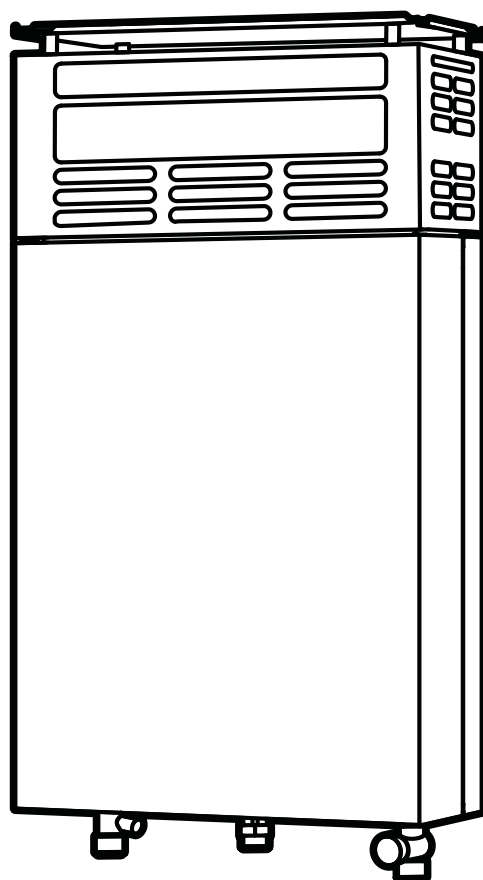


Rinnai

SERVICE MANUAL



**TO SUIT MODEL : IHF10
DOES NOT SUIT ANY OTHER MODELS**



The Australian
Gas Association

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

Certified
Product



WaterMark

This Appliance complies
with AS 3498:2009
AGA LIC. 60089

The appliance is certified to WaterMark by AGA.

WaterMark certification is awarded to products and fittings complying with safety and water contamination standards.

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Rinnai Australia reserves the right to make modifications and change specifications without notice.



WARNING

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



- All service work must be carried out by an authorised person. Such as a licensed gasfitter.

We welcome users of this manual to provide feedback and suggestions for improvement purposes.

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1. Specifications

Model Designation:

Brand Name	Model Name/Pet Name	Model Number
Rinnai	Hoflo 10	IHF10

Type:

Appliance is an outdoor/externally installed electronically controlled Instantaneous gas hot water system with battery ignition. Gas flow is automatically controlled to deliver the nominated water temperature rise at nominated water flow rate. The unit only operates when a hot water tap is opened. Once hot water is no longer needed and the tap is shut off, the burner shuts down.

Dimensions:

Model	Width	Depth Overall	Height	Dry Weight Kg
IHF10	380	219	838	14

Capacity and Gas Type:

Model	Heating Capacity at 25°C Temperature Rise (l/min).	Maximum Flow through Appliance l/min.	Factory Temperature Setting °C	Gas Types
IHF10	10	13.6	60	Natural and Propane

Gas Data:

Gas Types	Gas Consumption (MJ/h)	Inlet Gas Pressure (kPa)	Burner Test Point Pressure (TPP) (kPa)
NG	76.2	1.13	0.69
Propane Gas	76.0	2.75	2.38

Injectors and Water Pressure:

	NG	Propane Gas
Main Injectors	1.15	0.68
Pilot Injectors	0.6	0.35
Minimum Inlet Water Pressure for 10 L/min. (kPa)	120	
Maximum Inlet Water Pressure (kPa)	1000	
Minimum Inlet Water Pressure for 2.9 L/min. (kPa)	40	
Relief Water Pressure (kPa)	1750	
Power Supply	'D' Size Battery DC 1.5V x 1	

Fittings:

Hot Water Outlet	Cold Water Inlet	Propane Gas	Natural Gas
R 1/2" (13 mm)	R 1/2" (13 mm)	R 1/2" (13 mm)	R 1/2" (13 mm)

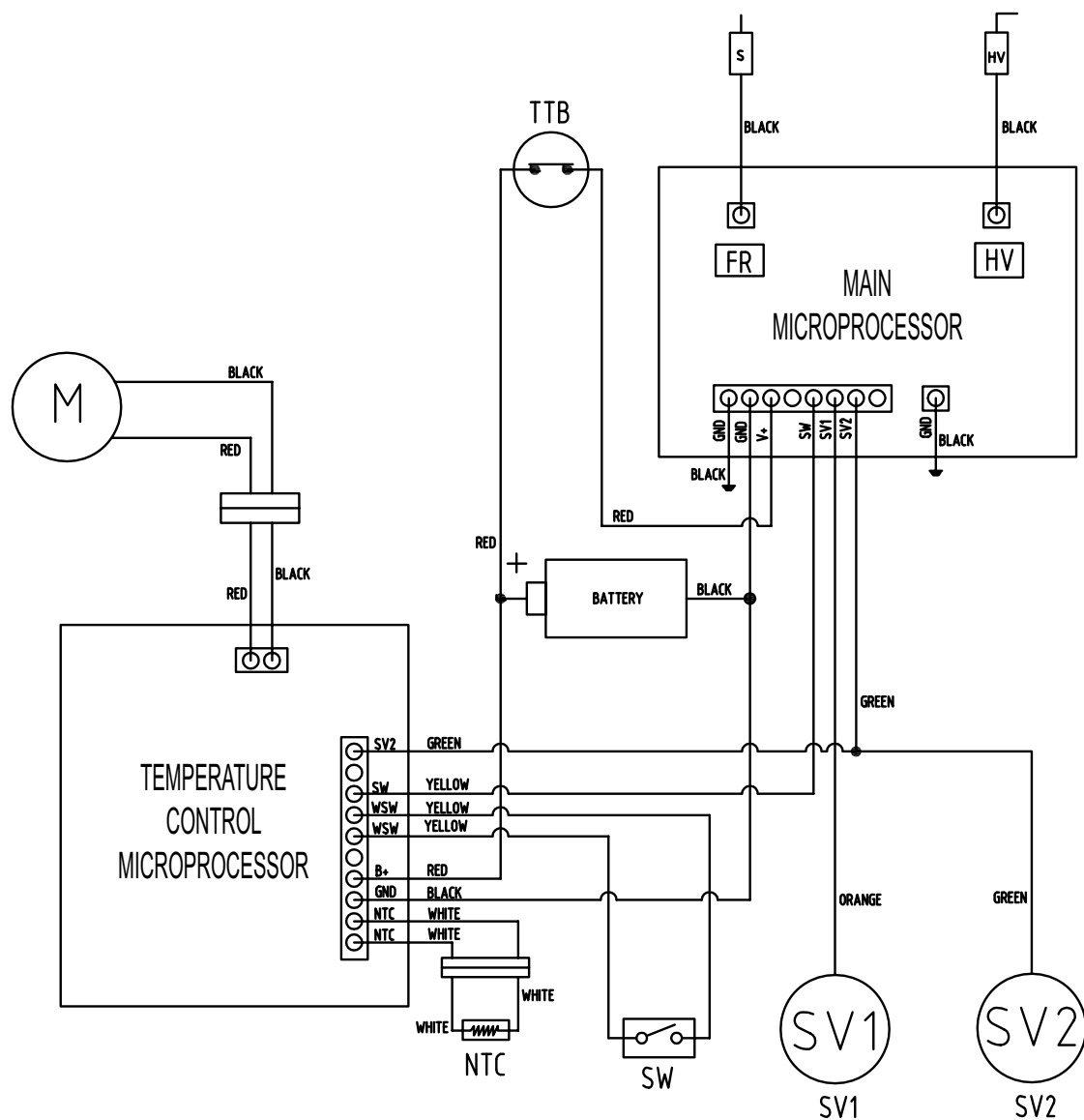
Temperature Setting:

60°C

Electrical Requirements:

- Battery driven; 1 x 1.5 Volt DC 'D' size battery.

2. Wiring Diagram



SV1	Solenoid Valve 1
SV2	Solenoid Valve 2
HV	High Voltage Lead (Ignition)
FR	Flame Rod
TTB	Temperature Overheat Switch (Self-resetting)
M	Modulation Motor
NTC	Thermistor (Heated water outlet temperature)
SW	Micro-switch

3. Gas System and Gas Control

Gas System and Gas Control:

Refer to Exploded diagrams for location of all gas components.

The Gas control circuit consists of the following valves:

- Gas Pressure Regulator (HSG-0013)
- Gas Valve (S-HAS-0124)
- Gas Servo Valve (HEE-0032)
- Gas Modulating Valve (HSD-1058)

The Gas control valves have three main functions:

- Regulate the incoming gas pressure regardless of line pressure
- Direct gas to pilot and main burner
- Gas flow is modulated between the minimum and maximum gas rated by modulating valve

Actual combination of gas valves used will be determined by the Microprocessor (HEI-1053 and HEZ-300), taking into account the water flow rate and temperature rise required.

The unit is operated by water flow through the water valve creating a pressure differential across the diaphragm causing it to rise. The diaphragm raises a spindle that manually opens one stage of the gas valve and energises gas servo valve.

The gas servo valve then opens the pilot valve and activates the igniter. Once the pilot flame has been sensed the ignition ceases, the main gas valve is opened and then the pilot valve is closed. It is an interrupted pilot.

