

Boiler Manual NZ

Incorporating: User Instructions
Installation
Instructions Service
Instructions
Guarantee Terms & Conditions

Agentis Boilers

For use with Kerosene or Diesel Oil

Models covered by this manual:

Agentis B-Series

Boilerhouse	B21	B26	B33
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Agentis I-Series

Internal	I21	I26	I33	*I44
Internal Pumped & Pumped	I21P/PR	I26P/PR	I33P/PR	*I44P
Professional Internal System & System Professional Internal Combi	O	O	O	
	I21S/PR	I26S/PR	I33S/PR	

Agentis E-Series

External	E21	E26	E33	*E44
External Pumped & Pumped	E21P/PR	E26P/PR	E33P/PR	*E44P
Professional External System & System Professional External Combi	O	O	O	
	E21S/PR	E26S/PR	E33S/PR	

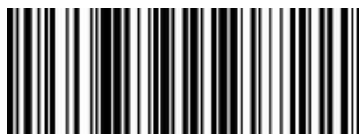
- *I44 and E44 * Models not available in NZ

All NZ models covered by Worksafe Burner approval BUR2106

Internal Combi and External Combi models Patent GB1613466.0, GB2552701, IE86968



PLEASE LEAVE THIS MANUAL WITH THE END USER



COMMISSIONING

This appliance must be commissioned. Failure to commission the boiler will invalidate the warranty. After commissioning, ensure that the Boiler Passport is completed and returned.

SERVICING

To ensure continued reliable operation, fuel economy and to validate the guarantee, it is essential that the boiler is serviced annually by a Competent technician.

For Parts, Technical & Warranty Contact

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1 USER INSTRUCTIONS

This boiler must be serviced annually.

In the event of a breakdown please contact your installer /commissioning or service engineer

1.1 Dual Thermostat – Non-Combination Boilers

The radiator temperature is regulated via the boiler control thermostat. The thermostat is user adjustable from nominally 45°C to 80°C. Turn the control knob

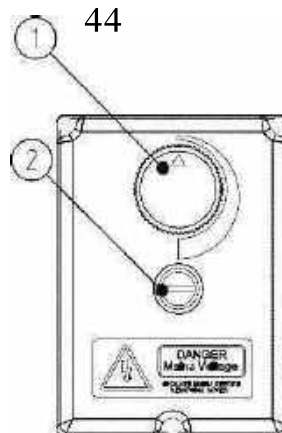
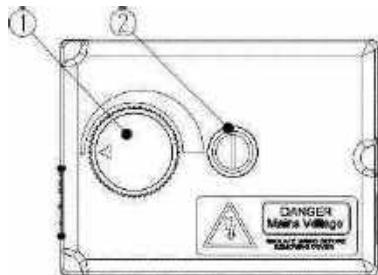
(1) clockwise to increase temperature, and anticlockwise to decrease.

The thermostat has a built-in manually reset safety cut off which will 'lock out' in the event of the boiler overheating and which will need to be reset in order to restore operation.

Remove the lock-out cover (2) using a coin or screwdriver (turning anti-clockwise) and depress the red button to reset.

Do not press the reset button while the boiler is still hot as this will cause damage to the thermostat.

21, 26 & 33 Models



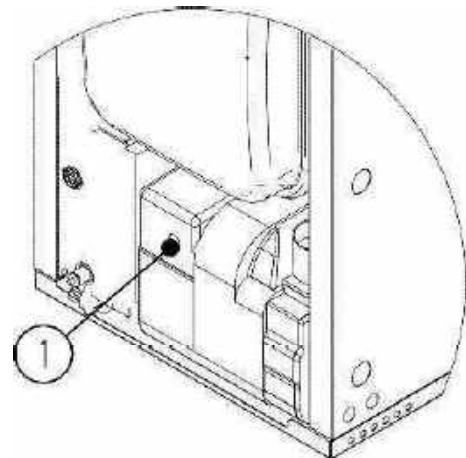
1.2 Burner Lockout

When the pressure jet oil fired burner stops after failing to fire the red reset button (1) will be illuminated.

This indicates that there is a fault or there is no fuel getting to the burner.

The house holder should only reset the burner twice in succession.

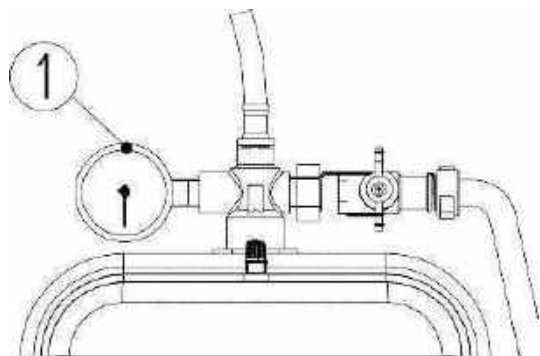
If the burner continues to lockout contact Warmflow or your service engineer.



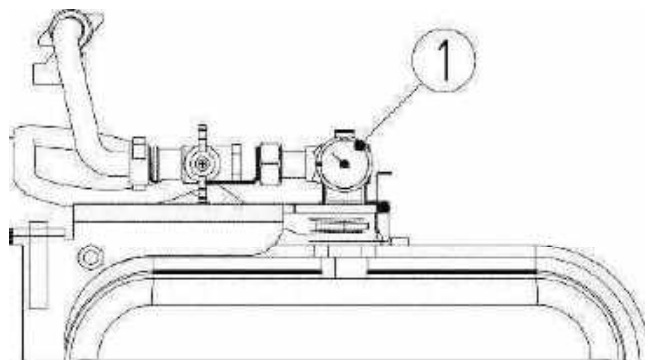
1.3 System Pressure – System & Combination Boilers

When the boiler is connected to a sealed system the system pressure should be periodically checked using the pressure gauge (1), located above the expansion vessel.

System Boilers



Combination Boilers



The system pressure as indicated by the black needle, is minimum 1.0 bar when the boiler is cold and up to 2.5 bar when the boiler is at normal operating temperature.

If the system pressure falls below the minimum (e.g. due to the removal of a radiator for decorating purposes) then the system should be topped up using the filling loop. See Section 1.4.

Frequent or routine topping up of the system should not be necessary and may prove harmful to the appliance. Should topping up prove necessary on a frequent or routine basis you must contact Warmflow or your installer.

Special attention must be given to corrosion inhibitor concentrations where there is a need to top up the system. See Section 1.5.

A pressure sensor is included as standard on all Combination boiler models which prevents the operation of the boiler if the system pressure drops below 0.4 bar, this will be indicated by code E04 on the LCD.

The indication of the system pressure on the gauge and on the LCD have a tolerance of +/-0.2 bar at idle state.

Do not allow the flexible hoses connected to the expansion vessel to become twisted, kinked or flattened. This may cause collapse of hose bore compromising the function of the expansion vessel.

1.4 Filling Loop

On all models, set the pressure to 1.0 bar when cold.

Special attention must be given to corrosion inhibitor concentrations where there is a need to top up the system. See Section 1.5.

It is recommended to isolate all electricity supplies to the appliance before topping up system pressure.

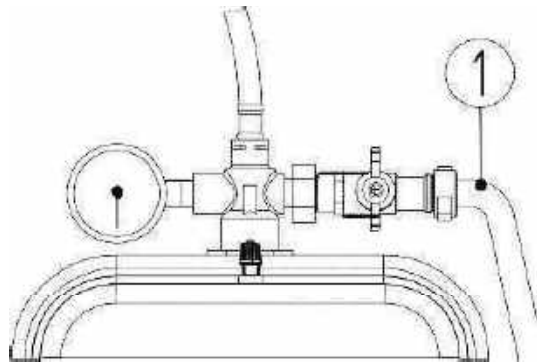
System Boilers – The filling loop is located above the expansion vessel.

Remove the dust caps, then fit the flexible hose (1) at both ends, open the valves to increase system pressure.

Your installer will be able to advise the position of the filling valve.

After topping up the system the valve(s) must be fully closed and the flexible hose disconnected from the valve(s), and dust caps refitted.

Expect a small water loss from the hose.

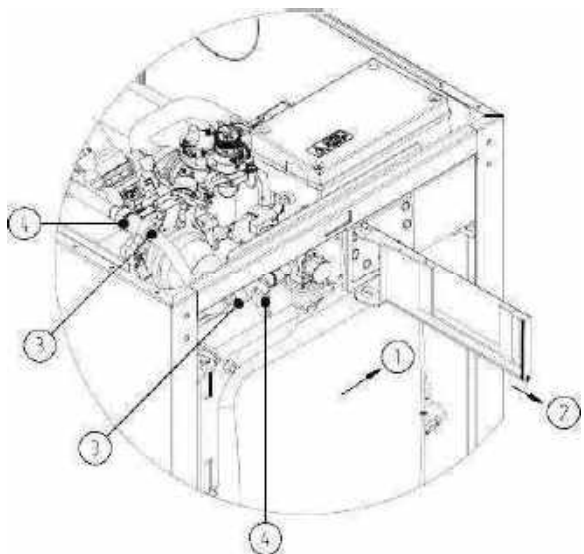


Combination Boilers – The filling loop is accessed by opening (1) and removing (2) the access cover.

Remove the dust caps, then fit the flexible hose (3) at both ends, open the valves (4) to increase system pressure.

After topping up the system the valve(s) must be fully closed and the flexible hose disconnected from the valve(s), and dust caps refitted.

Expect a small water loss from the hose.



1.5 Corrosion Inhibitor

Special attention must be given to the concentration of corrosion inhibitors in the system water. Where there has been a need for topping up the system. Concentrations must be restored to inhibitor manufacturers' recommendations and monitored going forward.

IMPORTANT

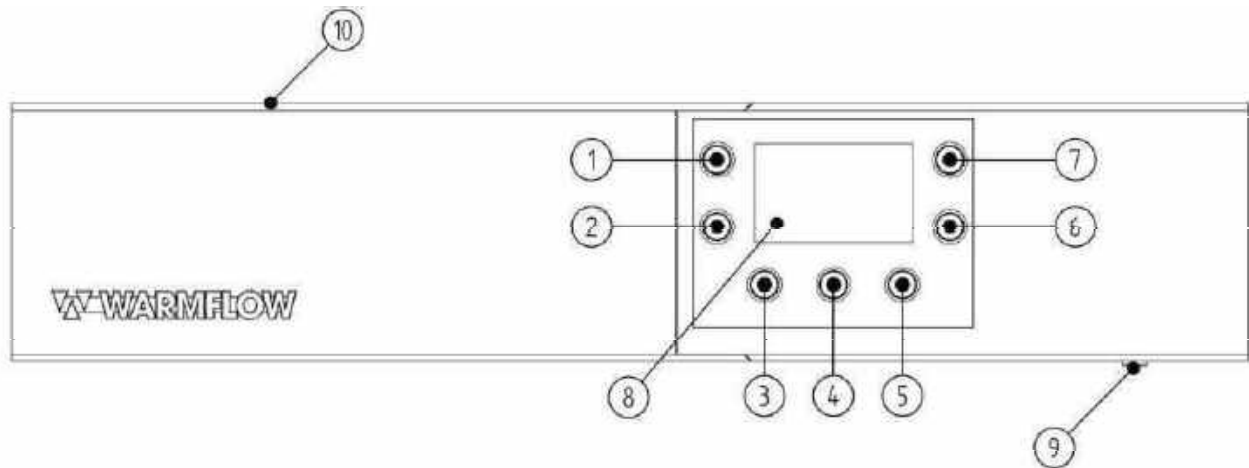
Frequent or routine topping up of the system should not be necessary and may prove harmful to the appliance.

Should topping up prove necessary on a frequent or routine basis you must contact your installer to investigate and rectify the cause.

1.6 Control Panel – Combination Boilers

Internal and External Combination Boilers are fitted with a Liquid Crystal Display (LCD), and 7 pushbuttons as identified below.

The High Limit Thermostat reset button is located under the RH side of the control panel.



- 1) DHW+ button
- 2) DHW- button
- 3) Mode button
- 4) Time programming button
- 5) Information button
- 6) CH- button
- 7) CH+ button
- 8) Liquid Crystal Display (LCD)
- 9) High Limit Thermostat reset
- 10) Filling loop access

panel The appliance has 4x operating

modes:

1. Central Heating and Domestic Hot Water
2. Domestic Hot Water Only
3. Central Heating Only
4. Off

The mode can be changed by pressing the mode button.

The current operating mode is represented by icons displayed on the LCD screen, refer to section 1.8 for details.

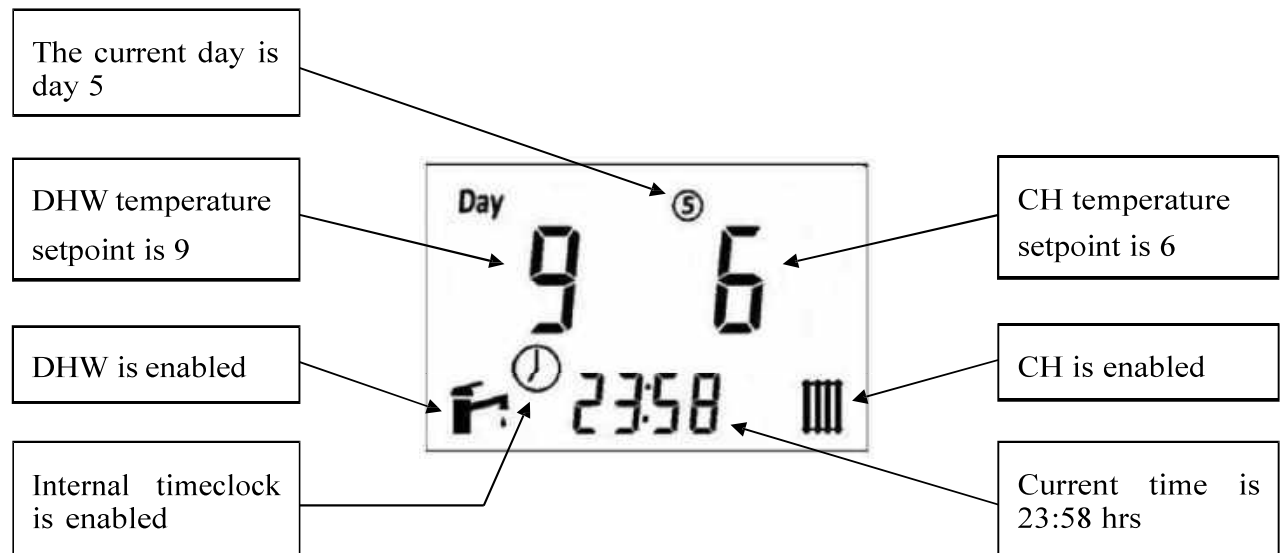
1.7 LCD Icon Descriptions



Icon	Description
	DHW Status
	CH Status
	Engineer
RESET	Reset
bar	System Water Pressure Unit
°C	Temperature Unit
	Internal Timeclock Control
	Manual Override
Day ① ② ③ ④ ⑤ ⑥ ⑦	Current Day
	Timeslot Identifier (1-4)
ON OFF	Timeslot Programming Type
	DHW Setpoint 1 (Upper Bar)
	DHW Setpoint 1 (Lower Bar)

1.8 Home Screen

When the appliance is powered on, or after reset the Home Screen is displayed by default. As an example, depending on user settings:



In case of an error or fault, the error code number is displayed on the LCD along with the Engineer icon.

During CH or DHW cycles the corresponding DHW or CH icons will flash on and off to indicate activity.

There are two lines of text as shown below which are used for displaying, selecting and adjusting settings.



1.9 Setting the date and time

In order for the appliance to operate with maximum DHW efficiency, and if the built in timeclock is to be used, it is necessary to correctly set the date and time upon first start-up of the appliance. If the date is correctly set, daylight saving changes will be applied automatically.

From the Home Screen, the date and time can be set by simultaneously pressing the Time Programming button (4) and DHW- button (2) for 3 seconds.



Step 1 – Set the current hour (24 hr format) using the DHW+ button (1) and DHW- button (2), then press the Time Programming button to confirm.

Step 2 – Set the current minute using the DHW+ button (1) and DHW- button (2), then press the Time Programming button (4) to confirm.

Step 3 – Set the current week day (1-7) using the DHW+ button (1) and DHW- button (2), then press the Time Programming button (4) to confirm.

Step 4 – Set the current year using the DHW+ button (1) and DHW- button (2), then press the Time Programming button (4) to confirm.

Step 5 – Set the current month (1-12) using the DHW+ button (1) and DHW- button (2), then press the Time Programming button (4) to confirm.

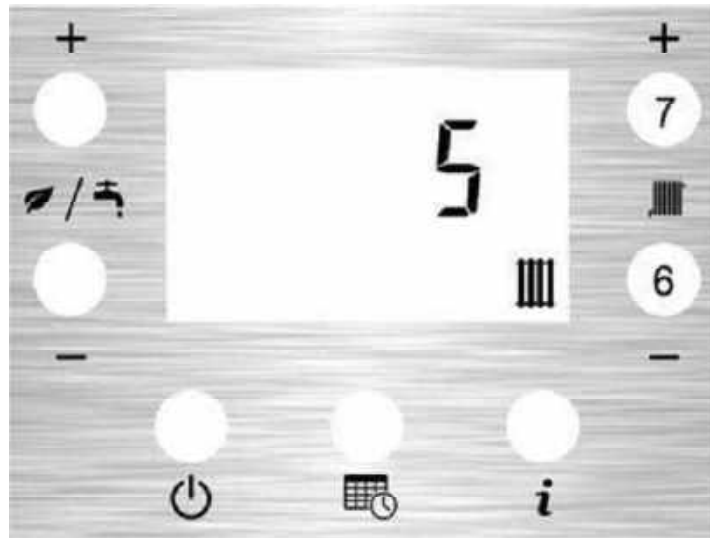
Step 6 – Set the current date using the DHW+ button (1) and DHW- button (2), then press the Time Programming button (4) to confirm.

The LCD will show the time, and display the text 'done' when the programming is completed.

After the appliance has been in operation for a number of days, it will be able to maintain a memory of the date and time settings during short power interruptions. If power is interrupted for an extended period it may be necessary to re-set the time and date again using the above routine.

1.10 Setting CH flow temperature

The CH Setpoint Menu is displayed when the CH+ button (7) or CH- button (6) are pressed when the LCD is displaying the Home Screen.



The setpoint is adjustable from 1 (lowest) to 9 (highest). Nominally the central heating flow temperature (at the boiler) will be 50°C at the lowest setting and 82°C at the highest setting.

The setting is saved 5 seconds after the last button press.

1.11 Setting DHW flow temperature

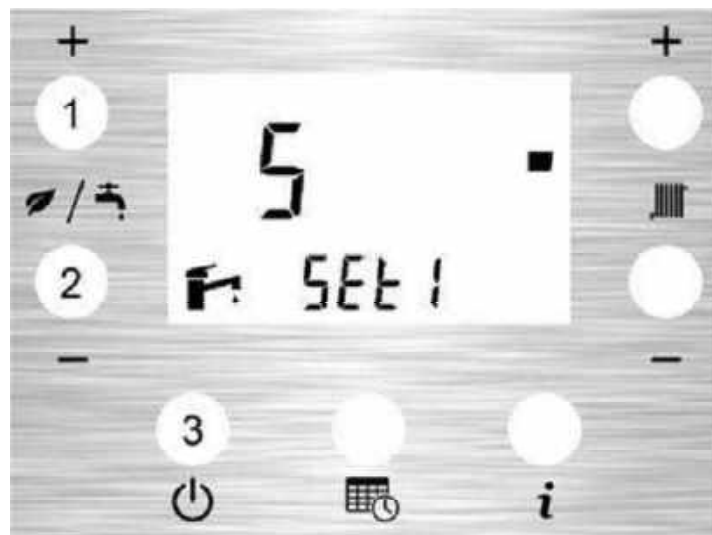
The DHW Setpoint Menu is displayed when the DHW+ button (1) or DHW- button (2) are pressed when the LCD is displaying the Home Screen.

The actual DHW delivery temperature is dependent on site conditions, incoming water temperature and flow rate.

The setpoints are adjustable from 1 (lowest) to 9 (highest). Nominally the DHW flow temperature (at the boiler) will be 40°C at the lowest setting and 70°C at the highest setting.

A risk assessment should be conducted to determine the most appropriate anti-scald device to be installed at all outlets, to limit the temperature of hot water outlets. These may include, but are not limited to bidets, taps and showers.

Consult local building control regulations which apply to the installation for further reference. Example below shows the DHW setpoint at setting '5'.



1.11.1 Multiple DHW Setpoints

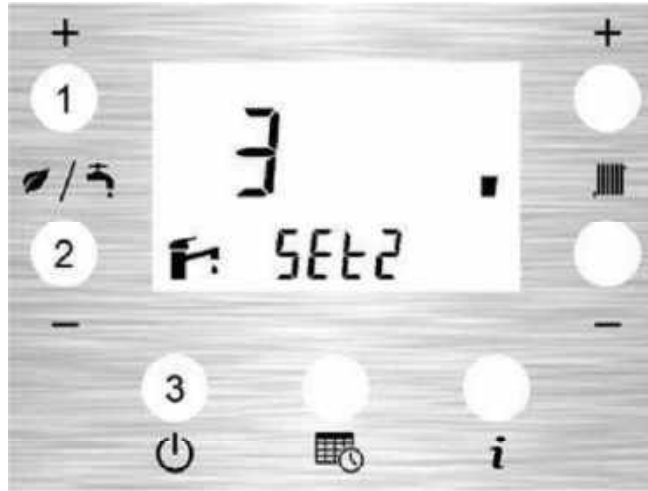
The appliance has the ability to use two DHW setpoints, setpoint 1 displayed as 'SEt 1' (Normal) and setpoint 2, displayed as 'SEt 2' (Lower).

Setpoint 2, ('SEt 2') can only be enabled with the built-in DHW programmer. See section 6.6.2 for setting the DHW programmer. The advantage of the additional setpoint allows the DHW temperature to be lowered at different times of the day. This can be a useful safety function, lowering temperatures when users such as children may be using outlets. The function can also increase the efficiency of the appliance by lowering the DHW flow temperature during certain times of the day when a higher temperature is not required.

The Mode button (3) is used to toggle between 'SEt 1' and 'SEt 2' when setting the DHW temperature.

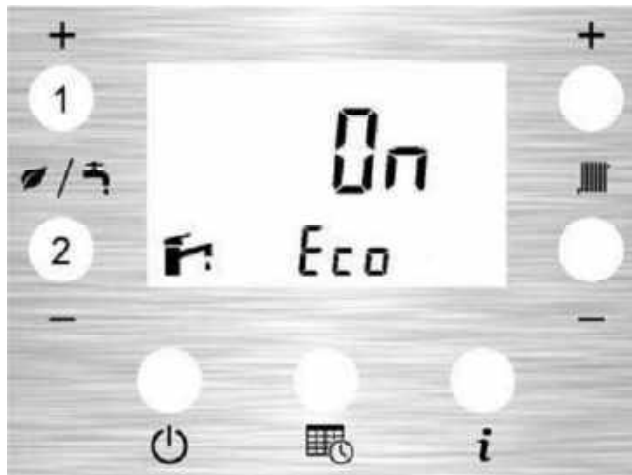
During operation with the DHW programmer enabled, the appliance will revert to 'SEt 1' unless a 'SEt1' time slot is active.

Example below shows setpoint 2, displayed as 'SEt 2' at a setting of '3':



1.12 Eco Mode

Eco mode works to control burner firing based on the inputs into the control system during DHW cycles only, i.e. Eco mode has no effect on CH operation.



The Eco mode function is enabled by pressing the DHW- button (2) and DHW+ button (1) simultaneously for 3 seconds, the LCD displays 'Eco On' when the function is enabled. The Eco mode function is enabled in the appliance by default and must be disabled if not required.

It is possible to disable the Eco mode function by pressing DHW- button (2) and DHW+ button (1) simultaneously for 3 seconds, the LCD displays 'Eco OFF' when the function is disabled.

When Eco mode is enabled in conjunction with the internal programmer, the lower section of the LCD will alternate between showing the time of day and 'Eco' to remind the user that Eco mode is enabled.

When Eco mode is enabled without the use of the internal programmer, 'Eco' will display continuously in this same location.

1.13 Frost Protection (Ice Protection function)

Ice Protection function works to reduce the risk of freezing and thereby protect the fabric of the boiler if either the CH Flow or CH Return temperature falls below 5°C. The ice protection function will force the appliance to operate until the CH Flow temperature rises above 30°C.

This mode operates even when all timeclocks are set to 'OFF', and also if the control panel is set to the 'OFF' mode using the Mode button (3).

Be aware of unexpected firing in these conditions.

The boiler must have a permanent live AC supply and an adequate fuel supply for the function to operate.

When the function is operating 'ICEP' is displayed on the LCD.



1.14 Circulating Pump and Diverter Valve Exercise Functions

If the boiler has not operated the circulating pump or the diverting valve for a period of 24 hours, it will operate these components for 10 seconds to prevent locking.

The boiler must have a permanent live AC supply for this function to operate.

1.15 Speed adjustment of the circulating pump

1.15.1 Combination Boilers

The speed of the circulating pump is controlled in both CH and DH modes by a signal from the control panel. If the maximum speeds need to be adjusted to suit site conditions, refer to Engineer Parameters in Section 11.7.1. The settings on the circulating pump must not be adjusted from the factory default of PWM Profile A (heating).

1.15.2 Pumped and System Boilers

The speed of the circulating pump can be adjusted using the pushbutton and LED indications on the pump. Please refer to the manufacturer's documentation which is available via www.warmflow.co.uk/support/downloads.

1.16 Information Menu

The Information Menu is used to display selected appliance parameters in real time, it can be used during the commissioning stage, or to assist fault diagnosis.

The Information Menu is displayed from the Home Screen by pressing the Information button (5).



The auxiliary digits then indicate the displayed variable number, and the main digits display the value of the variable.

If a value is unavailable '- -' will be displayed on the main digits.

The variables can be scrolled through using the CH+ button (7) and CH- button (6).

To return to the Home Screen, press the Information button (5) again, or if no button is pressed for 60 seconds, the Home Screen is displayed automatically.

Variable number	Description
1	CH Flow Temperature (°C)
2	CH Return Temperature (°C)
3	DHW Flow Temperature (°C)
4	Heat Store Temperature
5	System water pressure
6	DHW Flow rate (l/minute)
7	Circulating pump speed (%)
8	External Temperature (°C)
9	DHW Setpoint (°C)
10	CH Setpoint (°C) (see note)
11	Control PCB Firmware
12	MMI PCB Firmware version

Note: If the External Temperature sensor is used, the displayed value will be the Weather Compensated CH setpoint.


1.17 User Parameters

The User Parameters Menu is used to allow selected parameters to be modified by the user, without password protection.


The User Parameters Menu is displayed from the Home Screen by pressing the Information button (5) for 3 seconds.



The auxiliary digits then indicate the displayed variable number, and the main digits display the value.

To modify a value, press the Mode button (3) for 1 second. The service icon  will begin to flash.

Adjust the variable setting to the desired value using the DHW+ button (1) and DHW- button (2).

To save the new value, press the Mode button again for 1 second. The Service icon  will stop flashing.

To return to the Home Screen, press the Information button (5) again, or if no button is pressed for 3 minutes, the LCD will return to the Home Screen automatically.

Parameter	Description	Units	Range	Default Value
u 00	Weather Compensation Coefficient (see	N/A	0-30	30

Note: If the remote control is also used, the remote control setting will override the parameter u00 value.

1.18 Weather Compensation Operation

The Weather Compensation operates on the central heating system when the Outdoor Sensor has been connected by the installer.

Depending on the outdoor temperature, the CH flow temperature is automatically reduced below the user CH setpoint.

The amount of reduction depends on the Weather Compensation Coefficient (Parameter 'u 00').

A lower value of Parameter 'u 00' results in a greater reduction of the CH flow temperature at a given outdoor temperature.

A higher value of Parameter 'u 00' results in a smaller reduction of the CH flow temperature at a given outdoor temperature.

Parameter 'u 00' is adjustable from 0 to 30.

The maximum setting value of 30 means that weather compensation is not active when the outdoor temperature is less than 5°C, however the CH setpoint will be reduced the higher the outdoor temperature rises above 5°C.

A value of 20 means that weather compensation is not active when the outdoor temperature is less than -6°C, however the CH setpoint will be reduced the higher the outdoor temperature rises above -6°C.

Care should be taken if using a value below 20 as these values produce very aggressive reductions in the CH setpoint.

2 CONDENSING BOILER INSTALLATION REQUIREMENTS

The Warmflow condensing boiler can be fitted to most installations using standard practices and techniques. There are however a number of considerations that must be taken into account.

1. All existing systems must be properly flushed to remove any sediment/ sludge in order to prevent any blockage or reduction in efficiency of the boiler.
2. The system must be fully pumped.
3. The primary difference between an ordinary boiler and a condensing boiler is the condensate drain. The drain can be plumbed from the condensate trap in any ordinary plastic pipe, e.g. plastic overflow pipe, directly into the household drain or soak away.

Any blockage in the drain could lead to an alteration in the combustion settings because of partially blocked flueways.

Where the boiler is fitted into a basement, a condensate pump may be required.

4. As an indicator of the increased efficiency of a condensing boiler there may be a visible plume of 'steam' from the flue. Care needs to be exercised when positioning the appliance and selecting the type of flue to ensure that the plume does not cause a nuisance to the householder or to surrounding properties.

As the water temperature in the system rises the pluming effect will diminish. Even where pluming is not visible the boiler is still operating more efficiently than a standard boiler.

3 BEFORE FITTING A COMBINATION BOILER THE INSTALLER MUST CHECK:

1. That a risk assessment has been completed to determine the most appropriate anti-scald device to be used for the various applications, to limit the temperature of hot water outlets including bidets, taps and showers. DHW setpoint 9 has a nominal flow temperature of 70°C at the boiler. A tempering Valve may be required to meet the requirements of G12
2. What the maximum hot water demand placed on the boiler is likely to be. Not every installation is suitable for a Combination boiler. Systems requiring very high hot water flow rates may be better suited with a Warmflow unvented cylinder.
3. That the mains are capable of supplying up to 24 litre/min with a minimum dynamic pressure of 1.8 bar at the boiler. This is to ensure that the boiler can achieve its maximum output. To protect the appliance and to prevent excessive flow rates, the appliance is equipped with a 3- bar pressure reducing valve to limit the maximum water supply pressure to 3 bar. A 0.16 litre expansion vessel is also fitted to the domestic circuit to accommodate DHW expansion when outlets are closed. It may be necessary to supplement this expansion vessel in larger DHW systems.
4. The hardness of the mains water supply. Systems with hard water must be fitted with a suitable chemical scale preventer (e.g. Fernox Quantomat or Combimate).
5. That the flow from any one hot water outlet does not exceed the maximum recommended. This applies particularly to baths which are usually fitted with larger taps and larger bore supply pipes. It may be necessary to restrict the flow to these taps by reducing the bore of the supply pipework (e.g. 15mm) or by fitting a restrictor into the pipework.
6. That any outlet, when opened, does not starve all the other outlets of hot water. If more than one outlet is open at the same time then the total flow from all the outlets should not exceed the maximum flow rate of the boiler.
7. That any showers being supplied with hot water by the boiler are compatible with this type of appliance.

