

Diagnostic Use of the Controller

- the ▲ thermostat button to cycle through the error codes.
- thermostat button (hold for 2 seconds) and then press the ON/OFF button while continuing to hold the ▲ thermostat button.
- button (hold for 2 seconds) and then press the ON/OFF button while continuing to hold the ▼ thermostat button.

To Change the Temperature Scale (°F / °C)

With the water heater turned off, press and hold the ON/OFF button until the display changes to the other temperature scale (about 5 seconds).

To Turn Off the Controller Sound (Mute)

To turn the sound off (mute), press and hold both the ▲ and ▼ thermostat buttons until a “beep” is heard (about 5 seconds).

Gas Pressure Setting

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.

- Turn OFF the gas supply.
- Turn OFF the 120 V power supply.
- Remove the front panel from the appliance.
- Check the gas type using the data plate on the side of the unit. If using a spare PC board, check that the gas type switches are in the correct position (dip switch 1 of SW2: ON for natural gas, NG, and OFF for propane, LPG). See dip switch settings section below. (ON is towards the right and OFF is towards the left.)
- Attach the pressure gauge to the burner test point, located on the gas control (Fig. 2).
- Turn ON the gas supply.
- Turn ON the 120 V power supply.
- If a controller is installed, turn the unit ON with the controller. Select the maximum delivery temperature and open all available hot water taps at full.
- Set the unit to “Forced Low” combustion by setting No. 7 dip switch of the SW1 set to ON (Fig. 3).
- Check the burner test point pressure.
- Remove the rubber access plug and adjust the regulator screw on the modulating valve (Fig. 4) as required in Table 1. Replace the rubber access plug.
- Set the unit to “Forced High” combustion by setting both No. 7 and No. 8 dip switches of the SW1 set to ON (Fig. 5). Ensure maximum water flow.
- Check the burner test point pressure.
- Adjust the high pressure potentiometer (POT) on the PC board as required to the pressure shown in Table 1.
- Return the unit to normal operation by setting dip switches 7 and 8 of the SW1 set back to OFF (Fig. 6). Close all water taps.
- Turn OFF the gas supply and 120 V power supply.
- Remove the pressure gauge and install sealing screw.
- Turn ON the gas supply and 120 V power supply.
- Operate the unit and check for gas leaks at the test point.
- Install the front panel.

Gas Pressure Setting

NOTE: For additional installation and commissioning information refer to the Operation and Installation 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 valves is turned off before unit is shut off. Failure to do so may result in serious injury to you, self or damage to the unit.

APPLIANCE OPERATING PRESSURES

BARUS
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Commissioning

With all gas appliances in operation at maximum gas rate, the flowing inlet pressure at the incoming test point on the Rinnai water heater should read 5" W.C. - 10.5" W.C. on natural gas and 8" W.C. - 13.5 W.C. 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.

Important Safety Notes

There are a number of (live) tests that are required when fault finding this product. Extreme care should be used 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).

(SV1,SV2) Pin
Wire color
(Main) Pink
(SV1) Black
(SV2) Black
(SV3) Black
(POV) Pin

(M) Water
Red - Blue
Grey - Blue
Grey - Yellow

NOTE: The
(QS) Water
Black - Blue
Yellow - Blue

Bypass
Brown
Orange
Yellow
Red-White

(IC) Ign
Grey

(FM) Fan
Red
White
Yellow

Set your
you
The
Re

Flame Rod:

Place one lead of your meter to the flame rod and the other to ground. With the unit running you should read between 5-150 VAC. Set your meter to the µ amp scale and series your meter in line with the flame rod. You should read 1 µ amp or greater for proper flame circuit. In the event of low flame circuit remove the flame rod and check for carbon or damage.

Heat Exchanger and Outgoing Water Temperature 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. See below for examples of typical temperatures and resistance readings.