Regulator:

Approved gas regulator is supplied with appliance.

Pressure Test Point:

Burner pressure:

Restricted orifice type pressure tapping with sealed screw, located on burner manifold.

This test point is used to check operational burner pressure.

Supply pressure test point:

Restricted orifice type pressure tapping with sealed screw, located on gas inlet side of gas regulator.

Main Burner:

The main burner is atmospheric type comprising of a burner manifold with 15 injectors.

Safety Devices:

Auto reset overheat cut out ($90\pm 4^{\circ}\text{C}$ Open, $80\pm 4^{\circ}\text{C}$ Close), water pressure relief valve, controlled outlet water temperature.

Flame Failure:

Electronic flame detection using flame rectification monitored by Main Microprocessor and flame rod.

Outlet Temperature Control:

The delivery temperature set point programmed into the ignition and electronic control module is 60°C . The actual delivery temperature may be lower depending on the prevailing operating conditions, for example, the incoming cold water temperature and water flow rate.

Water Pressure Relief Valve:

1750 kPa pressure relief valve is integral part of the appliance. Unit can be drained by removing pressure relief valve located on outlet water side of water heater.

Water System

Water Flow Control:

Water flow is controlled by the water section. It can increase or decrease water flow through the unit by the manual operation of water lever.

Water flow regulator is built into the cold water inlet fitting to prevent damage that may be caused by excessive water pressures.

Water Section:

Creates a pressure differential across a diaphragm causing it to rise when water flow passes water section.. The diaphragm raises a spindle that manually opens gas valve.

Water Temperature Control:

Determined by the Temperature Control Microprocessor, considering the water flow rate and temperature rise required.

Heat Exchanger:

Material: Copper. Tin coated on the surface.

Dimensions of pipe-work:

Diameter 12.7 - 16mm. Thickness: 0.8 mm.

The heat exchanger is of positive pressure type located centrally above the burner. Primarily constructed of copper and comprising of fin type heat absorbers.

Inlet Water Filter:

The cold water inlet has an s/s mesh/gauze type filter its only purpose is to filter the incoming water to protect the water section.

The filter is integral part of the inlet water fitting and is removable for service.

Pressure Relief Valve:

The pressure relief valve is located at the base of the unit and is part of the outlet water fitting.

CONSTRUCTION**General:**

Compact all-in-one-case assembly.

Access to internal components through removable front cover, all connections are made outside the appliance.

All internal components are mechanically supported via screw fasteners.

Outer Case:

Pressed and formed sheet steel 2 piece incorporating main body and cover.

Plumbing Fixings:

All plumbing connections are made into the various valves and adaptors at the base of the unit.

Gas Regulator:

Approved gas regulator supplied with unit. To be fitted by the installer.

Mounting:

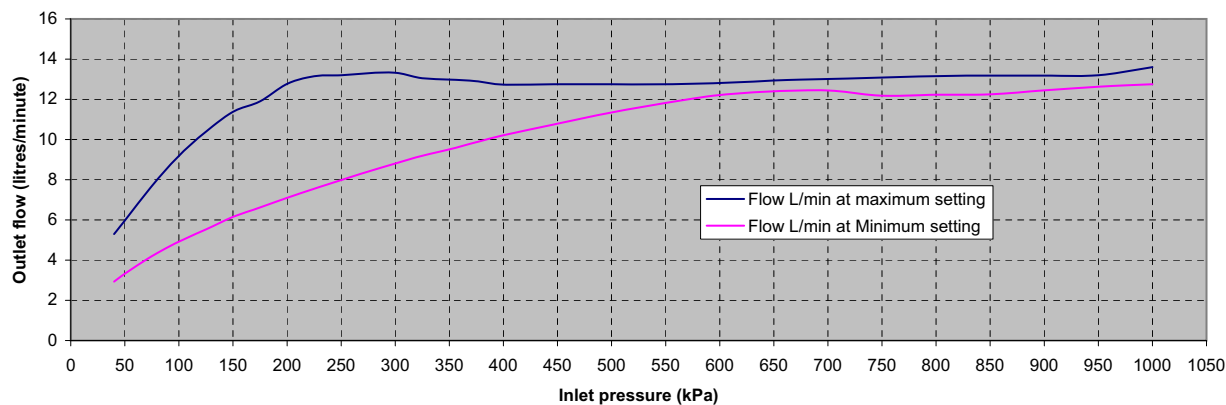
Primarily designed for hanging on a external vertical solid surface.

Easily accessible mounting holes top and bottom at the rear of the appliance allow for direct fitment to the wall via adequate fasteners.

4. Water Flow Rates and Pressures

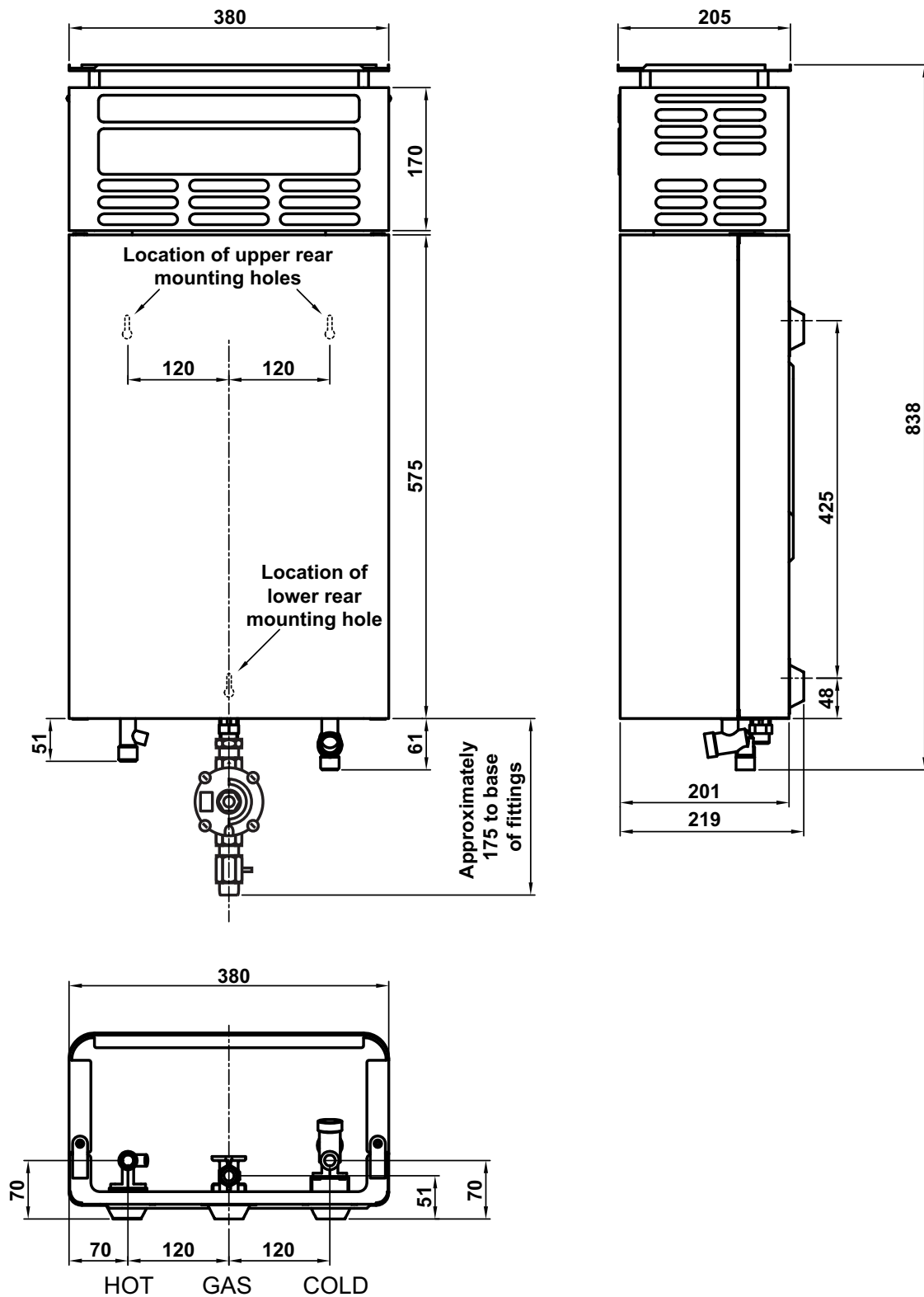
Water flow rate and pressure characteristics are shown below:

