

Fig. 36a

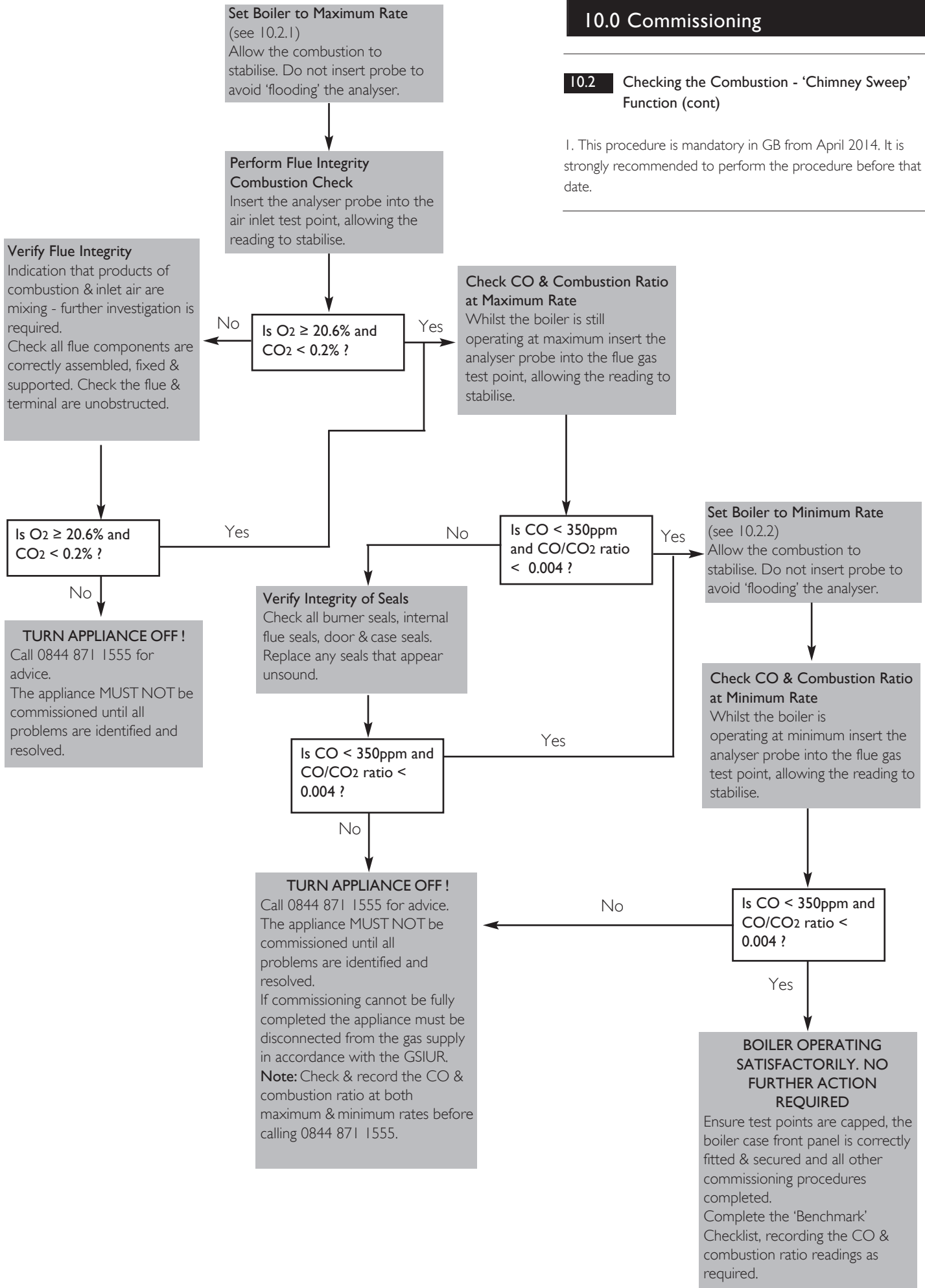
10.2 Checking the Combustion - 'Chimney Sweep' Function

1. To set the boiler to operate at MAXIMUM and MINIMUM, press **iP** & **||||+** together and hold for at least 6 seconds. 'On' will be displayed briefly, followed by '304' then the boiler output expressed as percentage i.e. '100'.
2. Press **||||-** until '00' is displayed, indicating minimum input.
3. To exit the function press **iP** & **||||+** together for 6 seconds.
4. The combustion (CO level and CO/CO₂ ration) must be measured and recorded at MAXIMUM DHW input and MINIMUM input.
5. Follow the flow chart on the next page to comply with the requirement to check combustion on commissioning.
6. The system MUST be cold to ensure the boiler is operating under full demand

10.0 Commissioning

10.2 Checking the Combustion - 'Chimney Sweep' Function (cont)

1. This procedure is mandatory in GB from April 2014. It is strongly recommended to perform the procedure before that date.



10.0 Commissioning

10.3 Check the Operational (Working) Gas Inlet Pressure & Gas Rate

Note: The system MUST be cold to ensure the boiler is operating under full demand.

1. Press **iP** & **||||+** together and hold for at least 6 seconds. 'On' will be displayed briefly, followed by '304' then '100' when the boiler is lit, indicating the output is at MAXIMUM ('Chimney Sweep Function').

2. With the boiler operating in the maximum rate condition check that the operational (working) gas pressure at the inlet gas pressure test point on the gas cock or valve is in accordance with B.S. 6798 & B.S. 6891. This must be AT LEAST 17mb ! (LPG - 37mb)

Measure the Gas Rate

4. With any other appliances & pilot lights turned OFF the gas rate can be measured. It should be:-

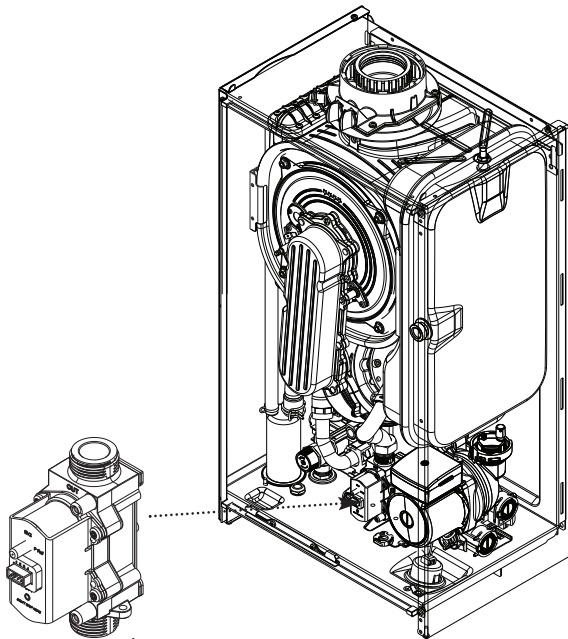
Natural Gas	12 model	1.27 m ³ /h
	15 model	1.59 m ³ /h
	18 model	1.90 m ³ /h
	24 model	2.54 m ³ /h
	28 model	2.96 m ³ /h
	32 model	3.40 m ³ /h

Propane	12 model	0.93 kg/h
	15 model	1.17 kg/h
	18 model	1.4 kg/h
	24 model	1.86 kg/h
	28 model	2.18 kg/h
	32 model	2.49 kg/h

5. Press **iP** & **||||+** together and hold for at least 6 seconds to exit the function.

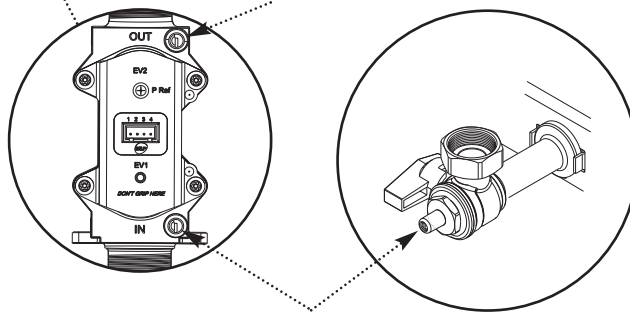
6. Carefully read and complete all sections of the Benchmark Commissioning Checklist at the rear of this publication that are relevant to the boiler and installation. These details will be required in the event of any warranty work. The publication must be handed to the user for safe keeping and each subsequent regular service visit recorded.

7. For IE, it is necessary to complete a "Declaration of Conformity" to indicate compliance with I.S. 813. An example of this is given in I.S. 813 "Domestic Gas Installations". This is in addition to the Benchmark Commissioning Checklist.