Example:	59°F = 11.4 ~ 14KΩ	140°F = 2.2 ~ 2.7KΩ
	86°F = 6.4 ~ 7.8KΩ	221°F = 0.6 ~ 0.8KΩ
	113°F = 3.6 ~ 4.5KΩ	

With the power off you can check the continuity through the surge protector. Place a meter lead on the top pin #1 of the surge protector and pin #3 on the bottom of the surge protector. Check across the top pin #3 and bottom pin #1. If you read continuity across these two points then the surge protector is good. If you do not get continuity then replace the surge protector.

Frost Protection:

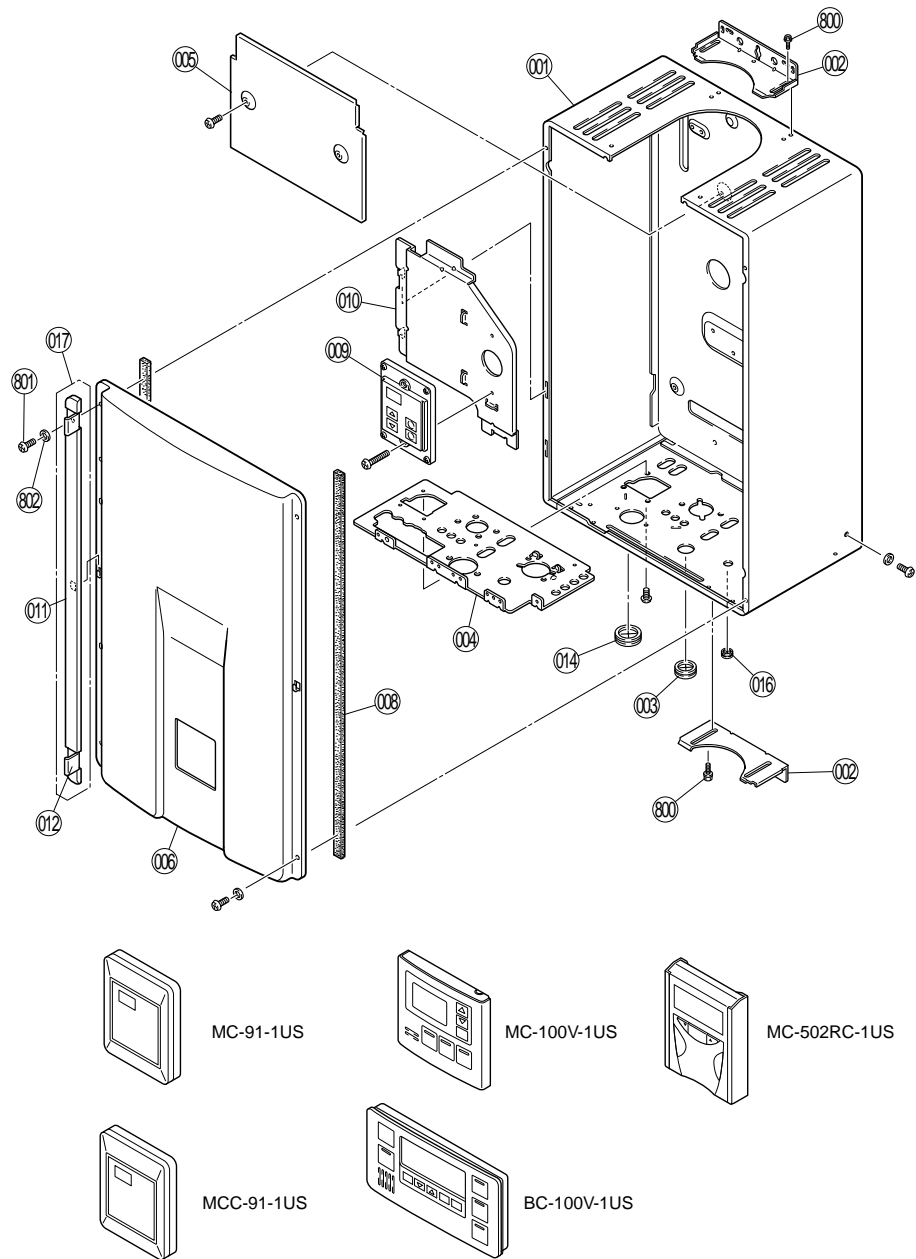
This unit has frost protection heaters mounted at different points to protect the water heater from freezing. The heaters located on the hot water outlet line should have a resistance reading of 180-200 ohms through each of these heaters. The heater located on the heat exchanger piping should have a resistance reading of 156-180 ohms and the one located in the water flow sensor valve should have a resistance reading 24-28 ohms.