Water Flow vs Pressure Graphs



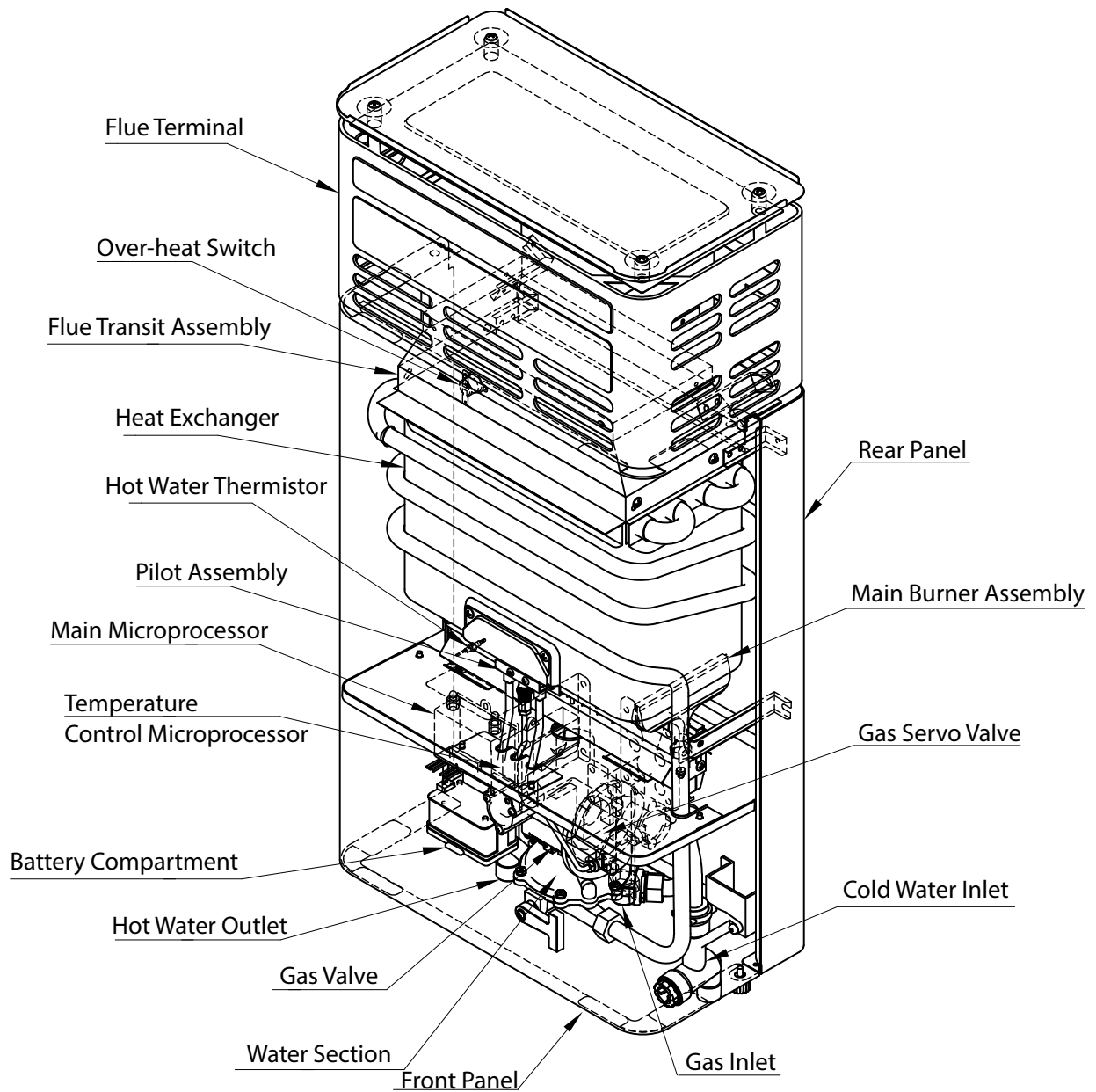
Water Inlet Pressure kPa	Flow L/minute at maximum setting	Flow L/minute at Minimum setting
40	5.3	2.9
50	6.0	3.3
75	7.7	4.2
100	9.2	4.9
125	10.4	5.5
150	11.4	6.2
175	11.9	6.6
200	12.8	7.1
225	13.2	7.6
250	13.2	8.0
275	13.3	8.4
300	13.3	8.8
325	13.1	9.2
350	13.0	9.5
375	12.9	9.9
400	12.7	10.2
450	12.8	10.8
500	12.8	11.4
550	12.8	11.8
600	12.8	12.2
650	12.9	12.4
700	13.0	12.4
750	13.1	12.2
800	13.2	12.2
850	13.2	12.3
900	13.2	12.5
950	13.2	12.6
1000	13.6	12.8

5. Dimensions



6. Cutaway Diagram

NOTE: This diagram is of a general nature. Some details may be different on some models

