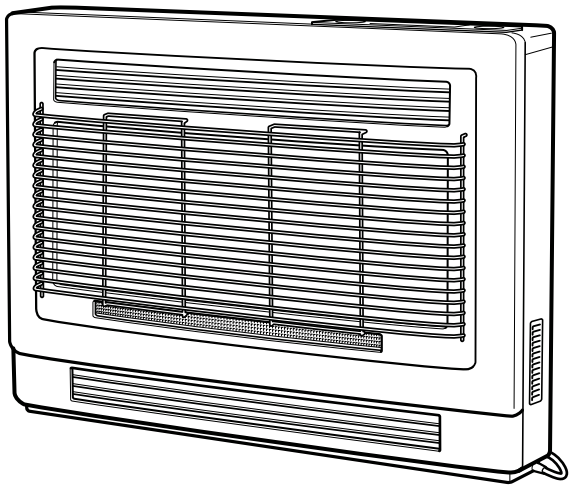
Rinnai

SERVICE MANUAL

ULTIMA II - REH311FT

FLUED HEATER



The Australian Gas Association	All Rinnai products are certified by the Australian Gas Association as compliant to relevant Australian Standards.
Certified System ™ Quality ISO 9001 SAI GLOBAL	Rinnai Australia Head Office is certified as complying with ISO 9001 by SAI Global.
TELARC REGISTERED SUPPLIER Quality Endorsed Company ISO 9001 Reg 415	Rinnai New Zealand has been certified to ISO 9001 Quality Assurance by Telarc.
N10378	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 N10378.

Produced by Technical Services Department
2011

WARNING

Rinnai Australia takes no responsibility for the accuracy or otherwise of information contained in this manual, and reserves the right to make modifications and change specifications without notice.

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

ALL WIRING INSIDE THIS APPLIANCE MAY BE AT 240 VOLTS POTENTIAL

ALL SERVICE WORK MUST BE CARRIED OUT BY AN AUTHORISED PERSON.

DO NOT TEST FOR GAS ESCAPES WITH AN OPEN FLAME

This manual has been compiled by Rinnai Australia Technical Services Department. While many individuals have contributed to this publication, it will be successful only if you - the reader and customer - find it useful. We would like to extend an invitation to users of this manual to make contact with us, as your feedback and suggestions are valuable resources for us to include as improvements. Rinnai are constantly working toward supplying improved appliances as well as information, and specifications may be subject to alteration at any time.

SM REH311FT Ultima
Issue No.2

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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
ø	-	diameter
$\Delta^\circ C$	-	temperature rise above ambient
POV	-	modulating valve
TH	-	thermistor

1. Introduction

The Rinnai REH 311 ULTIMA II Flued Space Heater consists of a glass fronted combustion chamber with ribbon type gas burner and ceramic radiants. The 30 MJ/h gas heater is fitted with combustion and convection fans and includes over heat protection, flue blockage detection and flame supervision for safety. This unit also consists of a modulating gas valve and electronic temperature control.

Features

- 30 MJ/h fan assisted, radiant convection space heater.
- Top mounted control for easy operation.
- All Rinnai safety features including overheat/flame failure protection.
- Large capacity fan to circulate warm air effectively.
- Electronic automatic ignition system.
- Fan filter to protect the fan against dust and lint.

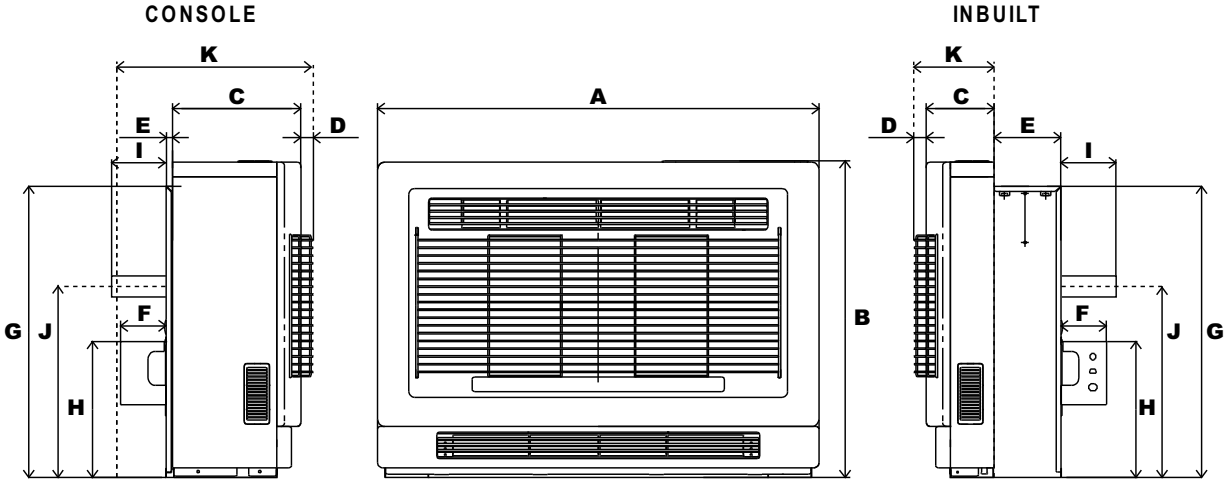
2. Specifications

Model Number		REH-311FTB	REH-311FTC
Model Identification		**Ultima II- Inbuilt**	**Ultima II - Console**
Name of appliance		Inbuilt Flued Space Heater	Console Flued Heater
Average Efficiency Rating		80%	80%
Electrical Consumption (max). Watts		80 Watts	80 Watts
Dimensions (Fireplace) **Min.*** (mm)	Width	710 minimum	N/A
	Depth	330 minimum	
	Height	605 minimum	
Dimensions (Fireplace) **Max.** (mm)	Width	710 maximum	
	Depth	330 maximum	
	Height	650	
Dimensions (mm) (Enclosure inside Fireplace	Width	700	
	Depth	253	13
	Height	635	
Dimensions (mm) (Outside Fireplace)	Width	910	910
	Depth	235	370
	Height	650	650
Colours:		Beige / Gunmetal	
Weight	Kg	48	
Heating Output **Min. * / Max.**	(kW)	7.3	
		3.3	
Gas Consumption (MJ's)	(Max).	30	
	(Min).	15	
Clearances (mm)		Not to be installed into a mock fireplace	
	Sideways	150	
	Infront	1000	
	Above	150	
	Behind	150	
Burner		Stainless Steel Bunsen Ribbon burner	
Noise level range	dB (A)	High: 51	Low: 44
Gas Input (MJ/h) NG	High	30	30
	Low	15	15
LPG	High	30	30
	Low	15	15
Connections	Gas	1/2 inch (15mm) Copper flare connection	
	Electrical	240 V power point (10 Amp GPO)	
Room Temperature control		Thermostat control	
Controls		Slide heat control variable settings	
Gas Control		Electronic	
Fan Switch		Boost - Normal	
Ignition System		One touch electronic	
Timer		12 hour slide delay	
Safety devices		Automatic Fan delay switch Flame Failure Device Over-heat switch	
Accessories		Surround:75 mm or 100 mm fireplace	
Flueing		10' x 2' flueing is supplied from plumbing outlets only (not supplied by Rinnai)	

*** minimum values are approximate only**

3. Dimensions

Note: All dimensions are in millimetres



Legend											
CONSOLE											
A	910 mm	C	265 mm	E	13.6 mm	G	600 mm	I	114 mm	K	Total Installed Depth*
B	653 mm	D	24 mm	F	93 mm	H	280 mm	J	393 mm		404 mm
INBUILT											
A	910 mm	C	140 mm	E	138.6 mm	G	600 mm	I	114 mm	K	Total Installed Depth*
B	653 mm	D	24 mm	F	93 mm	H	280 mm	J	393 mm		164 mm

**The total installation depth includes the Dress Guard and where applicable the rear cover kit.*

4. Installation General

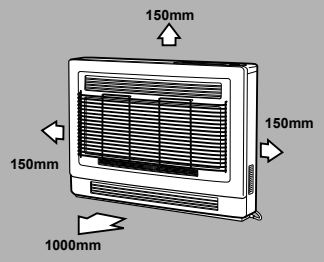
WARNING

The following pages contain information relating to Installation and Service. Failure to comply with these instructions could result in a fire or explosion, which could cause serious injury, death or property damage.

Improper installation, adjustments, service or maintenance can cause serious injury, death or property damage. Such work must be performed by an authorised person.

IMPORTANT

- **The appliance must be installed in accordance with the local gas and electrical authority regulations.**
- **This appliance must not be installed where curtains or other combustible materials could come into contact with it. In some cases curtains may need restraining.**
- **This appliance discharges a large volume of warm air at low level to provided even heat distribution.**
- **Some nylon carpets contain dyes which may be affected by the warm air flow.**
- **Heat emanating from the front of this appliance may over time affect the appearance of some materials used for flooring such as carpet, vinyl, cork or timber.**
  This effect may be amplified if the air in the room contains cooking vapours or cigarette smoke. To avoid this possibility, it is recommended that a mat be placed in front of the appliance, extending at least 750 mm in front of it.



The above diagram shows the clearances required around this heater whilst in operation

- **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.**

1. MAIN POINTS GOVERNING HEATER LOCATION

i. Suitable Installation Type
   - Ultima II Inbuilt: Suitable for masonry fireplace installations **ONLY!**
   - Ultima II Console: Suitable for a masonry fireplace installation, or against a wall using a twin skin flue in the wall cavity.

IMPORTANT

Ultima II Console and Inbuilt models are NOT SUITABLE for 'built in' installations other than a masonry fireplace as described in this manual. They are not suitable for installation into non masonry or 'false' fireplaces, bookcases or shelves.

ii. Flue connection and cowl to comply with AS/NZS 5601.

iii. Warm air distribution.

iv. Ensure that the area in which the appliance is installed has adequate fixed ventilation, this fixed ventilation must be provided in accordance with AS/NZS 5601.

2. UNPACKING THE APPLIANCE

- Undo straps.
- Lift carton off heater, never lift heater out of carton by top louvres.
- Check for damage. If the heater is damaged, contact your supplier for advice.
- Before installing this appliance, check it is labelled for the correct gas type (see label on rear of heater). Refer to local gas authority for confirmation of gas type if you are in doubt.
- For the Ultima II Inbuilt model only, before installation, remove & discard the triangular packing brackets from rear top of the front casing.

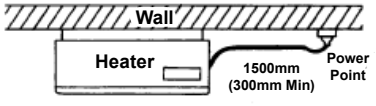
The following additional items should be included in the carton:

- Radiants (2 packs of 3)
- Flue spigot and screws
- Foam sealing strip (Inbuilt only)
- Rear Cover Kit and screws with wall brackets (Console only).

3. ELECTRICAL SUPPLY

The heater has a power cord with a three pin plug supplied.

Rinnai recommends that the heater be plugged into a 240V, 10A earthed power point. The power point must be a minimum of 300mm to the side of the heater (it must not be above the heater).

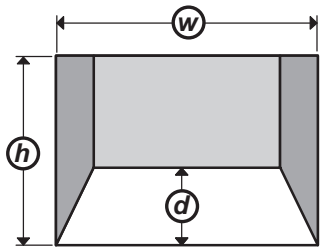


Alternatively - heater can be direct wired if the power supply is to be concealed. Consult a qualified electrician if direct wiring is required as it must comply to AS/NZS 5601 and AS/NZS 3000.

5. Inbuilt Installation, Masonry Fire Place

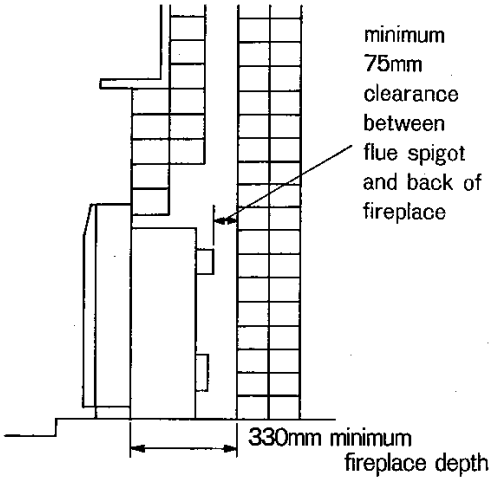
1. CHECK DIMENSIONS OF FIREPLACE

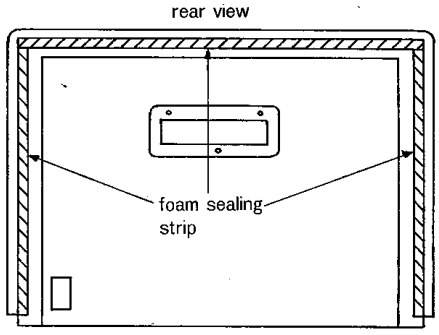
Masonry Fireplace Dimensions		
ⓦ	Width	710 mm minimum 805 mm maximum
ⓗ	Height	605 mm minimum 635 mm maximum
ⓓ	Depth	330 mm minimum



2. CHECK FLUEWAY

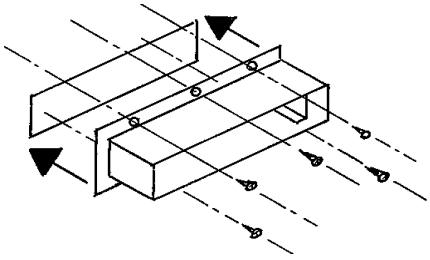
- Remove damper plate/baffle - Any damper plate or baffle which has been installed in the chimney shall be removed.
- Check flueway is clear of obstructions.
- Check dimensions of fireplace and if necessary remove any protruding brickwork to give 75 mm minimum clearance from flue spigot.
- Provide a firm, flat and sealed base for heater. A rough base may cause rattles and affect performance.
- Check that there are no unwanted holes or openings in fireplace. If so these must be sealed.
- The chimney must be confirmed free of soot and creosote that may have built up if previously used for a solid fuel fire. Before installing the heater, inspect the chimney, flue piping and/or solid fuel burning fire place and remove any combustible materials.
- A gas appliance must not be connected to a chimney flue serving a separate solid-fuel burning appliance.
- Peel protective backing off the foam strips supplied with the heater.
- Attach strips supplied with the heater. The strip is intended to form a seal between the heater and fireplace. If an adequate seal cannot be formed with this strip another means of sealing must be used (e.g. fibreglass batts), between the fireplace and the heater body.





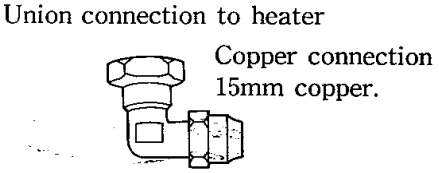
3. FIT FLUE SPIGOT

- The flue spigot is packed separately in the carton.
- It must be fitted to all models, inbuilt and console.



4. GAS INLET UNION

- For ease of connection a combined gas inlet union/ copper elbow is provided with every heater. It is situated at the bottom right hand side below the control.

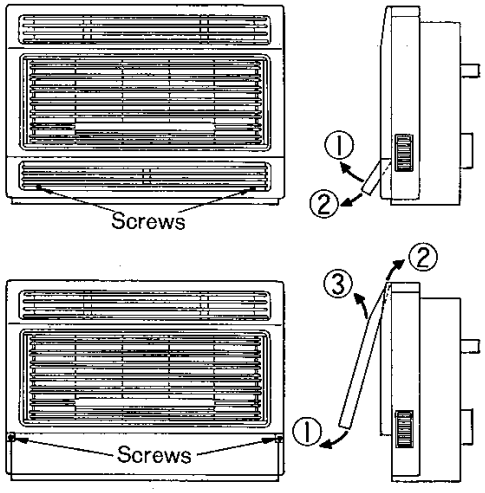


5. REMOVE GAS INLET UNION FROM HEATER

- The inlet union/elbow should be fitted to the end of the copper supply tube before installing the heater in the fireplace opening.