Amp Fuses:

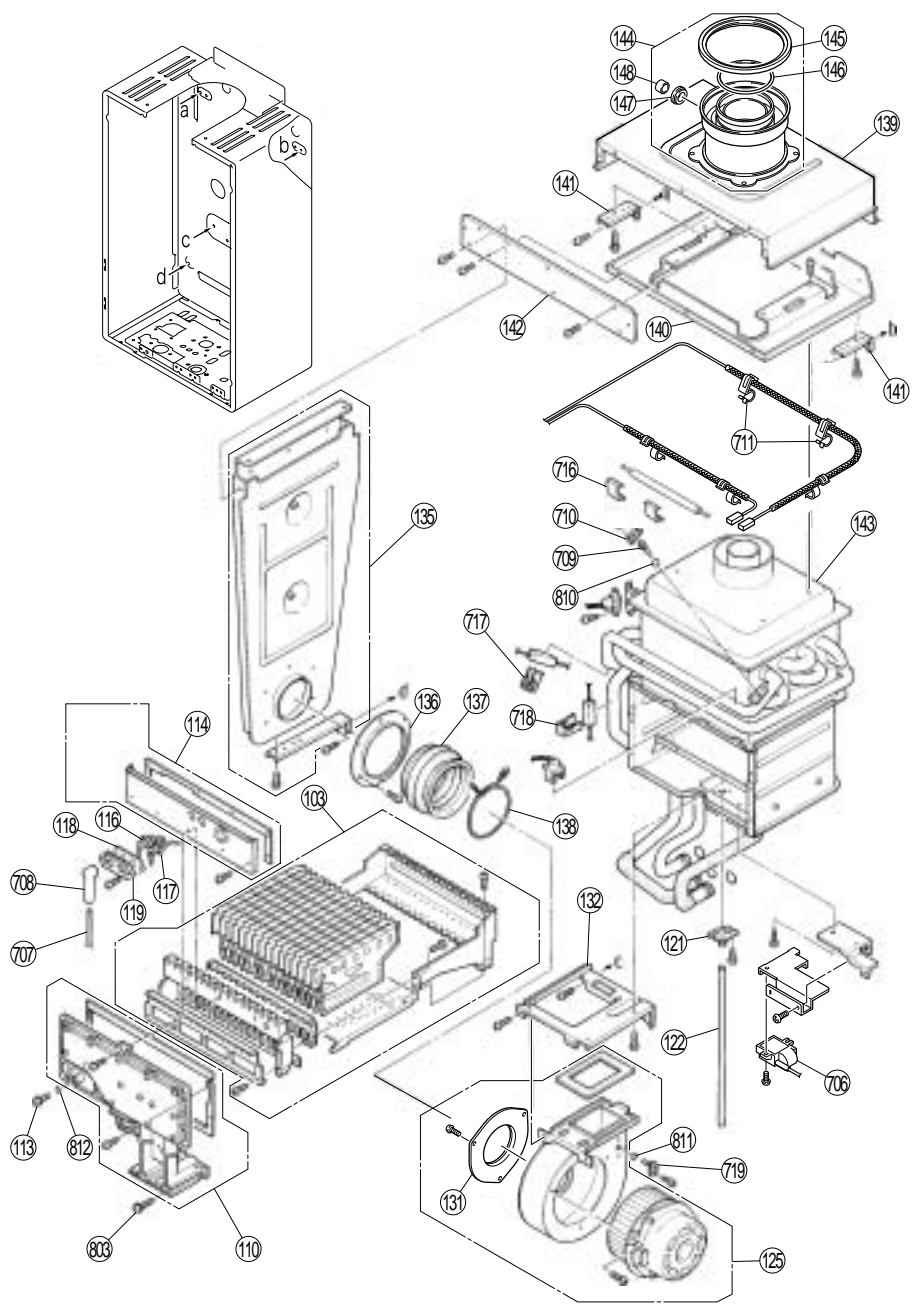
This unit has two inline (3) amp glass fuses. Remove the fuse and check continuity through it. If you have continuity through the fuse then it is good. Otherwise the fuse is blown and must be replaced.