DO NOT check gas pressure here

Fig. 37



Inlet Gas Pressure Test Point

Fig. 38

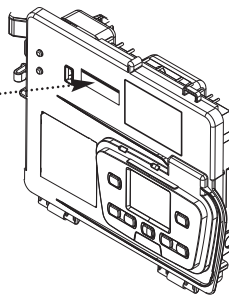
Gas Type Label

N.G. Factory Set

GAS SETTING INFORMATION	
Set for use with NG (2H - G20 - 20mbar)	<input checked="" type="checkbox"/>
Set for use with LPG (3P - G31 - 37mbar)	<input type="checkbox"/>

When reset for L.P.G.

GAS SETTING INFORMATION	
Set for use with NG (2H - G20 - 20mbar)	<input type="checkbox"/>
Set for use with LPG (3P - G31 - 37mbar)	<input checked="" type="checkbox"/>



Changing the Gas Type

1. It may be necessary to adjust the boiler gas type if the supply is changed, for example when Natural Gas is provided to a rural area previously reliant on Propane. In these instances a replacement Gas Type Label may be required, which is available on request as a spare part.

2. Press **||||-** & **||||+** and hold for at least 6 seconds. **01** will be displayed, alternating with **00**.

3. Press **||||+** to select the next parameter **02**. Press **iP**.

4. Press **||||-** or **||||+** to select the value that corresponds with the required gas type. For Natural Gas:- **00**
For Propane:- **01**

5. Press **iP** to save the change, then **OR** to return to the normal display.

11.1 Completion

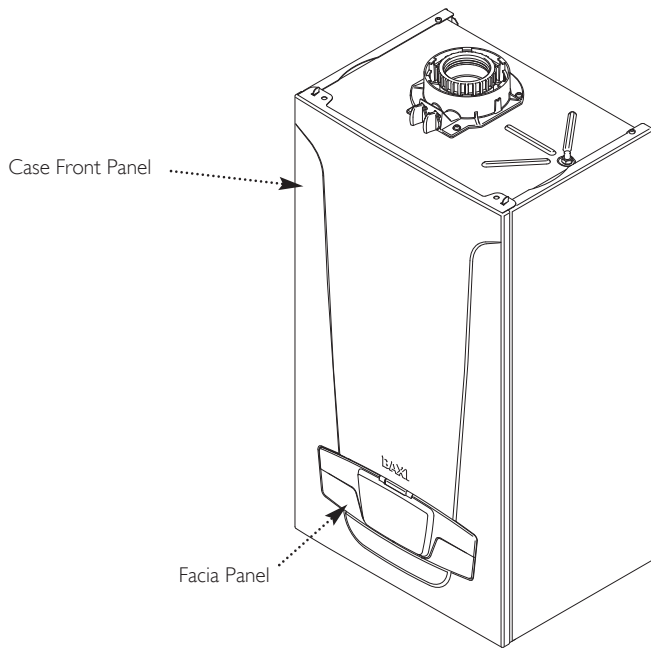


Fig. 39

To change the information displayed see the table below:-

<p>The iP button can be pressed so that the display shows the following information:-</p> <p>1 press - '00' alternates with Sub-Code (only when fault on boiler) or '000'</p> <p>2 presses - '01' alternates with CH Flow Temperature</p> <p>3 presses - '02' alternates with Outside Temperature (where Sensor fitted)</p> <p>4 presses - '03' alternates with DHW Temperature</p> <p>5 presses - '04' alternates with DHW Temperature</p> <p>6 presses - '05' alternates with System Water Pressure</p> <p>7 presses - '06' alternates with CH Return Temperature</p> <p>8 presses - '07' alternates with Flue Temperature</p> <p>9 presses - '08' alternates with Heat Exchanger Temperature</p>
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1. Replace the case front panel, and secure with the screws previously removed.
2. This publication must be handed to the user for safe keeping and each subsequent regular service visit recorded.
3. Set the central heating and hot water temperatures to the requirements of the user. Instruct the user in the operation of the boiler and system.
4. Instruct the user in the operation of the boiler controls. Hand over the User's Operating, Installation and Servicing Instructions, giving advice on the necessity of regular servicing.
5. Demonstrate to the user the action required if a gas leak occurs or is suspected. Show them how to turn off the gas supply at the meter control, and advise them not to operate electric light or power switches, and to ventilate the property.
6. Show the user the location of the system control isolation switch, and demonstrate its operation.
7. Advise the user that they may observe a plume of vapour from the flue terminal, and that it is part of the normal operation of the boiler.

11.2 System Draining

1. If at any time after installation it is necessary to drain the central heating system (e.g. after replacing a radiator) the De-Aeration Function should be activated.
2. On refilling the system ensure that there is no heating or hot water demand, but that there is power to the boiler.
3. Press **iP** & **||||** together and hold for at least 6 seconds. The 'De-Aeration' Function will be activated.
4. The boiler pump will run for up to 10 minutes. This will purge air from the system. The display will show **3 12**.
5. Once De-Aeration is complete set the external controls as required by the user.

12.0 Servicing

12.1 Annual Servicing

1. For reasons of safety and economy, it is recommended that the boiler is serviced annually. Servicing must be performed by a competent person in accordance with B.S. 7967-4.

2. After servicing, complete the relevant Service Interval Record section of the Benchmark Commissioning Checklist at the rear of this publication.

IMPORTANT: During routine servicing, and after any maintenance or change of part of the combustion circuit, the following must be checked:-

- The integrity of the complete flue system and the flue seals (check air inlet sample).
- The integrity of the boiler combustion circuit and relevant seals as described in Section 12.2.
- The operational gas inlet pressure as described in Section 10.2.1 to 10.2.7 and the gas rate as described in 10.2.8.
- The combustion performance as described in 'Check the Combustion Performance' (12.1.4 to 12.1.6 below).

3. Competence to carry out Checking Combustion Performance

B.S. 6798 'Specification for Installation & Maintenance of Gas Fired Boilers not exceeding 70kW' advises that:-

- The person carrying out a combustion measurement should have been assessed as competent in the use of a flue gas analyser and the interpretation of the results.
- The flue gas analyser used should be one meeting the requirements of BS7927 or BS-EN50379-3 and be calibrated in accordance with the analyser manufacturers' requirements.
- Competence can be demonstrated by satisfactory completion of the CPAI ACS assessment, which covers the use of electronic portable combustion gas analysers in accordance with BS 7967, Parts 1 to 4.

Check the Combustion Performance (CO/CO₂ ratio)

4. Set the boiler to operate at maximum rate as described in Section 14.1.1 to 14.1.6.

5. Remove the plug from the flue sampling point, insert the analyser probe and obtain the CO/CO₂ ratio. **This must be less than 0.004.**

6. If the combustion reading (CO/CO₂ ratio) is greater than this, and the integrity of the complete flue system and combustion circuit seals has been verified, and the inlet gas pressure and gas rate are satisfactory either:

- Perform the 'Annual Servicing - Inspection' (Section 12.2) & re-check
- Adjust the gas valve (Section 14.0) & re-check
- Replace the gas valve (Section 13.23) & re-check

12.2 Annual Servicing - Inspection

1. Ensure that the boiler is cool.

2. **Ensure that both the gas and electrical supplies to the boiler are isolated.**

3. Remove the screws securing the case front panel. Lift the panel slightly to disengage it from the studs on top of the case (Fig. 40) and hinge down the Control Box.

4. Disconnect the condensate drain pipe and unscrew the sump from the bottom of the condensate trap assembly (Fig. 41). Remove any deposits from the sump and trap. Clean as necessary and replace the sump.