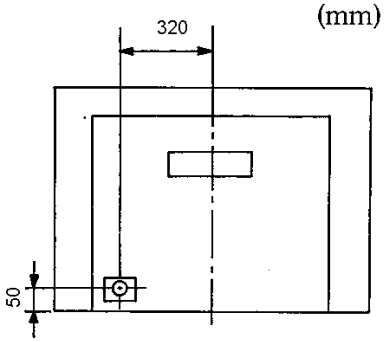
For access to union:

- Remove bottom louvre panel, 2 screws in the lower right and left hand corners of louvres.
- Remove upper front panel, 2 screws at the bottom right and left hand edges of the panel.
- Lift panel to disengage top and remove from heater.
- Do not lift the panel by the dress guard or top louvres.
- Remove union.
- Ensure that removal and replacement of the bottom panel is not obstructed by carpet etc.



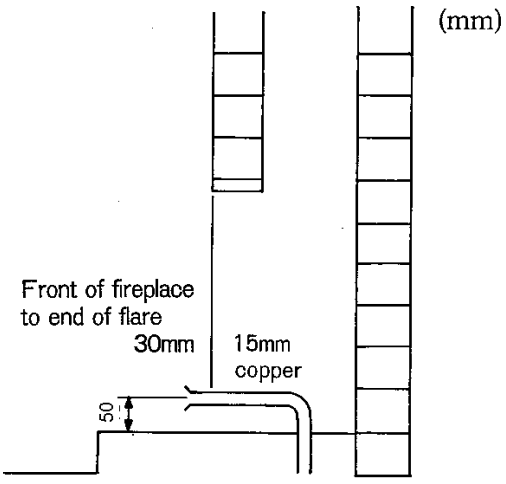
6. GAS CONNECTION POSITION

- Drawing is viewed from rear of heater.
- Actual connection is on right hand side when viewed from front.
- Dimensions are to the centre of the flare fitting on the inlet elbow/union. Flare fitting suits 15 mm copper tube.



7. RUN GAS SUPPLY

- Refer to AS/NZS 5601AS/NZS 5601 or other approved pipe sizing chart if in doubt about size of gas line.
- Copper supply should be run leaving a flare connection the position shown.
- Connect the union/elbow fitting to the copper supply with the union nut facing upwards.
- Purge supply of air and swarf.
- All foreign materials such as filings must be purged from the gas supply, as they could cause the gas valve to malfunction.



NOTE

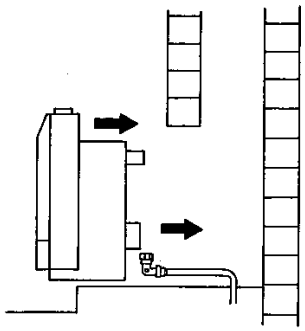
Don't forget to put flare nut on tube before flaring.

IMPORTANT

Gas pipe sizing must consider the gas input to this appliance as well as all other gas appliances in the premises. The gas meter and regulator must be specified for the total gas rate. Suitable sizing chart such as the one in AS/NZS 5601AS/NZS 5601 should be used.

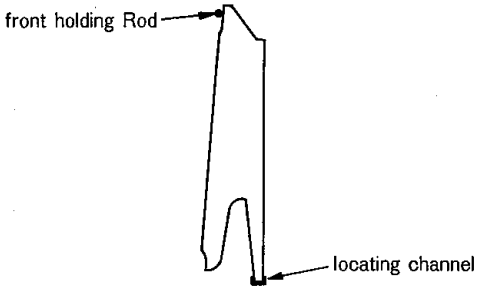
8. INSTALL THE HEATER

- Feed the copper tube through the supply access opening.
- Connect and tighten gas supply union.
- Secure heater to fireplace, there are pre-drilled holes in the heater flanges.
- Drill additional holes if the existing ones are not in suitable positions.



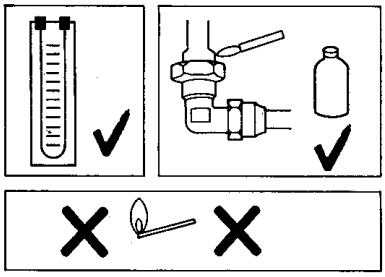
9. INSTALL RADIANTS

- Remove glass panel, install radiants as shown.
- Replace glass panel.



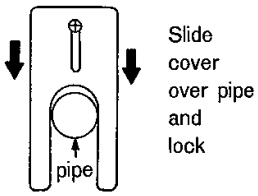
10. CHECK FOR GAS ESCAPES

- Use a manometer or soapy water.
- **DO NOT** USE A NAKED FLAME.



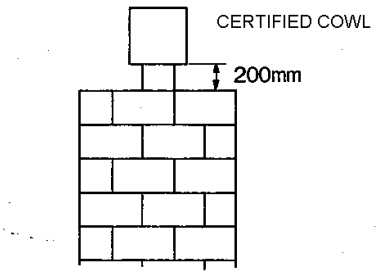
11. CLOSE GAS SUPPLY COVER

- This seals the heater from the chimney and prevents chimney draughts affecting the performance of the heater, as well as preventing the entry of debris from the chimney.



12. INSTALL COWL

- A cowl certified for gas appliances must be installed on all chimneys.
- Clearances to conform with AS/NZS 5601.
  The minimum clearance between top of chimney and the lowest opening in the flue cowl is 200 mm as shown.
- Size:100 mm.



13. TEST APPLIANCE

- Refer to Commissioning section of manual.

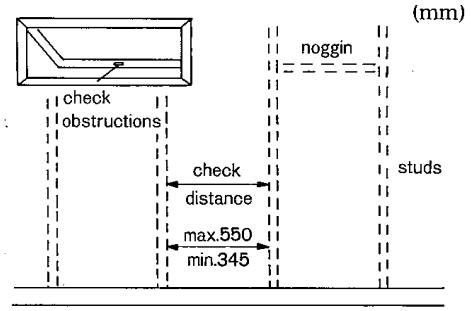
14. INSTRUCT CUSTOMER

- Instruct customer on operation and servicing of the appliance.
- Remind customer of dress guard requirements.

6. Console Installation, Cavity Twin Skin Flue

1. GENERAL

- Depth of cavity wall must be at least 75 mm.
- Select position of heater and locate studs. There must be a minimum distance of 345 mm and a maximum distance of 550 mm between studs.
- Ensure ceiling and roof structure will not obstruct flue.

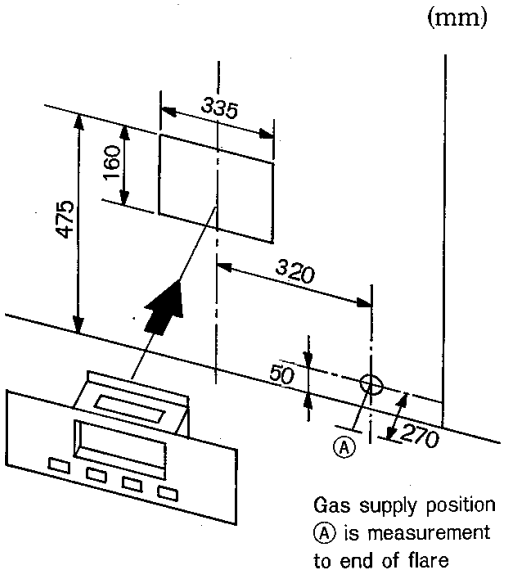


2. CUT OPENING IN WALL

- The wall box measures 330 mm x 100 mm but the opening required is 335 mm x 160 mm. This is to allow for ventilation around the wall box.
- Failure to cut the correct sized hole may lead to excessively high wall temperatures.

3. RUN GAS SUPPLY

- The gas supply should be run before installing the heater. The easiest way is to run the supply, leaving the end of the copper flare as shown in the diagrams, then attach the elbow / union to the copper supply when the heater is installed.
- Refer to an approved pipe sizing chart such as the one in AS/NZS 5601 'Gas Installations' if in doubt about size of supply pipe.

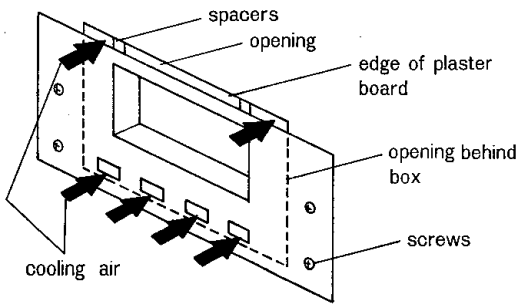


4. CUT AWAY THE TOP PLATE AND ANY NOGGINS BETWEEN STUDS

Fit flue housing into prepared opening:

- Tabs should be fitted tightly against the plaster board.
- Drill through flanges at stud centres and fix to wall with 4 screws.
- The housing must be secured to the studs to allow the outlet to protrude back into the cavity, giving the twin skin flue a minimum clearance from plaster board of 10 mm, excluding spacers (covers).

Housing fitted to opening



5. LOWER TWIN SKIN FLUE DOWN CAVITY

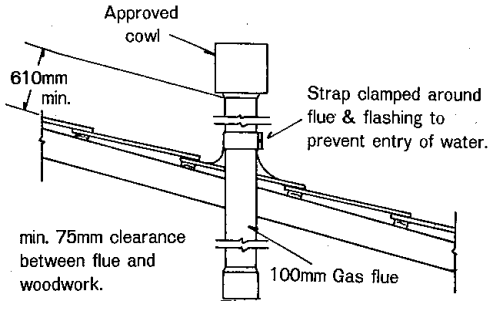
- Straighten tabs at bottom of twin skin flue assembly and lower down wall cavity to housing.
- Insert tabs in slots in housing then bend tabs to secure flue to housing.

6. INSTALL FLUE SUPPORT

- Drop top plate flue support over top of flue, position centrally in space between studs and secure support in position.

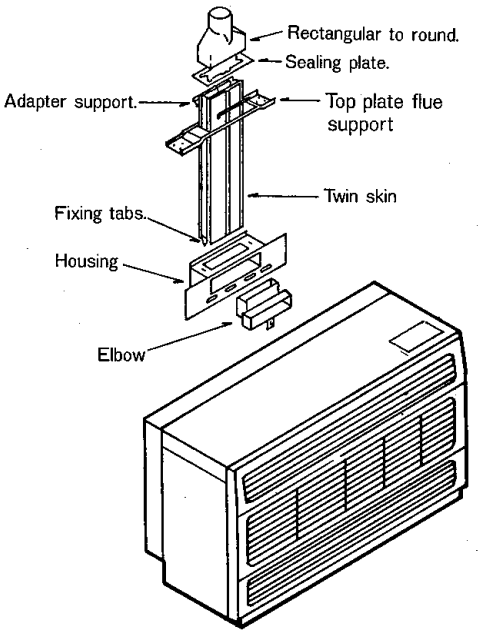
7. FIT SEALING PLATE

- If flue protrudes more than 65 mm above top plate, adaptor supports must be screwed to the flue, and positioned so that when the sealing plate is fitted it is 50 mm from the top of the flue.



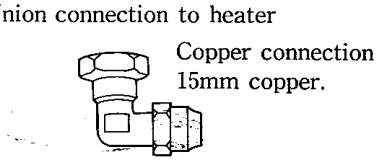
8. FIT RECTANGULAR TO ROUND ADAPTOR

- Fit adaptor to top of twin skin.
- Fit 100 mm flue and approved cowl.
- Flue termination above the roof must comply with AS/NZS 5601.
- Locate the longer end inside the aluminium liner of twin skin.
- Position elbow into housing.
- The flue must be supported independently of the heater to comply with AS/NZS 5601.
- Attach loosely to housing with screw provided.
- Measure distance from floor to flue outlet.
- Adjust elbow to these dimensions, tighten screw.
- Fit right and left hand rear spacers (covers) to Heater.
- Place top spacer (cover) in position temporarily for wall marking.
- Remove front cover and inlet union.



9. GAS INLET UNION

- For ease of connection a combined gas inlet union/ copper elbow is provided with every heater. It is situated at the bottom right hand side below the control.

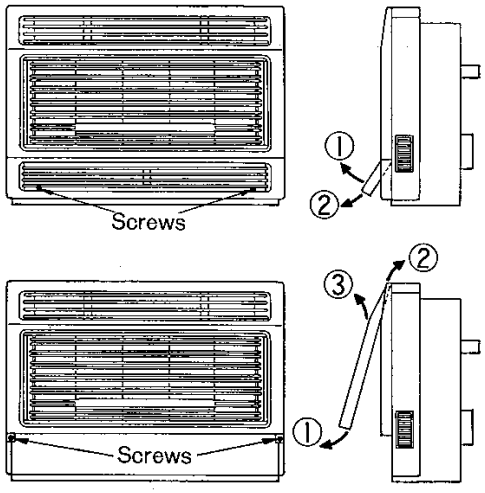


10. REMOVE GAS INLET UNION FROM HEATER

- The inlet union/elbow should be fitted to the end of the copper supply tube fore installing the heater in the fireplace opening.

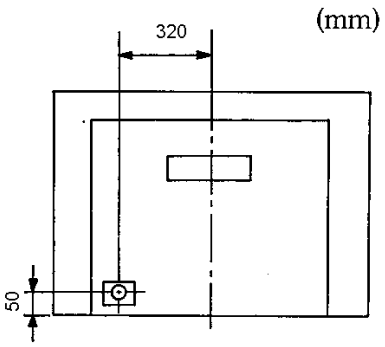
For access to union:

- Remove bottom louvre panel, 2 screws in the lower right and left hand corners of louvres.
- Remove upper front panel, 2 screws at the bottom right and left hand edges of the panel.
- Lift panel to disengage top and remove from heater.
- Do not lift the panel by the dress guard or top louvres.
- Remove union.
- Ensure that removal and replacement of the bottom panel is not obstructed by carpet etc.



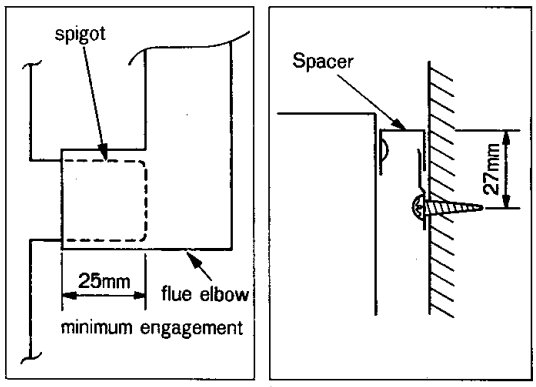
11. GAS CONNECTION POSITION

- Drawing is viewed from rear of heater.
- Actual connection is on right hand side when viewed from front.
- Dimensions are to the centre of the flare fitting on the inlet elbow/union. Flare fitting suits 15 mm copper tube.



