

Rinnai

SERVICE MANUAL

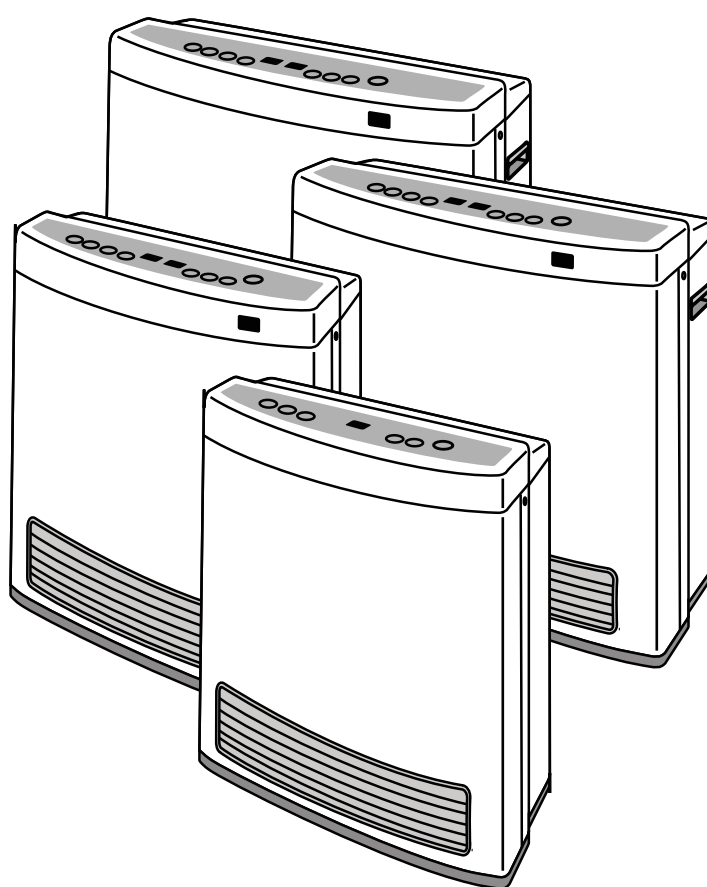
RCE-371H

RCE-471TR

RCE-571TR

RCE-671TR

CONVECTOR SPACE HEATERS





The Australian
Gas Association

All Rinnai products are certified by the Australian Gas Association as compliant to relevant Australian Standards.



Quality
Endorsed
Company
ISO 9001 Lic 4983
SAI Global

Rinnai Australia Head Office is certified as complying with ISO 9001 by SAI Global.



The Regulatory Compliance Mark (RCM)
indicates compliance with electrical safety
regulations in Australia & New Zealand
Rinnai Australia Supplier Code 5109

All Rinnai products carry the “C Tick” symbol. This signifies compliance with the Electromagnetic Compatibility (EMC) requirements of the Australian Communications Authority (ACA) which aim to minimise electromagnetic interference.

Rinnai Australia Supplier Code 5109.

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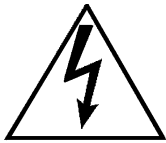
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Key to Warning Symbols



Failure to comply with the following instructions may result in serious personal injury or damage to the appliance.



Be careful of possible electric shock. Wiring inside this appliance may potentially be at 240 Volts.



Read Fault Diagnosis and Wiring Diagram carefully to avoid incorrect wiring

Please follow instructions carefully to ensure safe and appropriate service. After completing the service and confirming that there no gas leaks or incorrect wiring, test operation of unit according to the Customer Operating Instructions. After confirming normal operation, explain what was serviced to the customer and operation principles if necessary.

This manual has been compiled by Rinnai Australia Technical Group.

SM RCE-371H / RCE-471TR / RCE-571TR / RCE-671TR
Issue N^o3

Glossary of Terms and Symbols

This glossary of terms and symbols is provided to assist you in understanding some of the language used throughout this manual.

dB(A)	-	sound pressure level in decibels, "A" range
DC	-	direct current
AC	-	alternating current
Hz	-	Hertz
IC	-	integrated circuit
kcal/h	-	kilocalorie per hour
kPa	-	kilopascals
LED	-	light emitting diode
mA	-	milliamps
MJ/h	-	megajoule per hour
mm	-	millimetres
OHS	-	overheat switch
PCB	-	printed circuit board
CPU	-	central processing unit
POT	-	potentiometer
rpm	-	revolutions per minute
SV	-	solenoid valve
∅	-	diameter
Δ °C	-	temperature rise above ambient
POV	-	modulating valve
TH	-	thermistor

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1. Introduction

The Rinnai Endro 13 (RCE-371H), Dynamo 15 (RCE-471TR), Blaze 21 (RCE-571TR) and Avenger 25 (RCE-671TR) are Flueless, electronically controlled fan convector space heaters. For indoor use only.

FEATURES COMMON TO ALL MODELS

PUSH BUTTON IGNITION	Only one touch of the ON/OFF switch is required to operate the heater.
CHILD LOCK	When the Child Lock is activated, all controls other than the ON/OFF switch will be locked. Deactivating the lock releases the controls. If the lock is activated when the appliance is in OFF mode, all functions will be locked.
FILTER INDICATOR	When the fan filters become covered with dust, the filter indicator will flash. The filters should be vacuumed at regular intervals to optimise heating effectiveness.
ECONOMY FUNCTION	The Economy (ECON) function is an energy saving feature designed to control the room temperature and prevent discomfort from overheating.

FEATURES OF AVENGER (RCE-671TR), BLAZE (RCE-571TR) AND DYNAMO (RCE-471TR) HEATER MODELS

REMOTE CONTROL (TR RANGE ONLY)	For the convenience of operating the heater between STANDBY or ON, as well as adjusting the temperature up or down while at a short distance from the heater.
PRE-HEAT	This function will automatically operate the appliance before the programmed start time of the Timer, in order to heat a room to the pre-set temperature by the programmed start time.
MEMORY	The micro-computer records selected preset temperatures, the times programmed into Timers as well as operating the Economy/Auto-Off and Pre-heat modes, to maintain comfort levels.
DUAL TIMERS	The Dual Timers allows you to program the appliance to come on for two separate periods each day, one period in the morning and one period in the evening. The built in Pre-heat Mode brings the room temperature to the temperature you have selected, by the time programmed into the Timer. The Dual Timer feature means that you can "Set and Forget" your heater. It will turn itself ON or to STANDBY at the times you have programmed until you cancel the Timer program.

FEATURES OF THE ENDURO (RCE-371H) HEATER MODEL

MEMORY	The micro-computer records selected preset temperatures, the time programmed into the On Timer as well as operating the Economy modes, to maintain comfort levels.
DELAY ON TIMER	The On Timer allows you to program the heater to come on after a delayed period. This is a particularly useful feature to use overnight for automatic heating in the morning. The appliance begins heating a room once it has reached the end of the delay period selected. The heater will automatically come on and then remain on until you manually turn it off.
OFF TIMER	This feature allows you to program the heater to operate for a period of one hour before it automatically turns off.

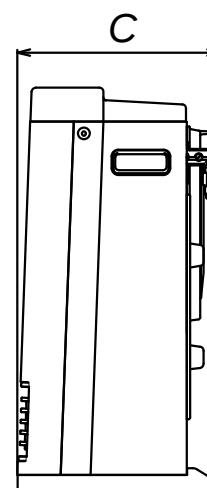
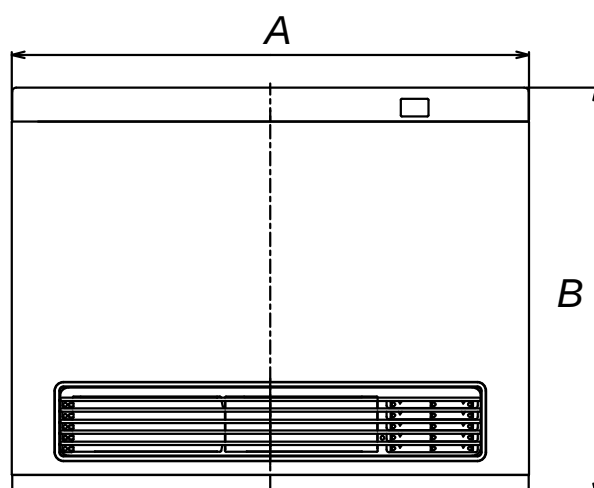
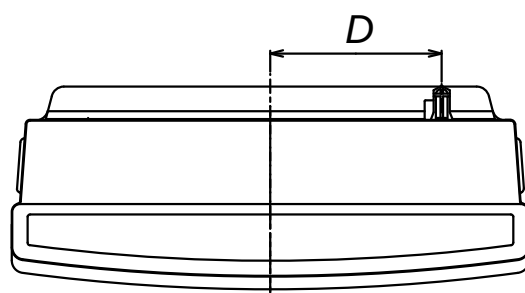
2. Specifications

GENERAL SPECIFICATIONS

General Description:	Portable Gas Convector Heaters	
Gas Control:	Electronic control	
 WARNING If the gas valve is removed for servicing or replacement. Please ensure the 'O' ring remains undamaged and in place during re-assembly.		
Burner	Surface Combustion Burner	
Gas Connection:	3/8" MI BSP into 1.5 metre flexible gas hose with bayonet connection	
Convection Fan:	Multi Speed Fan	
Ignition System:	Continuous spark electronic ignition	
Operation:	Push button electronic, remote control (Avenger, Blaze, Dynamo models only)	
Safety Devices:	Over Heat Switch Electric Fuse Flame Failure Sensor	Oxygen Depletion Sensor Tilt Switch Power Failure

WEIGHT AND MEASURES

Model	Gas Input (MJ/hr)			Supply Pressure (kPa)		Dimensions (mm)	Weight (Kg)
	Burner Rate	Natural Gas	Propane Gas	Natural Gas	Propane Gas		
Avenger 25 (RCE 671TR)	Low	8.5	8.5	1.13 to 2.75	2.75	A = 610 B = 482 C = 239 D = 202	12.5
	High	25.0	25.0				
Blaze 21 (RCE 571TR)	Low	8.5	8.5				
	High	21.0	21.0				
Dynamo 15 (RCE 471TR)	Low	6	6			A = 487 B = 492 C = 244 D = 125	10
	High	15.0	15.0				
Enduro 13 (RCE 371H)	Low	6	6				
	High	13.0	13.0				



3. Combustion Specification

Refer to dataplate on appliance.

4. Main Componentry

Construction General:

The enclosure consists of a powder coated 0.6mm thick sheet front body and combination sides and rear body. The top cover and base are made of injection moulded plastic. All internal sheet metal components are made from either 0.4mm or 0.6mm thick galvanised steel or zincalume. All components are fastened with number 8 self tapping screws.

Gas System

Gas Piping System:

The gas enters the heater directly into the gas control assembly and exits through an 8mm steel tube which connects to the injector block. The injector fires directly into the burner.

Gas Inlet Connection:

Heater is supplied with flexible hose assembly.

Regulator:

Part of the multifunction gas control assembly.

Gas Control:

High - Low (modulating) gas control assembly incorporating 2 open / close solenoids, a modulating valve and burner pressure test point. '



If the gas valve is removed for servicing or replacement. Please ensure the 'O' ring remains undamaged and in place during re-assembly.

Burner:

The burner is of the surface combustion type specifically designed for low emissions. The combustion surface consists of 3 separate ceramic plaques for models RCE-571TR & RCE-671TR and 2 separate ceramic plaques for models RCE-371H & RCE-471TR.

Pressure Test Point:

The pressure test point is located on the gas control assembly. The test point accepts a 6 mm internal bore tube.

Pilot Injector:

Single injector made from brass.

Primary Aeration:

Primary aeration is fixed and therefore not adjustable. The primary air enters through from the space around the injector.

Electrode:

The ignition electrode is fitted above the ceramic plaques inside the combustion chamber.

Thermocouple Sensors

There is one thermocouple sensor on either end of the burner. Thermocouple ODS1 monitors combustion and causes adjustment of the convection fan via the microprocessor to maintain optimum combustion conditions. Thermocouple ODS2 is placed in a gas rich area of the main burner and its output is indicative of the oxygen level in the room. It causes closure of the solenoid gas valves via the microprocessor if pre-set oxygen limits are reached.

Ignition Device:

Direct electronic ignition incorporated into the electronic control module.

Combustion chamber hood

Constructed of 4 panels. LH & RH panel made from 0.6mm thick ASTM. Burner box and outer shield made from 0.5mm thick heat resistant stainless steel. Combustion chamber hood panels are secured together via spot welds.

Main Componentry continued...**Heating System:****Type:**

Fan Convector.

Convection Fan:

Line flow tangential fan with a variable speed AC motor. The fan motor incorporates a circuit which sends an electric signal to the microprocessor indicative of fan speed. The microprocessor will adjust the voltage/frequency of the power supply to the fan to maintain the desired speed. In case of fan defect (i.e fan does not rotate at all, or fails to reach sufficient RPM during purge) the fan speed indication circuit enables the microprocessor to shut down the heater.

Warm Air Outlets:

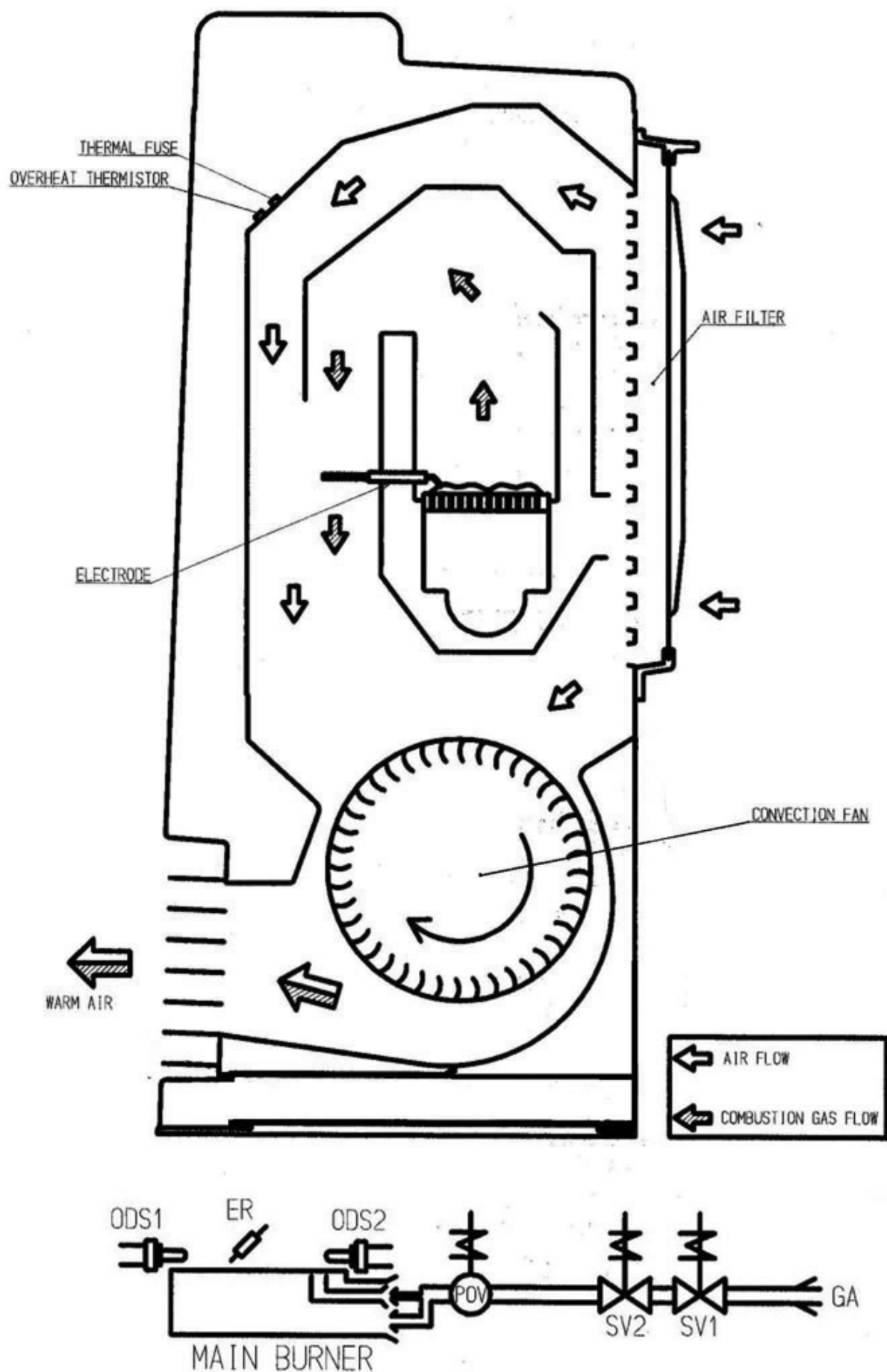
Louvre outlet located at the front.

Air inlet filter:

Air inlet filter is located at the rear of the appliance that will filter the air that is supplied for combustion and convection fan.

Air inlet filter consists of a plastic frame and a stainless steel mesh.

5. Schematic Diagram

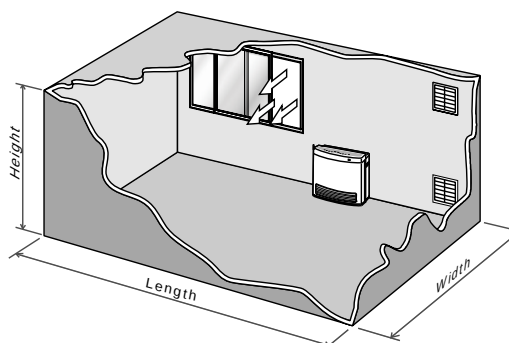


6. Room Size and Ventilation

Check room size and ventilation.

- The AVENGER 25 must not be in a room smaller than 62.5 m³.
- The BLAZE 21 must not be in a room smaller than 52.5 m³.
- The DYNAMO 15 must not be in a room smaller than 37.5 m³.
- The ENDURO 13 must not be in a room smaller than 32.5 m³.

The bayonet plug on the factory fitted flexible hose simply plugs into your bayonet fitting. The control panel is located on the top of the appliance, basic controls are also located on the remote control.



A Rinnai VENT kit provides 2 x 250cm² open area vent grills.