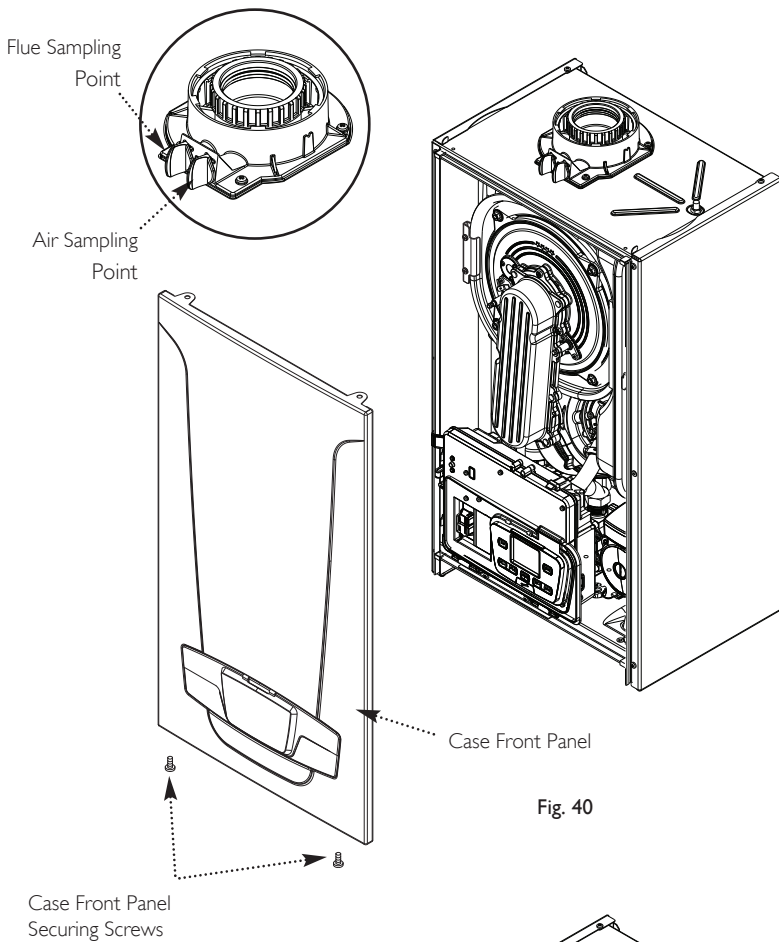


Fig. 40

Case Front Panel
Securing Screws

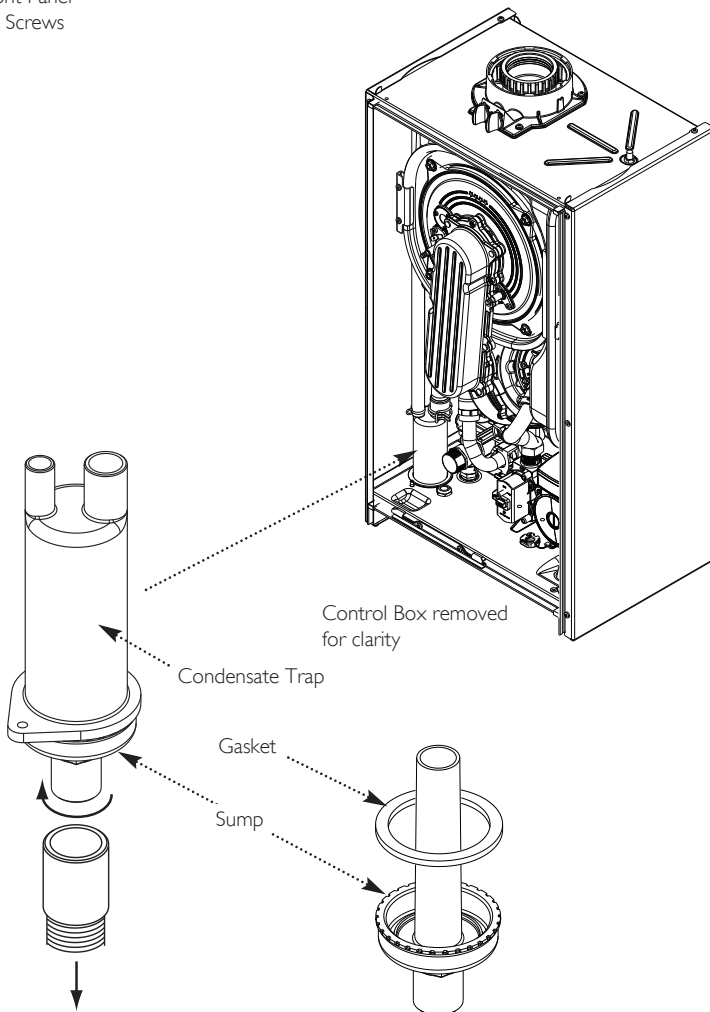
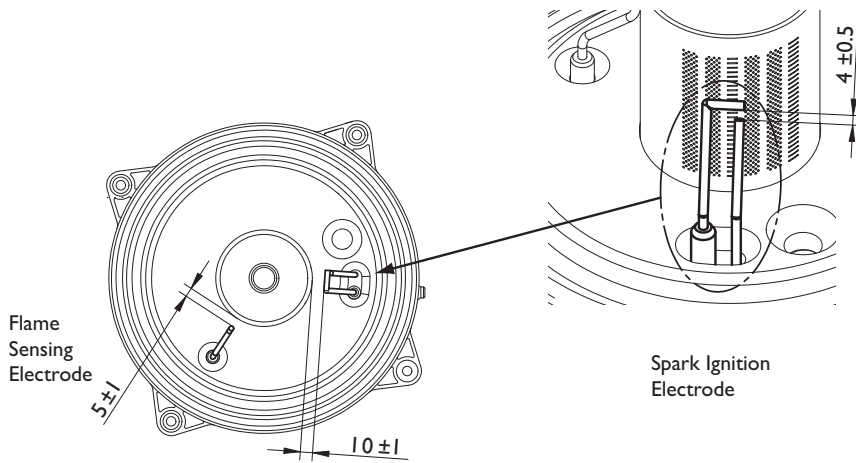


Fig. 41

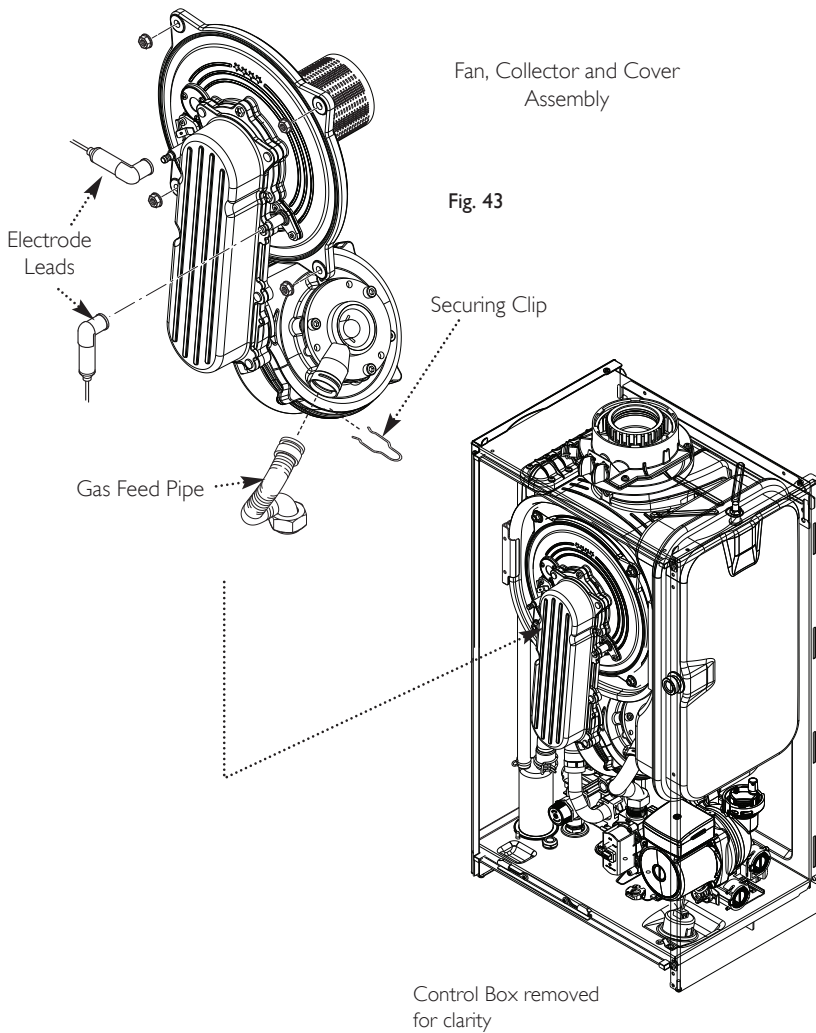
12.0 Servicing

12.2 Annual Servicing Inspection (Cont)



Electrode Position

Fig. 42



Fan, Collector and Cover Assembly

Fig. 43

Control Box removed for clarity

5. Remove the clip securing the gas feed pipe to the air/gas venturi. Disconnect the pipe. Do not break the joint between the pipe and gas valve unless necessary.