02 No burner operation during freeze
• Service Call
03 Power interruption during Bath (power returns)
• Turn off all hot water taps. Press

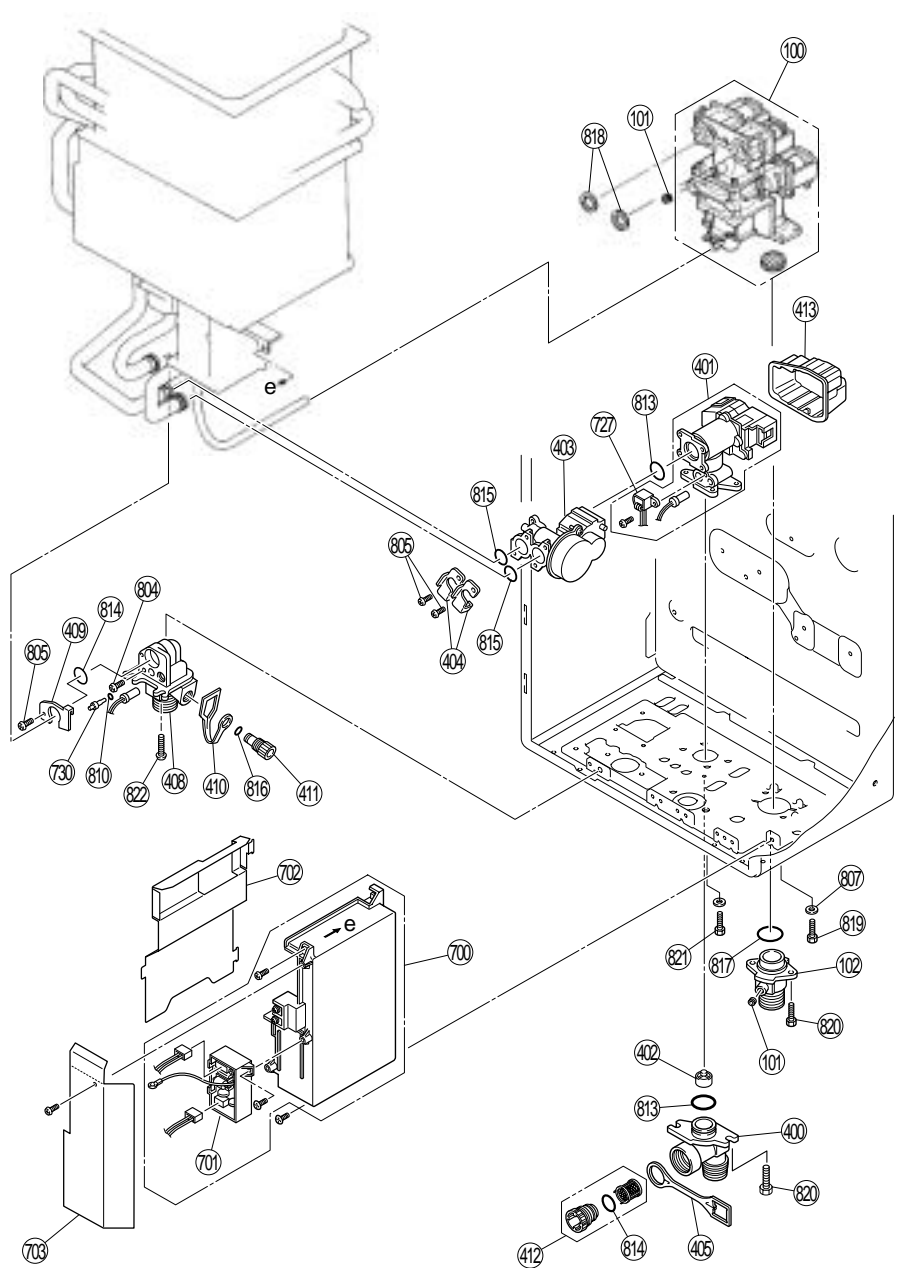
EXPLODED VIEW - CABINET



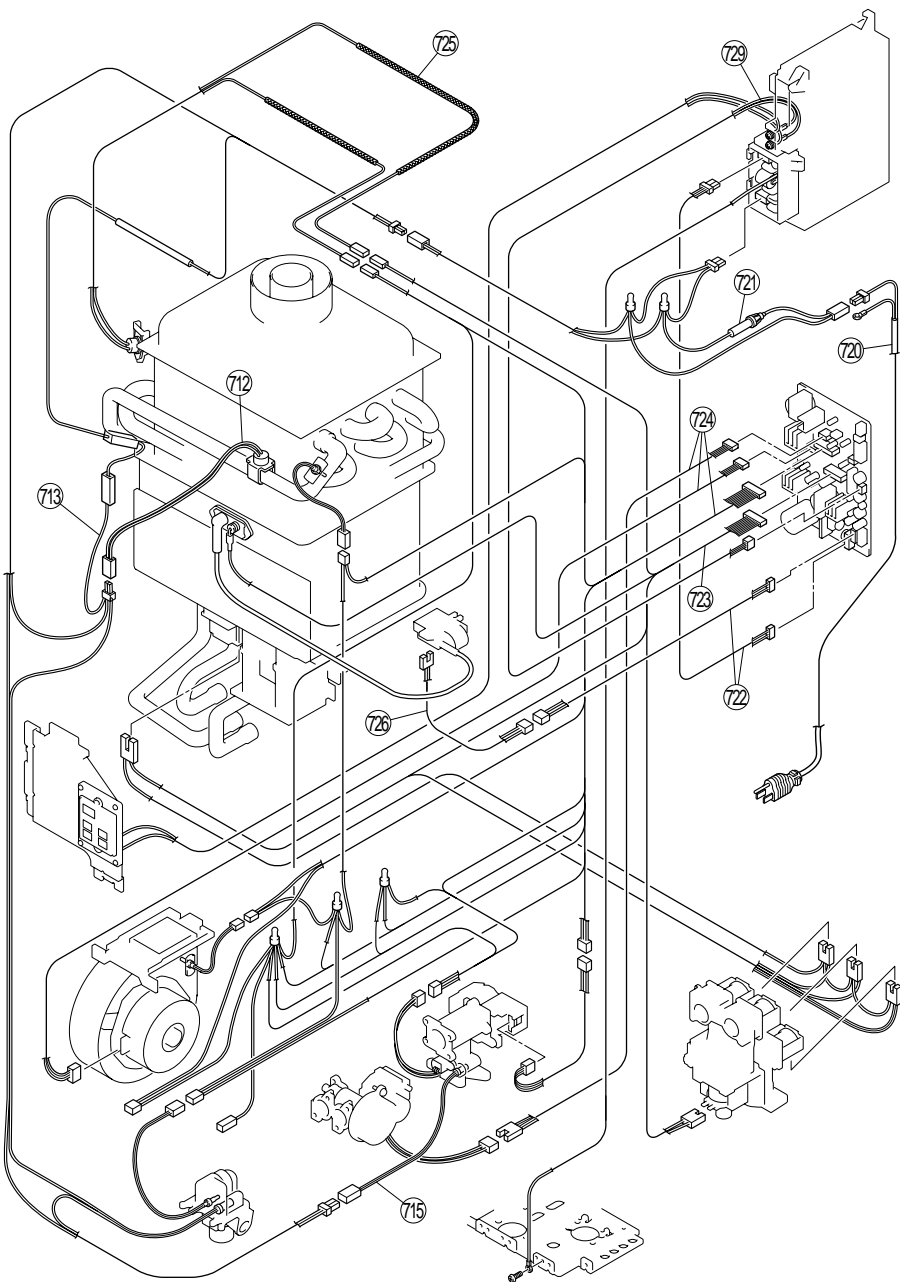
EXPLODED VIEW - INTERNALS



EXPLODED VIEW - INTERNALS



EXPLODED VIEW - ELECTRICAL



PARTS LIST																	
Quantity						Quantity						Quantity					
Number	Description	Parts Number	R94LSi	R75LSi	R50LSi	Number	Description	Parts Number	R94LSi	R75LSi	R50LSi	Number	Description	Parts Number	R94LSi	R75LSi	R50LSi
001	Main Body (FF)	109000010	1	1	1	141	Joint Exhaust Tube Frame Supporter	U245-435	2	2	2	716	Antifrost Heater Clip B	CF29-742	2	2	2
002	Wall mounting bracket	109000024	2	2	2	142	Air Inlet Box Cover	U245-419	1	1	1	717	Antifrost Heater Clip A	AU111-653	1	1	1
003	Rubber Bushing	U245-125	1	1	1	143	Heat Exchanger Assembly	107000010	1	-	-	718	Antifrost Heater Clip C	AU100-721	1	1	1
004	Connection Reinforcement Panel	109000023	1	1	1	143	Heat Exchanger Assembly	107000011	-	1	1	719	Inlet Air Thermistor	105000029	1	1	1
005	Heat Protection Plate	U245-107	1	1	1	144	Flue Connection Assembly	108000015	1	1	1	720	Power Cord	CP-90580	1	1	1