It should be noted that the boiler has been factory fitted with an 18 litre/min flow restrictor.

The manufacturer's guarantees are void if the appliance is not installed and commissioned in accordance with the recommendations made herein.

4 GENERAL INFORMATION

4.1 Introduction

Note: All our domestic appliances are independently tested and accredited as exceeding the minimum SEDBUK efficiency levels required for their type, in compliance with the Building Regulations Approved Document L1A, L1B for England and Wales, the Building Standards (Scotland) Regulations Section 6, Part F1 Northern Ireland and Part L Republic of Ireland.

Warmflow oil fired condensing boilers are designed to burn Light oil (Diesel) & kerosene only and are to be used on a fully pumped system. They are suitable for connection to sealed heating systems.

As standard the Combination and System boilers are fitted with a system expansion vessel, circulating pump, filling loop, pressure gauge and pressure relief valve. The Combination boiler can provide, at mains pressure, domestic hot water without the need for a storage cylinder.

Guarantees are void if the appliance is not installed and commissioned in accordance with the recommendations made herein.

4.2 General Requirements

For the UK The installation of the boiler must be in accordance with the following regulations.

BS 5410-1: Code of practice for oil firing. Installations up to 45 kW output capacity for space heating and hot water supply purposes.

BS EN 12828+A1: Heating systems in buildings. Design for water-based heating systems.

BS EN 12831: Heating systems in buildings. Method for calculation of the design heat load.

BS EN 14336: Heating systems in buildings. Installation and commissioning of water based heating systems.

BS 7593: Code of practice for treatment of water in domestic hot water central heating systems

Current applicable Building Regulations and IET Wiring regulations.

BS EN 7074-1: Application, selection and installation of expansion vessels and ancillary equipment for sealed water systems. Code of practice for domestic heating and hot water supply.

For New Zealand the installation of this appliance must be in accordance with relevant aspects of G12 and AS1691 where relevant.

For the UK The heating system should be installed by a competent installer in accordance with the recommendations laid down by the building services compliance guide, OFTEC and sound engineering practice. In order to comply with building regulations, the boiler passport and/or OFTEC forms CD10 for installations and CD11 for commissioning should be left with the customer. Alternatively the installation can be inspected and approved by a building control officer.

4.3 Combination Boiler General Requirements

The boiler will have a DHW priority when both domestic hot water (DHW) and central heating (CH) are selected. So if DHW flow is detected or the heat store has not been satisfied the entire output of the boiler is directed to DHW before the boiler will switch over to CH. When fully cold it can take approximately 15 minutes for the heat store to be satisfied, depending on appliance output.

After a draw-off of 120L at 24L/min, with an average temperature rise of 32°C, the thermal store has a recovery time of approximately 5 minutes depending on appliance output.

Note: If DHW has not been selected no hot water can be produced even if the heat store is up to temperature.

4.3.1 Pump Overrun

Where there is a build-up of excess heat in the boiler primary heat exchanger with domestic hot water mode selected, the pump overrun function will operate. This function is controlled by the CH Flow NTC sensor.

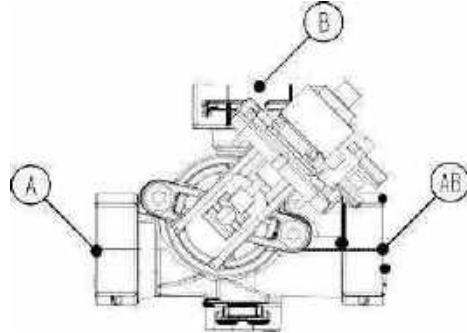
The excess heat will then be pumped into the heat store. Once the temperature has fallen in the boiler and the pump overrun function is satisfied, then the circulating water pump will stop.

There are also timed pump overrun functions, these are controlled by P01 & P02 in the Engineer Parameters.

4.3.2 Diverting Valve Operation

The function of the diverting valve is to direct return system water from either the central heating circuit or domestic hot water heat store to the circulating pump, depending on mode selection and thermostat requirements.

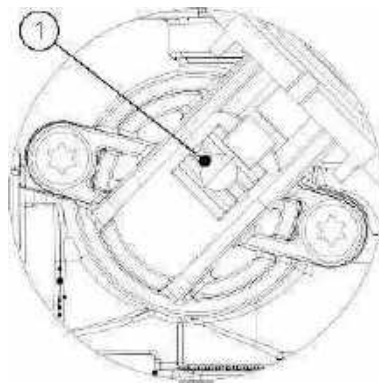
The valve body has 3x ports labelled A, B and AB:



The valve actuator has two positions, CH and DHW.

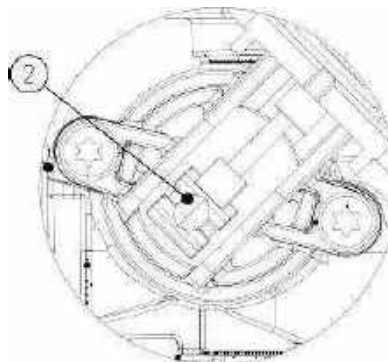
The CH position retracts the actuator (1), directing system water from the central heating circuit return to the circulating pump.

Water flows from port B to port AB:

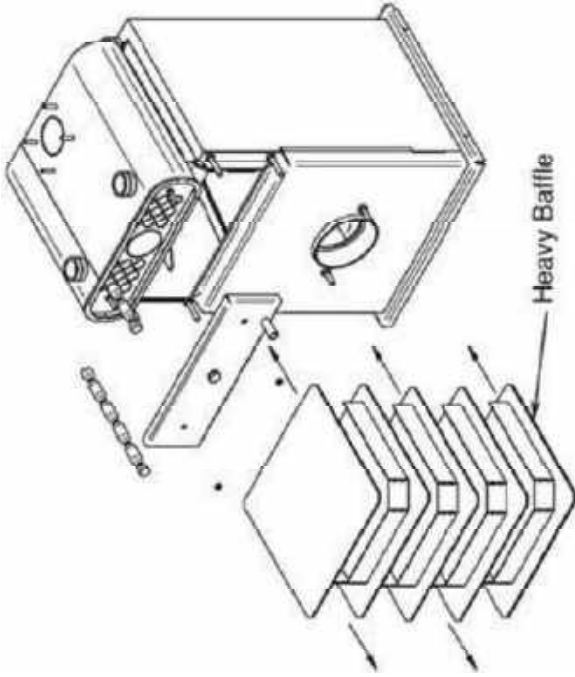


The DHW position extends the actuator (2), directing system water from the Plate Heat Exchanger to the circulating pump.

Water flows from port A to port AB:

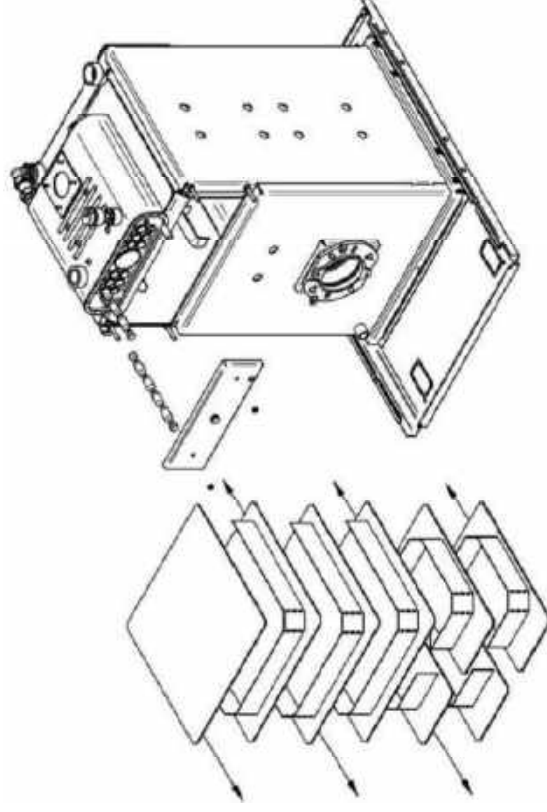


4.4 Baffle Positioning



21, 26 & 33 Models

The primary heat exchanger baffles consist of one heavy baffle stack (5mm thick) at the bottom, 3 lighter baffle stacks (3mm thick) in the middle and 1 baffle plate (3mm thick) at the top. Upon installation or after servicing, ensure the baffles are in the correct order and correctly stacked. To achieve maximum efficiency push the primary heat exchanger baffles in the direction of the arrows as shown. The secondary heat exchanger baffles must be fully inserted into the heat exchanger tubes (narrow end first).



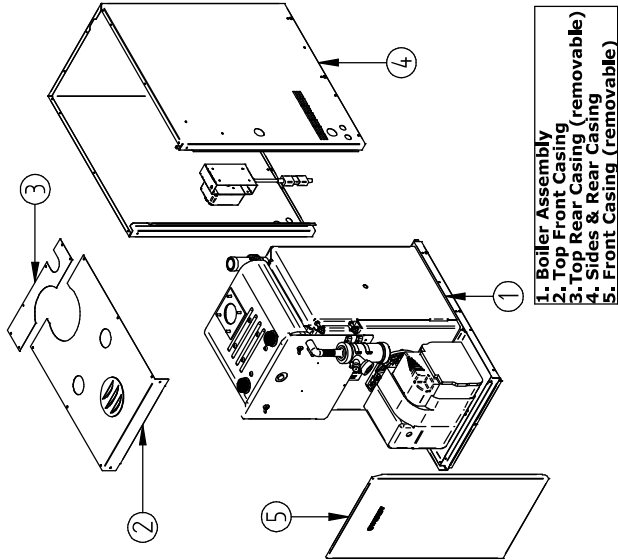
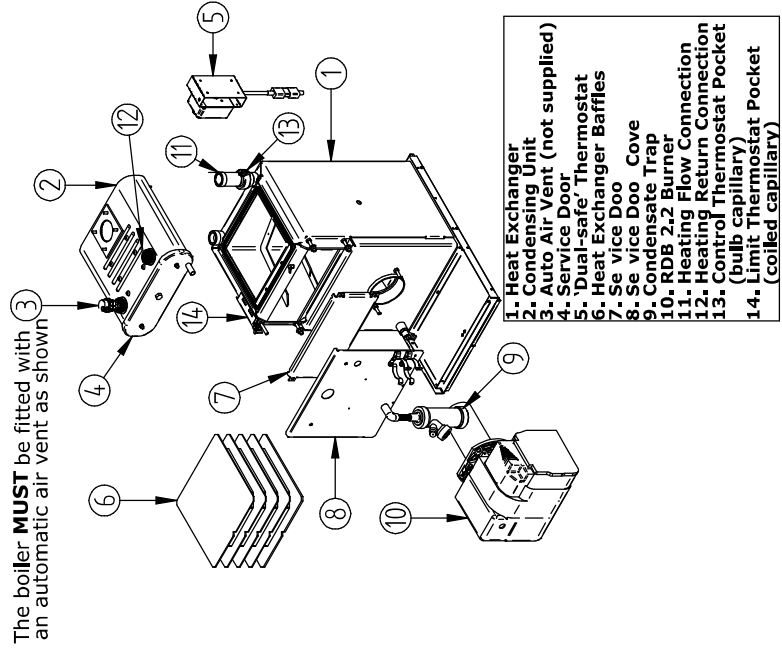
44 Models (Not available in NZ)

The primary heat exchanger baffles consist of two half-width baffle stacks at the bottom, 3 full-width baffle stacks in the middle and 1 baffle plate at the top. Upon installation or after servicing, ensure the baffles are in the correct order and correctly stacked.

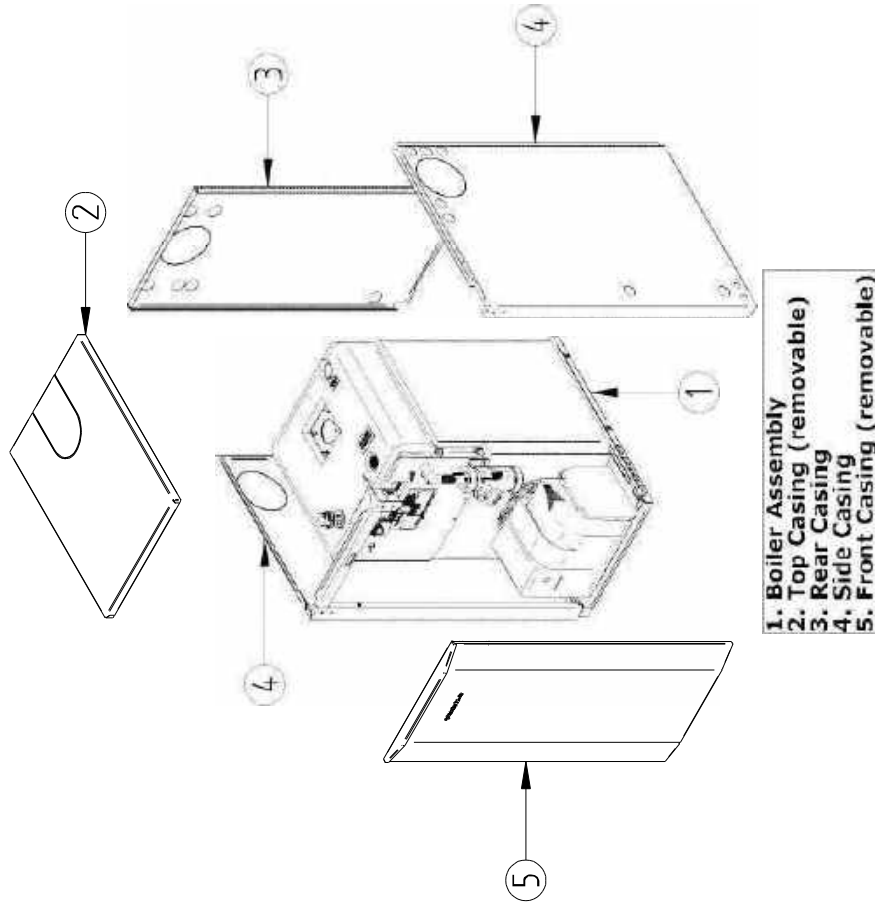
To achieve maximum efficiency, push the primary heat exchanger baffles in the direction of the arrows as shown. The secondary heat exchanger spring baffles must be fully inserted into the heat exchanger tubes (narrow end first).

4.5 Components

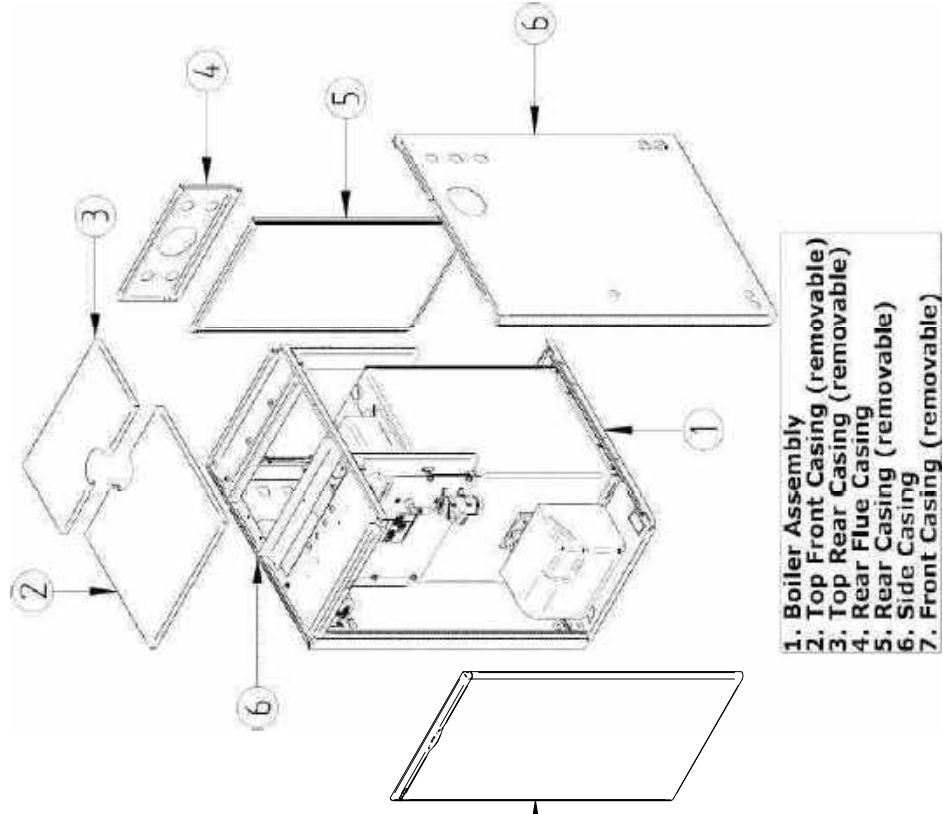
4.5.1 B-Series Boilerhouse – Casing & Key Components



4.5.2 I-Series (Internal) Casing

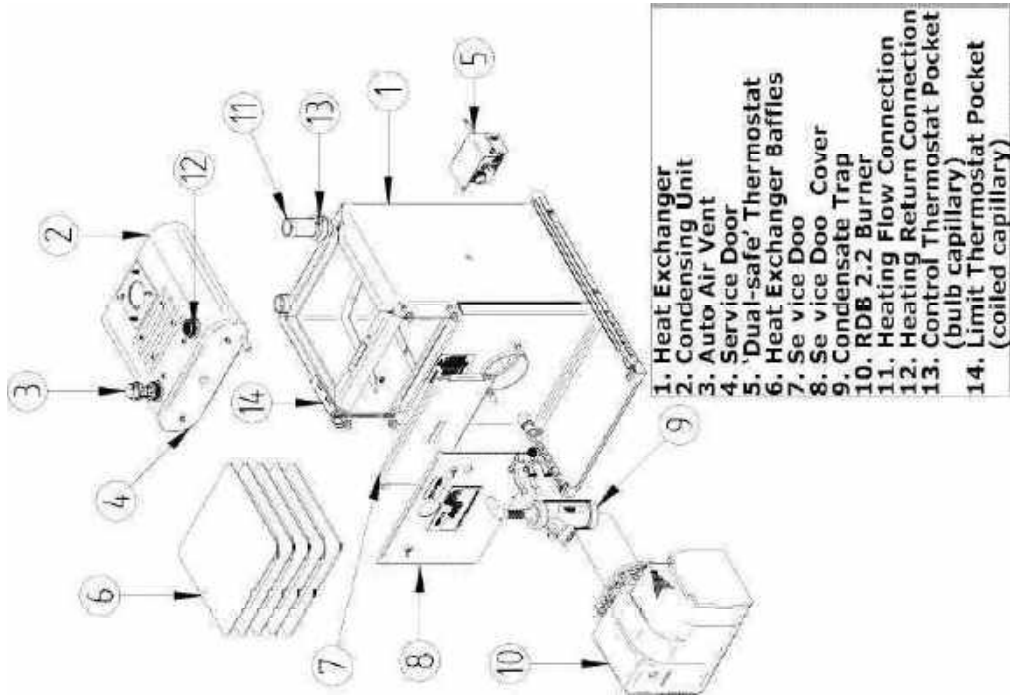


21, 26 & 33 Models

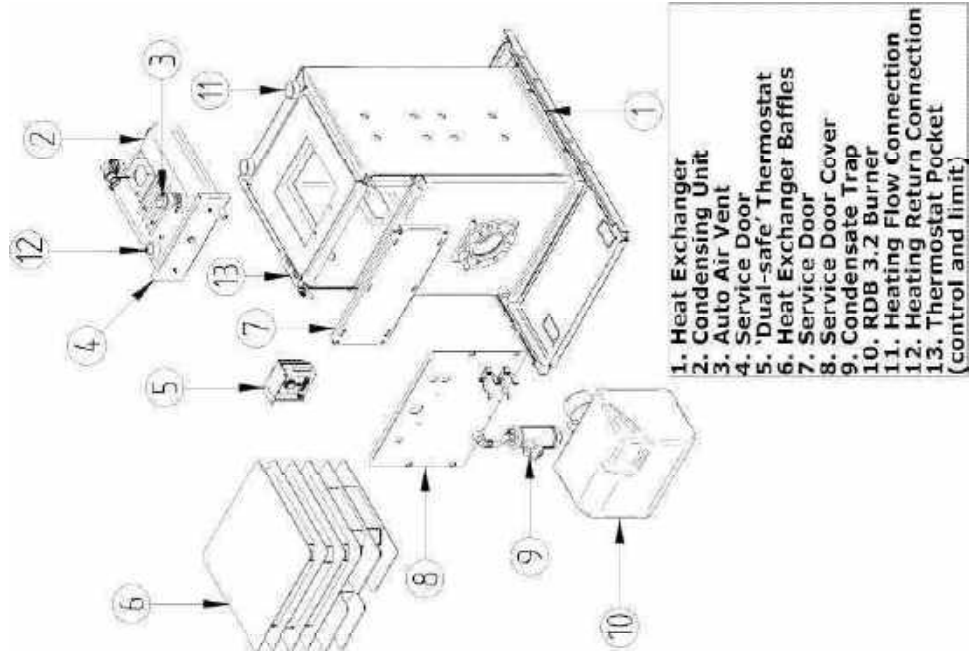


44 Models

4.5.3 I-Series (Internal) Key Components

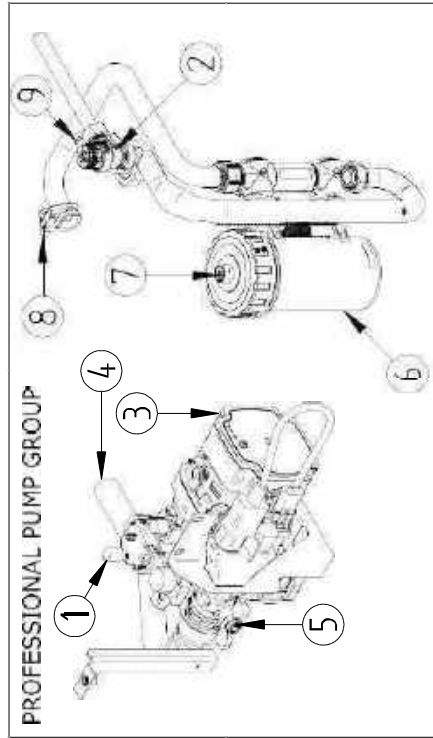
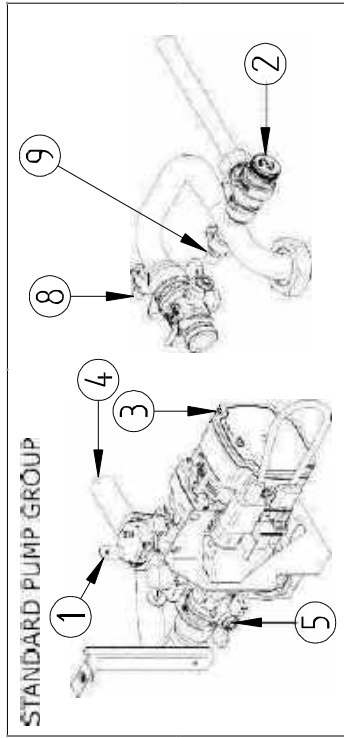


21, 26 & 33 Models

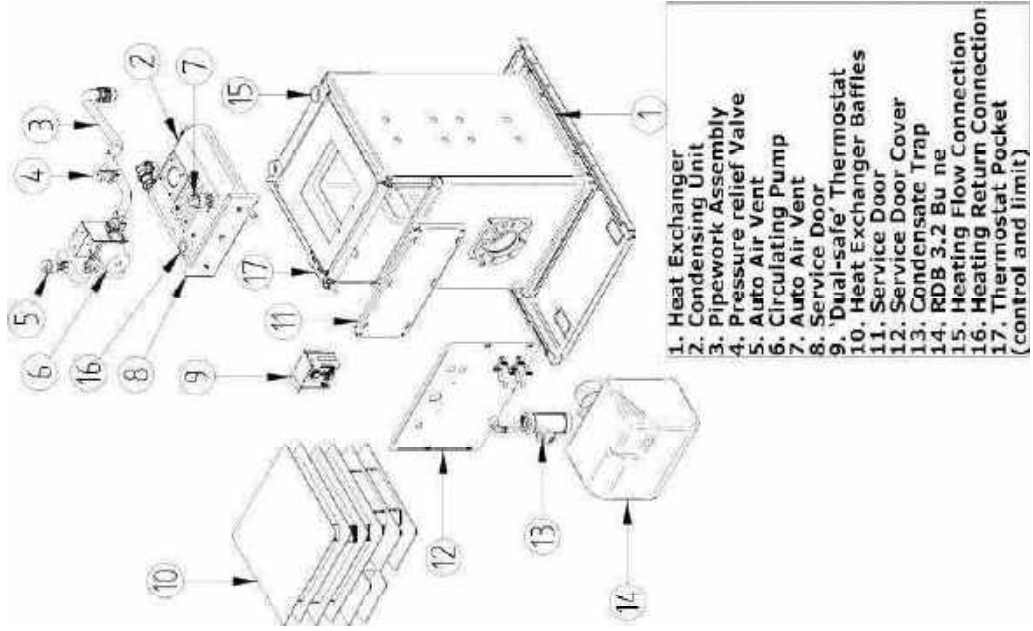


44 Models

4.5.4 I-Series (Internal) Pump Group



- 1. Automatic Air Vent
- 2. Pressure Relief Valve
- 3. Circulating Pump
- 4. CH Return Connection
- 5. Service Valve
- 6. Magnetic Filter
- 7. Manual Air Vent
- 8. System Kit Connection
- 9. Pressure Sensor Connection

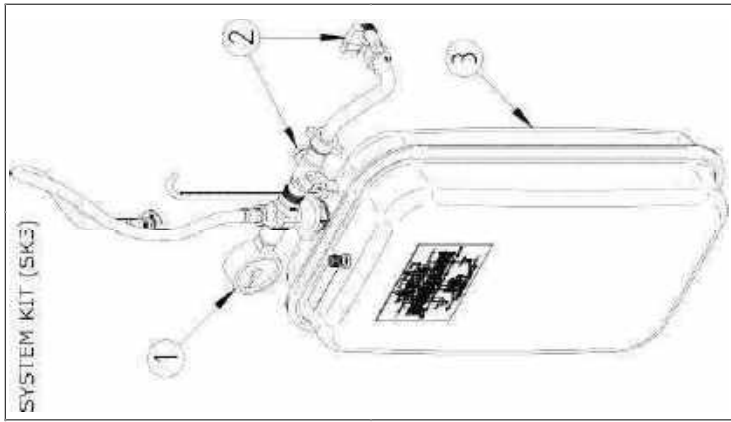


- 1. Heat Exchanger
- 2. Condensing Unit
- 3. Piping Assembly
- 4. Pressure relief Valve
- 5. Auto Air Vent
- 6. Circulating Pump
- 7. Auto Air Vent
- 8. Service Door
- 9. Dual-safe Thermostat
- 10. Heat Exchanger Baffles
- 11. Service Door
- 12. Service Door Cover
- 13. Condensate Trap
- 14. RDB 3.2 Bu ne
- 15. Heating Flow Connection
- 16. Heating Return Connection
- 17. Thermostat Pocket (control and limit)

44 Models

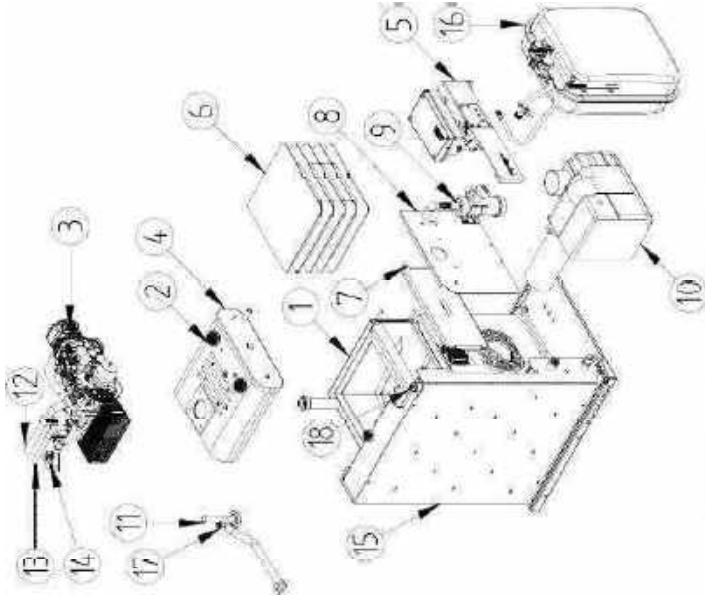
21, 26 & 33 Models

4.5.5 I-Series (Internal) System Components (SK3)
Key



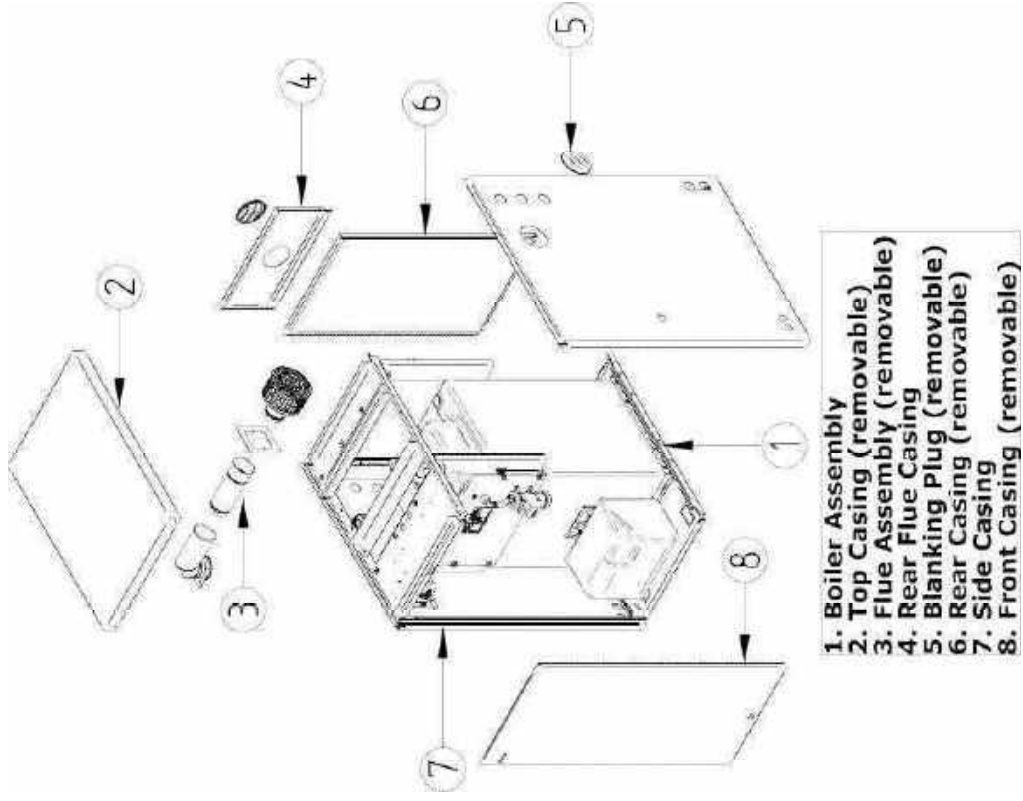
- 1. System Pressure Gauge
- 2. Filling Loop Valves
- 3. 12 Litre Expansion Vessel

