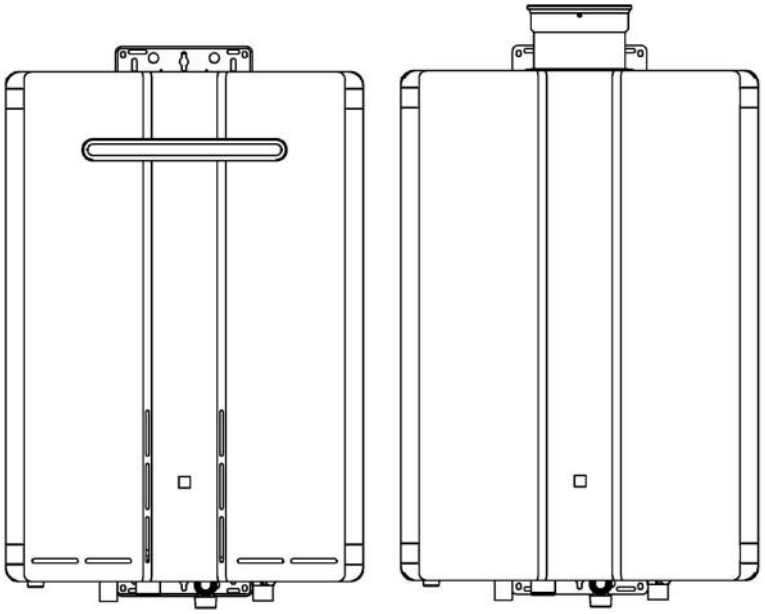
Rinnai

Water Heater

Service Manual

REU-VR2632 (HD50i)
REU-VRM3237 (HD70E)
REU-VCM2837 (HD55 Series)
REU-KM2635 (HDC1200 Series)
REU-KM3237 (HDC1500 Series)



SERVICE INSTRUCTIONS

STOP

Do not attempt to Service this appliance if you are not qualified. This can void the warranty.

This manual must be read in its entirety before Servicing the appliance.

If you are unsure of any point contact Rinnai UK

CONTENTS

SERVICE

- All Rinnai products should be Serviced at least once a year.
- The correct service kit should be acquired before commencing the service.
- The service kit will include all gaskets you may need.
- If you do not use the correct service kit and any gaskets or seals are broken in the course of inspection the appliance in question has to be shut down until the damaged gasket or seal is replaced.
- If the appliance continues to operate with damaged gaskets or seals this could affect the performance or correct safe operation of the appliance.
- Servicing is required to maintain the appliances warranty.
- If there are any questions with regards any part of the service please contact the Technical Department at Rinnai UK.

Service Kit Contents

The service kit contains the following items

- Electrode Kit
- Electrode Sleeve
- Water Inlet Filter
- Combustion Chamber Plate Gasket
- Manifold Seal Upper
- Manifold Seal Lower
- Gas Valve O-seal

The Part Numbers Required for the appliances associated with this service manual are as follows

P50iVR-SERVICE— HD50i and 26i for V and VR series

P70EVR-SERVICE— HD70E and 32E for VM and VRM series

P55EVCX-SERVICE—HD55 Series

P1200iKM-SERVICE— HDC1200 Series and K26i

P1500iKM-SERVICE— HDC1500 Series

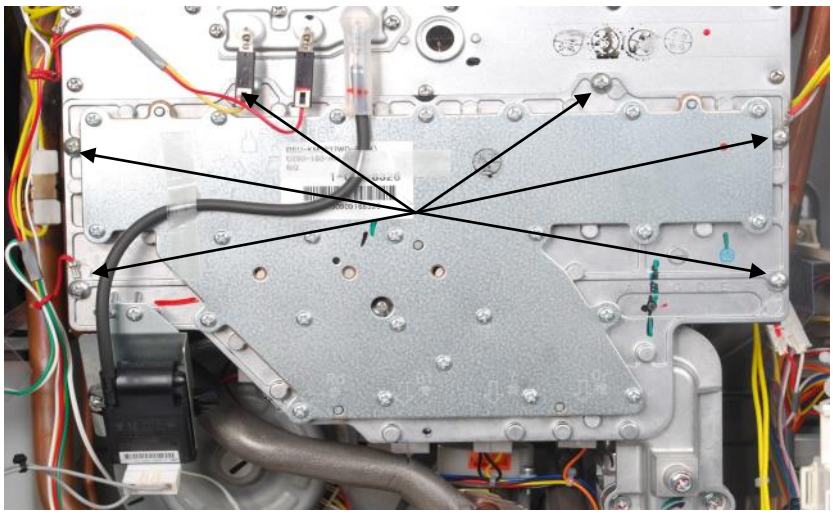
SERVICE

Service Procedure

With the Rinnai Appliances listed on the front page they may look different but the service procedure is pretty much identical for each one as well as the removal of each part. The Rinnai service consists of inspection, clean and or replace of parts associated with the combustion cycle. This procedure consist of the following

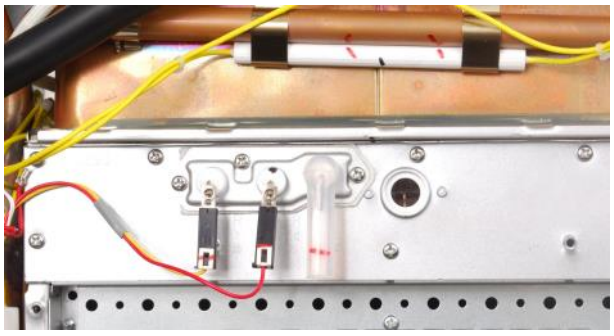
- Remove the manifold and inspect injectors. If debris is found in the injectors then these must be cleaned from inside to out. This can be done by removing the face plate.