6. Disconnect the electrode leads, noting their position, and the fan electrical plugs (Fig. 43).

7. Undo the four nuts retaining the combustion box cover to the heat exchanger.

8. Carefully draw the fan, collector and cover assembly forward (Figs. 43).

9. Clean any debris from the heat exchanger and check that the gaps between the tubes are clear.

10. Inspect the burner, electrodes position and insulation, cleaning or replacing if necessary. Clean any dirt or dust from the air box.

11. Carefully examine all seals, insulation & gaskets, replacing as necessary. Look for any evidence of leaks or corrosion, and if found determine & rectify the cause.

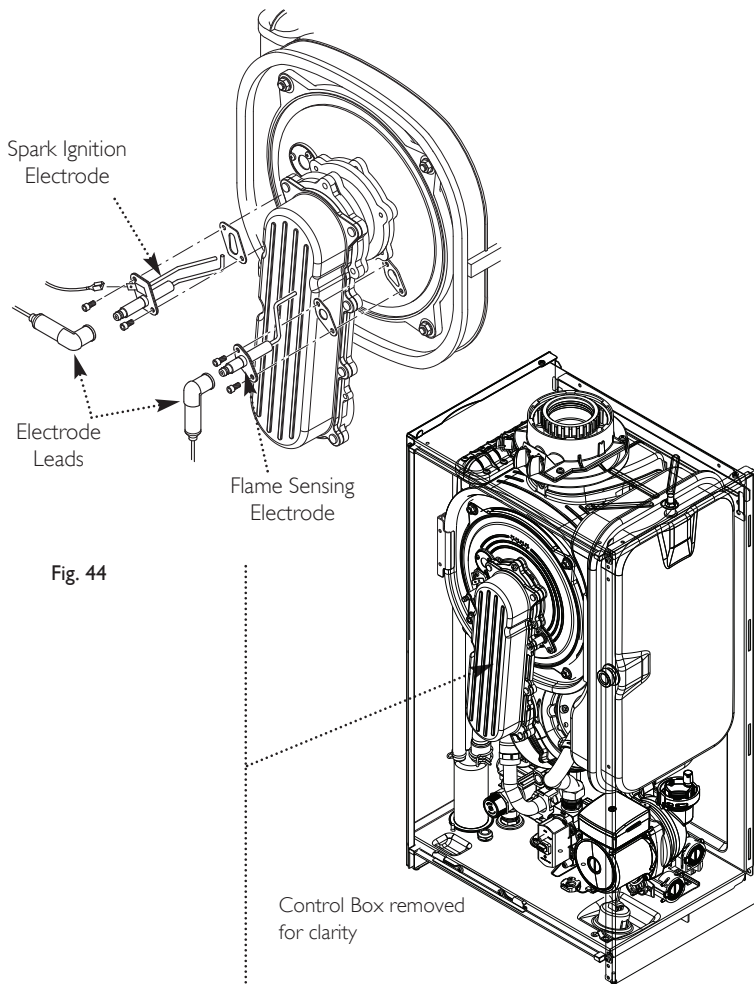
12. Reassemble in reverse order, ensuring the front case panel is securely fitted.

13. Complete the relevant Service Interval Record section of the Benchmark Commissioning Checklist at the rear of this publication and then hand it back to the user.

13.0 Changing Components

IMPORTANT: When changing components ensure that both the gas and electrical supplies to the boiler are isolated before any work is started. When the component has been changed recommission the boiler as described in Section 10.0. Always examine any seals or gaskets, replacing where necessary. The Case Front Panel **MUST** seal effectively against the air box side panels.

See Section 12.1 "Annual Servicing" for removal of case panel, door etc.



13.1 Spark Ignition and Flame Sensing Electrodes (Fig. 44)

1. Disconnect the electrode leads, noting their positions.
2. Remove the retaining screws securing each of the electrodes to the combustion box cover and remove the electrodes.
3. Check the condition of the sealing gaskets and replace if necessary. Reassemble in reverse order.
4. After changing the Flame Sensing Electrode check the combustion - see Section 14.1.
5. When satisfactory combustion readings are not obtained ensure the electrode position is correct and perform the combustion check again.

13.2 Fan (Fig. 45)

1. Remove the clip securing the gas feed pipe to the air/gas venturi. Disconnect the pipe.
2. Undo the screws securing the air/gas collector to the cover (32) or extension piece (12 - 28) and disconnect the fan electrical plugs.
3. Remove the collector and fan assembly, being careful to retain the gasket.
4. Undo the screws securing the fan to the collector. Retain the gasket.
5. Undo the screws securing the venturi to the fan (noting its position) and transfer to the new fan, replacing the seal if necessary.
6. Examine the gasket(s) and replace if necessary.
7. Reassemble in reverse order and perform the Calibration Function - see Section 14.2.

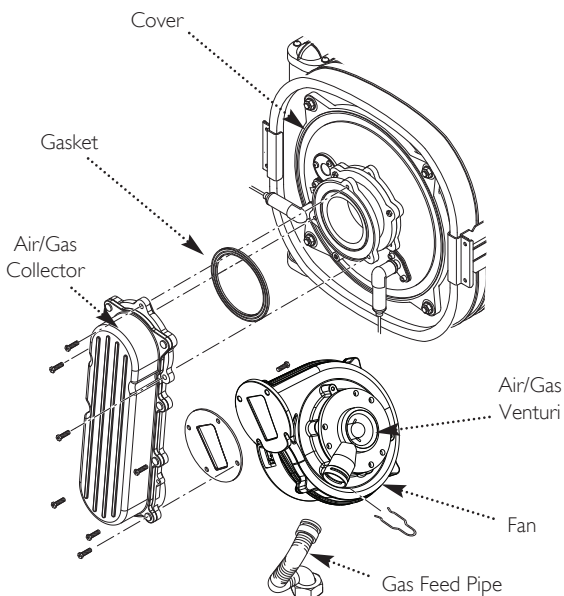


Fig. 45

13.3 Air/Gas Venturi (Figs. 45 & 46)

1. Remove the clip securing the gas feed pipe to the venturi.
2. Undo the screws securing the collector to the cover (32) or extension piece (12 - 28) and disconnect the fan electrical plugs.
3. Remove the collector and fan assembly, being careful to retain the gasket.
4. Undo the screws securing the venturi to the fan (noting its position) and fit the new venturi, replacing the seal if necessary.
5. Examine the gasket and replace if necessary.
6. After changing the venturi check the combustion - see Section 14.1.

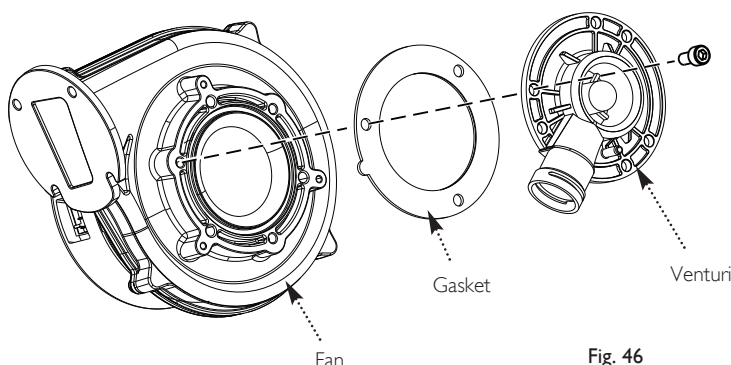


Fig. 46

13.0 Changing Components

13.4 Burner (Fig. 47)

1. Remove the clip securing the gas feed pipe to the air/gas venturi and disconnect the fan electrical plugs.
2. Undo the screws securing the air/gas collector to the cover (32) or extension piece (12 - 28). Remove this extension piece from the cover (on 12 - 28 models).
3. Withdraw the burner from the cover and replace with the new one.
4. Examine the gasket(s), replacing if necessary.
5. After changing the burner check the combustion - see Section 14.1.