4.5.6 I-Series (Internal) Combination Boiler -
Components



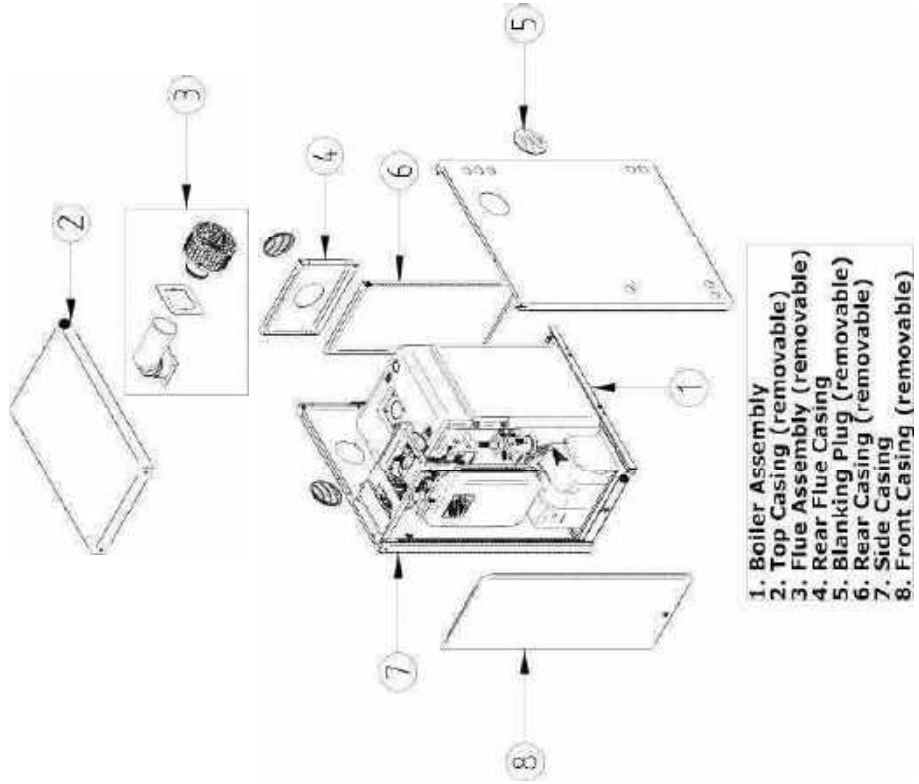
- 1. Heat Exchanger
- 2. Condensing Unit
- 3. Hydraulic Group
- 4. Service Door
- 5. Control Panel Assembly
- 6. Heat Exchanger Baffles
- 7. Service Door
- 8. Service Door Cover
- 9. Condensate Trap
- 10. RDB 2.2 Burner
- 11. Heating Flow Connection
- 12. Heating Return Connection
- 13. Domestic Hot Water Connection
- 14. Domestic Cold Water Connection
- 15. Heat Store Tank
- 16. System Expansion Vessel
- 17. Manual Air Vent
- 18. Manual Air Vent

4.5.7 E-Series (External) Casing



1. Boiler Assembly
2. Top Casing (removable)
3. Flue Assembly (removable)
4. Rear Flue Casing
5. Blanking Plug (removable)
6. Rear Casing (removable)
7. Side Casing
8. Front Casing (removable)

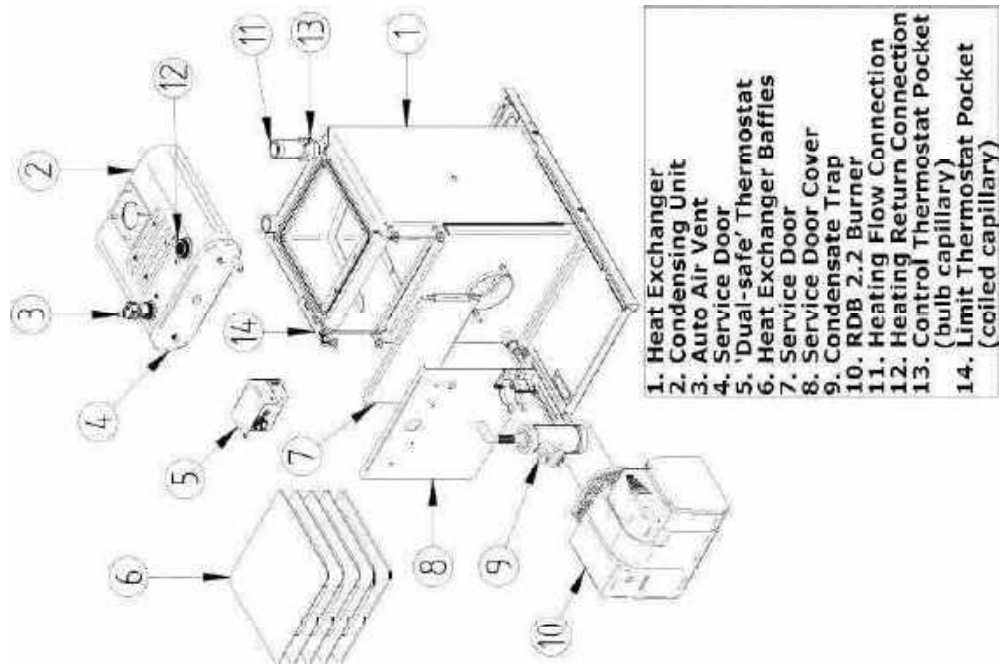
44 Models



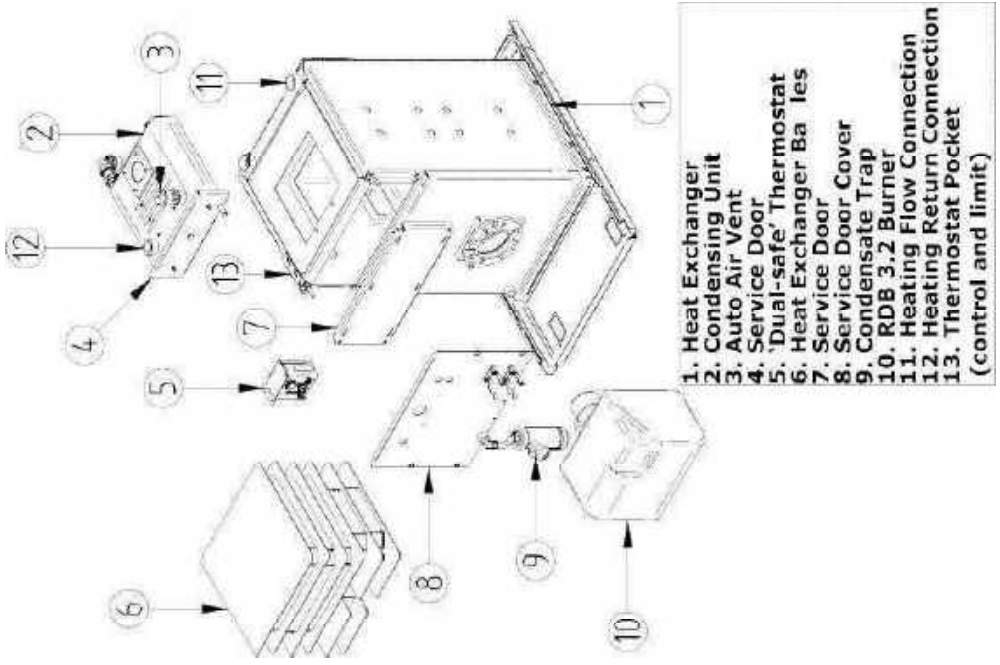
1. Boiler Assembly
2. Top Casing (removable)
3. Flue Assembly (removable)
4. Rear Flue Casing
5. Blanking Plug (removable)
6. Rear Casing (removable)
7. Side Casing
8. Front Casing (removable)

21, 26 & 33 Models

4.5.8 E-Series (External) Key Components

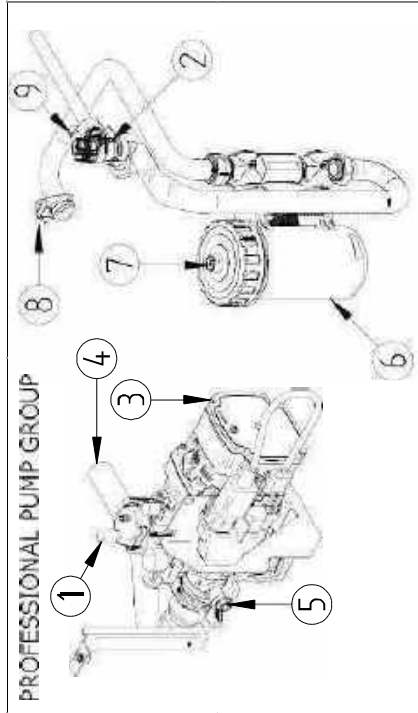
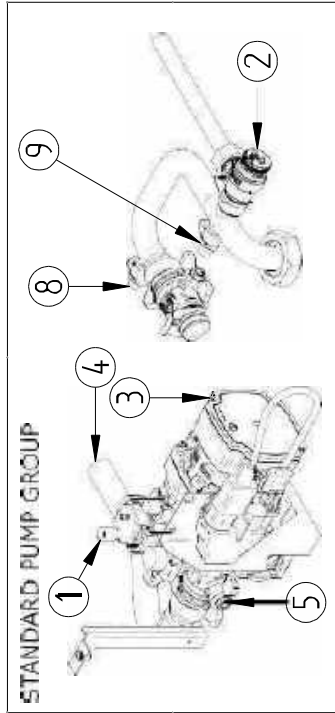


21, 26 & 33 Models

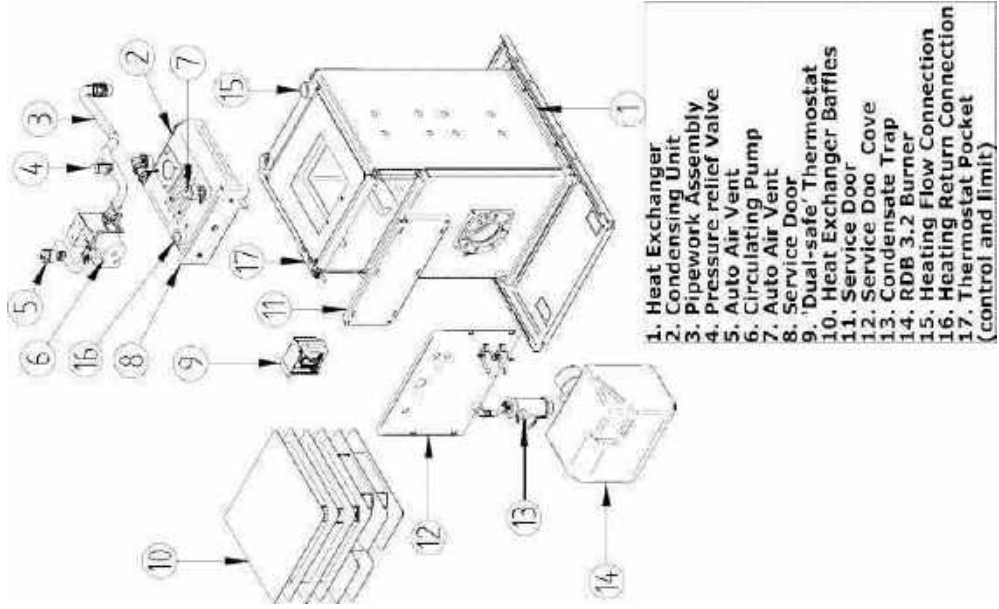


44 Models

4.5.9 E-Series (External) Pump Group



- 1. Automatic Air Vent
- 2. Pressure Relief Valve
- 3. Circulating Pump
- 4. CH Return Connection
- 5. Service Valve
- 6. Magnetic Filter
- 7. Manual Air Vent
- 8. System Kit Connection
- 9. P e s s u r e e S e n s o r C o n n e c t i o n

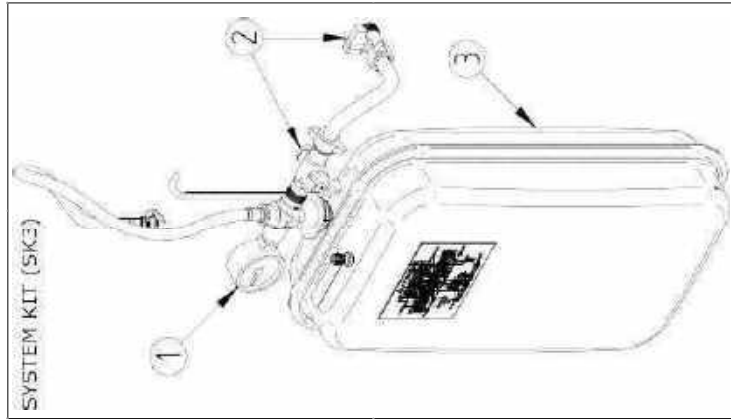


- 1. Heat Exchanger
- 2. Condensing Unit
- 3. Pipework Assembly
- 4. Pressure relief Valve
- 5. Auto Air Vent
- 6. Circulating Pump
- 7. Auto Air Vent
- 8. Service Door
- 9. 'Dual-safe' Thermostat
- 10. Heat Exchanger Baffles
- 11. Service Door Cove
- 12. Service Door Trap
- 13. Condensate Trap
- 14. RDB 3.2 Burner
- 15. Heating Flow Connection
- 16. Heating Return Connection
- 17. Thermostat Pocket (control and limit)

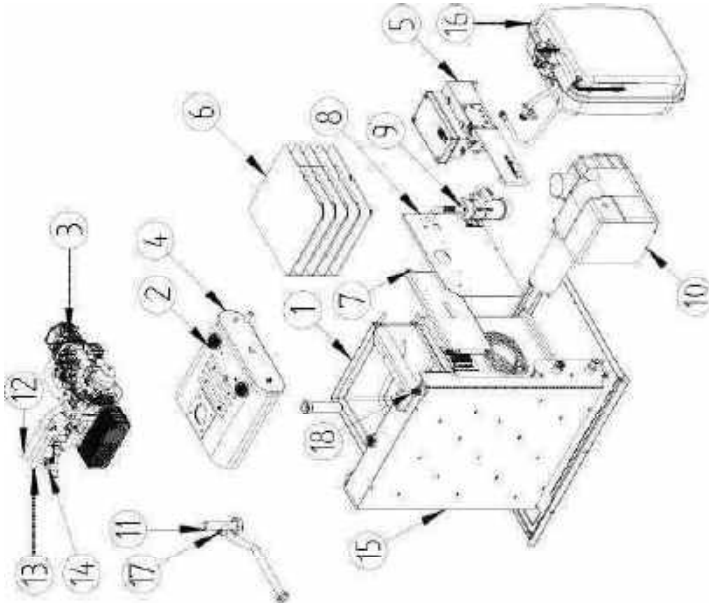
21, 26 & 33 Models

44 Models

4.5.10 E-Series (External) System Components (SK3)

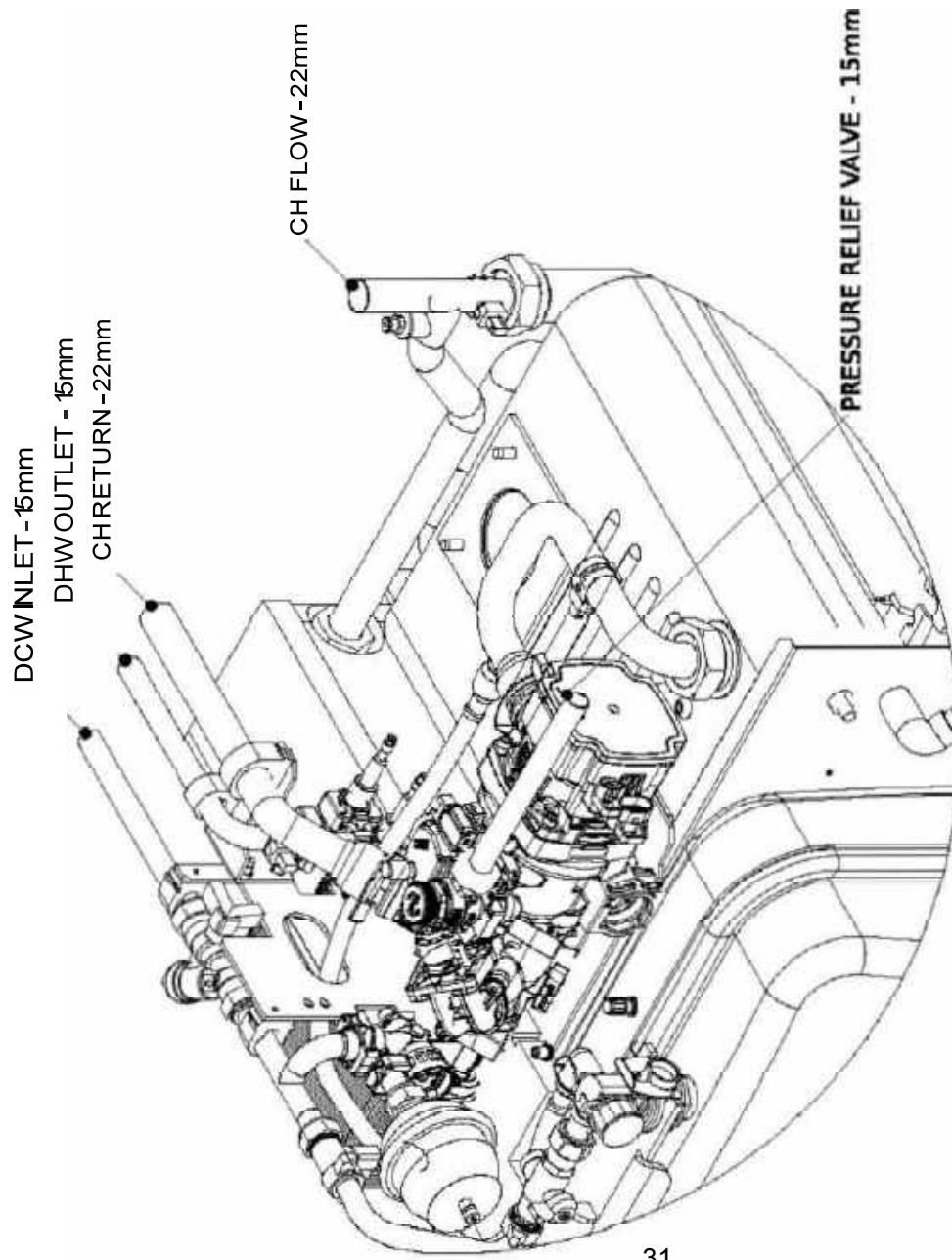


4.5.11 E-Series (External) Combination Boiler - Key Components



- 1. Heat Exchanger
- 2. Condensing Unit
- 3. Hydraulic Group
- 4. Service Door
- 5. Control Panel Assembly
- 6. Heat Exchanger Baffles
- 7. Service Door
- 8. Service Door Cover
- 9. Condensate Trap
- 10. RDB 2.2 Burner
- 11. Heating Flow Connection
- 12. Heating Return Connection
- 13. Domestic Hot Water Connection
- 14. Domestic Cold Water Connection
- 15. Heat Store Tank
- 16. System Expansion Vessel
- 17. Manual Air Vent
- 18. Manual Air Vent

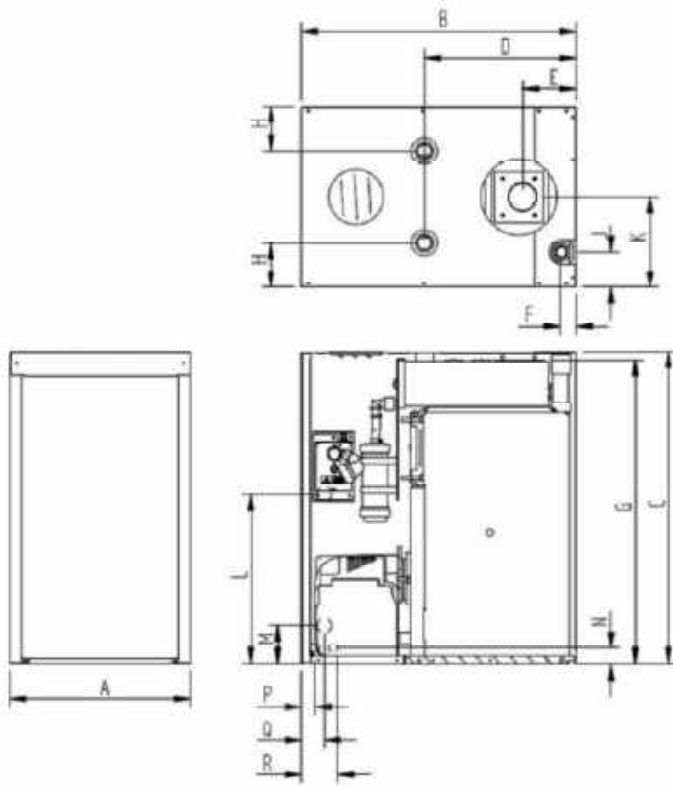
4.5.12 Combination Boiler Pipe Layout



5 TECHNICAL DETAILS

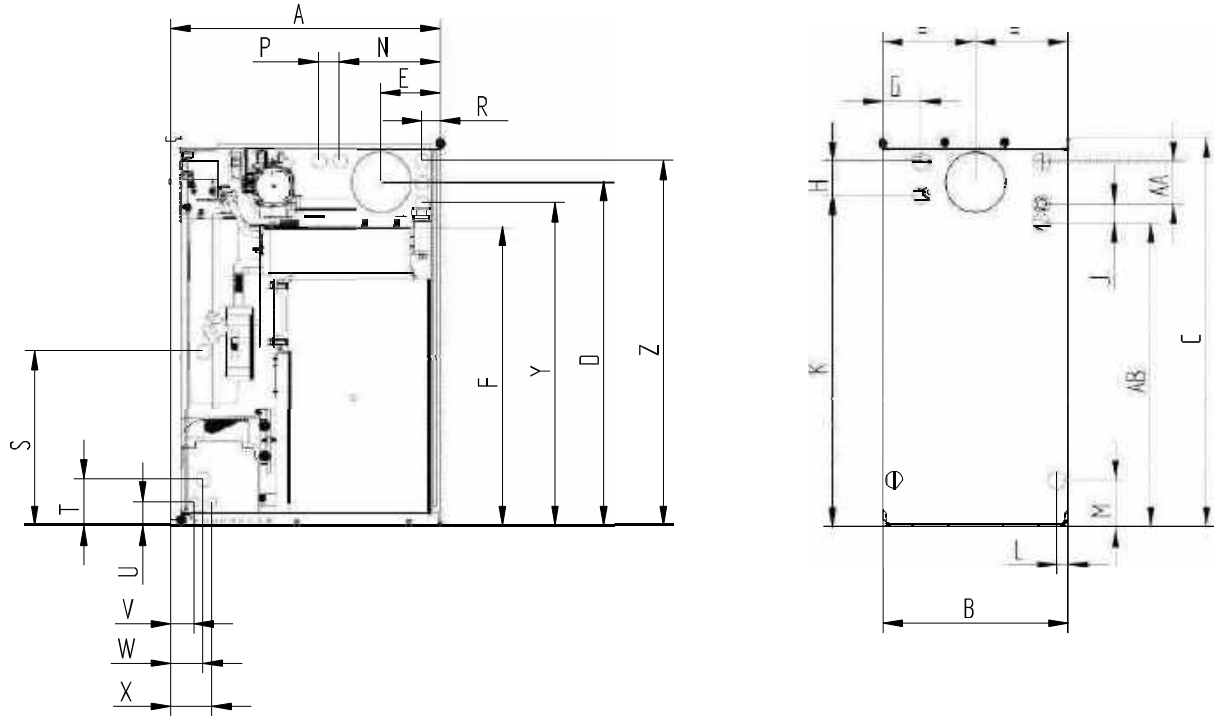
5.1 Dimensions

5.1.1 B-Series (Boilerhouse) B21, B26 & B33



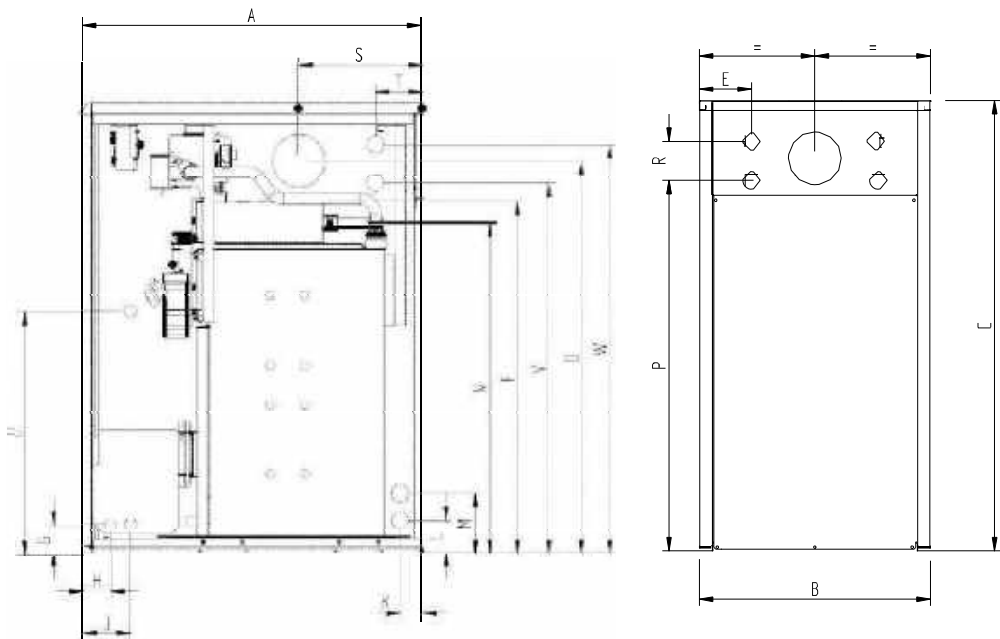
A	395
B	600
C	697
D	332
E	118
F	34
G	676
H	97
J	77
K	197
L	383
M	97
N	47
P	30
Q	50
R	80

5.1.2 I-Series (Internal) I21, I26 & I33



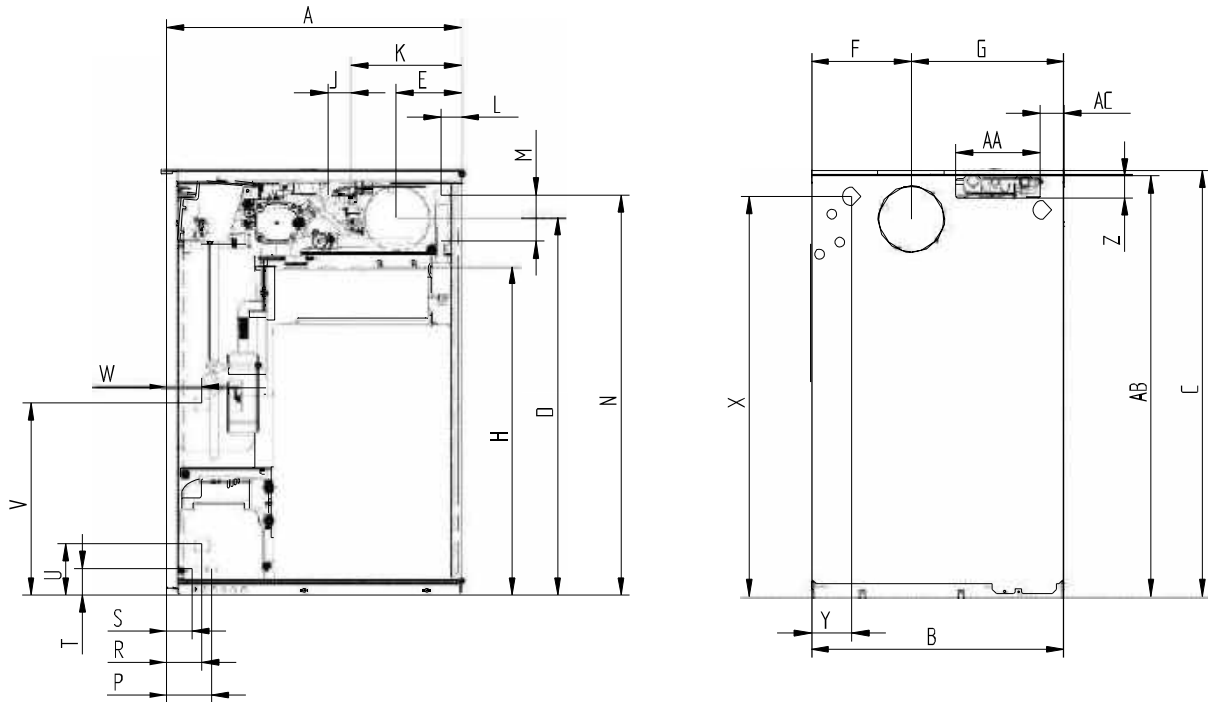
MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z	AA	AB
P	602	413	865	766	134	666	86	75	42	737	25	104	226	47	41	390	104	54	52	72	92	718	812	94	677
●P	602	413	865	766	134	666	86	75	42	737	25	104	226	47	41	390	104	54	52	72	92	718	812	94	677
●S	602	413	865	766	134	666	86	75	42	737	25	104	226	47	41	390	104	54	52	72	92	718	812	94	677