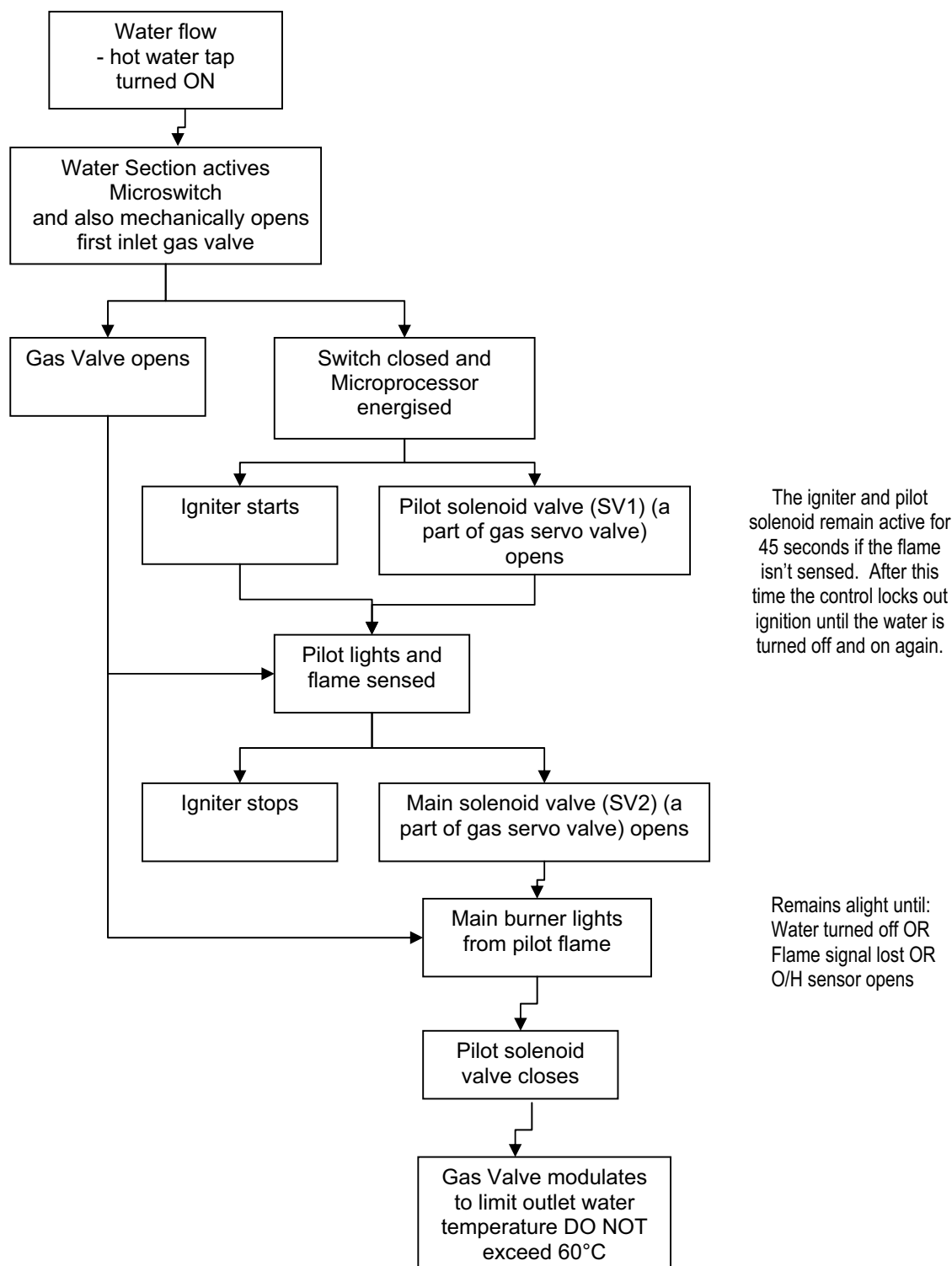


7. Operation Principles and Flow Chart

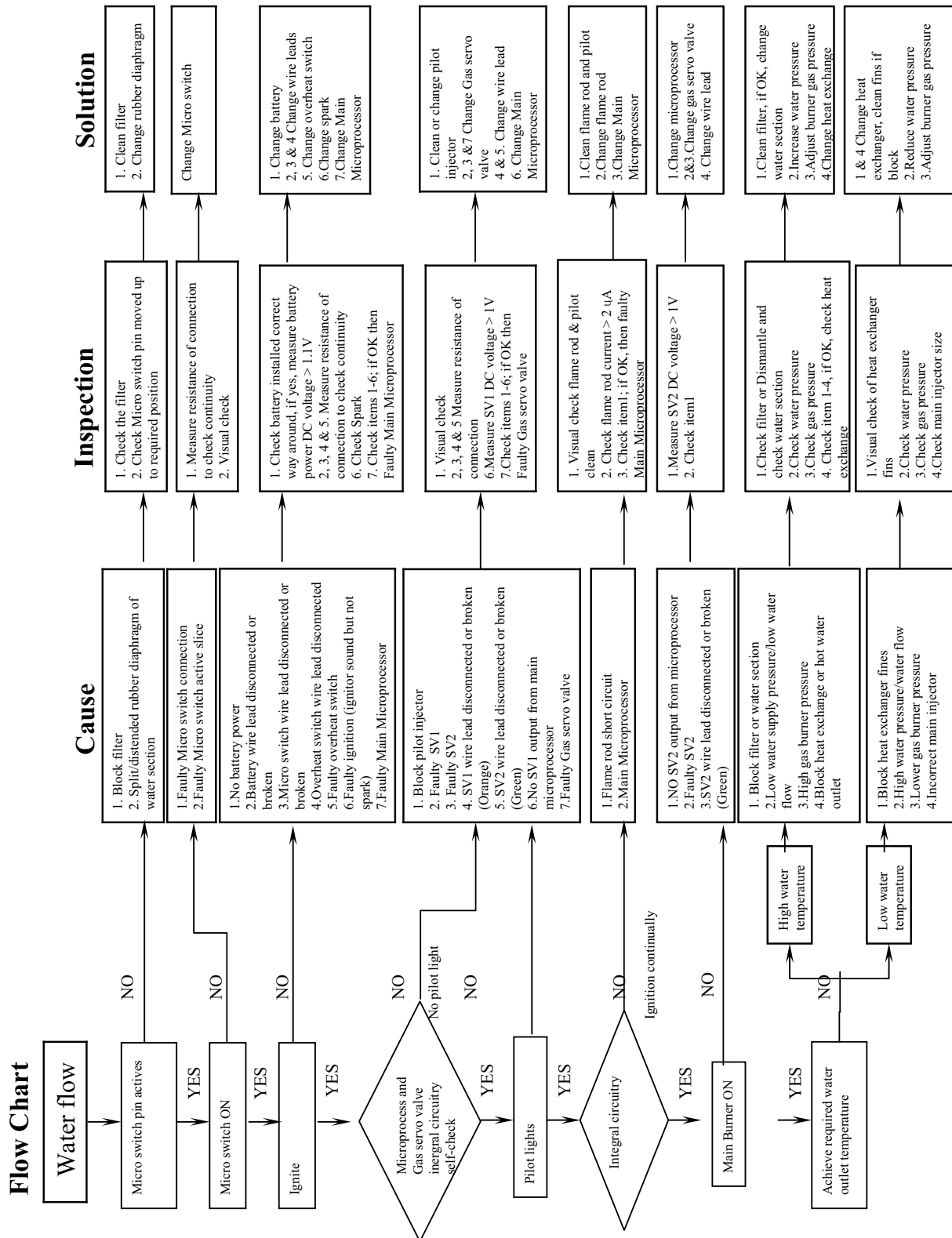
The unit is operated by water flow. Water flow through the water section creates a pressure differential across a diaphragm causing it to rise. The diaphragm raises a spindle that manually opens one stage of the gas valve and energises the control module.

The control module then opens the pilot valve and activates the igniter. Once a pilot flame has been sensed the igniter is stopped, the main gas valve is opened and then the pilot valve is closed.

The water flow rate can be adjusted by the end user of the system to give the required water flow and temperature.



8. Diagnostic Point Table



9. Fault Finding

Problem	Fault	Solution
Burner does not ignite, or is difficult to ignite	No gas supply	Check gas is turned on at water heater and gas meter or cylinder
	Low battery power	Replace battery
	Blocked inlet water filter	Clean filter
	Low gas supply pressure	Check inlet gas pressure to the appliance
	Faulty water section	Check water section – replace diaphragm
	Faulty ignition system	Check ignition system
	Disconnected ignition lead	Connect ignition lead
	Blocked pilot	Check pilot, clean or replace pilot injector
	Faulty micro switch	Replace micro switch
	Overheat switch activated	Ascertain reason for over heat condition
	Faulty temperature sensor	Replace temperature sensor
Pilot lights but no main burner	Low water pressure	Check water pressure
	Low battery power	Change battery
	Run out of cylinder gas	Replace gas cylinder
	Faulty flame rod	Check flame rode
	Faulty gas servo valve	Check gas servo valve
	Blocked main burner	Check main burner
	Disconnected flame sensor lead	Connect flame sensor lead
	Faulty temperature sensor	Check temperature sensor
Low water temperature	Low gas pressure	Check inlet gas pressure to the appliance
	Run out of cylinder gas	Replace gas cylinder
	Faulty main burner, or blocked burner injectors	Check main burner and injectors
	Excessive water flow through appliance	Adjust water flow adjustment lever
Low water flow	Low water pressure	Check water pressure to appliance
	Blocked water inlet filter	Clean filter
	Faulty water governor	Check water governor
	Blocked shower head or tap	Check and clean
Abnormal ignition (explosive)	Incorrect gas pressure to burner	Check burner pressure
	Faulty gas servo valve	Check gas servo valve
	Blocked pilot	Clean pilot
Yellow flame and smoke	Blocked main burner venturi	Check main burner venturi
	Sooty / blocked heat exchanger	Check heat exchanger
Abnormal sound when burning	High gas pressure	Check inlet gas pressure to the appliance Check burner pressure
	Blocked main burner	Check main burner
	Abnormal water supply	Check water supply
	Blocked heat exchanger	Check heat exchanger
Cuts off when operating	Split/Distended diaphragm of water governor	Check water governor
	Interrupted gas supply	Check gas pressure
	Run out of cylinder gas supply	Replace gas cylinder
Smell gas	Faulty/loose gas connection	Check gas connection
Water leakage from appliance	Damaged components and connections	Check connection and water components
	Frost damage	Check damaged components
Water leakage from pressure relief valve	Excessive pressure.	Check water pressure
	Faulty pressure relief valve	Check pressure relief valve

10. Dismantling for Service

Item	Page
1. Removal of the Front Panel	12
2. Removal of Microprocessor	12
3. Removal Pilot Tube	13
4. Removal Pilot and Spark and Flame Rod	14
5. Remove Burner unit and Injector Manifold.	14
6. Removal of Gas Modulating Valve.	16
7. Removal of Gas Servo Valve	16
8. Removal of Cold Water Inlet	16
9. Removal of Water Section	16
10. Removal of Gas Valve	17
11. Removal of Micro Switch	17
12. Removal of Heat Exchanger	17
13. Removal of Flue Terminal	18

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

All dismantling and service work must be carried out by an authorised person such as a licensed gasfitter.

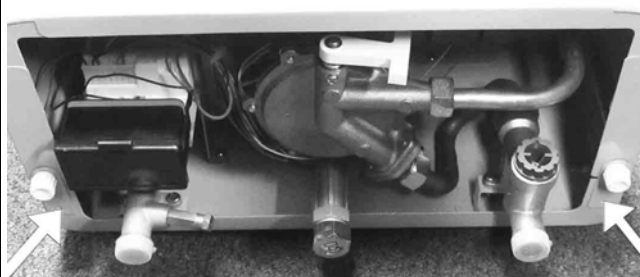
IMPORTANT

For some areas of dismantling you may need to isolate any or all of the following:

- * Remove battery.
- * Isolate gas supply.
- * Isolate water supply.
- * Drain **all** water from appliance.

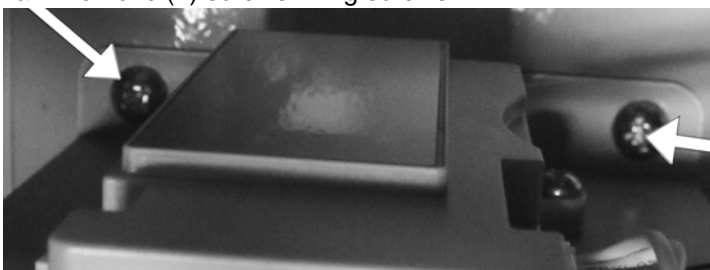
1) Removal of the Front Panel

- a. Remove (2) two bolts.

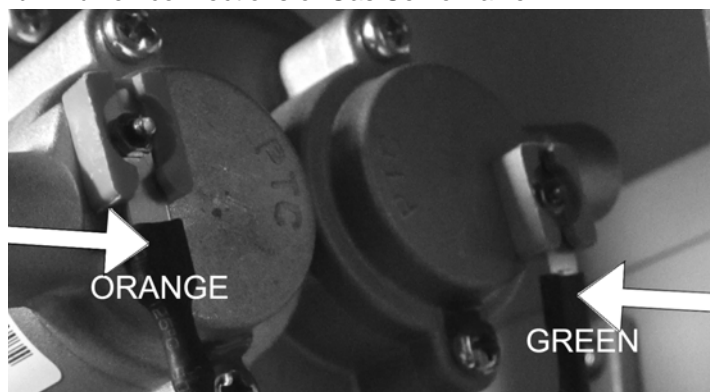


2) Removal of Microprocessor

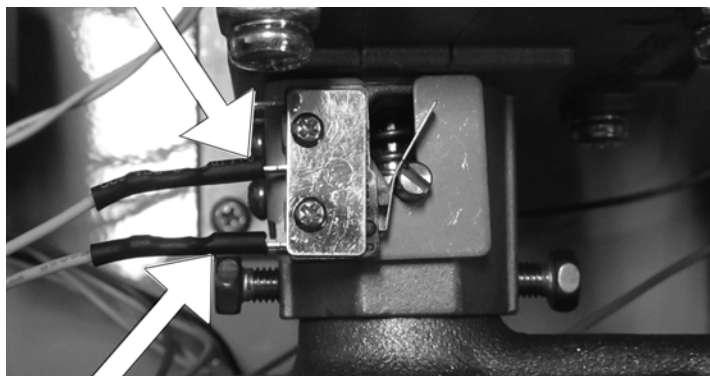
- a. Remove (2) screws fixing screws.