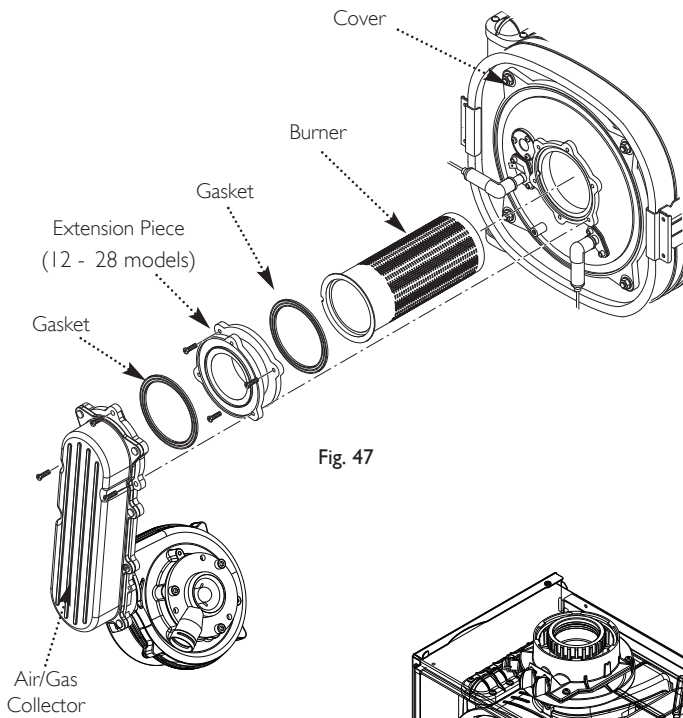


Fig. 47

13.5 Insulation (Fig. 48)

1. Remove the clip securing the gas feed pipe to the air/gas venturi and disconnect the fan electrical plugs.
2. Remove the electrodes as described in section 13.1.
3. Undo the nuts holding the cover to the heat exchanger. Draw the air/gas collector, fan and cover assembly away.
4. Remove the cover insulation piece.
5. Fit the new insulation carefully over the burner and align it with the slots for the electrodes.
6. If the rear insulation requires replacement, remove it and all debris from the heat exchanger. Also it may be necessary to separately remove the spring clip from the pin in the centre of the heat exchanger and the 'L' shaped clips embedded in the insulation.
7. Do not remove the shrink-wrapped coating from the replacement rear insulation. Keep the insulation vertical and press firmly into position.
8. Examine the cover seal and replace if necessary. Reassemble in reverse order.

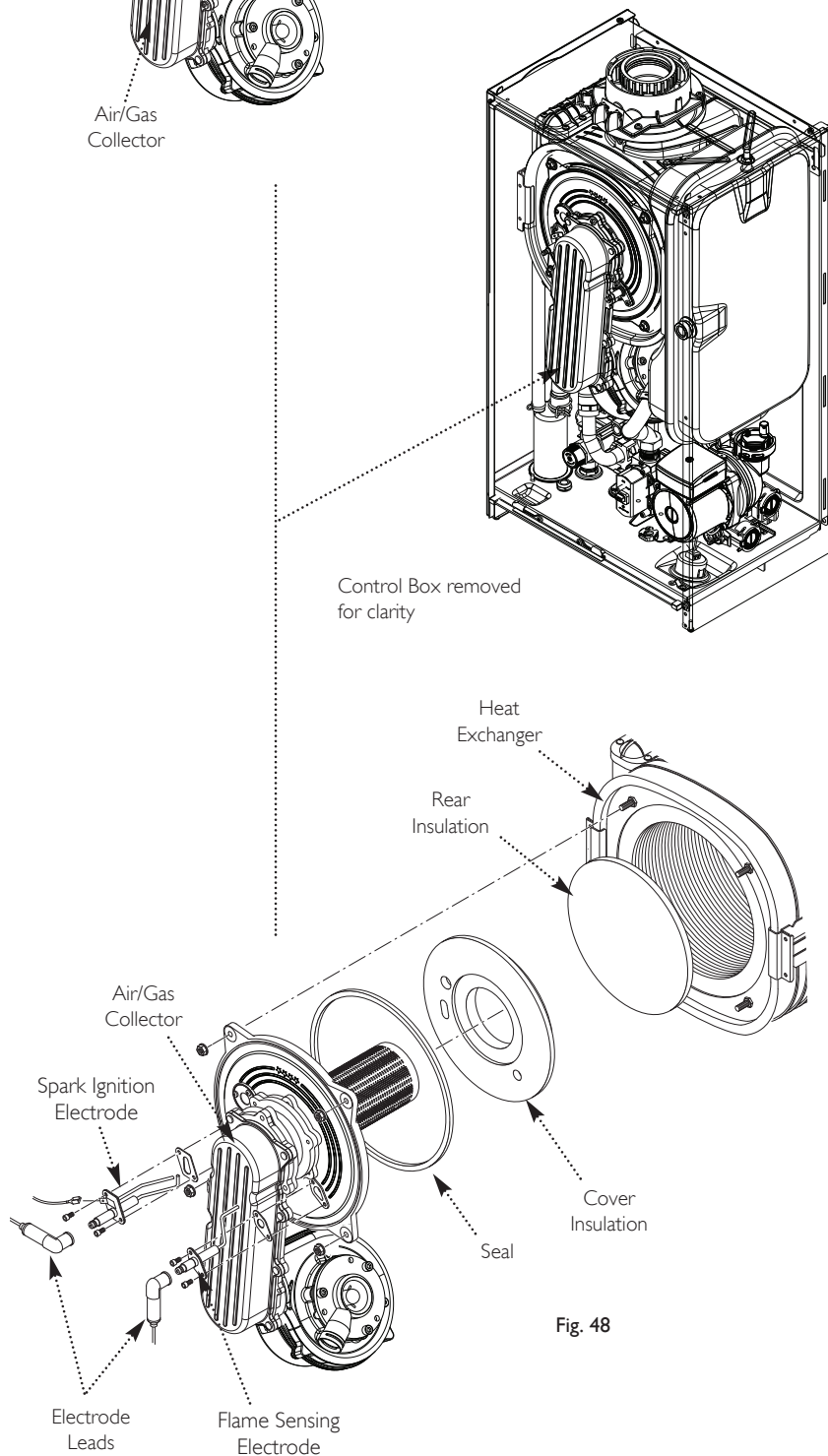
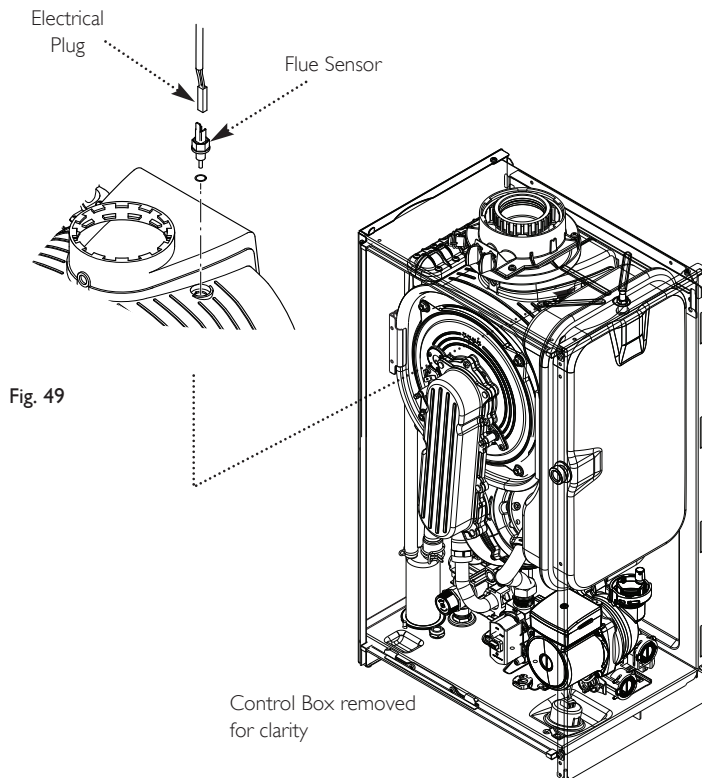