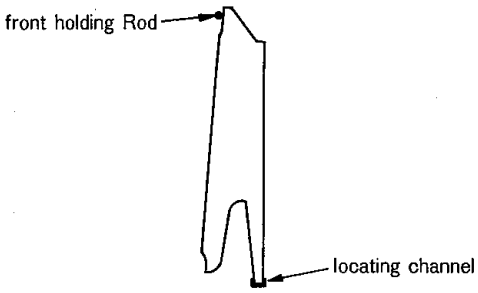
12. INSTALL HEATER

- Mark position of top of spacer (cover) on wall.
- Fit wall clips.
- Feed the copper tube through the supply access opening.
- Install heater, ensure spigot is correctly engaged into elbow.
- Replace top spacer (cover), clipping the spacer (cover) into the wall brackets at the same time as attaching it to the heater.
- Secure top spacer (cover) with the four screws provided.
- The heater is now secured to the wall.



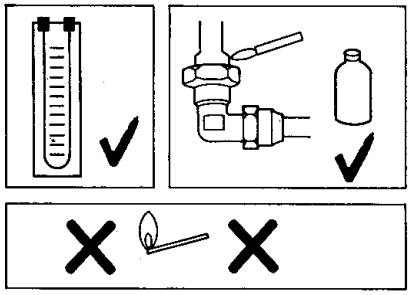
13. INSTALL RADIANTS

- Remove glass panel, install radiants as shown.
- Replace glass panel.



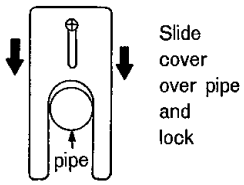
14. CHECK FOR GAS ESCAPES

- Use a manometer or soapy water.
- **DO NOT** USE A NAKED FLAME.



15. CLOSE GAS SUPPLY COVER

- This seals the heater from the chimney and prevents chimney draughts affecting the performance of the heater, as well as preventing the entry of debris from the chimney.



16. TEST APPLIANCE

- Refer to Commissioning section of manual.

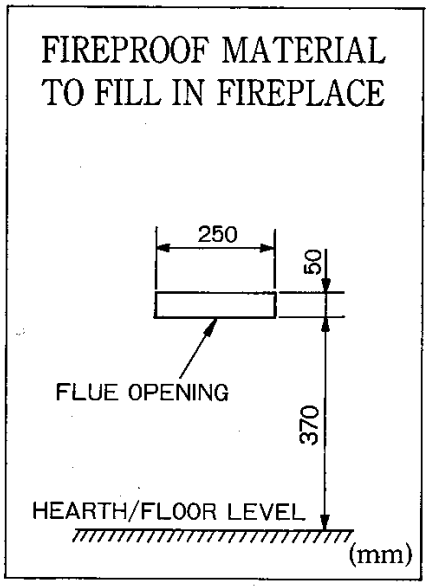
17. INSTRUCT CUSTOMER

- Instruct customer on operation and servicing of the appliance.
- Remind customer of dress guard requirements.

7. Console Installation, Masonry Fire Places

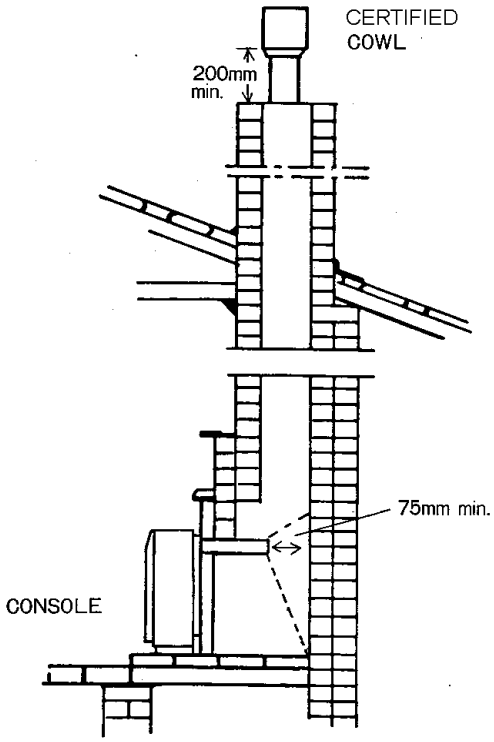
1. GENERAL

- In this type of installation the fireplace is closed off with fireproof material. The heater is placed against the fireproof material and a hole is cut for penetration of the flue spigot into the fireplace.
- The flue spigot must have an extension added to extend beyond overhead brickwork.The extension must be constructed so that it prevents falling debris entering the flue spigot. Cutting the end of the spigot at a 45 degree angle facing downwards will achieve this.
- The spigot extension must not be extended so far into the chimney as to cause an obstruction to the discharge of flue gases. The minimum clearance from the end of the spigot extension to any obstruction is 75 mm.
- DO NOT install heater below a wooden shelf.



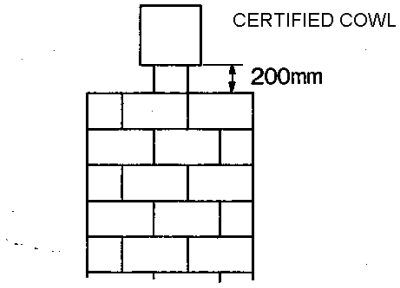
2. PREPARE FIREPLACE

- Remove any damper plates or baffles.
- Check flueway is clear of obstructions.
- Check fireplace dimensions and, if necessary, remove any brickwork to provide 75mm clearance between the end of the spigot extension and any obstruction.
- Check there are no unwanted holes or openings in the fireplace. If so these must be sealed, so that the fireplace is in a sound condition.
- The chimney shall be confirmed free of soot and creosote that may have built up if previously used for a solid fuel fire. Remove combustible materials or substances before installing the heater.
- A gas appliance must not be connected to a chimney serving a separate solid fuel burning appliance.
- Provide a firm, flat and sealed base for the heater. A rough or uneven base may cause rattles and affect performance.
- Close off the fireplace with a fireproof material and cut hole for flue spigot as shown.



3. INSTALL COWL

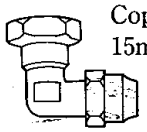
- A cowl certified for gas appliances must be installed on all chimneys.
- Clearances to conform with AS/NZS 5601.
  The minimum clearance between top of chimney and the lowest opening in the flue cowl is 200 mm as shown.
- Size:100 mm.



4. GAS INLET UNION

- For ease of connection a combined gas inlet union/ copper elbow is provided with every heater. It is situated at the bottom right hand side below the control.

Union connection to heater



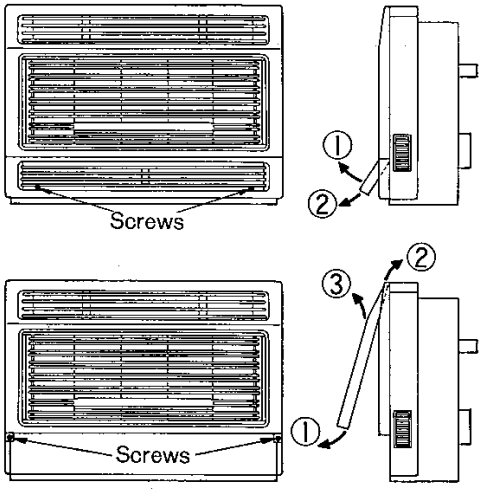
Copper connection
15mm copper.

5. REMOVE GAS INLET UNION FROM HEATER

- The inlet union/elbow should be fitted to the end of the copper supply tube fore installing the heater in the fireplace opening.

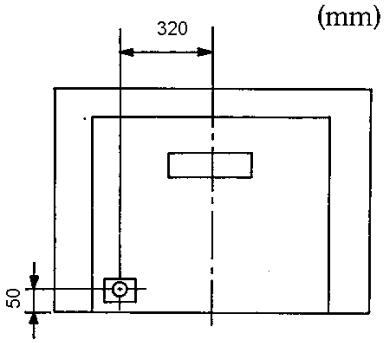
For access to union:

- Remove bottom louvre panel, 2 screws in the lower right and left hand corners of louvres.
- Remove upper front panel, 2 screws at the bottom right and left hand edges of the panel.
- Lift panel to disengage top and remove from heater.
- Do not lift the panel by the dress guard or top louvres.
- Remove union.
- Ensure that removal and replacement of the bottom panel is not obstructed by carpet etc.



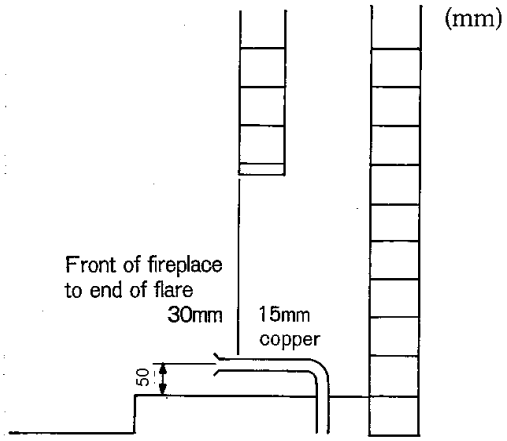
6. GAS CONNECTION POSITION

- Drawing is viewed from rear of heater.
- Actual connection is on right hand side when viewed from front.
- Dimensions are to the centre of the flare fitting on the inlet elbow/union. Flare fitting suits 15 mm copper tube.



7. RUN GAS SUPPLY

- Refer to AS/NZS 5601 or other approved pipe sizing chart if in doubt about size of gas line.
- Copper supply should be run leaving a flare connection the position shown.
- Connect the union/elbow fitting to the copper supply with the union nut facing upwards.
- Purge supply of air and swarf.
- All foreign materials such as filings must be purged from the gas supply, as they could cause the gas valve to malfunction.



NOTE **Don't forget to put flare nut on tube before flaring.**

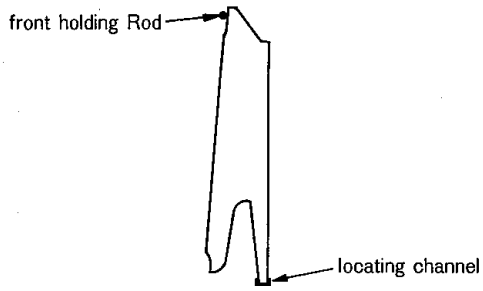
IMPORTANT **Gas pipe sizing must consider the gas input to this appliance as well as all other gas appliances in the premises. The gas meter and regulator must be specified for the total gas rate. Suitable sizing chart such as the one in AS/NZS 5601 should be used.**

8. INSTALL HEATER

- AS/NZS 5601Fit right and left rear spacers (covers) to heater.
- Place top spacer (cover) in position temporarily for wall marking.
- Attach flue spigot extension to heater.
- Feed the copper tube through the supply access opening.
- Secure heater to the fireproof material using the clips in the top spacer (cover).
- Connect and tighten the gas supply.

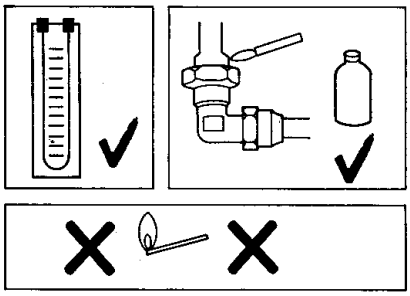
9. INSTALL RADIANTS

- Remove glass panel, install radiants as shown.
- Replace glass panel.



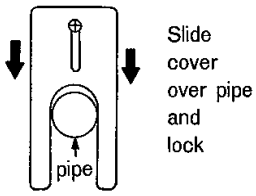
10. CHECK FOR GAS ESCAPES

- Use a manometer or soapy water.
- **DO NOT** USE A NAKED FLAME.



11. CLOSE GAS SUPPLY COVER

- This seals the heater from the chimney and prevents chimney draughts affecting the performance of the heater, as well as preventing the entry of debris from the chimney.



12. TEST APPLIANCE

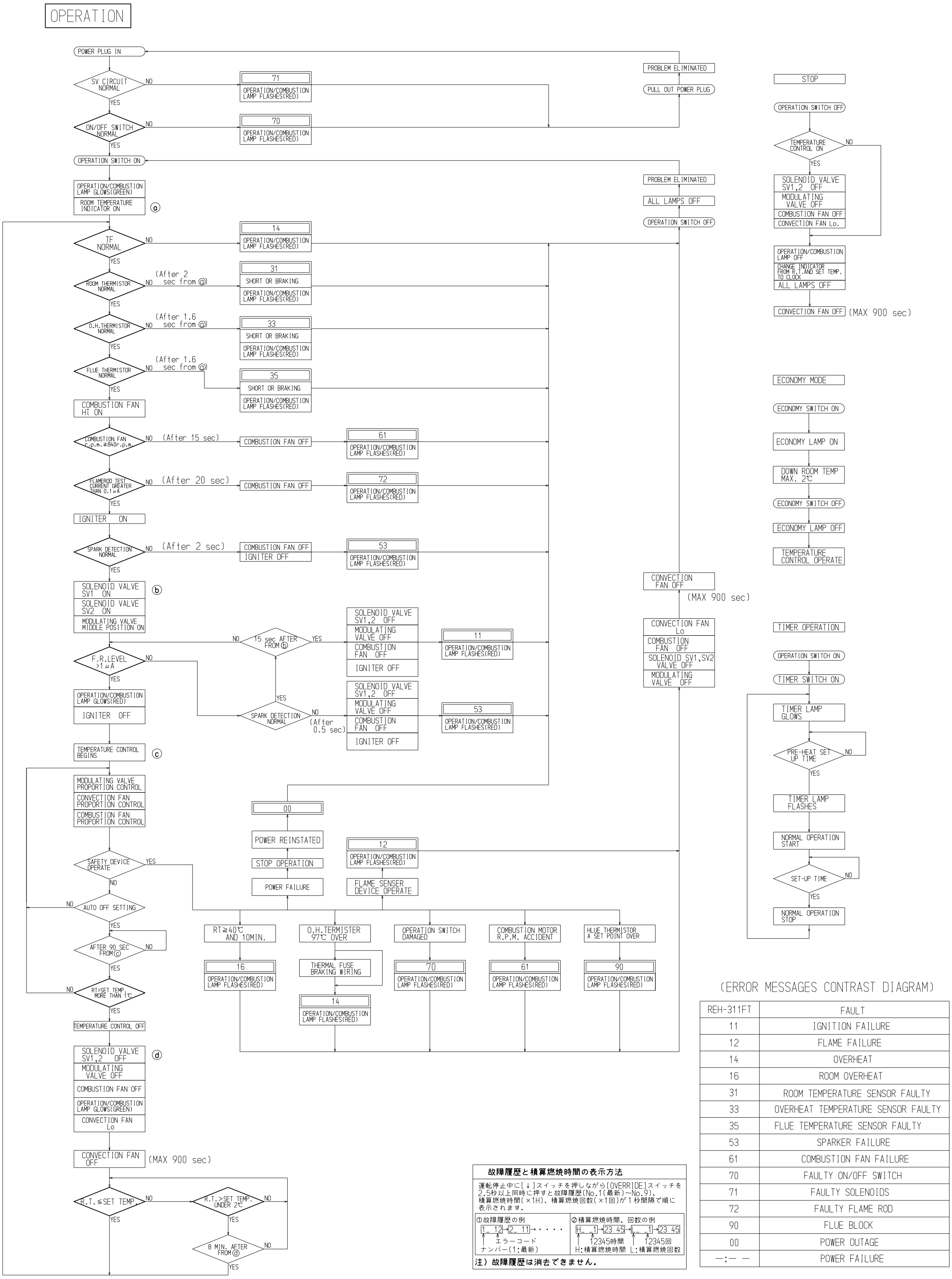
- Refer to Commissioning section of manual.

13. INSTRUCT CUSTOMER

- Instruct customer on operation and servicing of the appliance.
- Remind customer of dress guard requirements.