- b. Pull off connections of Gas Servo Valve



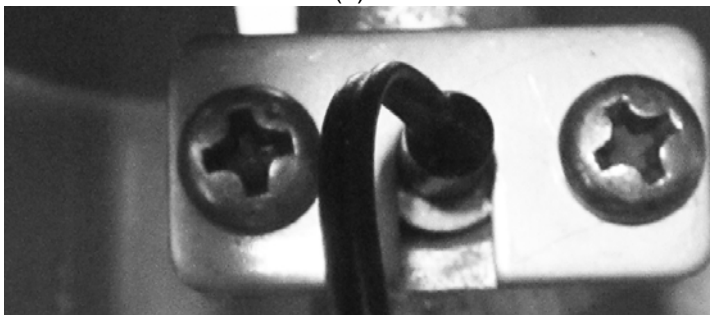
- c. Pull off connections of Micro Switch



- d. Pull off the connections of the Thermistor.



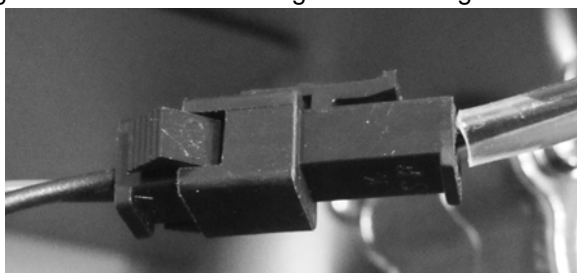
- e. Remove thermistor via (2) two screws



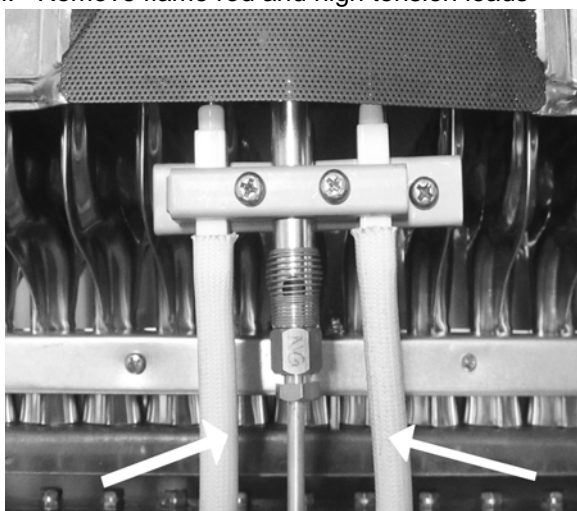
- f. Pull off connection of Overheat Switch.
Remove overheat switch via (2) two screws.



- g. Pull off connection of gas modulating valve

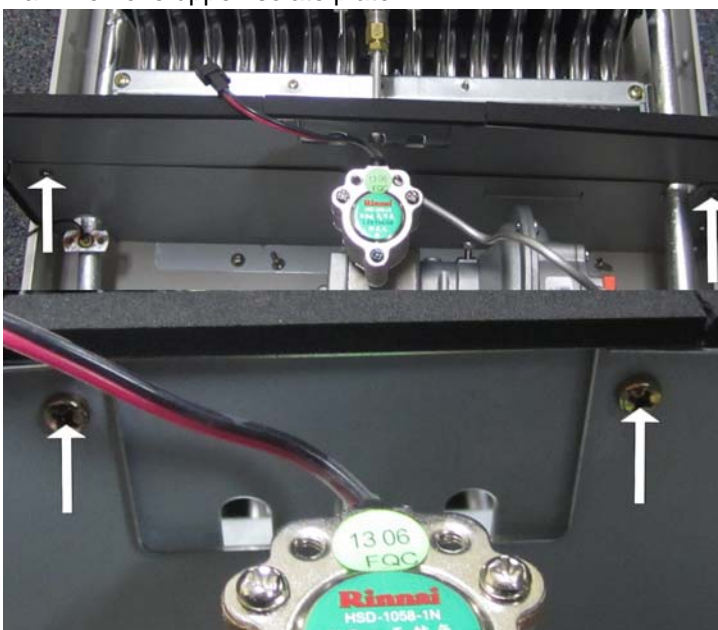


- h. Remove flame rod and high tension leads

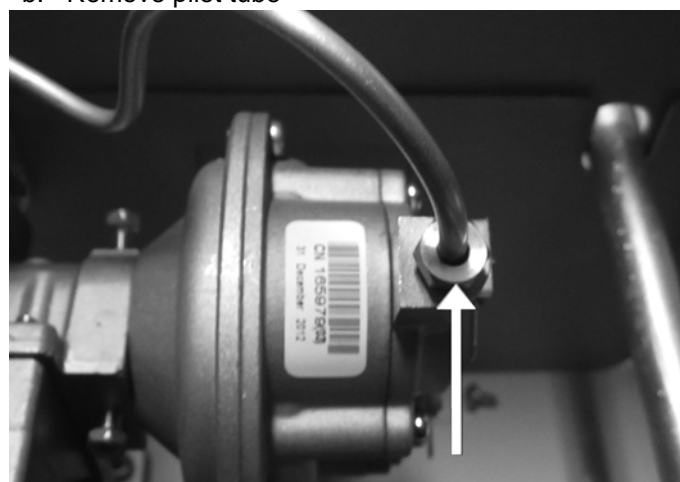


3) Removal Pilot Tube

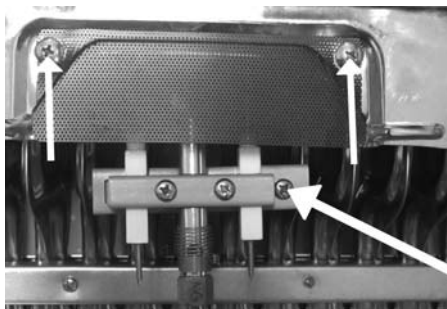
- a. Remove upper isolate plate.