5.1.3 I-Series (Internal) I44



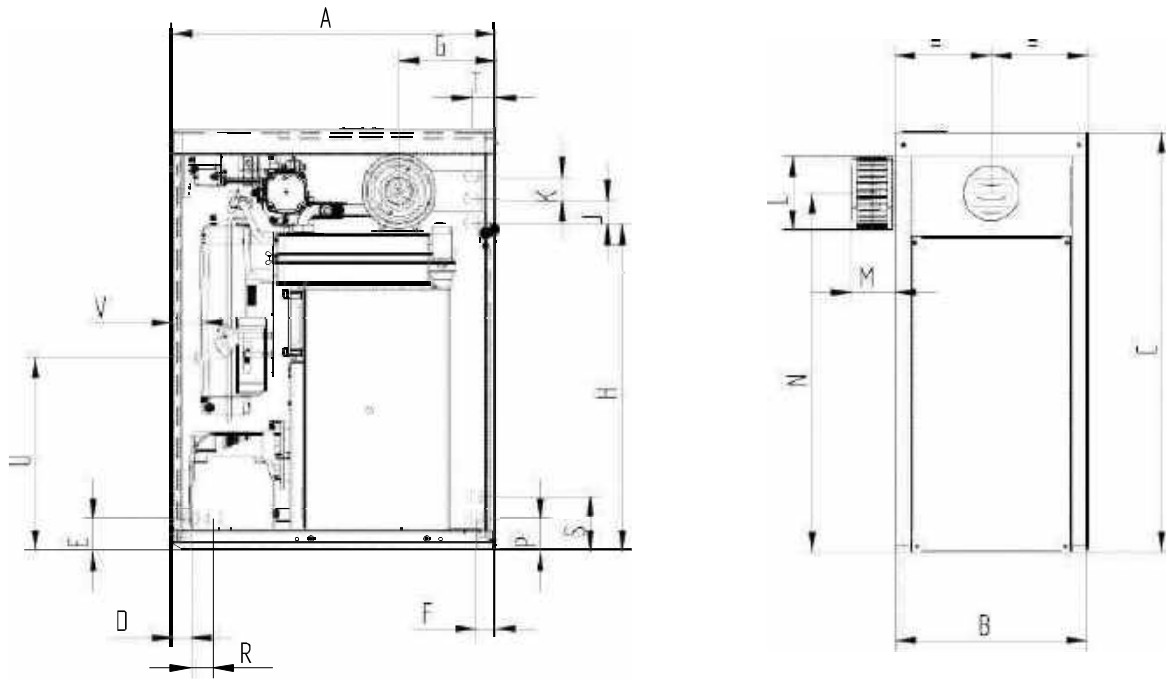
MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W
I44	872	585	1156	1067	124	905	75	71	121	57	85	155	850	950	100	318	120	625	950	1050
I44P	872	585	1156	1067	124	905	75	71	121	57	85	155	850	950	100	318	120	625	950	1050

5.1.4 I-Series (Internal) Combination Boilers I21C, I26C & I33C



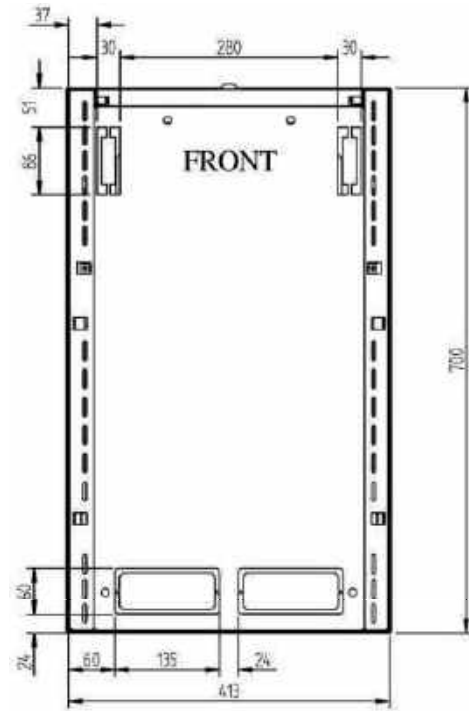
MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
● C	607	516	869	766	133	204	311	667	47	223	41	94	812	92	72	52	54	104	386	72	812	82	45	172	854	49

5.1.5 E-Series (External) E21, E26 & E33

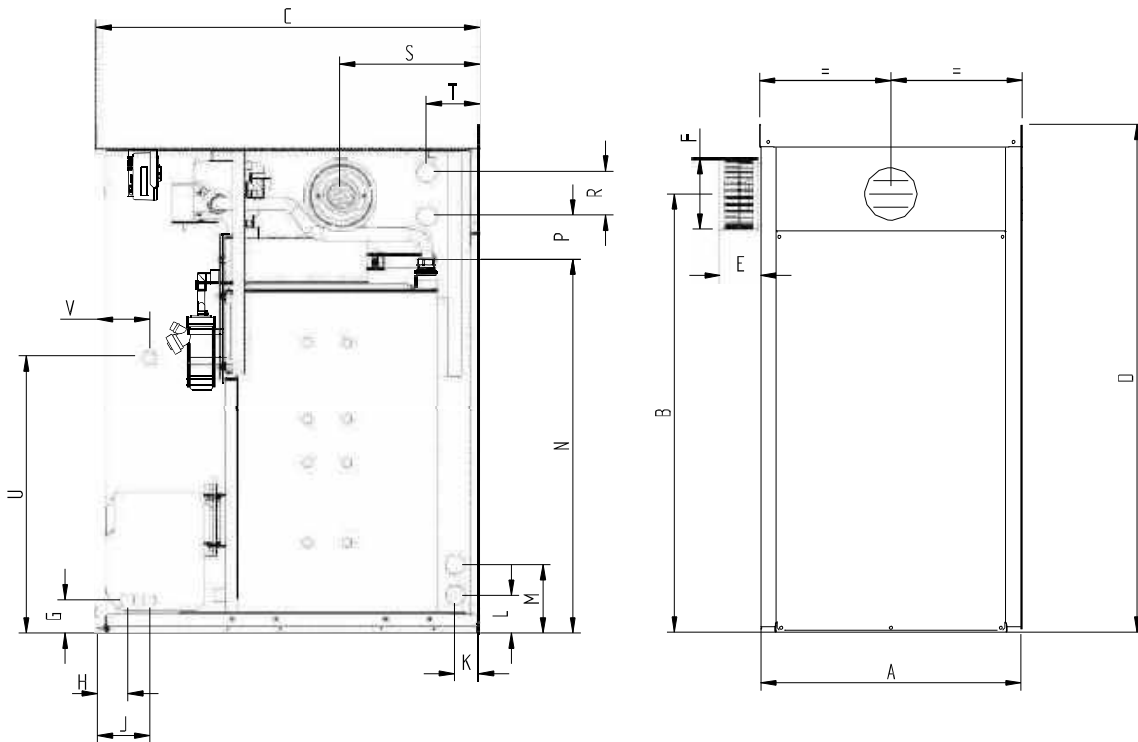


MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V
E [~]	700	413	900	40	67	40	210	705	50	50	161	93	773	67	90	117	52	415	65
E [~] P	700	413	900	40	67	40	210	705	50	50	161	93	773	67	90	117	52	415	65
E [~] S	700	413	900	40	67	40	210	705	50	50	161	93	773	67	90	117	52	415	65

5.1.6 E-Series (External) Base Tray E21, E26 & E33

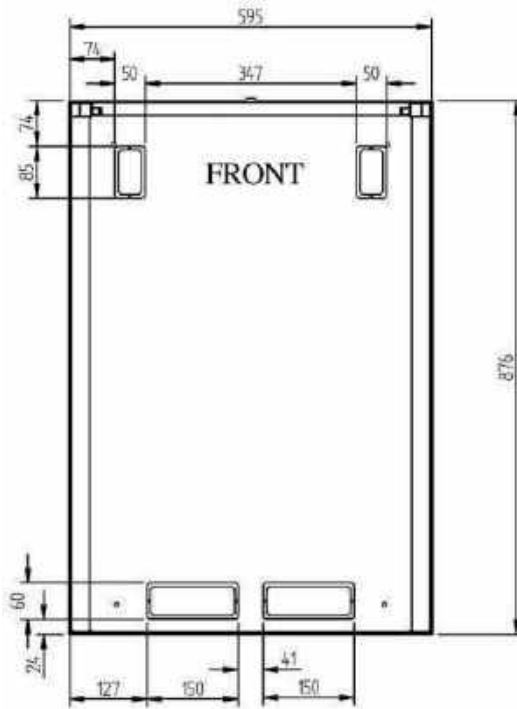


5.1.7 E-Series (External) E44

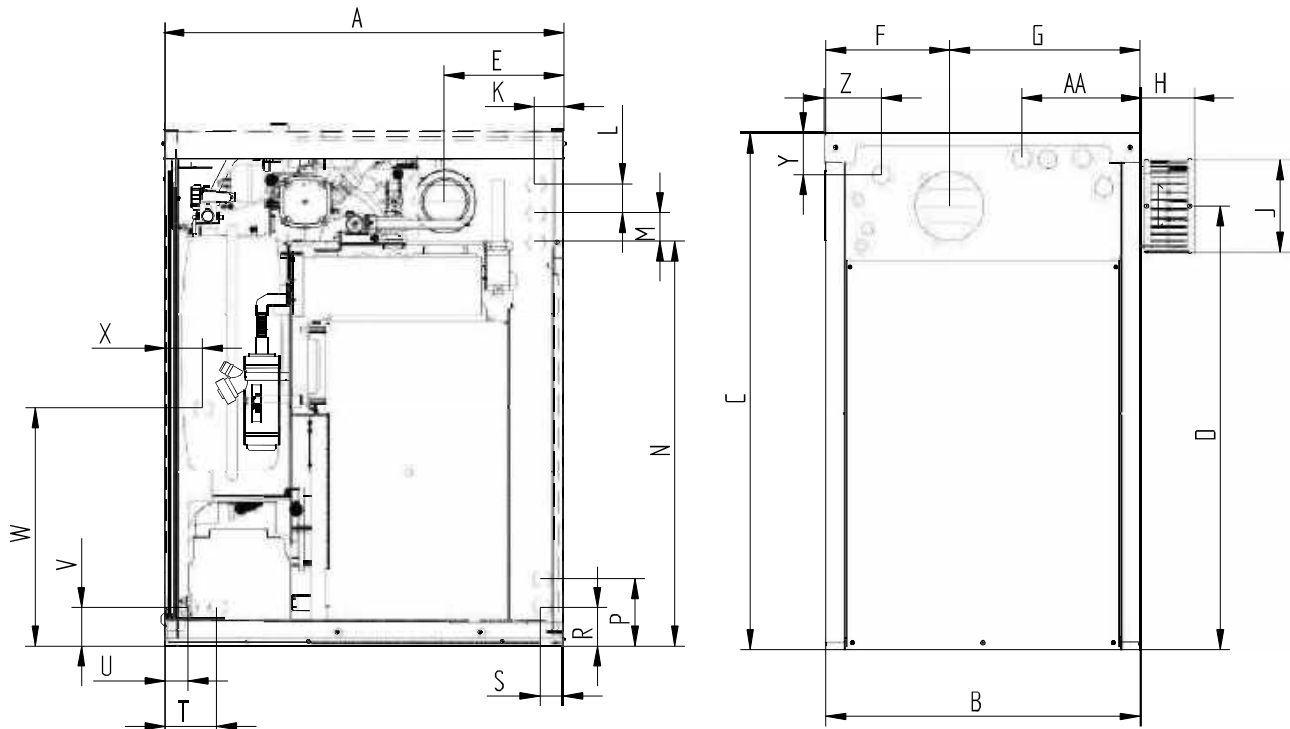


MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V
E44	595	997	876	1155	93	161	75	70	120	55	85	155	850	100	100	320	122	630	120
E44P	595	997	876	1155	93	161	75	70	120	55	85	155	850	100	100	320	122	630	120

5.1.8 E-Series (External) E44 Base Tray

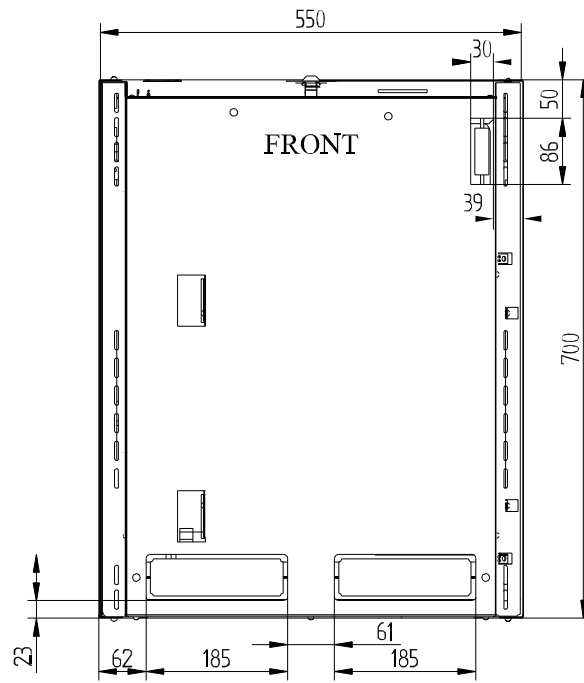


5.1.9 E-Series (External) Combination Boilers E21C, E26C & E33C



	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z	AA
E~C	700	550	900	770	210	217	333	93	161	52	50	50	705	117	67	40	90	40	67	415	65	73	100	209

5.1.10 E-Series (External) Combination Boiler Base Tray E21C, E26C & E33C

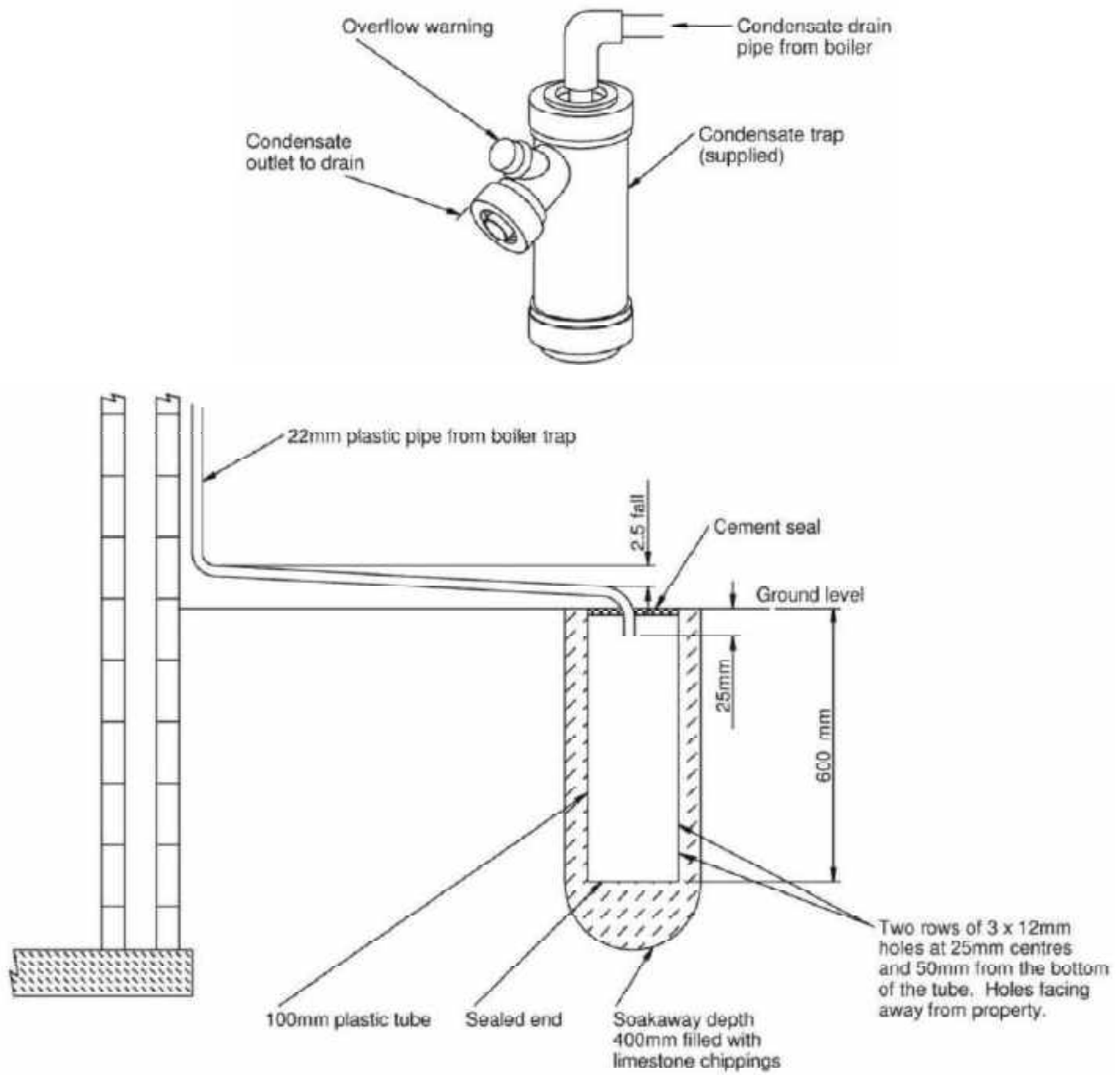


5.3 Condensate Disposal

The Warmflow high efficiency condensing boiler is supplied with a factory fitted, self-sealing condensate trap. The trap has been fitted inside the boiler casing to the right hand side.

The condensate drainage pipe within the boiler is a flexible plastic hose which can be trimmed to length. 3/4" or 22mm pipe should be connected to the flexible hose. The pipe should not be made from steel or copper. The drainage pipe may run into an internal waste pipe, an external gulley, hopper or soakaway as shown below.

The boiler, when fully condensing, will produce a maximum of 1.5 litres per hour of condensate. It is recommended that the drainage pipe should have a minimum fall of 1:20. This pipe must be protected from freezing either by insulating or using large diameter pipework in exposed locations.



6 ELECTRICITY SUPPLY & WIRING DETAILS

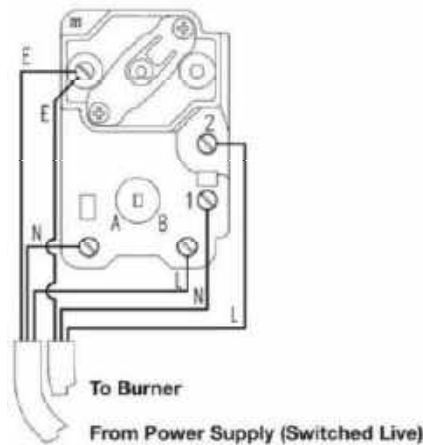
Note: All wiring activities described in the following sections should only be undertaken by trained persons having an appropriate level of competency/qualification.

220 – 240V, 1PH, 50Hz

The boiler/burner and other external electrical equipment should be wired with heat resistant cable via a fused double pole isolating switch which should be fitted with a 5 amp fuse.

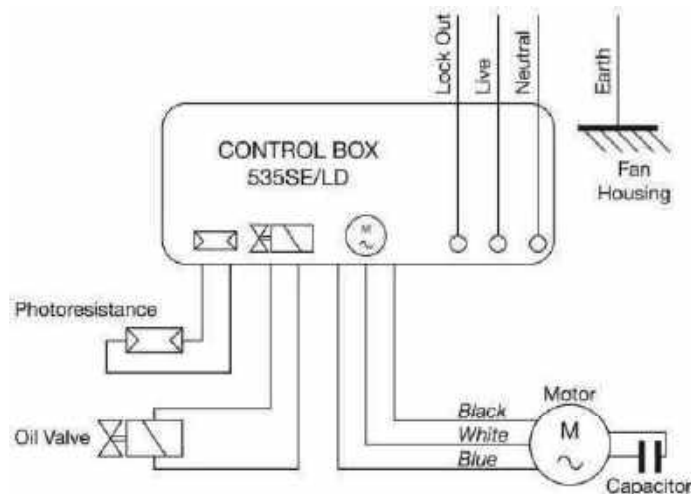
The appliance must be effectively earthed and all external wiring should comply with current IEE Regulations.

6.1 Dual-Safe Thermostat (Non-Combi Boilers)




Warning: Do not fit any other wires or loop wires to this thermostat as this will bypass this control and safety device.

6.2 RDB Burner Control Box



6.3 Internal / External Combination Boiler Wiring Details

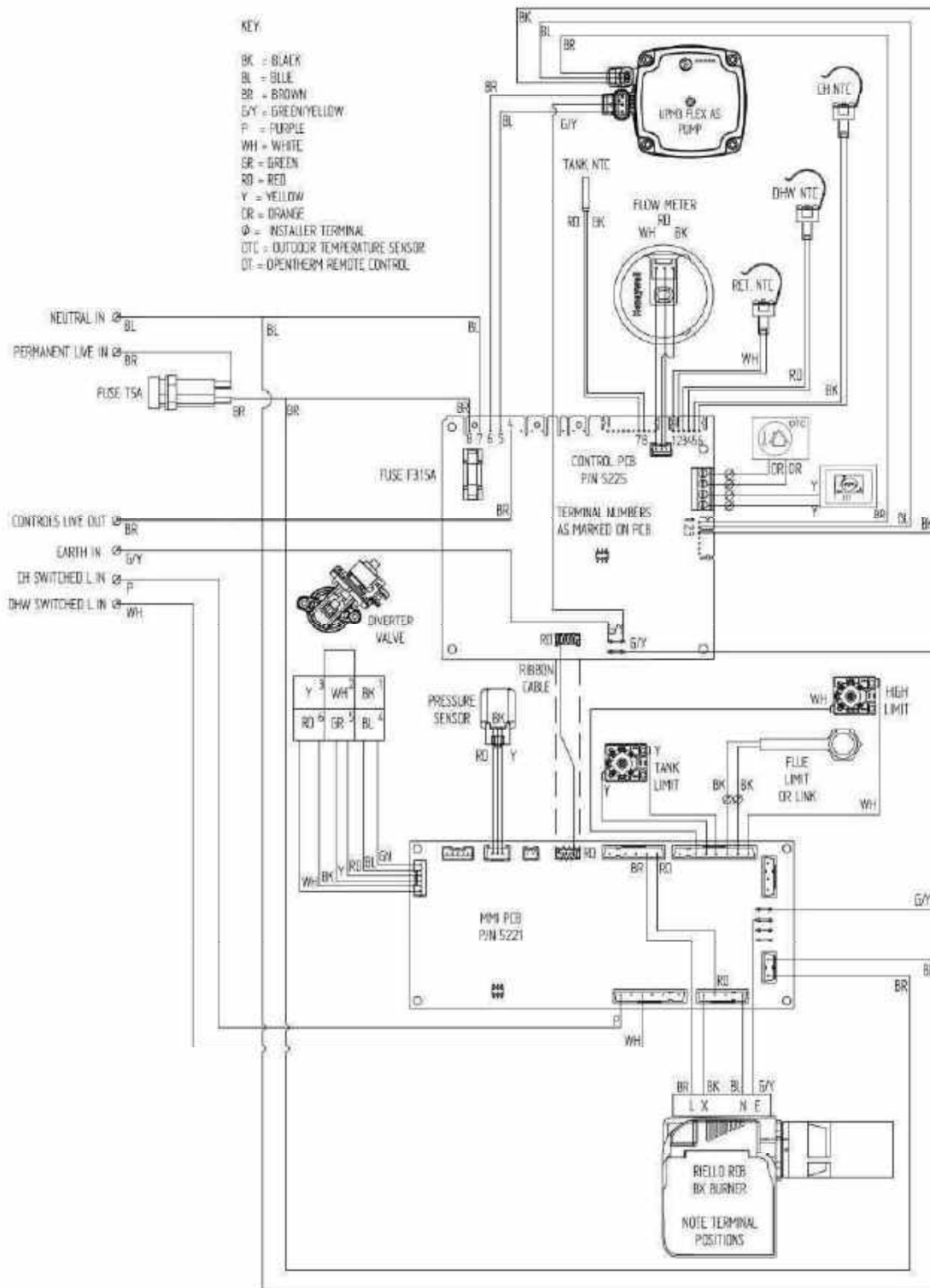
6.3.1 Installer Terminals

PANEL FUSE TBA 200VAC 5x20mm	PERMANENT IN L	EARTH 	NEUTRAL N	CONTROLS OUT L	CH SWITCHED IN L	DHW SWITCHED IN L	FLUE THERMOSTAT	FLUE THERMOSTAT	OUTDOOR SENSOR	OUTDOOR SENSOR	REMOTE CONTROL	REMOTE CONTROL
	MAINS VOLTAGE 230 VAC 50Hz								LOW VOLTAGE			

Terminal	Description
PERMANENT IN L	AC Live Supply to the appliance
EARTH	Protective Earth Supply to the appliance
NEUTRAL N	AC Neutral Supply to the appliance
CONTROLS OUT L	Fused output to AC Voltage Room Thermostat
CH SWITCHED IN L	Switched Live from AC Voltage Room Thermostat
DHW SWITCHED IN L	Switched Live from DHW Programmer (see note)
FLUE THERMOSTAT	AC Voltage connection for Flue thermostat
FLUE THERMOSTAT	
OUTDOOR SENSOR	Low Voltage connection for optional Outdoor Sensor
OUTDOOR SENSOR	
REMOTE CONTROL	Low Voltage connection for optional Remote Control
REMOTE CONTROL	

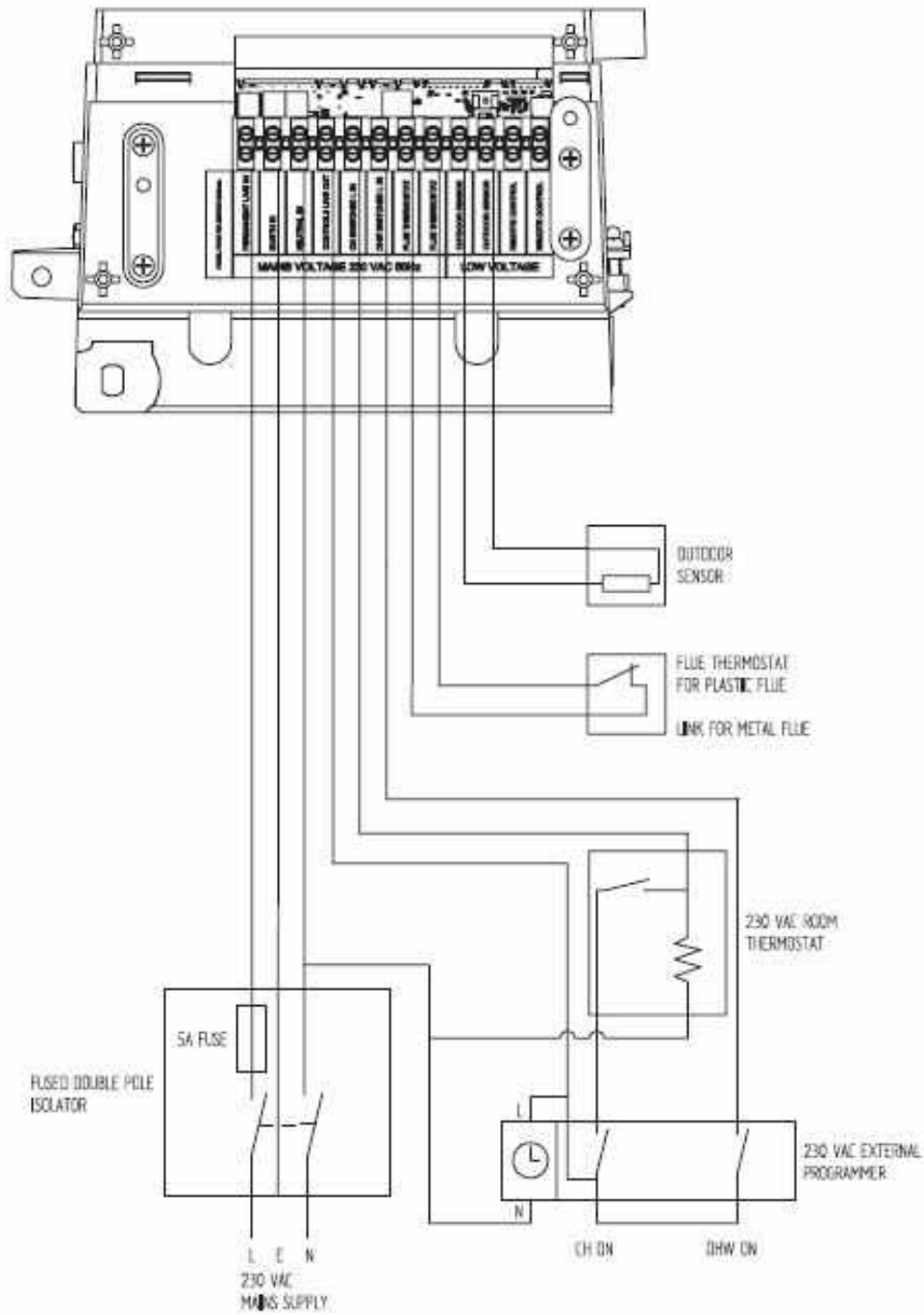
Note: If Internal DHW programmer is used, leave white link connected between CONTROLS OUT L & DHW SWITCHED IN L

6.3.2 Wiring Diagram & Fuses

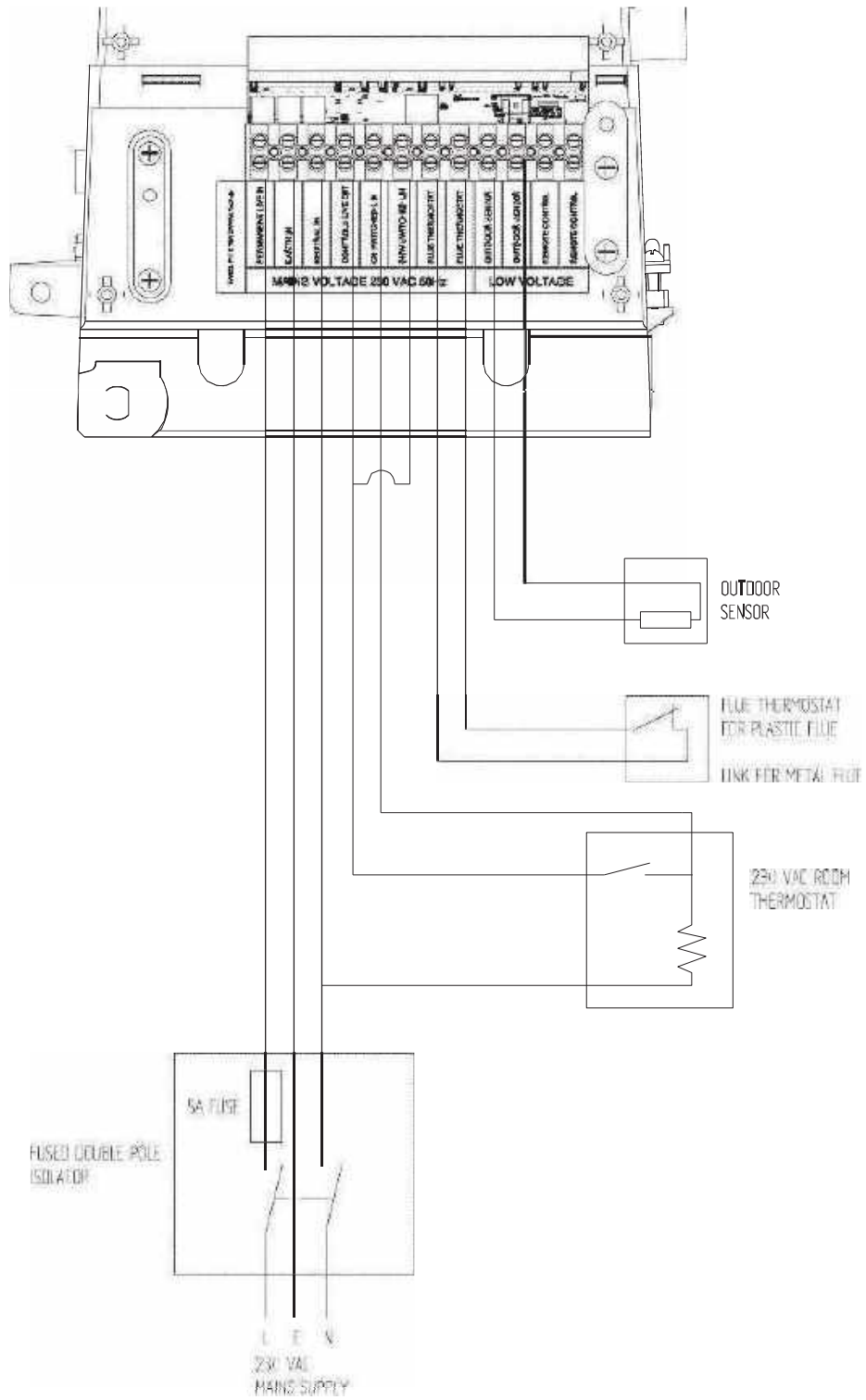


The appliance must have a permanent live supply connected to operate.