8. Operation Flow Chart

<REH-311FT FLOW CHART>



(ERROR MESSAGES CONTRAST DIAGRAM)

REH-311FT	FAULT
11	IGNITION FAILURE
12	FLAME FAILURE
14	OVERHEAT
16	ROOM OVERHEAT
31	ROOM TEMPERATURE SENSOR FAULTY
33	OVERHEAT TEMPERATURE SENSOR FAULTY
35	FLUE TEMPERATURE SENSOR FAULTY
53	SPARKER FAILURE
61	COMBUSTION FAN FAILURE
70	FAULTY ON/OFF SWITCH
71	FAULTY SOLENOIDS
72	FAULTY FLAME ROD
90	FLUE BLOCK
00	POWER OUTAGE
—:— —	POWER FAILURE

故障履歴と積算燃焼時間の表示方法

運転停止中に[↓]スイッチを押しながら[OVERRIDE]スイッチを
2.5秒以上同時に押すと故障履歴(No.1(最新)~No.9)、
積算燃焼時間(×1H)、積算燃焼回数(×1回)が1秒間隔で順に
表示されます。

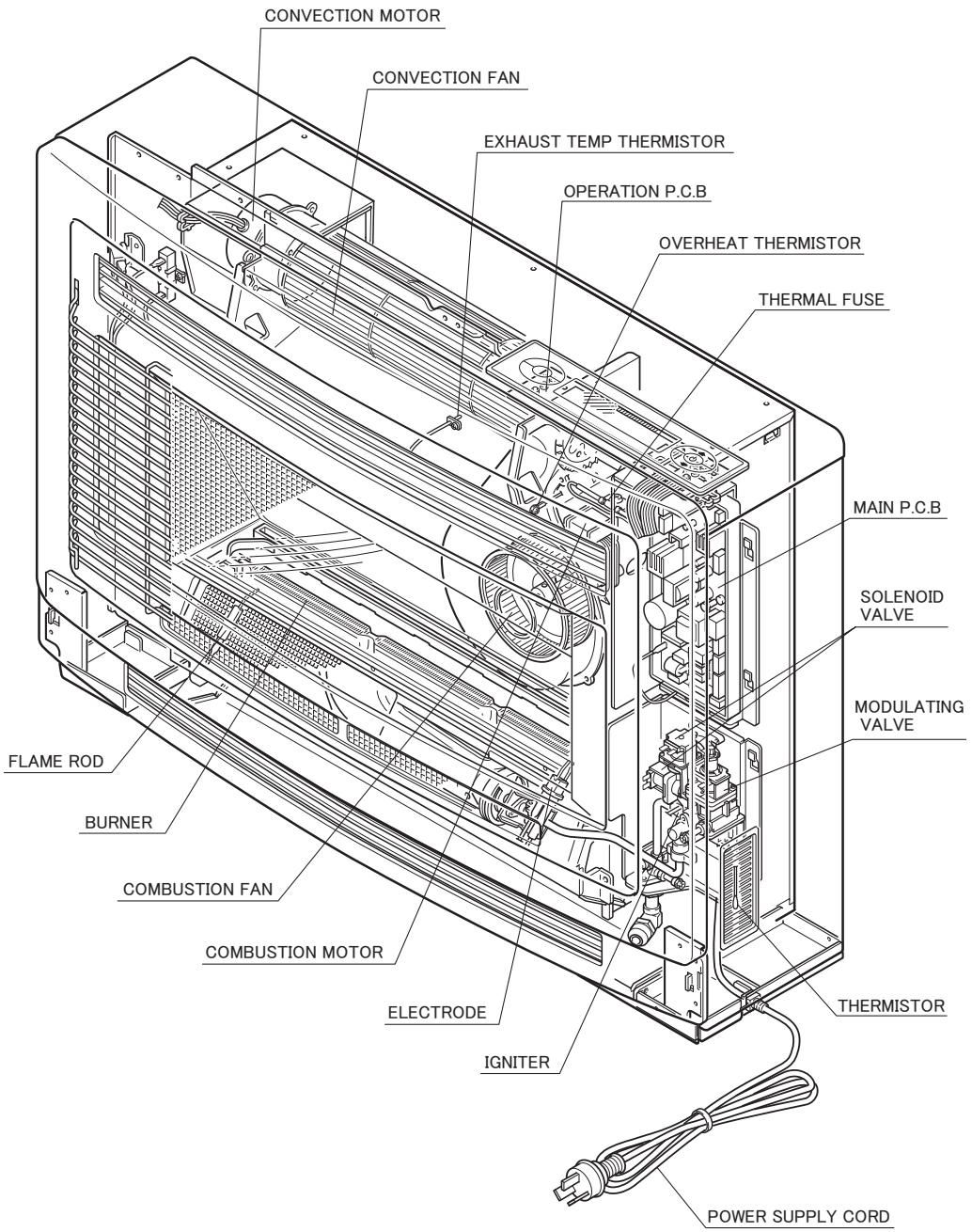
①故障履歴の例
1_ 12 → 2_ 11 → ・・・・・
ナンバー(1:最新)　エラーコード

②積算燃焼時間、回数の例
H_ _1 → 23 45 → L_ _1 → 23 45
12345時間　12345回
H:積算燃焼時間　L:積算燃焼回数

注) 故障履歴は消去できません。

9. Cut - Away Diagram

REH-311FTC



10. Main Componentry

Test Point Location

On the injector block in front of the burner.

Regulator

Spring loaded adjustable type, with inlet gas filter located after the brass elbow coupling.

Gas Control

Fully automatic Electronic controlled system. Rinnai gas control unit printed circuit board electronically controls one ON/OFF and two HI/LO gas solenoid valves.

ON/OFF Solenoid Valve Assembly - is a single solenoid valve assembly (SV1), 90 Vdc, with a approx. winding resistance of 1.5 Ohms.

HI/LO Solenoid Valve Assembly - a double solenoid valve assembly (SV2-bottom, SV3-top), 90 Vdc, winding resistance 1.7 Ohms approximately, with replaceable LP or NG by-pass restrictor screw.

Ignition

Automatic electronic ignition system without re-ignition supplying continuous spark direct to main burner.
On initial light-up, two ignition attempts are made before lockout occurs.

Ignition unit:	K105S, 100 Vdc, 11 kV
Spark electrode gap:	3 mm ± 1 mm

Flame Safeguard

Electronic flame failure system, plugged into the gas control PCB (connector CN3). Flame current must be more than 1µ Adc or lockout will occur. (ON/OFF gas valve immediately shuts-off).
Ignition unit output to flame failure system is 3Vdc.

Burner

Pressed stainless steel ribbon burner with a single injector. Primary air is adjustable by rotating the graduated air-metering cover on the burner air/gas intake nozzle. Combustion air is filtered at the air intake. The ignition electrode and flame sensor rod are both mounted on the burner assembly.

Pilot Burner Assembly

The pilot burner assembly consists of the assembly mounting plate and pilot burner. Pilot injector orifice is located in the pilot/pilot gas pipe connection. Pilot injector has an integral filter screen. Gas flows to pilot whenever the left hand control push button is in the depressed position, provided that the thermo-electric safety shut off valve is open.

Radiants

Six ceramic box type radiants with 14 cross bars.

Dimensions:	Length: 220 mm
	Width: 84 mm
	Depth: 56 mm

Gas Supply Filter

Removable mesh type filter installed in the brass elbow coupling to regulator.

Overheat Switch

Mounted at the top of the flue extraction housing on the inside back panel of the unit. Normally closed, automatic reset-bi-metal type heat operated switch. Screw mounted, with push-on type terminals.
Opens at 120° C and closes at 100° C.

Fan Switch 1

Mounted at the bottom of the flue extraction housing on the inside back panel of the unit. Normally open, automatic reset, bi-metal type heat operated switch. Screw mounted, with push-on type terminals. Allows the convection fan to run after burner shut-down until unit cools. Opens at 70° C, and closes at 58° C.

Pressure Switch

Mounted at the top right hand corner inside the appliance. Normally open switch, closed by air pressure. Monitors the flue extraction chamber air pressure and shuts the unit down if the combustion fan fails. Screw mounted, with push-on type terminals.

Main On-Off Switch

On/Off push button type switch mounted on the control panel. Rated at 5A/40A 240 V. Screw mounted with soldered connections.

Fan Switch 2 (Normal - Boost)

Normal/Boost fan selector switch, push-button type mounted on the control panel. Rated at 5A/40A, 250V. Screw mounted with soldered connections.

Supply Fuse (240 V)

Mounted at the lower right hand corner, inside the unit. Three amp (3A) 3AG cartridge type fuse (standard type 30 mm x 6 mm dia). Accessed through the plastic grill on the right hand side panel.

Room Temperature Control

Electronic / Thermistor type thermostat.
Incorporates room temp. manual control on control panel. Negative temperature co efficient (NTC) type thermistor, senses room temperature. Mounted on the plastic grill on the right hand side of unit. Plugged into the main PCB at connector CN7. Typical resistance range 10 k - 100 k Ohms.

Slide Control resistor-room temperature.
Room temperature HI/LO slide control potentiometer, mounted beneath the control panel. Controls room temperature between 13 and 39°C (± 3°C). Resistance readings: **HI -** 0 Ohm **- LO -** 32 k Ohm.

Convection Fan

Tangential type blower 90 mm dia. x 380 mm long, direct coupled to the fan motor.
Induction type 4-pole, dual speed electric motor 100 V, 6W, with a 4 μF capacitor in the start/run circuit. Fan speed circuit includes the ceramic resistor (102 Ohm). Convection fan can run at three speeds:
- Normal / Boost or Low (low setting is automatically switched).

Fan speed (RPM) : **LOW:** 1020, **NORMAL:** 1155, **BOOST:** 1260.

Typical motor winding fan speed resistor values:

NORMAL - red (2), black (1) = 80 Ohm + 102 Ohm resistor.
BOOST - red (2), black (1) = 80 Ohm
LOW - red (2), white (1) = 226 Ohm

Start / run winding - orange, orange wires = 335 Ohm.

Start run capacitor

Capacitor type SH-CAP, 4 μF, F-M, 200 V.
Screw mounted with two push-on spade terminals. Capacitor is in series with the convection fan motor start windings (335 Ohm) for both starting and running.

Ceramic Resistor

Fan speed circuit component. White ceramic type 102 Ohm, 65 x 10 x 10 mm, screw mounted with two push-on spade terminals. Located at top right hand corner inside the unit.

Combustion Fan

Single speed 2350 RPM (hot), 100 V motor direct coupled to two fan rotors:

1. Flue chamber extraction fan (impeller wheel type) located inside the unit heat exchanger compartment.
2. Blade type cooling fan mounted in front of the motor on the outside of the unit rear casing panel.

Motor is screw mounted on four anti-vibration mounts and has a polarised two-pin plug type connector. Typical motor winding is 21 Ohm.

Printed Circuit Board (PCB)

Gas Control unit (main PCB). Has seven plug-in connectors identified as CN-1 to CN-7.
It computes the room temperature requirements set on the control panel against the current room temperature and delivers the heat / air output to satisfy those requirements.
Safety circuits monitor flame failure, power failure and combustion fan failure conditions and the unit will show down should a failure be detected. The PCB also supplies 90 V for the ignition unit and solenoid valves.

Main Transformer TR1

Primary power transformer 240 /100 / 240 V. Located at the top right hand corner inside the cabinet, the larger of the two transformers.
Typical winding resistances are:

240 V winding - brown (1) and black (5) = 21 Ohm.
100 V winding - red (2) and black (6) = 6.7 Ohm.
240 V winding - orange (3) and orange (7) = 12.2 Ohm.

Small Transformer TR2

Power transformer 100 / 216 / 15 V. Located the at top right hand corner inside the cabinet, the smaller of the two transformers.
Typical winding resistances are:

100 V winding - black (2) and yellow (1) = 85 Ohm.
216 V winding - red (11) and red (12) = 1.5 Ohm.
150 V winding - white (13) and white (14) = 2.8 Ohm.

11. Fault Finding Procedure

	Nature of fault	Fault code	Examination point	Diagnostic point	Values	Y/N	Action
1	Power failure	-:-- or 00	Is there power to the power point?	Check power point?	AC 216-264VAC	Yes	Go to (2)
						No	Check and restore power supply and press on/off button twice to re set heater
			Is there power to the appliance?	Check Power point and Lead	AC 216-264 VAC	Yes	Go to (2)
						No	Check and repair / replace faulty plug or lead. Check 3A fuse replace if necessary
2	Combustion fan does not operate	61	Flue outlet	Visual		Yes	Go to (3)
						No	Check power to combustion fan
	Is power available to combustion fan		Check power at connector to combustion fan at rear of heater	Connector	240V	Yes	Check resistance across combustion fan motor windings Black – White 218.8Ω, Black – Red 249.1Ω,White – Red 31Ω
					240V	No	Check connector on PC and wiring from PC to combustion fan connector at rear of heater. If no power faulty PCB.
3	No damage to plug and wiring from PCB to fan		Check plug and wiring from PCB to combustion fan	Visual		Yes	Faulty PCB . Replace
						No	Rectify damage. Restore power to Combustion fan
	No spark ignition	11	Is flame sensor probe/ lead disconnected /damaged	Visual		Yes	Go to (4)
						No	Check flame sensor lead and probe for damage and replace if necessary
	Spark occurs but burner does not ignite	53	HT Lead and ceramic igniter/ Spark sensor lead	Visual		Yes	Check spark igniter and lead. Check spark sensor and lead. Check gas supply. Check power to Solenoids, if ok check resistance across Solenoids 1 & 2 is 8.95kΩ, Resistance across modulating valve solenoid is 74Ω. Replace if necessary.
						No	Go to (4)
4	Burner ignites but goes off after a while.	12	Check main burner	Visual		Yes	Check if flame sensor rod is disconnected /damaged. repair/replace as necessary .
						No	Go to (5)
5	Does Convection fan operate	14		Visual		Yes	Ok. Lighting up sequence complete.
						No	Check resistance across OH sensor ~117kΩ Check power to fan. Check capacitor. Replace if faulty. Check fan motor windings. 0.935kΩ across windings. Red & White wires. Replace fan if no resistance. Check fusible link, if overheated one shot fusible link will shut gas supply to heater.
	Does heater shut off after operating for a while	90	Main burner off	Visual		Yes	Check Flue for blockage, check flue gas temperature. Check Flue overheat thermistor.Resistance 16.3kΩ. Some earlier models required replacement of fan barrel. Check year of manufacture.