  NOTE: Below is an image of a HDC1500 manifold. The removal of all the other manifolds is a similar process. The outside edge screws and the screws on the gas valve are to be removed



- Remove Combustion Chamber plate to clean and inspect electrodes. This plate is the one with the site glass on it. The service kit does include a full electrode kit so it is advised that this is change at least every 2 years if it is deemed suitable for use once cleaned.

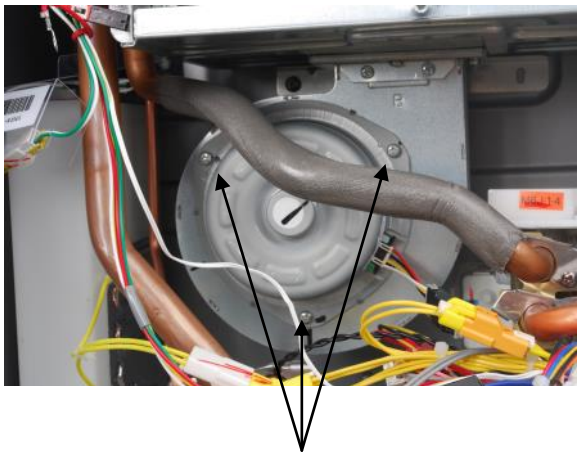
  NOTE: Only remove the Electrode cover plate if you have a replacement gasket. If the gasket deteriorates and there isn't a replacement the water heater has to be isolated until one is installed

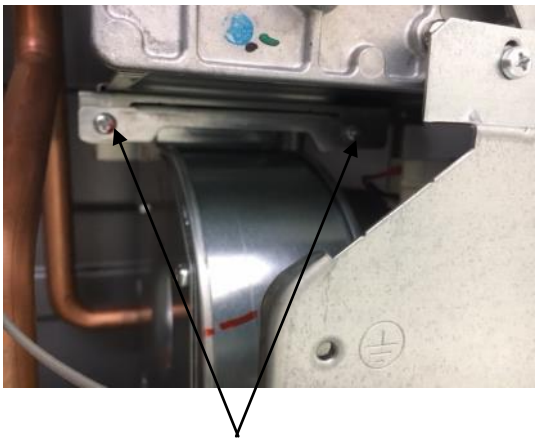


SERVICE

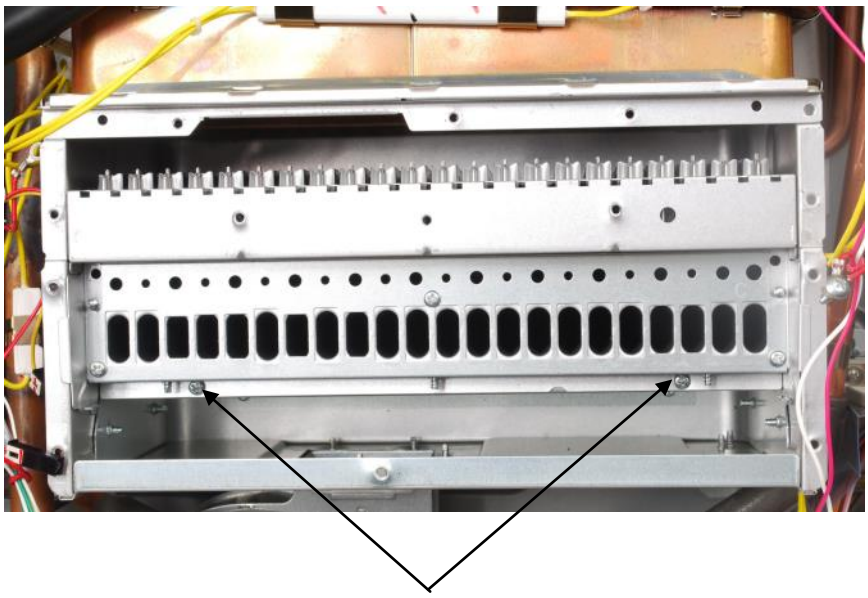
- Unplug, remove and inspect Fan Motor taking care not to damage the impellor. Clean with a soft brush if required

NOTE: When removing the fan motor if the motor is face on then it will be 3 or 4 screws that hold it on to the scroll box. If the fan motor is side on then you will have to remove the scroll box first before removing the motor, this is usually two screws.





- Removing two screws will allow the burner box to be removed. Inspect and clean if necessary turning upside down to ensure any debris can fall clear.



SERVICE

- Inspect combustion chamber ensuring that all air holes are clear of blockages.
- Inspect heat exchanger fins and clean with compressed air or a soft brush if required. Once complete vacuum out or wipe all debris from inside combustion chamber.
- Before re-assembling check all seals and gaskets and if required replace with correct ones from the service kit.