Appliance Operating Sequence:

Refer to Section 13 - Time Charts covering the following operation sequence:

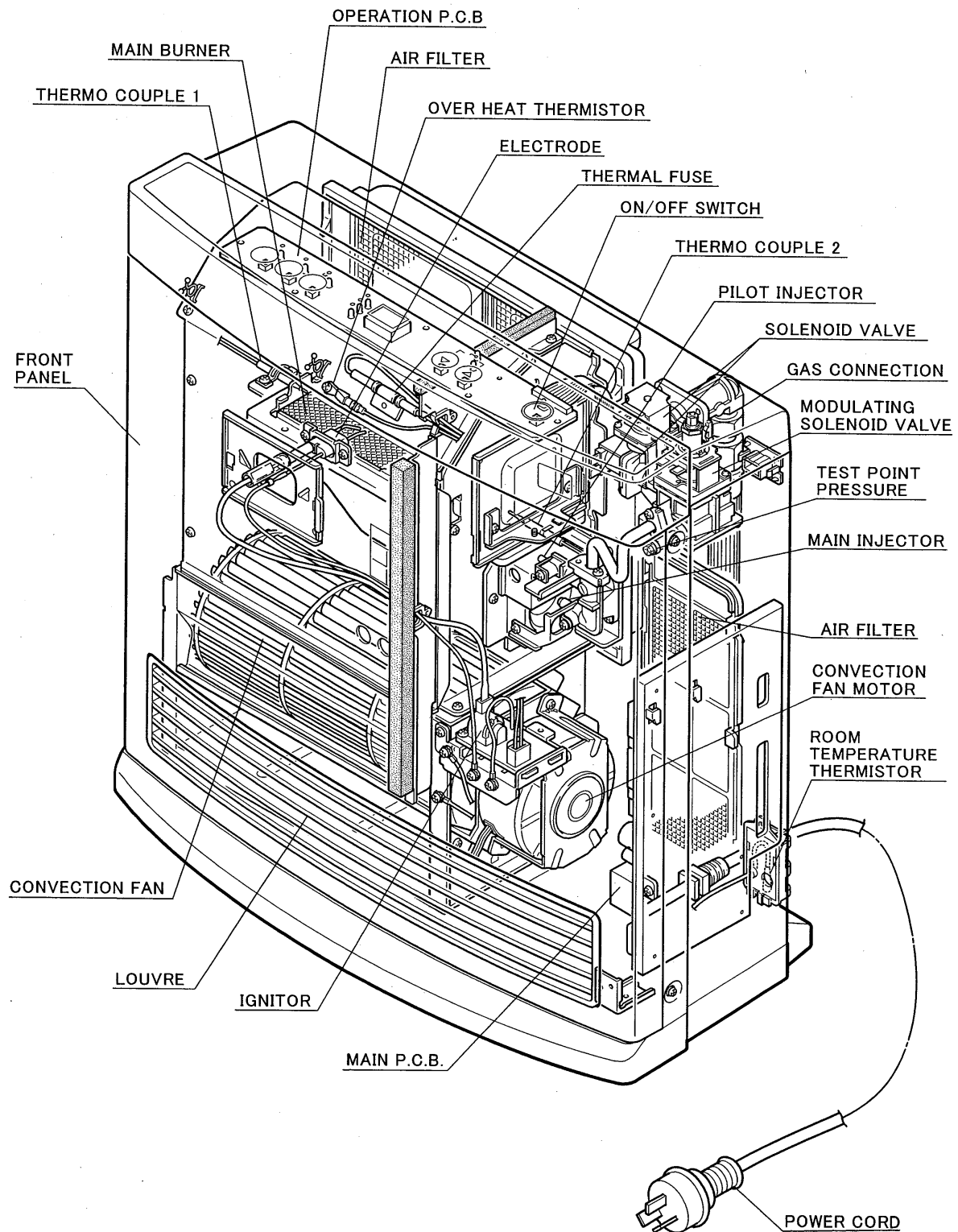
Q	Normal first operation.	Q6	Mis Ignition.
Q1	Normal second operation.	Q7	ON/OFF Switch Failure
Q2	Normal timer operating.	Q8	Power Failure.
Q3	Convection Fan Failure (Below 350rpm)	Q9	Tilt Switch Activated.
Q4	Convection Fan Failure (Above 1800rpm)	Q10	Overheat Switch activated.
Q5	Flame Failure / Oxygen depletion.	Q11	Convection Fan Failure Pre-purge

Normal Operation -

(refer to Time Charts - Section 13.

- Appliance plugged into power point.
- Time display - displayed
- Electrical frequency check - PCB checks filter sensor level
- Solenoid valve checked by PCB
- Appliance operated by ON/OFF switch - thermostat call for heat indicator turns green - temperature displayed.
- Thermo-couple initial check
- Fan purges
- Ignition sparker begins
- Solenoid gas valve open
- Ignition achieved and sensed by thermocouple - indicator light turns red.
- Combustion quality sensed by thermocouple.
- Burner and fan modulated up to heat room.
- Room reaches desired temperature - burner and fan modulates down to maintain desired/set room temperature.
- Appliance operation switch is turned off.
- Gas valve turns off.
- Indicator light goes out.
- Fan operating on level 5 for cooling appliance down.
- Temperature display reverts to time display.
- Fan stops.

7. Cut - Away Diagram

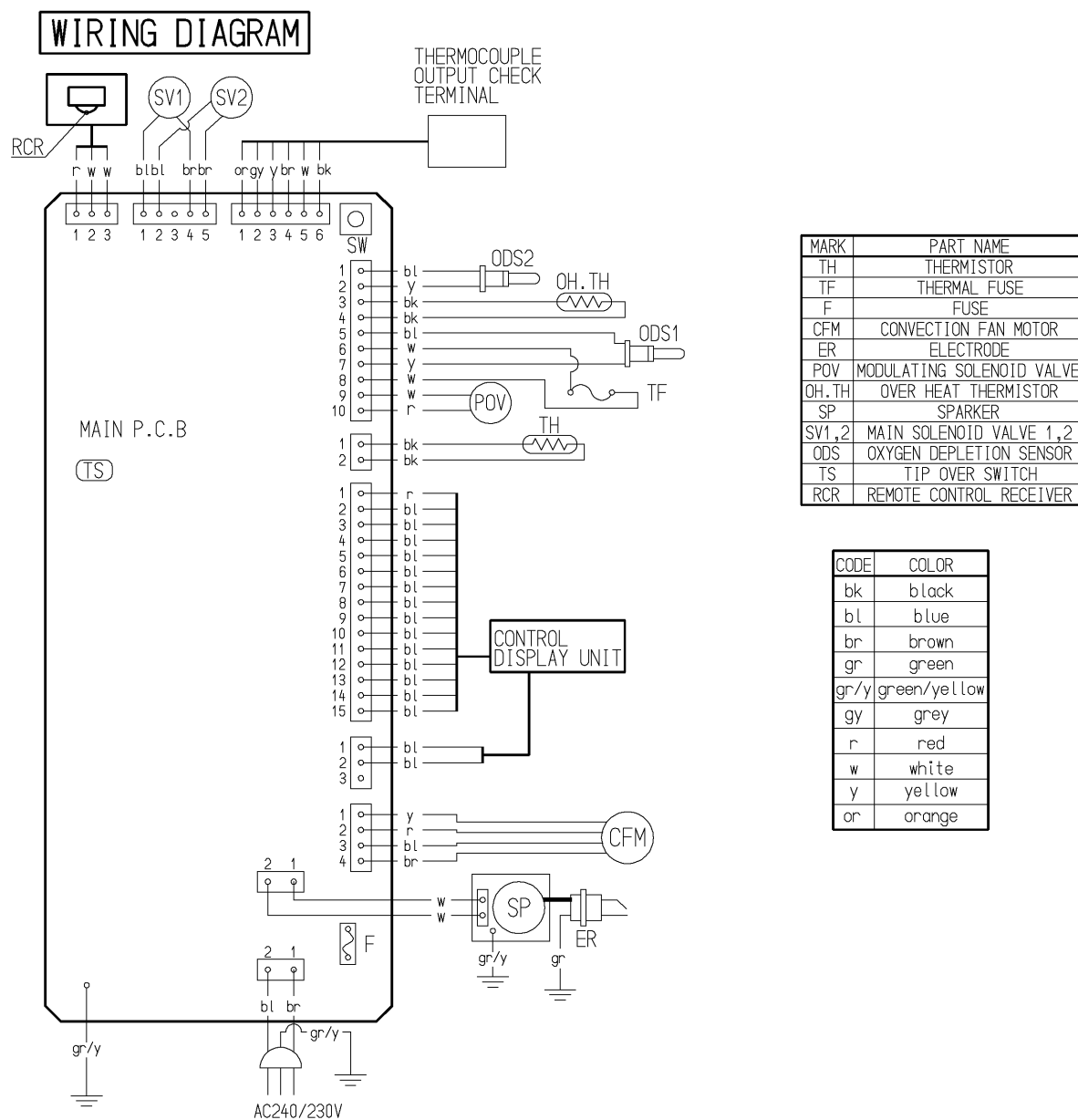


8. Fault Analysis

Diagnostic points

Components	Mark	Wire colour	Value	
Convection fan motor	CFM	Blue -Brown	DC 10 ~ 24V	
		Blue-Yellow	2000 ~ 5000 Pulse/min (33 ~ 84Hz)	
		Blue-Red	DC 11 ~ 14V	
Modulation valve	POV	White - Red	DC 1 ~ 14V 65 ~ 90Ω	
Oxygen depletion sensor 1	ODS1	Yellow - Blue	High	25≤NG≤28mV 23≤LP≤26mV
			Low	17≤NG≤21mV 16≤LP≤20mV
Oxygen depletion sensor 2	ODS2	Yellow - Blue	High	18≤NG≤26mV 23≤LP≤31mV
			Low	15≤NG≤23mV 16≤LP≤24mV
Sparker	SP	White - White	AC 204 ~ 276V	
Solenoid valve	SV	Blue-Brown	DC 11 ~ 14V 35 ~ 53Ω	
Room Temp Thermistor	TH	Black-Black	10°C 58 ~ 73kΩ	
			20°C 33 ~ 44kΩ	
			40°C 9 ~ 19kΩ	
Over heat Thermistor	OH.TH	Black-Black	20°C 70 ~ 85kΩ	
			40°C 25 ~ 40kΩ	
			70°C 8 ~ 15kΩ	

9. Wiring Diagram



If the supply cord is damaged or requires replacing, it must be replaced by the manufacturer or the manufacturer's agent or similarly qualified person in order to avoid a hazard. The supply cord must only be replaced with a genuine Rinnai spare part.

10. Gas Pressure Setting



Refer to gas pressure setting instructions behind front cover of appliance.

11. Error Code Messages

FAULT FINDING PROCEDURE

Use the following chart to help determine whether a service call is required, however if you are unsure about the way your heater is operating, contact Rinnai Australia, or your local agent.

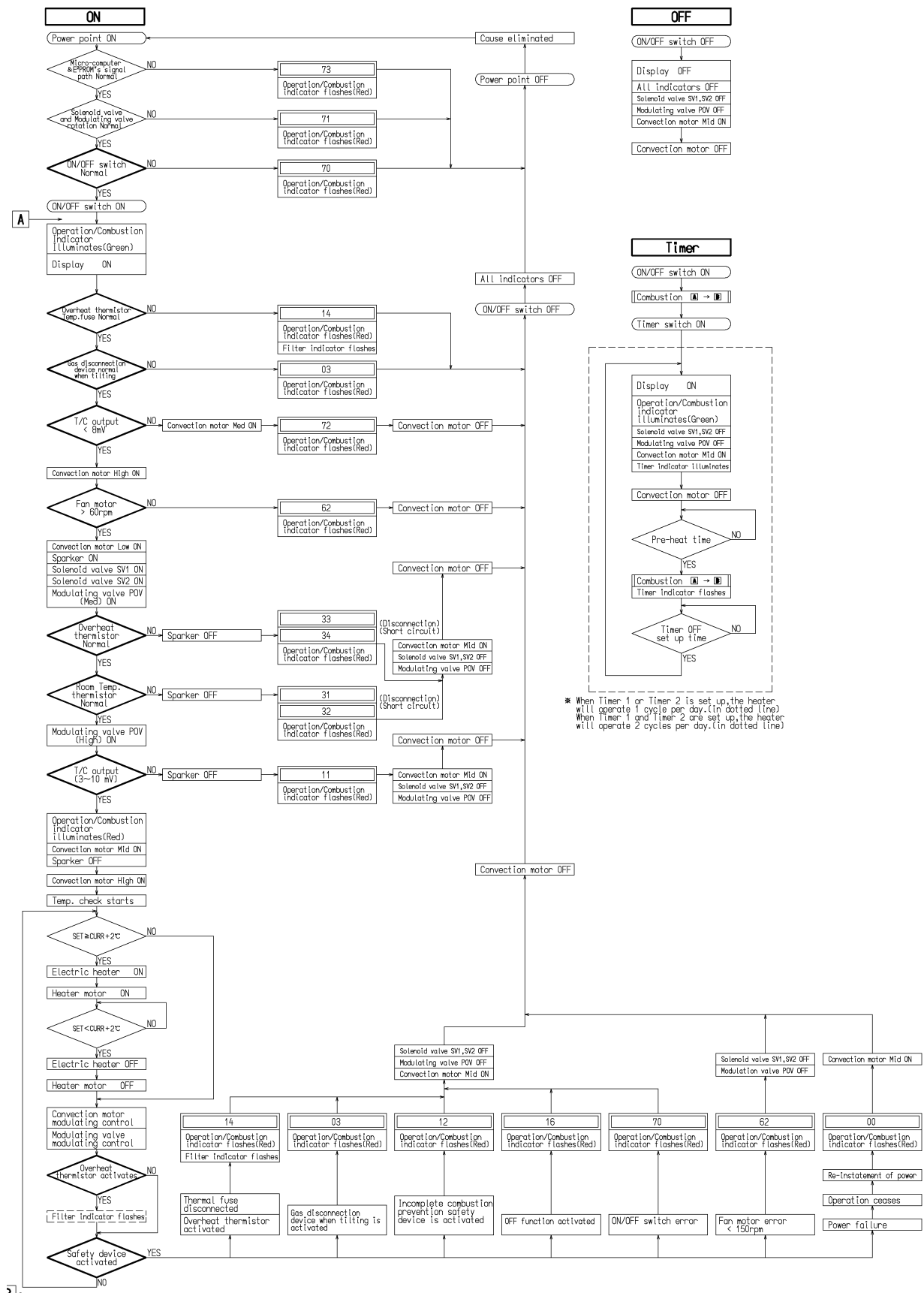
Fault Condition Probable Cause						Possible Remedy
	No ignition or control panel indicators	Burners fail to ignite	Combustion stops during operation	Smell of gas	Remote control doesn't work	
Not plugged in or turned on	●				●	Plug in power cord or press On/Off ② button.
Mains power failure	●		●			Use power failure reset procedure
(Initial Installation) Air in gas pipe		●				Installer to purge air from gas supply.
Filter obstructed			●			Remove the obstruction from the louvres.
Gas escape				●		Contact Rinnai for service, (contact numbers page 59).
On Time Set					●	Use the Override.
Lock Set					●	Cancel lock
Gas supply turned off		●	●			Turn gas supply on at meter or cylinder
Flat batteries					●	Replace the remote control batteries one CR2032 3v.
Remote Control lock-up due to miss operations such as the remote signal being out of range, incorrectly aimed or obstructed.					●	Press the ON/OFF ⑪ button on remote control.

ERROR CODES

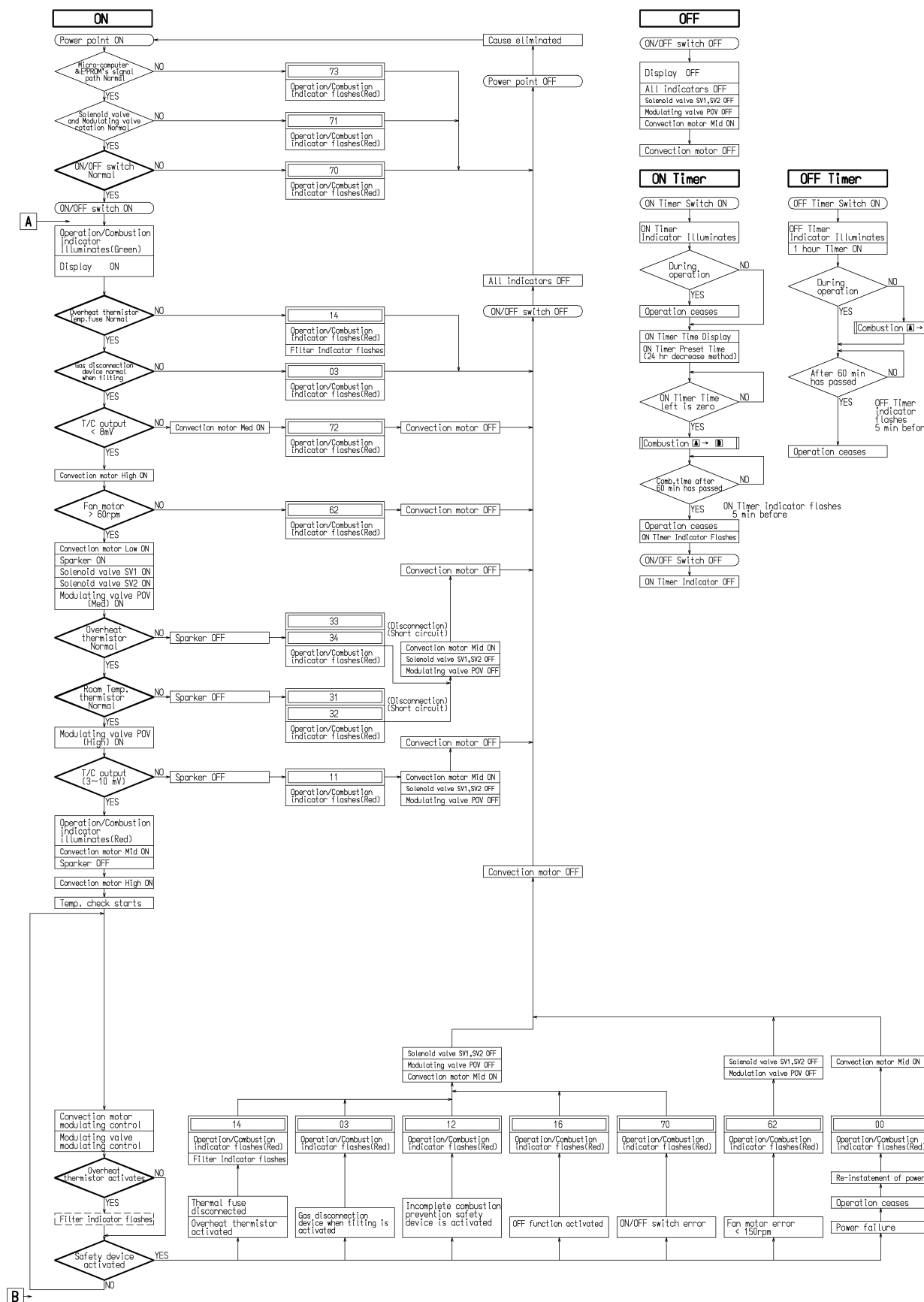
Code	Probable Cause	Suggested Remedy
00	Mains power failure during operation	Press the ON/OFF button ② twice to reset heater.
03	Gas interrupted due to Tilt switch activated	Ensure appliance is level & upright. Service call if repeated.
11	Ignition failure	Check gas supply is turned on, turn the heater OFF and then ON again. If the heater fails to ignite after 4 attempts call Rinnai.
12	Incomplete combustion / Flame Failure	As above.
13	Thermocouple high cut out Convection fan over revolution	Contact Rinnai
14	Thermal Fuse melted Overheat thermistor activated	Clean filters. If error continues call Rinnai.
16	Unit cuts off	Lower room temp to below 40°C.
18	Temperature sensor faulty	Contact Rinnai.
31	Room temperature sensor faulty	Broken circuit - Contact Rinnai.
32	Room Temperature sensor faulty	Short circuit - Contact Rinnai.
33	Overheat Thermistor sensor faulty	Broken circuit - Contact Rinnai.
34	Overheat Thermistor sensor faulty	Short circuit - Contact Rinnai.
62	Faulty fan motor / Appliance abnormal overheat	Contact Rinnai.
70	ON/OFF switch faulty	Contact Rinnai.
71	Solenoids or modulating valve circuit faulty	Contact Rinnai.
72	Thermocouple initial value abnormal / Thermocouple detects too high level	Contact Rinnai.
73	PCB (EEPROM) abnormal	Press the ON/OFF button ② twice to reset heater.