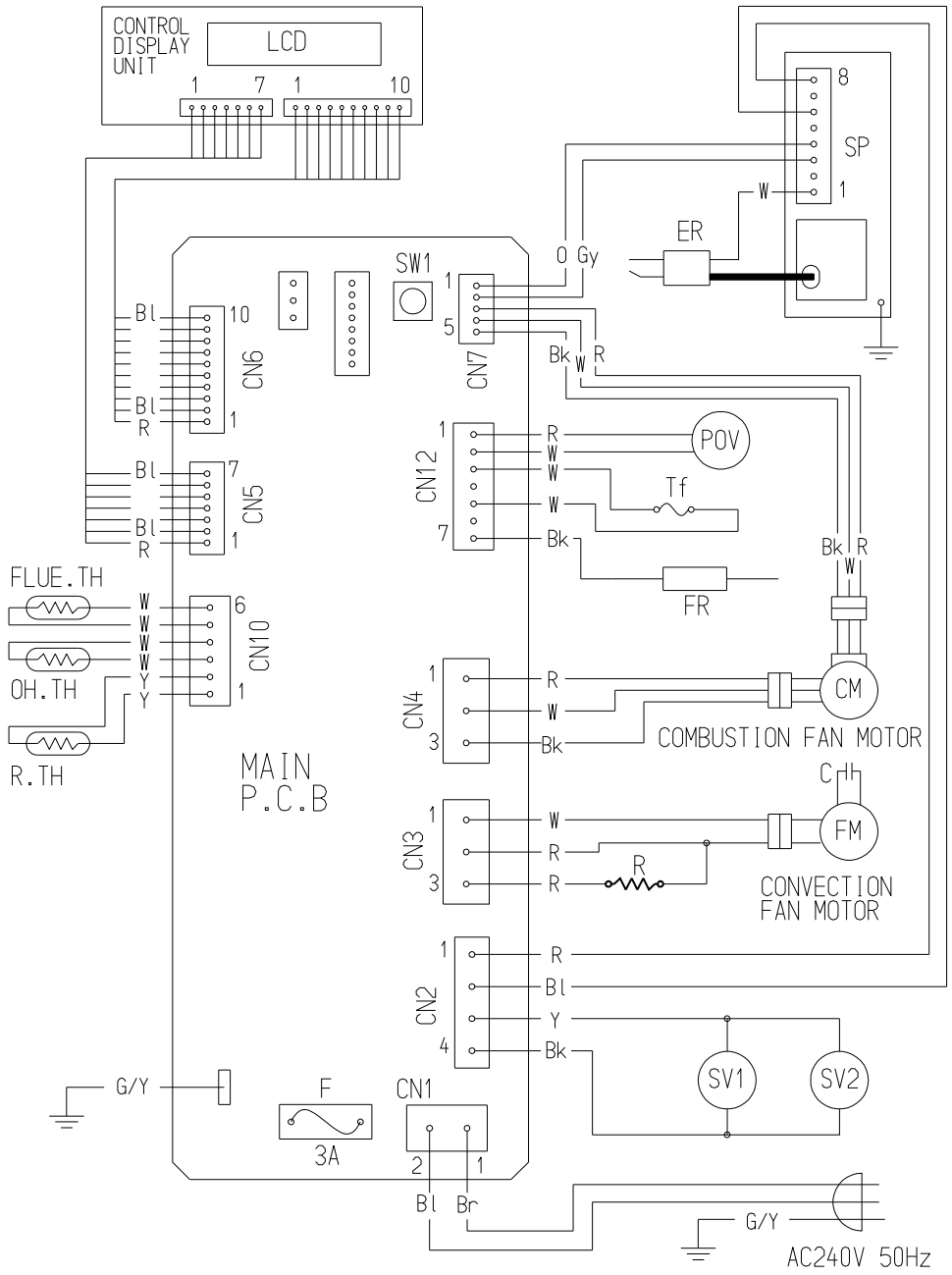
SERVICE

Rinnai recommend that this appliance be serviced every 2 years.
If the power supply cord, gas supply hose or any other component of the heater is damaged, they must be replaced by Rinnai or a suitably qualified person.
Any service or repair work should only be carried out by an authorised person.
Rinnai Australia has service and spare parts departments.

Fault Finding Procedure

If you are unsure about the way your heater is operating, contact Rinnai Australia, or your local agent.

13. Wiring Diagram

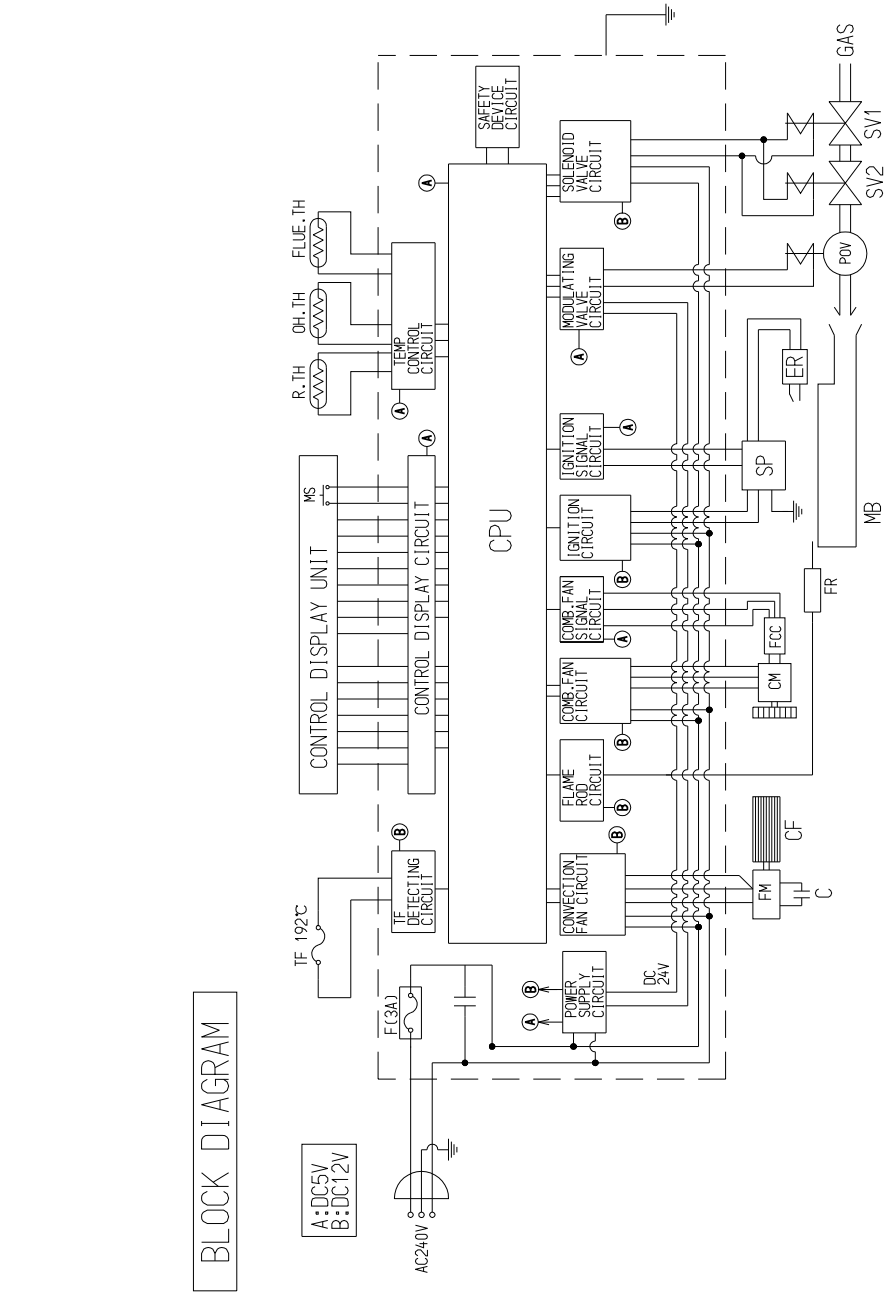


MARK	PARTS NAME
SP	SPARKER
ER	ELECTRODE
POV	MODULATING SOLENOID VALVE
TF	THERMAL FUSE
FR	FLAME ROD
C	CAPACITOR
R	RESISTOR
SV1,2	MAIN SOLENOID VALVE 1,2
F	FUSE
FLUE.TH	FLUE THERMISTOR
OH.TH	OVER HEAT THERMISTOR
R.TH	ROOM THERMISTOR

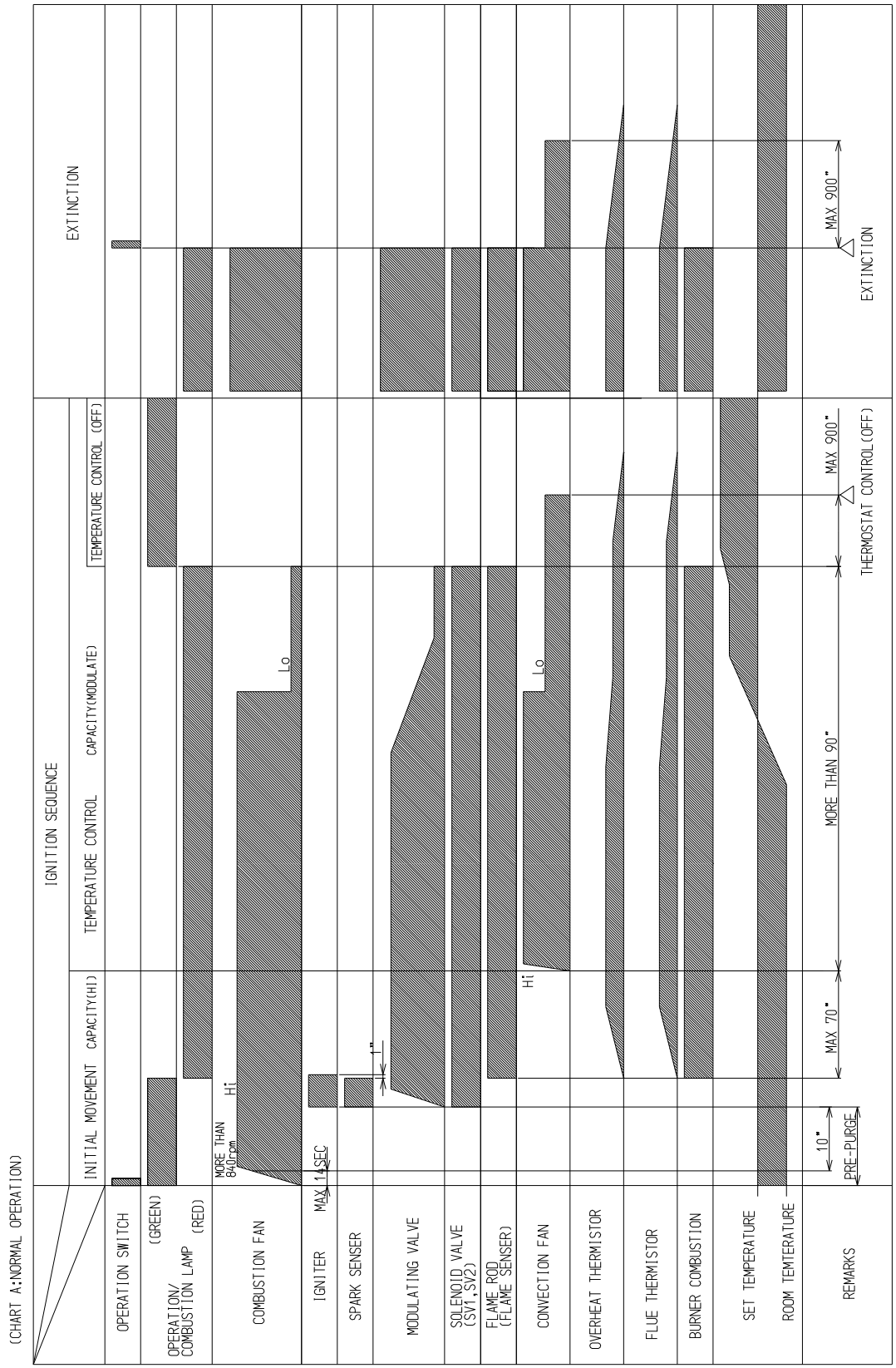
CODE	COLOR
Bk	black
Bl	blue
G/Y	green/yellow
R	red
W	white
Y	yellow
Gy	gray
O	orange

14. Block Diagram

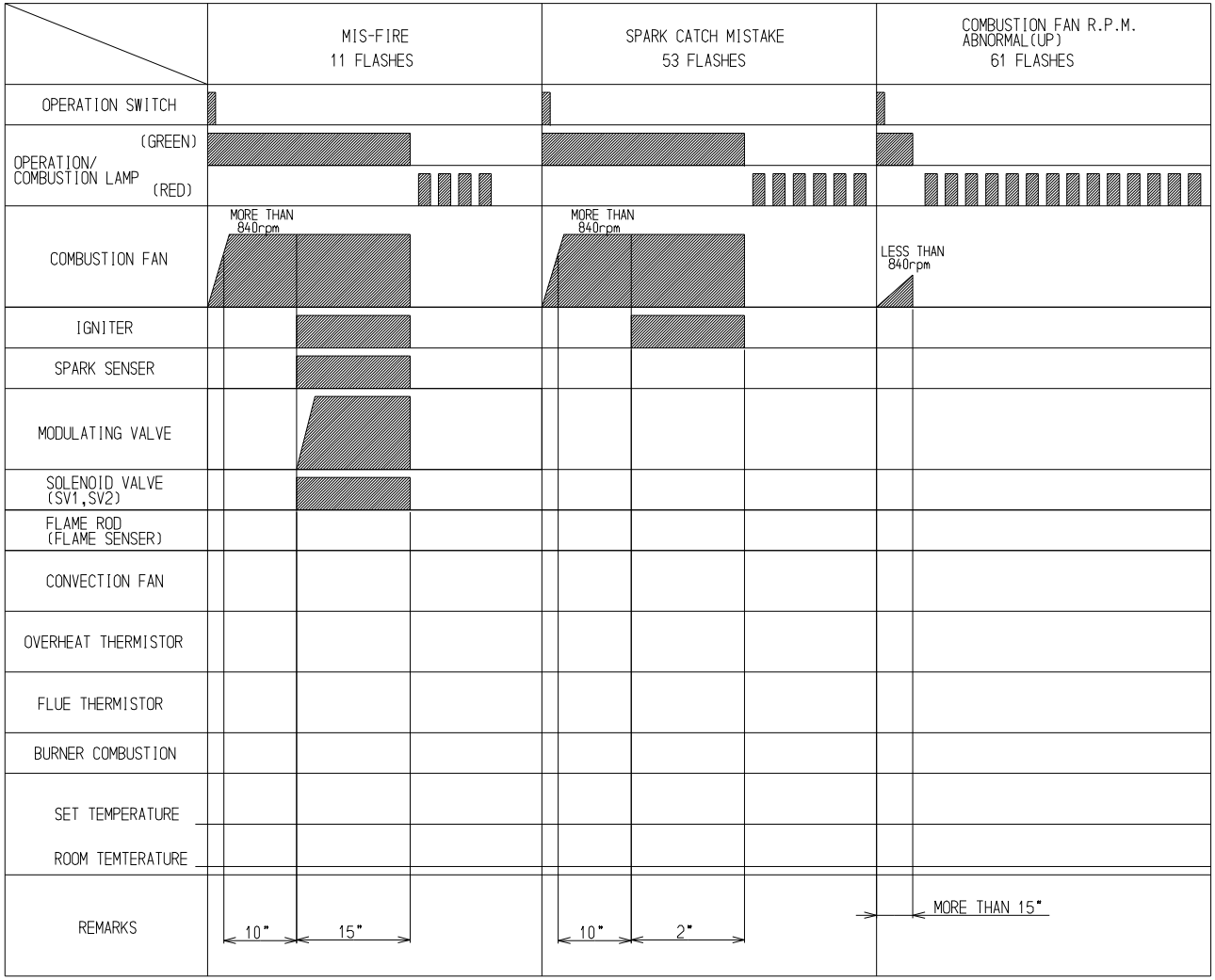
MARK	PARTS NAME
CPU	CENTRAL PROCESSING UNIT
MS	MAIN SWITCH
FLUE.TH	FLUE THERMISTOR
OH.TH	OVER HEAT THERMISTOR
R.TH	ROOM THERMISTOR
TF	THERMAL FUSE
F	R FUSE
SV1,2	MAIN SOLENOID VALVE 1,2
POV	MODULATING SOLENOID VALVE
SP	SPARKER
ER	ELECTRODE
MB	MAIN BURNER
FR	FLAME ROD
CM	COMBUSTION FAN MOTOR
FCC	FAN CONTROL CIRCUIT
FM	CONVECTION FAN MOTOR
CF	CONVECTION FAN
C	CAPACITOR