6.3.3 External 230V Two Channel Programmer, Room Thermostat & Optional Outdoor sensor

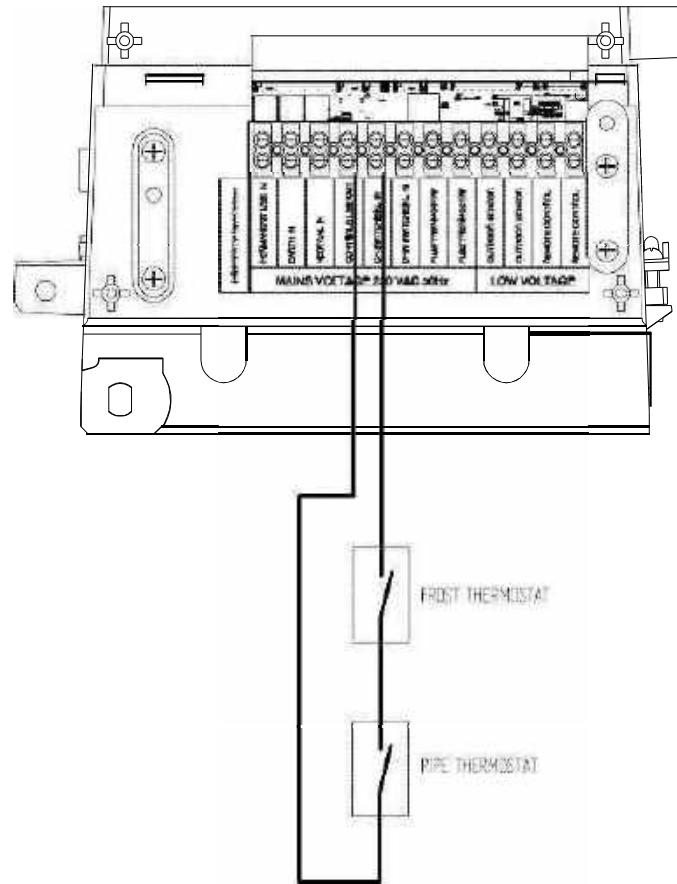


6.3.4 Internal Two Channel Programmer and Room Thermostat, Optional Outdoor Sensor



6.4 Building Frost Protection

6.4.1 Combination Boiler Models



In order to provide frost protection for the fabric of the building a frost thermostat should:

- be fitted in the coldest room in the house
- call for appropriate zone valves to open
- allow the boiler to operate irrespective of time clock condition

If the Internal Programmer is used, CH must be enabled, and Manual Override set to continuous, and the room thermostat set to a low setting.

To prevent over heating of the property a pipe thermostat should be fitted on the return pipe close to the boiler.

To protect the fabric of the appliance only, the Combination Boiler models are fitted with frost protection, see section 1.13.

6.4.2 All Other Boiler models

For all other boiler models building frost protection measures should be based upon a thermostat fitted in the coldest room in the house and a pipe thermostat fitted on the return pipe close to the boiler. These thermostats should call for heat and open appropriate zone valves, irrespective of time clock operation. Consult with your installer as installations will vary.

6.5 Combination Boiler Pump Overrun Function

The Combination Boiler has been fitted with a pump overrun function. In order for the function to operate, the boiler must be installed with a permanent live supply. Failure to do this will result in incorrect operation of the appliance, and nuisance high limit cut outs.

6.6 Using the built in programmer (Combination Boiler models)

The built in programmer can be used if this feature was enabled by the installer, consult with your installer for further information.

It has the following features:

Feature	CH	DHW
Day Programming	7 days	7 days
Time Slots	4 per day	4 per day
Boost	1,2,3 hours	1,2,3 hours
Advance	Yes	Yes
Continuous	Yes	Yes
Temperature Profiles	N/A	DHW Setpoint 1 & Setpoint 2
Day Copy	Yes	Yes




The programmer is supplied with the following factory default settings:

Slot	CH		DHW		DHW Setpoint
	ON	OFF	ON	OFF	
1	06:30	08:30	06:30	08:30	1
2	--:--	--:--	--:--	--:--	1
3	--:--	--:--	--:--	--:--	1
4	16:30	22:30	16:30	22:30	1

For maximum DHW efficiency, use a lower Setpoint for DHW setpoint 2 if possible, and use OFF periods in the DHW programming to suit user requirements.



6.6.1 Programming CH Time Slots





1. From the Home Screen, press the Time Programming button (4) for 3 seconds.
2. The LCD will display 'tinE' representing Time. Note: This menu can only be accessed if the internal time programmer is enabled for CH. See sections 11.7.1 and 11.7.2 for enabling the programmer.
3. Press the DHW+ button (1) to select CH Time Programming, the radiator icon  will flash when selected.
4. Press the Mode button (3) for 1 second to enter the CH Time Programming Menu.
5. The word **Day** will flash. Use the DHW+ button (1) or DHW- button (2) to select the day to be modified.
6. Press the Mode button (3) for 1 second to modify the Time Slots for the selected day, the day number  (1-7) will flash.
7. Press the DHW+ button (1) or DHW- button (2) to select the Time Slot to be modified, indicated by the Time Slot Identifier on the left side of the LCD . There are 4 time slots represented by the 4 blocks of the Time Slot Identifier.
8. To modify the displayed Time Slot, Press the Time Programming button (4) for 1 second, the time to be modified will flash. The on time is shown in the main digits **ON** with 'ON' to the left of the time. The off time is shown in the axillary digits **OFF** with 'OFF' to the left of the time.
9. Change the time as required using the DHW+ button (1) or DHW- button (2).
10. Confirm the setting and move to the next time to be modified by pressing the Time Programming button (4).
11. When finished programming the off time, confirm the setting by pressing the Time Programming button (4) which will return the LCD to step 7 allowing another time slot to be selected. To select a different day for programming, return to step 5 by pressing the Mode button (3) for 1 second. Repeat the steps as required to modify the Time Slot ON and OFF time settings. The settings are saved and the LCD returns to the Home Screen when no button presses are detected for a short period of time.
12. It is possible to copy settings from one day to another, see Section 6.6.3.

To disable a time Slot, set the ON and OFF times to the same value, '----' will be displayed as the time setting once the off time is confirmed with the Time Programming button (4).

13.

6.6.2 Programming DHW Time Slots





1. From the Home Screen, press the Time Programming button (4) for 3 seconds.
2. The LCD will display 'tinE' representing Time. Note: This menu can only be accessed if the internal time programmer is enabled for DHW. See sections 11.7.1 and 11.7.2 for enabling the programmer.
3. Press the DHW+ button (1) to select DHW Time Programming, the tap icon  will flash when selected.
4. Press the Mode button (3) for 1 second to enter the DHW Time Programming Menu.
5. The word **Day** will flash. Use the DHW+ button (1) or DHW- button (2) to select the day to be modified.
6. Press the Mode button (3) for 1 second to modify the Time Slots for the selected day, the day number **3** (1-7) will flash.
7. Press the DHW+ button (1) or DHW- button (2) to select the Time Slot to be modified, indicated by the Time Slot Identifier on the left side of the LCD . There are 4 time slots represented by the 4 blocks of the Time Slot Identifier.
8. Press the CH+ button (7) or CH- button (6) to select the required DHW Temperature Setpoint:
 - a. DHW Setpoint 1 = Upper Bar 
 - b. DHW Setpoint 2 = Lower Bar 
9. To modify the displayed Time Slot, Press the Time Programming button (4) for 1 second, the time to be modified will flash. The on time is shown in the main digits **ON** with 'ON' to the left of the time. The off time is shown in the axillary digits **OFF** with 'OFF' to the left of the time.
10. Change the time as required using the DHW+ button (1) or DHW- button (2).

11. Confirm the setting and move to the next time to be modified by pressing the Time Programming button (4).
12. When finished programming the off time, confirm the setting by pressing the Time Programming button (4) which will return the LCD to step 7 allowing another time slot to be selected. To select a different day for programming, return to step 5 by pressing the Mode button (3) for 1 second.
13. Repeat the steps as required to modify the Time Slot ON and OFF time settings. The settings are saved and the LCD returns to the Home Screen when no button presses are detected for a short period of time.
14. It is possible to copy settings from one day to another, see Section 6.6.3.


To disable a time Slot, set the ON and OFF times to the same value, '----' will be displayed as the time setting once the off time is confirmed with the Time Programming button (4).

6.6.3 Day Copy

It is possible to copy either CH or DHW settings from one specific day to another day.

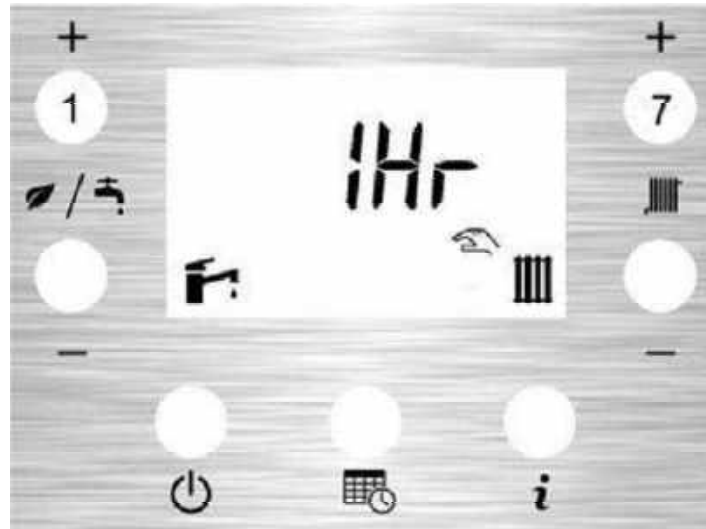
1. From the Home Screen, Press the Time Programming button (4) for 3 seconds
2. The LCD will display 'tinE' representing Time. Note: This menu can only be accessed if the internal time programmer is enabled for CH or DHW. See sections 11.7.1 and 11.7.2 for enabling the programmer.
3. Press the DHW+ button (1) to select either DHW or CH Time Programming, the radiator icon  or tap icon  will flash when selected.
4. Press the mode button (3) for 1 second to enter the required Time Programming Menu.
5. The word **Day** will flash. Use the DHW+ button (1) or DHW- button (2) to select the day to be copied.
6. Press the DHW+ button (2) and Mode button (3) simultaneously for 3 seconds, the LCD will display 'COPY SrC', the settings are copied into a temporary buffer.
7. Press the Mode button (3) for 1 second to return to the day selector.
8. Press the DHW+ button (1) or DHW- button (2) to select the required destination day.
9. Press the DHW- button (1) and Mode button (3) simultaneously for 3 seconds, the LCD shows 'COPY dSt', the settings are copied to the destination day. It is possible to paste the settings to multiple days as required by repeating these steps. The settings are saved and the LCD returns to the Home Screen when no button presses are detected for a short period of time.

6.6.4 Manual Overrides

It is possible to manually override the Time Slots if required. When a manual override is active, the hand symbol icon  is displayed on the LCD when either CH manual overrides, DHW overrides or both are enabled.

6.6.5 Boost Mode

Boost is a temporary override of either CH or DHW request for 1,2 or 3 hours, independent of Time Programming slots.



To Boost CH, press the CH+ button (7) for 3 seconds and then rapidly press the CH+ button (7) to select '1Hr, 2Hr, 3Hr' as required to select the Boost Time.

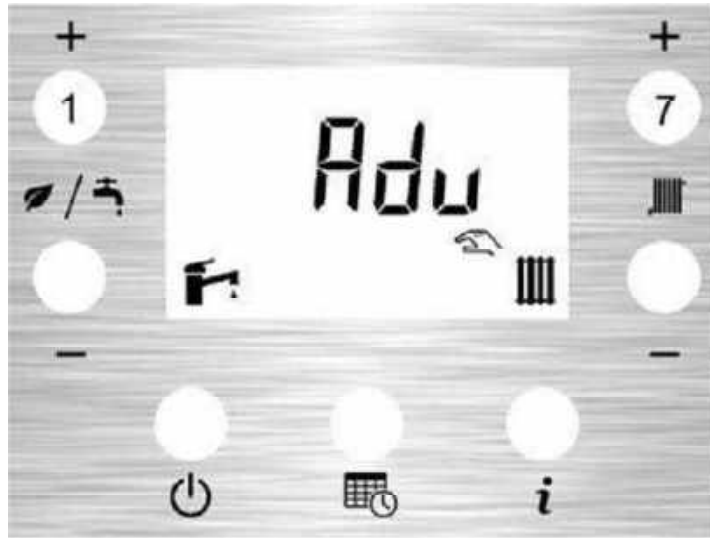
To Boost DHW, press the DHW+ button (1) for 3 seconds and then rapidly press the DHW+ button (1) to select '1Hr, 2Hr, 3Hr' as required to select the Boost Time.

For DHW Boost, Setpoint 1 is used during this function.

The Function starts when no buttons are pressed for 5 seconds.

6.6.6 Advance Mode

Advance is a temporary override, setting the DHW or CH function OFF if it was ON, and ON if it was OFF until the next Time Slot.



To Advance CH, press the CH+ button (7) for 3 seconds and then rapidly press the CH+ button (7) to select 'Adv'.

To Advance DHW, press DHW+ button (1) for 3 seconds and then rapidly press the DHW+ button (1) to select 'Adv'.

The Function starts when no buttons are pressed for 5 seconds.

6.6.7 Continuous Mode

Continuous is a permanent override, setting the DHW or CH function ON until the override is switched off by the user.



To activate Continuous CH, press CH+ button (7) for 3 seconds and then rapidly press to select 'Cont'.

To activate Continuous DHW, press DHW+ button (1) for 3 seconds and then rapidly press the DHW+ button (1) to select 'Cont'.

The Function starts when no buttons are pressed for 5 seconds.



6.6.8 Cancelling Manual Overrides

To cancel an active manual override and return to Time Slot automatic mode:

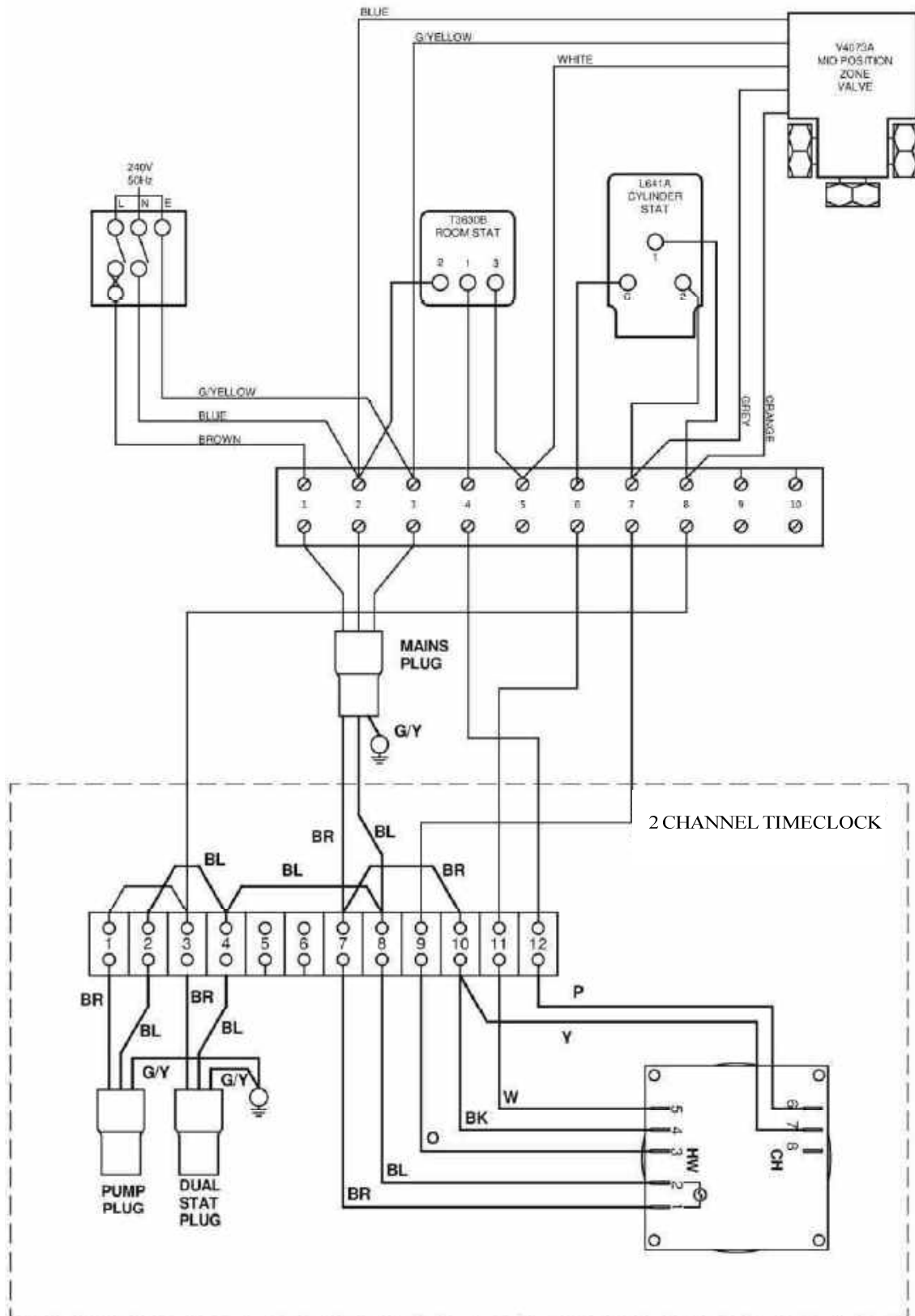


To activate Auto CH, press CH+ button (7) for 3 seconds, then rapidly press to select 'Auto'

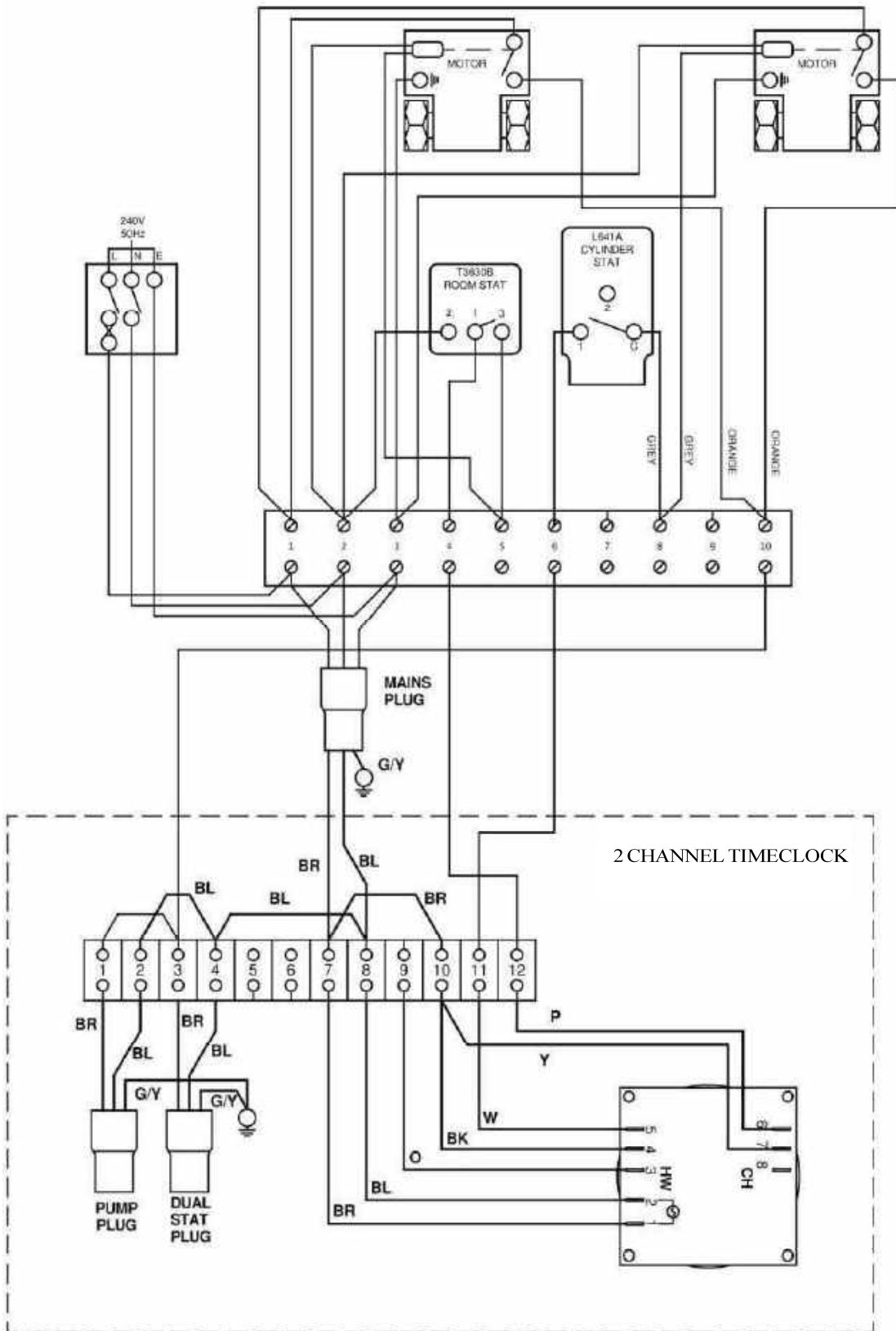
To activate Auto DHW, press DHW+ button (1) for 3 seconds, then rapidly press to select 'Auto' The Function starts when no buttons are pressed for 5 seconds.

When a manual override is active, the hand symbol icon  is displayed on the LCD when either CH manual overrides, DHW overrides or both are enabled. When manual overrides are cancelled, the hand symbol icon  will disappear from the LCD display.

6.6.9 Honeywell 'Y' Plan – Independent CH & DHW (Fully Pumped Only)



6.6.10 Honeywell 'S' Plan – Independent CH & DHW (Fully Pumped Only)



7 OIL SUPPLY

7.1 General

The oil supply system to the boiler may be of single pipe, two pipe or a suction oil supply configuration with deaerator as appropriate to the installation situation.

The oil supply system installed must be constructed to allow the proper service and maintenance of the oil supply system and its components including any isolation valve(s), oil filter or water separator fitted.

For UK The use of plastic oil storage tanks, with or without top outlet is recommended. Where steel tanks are used these must be constructed in accordance with BS799: Part 5 and must be protected against corrosion. Oil should never be stored in translucent plastic containers.

For NZ The pipework from the oil tank to the appliance should be run in plastic-coated annealed copper. Or sleeved annealed copper. Plastics and Galvanised pipe and fittings must not be used. Aluminium storage tanks are not recommended

Pipework with an inferior degree of fire resistance to those constructed of copper, such as braided flexible oil lines, must be contained within the boiler enclosure and be protected by an appropriate remote acting fire valve; the fire valve itself should be located outside the boiler enclosure. Note too that in externally located boiler appliances, flexible oil lines may also be subject to accelerated deterioration if permitted to extend outside of the boiler enclosure where they may be exposed to the elements and/or accidental damage, and for this reason also must be completely contained within the boiler enclosure.

The oil supply system must include at least one appropriate filter with a filtration rate of not greater than that specified by the burner manufacturer. See the related burner information.

Equipment failures due to water and other sources of fuel contamination are not covered under warranty.

The pump vacuum should not exceed a maximum of 0.4 bar. Above this value, gas is released from the oil thus leading to burner lockout.

The Warmflow Professional models of the Agentis boiler are supplied with an oil supply kit which provides a number of the principal components and fittings for oil supply installation. Note that in some installation situations additional components and fittings may be required.

7.1 Instructions for the use of Bio Fuel

NZ Diesel can contain a Biofuel Percentage this is within the acceptable parameters and therefore no special requirements are in place.

Other than the requirement to **use only bio suitable flexible hoses in the fuel line**

To avoid misinterpretation the remainder of this Section is Omitted for NZ

7.2 Fuel Additives

The use of fuel additives is not permitted without prior approval from Warmflow, use of additives may render the appliance Warranty void.

8 FLUES

8.1 Flue Options, Components & Dimensions

The use of any flue system other than that supplied or recommended by the manufacturer will invalidate the warranty.

The following flue options are available from

Warmflow: FBF Low Level Balanced Flue Kit
HBF High Level Balanced Flue Kit
VBF Vertical Balanced Flue Kit
*HFL Horizontal Entry Flue Liner
*Kit VFL Vertical Entry Flue Liner Kit
UPMK Utility/Internal Plume Management Kit
KPMK External Plume Management Kit

*Option Not applicable in NZ

8.1.1 Conventional Flue Guidelines

The flue system should be designed in accordance with local bye-laws and the local Building Regulations. Draught stabilisers are not recommended for oil fired boilers. Sharp bends or horizontal runs should be avoided and for a roof exit flue the flue should terminate 2 feet (600mm) above the ridge of the dwelling. Terminals which restrict the discharge or allow ingress of water should be avoided.

UK only When connecting to an existing masonry chimney, a Warmflow HFL or VFL flexible flue liner suitable for use with oil fired condensing boilers and of an appropriate diameter must be used. The annular space must be filled with non- combustible insulation and sealed top and bottom.

Only Warmflow flue systems designed specifically for use with oil-fired condensing boilers may be used.

8.1.2

Condensing Boiler Flue Kits

FIRE SAFETY

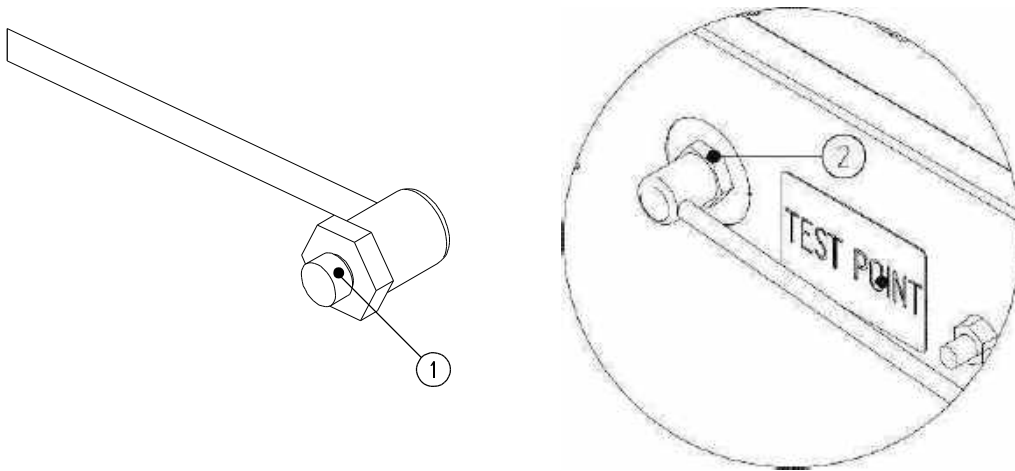
As with a metal flue system, where a plastic flue system is used within a building which is 'compartmentalised' as defined by the Building Regulations, care must be taken to ensure that the installation of the flue does not contravene the Regulations and create a safety risk.

In particular, where the flue passes through a 'compartment floor' or 'compartment wall' as defined by the Building Regulations it must be enclosed so as to create a 'protected shaft' as defined by the Regulations. Consult your local Building Control department for detailed guidance.

In regard to the above, the use of a plastic flue system is no different from that of a metal flue system. If in doubt, consult your local Building Control department.

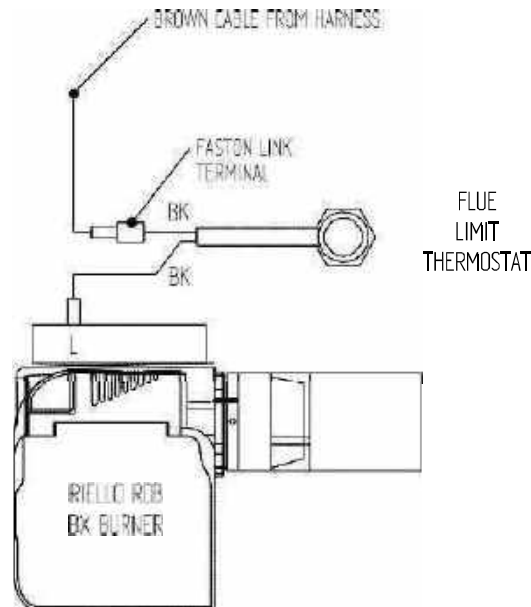
8.1.3 Fitting the Flue Thermostat

1. Remove the test point bolt from the boiler. Apply PTFE tape to the flue thermostat threads (1) then screw it into the test point (2). Tighten by hand only.



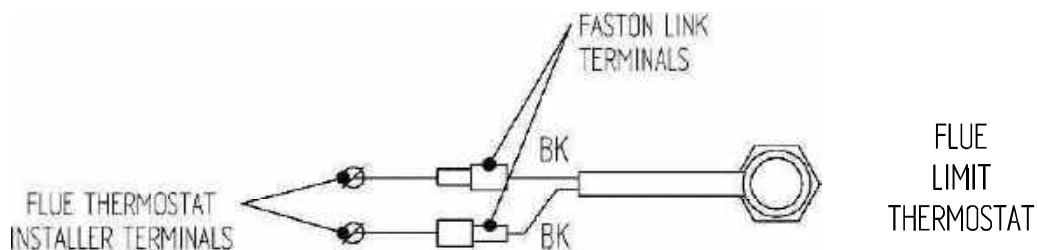
CONNECT FLUE THERMOSTAT – NON COMBINATION BOILER MODELS

2. Remove the red burner cover. Isolate the electrical supply then open the burner control box cover. Disconnect the live (brown) wire of the burner power cable and connect it to the Faston link terminal of the flue thermostat cable.
3. Connect the other connector of the flue thermostat cable to the live terminal of the control box. Close and secure the cover, ensuring no cables are trapped and route the cable through an unused location.