12. Operational Flow Chart

Dynamo 15 (RCE-471TR) & Blaze 21 (RCE-571TR) & Avenger 25 - (RCE-671TR)

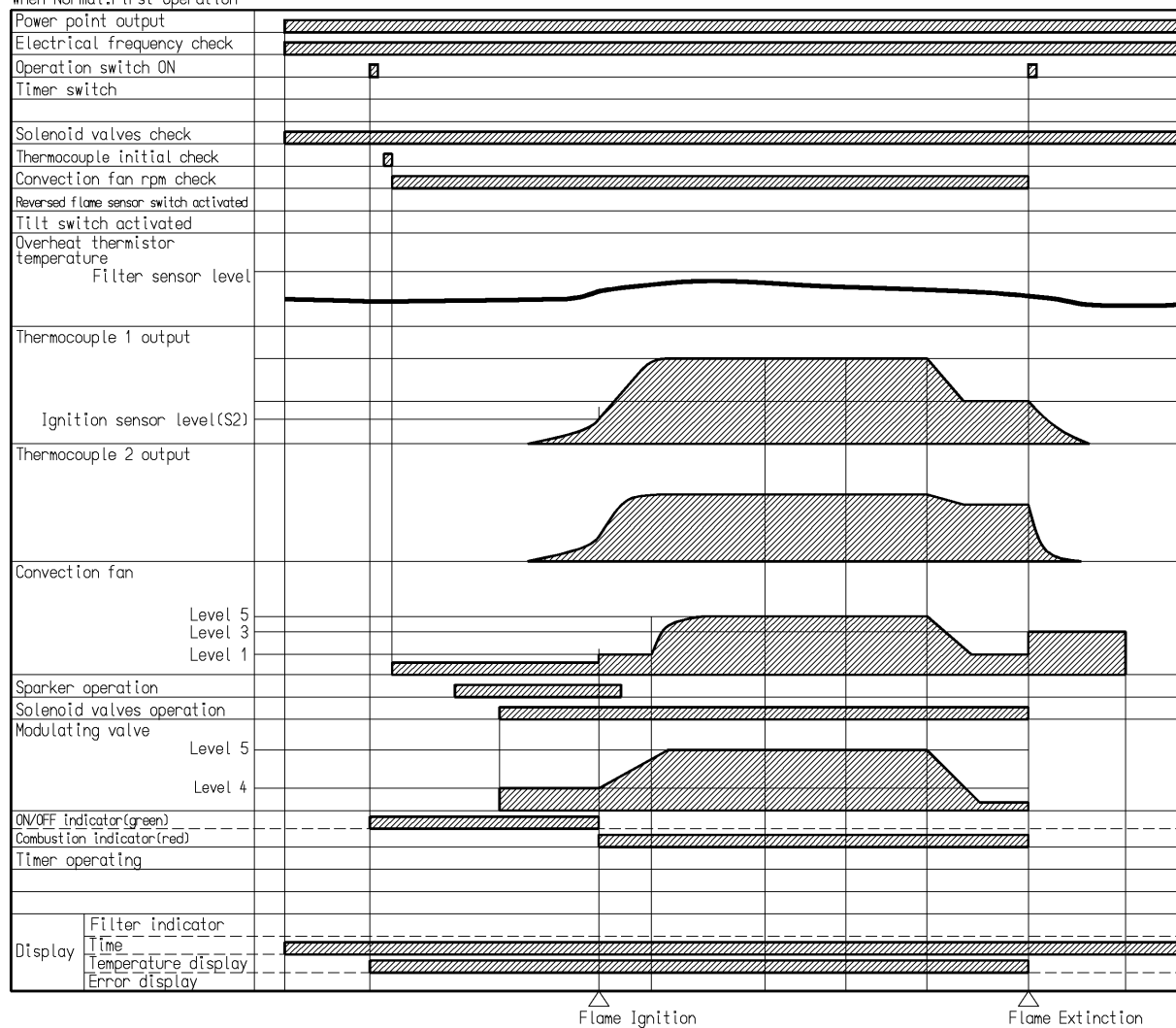


Enduro - (RCE-371H)

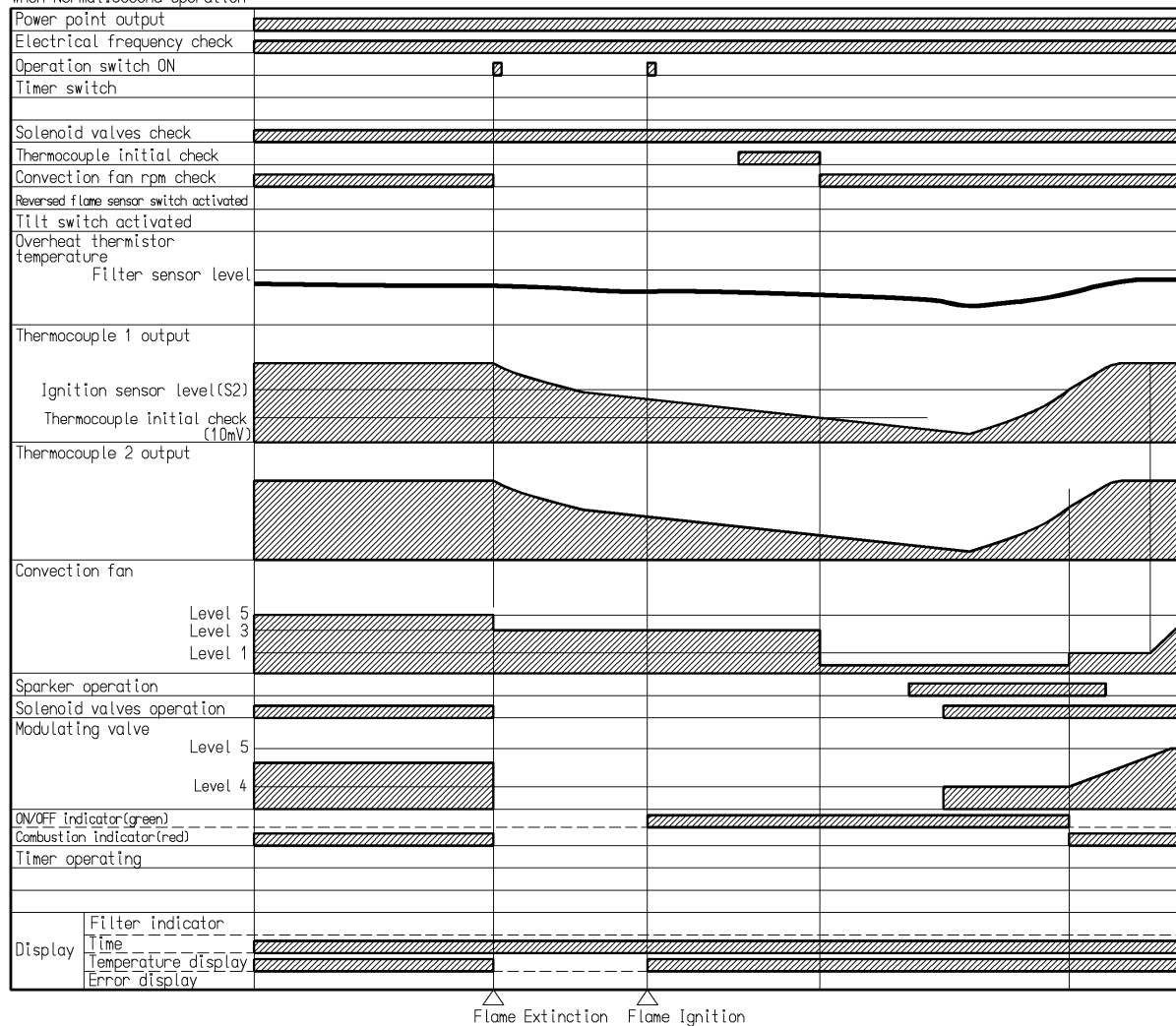


13. Time Charts

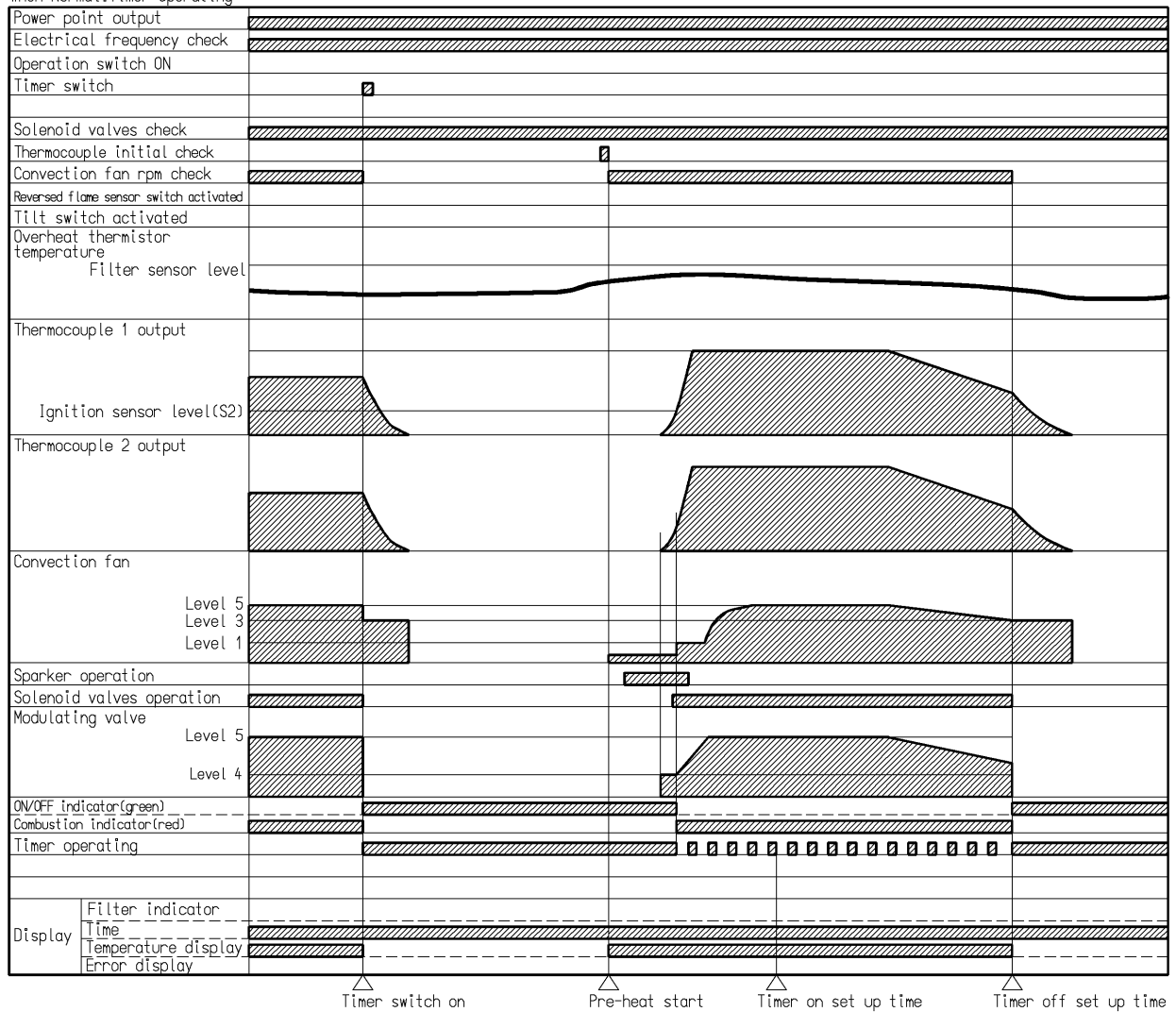
When Normal:First Operation



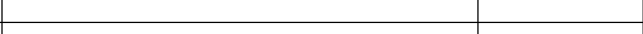
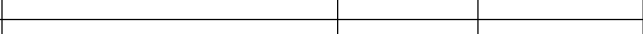
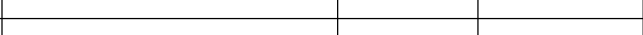
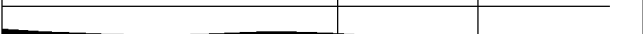
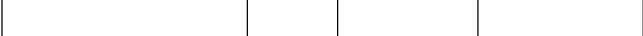
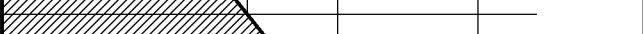
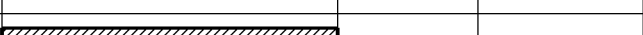
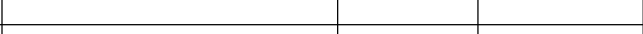
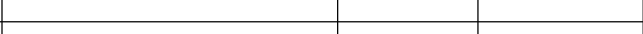
When Normal:Second Operation



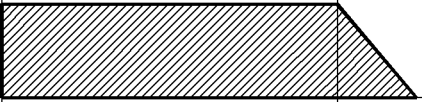
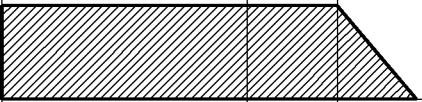
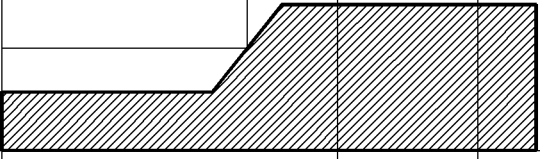
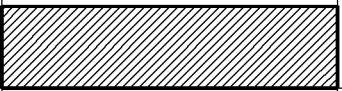
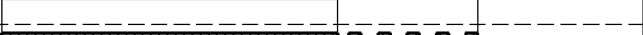
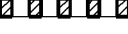
When Normal:Timer Operating



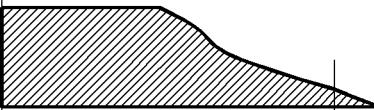
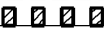
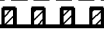
Fault:Convection Fan rpm Failure(Below 350rpm)

Power point output	
Electrical frequency check	
Operation switch ON	
Timer switch	
Solenoid valves check	
Thermocouple initial check	
Convection fan rpm check	
Reversed flame sensor switch activated	
Tilt switch activated	
Overheat thermistor temperature	
Filter sensor level	
Thermocouple 1 output	
Each level from 1~5	
Thermocouple 2 output	
Each level from 1~5	
Convection fan	
Each level from 1~5	
350rpm	
Sparker operation	
Solenoid valves operation	
Modulating valve	
Each level from 1~5	
ON/OFF indicator(green)	
Combustion indicator(red)	
Timer operating	
Display	
Filter indicator	
Time	
Temperature display	
Error display	
	
	
	
	
	
	
	
	
	
	
	
	

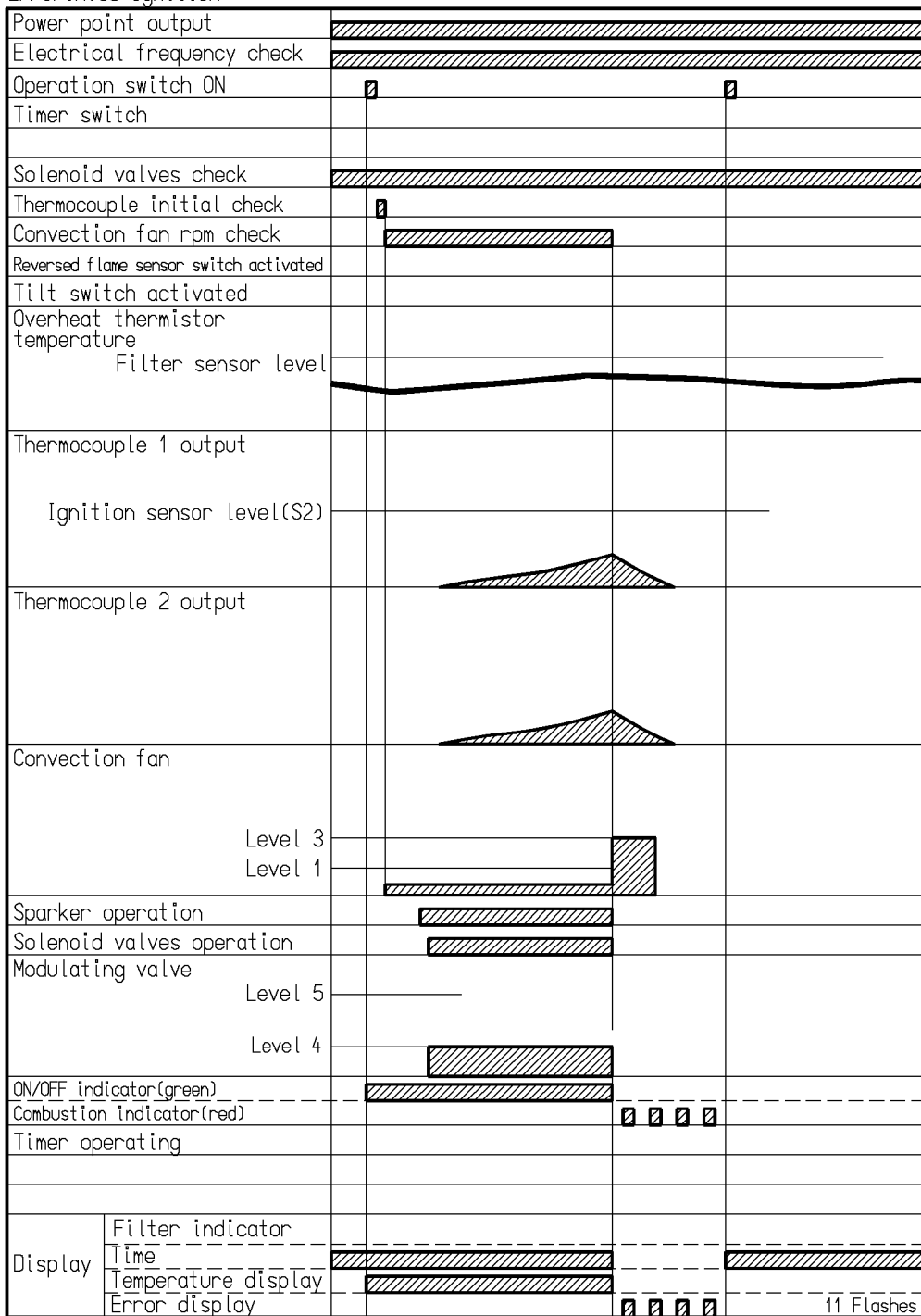
Fault:Convection Fan rpm Failure(Above 1800rpm)

Power point output			
Electrical frequency check			
Operation switch ON			
Timer switch			
Solenoid valves check			
Thermocouple initial check			
Convection fan rpm check			
Reversed flame sensor switch activated			
Tilt switch activated			
Overheat thermistor temperature			
Filter sensor level			
Thermocouple 1 output			
Each level from 1~5			
Thermocouple 2 output			
Each level from 1~5			
Convection fan			
1800rpm			
Each level from 1~5			
Sparker operation			
Solenoid valves operation			
Modulating valve			
Each level from 1~5			
ON/OFF indicator(green)			
Combustion indicator(red)			
Timer operating			
Display	Filter indicator		
	Time		
	Temperature display		
	Error display		
		62 Flashes	