  NOTE: The manifold seals are to be replaced at least every two years.
- Once all parts have been refitted correctly fire up the appliance and check there are no leaks using an appropriate leak detector spray.
- Using the pages listed below for the relevant model check the dipswitches are correct and carry out your gas pressure checks using the set procedure.

1.

- Once the gas pressure checks have been carried out isolate the water in and out of the appliance and check the water inlet filter. If required replace filter with one from the service kit.

The service on the Rinnai Water Heater is now complete however please carry out full checks of the system and flue system to ensure both of these are functioning correctly. If there is a fault on either of these two systems this could affect the correct operation of the appliance.

GAS PRESSURE SETTING

HD50i and HD70E

The working gas pressure on the water heater is electronically controlled and factory set. Under normal circumstances it **does not require adjustment during installation**. The pressure should be checked when the unit is installed and each time it is serviced to ensure that it is correct.
Contact Rinnai before attempting to alter the gas pressure if you are unsure of what to do. Incorrect adjustment can void the warranty.

1. Turn 'OFF' the gas supply.
2. Turn 'OFF' 230V power supply.
3. Remove the front cover from the appliance.
4. Check gas type switches no.1 and no.2 of Dip SW2 are in the correct position for the type of gas used. See Fig. 1

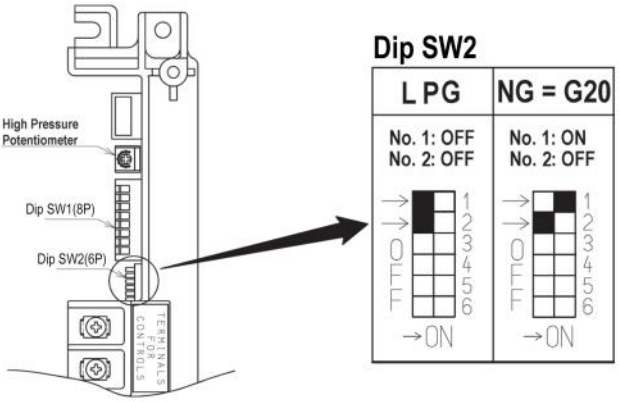


Fig. 1

5. Attach pressure gauge to burner test point. (Fig. 2)

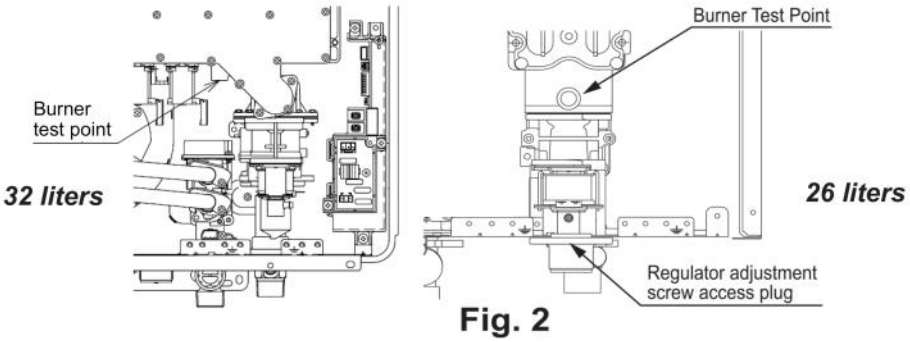


Fig. 2

6. Turn 'ON' the gas supply.
7. Turn 'ON' 230V power supply.
8. If remote controllers are fitted, turn the unit 'ON' at the controller and select a maximum delivery temperature.
9. Open a hot water tap fully. **(CAUTION: Ensure building occupants do not have access to hot water outlets during this procedure.)** Wait for the unit to light.

NOTE

*** Simply changing the position of the dip switches will not convert the unit from one gas type to the other. The conversion procedure requires a change of injector manifold. Contact Rinnai or your supplier.**

GAS PRESSURE SETTING

HD50i and HD70E

10. Set the Rinnai to '**Forced Low**' combustion by setting No.7 switch of Dip SW1 to 'ON'. (Fig. 3)

11. Check the burner test point operating pressure.

LOW	GAS	HD50e	HD70e	26i HD50i	HD70i
NG	G20	1.29	1.83	1.75	1.86
LPG	G31	2.21	2.34	2.36	2.22
(pressures in mbar)					

Fig. 3

12. Remove rubber access plug and adjust the regulator screw on the modulating valve (Fig. 4) as required to the pressure above. Replace rubber access plug and seal it shut.

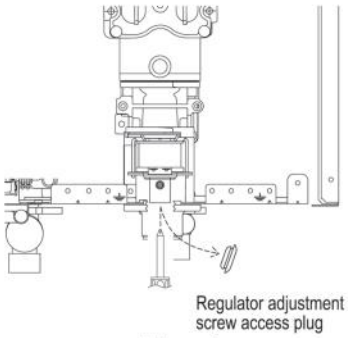


Fig. 4

13. Set the Rinnai to '**Forced High**' combustion by setting No.7 and No.8 switches to 'ON' (Fig.5). Ensure maximum water flow.