Fig. 48

13.0 Changing Components

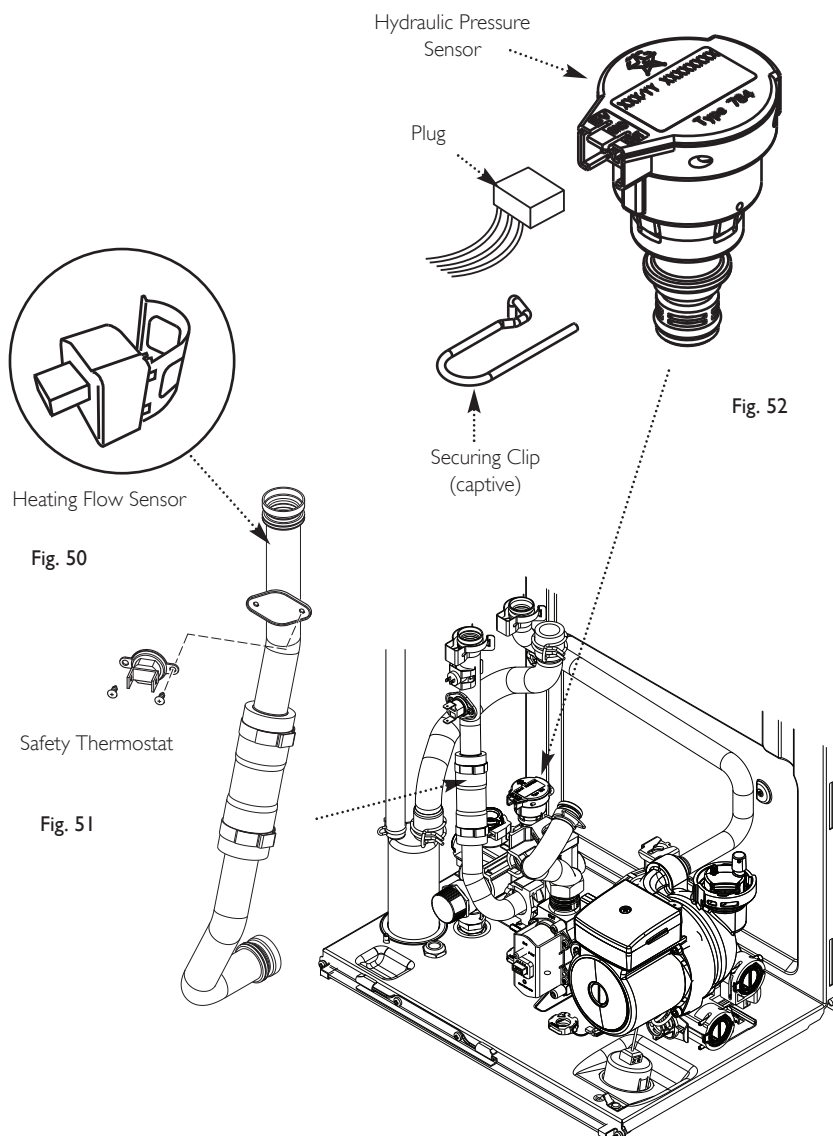
13.6 Flue Sensor (Fig. 49)

1. For ease of access on 12 - 28 models remove the Expansion Vessel as described in Section 13.17.
2. Ease the retaining tab on the sensor away and disconnect the electrical plug.
3. Turn the sensor 90° anticlockwise to remove - it is a bayonet connection.
4. Reassemble in reverse order.



13.7 Heating Flow & Return Sensors (Fig. 50)

1. There is one sensor on the flow (red wires) and one sensor on the return (blue wires). **Note:** For access to the return sensor on 12 - 28 models first remove the fan and air/gas collector (see 13.2).
2. After noting the position prise the sensor clip off the pipe and disconnect the plug.
3. Connect the plug to the new sensor and ease the clip onto the pipe as close to the heat exchanger as possible.



13.8 Safety Thermostat (Fig. 51)

1. Pull the plug off the safety thermostat.
2. Remove the screws securing the thermostat to the mounting plate on the flow pipe.
3. Reassemble in reverse order, ensuring that the plug is pushed fully on.

13.9 Hydraulic Pressure Sensor (Fig. 52)

1. Close the flow and return isolation taps and drain the primary circuit. Remove the fan and heat exchanger flow pipe.
2. Remove the plug from the sensor and pull the retaining clip forwards. The clip is captive and does not need to be fully removed.
3. Reassemble in reverse order.

13.0 Changing Components

13.10 Pump - Head Only (Fig. 53)

1. Disconnect the electrical supply plug from the pump.
2. Close the flow and return isolation taps and drain the boiler primary circuit. Remove the socket head screws securing the pump head to the body and draw the head away.
3. Reassemble in reverse order.

13.11 Pump - Complete (Fig. 54)

1. Disconnect the electrical supply plug from the pump.
2. Close the flow and return isolation taps and drain the boiler primary circuit. For ease of access remove the heating pressure gauge (13.14).
3. Undo the three screws securing the body to the inlet assembly and pump flow pipe. Draw the complete pump forwards.
4. Pull off the securing clip and remove the automatic air vent. Transfer them to the new pump body.
5. Examine the 'O' ring seals, replacing if necessary and reassemble in reverse order.

13.12 Automatic Air Vent (Fig. 54)

1. For access on 12 - 28 models see Section 13.17 to remove the expansion vessel. Close the flow and return isolation taps and drain the primary circuit.
2. The automatic air vent is a bayonet fitting. Remove by twisting anticlockwise.
3. Fit the new automatic air vent, ensuring the 'O' ring is fitted and the cap is open. Reassemble in reverse order.

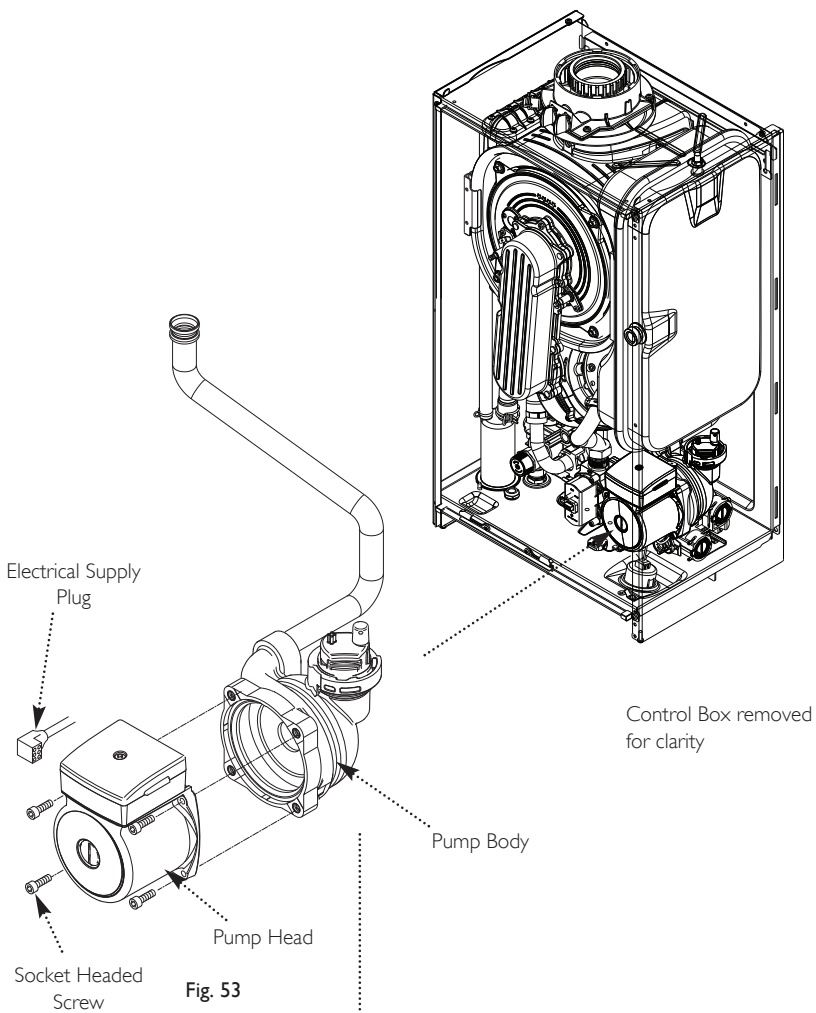


Fig. 53

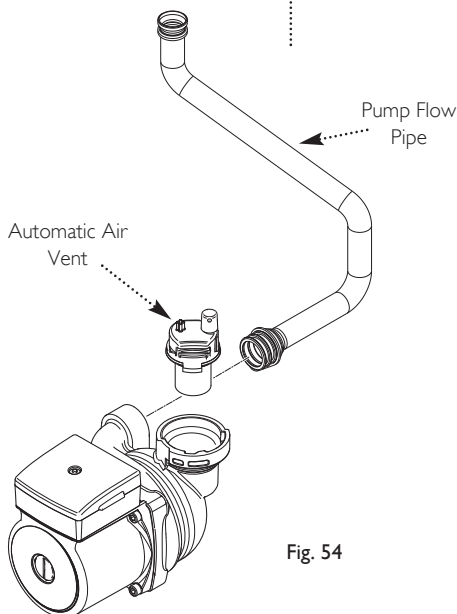


Fig. 54

13.0 Changing Components

13.13 Safety Pressure Relief Valve (Fig. 55)

1. Close the flow and return isolation taps and drain the primary circuit.
2. For access remove the screws securing the condensate trap, and pull off the pipe from the heat exchanger. Ease the trap to one side.
3. Disconnect the discharge pipe from the pressure relief valve and remove the sealing grommet.
4. Pull off the clip retaining the valve and withdraw it from the outlet assembly.
5. Fit the new valve and 'O' ring seal and reconnect the discharge pipe. Ensure the grommet is correctly refitted to maintain the integrity of the case seal. Refit the condensate trap.