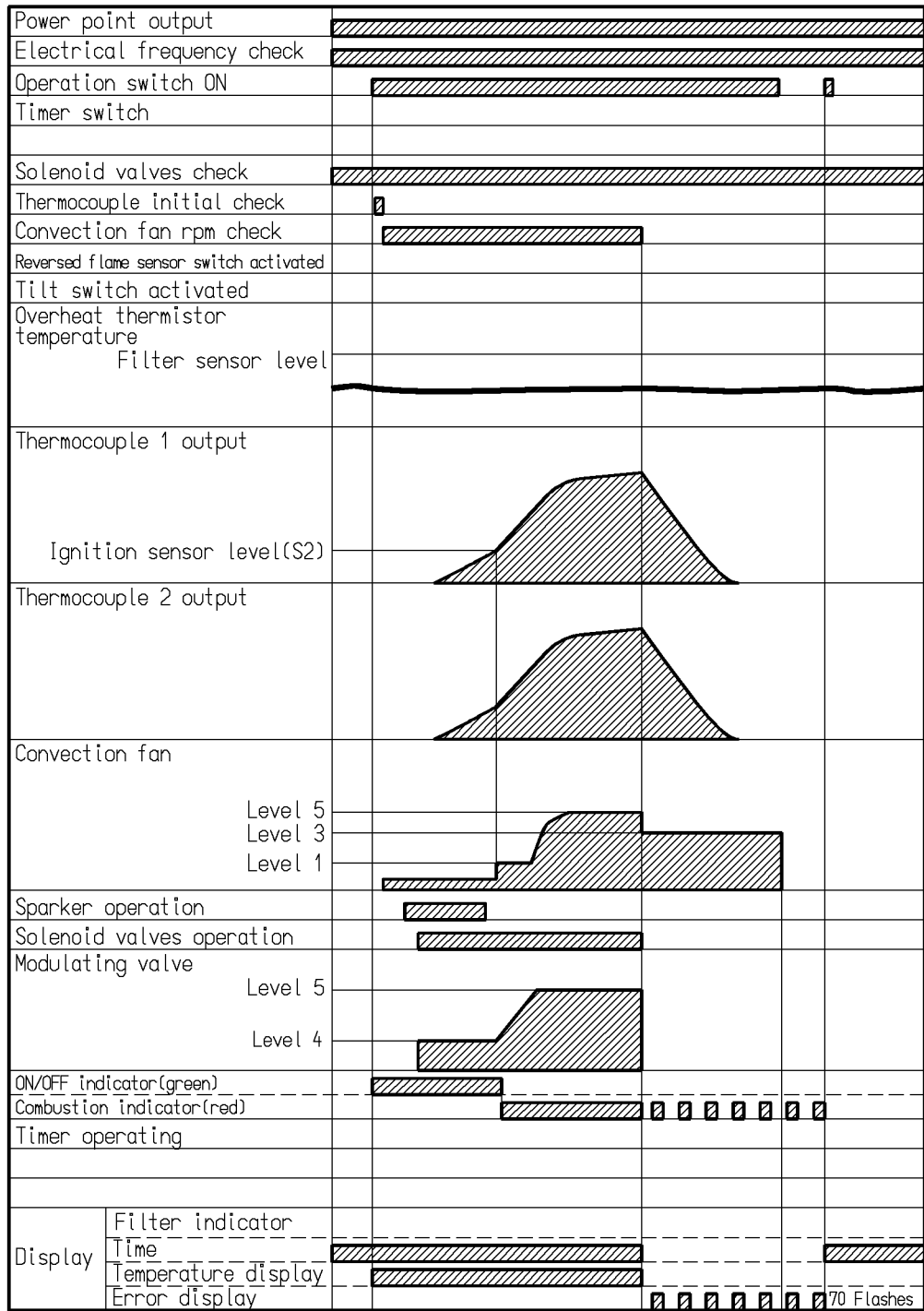
Error:Flame Failure/Oxygen Depletion

Power point output				
Electrical frequency check				
Operation switch ON				
Timer switch				
Solenoid valves check				
Thermocouple initial check				
Convection fan rpm check				
Reversed flame sensor switch activated				
Tilt switch activated				
Overheat thermistor temperature				
Filter sensor level				
Thermocouple 1 output				
Each level from 1~5				
Ignition sensor level(S2)				
Thermocouple 2 output				
Each level from 1~5				
Convection fan				
Each level from 1~5				
Level 3				
Sparker operation				
Solenoid valves operation				
Modulating valve				
Each level from 1~5				
ON/OFF indicator(green)				
Combustion indicator(red)				
Timer operating				
Display	Filter indicator			
	Time			
	Temperature display			
	Error display			12 Flashes

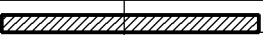
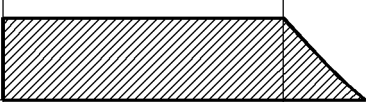
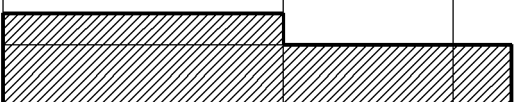
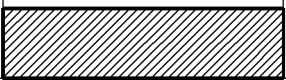
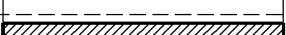
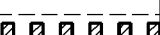
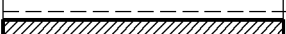
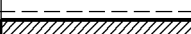
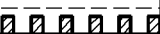
Error:Miss-Ignition



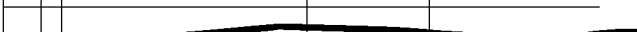
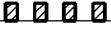
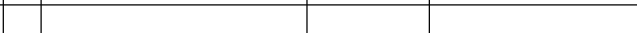
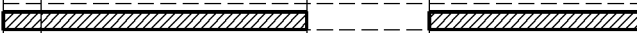
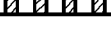
Fault:ON/OFF Switch Failure



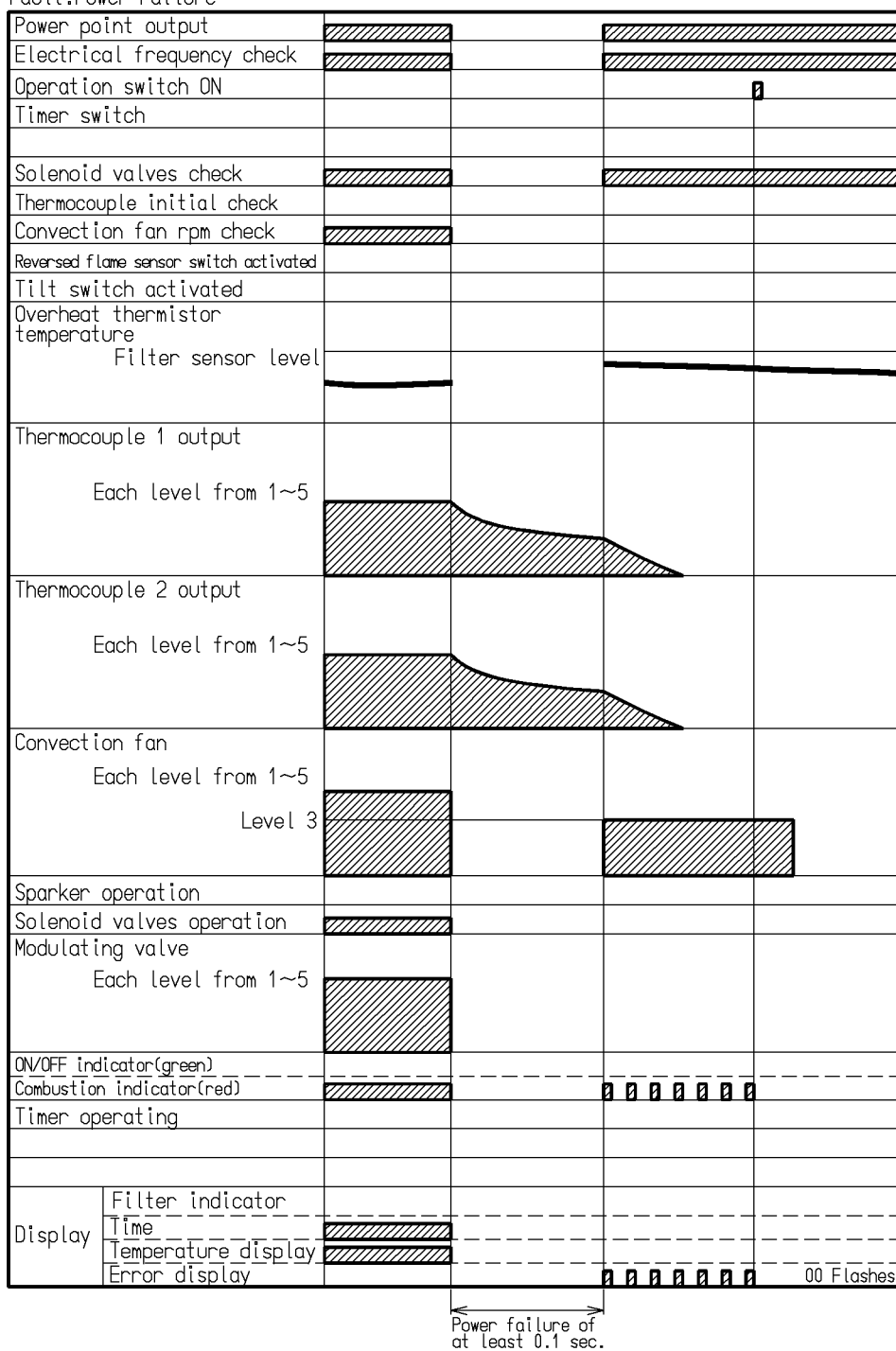
Fault:Tilt Switch Activated

Power point output	
Electrical frequency check	
Operation switch ON	
Timer switch	
Solenoid valves check	
Thermocouple initial check	
Convection fan rpm check	
Reversed flame sensor switch activated	
Tilt switch activated	
Overheat thermistor temperature	
Filter sensor level	
Thermocouple 1 output	
Each level from 1~5	
Thermocouple 2 output	
Each level from 1~5	
Convection fan	
Each level from 1~5	
Level 3	
Sparker operation	
Solenoid valves operation	
Modulating valve	
Each level from 1~5	
ON/OFF indicator(green)	
Combustion indicator(red)	 
Timer operating	
Display	
Filter indicator	
Time	 
Temperature display	
Error display	 03 Flashes

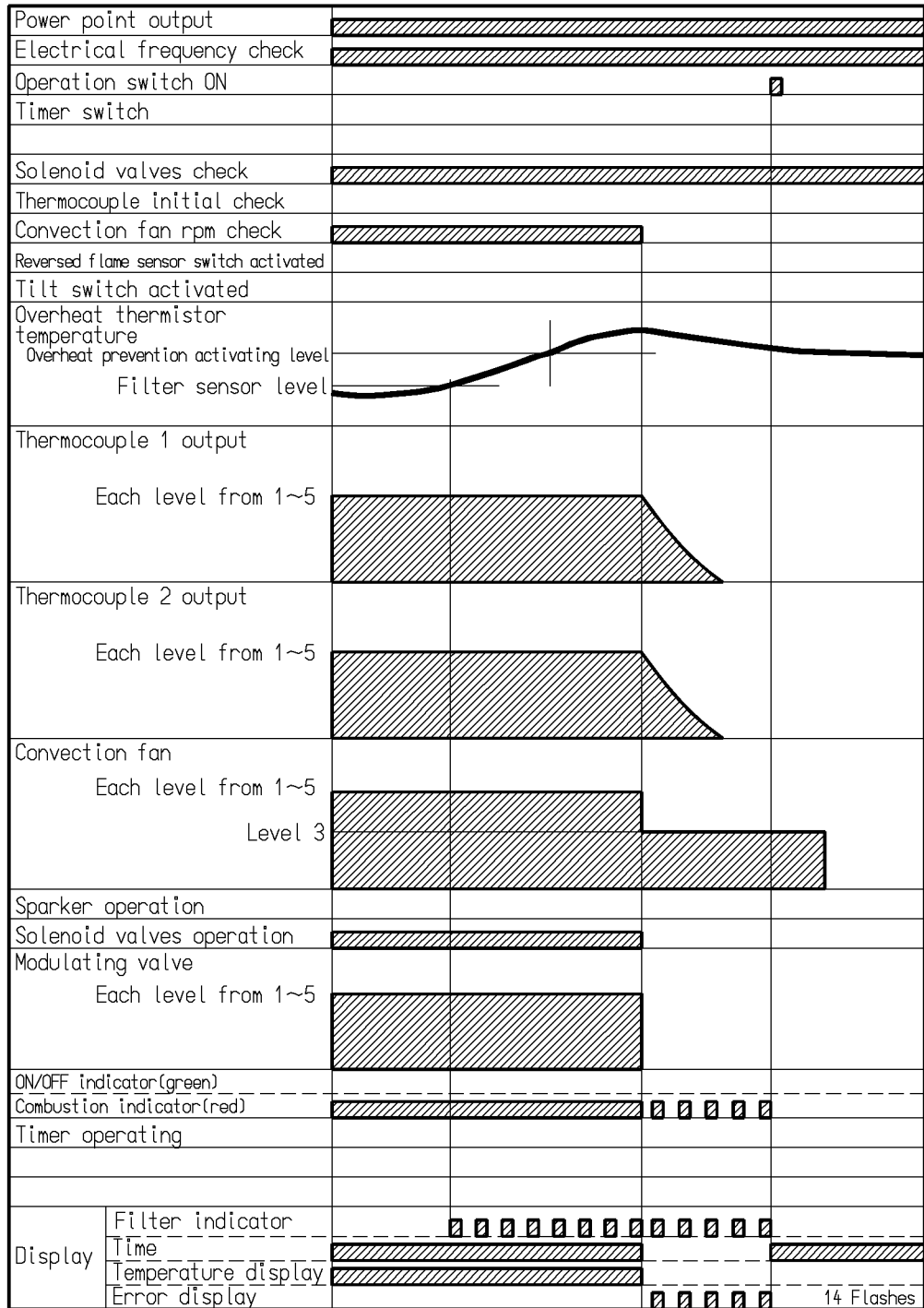
Fault:Convection Fan rpm Failure(Below Pre-purge rpm)

Power point output			
Electrical frequency check			
Operation switch ON			
Timer switch			
Solenoid valves check			
Thermocouple initial check			
Convection fan rpm check			
Reversed flame sensor switch activated			
Tilt switch activated			
Overheat thermistor temperature			
Filter sensor level			
Thermocouple 1 output			
Thermocouple 2 output			
Convection fan			
60rpm			
Sparkers operation			
Solenoid valves operation			
Modulating valve			
ON/OFF indicator(green)			
Combustion indicator(red)			
Timer operating			
Display	Filter indicator		
	Time		
	Temperature display		
	Error display		
		62 Flashes	

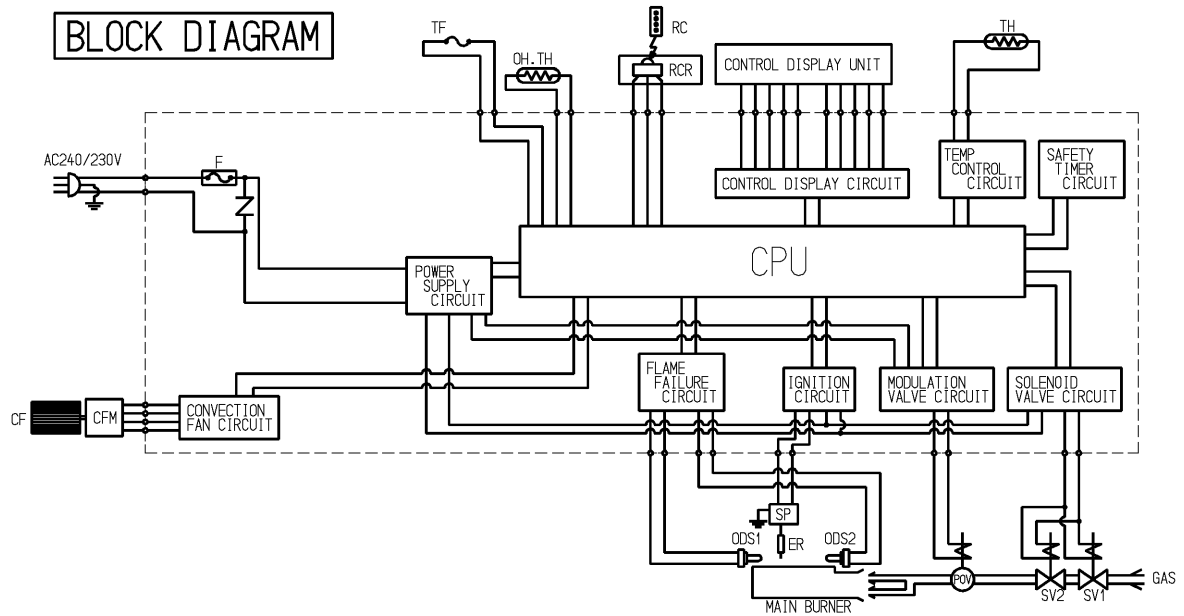
Fault:Power Failure



Fault:Overheat



14. Block Diagram



15. Dismantling for Servicing



NOTE: Before proceeding with dismantling, be sure to follow the **CAUTION** instructions before each explanation.

- e.g. - Isolate gas supply
- Disconnect electrical supply from wall socket

ITEM	PAGE
1/ Removal of Front Panel.....	29
2/ Removal of Convection Fan	29
3/ Removal of Convection Fan Motor.....	30
4/ Removal of Top Panel.....	31
5/ Removal of Combustion Box.....	32
6/ Removal of Burner	34
7/ Removal of Injector Holder.....	36
8/ Removal of Injector	36
9/ Removal of Gas Control.....	36
10/ Removal of PCB.....	36

Unless otherwise stated, re-assembly is the reverse of dismantling.

CAUTION

240 Volt exposure. Isolate the electrical supply to the appliance and reconfirm with the neon screwdriver or multimeter.



1) Removal of Front Panel

- a.) Remove screws from the hot air outlet grill (3 screws)



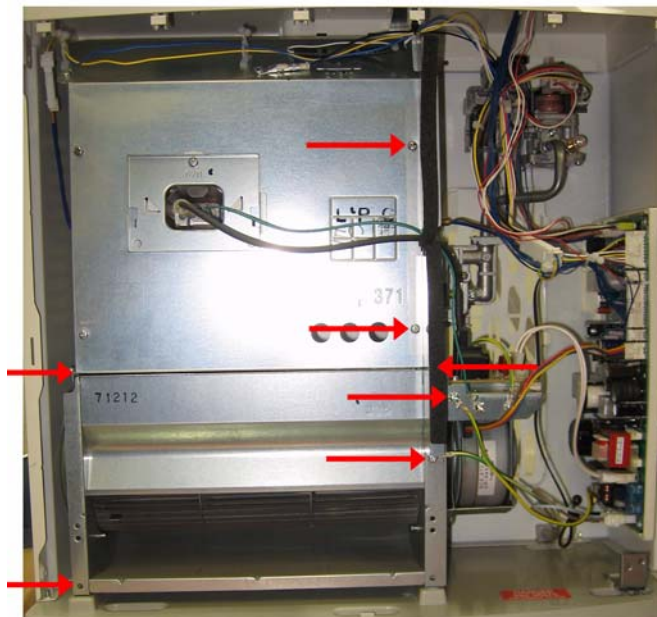
- b.) Remove screws from the front panel. (4 screws).