006	Front Panel	109000012	1	1	1	144	Flue Connection Assembly-Male (optional)	108000016	1	1	1	721	Fuse Harness(FF)	105000031	1	1	1
008	Front Panel Gasket-1	U245-3185-1	2	2	2	145	O-ring	108000017	1	1	1	722	Power Harness	105000033	1	1	1
009	Remote Controller Ass'y	MC-91-1US-S-FLVA	1	1	1	146	O-ring	108000018	1	1	1	723	Solenoid Valve Harness	105000034	1	1	1
010	Remote Controller Bracket	103000011	1	1	1	147	Pipe Seal	108000019	1	1	1	724	Sensor Harness	105000035	1	-	-
011	Side Cover	U245-3121X05	2	2	2	148	Cap	108000020	1	1	1	724	Sensor Harness	105000036	-	1	1
012	Side Cover Rid	U245-3122X02	4	4	4	400	Water Inlet (3/4" NPT)	H73-501-2	1	1	1	725	Thermal Fuse Harnes Assembly	105000039	1	1	1
014	Rubber Bushing	CF79-41020-A	1	1	1	401	Water Flow Servo & Sensor Assembly	107000014	1	-	-	726	Ignitor Harness	105000040	1	1	1
016	Packing	AU105-113	1	1	1	401	Water Flow Servo & Sensor Assembly	107000015	-	1	1	727	Flow Sensor	105000041	1	1	1
017	Side Cover Assy	109000022	2	2	2	402	Rectifier	M8D1-15X01	1	1	1	729	Remote Controller Harness	105000042	1	1	1
100	Gas Control Assembly	106000010	1	1	1	403	By-pass Servo Assembly	M6J-1-4	1	-	-	730	Thermistor	H111-650	1	1	1
101	Test Port Set Screw	AU39-965X01	2	2	2	404	Stop Bracket	AH69-310	2	-	-	800	Screw	ZIHD0510UK	8	8	8