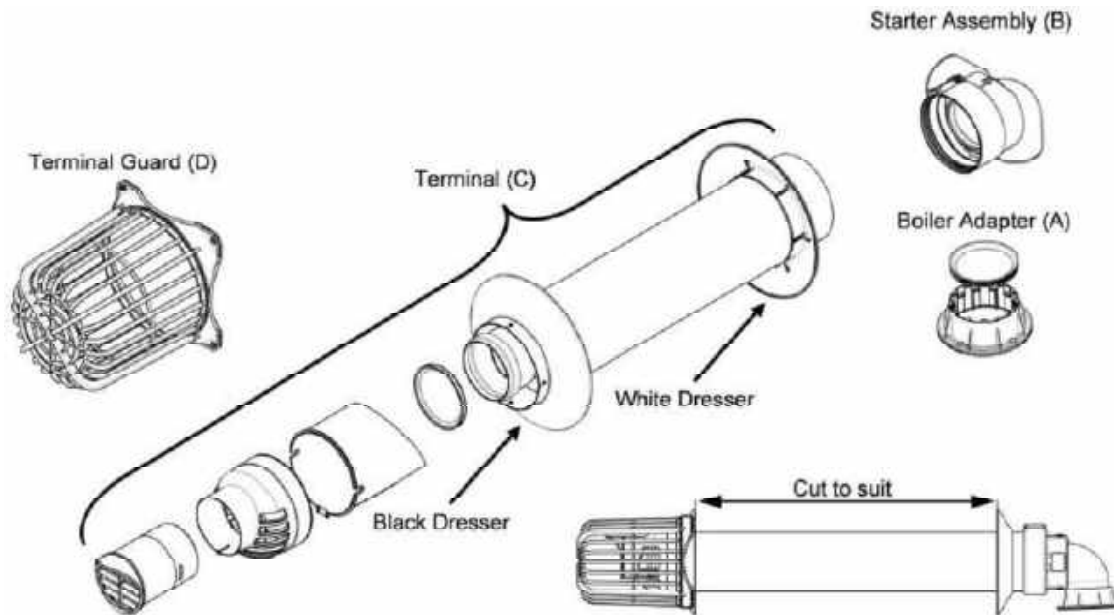
CONNECT THERMOSTAT – COMBINATION BOILER MODELS

2. Isolate the electrical supply then remove the control panel installer cover. Disconnect the Faston link terminals for the flue thermostat, then connect them to the Faston terminals of the flue thermostat cable.
3. Secure the cable using the supplied cable clamp. Refit and secure the control panel installer cover, ensuring no cables are trapped and route the cable through an unused location.



Low Level Balanced Flue Kit (FBF)

The kit comprises:

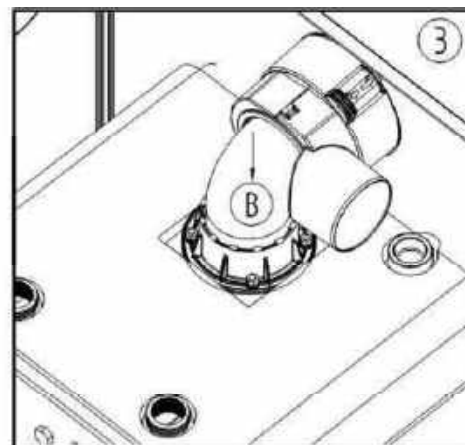
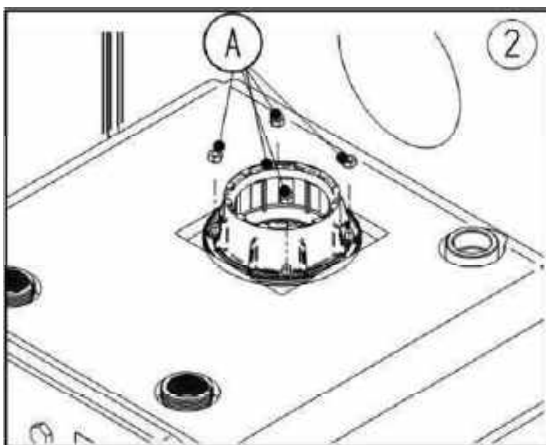


FIT FLUE THERMOSTAT

1. Fit the flue thermostat **BEFORE** fitting the flue kit. Refer to section 8.1.3.

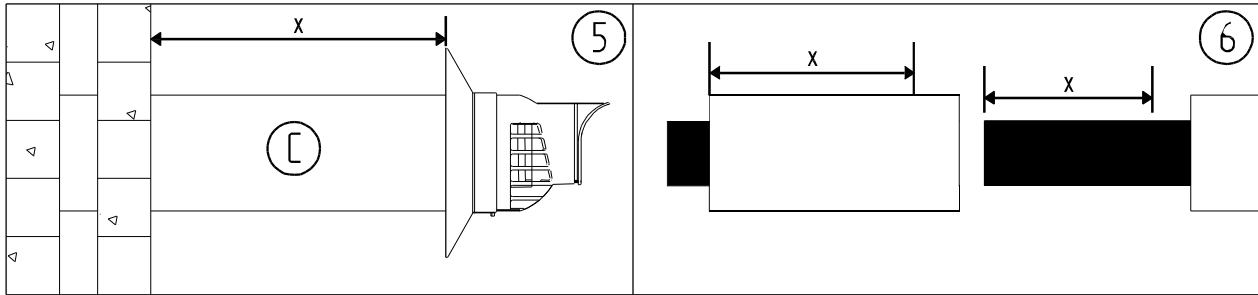
FIT STARTER PIECE

2. Remove the appropriate casing panel cut-out using snips, deburr edges. Ensure the gasket is placed correctly, then fit the boiler adapter, and secure with 4x M6 nuts (A).
3. Lubricate the seals then insert the starter assembly (B).



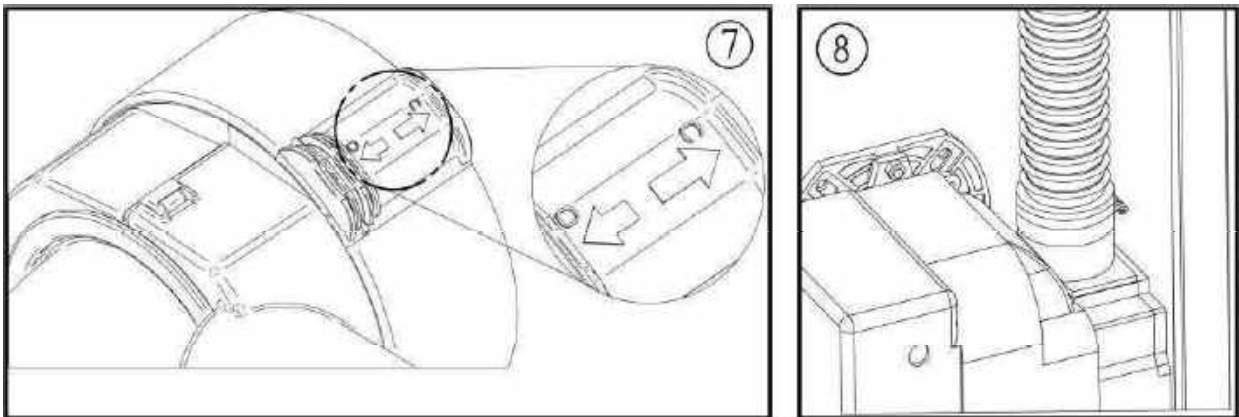
MEASURE AND CUT FLUE TERMINAL

4. Cut a hole through the wall and fit a non-combustible sleeve.
5. Ensure the locking band is open by sliding the clamp to the O (Open) position, lubricate then fit the flue terminal (C) and measure the excess length, X.
6. Remove the terminal, cut X mm from the outer pipe of the terminal then X mm from the inner pipe.



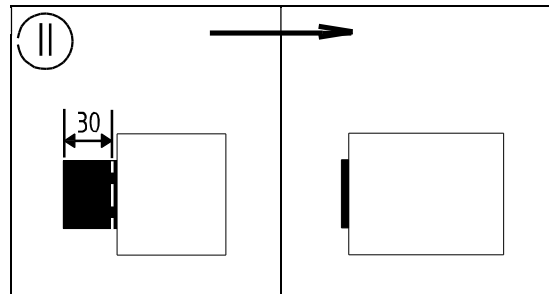
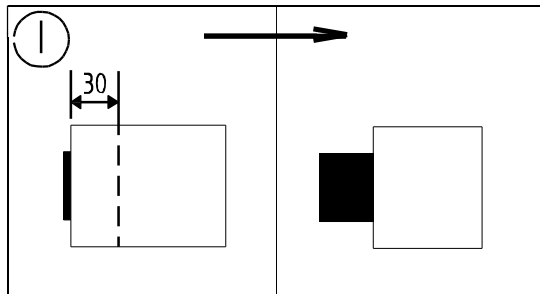
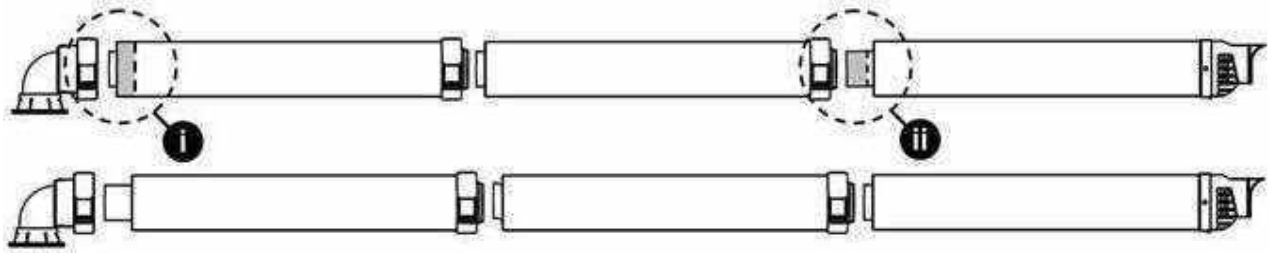
CONNECT TERMINAL AND AIR HOSE

7. Lubricate and refit the terminal ensuring correct orientation, then secure with the locking band. Close the locking band, then slide the clamp to the C (Closed) position, ensuring the flue is secure.
8. Fit the air inlet spigot and gasket to the burner. Attach the flexible air hose to the burner and starter assembly and secure with the jubilee clips.
9. Fit the terminal guard (D) securing in place with suitable fasteners (not supplied).



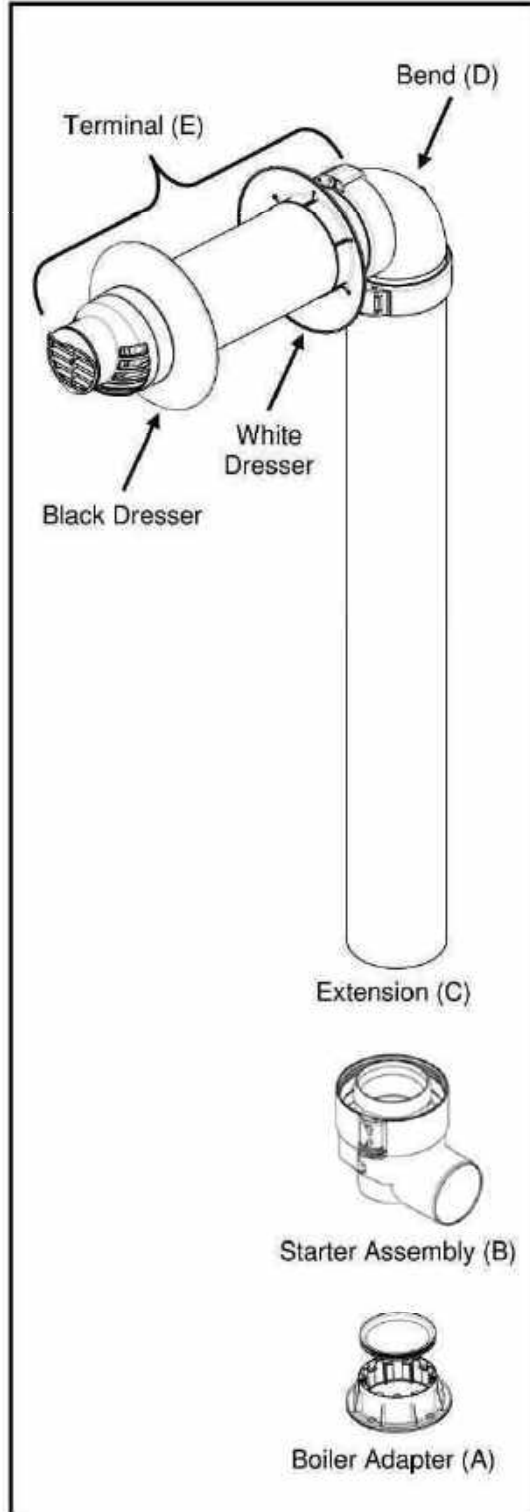
ONLY IF EXTENDING HORIZONTALLY

- i. Cut 30 mm from the outer pipe of the 1st extension only.
- ii. Cut 30 mm from the inner pipe of the flue terminal.



8.1.4 High Level Balanced Flue Kit (HBF)

The kit comprises:



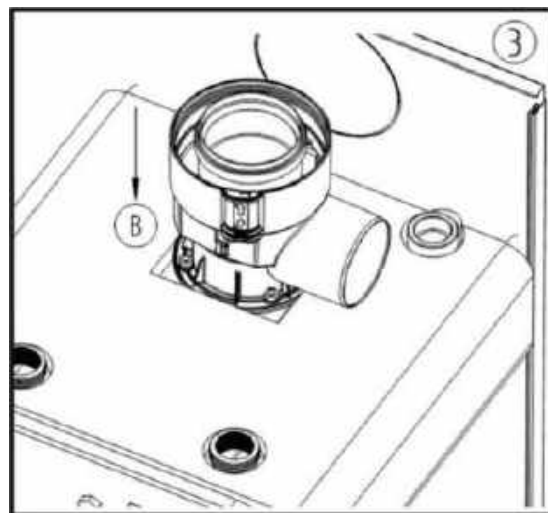
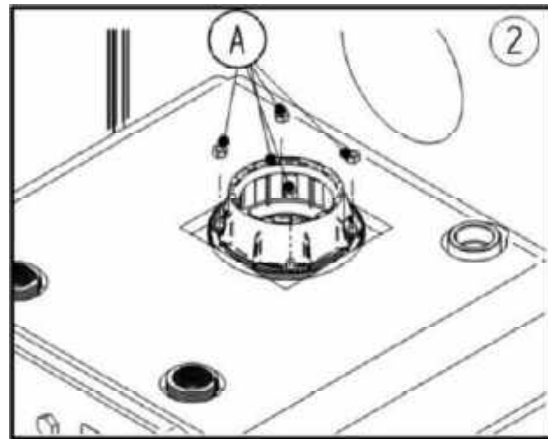
FIT FLUE THERMOSTAT

1. Fit the flue thermostat **BEFORE** fitting the flue kit.

FIT STARTER PIECE

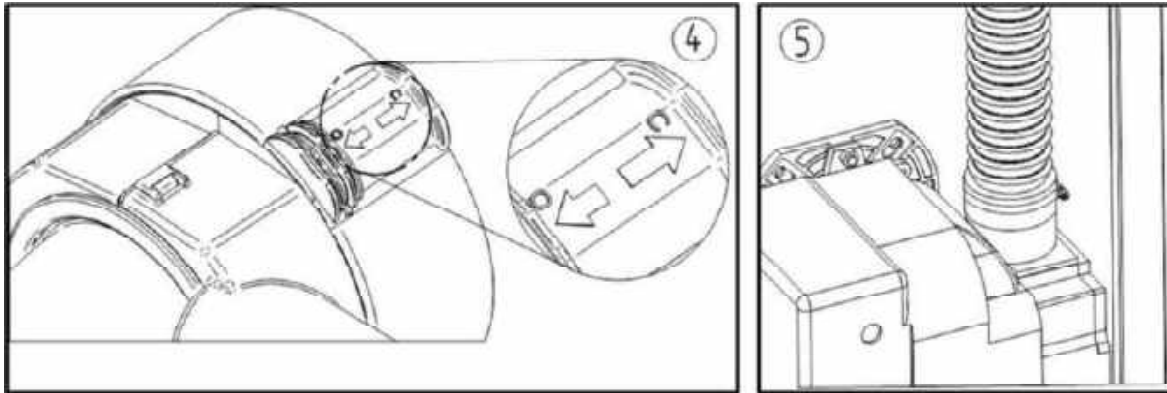
2. Remove the appropriate casing panel cut-out using snips, deburr edges. Ensure the gasket is placed correctly, then fit the boiler adapter, and secure with 4x M6 nuts (A).

3. Lubricate the seals, then insert the starter assembly (B).



4. Ensure the locking band is open by sliding the clamp to the O (Open) position. Lubricate and fit the first extension (C) and bend (D) as required by the installation. Close the locking bands, then slide the clamps to the C (Closed) position, ensuring the flue is secure

5. Fit the air inlet spigot and gasket to the burner. Attach the flexible air hose to the burner and starter assembly and secure with the jubilee clips (E) at both ends.

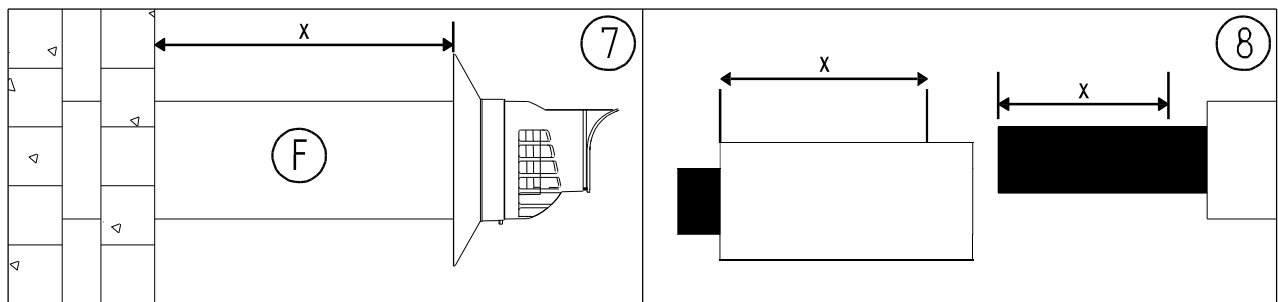


MEASURE AND CUT FLUE TERMINAL

6. Cut a hole through the wall and fit a non-combustible sleeve.

7. Fit the flue terminal (F) and measure the excess length, X.

8. Cut X mm from the outer pipe of the terminal then X mm from the inner pipe.

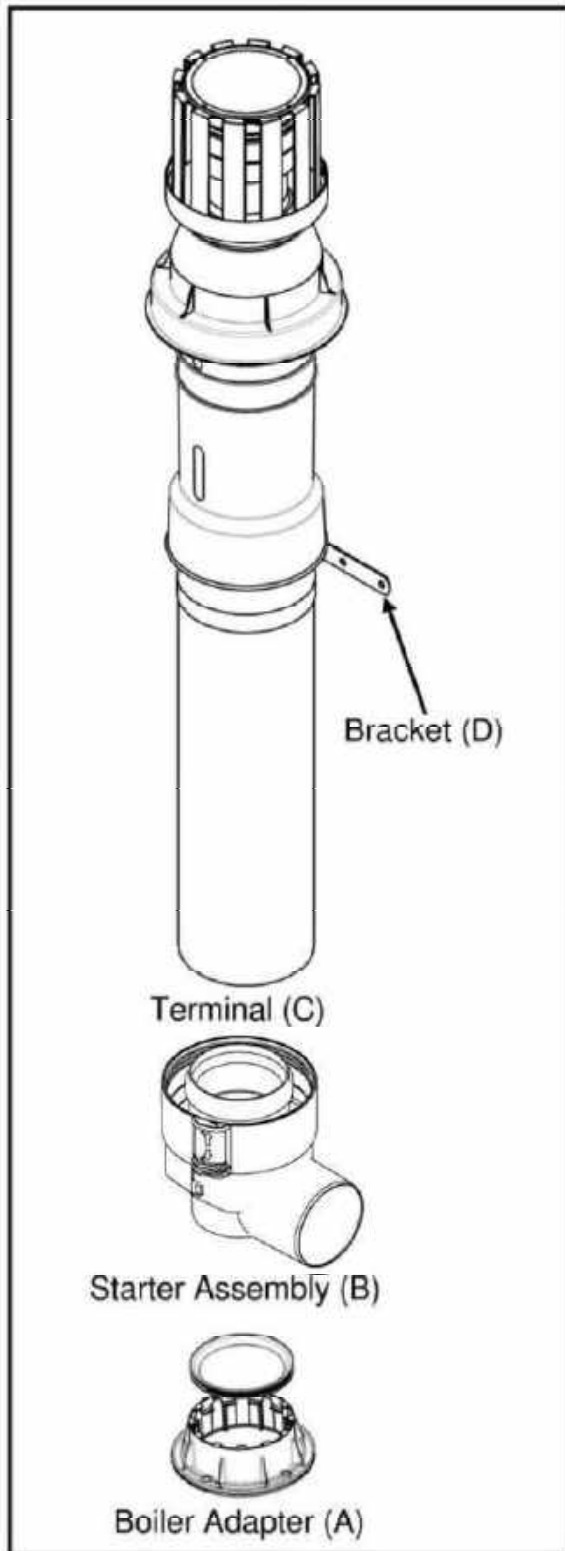


9. Ensure the locking band is open by sliding the clamp to the O (Open) position. Lubricate and refit the terminal. Close the locking band, then slide the clamp to the C (Closed) position, ensuring the flue is secure.

Note: A terminal guard is required if the termination location is less than 2m above external ground level.

8.1.5 Vertical Balanced Flue Kit (VBF)

The kit comprises:

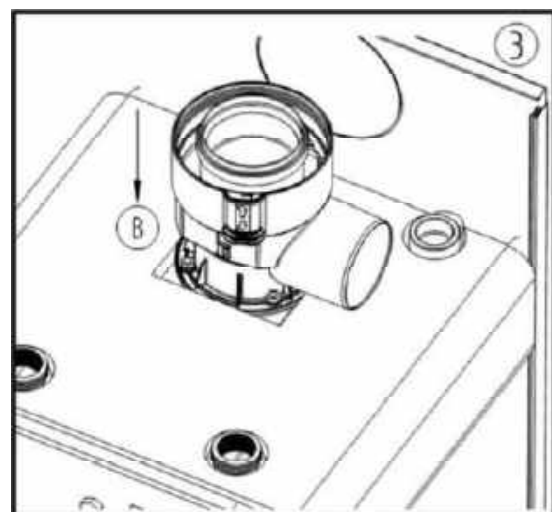
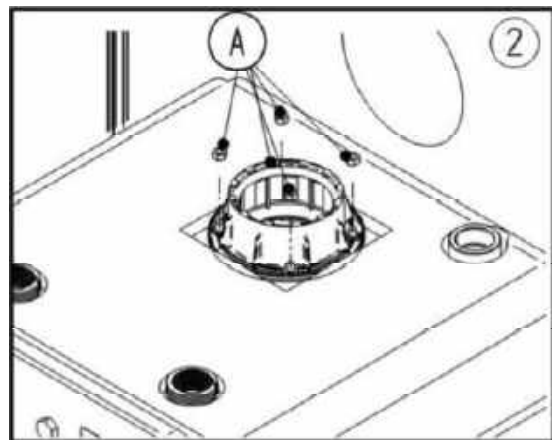


FIT FLUE THERMOSTAT

1. Fit the flue thermostat BEFORE fitting the flue kit.

FIT STARTER PIECE

2. Remove the top panel casing cut-out using snips. Fit the boiler adapter (A).
3. Lubricate the seals, then insert the starter assembly (B).



8.1.7 Flue Length Calculation

BOILER OUTPUT (kW)	TOTAL EQUIVALENT FLUE LENGTH (m)	
	Vertical Balanced Flue	High/Low Level Balanced Flue
15	8.0	5.0
21	8.0	5.0
28	8.0	5.0
30	6.0	3.5
33	4.0	2.5
44	4.0	2.5

Note:

1. All flues can utilise any combination of bends, straights, adapters and terminals.
2. Ensure flue is arranged such that it falls continuously towards the boiler.
3. The Low Level, High Level and Vertical Balanced Flue Systems can use any combination of flue extension pieces up to the maximum equivalent length depending upon boiler output as illustrated in the above table.

Example Calculation:

Boiler Output: 20kW

Length of Flue (distance from boiler to terminal): 8.0m

Example 1: No bends fitted.

Length of vertical flue	8.0m
<u>No bends</u>	<u>0.0m</u>
Equivalent length	8.0m

Equivalent length within the maximum allowable.

INSTALLATION ACCEPTABLE.

Example 2: 2 x 45° bends fitted.

Length of vertical flue	8.0m
<u>2 x 45° bends</u>	<u>1.0m</u>
Equivalent length	9.0m

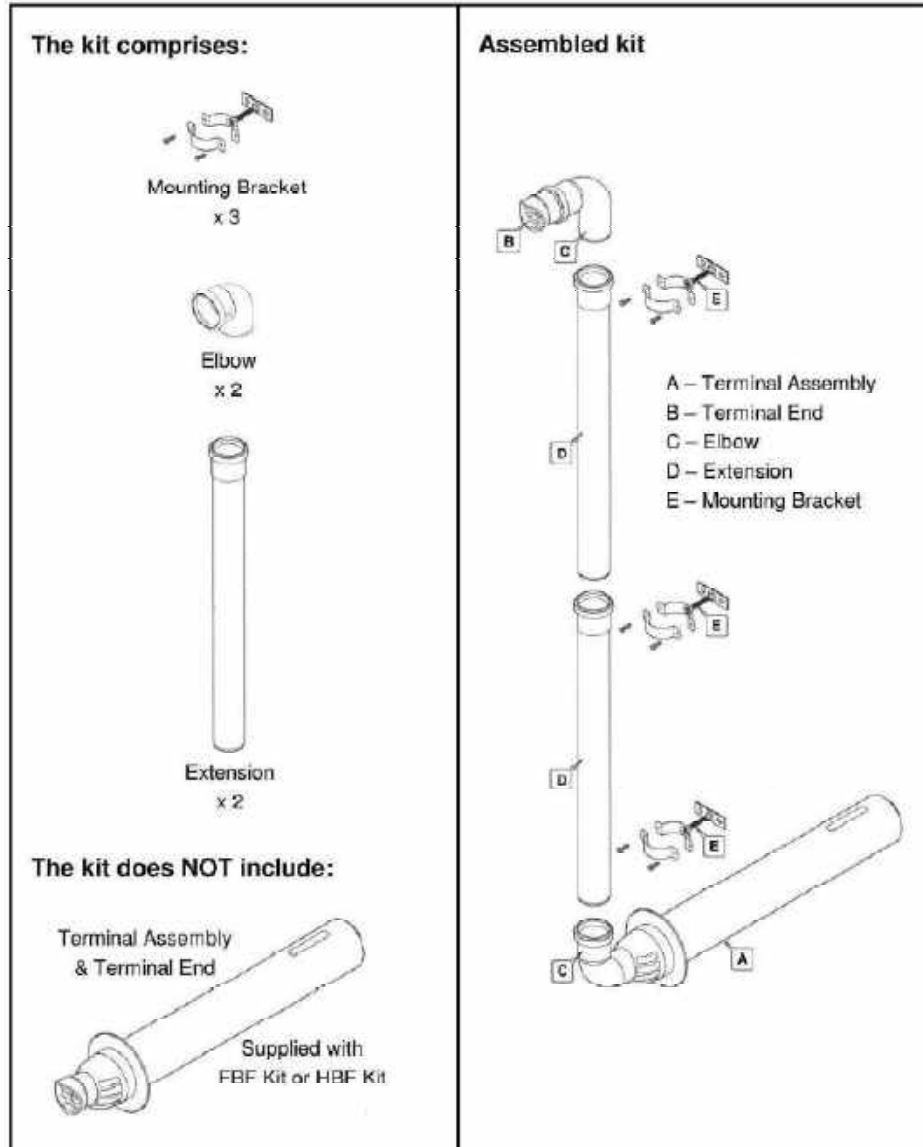
Equivalent length now exceeds the maximum allowable.

INSTALLATION NOT ACCEPTABLE.

8.1.8 Plume Management Kits

Plume Management Kits are available for our range of appliances.

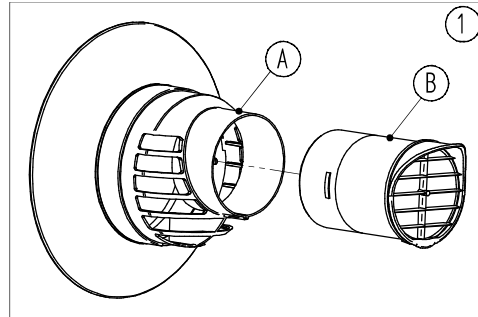
8.1.9 Utility/Internal Plume Management Kit (UPMK)



REMOVE TERMINAL END

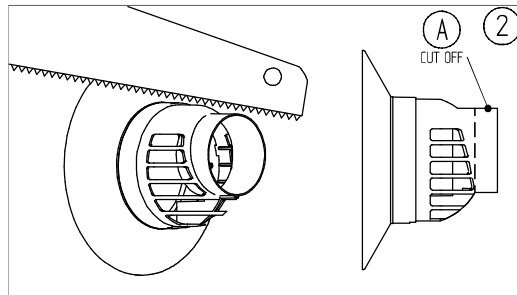
REMOVE TERMINAL END

1. Hold the Terminal Assembly (A) in place and extract the Terminal End (B) by gripping and pulling firmly.



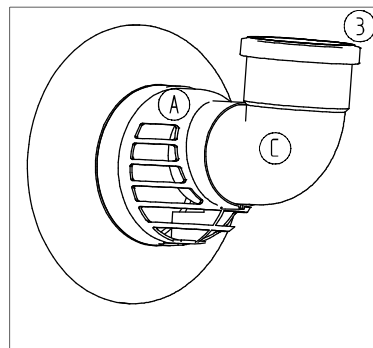
CUT OFF EXCESS MATERIAL

2. Using a suitable saw, cut off the highlighted portion of the end of the Terminal Assembly (A) then de-burr the cut edge.



FIT DIVERTER ELBOW

3. Lubricate and insert one of the Elbows (C) into the end of the Terminal Assembly (A). Elbow (C) can be pointed at any angle up to +/- 87° from the vertical. It must not be pointed horizontally or downwards as the effect of the flue gas condensate will reduce the life of the flue seals.