2) Removal of Convection Fan

- a.) Remove Hood Partition Plate
- b.) Unplug Electrode wire
- c.) Remove Sparker Fixing Plate (1 screw)
- d.) Remove earth fixing screw
- e.) Remove fixing screws of the combustion box (2 screws)
- f.) Remove fixing screw in left corner (1 screw)
- g.) Remove 2 fixing screws under air filter
- h.) Unplug motor from loom and PCB

CAUTION

240 Volt exposure. Isolate the electrical supply to the appliance and reconfirm with the neon screwdriver or multimeter.

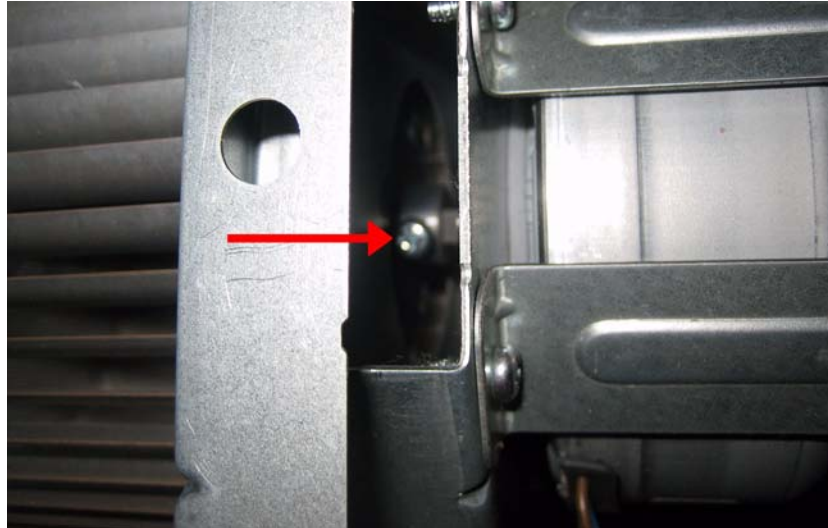


3) Removal of Convection Fan Motor

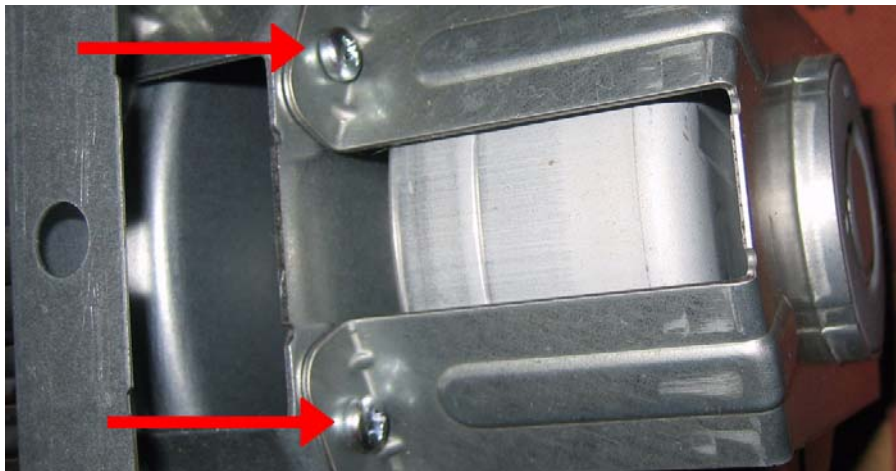
- a.) Remove fixing screw between fan and motor.
(Refer to image on the following page).

CAUTION

240 Volt exposure. Isolate the electrical supply to the appliance and reconfirm with the neon screwdriver or multimeter.

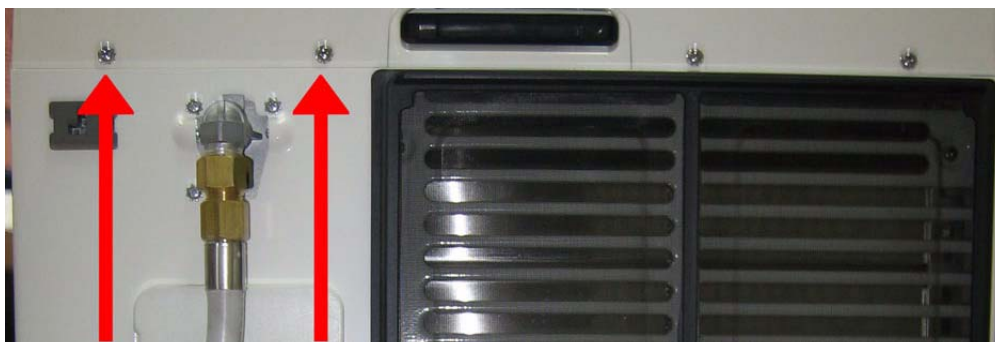


b.) Remove fixing screws of motor mounting bracket (4 screws).



4) Removal of Top Panel

a.) Remove back mounting screws (3 screws).

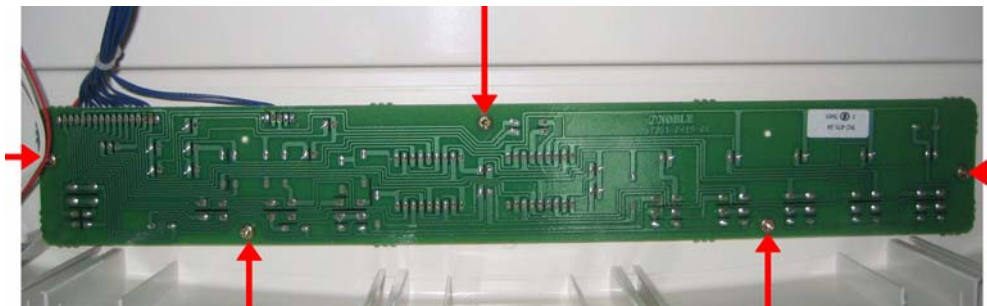


CAUTION

240 Volt exposure. Isolate the electrical supply to the appliance and reconfirm with the neon screwdriver or multimeter.

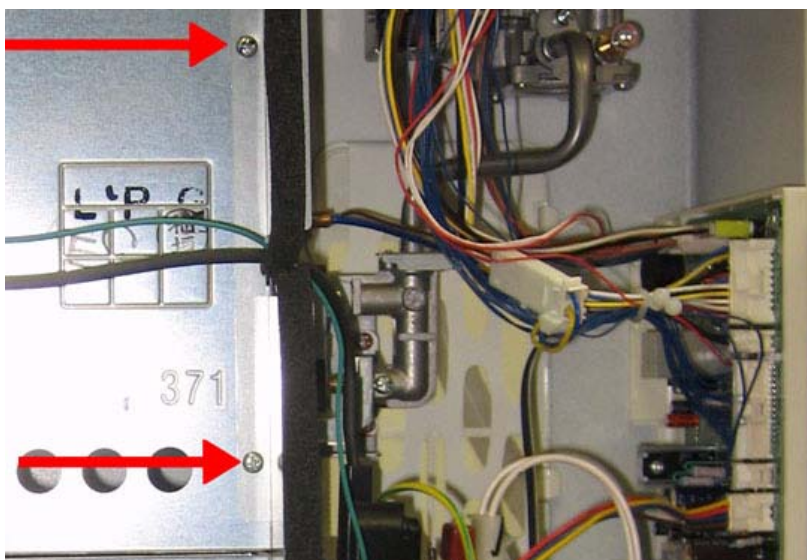


- b.) Unplug connection wire between Main PCB and PCB Control.
- c.) Remove of Control Board.



5) Removal of Combustion Box

- a.) Remove Hood Partition Plate (2 screws).



- b.) Remove Mounting screws in both sides (2 screws).

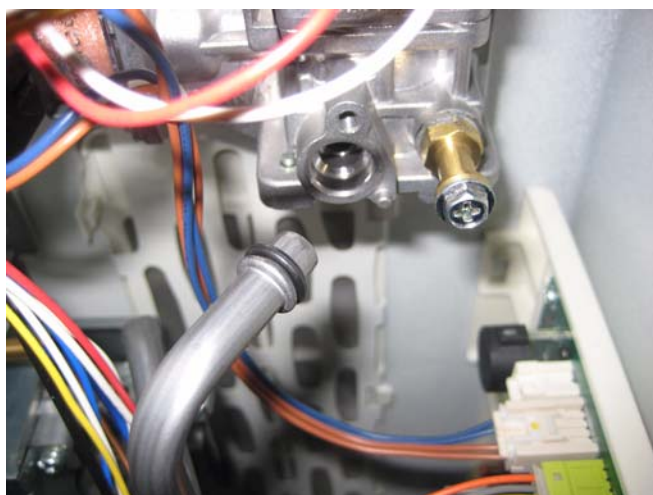


CAUTION

240 Volt exposure. Isolate the electrical supply to the appliance and reconfirm with the neon screwdriver or multimeter.



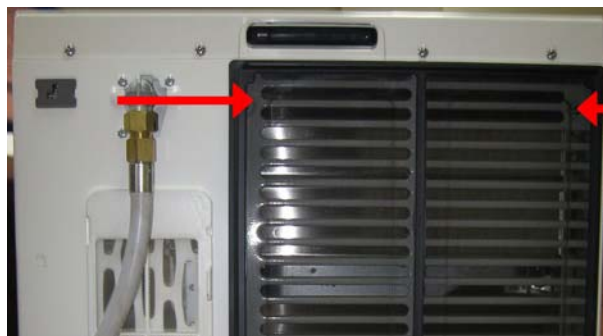
- c.) Remove Connecting Tube Retainer (1 screw).
- d.) Remove Connecting Tube.



- e.) Unplug thermocouples leads, fusible link and overheat thermistor.
- f.) Remove air filter (1 screw).



- g.) Remove back panel mounting screws (2 screws)



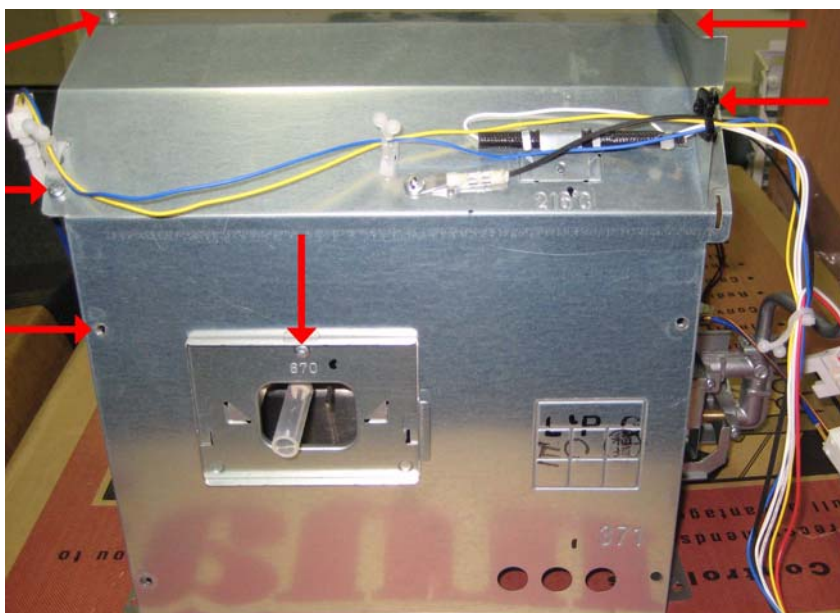
CAUTION

240 Volt exposure. Isolate the electrical supply to the appliance and reconfirm with the neon screwdriver or multimeter.



6) Removal of Burner

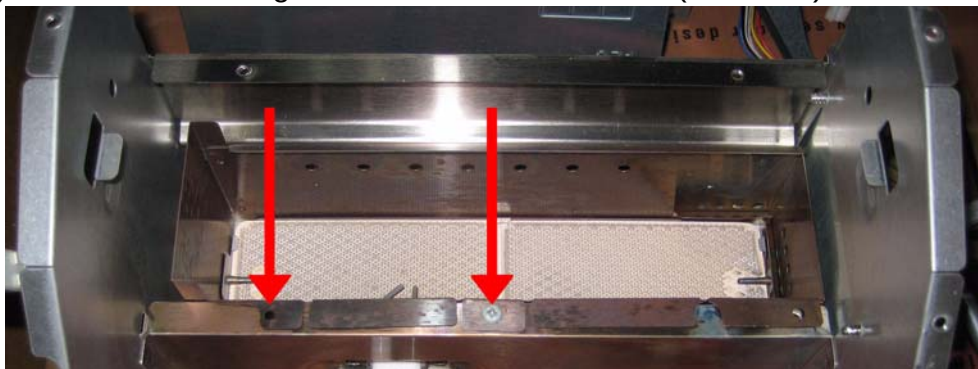
- a.) Remove Upper Partition Plate (2 screws).
- b.) Remove screw from Electrode cover plate.
- c.) Remove hood (4 screws).



- d.) Remove Distribution Plate.



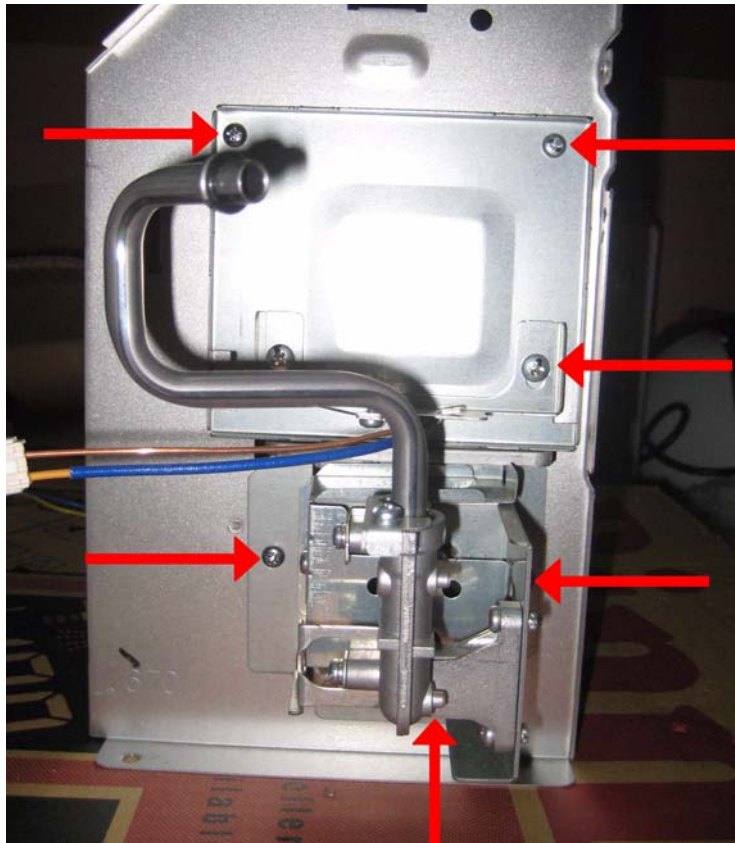
- e.) Remove mounting screws of combustion box (3 screws).



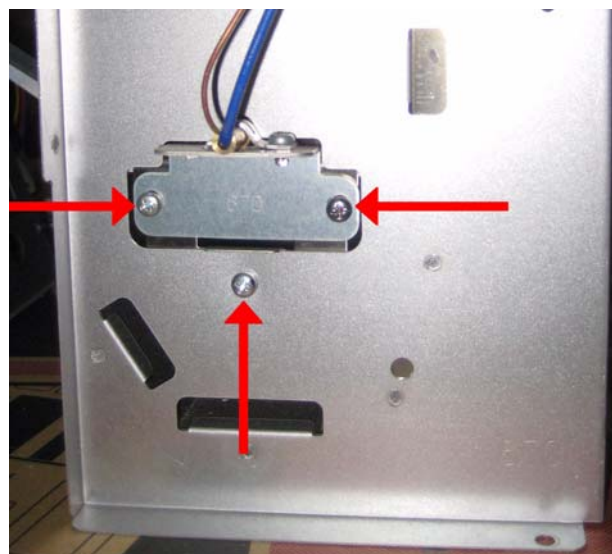
- f.) Remove mounting screws in right hand side (7 screws).

CAUTION

240 Volt exposure. Isolate the electrical supply to the appliance and reconfirm with the neon screwdriver or multimeter.



g.) Remove mounting screws LHS of thermocouple lead bracket (3 screws)

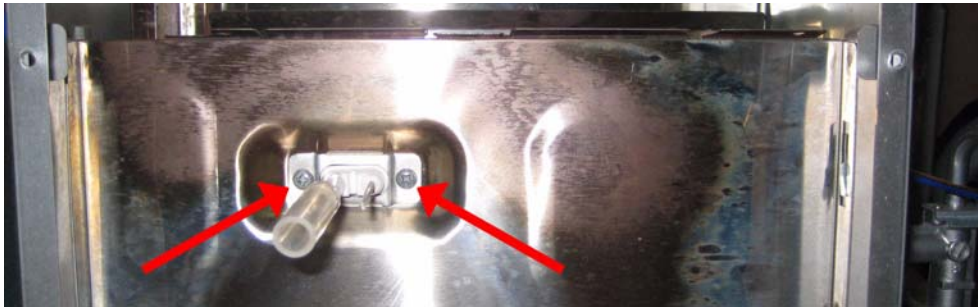


CAUTION

240 Volt exposure. Isolate the electrical supply to the appliance and reconfirm with the neon screwdriver or multimeter.



h.) Remove 2 screws on ignition electrode.



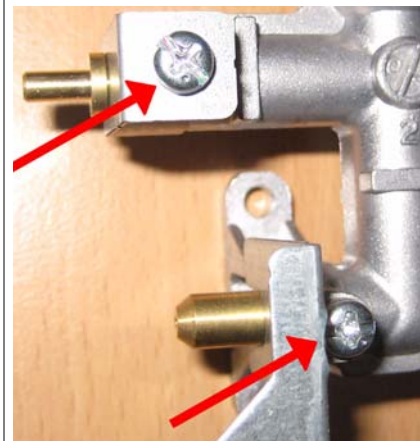
i.) Slide burner out from right hand side.

7) Removal of Injector Holder

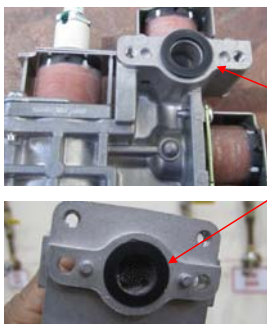
- a.) Remove injector restrictor.
- b.) Remove mounting screws of injector holder (3 screws).

8) Removal of Injector

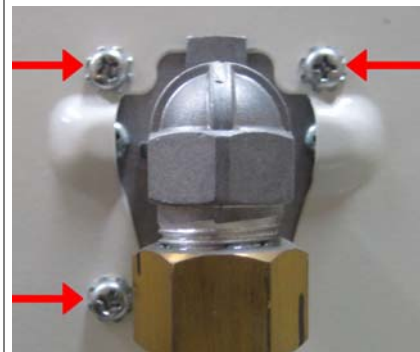
Removal of mounting screw of injector holder.



9) Removal of Gas Control



Gasket (RA Part # 90176637) must be installed to prevent gas leaks



WARNING

If the gas valve is removed for servicing or replacement. Please ensure the 'O' ring remains undamaged and in place during re-assembly.