- b. Remove pilot tube

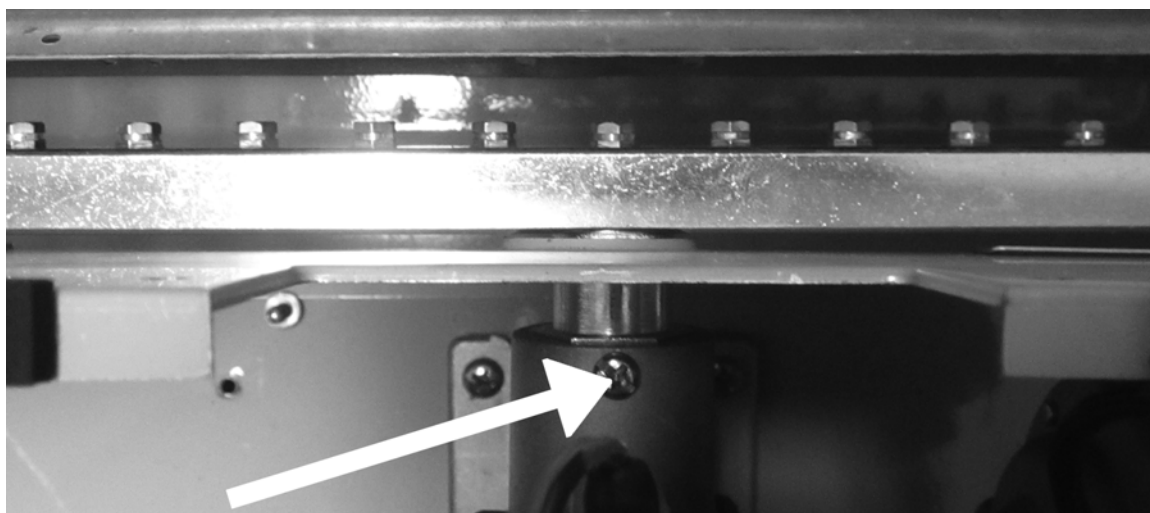


4) Remove Pilot, Spark Electrode and Flame Rod

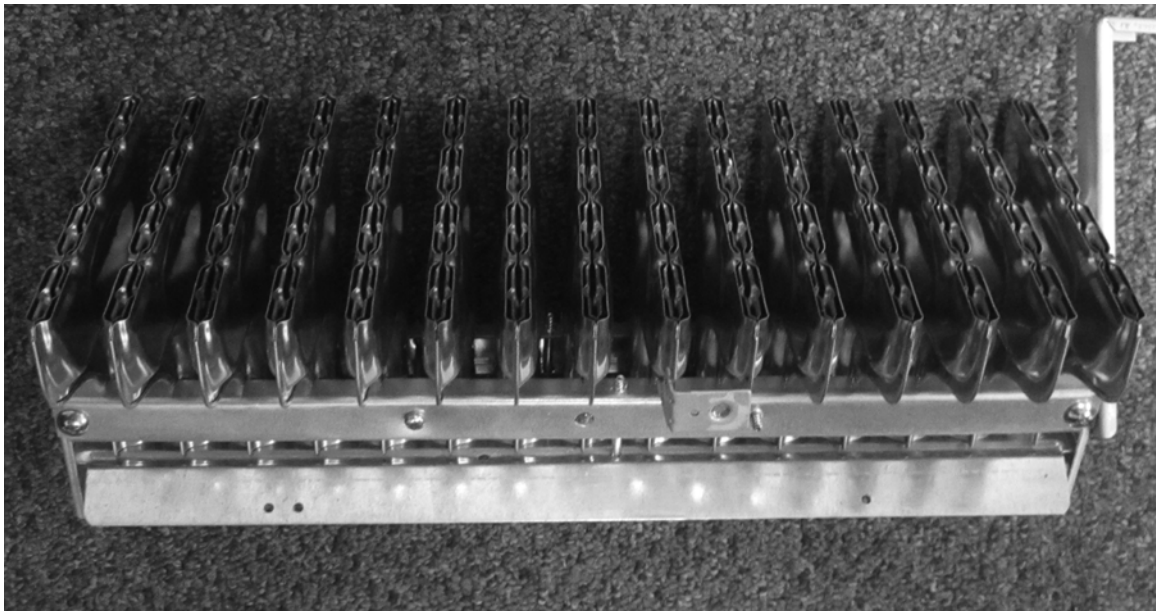
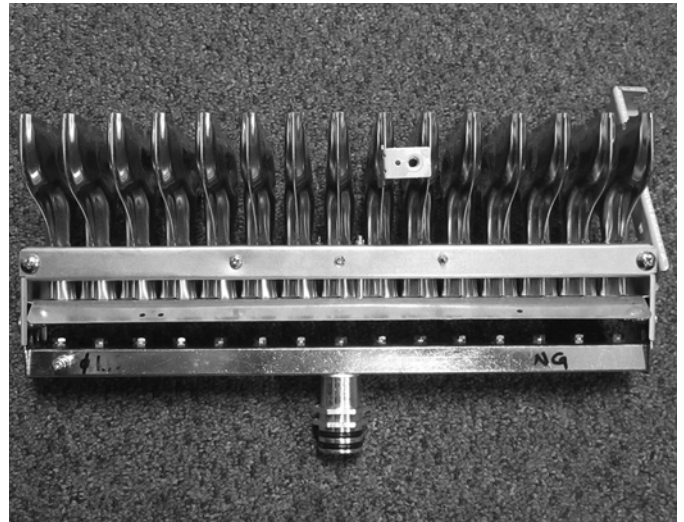
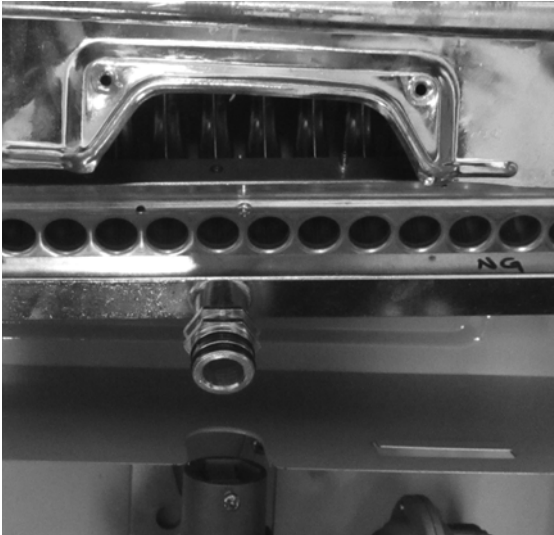


5) Remove Burner unit and Injector Manifold

- a. Remove (1) one fixing screw on gas outlet.
- b. Remove (1) one fixing screw on rear panel.



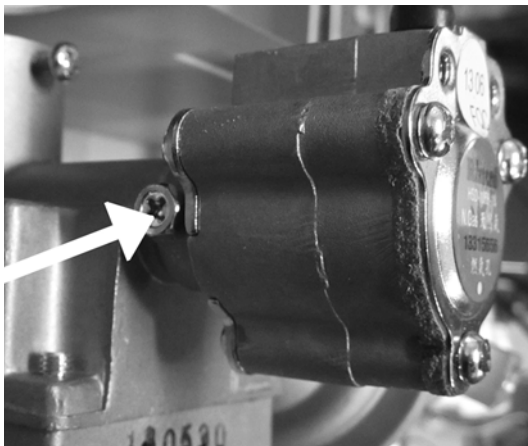
- c. Pull out by pulling forward the burner unit



d. Separate burner unit and injector manifold via (4) four screws - (2) two on each side.

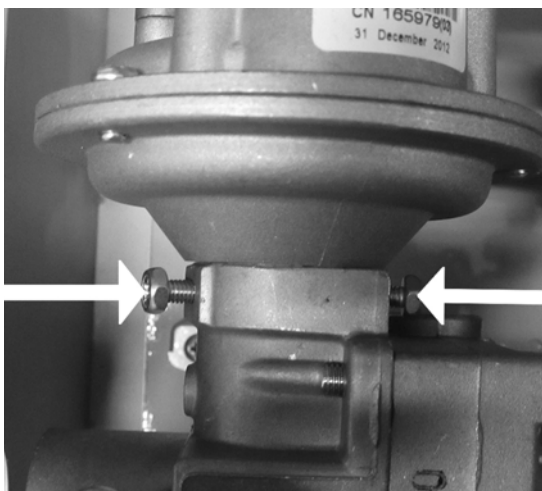
6) Removal of Gas Modulating Valve

- a. Loosen (1) one screw and pull out modulating valve gently.



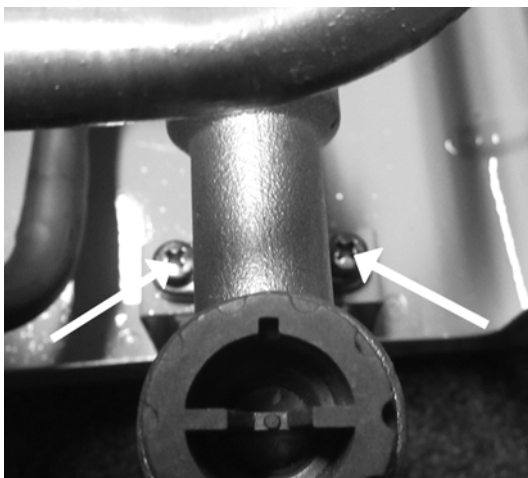
7) Removal of Gas Servo Valve

- a. Loosen (2) two screws and pull out gas servo valve gently.

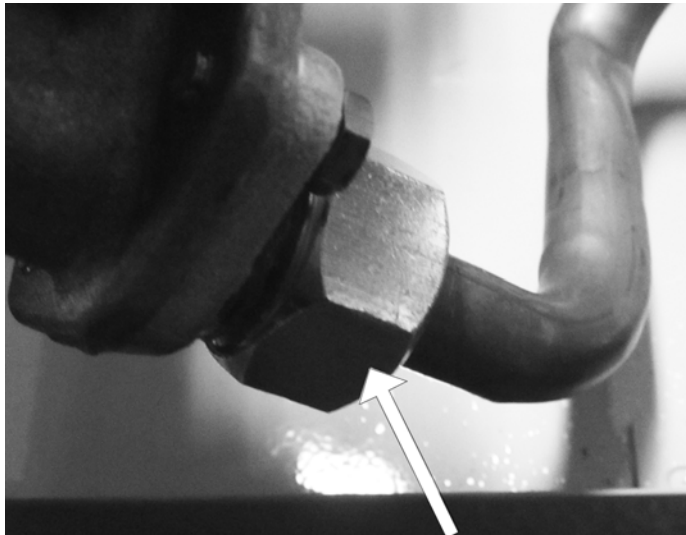


8) Removal of Cold Water Inlet

- a. Remove (2) two fixing screws

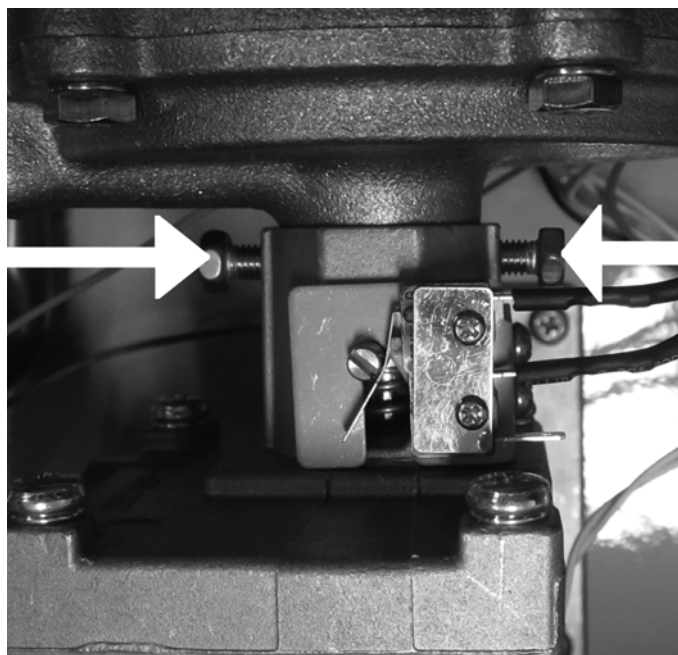


- b. Loosen the brass fitting and pull out cold water inlet.