102	Gas Connection (3/4" NPT)	CU195-1866	1	1	1	404	Stop Bracket	AU195-321X01	-	1	1	801	Screw	CP-30580	4	4	4
103	Burner Unit Assembly (LPG)	106000011	1	1	1	405	Plug Band	109000018	1	1	1	802	Resin Washer	CF83-41430	4	4	4
103	Burner Unit Assembly (NG)	106000012	1	1	1	408	Hot Water Outlet (3/4" NPT)	U245-865-3	1	1	1	803	Screw	108000021	3	3	3
110	Manifold Assembly (LPG)	106000013	1	1	1	409	Stop Bracket	AU162-1876X01	1	1	1	804	Thermistor Stop Screw	U217-449	1	1	1
110	Manifold Assembly (FF-NG)	106000014	1	1	1	410	Plug Band (small)	109000019	1	1	1	805	Screw	ZAA0408UK	3	2	2
113	Pressure Point Sealing Screw	C10D-5	1	1	1	411	Drain Valve	AU142-444	1	1	1	810	O-ring	M10B-2-4	2	2	2
114	Combustion Chamber Sightglass Plate	106000016	1	1	1	412	Water Filter Assembly	H98-510-S	1	1	1	811	O-ring	M10B-2-3	1	1	1
116	Electrode	H73-120	1	1	1	413	Cover	109000020	1	1	1	812	O-ring	M10B-13-4	1	1	1
117	Flame Rod	105000010	1	1	1	700	PCB	105000011	1	-	-	813	O-ring	M10B-2-18	2	1	1
118	Electrode Packing	AH66-398X01	1	1	1	700	PCB	105000012	-	1	1	814	O-ring	M10B-2-16	2	2	2
119	Electrode Holder	AH66-393	1	1	1	701	Surge Protector	U250-1602-2X01	1	1	1	815	O-ring	M10B-2-14	2	1	1
121	Tube Joint	U242-312	1	1	1	701	Surge Protector with terminal (optional)	BU195-1873-2	1	1	1	816	O-ring	M10B-2-7	1	1	1