10) Removal of PCB

16. Parts List

“RCE-371H” on page 38

“RCE-471TR” on page 41

“RCE-571TR / RCE-671TR” on page 44

RCE-371H

Effective: 07/09/2011

Supersedes: 27/02/07

V2

RCE-371H-1A (Beige) / RCE-371H-1S (Platinum Silver)

NO.	PART NAME	RA PART NO.	11 DIGIT CODE	Beige	Platinum Silver
001	Front Panel (Beige)	90192569	019-3710000	1	
001	Front Panel (Platinum Silver)	90192567	019-3711000		1
003	Louvre Bottom (Beige)	90193040	095-236-000	1	
003	Louvre Bottom (Platinum Silver)	90190242	095-202-000		1
005	Panel Rear (Beige)	90193115	004-868-000	1	
005	Panel Rear (Platinum Silver)	90193117	004-869-000		1
007	TC Check Holder		098-2067000	1	1
008	Panel Top (Beige)	90193205	001-0451000	1	
008	Panel Top (Platinum Silver)	90193307	001-0452000		1
010	Panel Control	90191507	063-744-000	1	1
016	Base (Beige)	90191944	015-313-000	1	
016	Base (Platinum Silver)	90191846	015-314-000		1
018	Handle Cover		098-912-000	1	1
020	Elec Cord Holder (Beige)	90176215	504-033-000	2	
020	Elec Cord Holder (Platinum Silver)	90176215	504-016-000		2
021	Filter Air	90192769	017-0092000	1	1
023	Filter Plastic (Beige)	90161167	017-198-000	1	
023	Filter Plastic (Platinum Silver)	90193137	017-965-000		1
025	Plastic Head Screw		501-877-000	1	1
026	Thermistor Cover		098-0752000	1	1
100	Combustion Chamber Assembly		055-958-000	1	1
101	Burner Assembly	90192647	170-634-000	1	1
102	Gas Control	90192902	114-500-000	1	1
103	O-Ring Gas	90148594	520-001-010	2	2
104	Connecting Tube		109-422-000	1	1
105	Connecting Tube Retainer B		537-481-000	2	2
106	Injector Main NG 1.85	90193437	130-387-185	1	1
106	Injector Main LP 1.25	90193288	130-386-125	1	1
107	Injector NG 0.25	90193639	130-537-025	1	1
107	Injector LP 0.20	90192899	131-284-020	1	1
108	O-Ring		520-006-010	2	2

RCE-371H-1A (Beige) / RCE-371H-1S (Platinum Silver)

NO.	PART NAME	RA PART NO.	11 DIGIT CODE	Beige	Platinum Silver
109	Injector Filter		017-0036000	1	1
110	Pressure Point		501-193-000	1	1
111	O-Ring Test Point	90195165	520-300-010	1	1
112	Screw Test Point	92099956	501-275-005	1	1
113	Hose 15mm with 3/8 (H1500M3810)		513-0011000	1	1
114	Piping Bushing		194-097-000	1	1
115	Gas Inlet	90176652	190-125-000	1	1
116	Filter Gas	90182692	017-287-000	1	1
117	Gasket	90176637	510-519-000	1	1
118	Injector Holder		195-094-000	1	1
119	Injector Connecting Tube Fixing Plate		537-0156000	1	1
120	P Injector Retainer		538-698-000	1	1
121	Injector Regulation Plate		142-128-000	1	1
122	Combustion Chamber Assembly		092-113-000	1	1
123	Electrode	90192931	202-198-000	1	1
124	Electrode Retainer		506-151-000	1	1
125	Sleeve Electrode	90192949	513-860-000	1	1
126	Hood		053-313-000	1	1
129	Upper Partition Plate		515-213-000	1	1
130	Cable Clip		504-021-000	2	2
131	Hood Lid		035-0838000	1	1
132	Heat Insulation Plate		030-962-000	1	1
133	Distribution Plate		534-102-000	1	1
134	Hood Partition Plate Assembly		515-312-000	1	1
135	Burner Lid		035-0837000	1	1
136	TC2 Fixing Plate		538-702-000	1	1
137	Thermocouple Holder	90176439	508-652-000	2	2
138	Thermocouple Bracket		538-703-000	1	1
139	Casing Assembly		098-2109000	1	1
140	Blade Fan Conv	90193379	040-332-000	1	1
	Fan Conv Assy	90194055	040-362-000	1	1
141	Metal Housing		067-053-000	1	1

RCE-371H-1A (Beige) / RCE-371H-1S (Platinum Silver)

NO.	PART NAME	RA PART NO.	11 DIGIT CODE	Beige	Platinum Silver
142	Metal		067-090-000	1	1
143	Motor Fixing Plate A		538-700-000	1	1
144	Motor Fixing Plate B		538-701-000	1	1
148	Sparker Fixing Plate		538-0456000	1	1
157	Louver Fixing Plate		537-0185000	1	1
159	Cover		098-0754000	1	1
162	Edge Holder	90176736	098-049-000	1	1
700	PCB Main	90196954	200-0512000	1	1
702	Thermocouple	90192972	121-337-000	2	2
703	Thermal Fuse	90193182	290-1451000	1	1
704	Elec Cord	90178161	206-255-000	1	1
705	Thermistor	90193004	233-223-000	1	1
706	PCB Control	90192761	200-0513000	1	1
709	Lead Thermocouple	90193046	209-408-000	1	1
710	Motor Fan Conv	90192904	222-527-000	1	1
711	Lead High Tension	90194932	203-866-000	1	1
715	Sparker	90169384	262-026-000	1	1
716	Harness Wiring	90198891	290-0631000	1	1
717	MV Harness		290-1452000	1	1
719	IG Harness		290-1453000	1	1
888	Operation Manual		610-971-300	1	1

RCE-471TR

Effective: 28/02/2007

RCE-471TR - (BEIGE / PLATINUM SILVER)

NO.	PART NAME	RA PART NO.	11 DIGIT CODE	Beige	Platinum Silver
001	Panel Front (Beige)	90199328	019-3712000	1	
001	Panel Front (Platinum Silver)	90199326	019-3713000		1
003	Louvre Bottom (Beige)	90193040	095-236-000	1	
003	Louvre Bottom (Platinum Silver)	90190242	095-202-000		1
005	Panel Rear (Beige)	90193115	004-868-000	1	
005	Panel Rear (Platinum Silver)	90193117	004-869-000		1
007	TC Check Holder		098-2067000	1	1
008	Panel Top (Beige)	90193207	001-0454000	1	
008	Panel Top (Platinum Silver)	90193309	001-0455000		1
010	Panel Control	90191609	063-745-000	1	1
015	Panel		063-525-000	1	1
016	Base (Beige)	90191944	015-313-000	1	
016	Base (Platinum Silver)	90191846	015-314-000		1
018	Handle Cover		098-912-000	1	1
020	Electric Cord Holder	90196209	504-033-000	2	2
020	Electric Cord Holder	90176215	504-016-000	2	2
021	Filter Air	90192769	017-0092000	1	1
023	Filter	90161167	017-198-000		
023	Filter	90193137	017-965-000	1	1
025	Plastic Head Screw		501-877-000	1	1
026	Thermistor Cover		098-0752000	1	1
101	Burner Assy	90192647	170-634-000	1	1
102	Gas Control	90192902	114-500-000	1	1
103	O-Ring Gas	90148594	520-001-010	2	2
104	Connecting Tube		109-422-000	1	1
105	Connecting Tube Retainer B		537-481-000	2	2
106	Inj Main NG 1.85	90193437	130-387-185	1	1
106	Inj Main LP 1.25	90193288	130-386-125	1	1
107	Inj Main NG 0.25	90193639	130-537-025	1	1
107	Inj Pilot LP 0.20	90192899	131-284-020	1	1
108	O-Ring		520-006-010	2	2
109	Injector Filter		017-0036000	1	1
110	Pressure Point		501-193-000	1	1
111	O-Ring (S4)	90195165	520-300-010	1	1
112	Screw Test Point	92099956	501-275-005	1	1
113	Hose with Bayonet		513-0011000	1	1

RCE-471TR - (BEIGE / PLATINUM SILVER)

NO.	PART NAME	RA PART NO.	11 DIGIT CODE	Beige	Platinum Silver
114	Piping Bushing		194-097-000	1	1
115	Gas Inlet	90176652	190-125-000	1	1
116	Filter Gas	90182692	017-287-000	1	1
117	Gasket	90176637	510-519-000	1	1
118	Injector Holder		195-094-000	1	1
119	Injector Connecting Tube Fixing Plate		537-0156000	1	1
120	P Injector Retainer		538-698-000	1	1
121	Injector Regulation Plate		142-128-000	1	1
122	Combustion Chamber Assembly		092-113-000	1	1
123	Electrode	90192931	202-198-000	1	1
124	Electrode Retainer		506-151-000	1	1
125	Sleeve Electrode	90192949	513-860-000	1	1
126	Hood		053-313-000	1	1
129	Upper Partition Plate		515-213-000	1	1
130	Cable Clip		504-021-000	2	2
131	Hood Lid		035-0838000	1	1
132	Heat Insulation Plate		030-962-000	1	1
133	Distribution Plate		534-102-000	1	1
134	Hood Partition Plate Assembly		515-312-000	1	1
135	Burner Lid		035-0837000	1	1
136	TC2 Fixing Plate		538-702-000	1	1
137	Thermocouple Holder	90176439	508-652-000	2	2
138	Thermocouple Bracket		538-703-000	1	1
139	Casing Assembly		098-2109000	1	1
140	Blade Fan Conv	90193379	040-332-000	1	1
	Fan Convector	90194055	040-362-000	1	1
141	Metal Housing		067-053-000	1	1
142	Metal		067-090-000	1	1
143	Motor Fixing Plate A		538-700-000	1	1
144	Motor Fixing Plate B		538-701-000	1	1
148	Sparker Fixing Plate		538-0456000	1	1
157	Louver Fixing Plate		537-0185000	1	1
159	Cover		098-0754000	1	1
162	Edge Holder	90176736	098-049-000	1	1
700	PCB Main	90195952	200-0514000	1	1
702	Thermocouple	90192972	121-337-000	2	2

RCE-471TR - (BEIGE / PLATINUM SILVER)

NO.	PART NAME	RA PART NO.	11 DIGIT CODE	Beige	Platinum Silver
703	Harness Thermal Fuse	90193182	290-1451000	1	1
704	Elec Cord	90178161	206-255-000	1	1
705	Thermistor	90193004	233-223-000	1	1
706	PCB Control	90193049	200-0502000	1	1
707	Sensor Remote	90193247	200-0503000	1	1
708	Remote	90187568	123-064-000	1	1
709	Lead Thermocouple	90193046	209-408-000	1	1
710	Motor Fan Convectector	90192904	222-527-000	1	1
711	Lead High Tension	90194932	203-866-000	1	1
715	Sparker	90169384	262-026-000	1	1
716	Harness Wiring	90198891	290-0631000	1	1
717	MV Harness		290-1452000	1	1
719	IG Harness		290-1453000	1	1
888	Operation Manual		610-971-300	1	1
888	Operation Manual		610-973-900		

RCE-571TR / RCE-671TR

RCE-671TR / RCE-571TR (BEIGE / PLATINUM SILVER)

Effective: 19/09/13 Superseded: 14/05/13 V3

NO.	PART NAME	RA PART NO.	11 DIGIT CODE	RCE-671TR (Beige)	RCE-671TR (Platinum Silver)	RCE-571TR (Beige)	RCE-571TR (Platinum Silver)
001	Panel, Front	90199369	019-3665000	1			
001	Panel, Front	90199344	019-3666000			1	
001	Panel, Front	90199367	019-3668000		1		
001	Panel, Front	90199342	019-3669000				1
003	Louvre Bottom	90193192	095-233-000	1		1	
003	Louvre Bottom	90193091	095-234-000		1		1
005	Panel Rear	90193254	004-862-000	1		1	
005	Panel Rear	90193256	004-863-000		1		1
007	TC Check Holder		098-2067000	1	1	1	1
008	Panel Top	90193407	001-0428000	1			
008	Panel Top	90193409	001-0429000			1	
008	Panel Top	90193511	001-0430000		1		
008	Panel Top	90193513	001-0431000				1
010	Panel Control	90191711	063-738-000	1	1		
010	Panel Control	90191813	063-739-000			1	1
015	Panel		063-525-000	1	1	1	1
016	Base	90193826	015-311-000	1		1	
016	Base	90193928	015-312-000		1		1
018	Handle	90161951	072-168-000	2		2	
018	Handle	90191953	072-474-000		2		2
020	Elec Cord Holder	90196209	504-033-000	2		2	
020	Elec Cord Holder	90176215	504-016-000		2		2
021	Filter Air	90192832	017-0022000	1	1	1	1
023	Filter	90161167	017-198-000	1		1	
023	Filter	90193137	017-965-000		1		1
025	Plastic Head Screw		501-877-000	1	1	1	1
026	Thermistor Cover		098-0752000	1	1	1	1
100	Burner		055-786-000	1	1	1	1
101	Burner Assy	90192857	170-620-000	1	1	1	1
102	Gas Control	90192902	114-500-000	1	1	1	1
103	O-Ring Gas	90148594	520-001-010	2	2	2	2
104	Connecting Tube		109-422-000	1	1	1	1
105	Connecting Tube Retainer B		537-481-000	2	2	2	2
106	Injector Main NG 2.4	90192881	130-387-245	1	1	1	1
106	Injector Main LP 1.55	90192873	130-386-155	1	1	1	1
107	Injector Main NG 0.2	90193641	131-285-030	1	1	1	1
107	Injector Main LP 0.20	90192899	131-284-020	1	1	1	1
108	O-Ring		520-006-010	2	2	2	2
109	Injector Filter		017-0036000	1	1	1	1

RCE-671TR / RCE-571TR (BEIGE / PLATINUM SILVER)

Effective 19/0913 Superseded: 14/05/13 V3

NO.	PART NAME	RA PART NO.	11 DIGIT CODE	RCE-671TR (Beige)	RCE-671TR (Platinum Silver)	RCE-571TR (Beige)	RCE-571TR (Platinum Silver)
110	Pressure Point		501-193-000	1	1	1	1
111	O-Ring (S4)	90195165	520-300-010	1	1	1	1
112	Screw Test Point	92099956	501-275-005	1	1	1	1
113	Hose-Bayonet 1.5 m	H1500M3810	-----	1	1	1	1
114	Piping Bushing		194-097-000	1	1	1	1
115	Gas Inlet	90176652	190-125-000	1	1	1	1
116	Filter Gas	90182692	017-287-000	1	1	1	1
117	Gasket	90176637	510-519-000	1	1	1	1
118	Injector Holder		195-094-000	1	1	1	1
119	Injector Connecting Tube		537-0156000	1	1	1	1
120	P Injector Retainer		538-698-000	1	1	1	1
121	Injector Regulation Plate		142-117-000	1	1	1	1
122	Combustion Chamber	90192923	092-079-000	1	1	1	1
124	Electrode Retainer		506-151-000	1	1	1	1
125	Sleeve Electrode	90192949	513-860-000	1	1	1	1
126	Hood		053-306-000	1	1	1	1
128	Top Plate Support		538-699-000	1	1	1	1
129	Upper Partition Plate		515-213-000	1	1	1	1
130	Cable Clip		504-021-000	2	2	2	2
131	Hood Lid		035-0838000	1	1	1	1
132	Heat Insulation Plate		030-962-000	1	1	1	1
133	Distribution Plate		534-084-000	1	1	1	1
134	Hood Partition Plate Assembly		515-214-000	1	1	1	1
135	Burner Lid		035-0837000	1	1	1	1
136	TC2 Fixing Plate		538-702-000	1	1	1	1
137	Thermocouple Holder	90176439	508-652-000	2	2	2	2
138	Thermocouple Holder		538-703-000	1	1	1	1
139	Casing Assembly		098-0755000	1	1	1	1
140	Blade Convection Fan	90193381	040-168-000	1	1	1	1
	Fan Conv Assy	90193053	040-316-000				
141	Metal Housing		067-053-000	1	1	1	1
142	Metal		067-031-000	1	1	1	1
143	Motor Fixing Plate A		538-700-000	1	1	1	1
144	Motor Fixing Plate B		538-701-000	1	1	1	1
148	Sparker Fixing Plate		538-0456000	1	1	1	1
159	Cover		098-0754000	1	1	1	1
162	Edge Holder	90176736	098-049-000	1	1	1	1
700	PCB Main	90194279	200-0500000	1	1		

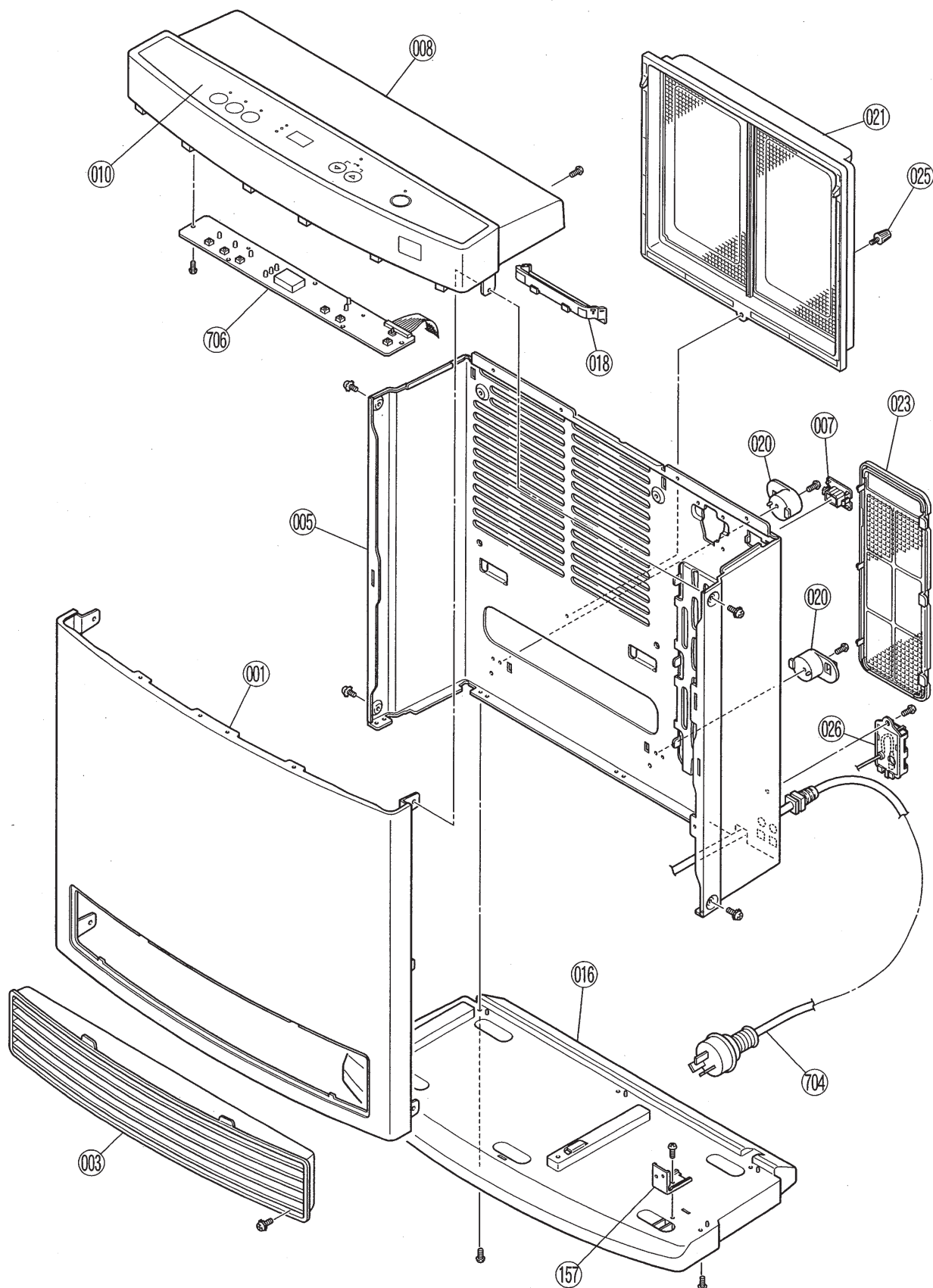
RCE-671TR / RCE-571TR (BEIGE / PLATINUM SILVER)