14. Check the burner test point pressure.

MAX	GAS	HD50e	HD70e	26i HD50i	HD70i
NG	G20	6.81	7.95	9.35	7.95
LPG	G31	11.2	9.25	11.1	9.25
(pressures in mbar)					

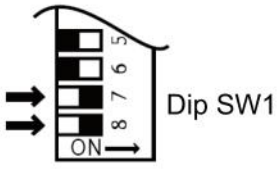


Fig. 5

15. Adjust the **High Pressure Potentiometer** on the Printed Circuit Board Dip SW1 (Fig. 6) to the pressure shown above. The potentiometer is very sensitive, turn no more than a few degrees at a time; then let the pressure settle down before turning it more.

16. **IMPORTANT**: Set switch No.7 and No.8 of Dip SW1 to 'OFF' to return the appliance to '**Normal**' combustion.

17. Close hot water tap and turn 'OFF' the gas supply and 230V power supply.

18. Remove pressure gauge and replace sealing screw. Turn 'ON' the gas supply and power.

19. Operate unit and check gas leaks.

20. Replace the front cover of the appliance.

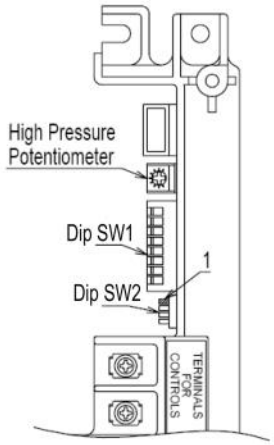
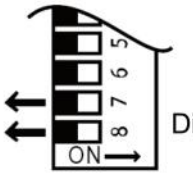


Fig. 6



DIP SWITCH SETTING

HD50i and HD70E

Dip Switches Explained

OFF	ON	Dip SW1		
		1	-	Model Choice
		2	-	Temperature
		3	-	Temperature
		4	-	Temperature
		5	-	Temperature
		6	-	Warm Water Switch
		7	-	Forced Combustion
		8	-	Forced Combustion

OFF	ON	Dip SW2		
		1	-	Gas Type
		2	-	Gas Type
		3	-	Model Choice
		4	-	Model Choice
		5	-	Commercial Setting
		6	-	Not in use (OFF)

Switch Positions Explained

LEGEND:
Black Section indicates position of switch:

WARM WATER SWITCH

If activated reduces the min flowrate to light Rinnai when inlet water temperature is close to setpoint temperature

OFF	ON	Dip SW1
		6

OFF = +3°C (default setting)
ON = off when outgoing temp +6°C

COMMERCIAL SETTING

OFF	ON	Dip SW2
		5

OFF = No Autoreset
ON = Autoreset

FORCED COMBUSTION

NORMAL

OFF	ON	Dip SW1	
		7	off
		8	off

FORCED LOW

OFF	ON	Dip SW1	
		7	on
		8	off

FORCED HIGH

OFF	ON	Dip SW1	
		7	on
		8	on

GAS TYPE

LPG

OFF	ON	Dip SW2	
		1	off
		2	off

NATURAL GAS

OFF	ON	Dip SW2	
		1	on
		2	off

NOT IN USE

Switch No.6 of Dip SW2 is always "off" position

OFF	ON	Dip SW2
		6

MODEL CHOICE

HD70e

OFF	ON	Dip SW1	
		1	off
Dip SW2			
		3	off
		4	off

HD70i + Long Flue

OFF	ON	Dip SW1	
		1	off
Dip SW2			
		3	on
		4	off

HD70i + Short Flue

OFF	ON	Dip SW1 (Factory setting)	
		1	on
Dip SW2			
		3	on
		4	off

HD50e

OFF	ON	Dip SW1	
		1	on
Dip SW2			
		3	off
		4	on

26i / HD50i + Long Flue

OFF	ON	Dip SW1	
		1	off
Dip SW2			
		3	on
		4	on

26i / HD50i + Short Flue

OFF	ON	Dip SW1 (Factory setting)	
		1	on
Dip SW2			
		3	on
		4	on

GAS PRESSURE SETTING

HD55 Series

The working gas pressure on the water heater is electronically controlled and factory set. Under normal circumstances it **does not** require adjustment during installation. The pressure should be checked when the unit is installed and each time it is serviced to ensure that it is correct. **Contact Rinnai before attempting to alter the gas pressure if you are unsure of what to do. Incorrect adjustment can void the warranty.**

1. Turn 'OFF' the gas supply.
2. Turn 'OFF' 230V power supply.
3. Remove the front cover from the appliance (4 screws).
4. Check gas type using the dataplate on the side of the casing and confirm the dip switches (Fig. 1) are in the correct position for the type of gas (Nat. or LPG)* you are using (see **page 38**).