122	Vent Tube	AU161-665-CX01	1	1	1	702	PCB Cover-side	105000015	1	1	1	817	O-ring	M10B-1-24	1	1	1
125	Fan Motor All Assembly	108000010	1	1	1	703	PCB Cover-front	105000017	1	1	1	818	Packing	C36E1-6	2	2	2
131	Rubber Boot Bracket Right	U245-566	1	1	1	706	Ignitor	EI-144	1	1	1	819	Screw	ZAG0512UK	2	2	2
132	Combustion Chamber Fan Bracket	U245-255X01	1	1	1	707	High Tension Cord	105000019	1	1	1	820	Screw	ZQAA0514UK	4	4	4
135	Air Inlet Box All Assembly	108000013	1	1	1	708	Electrode Sleeve	AU206-218	1	1	1	821	Screw	ZQAA0508UK	2	2	2
136	Rubber Boot Bracket Left	U245-408	1	1	1	709	Thermistor	105000020	1	1	1	822	Screw	ZBA0512UK	3	3	3
137	Rubber Boot	U245-409X01	1	1	1	710	Thermistor Clip Large	CP-90172	1	1	1	888	Manual	100000011	1	1	1
138	Rubber Boot Clamping Ring	U245-567	1	1	1	711	Thermal Fuse Clip	U217-676X02	5	5	5	889	Tech Sheet	100000013	1	1	1
139	Air Inlet Duct	108000014	1	1	1	712	Frost Sensing Switch	U242-511	1	1	1	900	Front Panel Label (94)	100000014	1	-	-
140	AirInlet Box Frame	U245-434X02	1	1	1	713	Anti Frost Heater (120V)	105000022	1	1	1	900	Front Panel Label (75)	100000015	-	1	-
						715	Valve Heater (120V) Assembly	105000024	1	1	1	900	Front Panel Label (50)	100000017	-	-	1