Effective: 19/09/13 Superseded: 14/05/13 V3

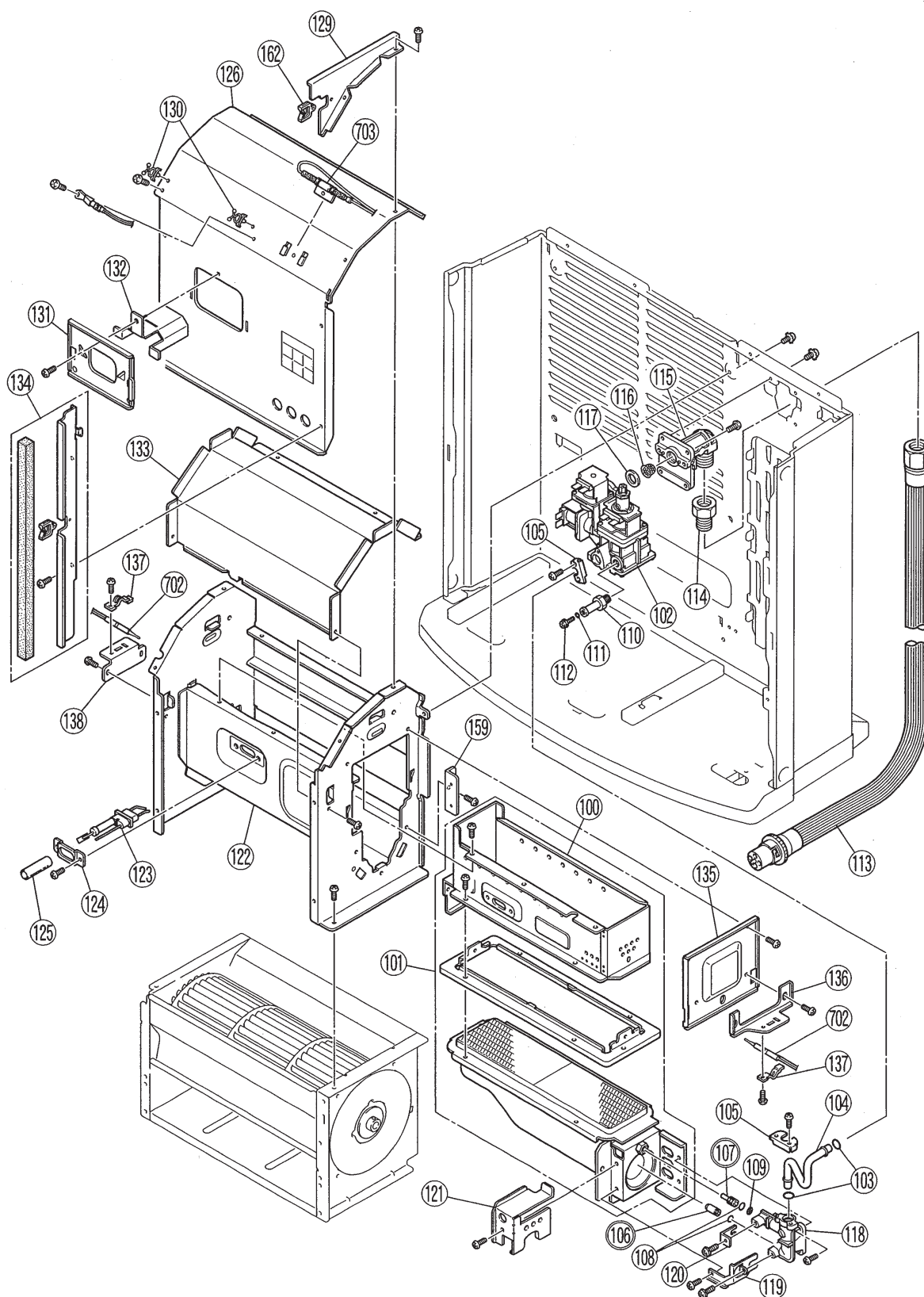
NO.	PART NAME	RA PART NO.	11 DIGIT CODE	RCE-671TR (Beige)	RCE-671TR (Platinum Silver)	RCE-571TR (Beige)	RCE-571TR (Platinum Silver)
700	PCB Main	90194295	200-0501000			1	1
702	Thermocouple	90192972	121-337-000	2	2	2	2
703	Harness Thermal Fuse	90193182	290-1451000	1	1	1	1
704	Elec Cord	90178161	206-255-000	1	1	1	1
705	Thermistor	90193004	233-223-000	1	1	1	1
706	PCB Control	90193049	200-0502000	1	1	1	1
707	Sensor Remote	90193247	200-0503000	1	1	1	1
708	Remote	90187568	123-064-000	1	1	1	1
709	Thermocouple Lead	90193046	209-408-000	1	1	1	1
710	Fan Motor	90192904	222-527-000	1	1	1	1
711	Lead High Tension	90194932	203-866-000	1	1	1	1
715	Sparker	90169384	262-026-000	1	1	1	1
717	MV Harness		290-1452000	1	1	1	1
719	IG Harness		290-1453000	1	1	1	1
888	Operation Manual		610-971-300	1	1	1	1
999	Electrode	90192931	202-256-000	1	1	1	1
999	Harness Wiring	90192931	202-256-000	1	1	1	1