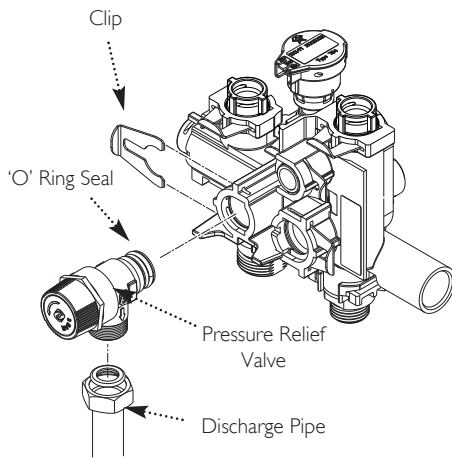
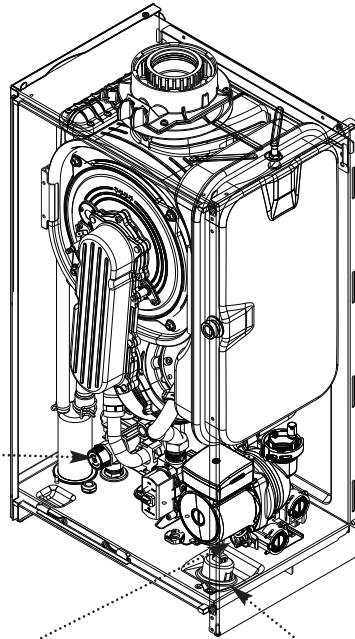


Fig. 55



Control Box removed for clarity

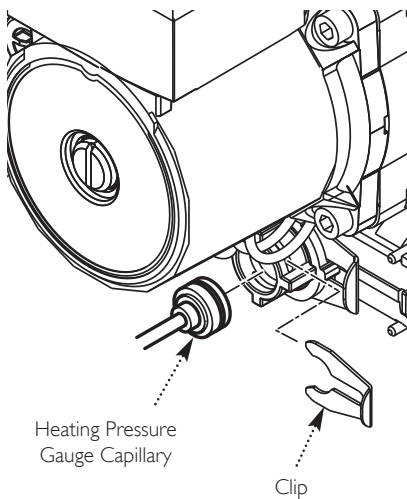
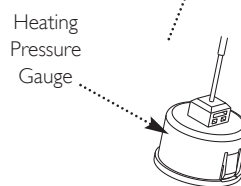


Fig. 56



Heating Pressure Gauge

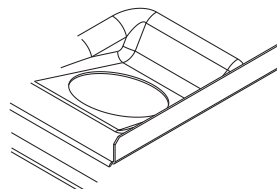


Fig. 57

13.14 Heating Pressure Gauge (Figs. 56 & 57)

1. Close the flow and return isolation taps and drain the primary circuit.
2. Remove the gauge from the boiler lower panel.
3. Remove the clip securing the pressure gauge capillary.
4. Fit the new gauge, ensuring that the capillary is routed to prevent any sharp bends. Reassemble in reverse order and ensure the gauge is firmly in position to maintain the integrity of the case seal.

13.0 Changing Components

13.15 P.C.B. & R.D.S. (Removable Data Stick) (Fig. 58)

NOTE: Both P.C.B. and R.D.S. are available as spare parts. The P.C.B. is suitable for any boiler model. An R.D.S. specific to the boiler model output & gas type will be required if the R.D.S. from the original P.C.B. is not being transferred. It is recommended that P.C.B. and R.D.S. are replaced together.

1. Ensure that the power to the boiler is isolated and wait 10 seconds.
2. Remove the screws securing the control box cover and release the cover retaining barbs from their slots.
3. Note the position of all plugs and wires on the P.C.B. and disconnect them.
4. Undo the securing screws and remove the P.C.B.

IMPORTANT: If only the P.C.B. is being replaced transfer the R.D.S. from the original board to the new one. Where both P.C.B. and R.D.S. are being replaced ensure the new R.D.S. is on new the board.

5. Reassemble in reverse order. Ensure that the ignition lead is connected correctly.

6. **P.C.B. ONLY changed** - Check the Combustion - see Section 14.1.

7. **P.C.B. & R.D.S. changed** - enable the Calibration Function as described in Section 14.2, then Check the Combustion - see Section 14.1.

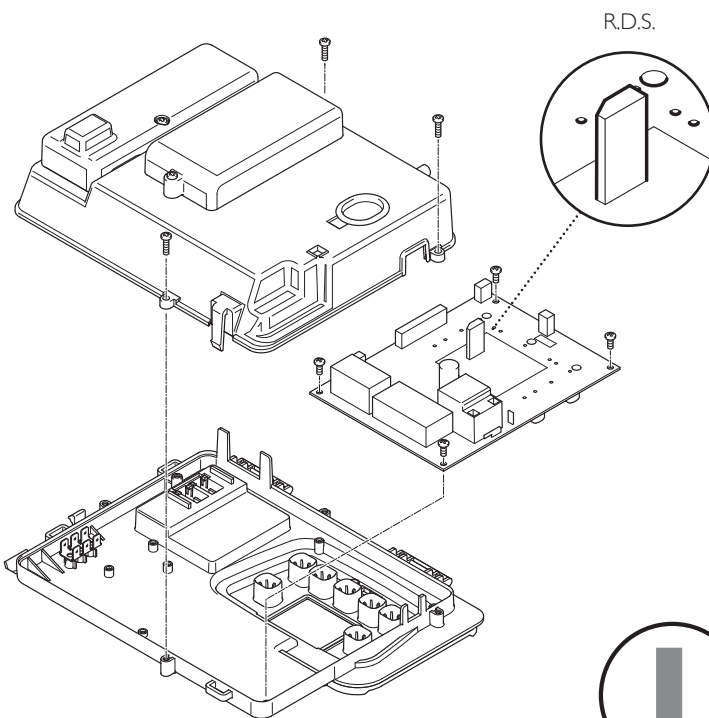
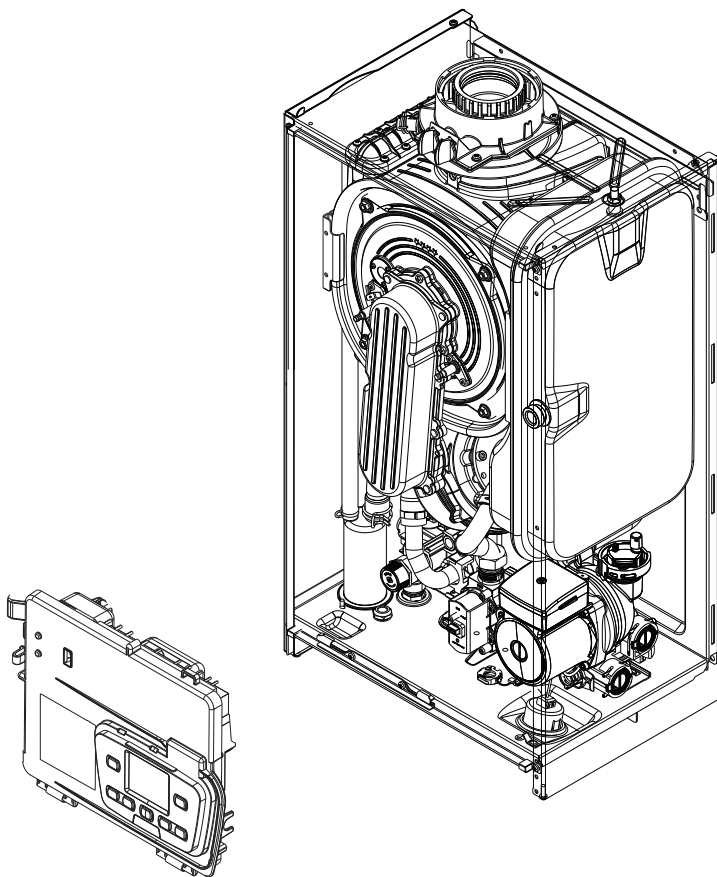
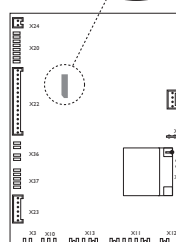


Fig. 58

Note the correct orientation of the R.D.S. Position with the chamfer as shown.