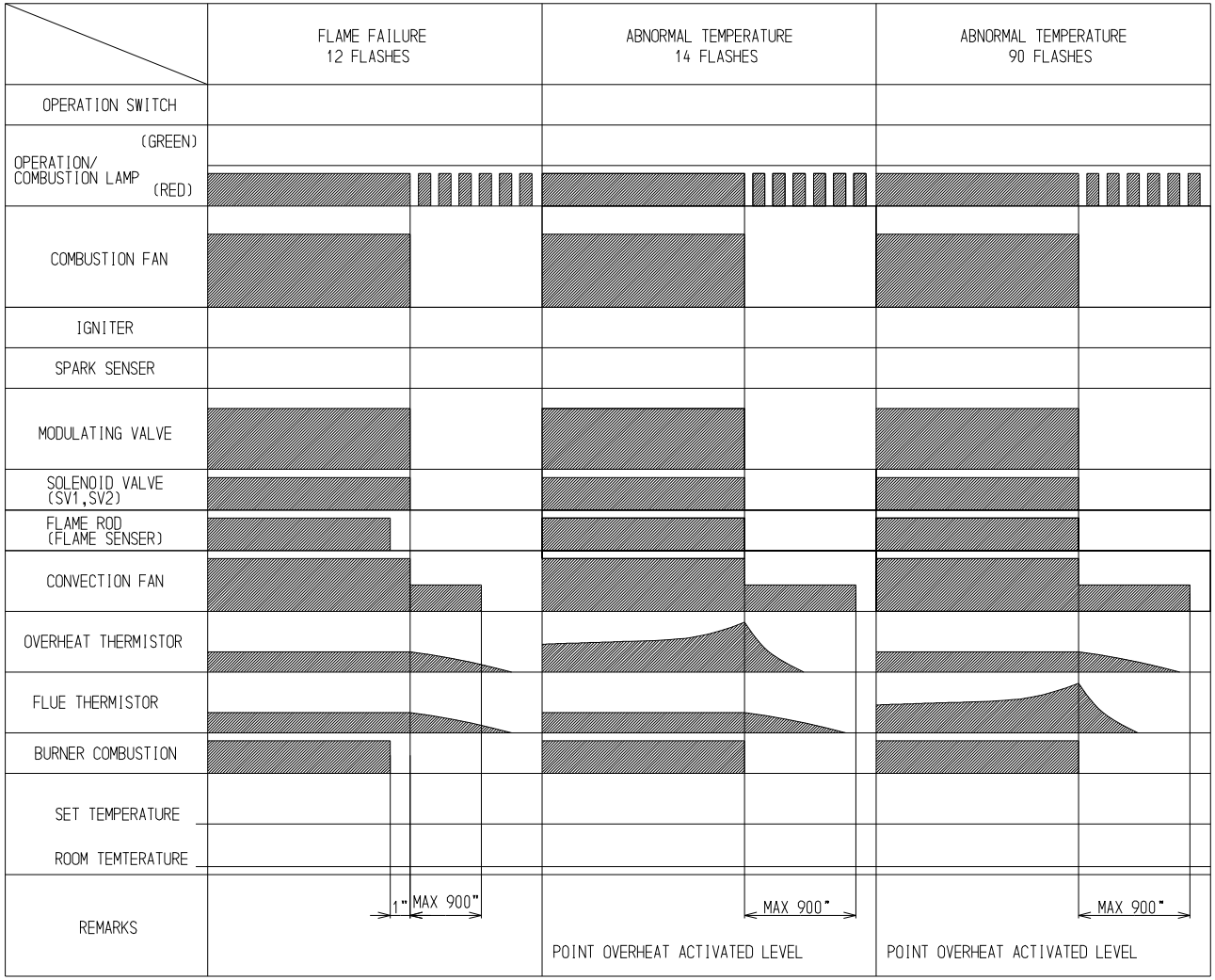
15. Time Charts



(CHART B:ABNORMAL OPERATION)



(CHART C:ABNORMAL OPERATION)



16. Gas Conversion / Gas Pressure Setting

Refer Seperate Rinnai document behind front cover of appliance.

17. Dismantling for Service

240 volt potential exposure. Isolate the appliance and reconfirm with a neon screwdriver or multimeter. Disconnect gas supply

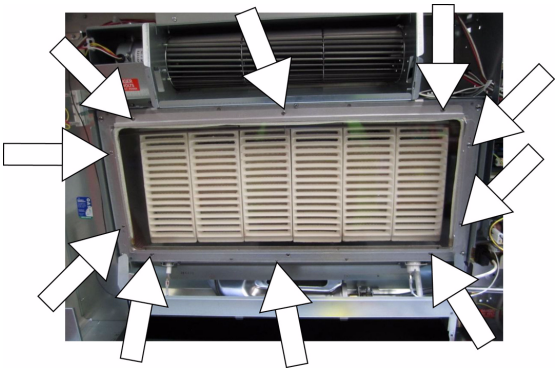
1. To remove glass front of combustion chamber and access radiants 28
2. To remove Burner 28
3. To remove Convection Fan 28
4. To remove PCB 28
5. To remove Heat Exchanger 30
6. To remove Combustion Fan 30
7. Combustion fan assembly behind heat exchanger. 30

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

240 volt potential exposure. Isolate the appliance & reconfirm with a neon screwdriver or multimeter. Disconnect gas supply.

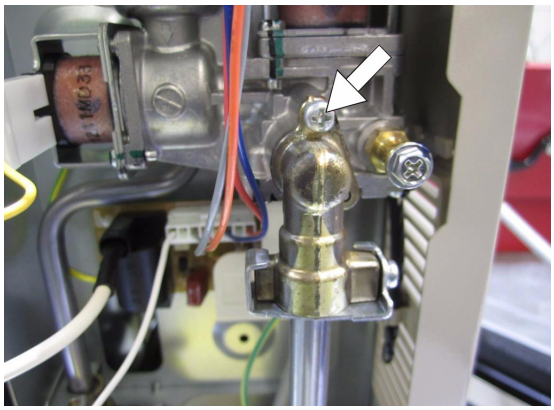
1) To remove glass front of combustion chamber and access radiants

1. Remove 10 screws as shown.

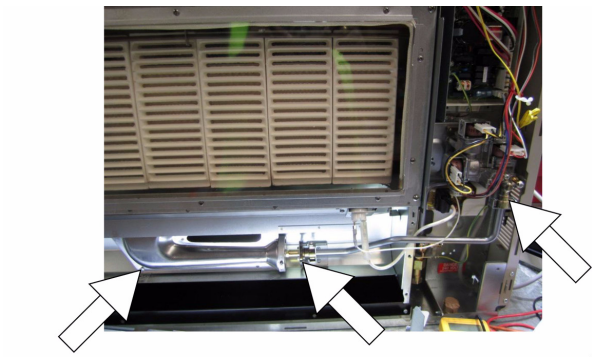


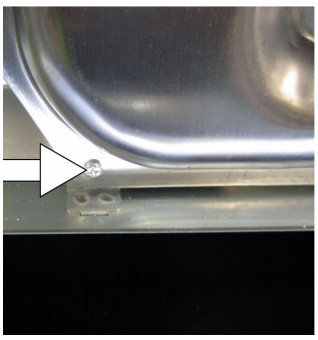
2) To remove Burner

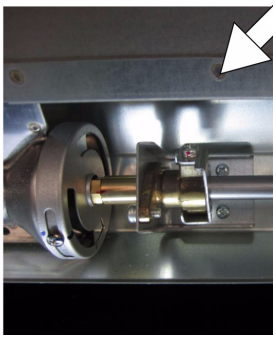
1. Loosen screw from gas valve and remove burner pipe assembly.



2. Remove the 3 screws supporting the burner assembly including the screw from the gas valve. See above photo.
3. Remove 2 screws from bracket.







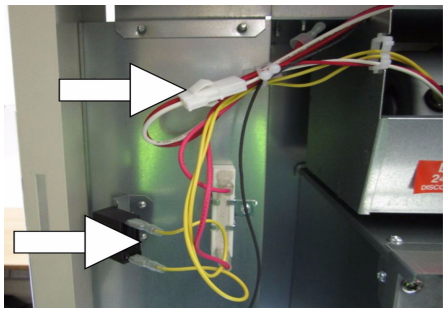
3) To remove Convection Fan

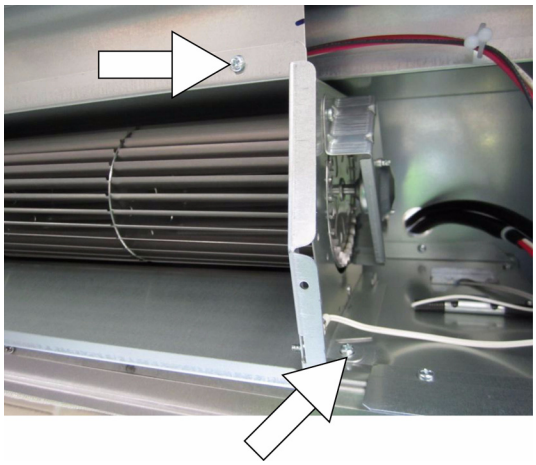
1. Isolate the 240 V power supply to the appliance.
2. Disconnect fan from electrical connector.
3. Disconnect 2 wires connecting fan to capacitor.
4. Remove 4 screws securing fan to appliance.

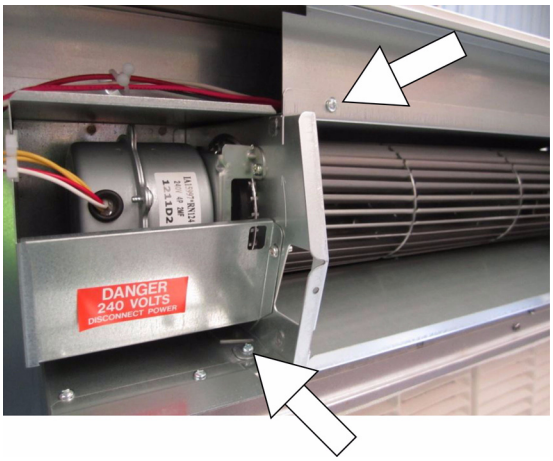
See following photos next page.

240 volt potential exposure. Isolate the appliance & reconfirm with a neon screwdriver or multimeter. Disconnect Gas Supply.

5. Disconnect fan from connector.
6. Disconnect 2 wires from capacitor.
7. Remove 2 screws from right hand side of fan.
8. Remove 2 screws from the left hand side of the fan.

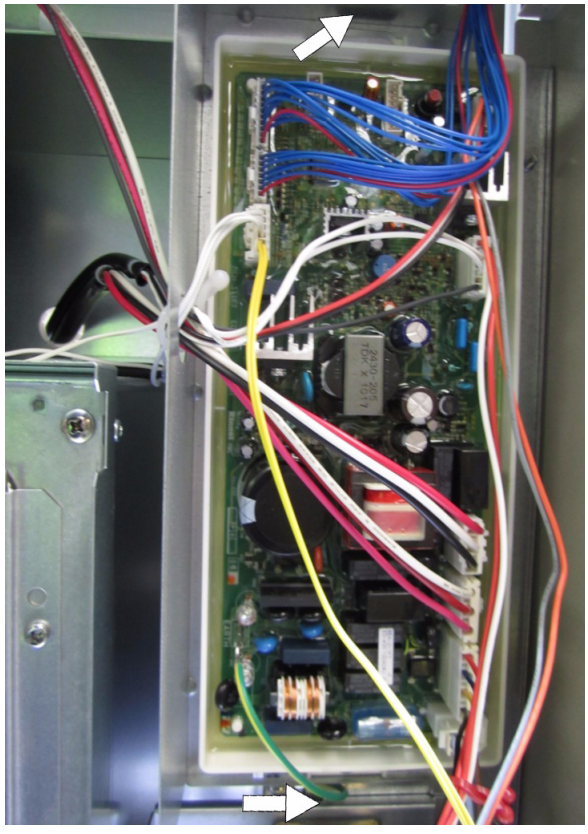






4) To remove PCB

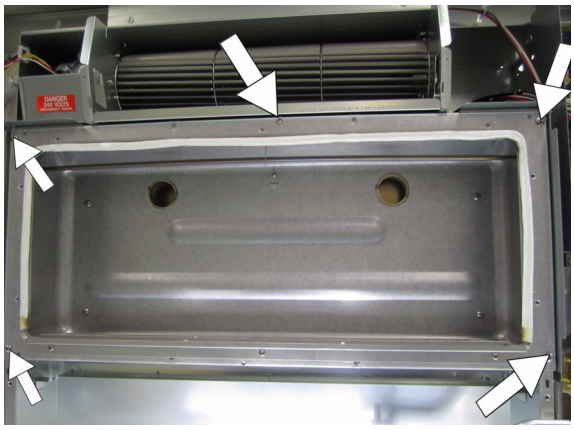
1. Isolate power to the appliance.
2. Remove all connectors and wiring from PCB.
3. Remove screw from bottom of PCB.
4. Carefully raise and remove PCB off the panel.
5. Raise PCB off hinge and remove.
6. Remove screw.



240 volt potential exposure. Isolate the appliance & reconfirm with a neon screwdriver or multimeter. Disconnect Gas Supply.

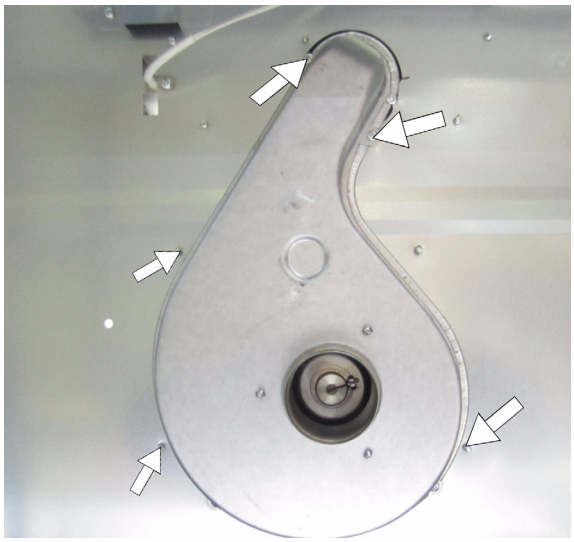
5) To remove Heat Exchanger

1. Remove burner assembly.
2. Undo 5 screws on the outside of heat exchanger.
3. Remove heat exchanger.
4. Undo 5 screws as indicated in photo.



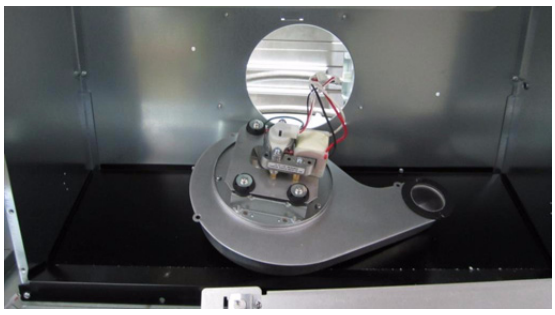
6) To remove Combustion Fan

1. Isolate power supply to the appliance.
2. Remove burner assembly.
3. Remove heat exchanger. (See photo above).
4. Undo 5 screws as indicated in photo and release fan assembly from behind heat exchanger.
5. Disconnect fan from 2 connectors.