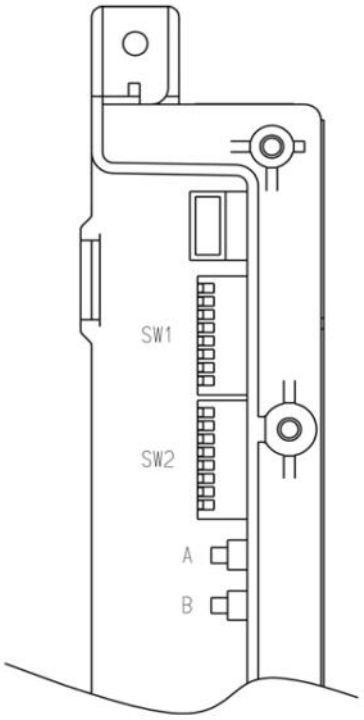


Fig. 1

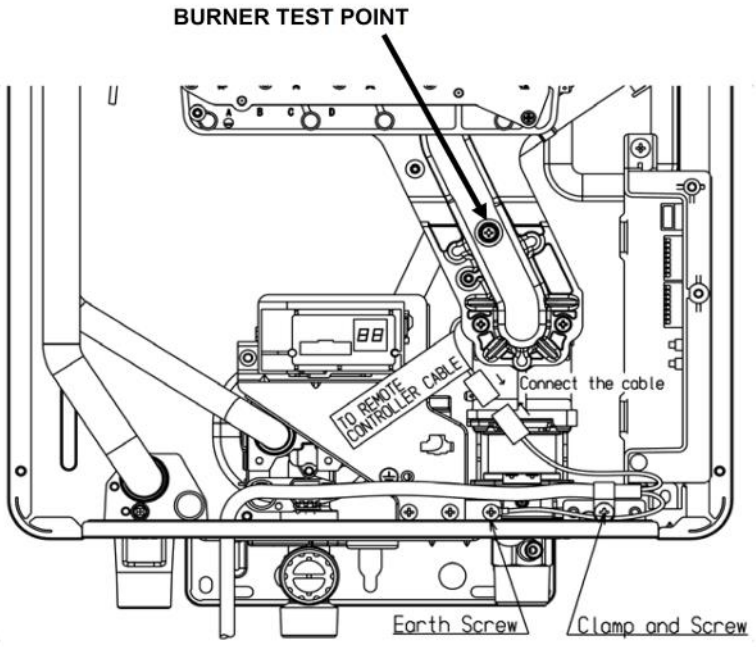


Fig. 2

5. Attach pressure gauge to burner test point. (Fig. 2)
6. Turn 'ON' the gas supply.
7. Turn 'ON' 230V power supply.
8. If remote controllers are fitted, turn the unit 'ON' at the controller and select a maximum delivery temperature.
9. Open hot water taps fully to reach max flowrate. **(CAUTION: Ensure building occupants do not have access to hot water outlets during this procedure.)** If there is not enough water flowing, the water heater might shut off or damage due to overheating.

NOTE

*** Simply changing the position of the dip switches will not convert the unit from one gas type to the other. The conversion procedure requires a change of injector manifold.**
Contact Rinnai if you want to convert the appliance to a different gas family.

GAS PRESSURE SETTING

HD55 Series

10. Move switch No. 8 of SW1 to 'ON' position. (Fig. 3)
11. Push the PCB board switch A for one second. (Fig. 4)
12. Calibrate “forced low” combustion using switch A (up) and B (down) as required.

LOW	Gas	Internal	External
NG	G20	1,57	1,39
LPG	G30 G31	2,14	2,28
Air / Prop.	G230	1,88	1,75
(pressures in mbar)			

13. Move switch No. 8 of SW1 to 'OFF' position and then back to ‘ON’ position. (Fig. 6)
14. Push the PC board switch B for one second. (Fig. 4)
15. Calibrate “forced high” combustion using switch A (up) and B (down) as required.

HIGH	Gas	Internal	External
NG	G20	7,33	6,18
LPG	G30 G31	11,80	11,00
Air / Prop.	G230	8,40	7,80
(pressures in mbar)			

16. Move switch No. 8 of SW1 to 'OFF' position. (Fig. 5)
17. Close hot water taps and turn ‘OFF’ the gas supply and 230V power supply.
18. Remove pressure gauge and replace sealing screw. Turn ‘ON’ the gas supply and power.
19. Operate unit and check gas leaks.
20. Replace the front cover of the appliance.

Fig. 3

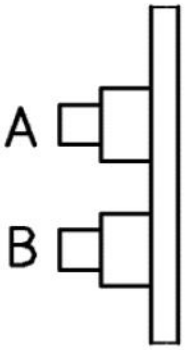


Fig. 4

Fig. 5

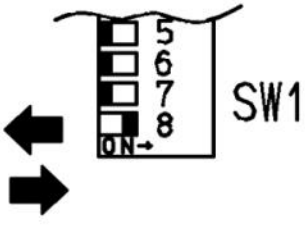
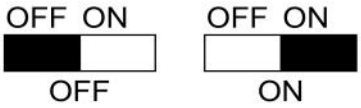


Fig. 6

DIP SWITCH SETTING

HD55 Series

LEGEND:
Black Section indicates position of dip switch.