ASSEMBLE THE KIT

Assemble the remainder of the kit inserting the Terminal End (B) into the top Elbow (C) and using the Mounting Brackets (E) to secure the Extensions (D) as shown in the assembled kit diagram.



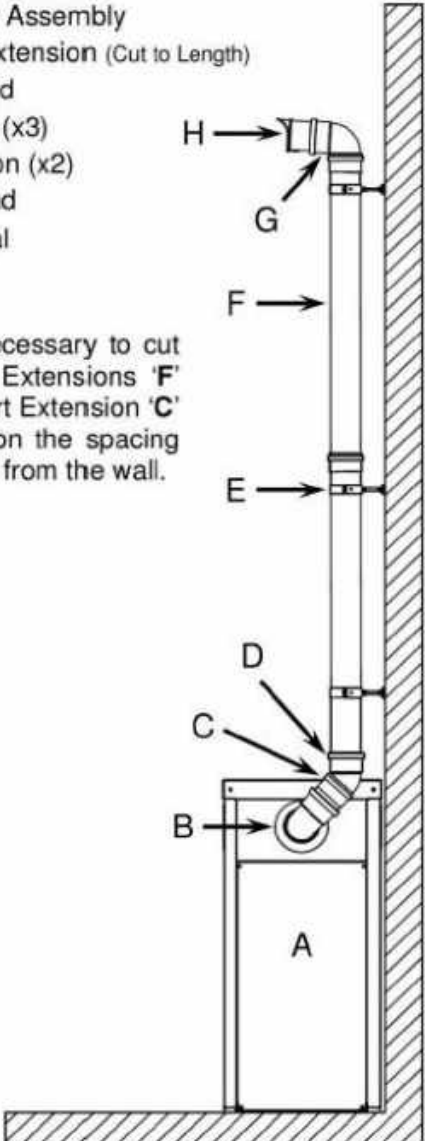
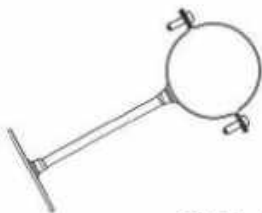





PAGE 69 CONTENT IS REMOVED IN NZ MANUAL

Content referred to flue system options not compliant in NZ Removed to avoid confusion

Move on to next page for external boilers plume management

Kabin Pak/External Plume Management Kit (KPMK)

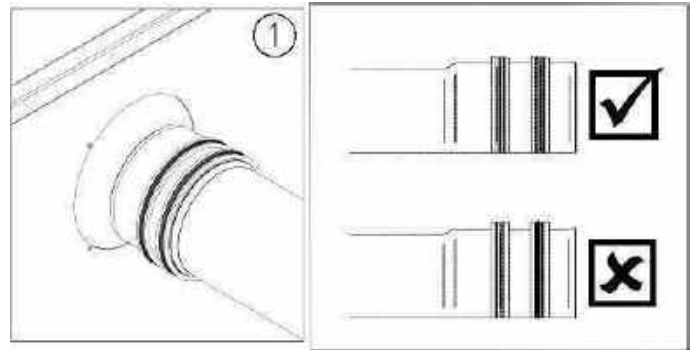
The kit comprises:

<p>Diverter Assembly 'B'</p>  <p>QTY = 1</p>	<p>45° Bend 'D'</p>  <p>QTY = 1</p>	<p>A – Kabin Pak Boiler B – Diverter Assembly C – Short Extension (Cut to Length) D – 45° Bend E – Bracket (x3) F – Extension (x2) G – 90° Bend H – Terminal</p> <p>Note: It will be necessary to cut one of the Extensions 'F' to form Short Extension 'C' depending on the spacing of the boiler from the wall.</p> 
<p>Mounting Bracket 'E'</p>  <p>QTY = 3</p>	<p>Extension 'F'</p>  <p>QTY = 3</p>	
<p>90° Bend 'G'</p>  <p>QTY = 1</p>	<p>Terminal 'H'</p>  <p>QTY = 1</p>	
<p>Split Ring-nut</p>  <p>QTY = 1 (loose)</p>	<p>Diverter Assembly Seal</p>  <p>QTY = 2 (loose)</p>	

1. FIT DIVERTER ASSEMBLY SEALS

Apply suitable lubricant to the two Diverter Assembly Seals (supplied loose) then fit to the end of the boiler flue pipe noting the correct orientation.

The seals MUST be fitted as shown with the outer surface sloping away from the end of the pipe to allow the Diverter Assembly to push over the seals.



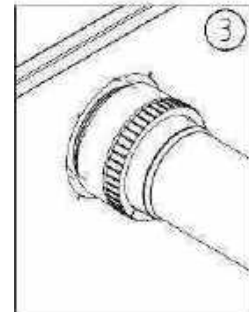
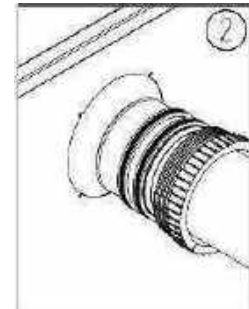
2. FIT SPLIT RING-NUT

Fit the Split Ring-nut by pulling open the split and pushing the nut over the pipe. Ensure the threaded end is facing towards the seals.

3. FIT & SECURE DIVERTER ASSEMBLY

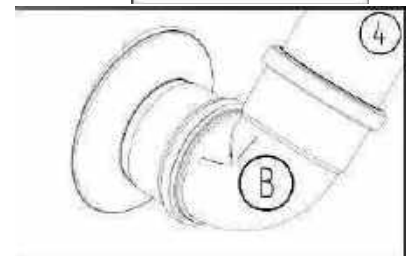
Lubricate the inside of the Diverter Assembly 'B' then push the assembly onto the end of the pipe and over the 2 seals. Use the Split Ring-nut to force the seals into the assembly ensuring that they remain flat on the pipe.

Tighten the Ring-nut into the assembly ensuring the assembly is tight onto the end of the pipe and that the seals are well compressed. The Diverter Assembly should be firmly attached to the pipe when complete.



4. ADJUST DIVERTER ASSEMBLY

Turn the 90° bend on the Diverter Assembly 'B' around to 45°, pointing towards the wall. If necessary, adjust the position of the rubber dresser on the Diverter Assembly in order to ensure a good weather seal.



5. ASSEMBLE PLUME MANAGEMENT KIT

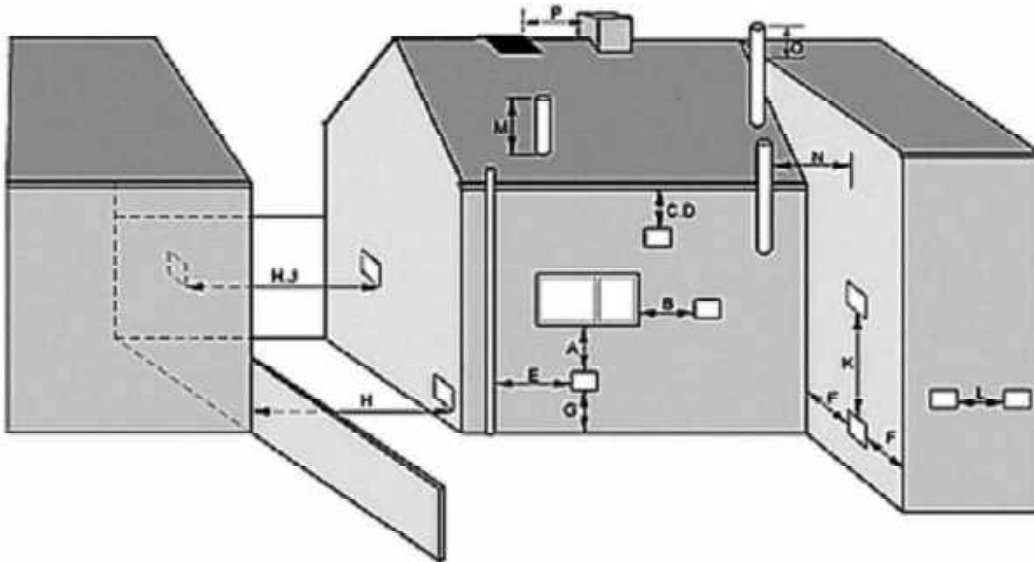
Assemble the remainder of the Plume Management Kit as shown in the assembled kit diagram, securing the whole assembly into place using the Mounting Brackets 'E'.

It will be necessary to cut one of the Extensions 'F' to form Short Extension 'C', depending on the spacing of the boiler from the wall.

If fitting the flue extension pipe (on a 44kW Model or Combination Boiler model), fix the rubber dresser of the Diverter Assembly 'B' to the boiler casing using appropriate silicone sealant in order to secure the assembly in place.

Ensure the location of the terminal complies with all local legislative requirements.

8.2 Flue Terminal Locations



MINIMUM DISTANCES TO TERMINALS IN MILLIMETRES AS MEASURED FROM THE TOP OF THE CHIMNEY OR THE RIM OF A LOW LEVEL DISCHARGE OPENING

A	Directly below an opening, air vent, opening window etc.	600
B	Horizontally to an opening, air vent, opening window etc.	600
C	Below a gutter, eaves or balcony with protection.	75
D	Below a gutter or a balcony without protection.	600
E	From vertical sanitary pipework or fallpipes.	300
F	From an internal or external corner, surface or boundary alongside the terminal.	300
G	Above the ground or balcony level.	300
H	From a surface or a boundary facing the terminal.	800
J	From a terminal facing the terminal.	1200
K	Vertically from a terminal on the same wall.	1500
L	Horizontally from a terminal on the same wall.	750
M	Above the highest point of an intersection with the roof.	600
N	From a vertical structure on the side of the terminal.	750
P	Above a vertical structure less than 750mm from the terminal.	600

These manufacturer dimensions and are given as guidelines.

Termination exposed to prolific wind influence is not recommended. Consideration must be made of the plumbing from the flue. If it is likely to be a nuisance to the householder or a neighbor, the use of a vertical balanced or flue plume diverter should be considered.

Flue positioning for external boilers,

The flue is integral to the appliance.

The boiler should be located so that the flue terminal is projecting directly away from the structure. If a plume kit is used as shown Pages 70/71 termination should meet the location requirements on the page 80 .

External Boiler Clearances. NZ

External boilers can be located with a minimum space between any building structure of 75mm Though we recommend a minimum space of 120 mm is provided to avoid long term build up of wet leaves etc, which can degrade the casing and to allow easy cleaning through the void.

Proximity to LPG storage. NZ

The flue terminal must be a minimum of 1200mm from an LPG storage cylinder and must not discharge directly towards the LPG Storage cylinder/Tank.

Proximity of oil storage tank. NZ

The boiler flue terminal must be a minimum of 1.8 m from the fuel storage tank unless a wall with a minimum 30 minutes fire resistance extending 300 mm above and wider than the height of the tank is placed between.

Fire valves for external boilers. NZ

Though no regulation is applied We recommend that the fire valve for an external boiler should be installed at least 1m from the boiler and not directly mounted on the case of the boiler.

10 INSTALLATION REQUIREMENTS

installation must be in compliance with local standards and Building Regulations.

10.1 General Requirements

10.1.1 Hearth/Base

The boiler has a hearth temperature of between 50°C and 85°C and should be stood on a rigid, non-porous, non-combustible base, which is not softened by warmth, to comply with local Building Regulations.

10.1.2 Service Access

24" (600mm) Clearance should be provided above & in front of the boiler to allow for routine servicing. Pumped, System & Combination Boiler models may require access to the top. This is of particular relevance to appliances located beneath work surfaces. Any such work surfaces should be easily removable for service access.

10.1.3 Heating System

The heating system should be installed to current local codes of practice.

Before installing the boiler the new or existing system must be thoroughly flushed to clear all sludge or other foreign matter such as solder, steel wool and copper filings. The system must be cleansed, neutralised and protected from corrosion using suitable cleansing agent(s) and inhibitor(s) in accordance with the cleanser / inhibitor manufacturers' instructions. The system must be dosed to the concentrations specified by the inhibitor manufacturer (refer to the Technical Data section of this manual for the volume of the boiler when calculating the total system volume). Inhibitor concentrations must be monitored and maintained on an ongoing basis. Failure of components such as, but not limited to heat exchangers, condensing units, pumps, auto air vents and pressure relief valves, etc. due to corrosion products in the system will not be covered by warranty.

10.1.4 Air Vents

The plastic plugs of the auto air vent(s) factory-fitted to the boiler must be loosened when filling the system in order to bleed the air from the boiler. Air must also be vented from combination boilers using the manual air vents located in the heat store tank and boiler flow pipe assembly. The plugs should be tightened again once filling is complete. In addition to any factory fitted air vents it is recommended that another air vent is fitted at the highest point in the system. Where the flow pipework drops down from the boiler the installer must ensure that an automatic air vent is fitted to the top of the pipework to prevent air being trapped in the boiler.

On B-Series models, the boiler MUST be fitted with an automatic air vent as shown in Section

4.5.1. If an air vent is not fitted, air will accumulate in the secondary heat exchanger and cause the boiler to malfunction. Failure to fit an air vent will invalidate ALL warranties.

10.1.5 Drain Cock

For all appliances not factory-fitted with drain cocks, one should be fitted to the boiler drain boss located to the left hand side of the burner. Drain cocks should also be fitted to the lowest points in the system to allow the system to be completely drained.

10.1.6 Frost Protection

Where there is a risk to the boiler or installation from frost then a suitable frost thermostat should be fitted. Alternatively the system could be dosed with an antifreeze agent. Combination Boiler models are fitted with frost protection as standard to protect the fabric of the boiler only. For all other External models covered by this manual, a Frost Thermostat Kit (Code FSK2) is available as an optional extra. This protects the fabric of the boiler only. Details of frost protection for the fabric of the building can be found in section 6.4 of this manual.

10.1.7 Pipework

We recommend that installation pipework is run in copper or multilayer. However, if multilayer pipe is used, **at least 1.5m of pipework from the appliance must be in copper. All connections to the appliance must be compression fittings.**

10.2 Sealed Systems

10.2.1 Expansion Vessel

Refer to Section 4.2 of this manual for standards referencing details of expansion vessel sizing. The values given in the table below are for total system volumes which include the water content of the boiler details of which can be found in the Technical Data Section 5.4 of this manual. System models up to 33kW are supplied with a 12 litre expansion vessel charged to

1.0 bar. Combination Boiler models are supplied with a 24 litre expansion vessel charged to 1.0 bar. This can accommodate a maximum combined boiler and system volume of 220 litres. Expansion vessel pre-charge pressures should be evaluated and adjusted periodically, normally as part of servicing.

When measuring the expansion vessel bladder pre-charge pressure, using a tyre gauge, the system should be cold and the system pressure should be relieved (by manually operating the system pressure relief valve) in order to obtain an accurate reading.

If the maximum total system volumes stated above are to be exceeded, additional expansion capacity will be required.

INITIAL CHARGE	VESSEL VOLUMES											
1.0	2.7	5.4	8.2	10.9	13.6	16.3	19.1	21.8	24.5	27.2	30.0	32.7
SYSTEM VOLUME	25	50	75	100	125	150	175	200	225	250	275	300

Do not allow the flexible hoses connected to the expansion vessel to become twisted, kinked or flattened. This may cause collapse of hose bore compromising the function of the expansion vessel.

10.2.2 System Boiler Filling

For all System and Combination Boilers a filling point complete with a filling loop is supplied fitted to the expansion vessel. The filling loop **MUST** be disconnected from the mains supply after filling. A system pressure when cold of 1 bar is recommended. After filling, vent all air from the system. The plastic plugs of the auto air vent(s) factory fitted to the boiler must be loosened when filling the system in order to bleed the air from the boiler, then re-tightened when filling is complete.

10.2.3 Combination Boiler Filling

Filling mode provides a facility to assist in removing air from the system during system filling.

The Filling mode is activated by simultaneously pressing the DHW- (2) and CH- button (6) for 10 seconds. The appliance must not be in 'OFF' mode.

During this function:

1. All heat demands are disabled
2. The circulating pump operates at the maximum speed
3. The diverter valve is moved to mid

position During this function, 'FILL' is shown on

the LCD:



The function can be disabled by pressing the Mode button (3) for 5 seconds.

Alternatively the function is automatically stopped after a timeout period of 15 minutes. A countdown timer is shown on the auxiliary digits.

10.2.4 System Pressure

Water loss from the system as indicated by a reduction in pressure on the pressure gauge may be made up through the filling loop. In the first week of operation it is normal to see a drop in system pressure. After this time the system pressure must be rechecked and the system refilled. Failure to do so may lead to boiler faults.

Special attention must be given to the concentration of corrosion inhibitors in the system water where there is a need for topping up or refilling. Inhibitor concentrations must be restored to the concentrations specified by the inhibitor manufacturer.

Frequent or routine refilling and topping up of the system should not be necessary on an ongoing basis and may prove harmful to the appliance. Should topping up prove necessary on a frequent or routine basis you must contact Warmflow or your installer.

10.2.5 Pressure Relief Valve

Any pressure relief valve fitted to the boiler or system must be able to discharge externally to a drain where the discharge can be seen but cannot cause any injury or damage. No other valves should be positioned between the relief valve and discharge termination. The pressure relief valve should be manually activated periodically in order to assess valve opening, normally as part of servicing.

10.2.6 Low Pressure Switch

Where there is a catastrophic loss of water from the system the boiler thermostats may fail to operate which would result in serious damage to the appliance. To prevent this it is recommended that a low pressure cut out switch set at 0.3 bar is fitted to the system and wired in series with the boiler limit thermostat. Combination Boiler models are factory-fitted with a low system pressure shutdown as standard.

10.3 Combination Boiler Domestic Hot Water

10.3.1 Mains Water Pressure

To protect the appliance and to prevent excessive flow rates, a pressure reducing valve is factory-fitted to limit the maximum supply pressure to 3 bar.

A mini expansion vessel is factory-fitted after the pressure reducing valve in order to protect the appliance from the expansion due to heating of the water in the domestic hot water pipework. Depending on DHW system volume, additional expansion may be required.

We strongly advise that all installation pipework is run in copper. However, if plastic pipe or plastic coated pipe is used, it must be recommended by the pipe manufacturer for use with oil fired appliances and, in any case, the last 1000mm of pipework connected directly to the appliance must be of copper.

Note that the flow rate from individual taps is dependent on the number of outlets being operated together, as well as the length and size of pipework and the mains supply pressure.

10.3.2 Water Hardness

Although many of the DHW components are designed to resist lime scale formation, in areas of hard water it may still be necessary to fit an inline chemical water softener. For further information contact Warmflow and your local water company.

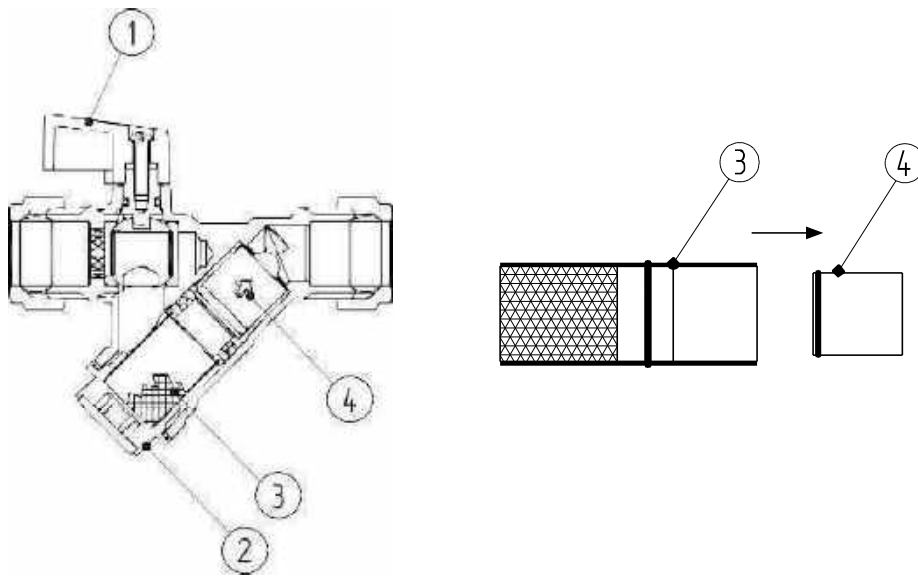
10.3.3 Boreholes

In order to minimise the pressure variations it is recommended that the differential setting on the borehole pump pressure control is kept as low as possible without adversely affecting the pump motor. The accumulator must be as large as possible in order to reduce the rate of pressure change and a pressure reducing valve (PRV) must be situated between the pump and accumulator and the boiler. The PRV must be set slightly below the minimum setting of the pressure switch on the pump.

10.3.4 Flow Restrictor

An 18l/min flow restrictor has been factory fitted to the incoming DCW isolation valve, but can be easily removed if required.

1. Isolate the incoming DCW supply using the ball valve (1).
2. Remove the cap and O ring (2) using a spanner, expect an escape of residual water.
3. Withdraw the combined strainer element (3) and flow restrictor (4) assembly.
4. Remove the flow restrictor cartridge from the strainer element, and replace the strainer element back into the valve body.
5. Replace the cap, ensuring the O ring is seated correctly.
6. Turn on the incoming DCW supply.



10.3.5 Pipework

All pipework including pipework within the casing should be insulated after the boiler has been installed. Suitable pipe insulation with a minimum wall thickness of 19mm should be used wherever possible. For exterior pipework insulation, please see the latest local building regulations for details.

10.3.6 Balanced flue

Due to the relatively high ambient temperature within the Combination Boiler casing, a balanced flue should be fitted in order to draw in cooler outside air. For external models, an air inlet adapter, AID, is available from Warmflow.

10.3.7 Plinth / Base

The boiler should be installed on a plinth or base with a thermal break such as non-combustible solid insulation. This is to minimise heat transfer to the ground and maximise the overall efficiency of the boiler.

11.7 Commissioning

For the UK Note: It is the responsibility of the installer to ensure that the boiler is properly commissioned by an OFTEC trained and registered technician. Failure to do so WILL invalidate ALL warranties.

Before firing ensure that all the baffles are in place, as they may have been displaced during transit;

For NZ ensure the Diesel appropriate nozzle supplied with the boiler is fitted to the burner in place of the pre fitted Kerosene nozzle.

Where a balanced flue has been fitted ensure the air duct connecting the flue and burner has been properly connected before commissioning.

Refer to the General Information section. Switch the boiler on, ensuring all controls are calling for heat.

The oil pump pressure must be checked by fitting a pressure gauge to the pump pressure port. If necessary the pressure should be adjusted until it corresponds with the value in the Technical Data section for the required output. Using a smoke pump, check the smoke number. It should be zero.

Then using a flue gas analyser, check the CO₂ content and the flue gas temperature once the boiler is hot.

For UK With the CO₂ correctly set, check the flue gas composition in line with OFTEC guidance. Testing while the boiler is still relatively cold gives inaccurate results and leads to incorrect adjustments being made.

UK Note: All product warranties will be invalidated if the appliance is not commissioned by a Warmflow or OFTEC trained and registered technician and the commissioning certificate of the OFTEC Boiler Passport completed and returned to Warmflow within 30 days from the date of installation and 90 days from the date code stamped on the appliance. Additionally, to comply with the building regulations, the boiler passport or OFTEC form CD11 should be completed and a copy left with the householder.

NZ Note; All product warranties will be invalidated if the appliance has not been commissioned by a suitably skilled and competent engineer in line with the requirements given and the boiler warranty commissioning certificate completed in full and returned to HeatIQ within 30 days of the date of installation

NZ Warranty will run from the date of submission up to 30 days from the date of purchase.

11.7.1 Programming Engineer Parameters – Combination Boilers

NOTE: ENGINEER PARAMETERS MUST ONLY BE ADJUSTED BY AN OFTEC TRAINED AND COMPETENT PERSON

Combination Boilers are fitted with parameters that may need to be adjusted upon commissioning, depending the specific installation.

The Engineer Parameters Menu is used to allow selected parameters to be modified by the engineer, these items are password protected.

The Engineer Parameters Menu is displayed from the Home Screen by simultaneously pressing the Information button (5) and DHW- button (2) for 3 seconds.



The Main digit indicates 'PASS'.

The DHW+ button (1) and DHW- button (2) are used to enter the left digits of the password. The CH+ button (7) and CH- button (6) are used to enter the right digits of the password.


The password is 1380.

To accept the password, press the Mode button (3) for 1 second.

To select a parameter, use the DHW+ button (1) and DHW- button (2).

To modify a value, press the Mode button (3) for 1 second. The Engineer  icon will begin to flash.

Adjust the variable setting to the desired value using the DHW+ button (1) and DHW- button (2).

To save the new value, press the Mode button (3) again for 1 second. The Engineer  icon will stop flashing.

To return to the Home Screen, press the Information button (5) again, or if no button is pressed for 3 minutes, the Home Screen is displayed automatically.

11.7.2 Engineer Parameter List

Parameter	Description	Units	Range	Default Value
P 00	CH Anti-Cycle time	mins	0-10	0
P 01	CH Pump Overrun time	secs	0-240	60
P 02	DHW Pump Overrun	secs	0-240	0
P 03	DHW min flowrate	l/min/10	15-40	15
P 04	CH Pump Speed	%	50-100	100
P 05	DHW Tank Pump	%	50-100	100
P 06	DHW Programmer Type	N/A	0-1	0
P 07	CH Programmer Type	N/A	0-1	0
P 08	DHW Tank setpoint	°C	0-30	6
P 09	DHW Tank Differential	°C	1-10	6
P 10	CH Temp Differential	°C	2-10	5
P 11	Low pressure shutdown	bar/10	2-10	6
P 12	High pressure	bar/10	24-28	28

Detailed descriptions of the Engineer Parameters can be found below:

Parameter	Description
P00	Used to prevent the burner firing in CH mode for a period after it last stopped, to prevent inefficient short cycling of the burner
P01	Keeps the circulating pump running for a period after the last CH cycle, to distribute heat within the primary heat exchanger after a
P02	Keeps the circulating pump running for a period after the last DHW cycle, to distribute heat within the primary heat exchanger after a
P03	Minimum DHW flow rate for activation of the DHW Instantaneous cycle, measured in litres/minute/10. For example P03=15, means 1.5 litres/minute.
P04	Circulating pump speed during CH cycle, this can be reduced depending on system requirements.
P05	Circulating pump speed during DHW Tank cycle, this should be kept at 100% for fastest tank re-heat.
P06	DHW Programmer Type. 0 = External Time Programmer Control 1 = Internal Time Programmer Control
P07	CH Programmer Type. 0 = External Time Programmer Control 1 = Internal Time Programmer Control
P08	Temperature above DHW setpoint the Tank Cycle switches off at.
P09	Temperature differential on DHW Tank cycle.
P10	Temperature differential on CH cycle.
P11	Minimum allowable system water pressure in bar/10. For example P11=6, means 0.6 bar.
P12	Maximum allowable system water pressure in bar/10. For example P12=28, means 2.8 bar.

11.8 Servicing

11.8.1 General Requirements

UK The appliance must be serviced annually by a Warmflow or OFTEC registered service technician in accordance with the recommendations laid out in OFTEC's Technical Book 2: 'Domestic & Light Commercial Servicing and Commissioning – Requirements for Oil Fired Systems – Pressure Jet Appliances'.

NZ The appliance must be serviced annually as prescribed by a suitably qualified technician. A record must be kept showing the date of service results of checks and CO₂ and or oil pressure any adjustments made (and reference Invoice no)

When servicing, special attention MUST be paid to the condition of the oil nozzle, flexible oil line, fuel filter, chamber door insulation, sealing rope, expansion vessel (inc. pre-charge) and the secondary heat exchanger door seal. If found to be defective, they MUST be replaced. In any case the Secondary heat exchanger seal and flexible oil line must be changed every 3 years.

An analser CO₂ check and Oil pressure check must be carried out and records kept of any readings and or changes.

If fitted, the magnetic filter must be serviced per the manufacturer's instructions.

Flexible oil lines must be replaced if out of their guarantee period. 3 Years if their integrity is uncertain, they MUST be replaced as part of the service.

The operation of boiler appliance safety controls and devices such as high limit thermostats, pressure relief valves and fire valves MUST be assessed. If found to be defective, they MUST be replaced.


N.B.: Where they exist, any wheel-head fire valves MUST be replaced with a remote acting type.

The systems corrosion inhibitor concentration must be checked during annual servicing (instant on-site test kits are available from inhibitor suppliers) and additional inhibitor MUST be added if the system is found to be under-dosed. Refer to the inhibitor manufacturer for further guidance.

Note: All product warranties will be invalidated if the appliance is not serviced annually by the appropriate person

11.8.2 Test Mode

Test mode allows a forced CH demand, this allows for flue gas analysis tests to be performed following a service operation, even if a switched live demand is not present.

Note. The appliance must have CH mode enabled, as indicated by the CH icon  shown on the LCD.

Test mode can be activated by pressing the DHW+ button (1) and CH+ button (7) for 10 seconds.

When activated, CH demand is forced, and the maximum CH setpoint is set.

During operation of Test mode, the LCD displays “tEST” with the Engineer icon flashing.

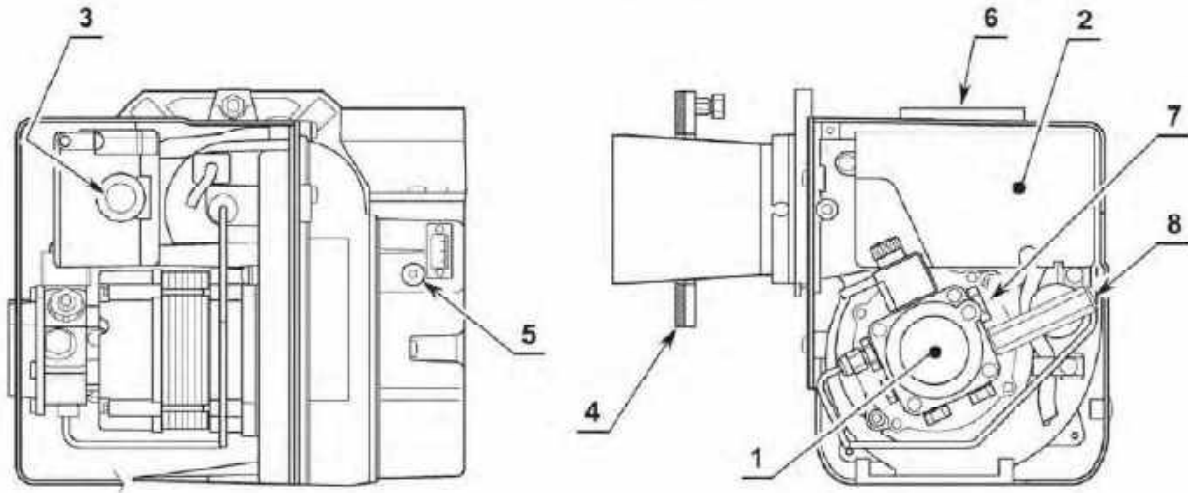


The function can be disabled by pressing the Mode button (3) for 5 seconds.