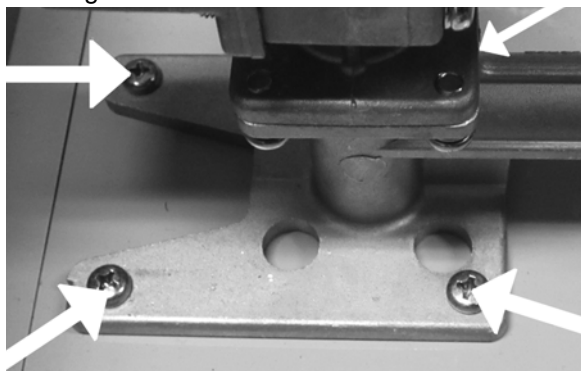
9) Removal of Water Section

- a. Remove (2) two screws and pull out water valve gently.



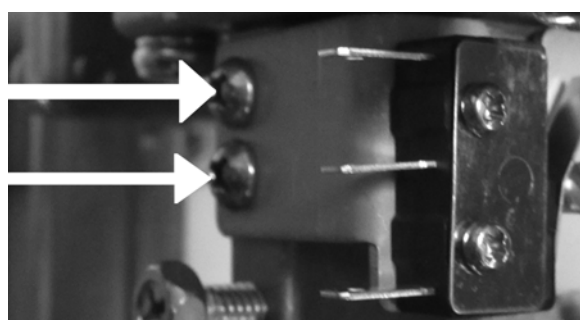
10) Removal of Gas Valve

- a. Remove gas valve from rear panel via (4) four fixing screws.



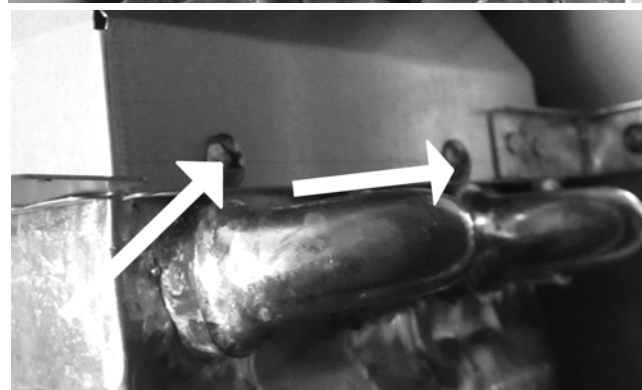
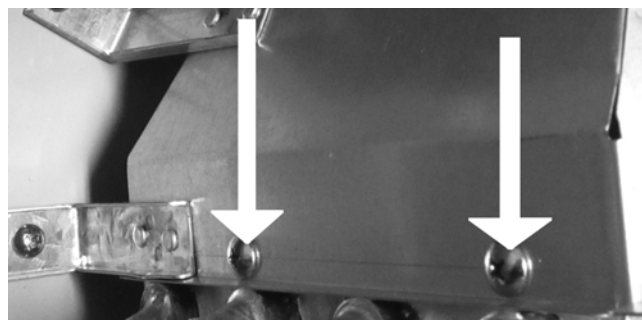
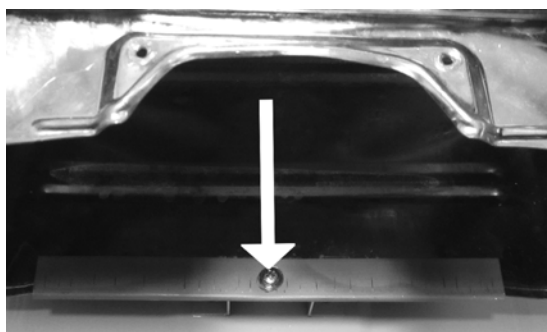
11) Removal of Micro Switch

- a. Remove micro switch via (2) two screws.

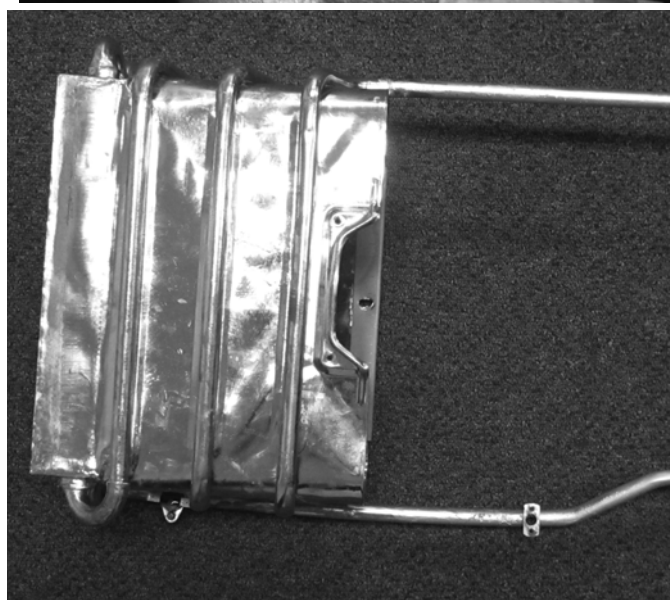
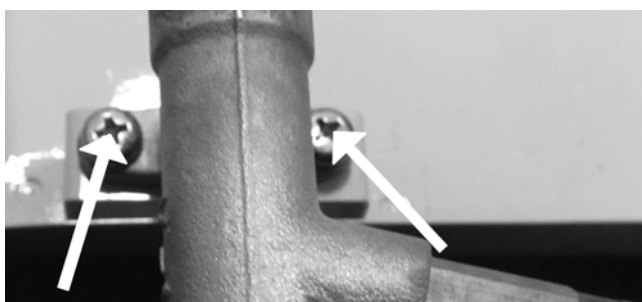


12) Removal of Heat Exchanger

- a. Remove (5) five fixing screws.

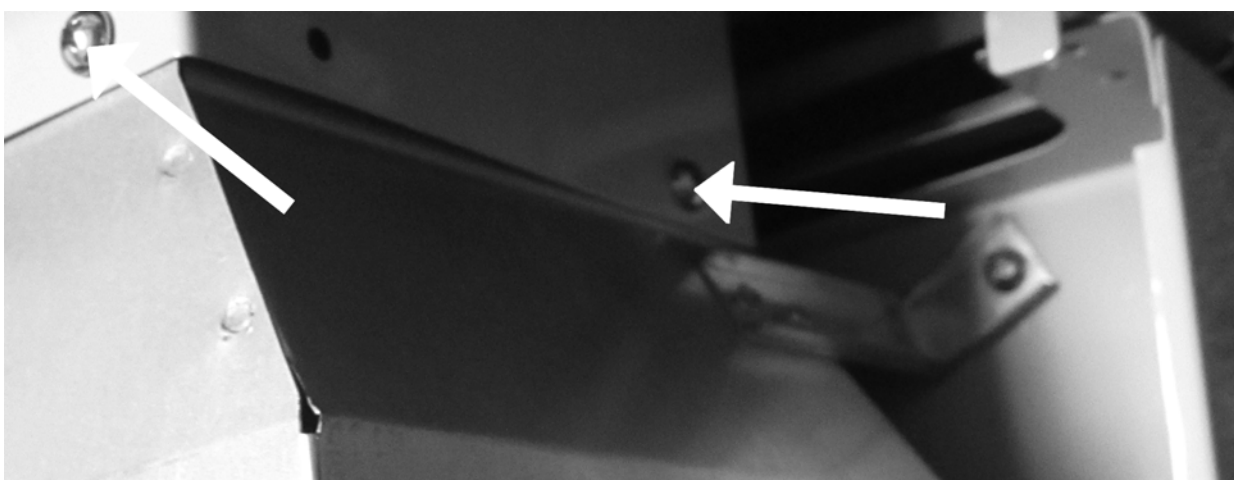
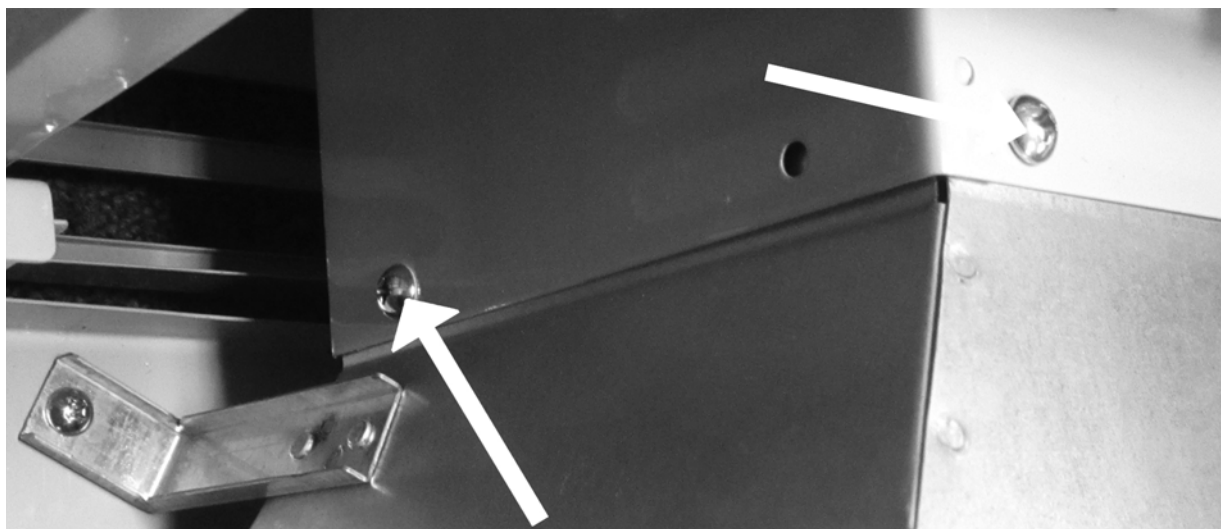