7) Combustion fan assembly behind heat exchanger

1. Remove 5 screws as shown on the above picture to release fan.
2. Disconnect 2 connectors to remove fan.



18. Parts List

Effective: 26/06/12
Supercedes: 27/03/12
V5

REH-311FTB-1S / REH-311FTB-1A / REH-311FTC-1S / REH-311F

NO.	PART NAME	RA PART NUMBER	11 DIGIT CODE	INBUILT - G.SILVER	INBUILT - BEIGE	CONSOLE - G.SILVER	CONSOLE - BEIGE
001	Panel Front	90190634	019-3696000	1		1	
001	Panel Front	90191636	019-3697000		1		1
002	Panel Front Inner	90191838	047-965-000	1	1	1	1
003	Louvre Top	90191840	147-045-000	1	1	1	1
004	Panel Air Filter	90194434	017-0091000	1	1	1	1
005	Retainer Glass Outer	90197125	047-966-000	2	2	2	2
006	Bracket Reflector Side	90197117	047-967-000	2	2	2	2
007	Glass Front	90193041	051-107-000	1	1	1	1
008	Seal Glass Front	90194180	580-0471000	2	2	2	2
009	Seal Glass Top	90194281	580-0472000	2	2	2	2
010	Glass Fixed Supporting Flame		047-968-000	4	4	4	4
011	Reflector RH	90196034	038-184-R00	1	1	1	1
012	Reflector LH	90196036	038-184-L00	1	1	1	1
013	Reflector Bottom	90196038	038-185-000	1	1	1	1
014	Reflector Top	90196040	038-186-000	1	1	1	1
015	Panel Mesh	90194040	022-004-000	1	1	1	1
016	Retainer Mesh Top Bottom	90197228	538-0462000	2	2	2	2
017	Retainer Mesh Side	90197230	538-0463000	2	2	2	2
018	Light Shield	90197232	515-309-000	1	1	1	1
019	Panel Kick	90199888	019-3698000	1		1	
019	Panel Kick	90199890	019-3699000		1		1
020	Louvre Bottom	90198009	095-235-000	1	1	1	1
021	Seal V		526-146-000	2	2	2	2
022	Dress Guard	90197762	056-197-000	1	1	1	1
023	Panel Top	90190378	001-0439000	1			
023	Panel Top	90190380	001-0440000		1		
024	Panel Top	90190402	001-0441000			1	
024	Panel Top	90190404	001-0442000				1
025	Panel RH	90190910	003-911-000	1			
025	Panel RH	90190912	003-912-000		1		

REH-311FTB-1S / REH-311FTB-1A / REH-311FTC-1S / REH-311FT

				INBUILT - G.SILVER	INBUILT - BEIGE	CONSOLE - G.SILVER	CONSOLE - BEIGE
026	Panel RH	90190914	003-913-000			1	
026	Panel RH	90190916	003-914-000				1
027	Panel LH	90190918	003-915-000	1			
027	Panel LH	90190920	003-916-000		1		
028	Panel LH	90190922	003-917-000			1	
028	Panel LH	90190924	003-918-000				1
029	Panel Control	90199618	098-2085000	1		1	
029	Panel Control	90199620	098-2086000		1		1
032	Control Panel Heat Shield Assy		030-0215000	1	1	1	1
033	Side Plate Support Right		044-163-000	2	2	2	2
034	Side Plate Support Left		044-164-000	2	2	2	2
035	Thermistor Lid	90190493	061-063-000	2		2	
035	Thermistor Lid	90150475	061-059-000		2		2
036	Airtight Panel		525-080-000	1	1	1	1
037	Rear Main Body Assembly		014-451-000	1	1	1	1
038	Main Body Upper Panel		001-0443000	1	1	2	2
039	Convection Guide		515-310-000	1	1	1	1
040	Inside Main Body Upper		001-0444000	1	1	1	1
041	Gasket A		580-809-000	2	2	2	2
042	Cord Cover		098-2087000	1	1	1	1
043	Inside Main Body R A		014-452-000	1	1	1	1
044	Inside Main Body L A		014-453-000	1	1	1	1
045	Combustion Chamber Seal Plate R		525-081-000	1	1	1	1
046	Combustion Chamber Seal Plate L		525-082-000	1	1	1	1
047	Air Guide Plate		515-311-000	1	1	1	1
048	B Main Body Base R		112-078-000	1	1		
049	B Main Body Base L		112-079-000	1	1		
050	C Main Body Base R		112-080-000			1	1
051	C Main Body Base L		112-081-000			1	1
052	Main Body Side Panel C		003-919-000			2	2
053	Main Body Support		538-0464000	2	2		

Effective: 26/06/12
Supercedes: 27/03/12
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REH-311FTB-1S / REH-311FTB-1A / REH-311FTC-1S / REH-311F

				INBUILT - G.SILVER	INBUILT - BEIGE	CONSOLE - G.SILVER	CONSOLE - BEIGE
054	Motor Cover		098-0033000	1	1	1	1
055	Spigot Flue	90175761	055-556-000	1	1	1	1
056	Wall Spacer	90147471	504-018-000			1	1
057	Spacer Top	90190436	550-222-000			1	
057	Spacer Top	90190438	550-223-000				1
058	Spacer Side	90190440	550-224-000			2	
058	Spacer Side	90190442	550-225-000				2
100	Radiant	90142282	----------	6	6	6	6
101	Heat Exchanger	90192568	314-436-000	1	1	1	1
102	Heat Exchanger Support		538-0465000	2	2	2	2
103	Cooling Plate		525-083-000	1	1	1	1
104	Rod Holding Radiant	90147091	538-228-000	1	1	1	1
105	Supporting Pole Fixed Plate		537-0678000	1	1	1	1
106	Snap Pin		505-011-000	1	1	1	1
107	Combustion Chamber	90150905	092-059-000	1	1	1	1
108	Packing Glass Panel	90147133	580-655-000	1	1	1	1
109	Clip		504-081-010	8	8	8	8
110	Panel Glass	90147109	051-081-000	1	1	1	1
112	Retainer Inner Rear	90197227	538-0466000	2	2	2	2
113	Retainer Inner Side	90147125	538-084-000	2	2	2	2
114	Burner Box	90149097	527-204-000	1	1	1	1
115	Box Front Panel Assembly		019-0707000	1	1	1	1
116	Gasket D		510-0029000	1	1	1	1
117	Filter Burner	90148982	017-972-000	1	1	1	1
118	Burner Assembly	90148990	150-487-000	1	1	1	1
119	Damper	90199146	140-784-000	1	1	1	1
120	Flame Rod	90150483	230-054-000	1	1	1	1
121	Flame Rod Retainer		538-232-000	1	1	1	1
122	Electrode	90150509	202-087-000	1	1	1	1
123	Electrode Retainer		538-233-000	1	1	1	1
124	Gas Control Bracket		537-0679000	1	1	1	1

REH-311FTB-1S / REH-311FTB-1A / REH-311FTC-1S / REH-311FT

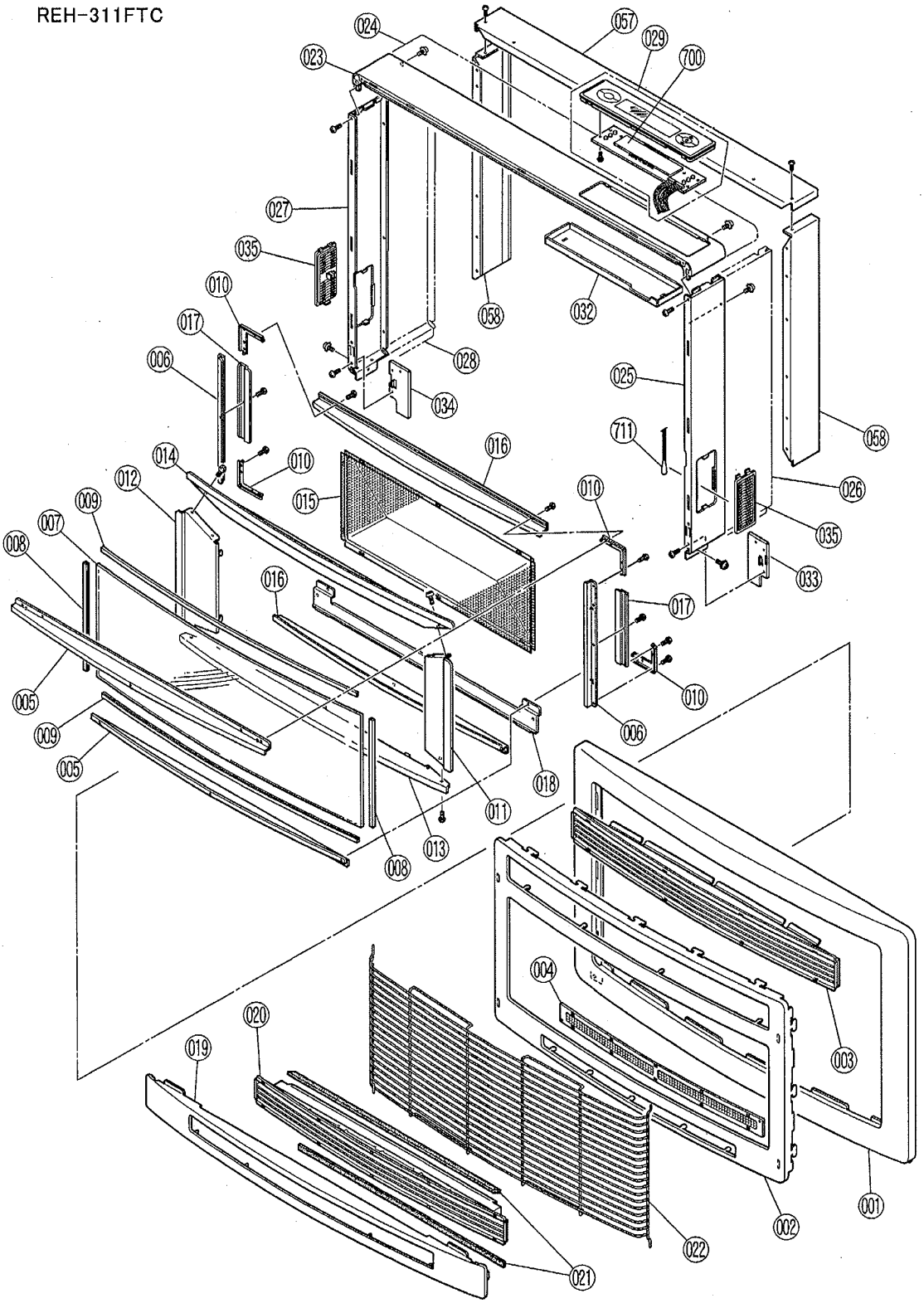
				INBUILT - G.SILVER	INBUILT - BEIGE	CONSOLE - G.SILVER	CONSOLE - BEIGE
125	Injector Main LP	90190238	130-218-160	1	1	1	1
125	Injector Main NG	90190240	130-218-250	1	1	1	1
126	Gas Control LP / NG	94298115	114-494-000	1	1	1	1
127	Inlet Frange		190-194-000	1	1	1	1
128	Pressure Point		501-193-000	2	2	2	2
129	Gasket	90176637	510-519-000	1	1	1	1
130	Filter Gas	90182692	017-287-000	1	1	1	1
131	Inlet Pipe		106-662-000	1	1	1	1
132	Gas Supply Tube Fixed Bracket		037-0036000	2	2	2	2
133	Gas Supply Tube Elbow		191-317-000	1	1	1	1
134	O-Ring Gas	90195167	520-353-000	5	5	5	5
135	Outlet Elbow		191-318-000	1	1	1	1
136	Outlet Pipe		106-663-000	1	1	1	1
137	Nozzel Holder		537-0680000	1	1	1	1
138	Screw Test Point	92099956	501-275-005	2	2	2	2
139	O-Ring (S4)	90195165	520-300-010	2	2	2	2
140	Gas Supply Tube Bracket		537-0681000	1	1	1	1
141	Inlet Elbow assy	90199622	191-319-000	1	1	1	1
142	Circuit Board Spacer		550-226-000	4	4	4	4
143	Combustion Fan Casing Assy		098-2088000	1	1	1	1
144	Seal Top Fan Comb	90157983	580-008-000	1	1	1	1
145	Fan Comb Assy	90196811	222-605-000	1	1	1	1
146	Seal Bottom Comb Fan	90157991	580-007-000	1	1	1	1
147	Combustion Fan Motor Bracket		537-0682000	1	1	1	1
148	S Tight Screw		501-303-000	4	4	4	4
149	Cushion	90183195	540-051-000	4	4	4	4
150	Fan		040-279-000	1	1	1	1
151	Combustion Fan Motor Bracket		537-0683000	1	1	1	1
152	Combustion Fan		040-280-000	1	1	1	1
153	Pipe Retainer		538-235-000	1	1	1	1
154	Exhaust Exit Pipe		554-177-000	1	1	1	1