	No.	Switches Explained
SW1	1	Model choice A-1
	2	Temperature selection
	3	
	4	
	5	
	6	Gas Type A-1
	7	Gas Type B-1
	8	Forced Combusiton

	No.	Switches Explained
SW2	1	Model choice A-2
	2	Model choice B-1
	3	Recirculation Mode
	4	Interval time to ON of Recirculation Mode
	5	Commercial setting
	6	Gas Type A-2
	7	Gas Type B-2
	8	Model choice B-2

【Model Type】

FF (factory setting)

		Off	On
SW1	1		■

		Off	On
SW2	1		■
	2	■	
	8	■	

W (factory setting)

		Off	On
SW1	1	■	

		Off	On
SW2	1	■	
	2		■
	8		■

【Gas Type】 Set No.6,7 switches both SW1 and SW 2

LPG

		Off	On
SW1	6	■	
	7	■	

		Off	On
SW2	6	■	
	7	■	

G20

		Off	On
SW1	6		■
	7	■	

		Off	On
SW2	6		■
	7	■	

G230

		Off	On
SW1	6	■	
	7		■

		Off	On
SW2	6	■	
	7		■

GAS PRESSURE SETTING

HDC1200 Series and HDC 1500 Series

The working gas pressure on the water heater is electronically controlled and factory set. Under normal circumstances it **does not** require adjustment during installation. The pressure should be checked when the unit is installed and each time it is serviced to ensure that it is correct. **Contact Rinnai before attempting to alter the gas pressure if you are unsure of what to do. Incorrect adjustment can void the warranty.**

1. Turn 'OFF' the gas supply.
2. Turn 'OFF' 230V power supply.
3. Remove the front cover from the appliance.
4. Check gas type dip switch no.1 of SW2 is in the correct position for the type of gas (Nat. or LPG)* you are using. See Fig. 1

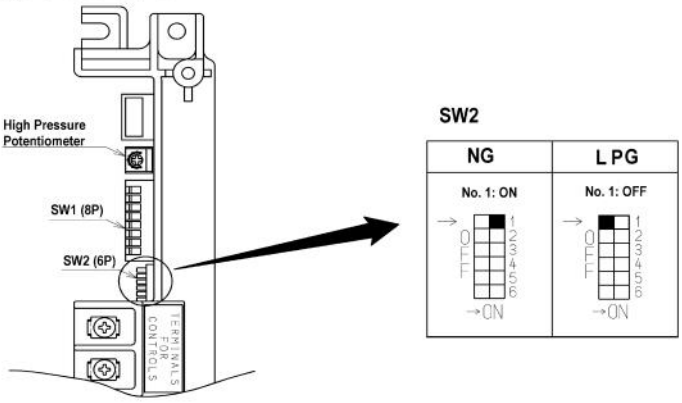


Fig. 1

5. Attach pressure gauge to burner test point. (Fig. 2)

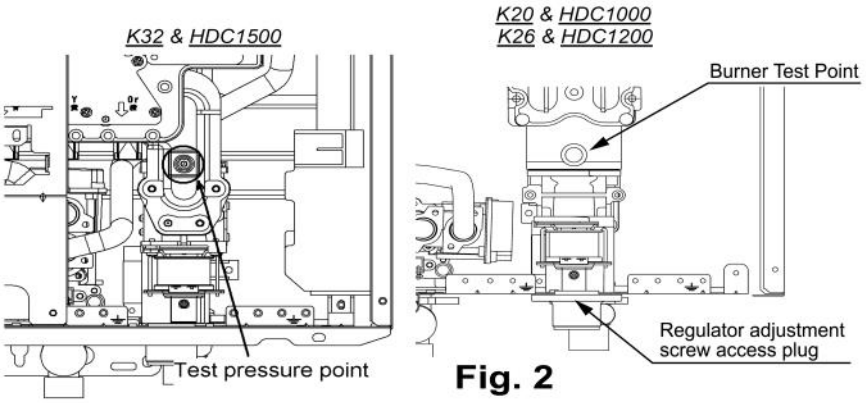


Fig. 2

6. Turn 'ON' the gas supply.
7. Turn 'ON' 230V power supply.
8. If remote controllers are fitted, turn the unit 'ON' at the controller and select a maximum delivery temperature.
9. Open a hot water tap fully. **(CAUTION: Ensure building occupants do not have access to hot water outlets during this procedure.)** Wait for the unit to light.

NOTE

*** Simply changing the position of the dip switches will not convert the unit from one gas type to the other. The conversion procedure requires a change of injector manifold. Contact Rinnai or your supplier.**

GAS PRESSURE SETTING

HDC1200 Series and HDC 1500 Series

10. Set the Rinnai Infinity to 'Forced Low' combustion by setting No. 7 dipswitch of SW1 to 'ON'. (Fig. 3)
11. Check the burner test point operating pressure.

LOW		External			Internal		
		32	*26*		*32*	*26*	*20*
NG	G20	1.81	1.47	G20	2.26	1.76	1.76
	G25	2.35	2.11	G25	2.81	2.19	2.19
LPG	G30	2.65	2.46	G30	3.19	2.47	2.47
	G31	2.65	2.46	G31	3.19	2.47	2.47
(pressures in mbar)							

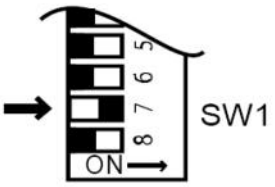


Fig. 3

12. Remove rubber access plug and adjust the regulator screw on the modulating valve (Fig. 4) as required to the pressure above. Replace rubber access plug and seal it shut.