- b. Remove (2) two screws fixing water outlet fitting



13) Removal of Flue Terminal

- a. Pull off flue terminal via (4) four screws

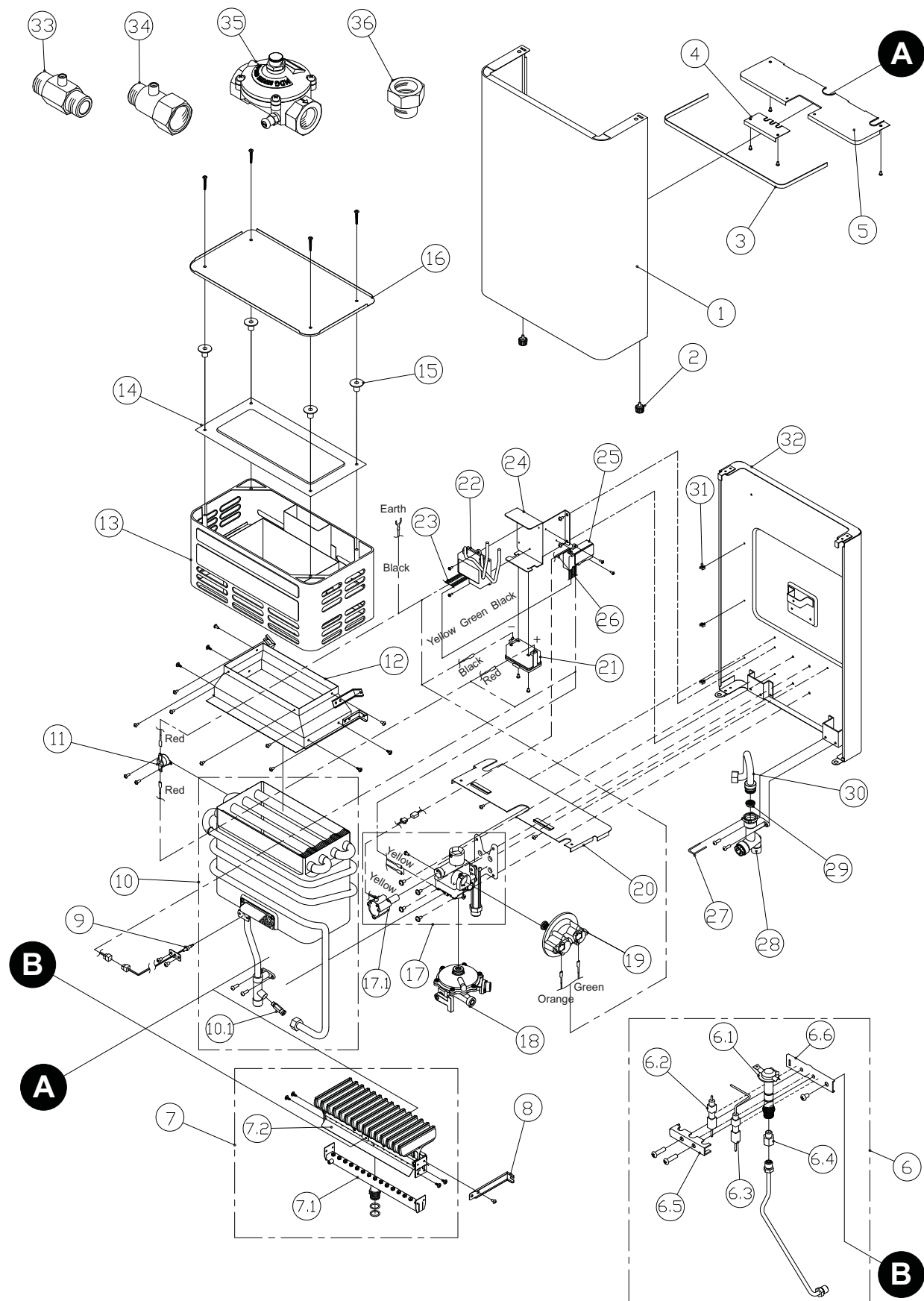


11. Parts List and Exploded Diagrams

NOTE:

Some Part details may have changed since publication of this manual. Contact Rinnai to confirm spare parts details before ordering.

NO	RA PART	DESCRIPTION	TR PART
1	92099801	PANEL FRONT	S-HFB-1192H
2	92099823	SCREW PANEL FRONT	HZB-0705
3	/	SEAL INSUL	HGB-2045
4	/	PLATE INSUL A	HZB-0915X01
5	/	PLATE INSUL B	HZB-0927
6	92099833	PILOT ASSY LP	HIA-0041L
	92099805	PILOT ASSY NG	HIA-0041N
6.1	92099830	PILOT HEAD	HIB-0007
6.2	92099839	ELECTRODE	HEP-0006
6.3	92099813	FLAME ROD	HES-0011
6.4	92099815	INJECTOR PILOT LP	HIN-3501
	92099840	INJECTOR PILOT NG	HIN-6001
6.5	/	BRACKET MOUNTING (SPARKER)	HIZ-0306
6.6	/	BRACKET MOUNTING (PILOT)	HIZ-0107
7	92099807	BURNER MAIN ASSY LP	S-HBA-1545L
	92099802	BURNER MAIN ASSY NG	S-HBA-1545N
7.1	92099828	INJECTOR MAIN LP	S-HBT-1531L
	92099809	INJECTOR MAIN NG	S-HBA-1531N
7.2	/	BURNER MAIN MANIFOLD	HBB-1512
8	/	PLATE BURNER	HBB-3808
9	92099803	THERMISTOR	HEU-0007
10	92099822	HEAT EXCH	S-HUA-1063
10.1	92099834	VALVE PRESS RELIEF	S-HWP-0005
11	92099818	OHS	HEF-0016
12		FLUE TRANS	HXB-0088
13	92099835	FLUE TERMINAL MAIN	HOB-0021CG
14	92099811	FLUE BAFFLE	HOT-0109A
15	92099804	FLUE SPACERS	HOT-0207
16	92099814	FLUE TERMINAL TOP	HOT-0113CG
17	92099825	GAS CONTROL LP	S-HSA-0124L
	92099816	GAS CONTROL NG	S-HSA-0124N
17.1	92099827	VALVE GAS MOD LP	HSD-1058-1L
	92099836	VALVE GAS MOD NG	HSD-1058-1N
18	92099831	WATER SECTION	HWA-0083
19	92099812	VALVE GAS SERVO	HEE-0032
20	/	PLATE INSUL REAR	HZB-0926
21	92099837	BATTERY CASE	HEZ-0206X01
22	92099824	PCB MAIN	HEI-1053
23	92099817	HARNESS WIRING	HEW-0132
24	/	PLATE FIX BATT	HEZ-0129
25	92099806	PCB TEMP	HEZ-3001
26		HARNESS VALVE MOD	HEZ-3002
27	92099829	CLIP RETAINING	HWF-0404
28	92099819	INLET WATER	HWB-3023
29	92099838	RESTRICTOR WATER	HZC-2004
30	92099808	INLET PIPE	HUE-2015
31	/	CLIP WIRE OHS	HZB-2201
32	/	PANEL REAR IHF10	HCB-0171
33	92099826	TEST POINT REG INLET LP	S-HZC-1103L
34	92099820	TEST POINT REG INLET NG	S-HZC-1103N
35	92099821	REGULATOR LP	HSG-0013L
35	92099810	REGULATOR NG	HSG-0013N
36	92099832	ADAPTOR GAS	S-HZC-1104



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Intentionally Blank

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Tel: (03) 9271 6625
Fax: (03) 9271 6622

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 National Help Line. Rinnai recommends that this appliance be serviced every 2 years.

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

National Help Line

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

Spare Parts & Technical Info

Tel: 1300 366 388* Fax: 1300 300 141*

**Cost of a local call higher from mobile or public phones.*