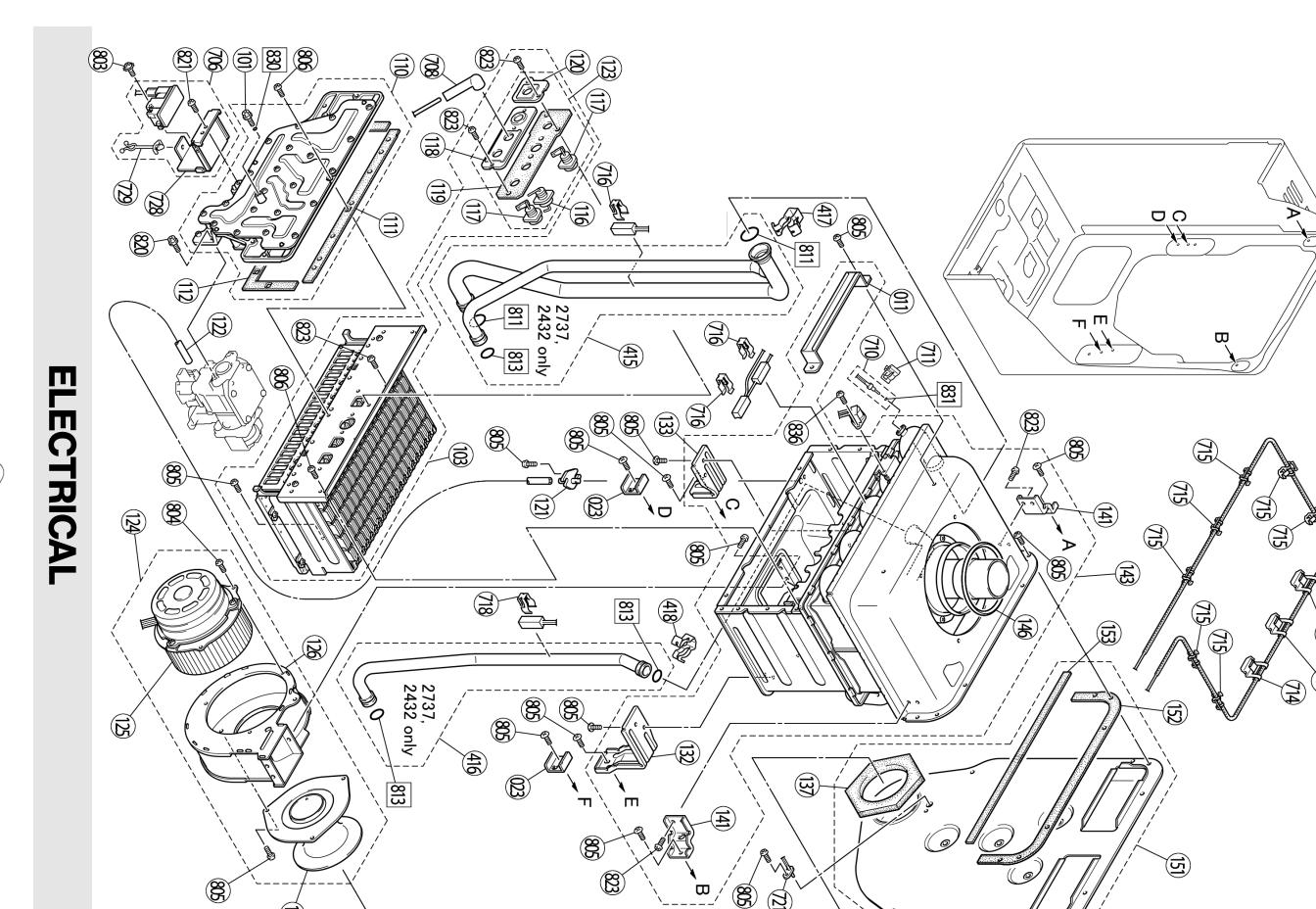
TANKLESS INTERNALS



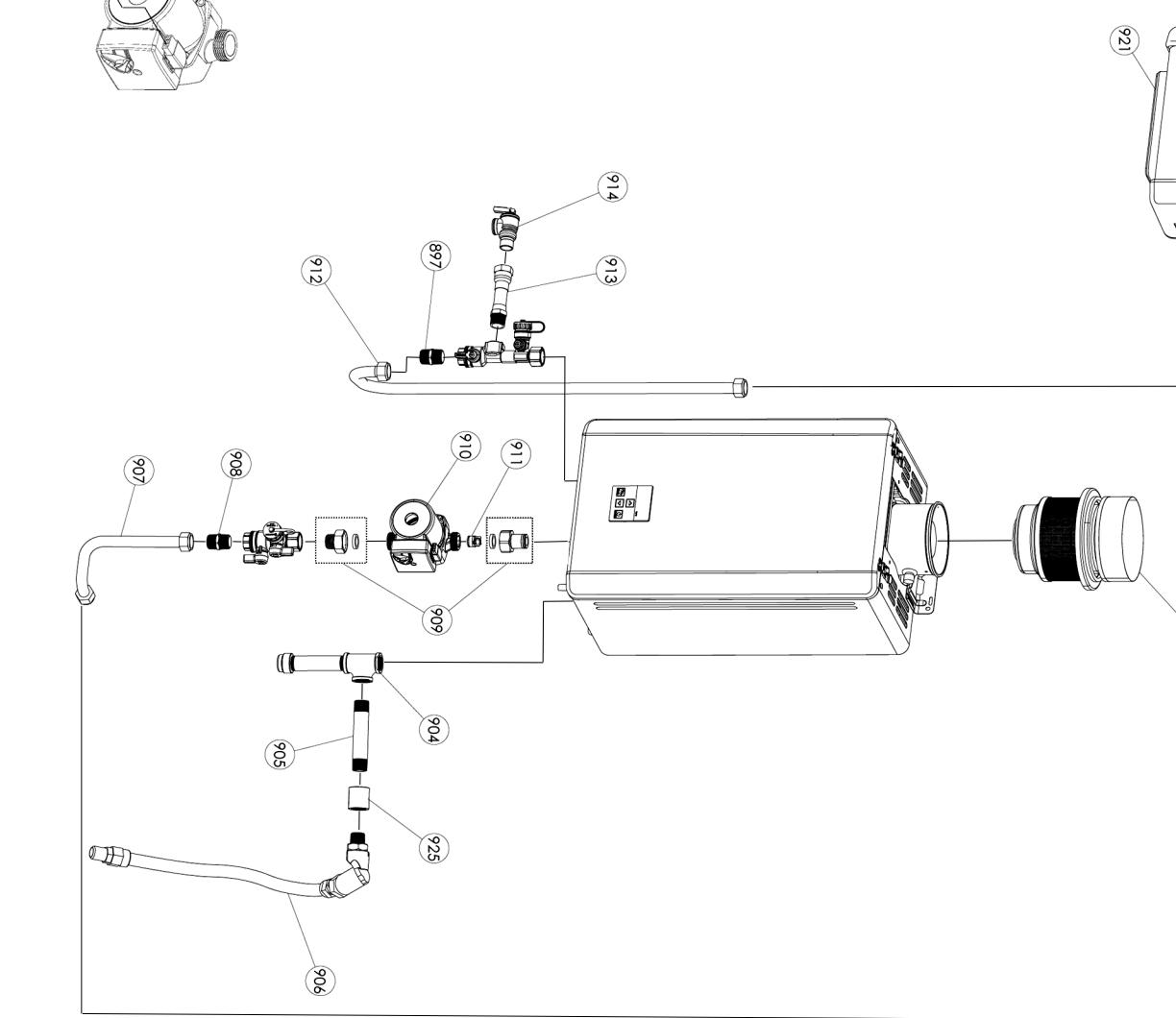
TANKLESS INTERNALS



ELECTRICAL



SYSTEM ASSEMBLY



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

ITEM	DESCRIPTION	PART NUMBER	QTY.
002	Wall Bracket	109001247	2
004	Reinforcement Plate	109001248	1
006	Front Panel	109001250	1
007	Front Panel Upper Packing	109001252	1
008	Front Panel Lower Packing	109001253	2
009	Temperature Control	105000952	1
010	Temperature Control Plate	109001254	1
011	Handle	109001256	1
015	Earth Plate	109001257	1
017	Latch Hook	109001258	2
018	Latch	109001259	2
019	Clamp Fixing Plate	109001260	1
020	Clamp	109001261	2
021	Rubber Stop	109000634	1
023	Combustion Chamber Stay	106000247	2
100	Gas Control Assembly	106000248	1
101	Test Port Set Screw	C10D-5	2
102	3/4 Gas Inlet	106000119	1
103	Burner Unit Assembly	106000249	1
105	Gas Pipe	106000251	1
110	Manifold Assembly - LPG	106000252	1
110	Manifold Assembly - NG	106000253	1
111	Manifold Upper Packing	106000256	1
112	Manifold Lower Packing	106000258	1
113	Top Side Reinforcement	109001263	1
116	Electrode	105000953	1
117	Flame Rod	105000954	2
118	Electrode Bracket - Right	109001265	1
119	Electrode Packing	109001266	1
120	Electrode Bracket - Left	109001267	1
121	Back Pressure Connector	U242-312	1
122	Tube H	106000260	1
123	Electrode Bracket Assembly	109001268	1
124	Fan Motor Assembly	105000956	1
125	Fan Motor	105000993	1
126	Fan Casing	108000128	1
132	Combustion Chamber Bracket - right	109001273	1
133	Combustion Chamber Bracket - left	109001275	1
136	Fan Bracket	109001277	1
137	Seal Packing	109001279	1
141	Duct Bracket	102000070	2