REH-311FTB-1S / REH-311FTB-1A / REH-311FTC-1S / REH-311FT

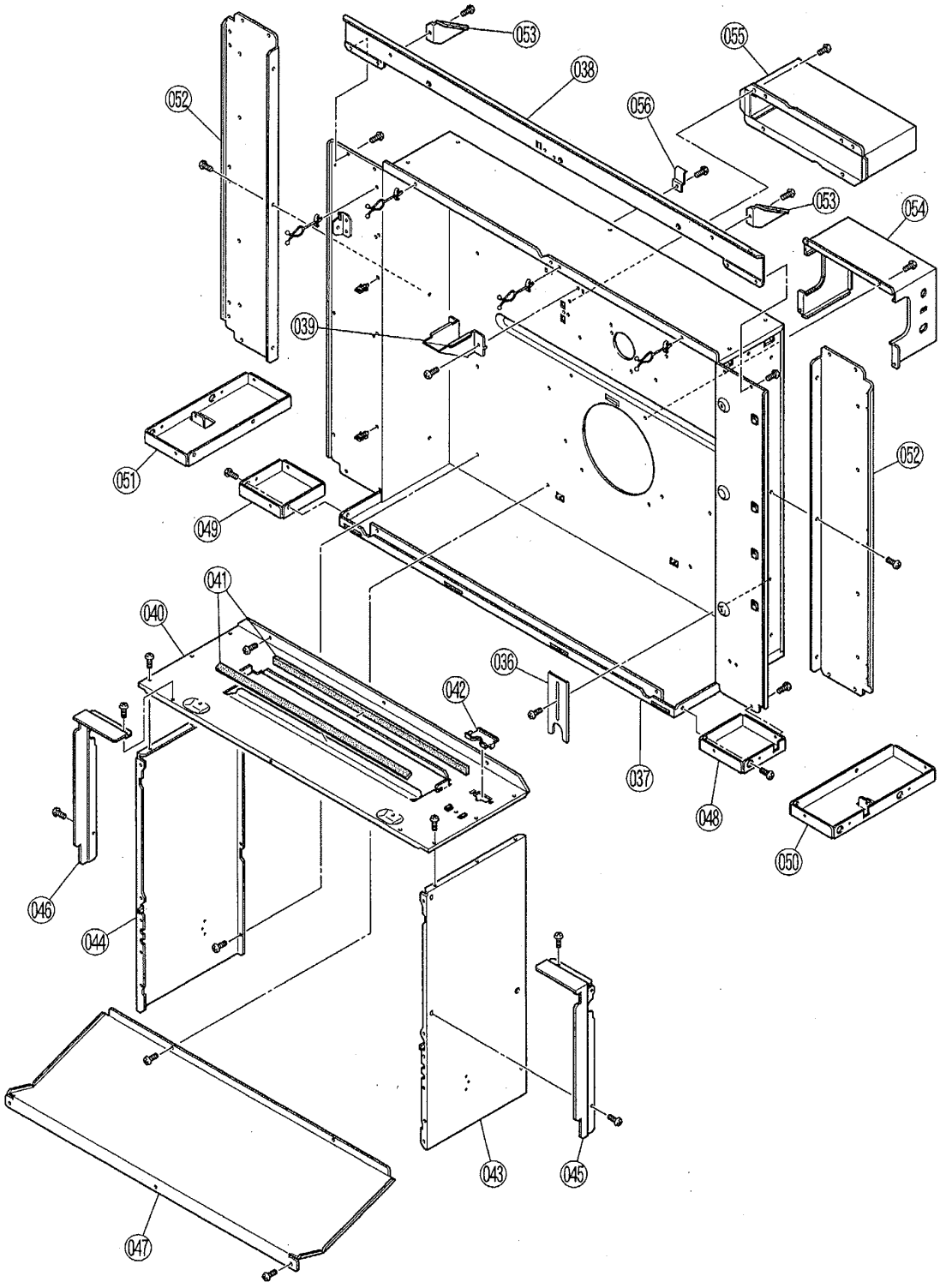
				INBUILT - G.SILVER	INBUILT - BEIGE	CONSOLE - G.SILVER	CONSOLE - BEIGE
155	Convection Fan Assembly	90190640	040-360-000	1	1	1	1
156	Convection Fan Casing Assembly		098-0169000	1	1	1	1
157	Fan Conv	90150657	040-267-000	1	1	1	1
158	Housing with L/S Bearing	90141540	067-014-000	1	1	1	1
159	LS Bearing		067-013-000	1	1	1	1
160	Convection Fan Casing Bracket		537-0687000	1	1	1	1
161	L/H Conv. Fan Motor Heat Shield		030-0216000	1	1	1	1
162	Top Plate Support		508-0038000	1	1	1	1
163	Protector		525-084-000	1	1	1	1
164	PCB Heat Shield Plate		030-0217000	1	1	1	1
700	PCB Control	90191255	200-0509000	1	1	1	1
701	PCB Main	90190253	200-0510000	1	1	1	1
702	Igniter	90193060	211-206-000	1	1	1	1
703	Combustion Fan Assy	90196811	222-606-000	1	1	1	1
704	Lead Earth		231-031-000	1	1	1	1
705	Fan Conv	90190667	222-607-000	1	1	1	1
706	Resistor Ceramic	90197961	237-081-000	1	1	1	1
707	Fan Comb	90190769	290-1475000	1	1	1	1
708	Harness Ignitor	90190773	290-1476000	1	1	1	1
709	Harness Fan Conv	90190771	290-1477000	1	1	1	1
710	Thermal Fuse includes Flame Rod Lead	90190717	290-1478000	1	1	1	1
711	Thermistor Assy	90190495	233-267-000	1	1	1	1
712	Earth Harness		290-1479000	1	1	1	1
713	Lead HT	90198289	203-867-000	1	1	1	1
714	Electrical Cord	90182916	206-180-000	1	1	1	1

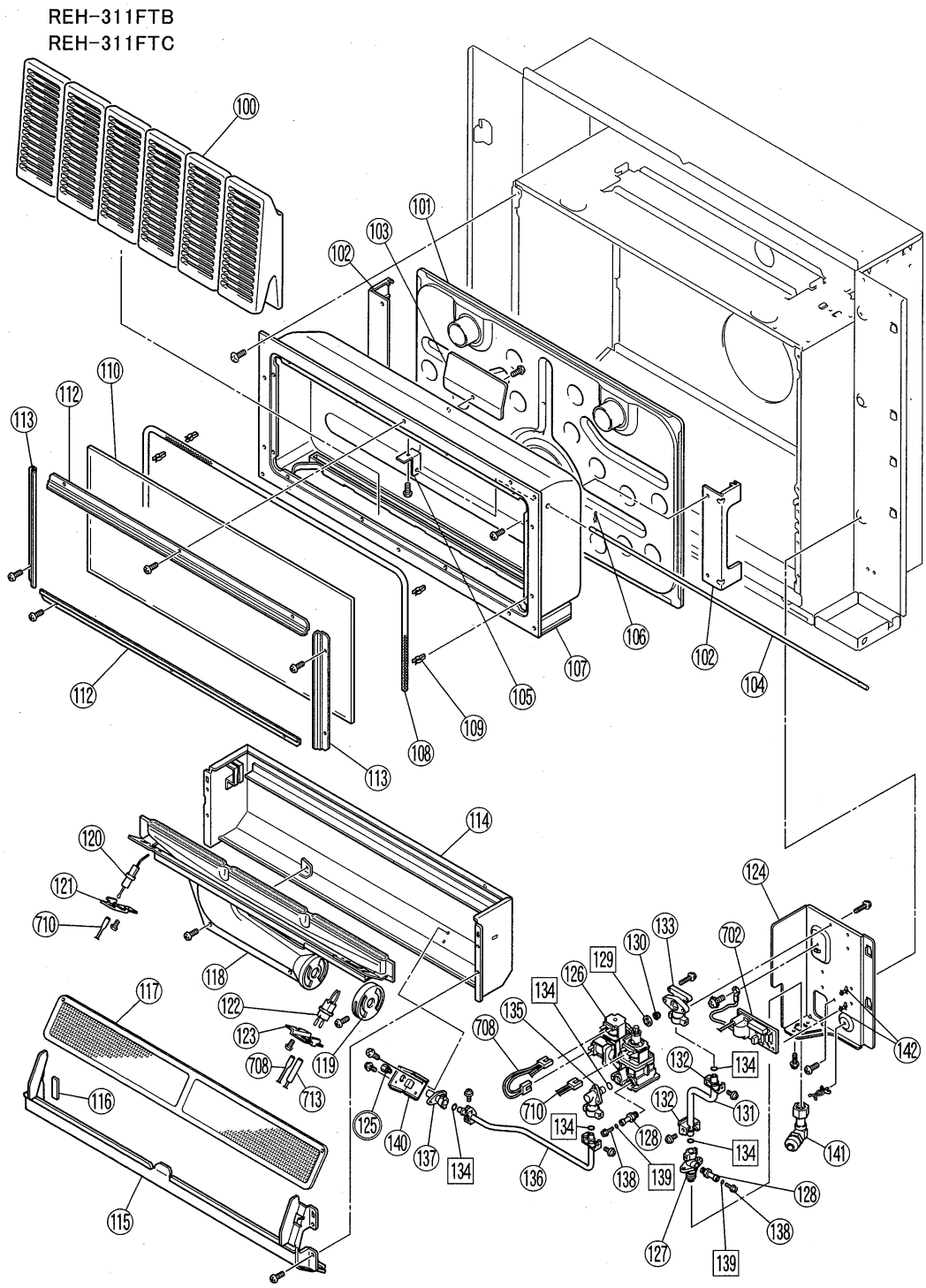
19. Exploded Diagrams

REH-311FTB
REH-311FTC



REH-311FTB
REH-311FTC

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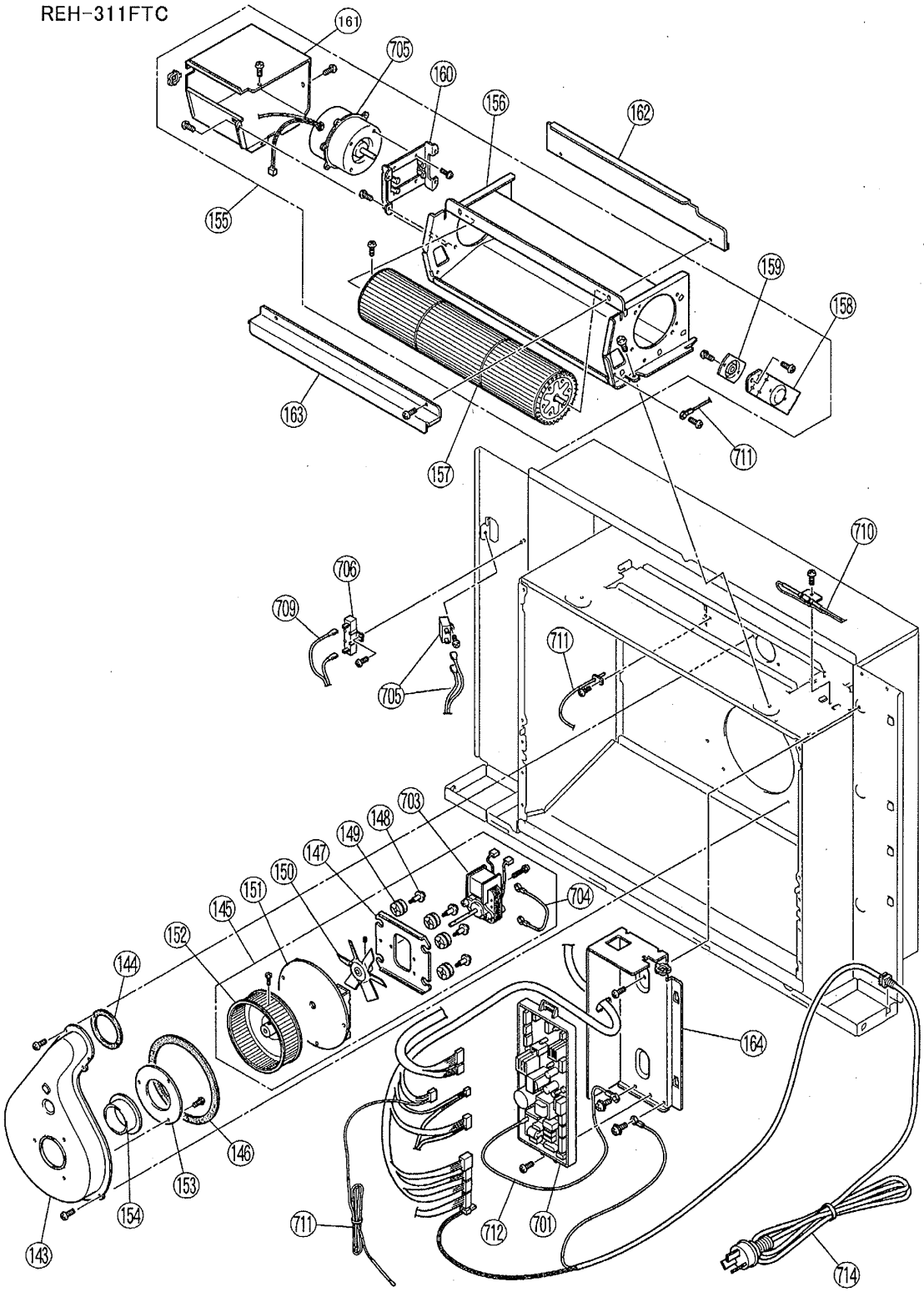
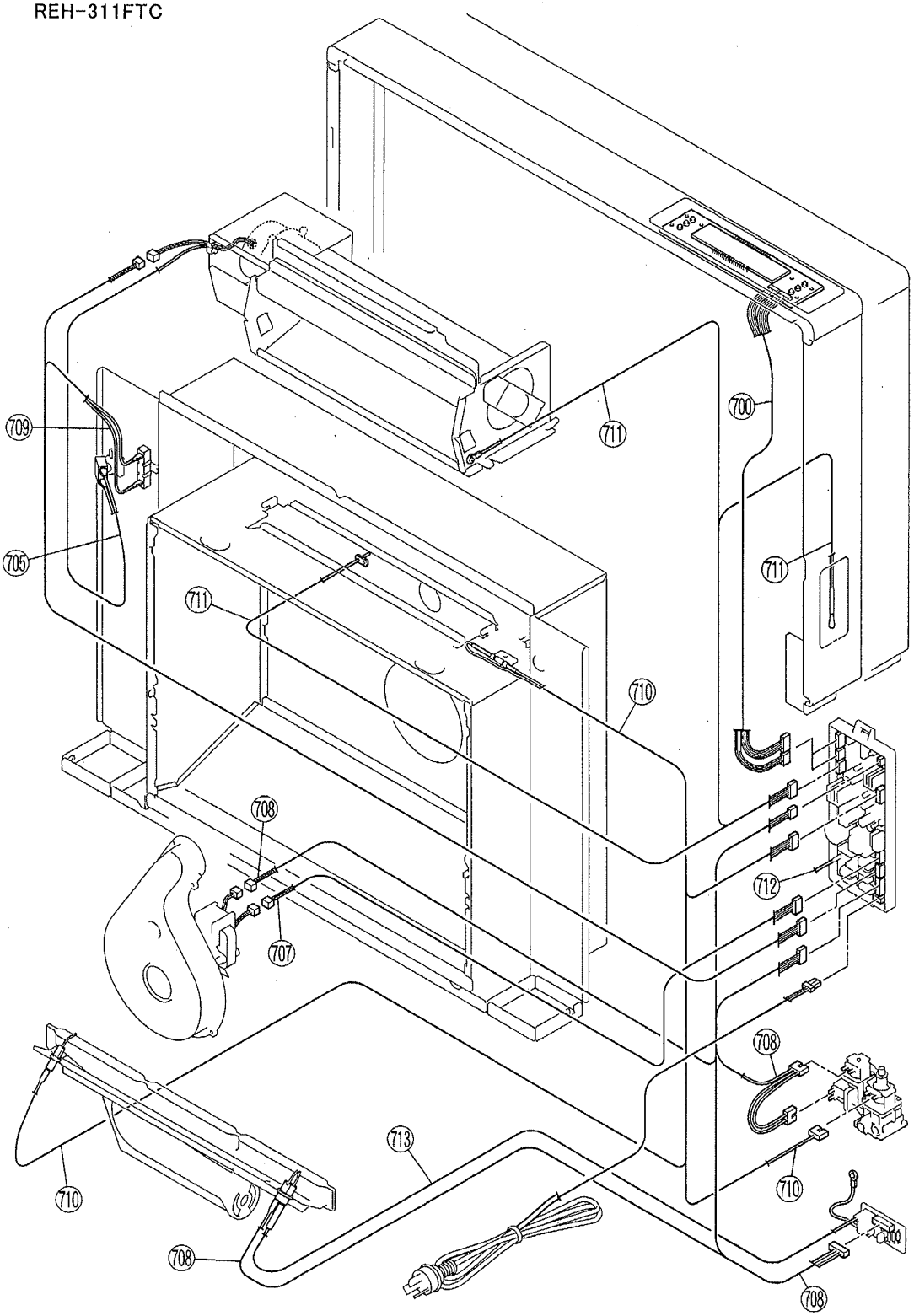
REH-311FTB
REH-311FTC



REH-311FTB
REH-311FTC



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Tel: 1300 555 545* Fax: 1300 555 655*

Cost of a local call Higher from mobile or public phones.

Rinnai has a Service and Spare Parts network with personnel who are fully trained and equipped to give the best service on your Rinnai appliance. If your appliance requires service, please call our Help Line. Rinnai recommends that this appliance be serviced every 2 years.