Alternatively the function is automatically stopped after a timeout period of 15 minutes. A countdown timer is shown on the auxiliary digits.

11 BURNERS

11.1 RDB Burner

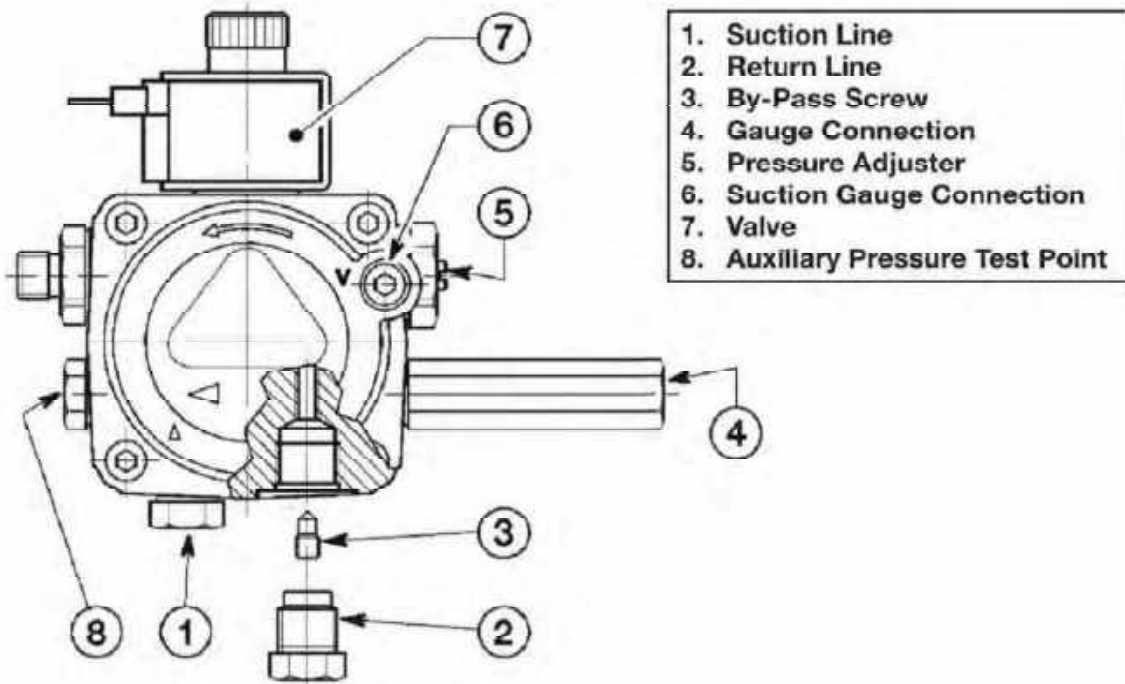


- 1. Pump
- 2. Control Box
- 3. Reset Button with Lock-Out Lamp
- 4. Flange with Insulating Gasket

- 5. Air Damper Adjustment Screw
- 6. Air Tube Connection (Supplied with BF Kit)
- 7. Pump Pressure Adjustment Screw
- 8. Pressure Gauge Port

11.2 Oil Pump

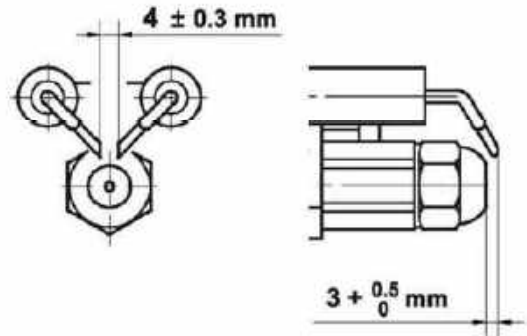
The burner is supplied for use with a one pipe system. For use on a two pipe system, it is necessary to remove the return port plug and fit a small by-pass plug as shown.



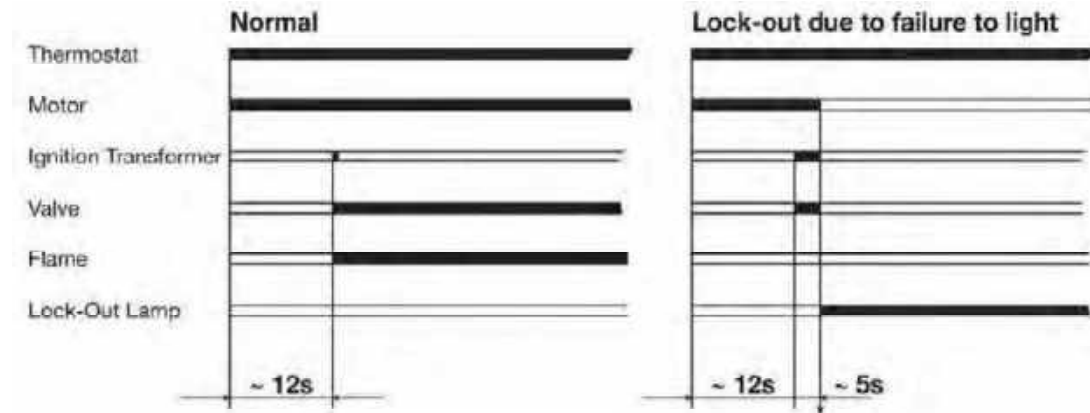
- 1. Suction Line
- 2. Return Line
- 3. By-Pass Screw
- 4. Gauge Connection
- 5. Pressure Adjuster
- 6. Suction Gauge Connection
- 7. Valve
- 8. Auxiliary Pressure Test Point

11.3 Electrode Setting

When removing or replacing the nozzle, move the electrodes forward to avoid the risk of damage. The electrodes are slacked by unscrewing the brass post that passes from the electrode holder out of the side of the burner. When work is complete, ensure the electrodes are reset as shown and secured by tightening the brass post.



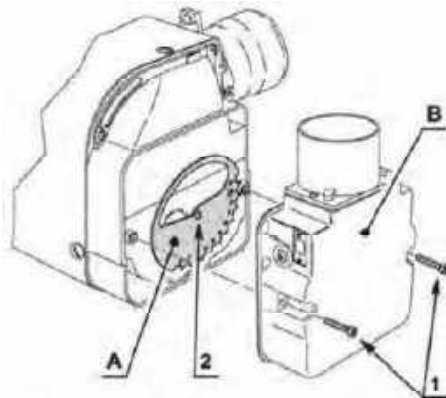
11.4 Burner Start-Up Cycle



11.5 Air Damper Adjustment

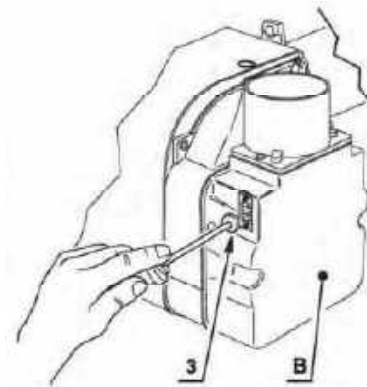
The air damper is set in factory. This regulation is purely indicative. Each installation however, has its own working conditions: actual nozzle output; positive or negative pressure in the combustion chamber, the need of excess air, etc. All these conditions may require a different air damper setting.

Air Damper (A) – 15/21 Burner Only



Air Damper (A) – The main air damper can be set in either of two positions. To set the positions of the damper, proceed as follows: Remove the secondary air damper (B) loosening the screws (1). Loosen the screw (2) and rotate the main air damper (A) to the required position. Retighten the screw (2) and put back the secondary air damper (B).

Air Damper (B)



Air Damper (B) – The purpose of this damper is to perform a fine tuning of the inlet air. Tuning of this device is possible by turning the screw (3).

Burner Commissioning adjustments NZ

Warmflow Agentis, boilers in the NZ market are fitted with the notably dependable Riello RDB 2.2 Burner.

Nozzles

A suitable Nozzle for New Zealand diesel fuel is supplied with the boiler This nozzle replaces the nozzle in the burner (which is a Kerosene nozzle).

The diesel Nozzle supplied is the most popular size, it may not be the ideal size for a particular system Correct sizing is important, the chart below sets out the options

Please note this chart is a Guide Altitude, Climatic variations and other factors may influence the actual settings required

Burner	Output required	Nozzle (NZ) Danfoss	Pump pressure	Max CO2 %	Agentis models
RDB 2.2 15-21Kw	Low	0.4 / 60° solid	174 - 180	12	I / E 21
RDB 2.2 15-21Kw	High	0.5 / 60° solid	184	12	I / E 21
RDB 2.2 21- 26Kw	Low	0.5 / 60° solid	195	12	I / E 26
RDB 2.2 21- 26Kw	High	0.6 / 60° solid	165	12	I / E 26
RDB 2.2 26-33Kw	Low	0.70 / 60° solid	171	12	I / E 33
RDB 2.2 26-33Kw	High	0.75 / 60° solid	180	12	I / E 33

It is important to note that incorrect commissioning will affect performance and void the warranty.

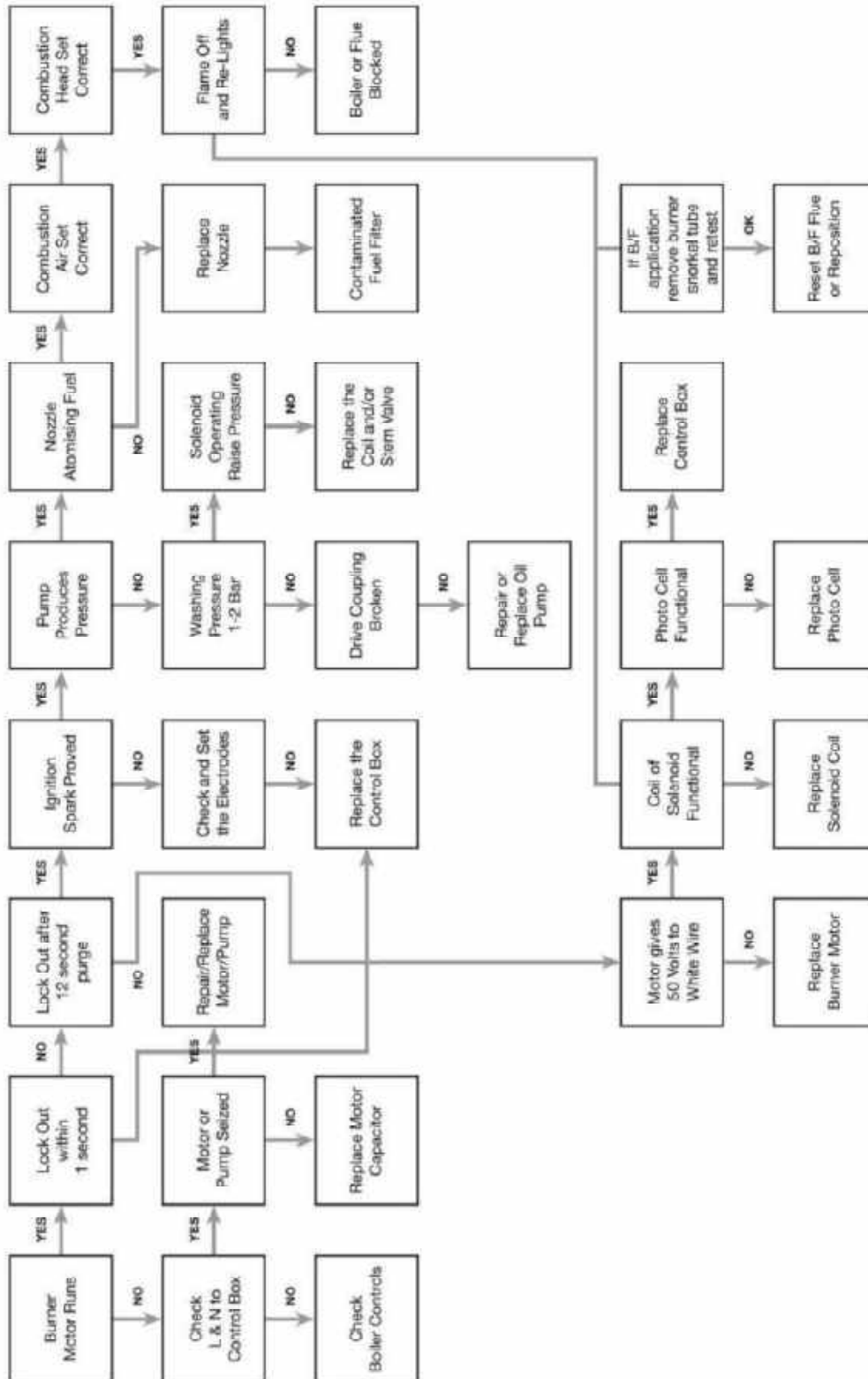
A calibrated flue gas analyser must be used at commissioning and each subsequent service.

12 BURNER FAULT FINDING



WARNING: The burner fault finding chart is to only be used by competent and suitably qualified engineers. It may be necessary to check live terminals inside the control panel. Extreme care should be taken when doing so.

12.1 Riello RDB



13 COMBINATION BOILER FAULT FINDING

WARNING: The Combination Boiler fault finding tables (Central Heating and Hot Water) are to only be used by competent and suitably qualified engineers. It may be necessary to check live terminals inside the control panel. Extreme care should be taken when doing so.

13.1 Error codes displayed on the LCD.

Combination Boilers are fitted with diagnostic functions that monitor the correct function of certain control systems within the appliance.

Error codes are displayed on the LCD, a list of Error codes, their possible causes and corrective actions are detailed below.

Code	Description	Possible Cause (s)	Corrective Action (s)
E01	Burner Lockout	No fuel supply to burner, air in fuel lines Burner fault	Consult Service Engineer
E02	High Limit	Air Lock in boiler, displaced NTC Temperature Sensor, circulation	Consult Service Engineer
E04	Low System Pressure	System not topped up after pressure loss after bleeding radiators etc. Leak in heating system	Check system pressure, see Section 1.3, 1.4 & 1.5 then, check corrosion inhibitor concentration
E05	Boiler NTC Error	Boiler Flow NTC Temperature Sensor short circuit or	Consult Service Engineer
E06	DHW Flow NTC Error	DHW Flow NTC Temperature Sensor short circuit or	Consult Service Engineer
E11*	Tank Limit	Displaced Tank NTC Temperature Sensor Probe	Consult Service Engineer
E12	Tank Control	Tank Control NTC Temperature Sensor short circuit or disconnected	Consult Service Engineer
E15*	CH Return NTC Error	CH Return NTC Temperature Sensor short circuit or	Consult Service Engineer
E22	Flash Data	PCB Fault	Consult Service Engineer
E31	Remote Control Communicatio	Damaged Remote Control cable Remote Control Fault	Consult Service Engineer
E32	MMI - Control PCB Error (On Remote)	Damaged cable in control panel PCB Fault	Consult Service Engineer
E46	System Pressure Sensor	System Pressure Sensor disconnected System Pressure	Consult Service Engineer
E48	High System Pressure	Filling Loop left connected, and open Insufficient system expansion	Consult Service Engineer
E62	MMI - Control PCB Error (On Boiler)	Damaged cable in control panel PCB Fault	Consult Service Engineer

*Error Codes E11, E15 are not displayed on the LCD, and are only stored in the Error History for diagnosis.

13.2 Error codes stored in the Error Logger

Review the appliance history by accessing the Error Logger from the Home Screen on the control panel.

The last 5 Errors are recorded by the Error Logger, the most recent Error will have the lowest index number, shown in the auxiliary digits of the LCD.

Index	Error Code
1	E XX
2	E XX
3	E XX
4	E XX
5	E XX

1. Press the Info button (5) and CH- button (6) simultaneously for 2 seconds, then the Error Logger is shown.



2. Scroll through the errors using the CH+ button (6) and CH- button (7).
3. If no errors are recorded in the logger, 'E00' is displayed on the main digit.

13.3 Central Heating Fault Finding Table

Check No.	Item to check	Answer	Corrective Action (s)
1	Is AC Power Supply healthy to the appliance and LCD	No	Rectify AC Power supply problem
		Yes	Go to Check 2
2	Are Error Codes displayed on LCD?	Yes	Rectify Error Code problems, see Section 13.1
		No	Go to Check 3
3	Is the CH Radiator symbol displayed solid on the boiler LCD?	No	Press Mode Button to select CH mode
		Yes	Go to Check 4
4	Are room thermostats calling for Central Heating?	No	Adjust room thermostats to call for Central Heating
		Yes	If external timeclock is used go to Check 5
			If internal timeclock is used go to Check 6
5	Is external timeclock in 'ON' time?	No	Adjust 'ON' time period to call for Central Heating
		Yes	Go to Check 7
6	Is internal timeclock in 'ON' time?	No	Adjust 'ON' time period to call for Central Heating
		Yes	Go to Check 7
7	Is the DHW Tap Symbol displayed flashing on the boiler LCD?	Yes	The Boiler is performing DHW mode, wait until
		No	Go to Check 8
8	Is the CH Radiator symbol displayed flashing on the boiler LCD?	No	Check CH controls, boiler does not have an active call for CH
		Yes	Go to Check 9
9	Is the circulating pump running with 1x green and at least 1x red?	No	Check Circulating Pump connections
		Yes	Go to Check 10
10	Is the CH flow Temperature set to call for heat?	No	Adjust with CH + button to call for heat
		Yes	Go to Check 11
11	Is the Diverter Valve Actuator in the CH (Retracted) position?	No	Check Diverter Valve Actuator Connections
		Yes	Go to Check 12
12	Are the isolating valves within the boiler open?	No	Open the valves to allow water flow
		Yes	Go to Check 13
13	Are the property zone valves open?	No	Rectify the zone valve operation
		Yes	Go to check 14
14	Is all air vented from the system?	No	Vent air from the system at all locations
		Yes	Go to Check 15
15	Check burner operation, lockout is indicated by Error Code E01, as part of Check 2		

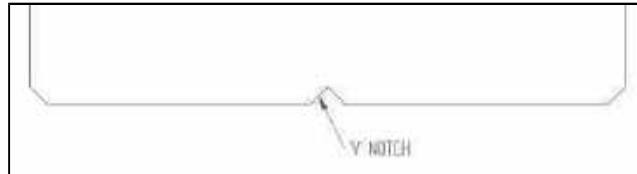
13.4 Domestic Hot Water Fault Finding Table

Check No.	Item to check	Answer	Corrective Action (s)
1	Is AC Power Supply healthy to the appliance and LCD	No	Rectify AC Power supply problem
		Yes	Go to Check 2
2	Are Error Codes displayed on LCD?	Yes	Rectify Error Code problems, see Section 13.1
		No	Go to Check 3
3	Is the DHW Tap symbol displayed solid on the boiler LCD?	No	Press Mode Button to select DHW mode
		Yes	Go to Check 4
4	Is external timeclock in 'ON' time?	No	Adjust 'ON' time period to call for Domestic Hot
		Yes	Go to Check 6
5	Is internal timeclock in 'ON' time?	No	Adjust 'ON' time period to call for Domestic Hot
		Yes	Go to Check 6
6	Is the DHW Tap Symbol displayed flashing on the boiler LCD with all DHW outlets closed?	Yes	The Boiler is performing DHW mode, wait until complete
		No	Go to Check 7
7	Is the DHW Tap symbol displayed flashing on the boiler LCD with DHW flow of over 2 litres/minute?	No	Check wiring to, and obstructions in the DHW flowmeter
		Yes	Go to Check 8
8	Is the circulating pump running with 1x green and at least 1x amber LED?	No	Check Circulating Pump connections
		Yes	Go to Check 9
9	Is the DHW Flow temperature set correctly for the installation?	No	Adjust with DHW +/- buttons to set temperature as required
		Yes	Go to Check 10
10	Is the Diverter Valve Actuator in the DHW (Extended) position? Section 13.2	No	Check Diverter Valve Actuator Connections
		Yes	Go to Check 11
11	Are the isolating valves within the boiler open?	No	Open the valves to allow water flow
		Yes	Go to Check 12
12	Are the property DHW isolation valves open?	No	Rectify the isolation valve positions
		Yes	Go to check 13
13	Is all air vented from the boiler?	No	Vent air from the boiler at all locations
		Yes	Go to Check 14
14	Check burner operation, lockout is indicated by Error Code E01, as part of Check 2		

14.3 Baffles – from September 2016 Manufacture

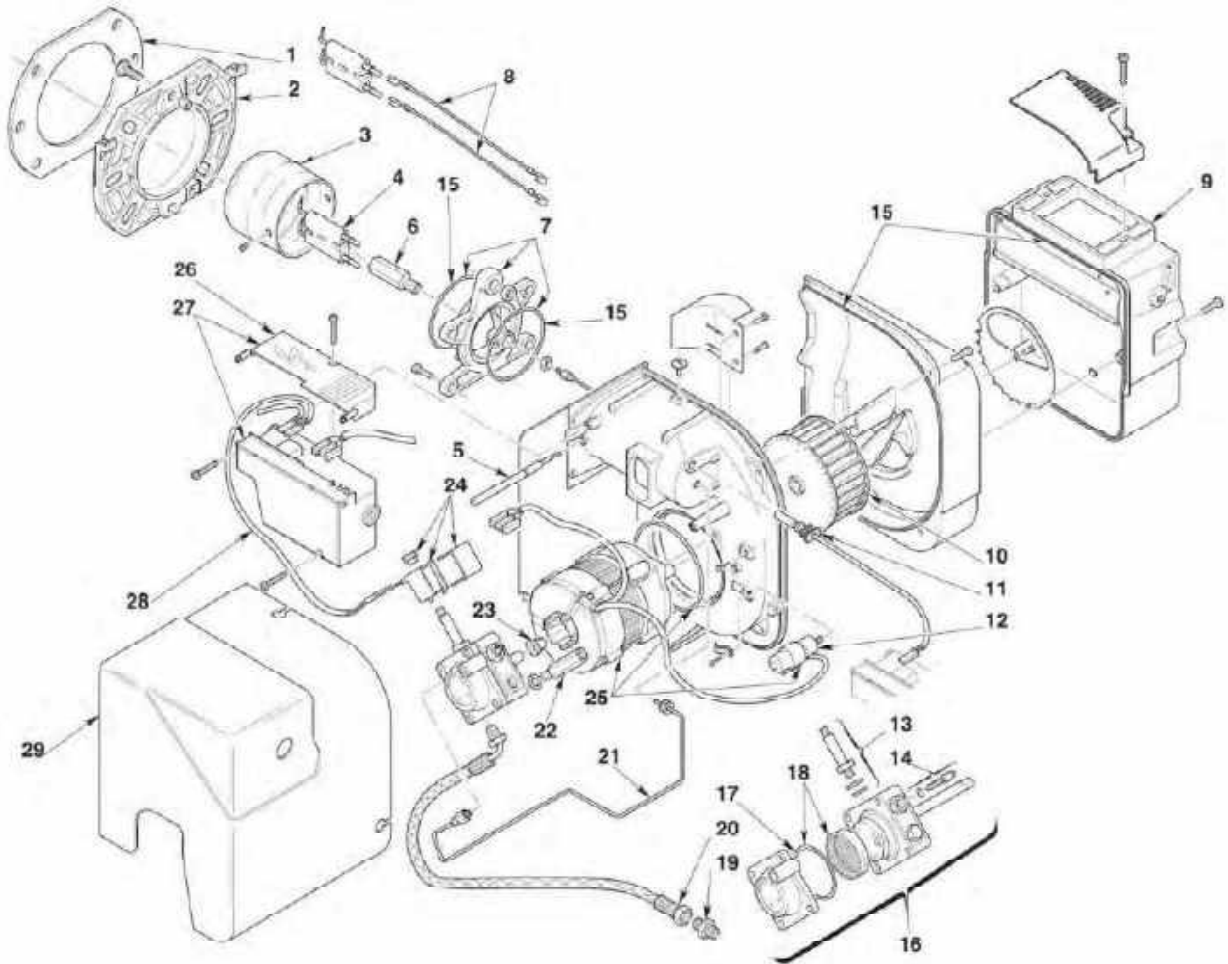
For appliances with a date manufacture date during or after September 2016, the baffles have a V Notch in the burner facing edge for identification.

Do not attempt to fit baffles without this identification marker to appliances manufactured after this date.



16 SPARES

16.1 RDB 2.2 Spares



No	CODE	3514157	3514257	3514557	DESCRIPTION
1	3005787	•	•	•	Gasket
2	3006384	•	•	•	Flange
3	3020494	•			Cup-Shaped Head
3	3020258		•		Cup-Shaped Head
3	3020055			•	Cup-Shaped Head
4	3008860	•	•	•	Electrode Assembly
5	3008875	•	•	•	Screw
6	3008861	•	•	•	Nozzle Holder
7	3008862	•	•	•	Collar
8	3008794	•	•	•	High Voltage Lead
9	3008647		•	•	Air Damper Assembly
9	3008839			•	Air Damper Assembly
10	3005788	•	•	•	Fan
11	3008646	•	•	•	PE Cell
12	3002837	•	•	•	Capacitor 4.5µF
13	3007871	•	•	•	Needle Valve
14	20032135	•	•	•	Regulator

No	CODE	3514157	3514257	3514557	DESCRIPTION
15	3008878	•	•	•	Kit Seals
16	20030953	•	•	•	Pump
17	3007175	•	•	•	O-Ring
18	3020436	•	•	•	Filter O-Ring
19	3003602	•	•	•	Connector
20	3005720	•	•	•	Flexible Oil Line
21	3008644	•	•	•	Tube
22	3008876	•	•	•	Pressure Gauge
23	3000443	•	•	•	Joint
24	3008648	•	•	•	Coil-Shell & Knob
25	3002836	•	•	•	Motor & Capacitor
26	3008649	•	•	•	Protection
27	3008652	•	•	•	Control Box 535RSE/LD
28	3008851	•	•	•	Lead Coil
29	3008879	•	•	•	Cover

14.4 Short Parts List

21-33 Models	
Part Description	Code
Flow Sensor	5317
Pressure Sensor	6210
22mm NTC Sensor	5656
15mm NTC Sensor	5655
6mm Probe NTC Sensor with cable	5320
Combination Boiler High Limit Thermostat	5223
Combination Boiler Tank Limit Thermostat	5318
Plate Heat Exchanger	5789
Grundfos UPM3 FLEX-AS Circulating Pump Head & Body only	6225
Composite Auto Air Vent	6212
Composite Pressure Relief Valve	6211
Filling Loop	5788
Pressure Gauge (Combination Boiler)	5855
Pressure Gauge (Other models)	3019
Control PCB	5225
MMI PCB with LCD	5221
12 litre Rectangular Expansion Vessel	6319
24 litre Rectangular Expansion Vessel	4319
Flue Thermostat	3535
Diverting Valve Stepper Motor	6227
Dual Safe Thermostat for non-Combination Boilers	WDS2

44 Models	
Part Description	Code
Grundfos UPM3 FLEX-AS Circulating Pump Head & Body only	6225
Brass Auto Air Vent c/w Check Valve	614
Brass Pressure Relief Valve	2132
Flue Thermostat	3535
Dual Safe Thermostat for non-Combination Boilers	WDS2

When ordering replacement casing panels it should be noted that due to the painting process, there may be some variation in colour.

15 YOUR GUARANTEES, TERMS & CONDITIONS

1. Warmflow Guarantees, (Tradepoint Ltd, Heat IQ in NZ)

The boiler, including all controls, plate heat exchangers, pipework and unions, and associated equipment contained within the boiler casing, and the burner and flue system, if supplied by Warmflow, are guaranteed against defective parts and workmanship, providing the boiler is installed and commissioned in accordance with the instructions supplied with the boiler.

The period of guarantee will be 12 months from the date of installation in Northern Ireland and the Republic of Ireland. The period of guarantee in Great Britain will be 24 months from the date of installation. **For New Zealand the period of Guarantee will be 24 months from date of purchase plus up to 30 days for submission of commissioning certificate**

NOTE: In Northern Ireland and the Republic of Ireland the period of guarantee can only be increased to 24 months through the purchase of an extended warranty.

The primary heat exchanger, secondary heat exchanger and thermal store (in the case of a Combination Boiler) is guaranteed against defective parts and workmanship for a total of 5 years from Invoice, provided the boiler is installed and commissioned in accordance with the instructions supplied with the boiler. This warranty will be a parts only warranty after expiry of the initial parts and labour warranty period, i.e. after 12 months in Northern Ireland and in the Republic of Ireland and after 24 months in Great Britain or NZ. This warranty is subject to a full service record with details of annual service logged in the OFTEC Boiler Passport for UK boilers.

Warmflow (Tradepoint Ltd in NZ) reserve the right to repair or replace components within the guarantee period at a time and location that is most convenient to the company.

2. Conditions of Guarantee

The boiler must be installed, commissioned and serviced in accordance with the installation instructions supplied with the boiler.

Additionally:

- The Boiler Passport must be fully completed and or the commissioning certificate returned to Warmflow Or Tradepoint Ltd (Heat IQ) in NZ within 30 days from the date of installation.
- The boiler must be installed and commissioned by a competent engineer, who is suitably qualified and competent. Commissioning of the boiler must be completed immediately after the boiler is installed.
- The boiler must be serviced by a competent engineer,, 12 months maximum after the date of installation and thereafter, at 12 monthly intervals.

The provider will accept no liability for the cost of repairs resulting from incorrect installation, inadequate commissioning, lack of regular maintenance, misuse, tampering or repair by unqualified persons.

All repairs under warranty must be authorised in writing by the provider prior to any work being carried out. Unauthorised claims are not covered by the guarantee.

Faults and any associated costs occurring due to lack of fuel, power, water supply, scale formation or corrosion are not covered by these guarantees.

If the boiler has not been installed within 30 days of the date of supply, then the warranty will deem to have started.

Claims for consequential loss or damage are not covered by these guarantees.

In the event of a breakdown please contact your installer service provider or commissioning engineer.

As an engineer they can access technical support from Warmflow in for the UK or from TradePoint Ltd Heat IQ in New Zealand. Note; This service is not available to end users or unqualified persons.

The statutory rights of the customer are not affected by the guarantee given.

NB: The nozzle, fuel lines and refractory items supplied with the boiler are deemed to be consumable items and are therefore excluded from the guarantee.

NOTE: Failure to complete & return the boiler warranty certificate at the time of installation will invalidate all guarantees.

Leave this manual with the appliance User do not remove it from site

This manual is intended for use in New Zealand although reference is made in parts of this manual to UK and Ireland where they are specific to these markets this is noted.

Warmflow boilers are distributed and technically supported in NZ by
Tradepoint Ltd, (heat IQ)
11 Rakau Road
Whanganui
4501
PO Box 530 Whanganui

Heat IQ

This manual is accurate at the date of printing (E&OE) but will be superseded and should be disregarded if specifications and/or appearances are changed in the interests of continued product improvement.

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