be properly installed and secured. Refer to

ITEM	DESCRIPTION	PART NUMBER	QTY.
143	Heat Exchanger Assembly	104000312	1
144	Flue Connection Assembly	108000068	1
145	Inlet Seal	108000017	1
146	O-ring	108000018	2
147	Pipe Seal	109001283	1
148	Cap	108000020	1
149	Packing	109000240	1
151	Air Inlet Assembly	108000126	1
152	Duct Packing Upper	102000072	1
153	Duct Packing Lower	102000074	1
400	Water Inlet	107000614	1
402	Rectifier	107000105	1
403	Bypass Servo Assembly	105000958	1
404	Pipe Bracket	109001284	2
405	Plug Band	109000018	1
408	Hot Water Outlet (3/4 NPT)	107000092	1
409	Stop Bracket	109001286	1
410	Gas Pipe Bracket	109000635	1
411	Bracket	109001287	1
412	Filter Assembly	H98-510-5	1
413	Cover	107000093	2
415	Hot Water Pipe Assembly	107000616	1
416	Cold Water Pipe Assembly	107000620	1
417	Clip	109001288	1
418	Clip	109000244	1
460	Water Flow Turbine	107000621	1
478	Clip	109000636	1
700	PC Board - Large	105000934	1
702	Cover	109001292	1
706	Ignitor	105000963	1
707	High Tension Cord	105000964	1
708	Electrode Sleeve	AU206-218	1
709	Water Inlet Thermistor	805000081	1
710	Heat Exchanger Thermistor	105000965	1
711	Clip	105000090	1
714	Fuse Holder	109001295	3
715	Fuse Holder	109000786	7
716	Heater Clip	AU124-618X01	3
718	Heater Clip	AU100-721	1
719	Gas Control Harness	105000966	1

When replacing the heat exchanger, thermal fuse must be prop

ITEM	DESCRIPTION	PART NUMBER	QTY.
720	Power Cord Assembly	1050000738	1
721	Intake Air Thermistor	1050000967	1
723	Pump Wire Harness	105002014	1
724	Sensor Harness - 9	1050000943	1
725	Fuse Harness - 1	1050000976	1
726	Power Supply Harness - 1	1050000920	1
727	Thermistor Wire Harness	105002013	1
728	Ignitor Bracket	1090001296	1
729	Cable Clip	1090001297	1
730	Twin Thermistor	1050000982	1
731	Solenoid Harness	1050000983	1
740	Heater	1050000986	1
742	Heater	1050000988	1
743	Over Heat Switch	1050000991	1
800	Screw	1090001298	8
801	Screw	1090000649	8
802	Screw	ZBA0408UK	2
803	Screw	CP-80452	1
804	Screw	ZFAB0408S2	3
805	Screw	1090000598	33
806	Screw	1090001299	9
807	Screw	8090000179	2
808	Screw	8090000177	21
809	Screw	U217-449	2
810	Screw	1090001300	1
811	O-ring	1090001301	3
812	O-ring	M10B-2-16	1
813	O-ring	M10B-2-14	3
817	O-ring	1090000252	2
818	Packing	1090000181	1
820	Screw	1080000021	4
821	Screw	CP-20853-410UK	2
823	Screw	1090000641	17
824	Screw	1090000793	2
827	Screw	ZFDB0408UK	10
828	Screw	109001306	4
830	O-ring	M10B-13-4	2
831	O-ring	M10B-2-4	3
835	Screw	1090000648	1
836	Screw	109001305	2
888	Manual	1000000808	1

A detailed line drawing of a mechanical water connection. It features a cylindrical body with a flared base and a smaller neck extending upwards. A curved pipe or hose is attached to the top of the neck, representing a flexible water supply line.

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