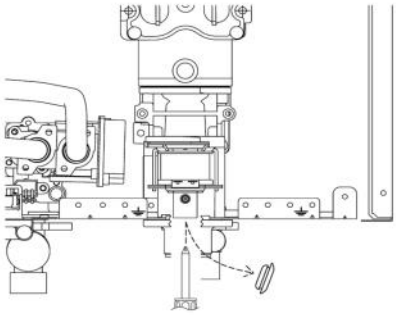


Fig. 4

13. Set the Rinnai Infinity to 'Forced High' combustion by setting No. 7 and No. 8 dipswitches to 'ON' (Fig.5). Ensure maximum water flow.
14. Check the burner test point pressure.

HIGH		External			Internal		
		32	*26*		*32*	*26*	*20*
NG	G20	5.64	6.78	G20	6.28	7.51	4.51
	G25	7.40	9.68	G25	8.00	10.32	5.76
LPG	G30	7.99	8.51	G30	9.02	9.51	5.89
	G31	7.99	8.51	G31	9.02	9.51	5.89
(pressures in mbar)							

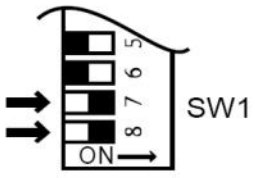


Fig. 5

15. Adjust the **High Pressure Potentiometer** on the Printed Circuit Board above SW1 (Fig. 6) to the pressure shown above. The potentiometer is very sensitive, turn no more than a few degrees at a time; then let the pressure settle down before turning it more. Seal screw shut.
16. **IMPORTANT**: Set dip switch No. 7 and No. 8 of SW1 to 'OFF' to return the appliance to 'Normal' combustion.
17. Close hot water tap and turn 'OFF' the gas supply and 230V power supply.
18. Remove pressure gauge and replace sealing screw. Turn 'ON' the gas supply and power.
19. Operate unit and check gas leaks.
20. Replace the front cover of the appliance.

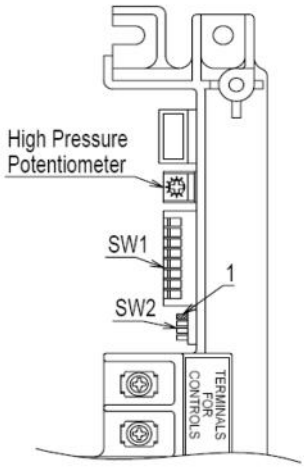


Fig. 6

DIP SWITCH SETTING

HDC1200 Series and HDC 1500 Series

Dip Switch Positions Explained

OFF	ON	SW1		
		1	-	Flue Length
		2	-	Temperature
		3	-	Temperature
		4	-	Temperature
		5	-	Temperature
		6	-	Model Choice
		7	-	Forced Combustion
		8	-	Forced Combustion

OFF	ON	SW2		
		1	-	Gas Type
		2	-	Gas Type
		3	-	Model Choice
		4	-	Model Choice
		5	-	Commercial Setting
		6	-	External Device Selection

LEGEND:
Black Section indicates position of dip switch.

Model Choice

OFF	ON	SW1	
		5	Dip SW 6
		6	of SW1 is
		7	On for
		8	20 litres only

Dip Switches Explained

GAS TYPE

LPG				NATURAL GAS			
OFF	ON	SW2		OFF	ON	SW2	
		1	off			1	on
		2	off			2	off
		3				3	

MODEL CHOICE

OFF	ON	SW2	
		1	Dip SW 3 of SW2 is:
		2	ON for 20 & 26 litres
		3	OFF for 32 litres
		4	Dip SW 4 of SW2 is:
		5	ON for Internal
		6	OFF for External

COMMERCIAL SETTING

OFF	ON	SW2	
		1	
		2	Dip SW 5
		3	OFF for Domestic Installations;
		4	ON for Commercial Installations.
		5	
		6	

FORCED COMBUSTION

NORMAL

OFF	ON	SW1	
		7	off
		8	off

FORCED LOW

OFF	ON	SW1	
		7	on
		8	off

FORCED HIGH

OFF	ON	SW1	
		7	on
		8	on

FLUE LENGTH
(OFF for External models)

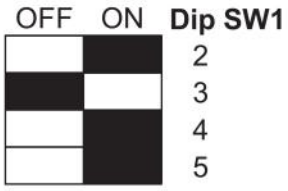
OFF	ON	SW1	
		1	

ON for short flues (< 7m)
OFF for long flues (≥ 7m)
Total Equivalent Length

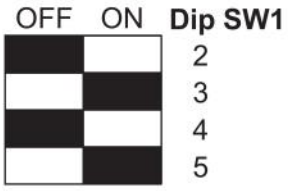
TEMPERATURE SETTING

HD50i and HD70E

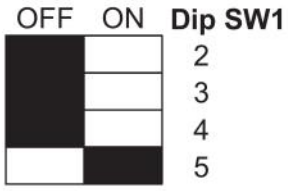
Temperatures - with or without remotes connected



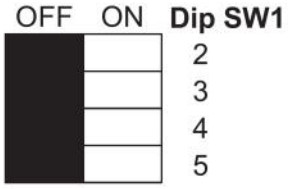
40°C



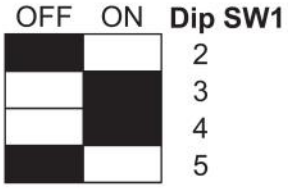
42°C



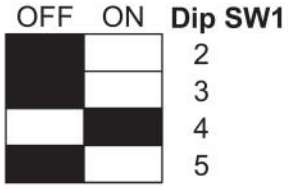
50°C



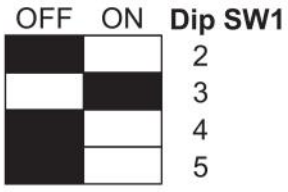
55°C
(Factory Setting for: 26i)



60°C



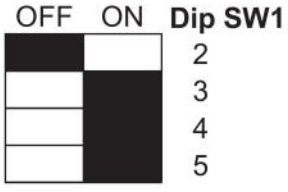
65°C
(Factory Setting for: 70e - 70i - 50e - 50i)



75°C

NOTE: Bypass valve automatically closes if appliance is set at temperatures of 60°C or higher.