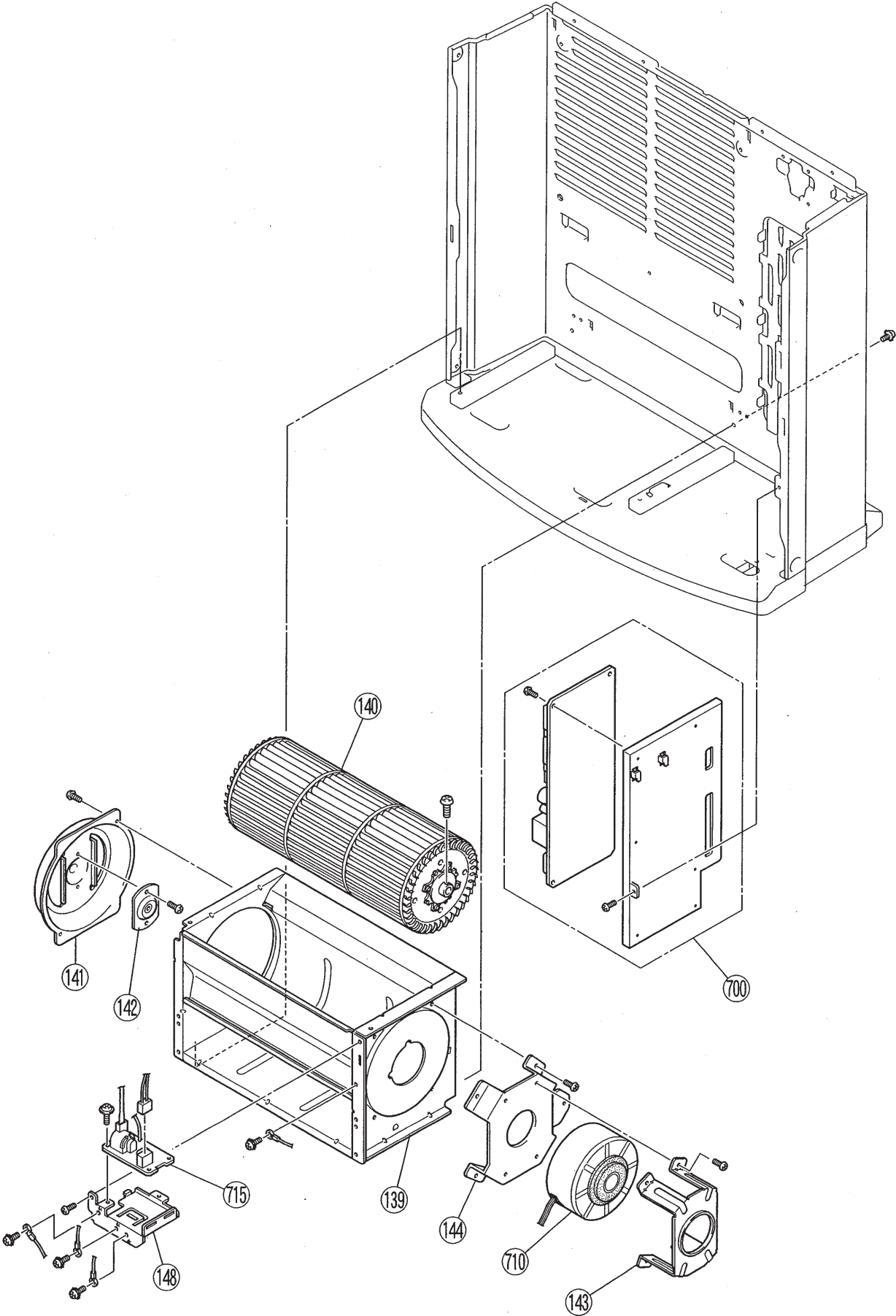
17. Exploded Diagrams

RCE-371H

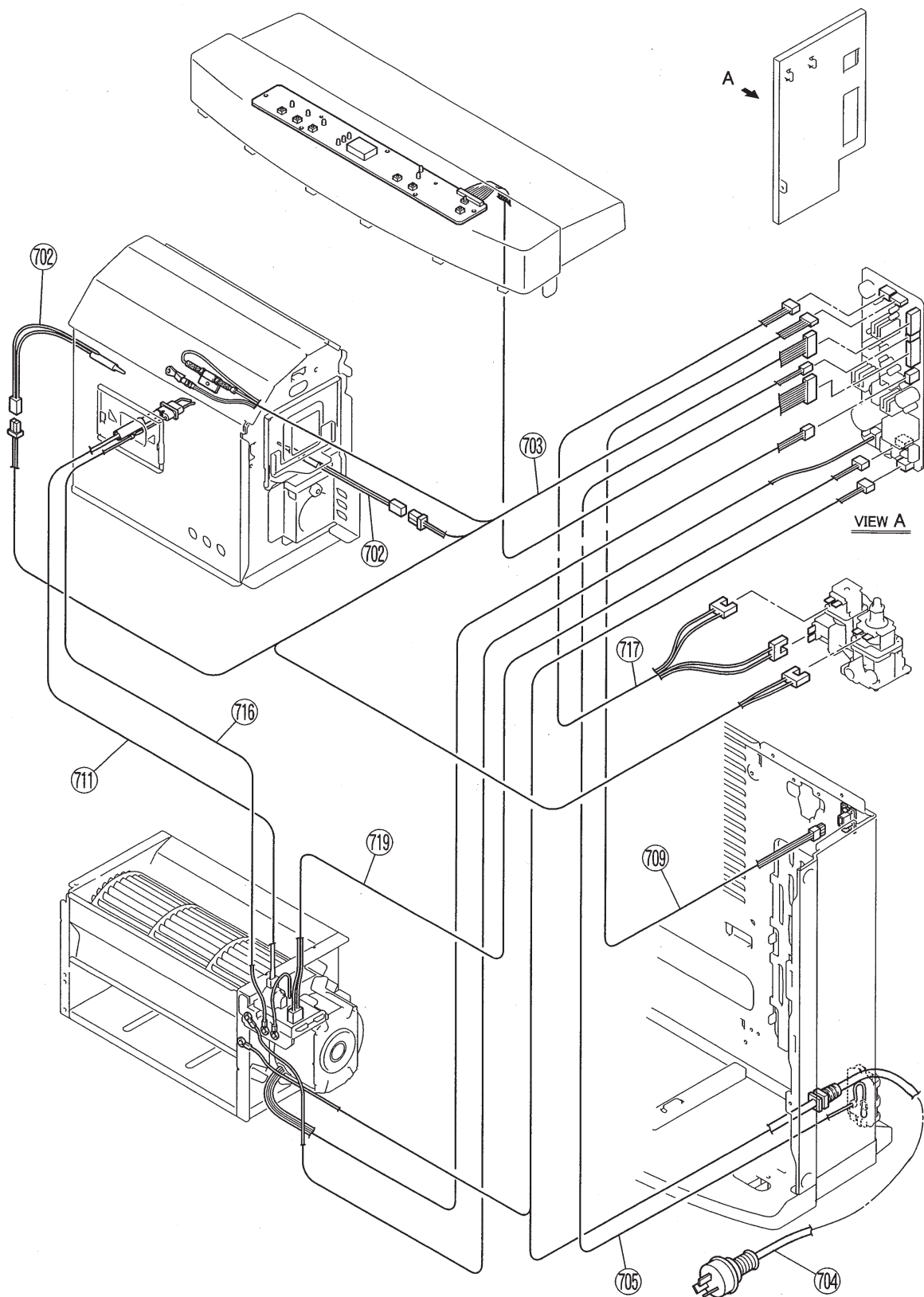


RCE-371 H

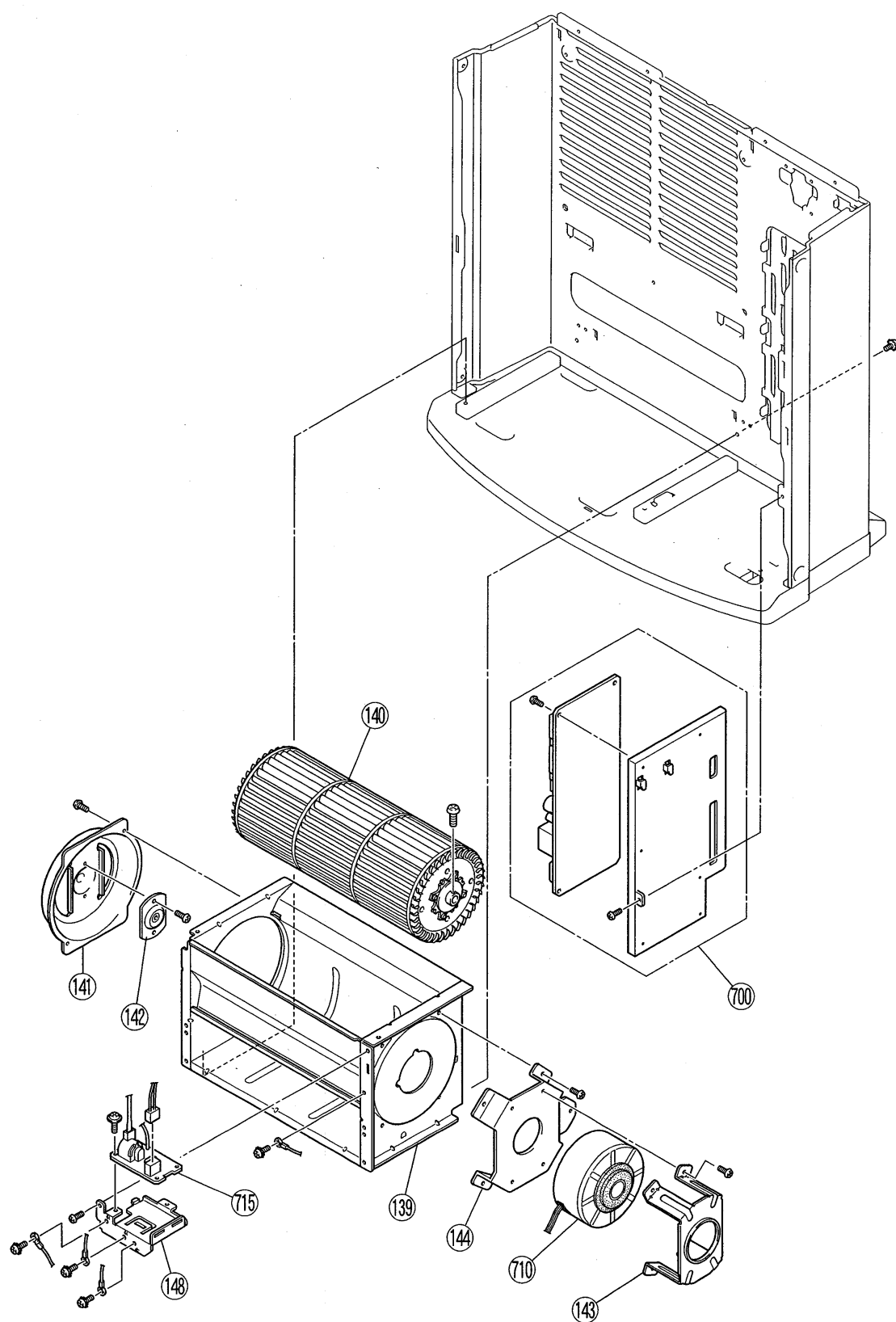




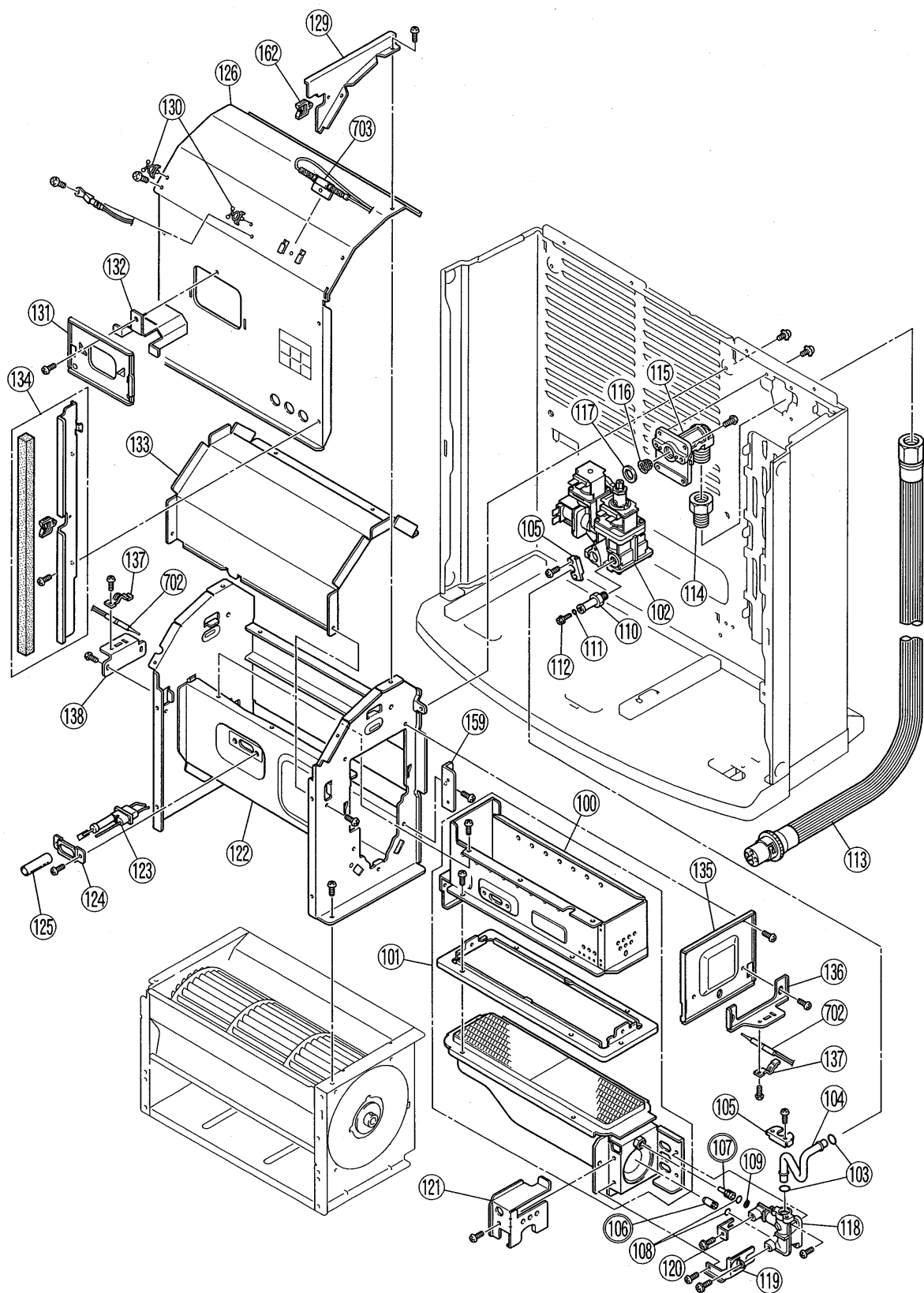
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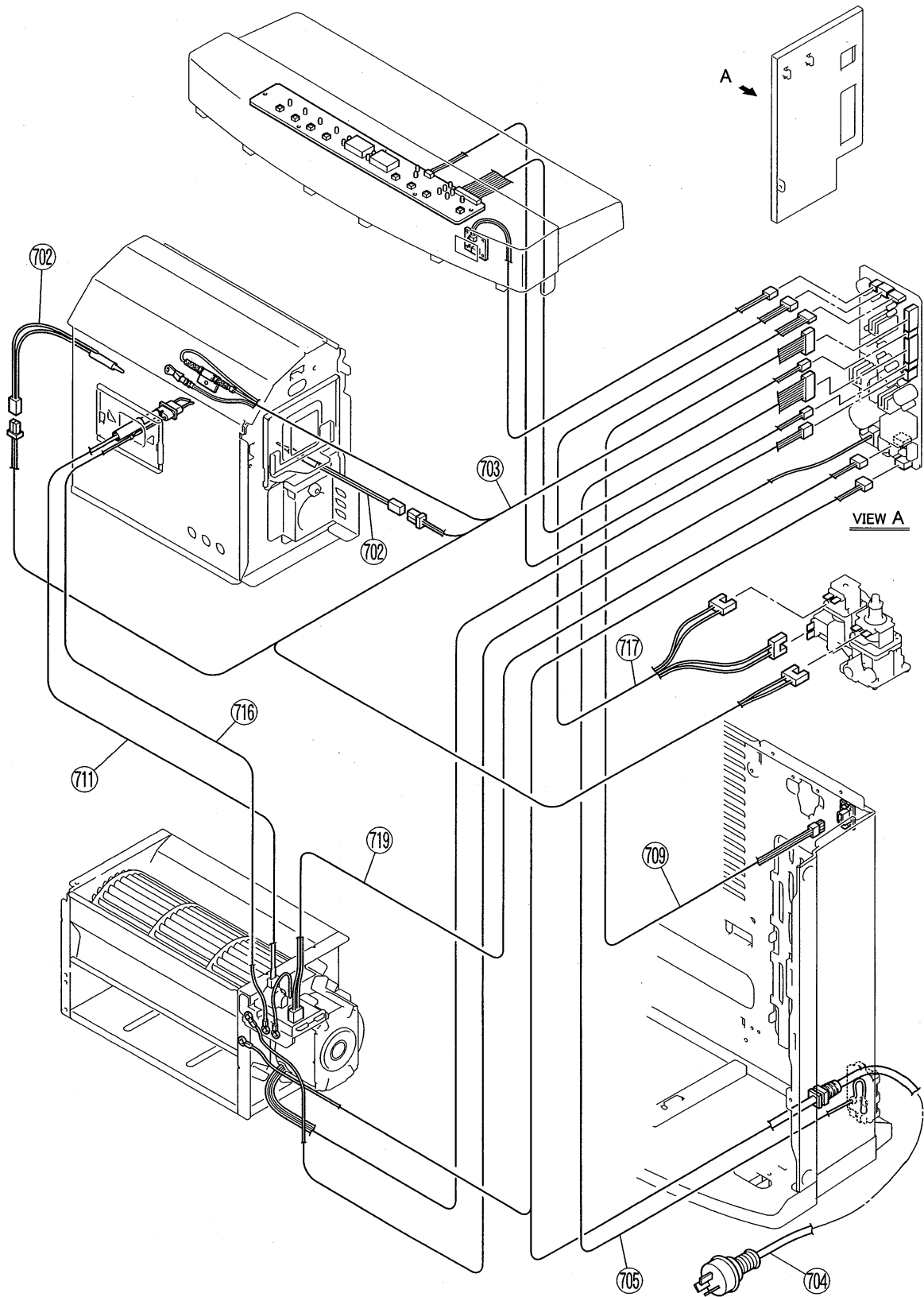
RCE-471TR



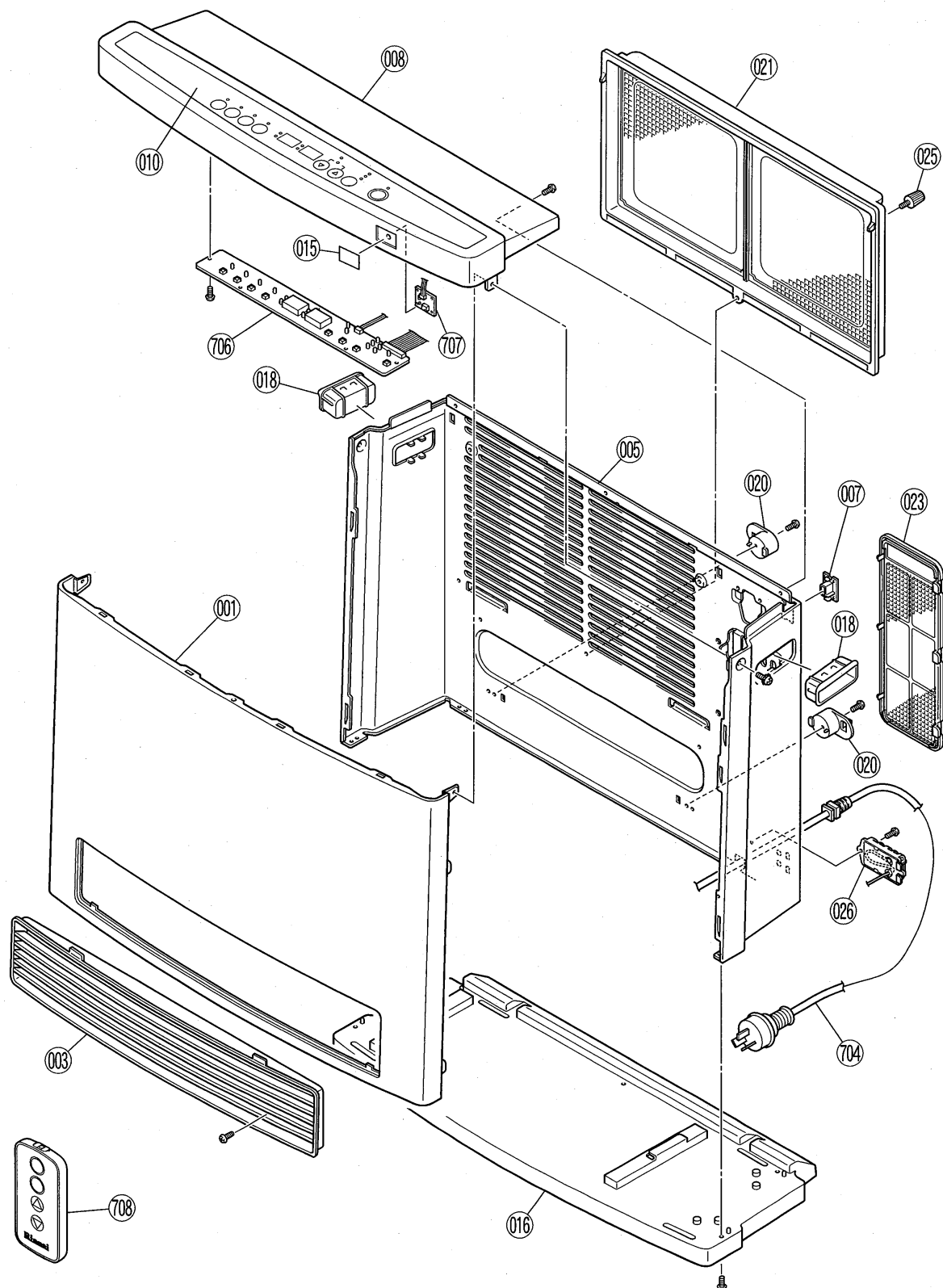
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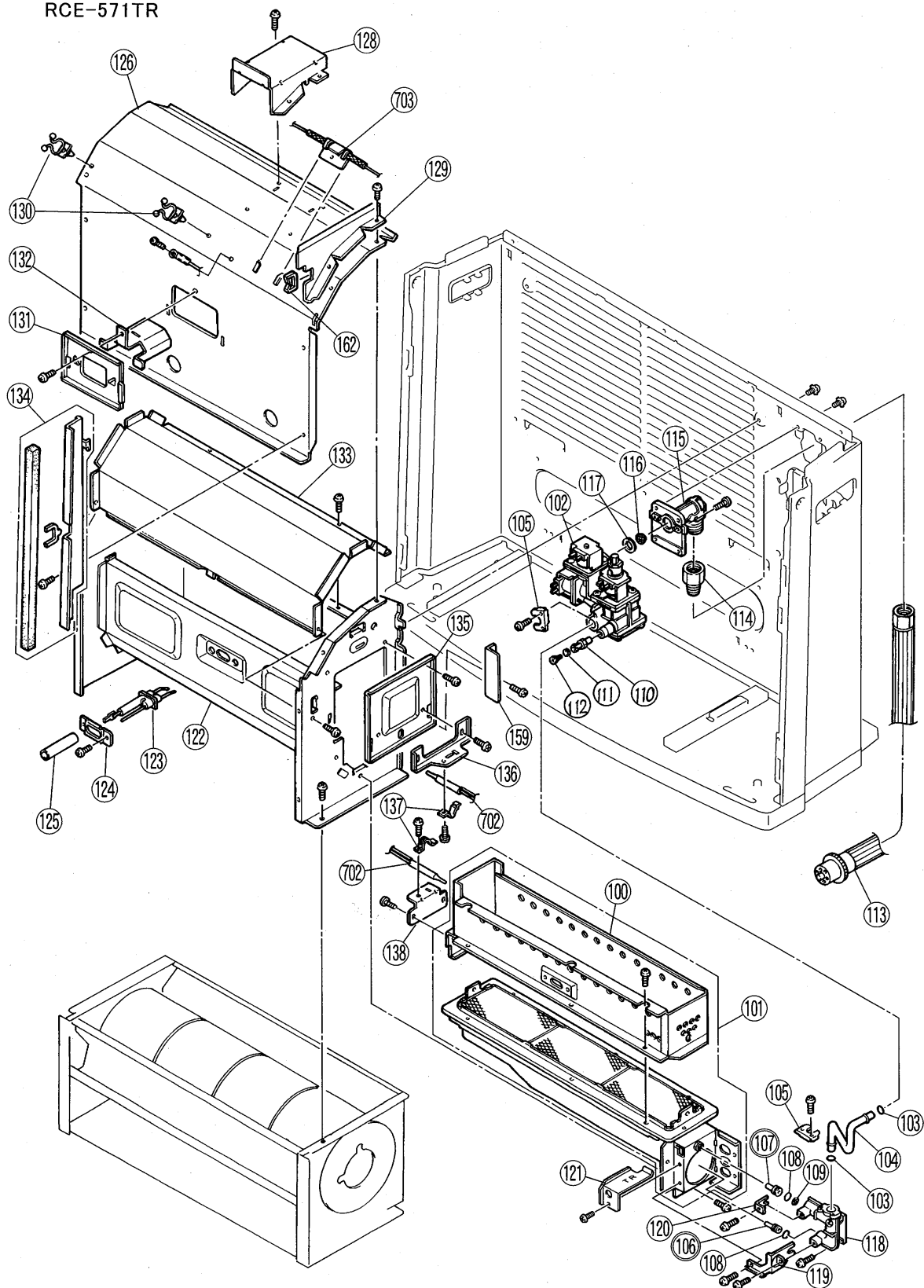
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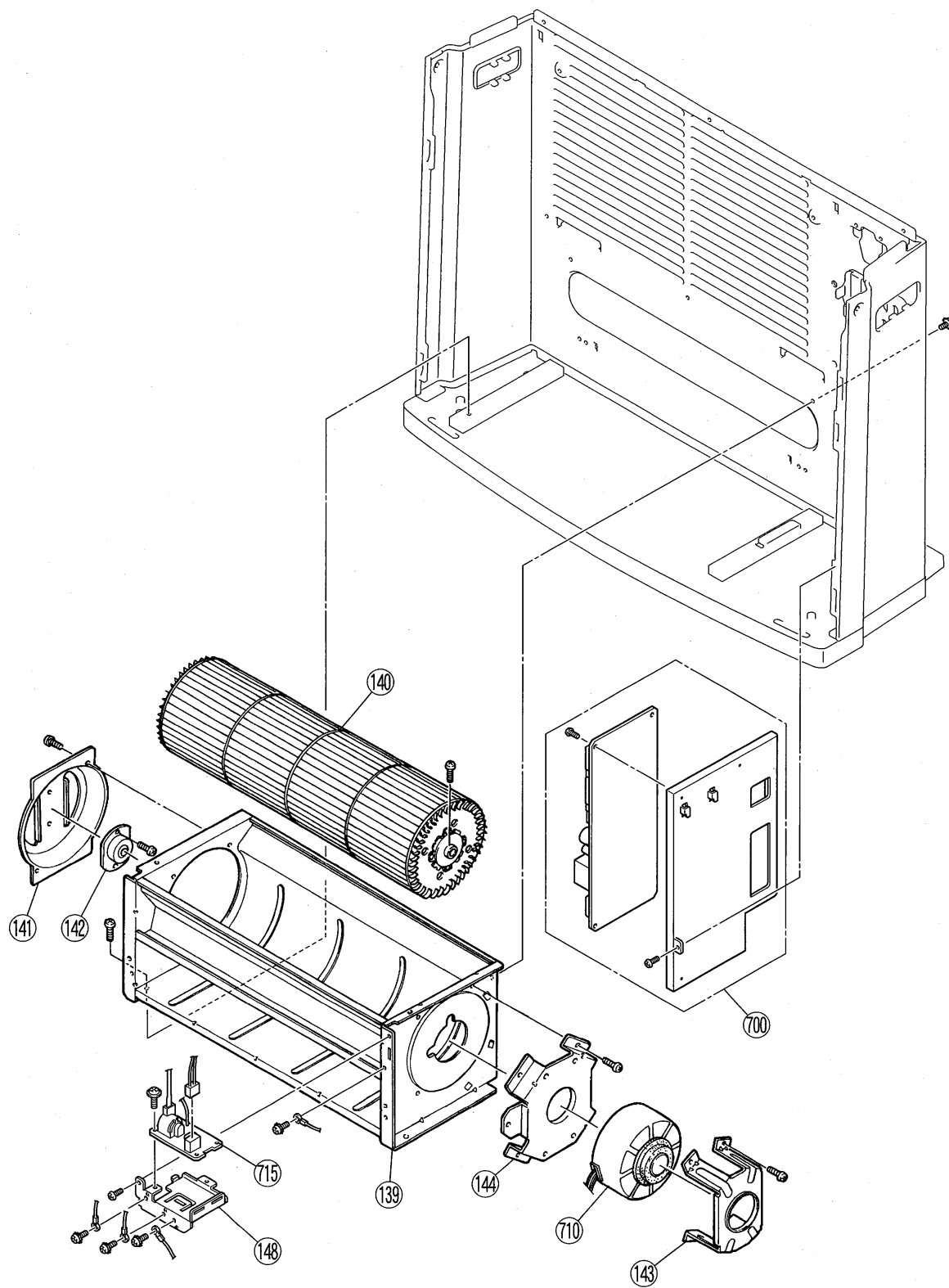
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RCE-571TR



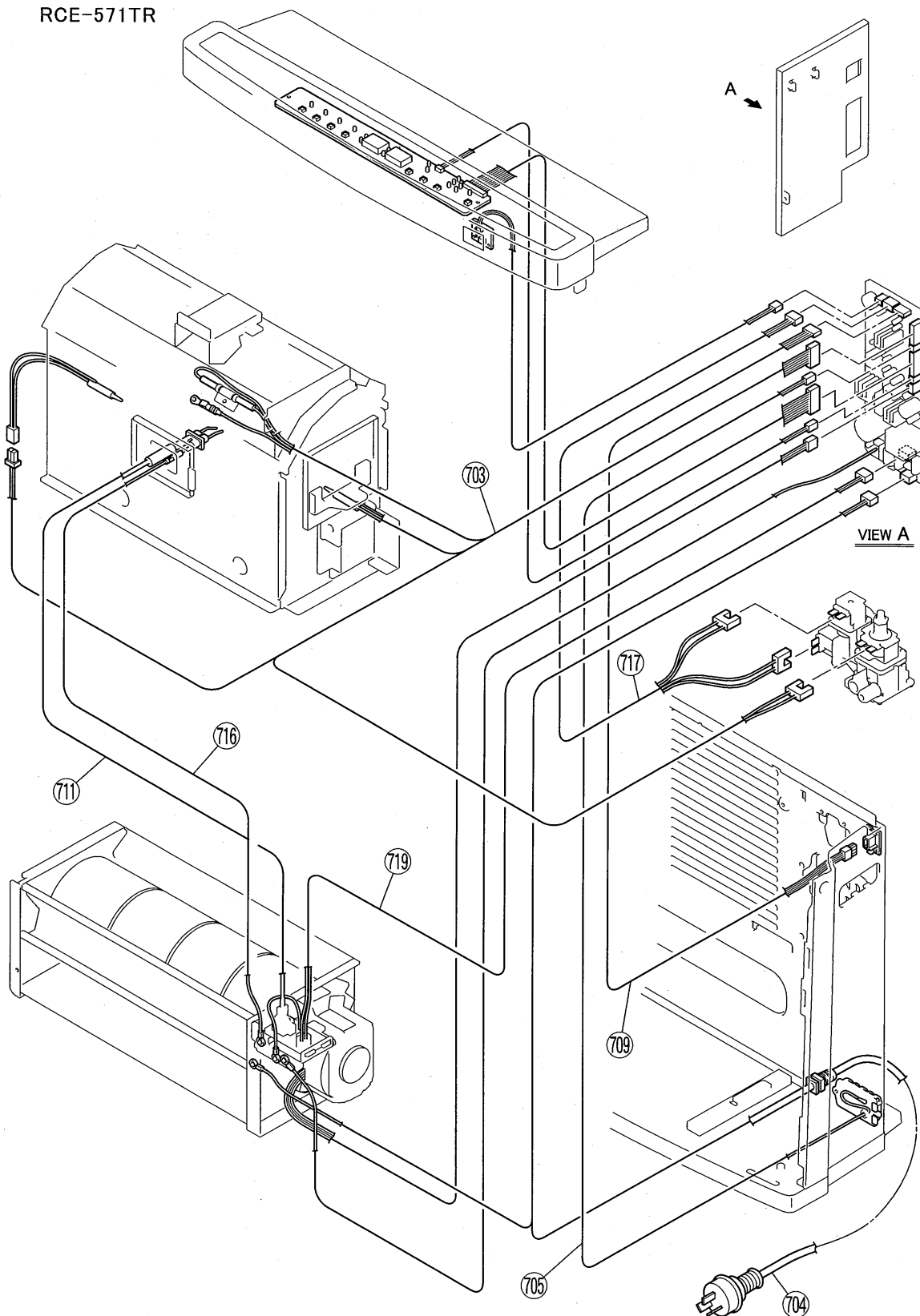
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Rinnai Australia Pty. Ltd. ABN 74 005 138 769

Internet: www.rinnai.com.au E-mail: enquiry@rinnai.com.au

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