Temperatures - without remotes connected

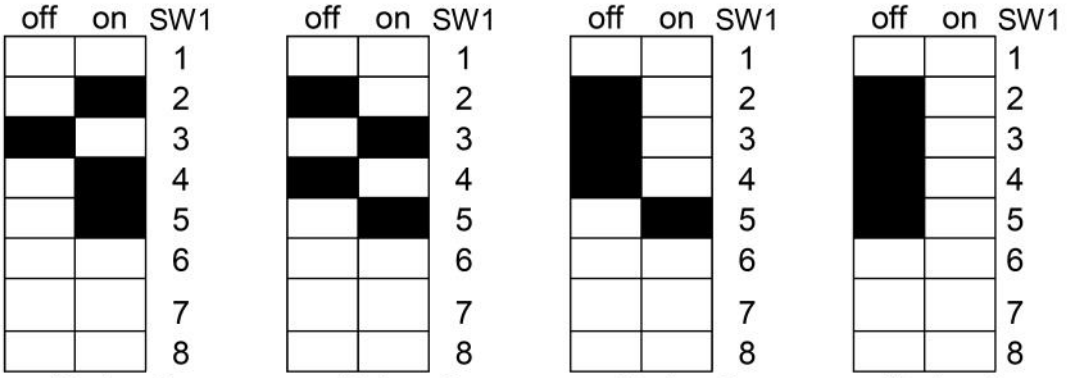


85°C

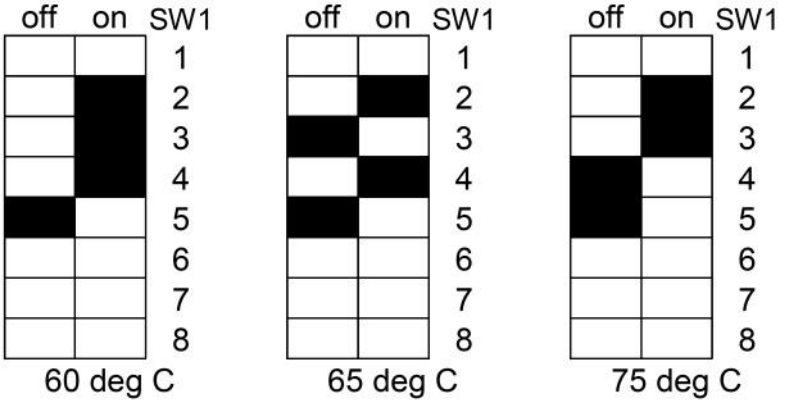
TEMPERATURE SETTING

HD55 Series, HDC1200 Series and HDC1500 Series

Temperatures - With or Without Remotes Connected

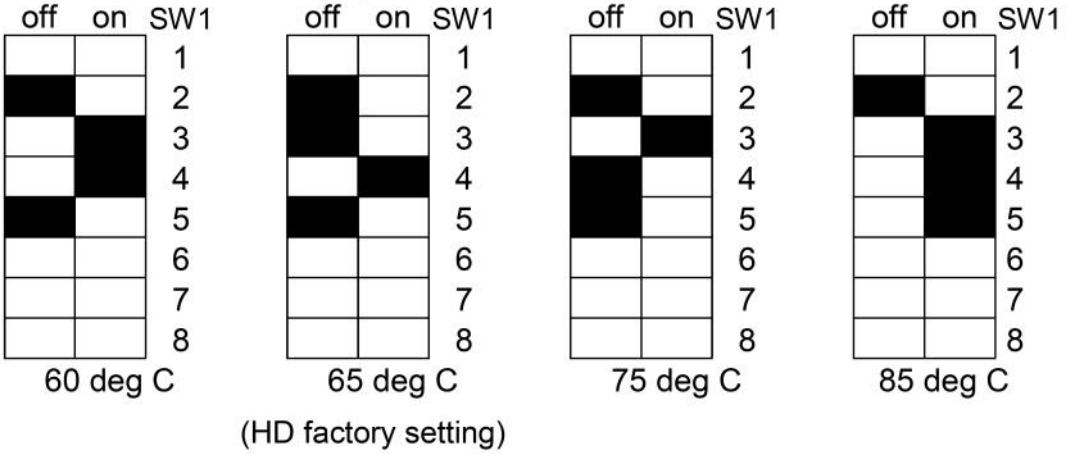


Temperatures - Remotes Connected



If the remote is accidentally disconnected the unit would revert to 55°C

Temperatures - Remotes Not Connected



(HD factory setting)

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