13.0 Changing Components

13.16 Gas Valve (Fig. 59)

IMPORTANT: After replacing the valve the CO₂ must be checked and adjusted as detailed in Section 14.0 Combustion & Calibration. Only change the valve if a suitable calibrated combustion analyser is available, operated by a competent - see section 12.1.

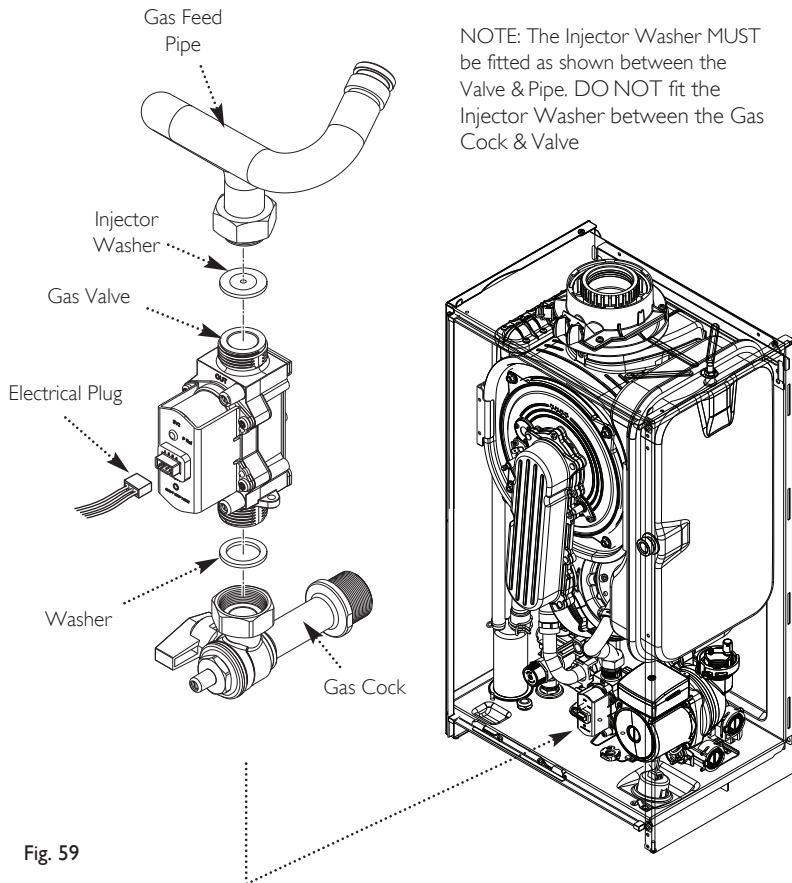


Fig. 59

1. Turn the gas cock off and undo the nut under the boiler. Retain the washer.
2. Remove the electrical plug from the valve.
3. Undo the nut on the gas feed pipe and ease the pipe aside. It is recommended that the injector washer is changed as well.
4. Remove the screws securing the gas valve to the boiler bottom panel.
5. Reassemble in reverse order, ensuring the injector washer is in place, and perform the Calibration Function & Combustion Check - see Sections 14.1 & 14.2.

NOTE: Check for gas tightness after replacing gas valve.

13.17 Expansion Vessel (Fig. 60)

1. Close the flow and return isolation taps and drain the primary circuit.
2. Prise off the securing clip and disconnect the braided hose from the vessel.
3. Whilst supporting the vessel undo the locknut and manoeuvre the vessel out of the boiler.
4. Reassemble in reverse order.

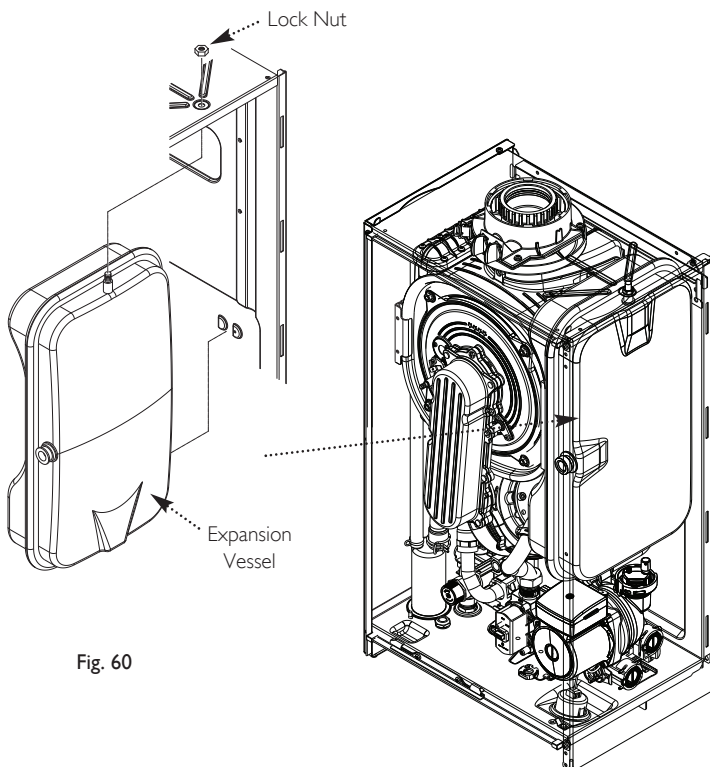


Fig. 60

IMPORTANT: DO NOT insert the Analyser Probe into the Test Point immediately. This will prevent saturation of the analyser.

During the Calibration Function the combustion ratio may increase for a short time while the boiler performance is optimised.

The person carrying out a combustion measurement should have been assessed as competent in the use of a flue gas analyser and the interpretation of the results.

The flue gas analyser used should be one meeting the requirements of BS7927 or BS-EN50379-3 and be calibrated in accordance with the analyser manufacturers' requirements.

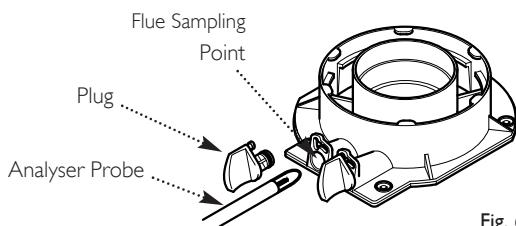


Fig. 61

14.3 Adjusting the CO²

1. Press **iP** & **||||+** together and hold for at least 6 seconds. 'On' will be displayed briefly, followed by '304' then the boiler CH output expressed as percentage i.e. '100'.
2. Press **iP** to select the adjustment function. '0' will alternate with '304'. Using the **||||-** & **||||+** buttons adjust '0' between '-3' & '3'.
3. Decreasing the value lowers the CO², and selecting a higher value will increase CO².
4. Once the correct CO² reading is achieved press **iP** to return to the fan speed selection.
5. Using **||||-** or **||||+** to select the next fan speed. '00' indicates MINIMUM speed, the other speed (Ignition Phase) will be indicated by, for example '33' (this varies depending on boiler model).
6. Repeat step 2. above to adjust the CO² at Ignition Phase and Minimum fan speeds. Press **iP** & **||||+** together and hold for at least 6 seconds to exit the function.

14.1 Checking the Combustion

1. Combustion should be:-

Natural Gas 9.0% CO² ± 0.7

Propane 10.5% CO² ± 1.0

at all 3 fan speeds:- '100' (Maximum), the Ignition Phase speed and '00' (Minimum).

2. Press **iP** & **||||+** together and hold for at least 6 seconds. 'On' will be displayed briefly, followed by '304' then the boiler CH output expressed as percentage i.e. '100'.
3. Insert the analyser probe and once stabilised note the CO² reading.
4. Press **||||-** to select the Ignition Phase Speed. A value will be displayed, e.g. '33'. Note the CO² reading.
5. Press **||||-** again to select the Minimum Output. '00' will be displayed. Note the CO² reading.
6. If the CO² is not within the tolerances referred to above at any of the speeds, follow the procedure in **Section 14.3** opposite to calibrate the boiler.
7. To exit the function press **iP** & **||||+** together for 6 seconds.

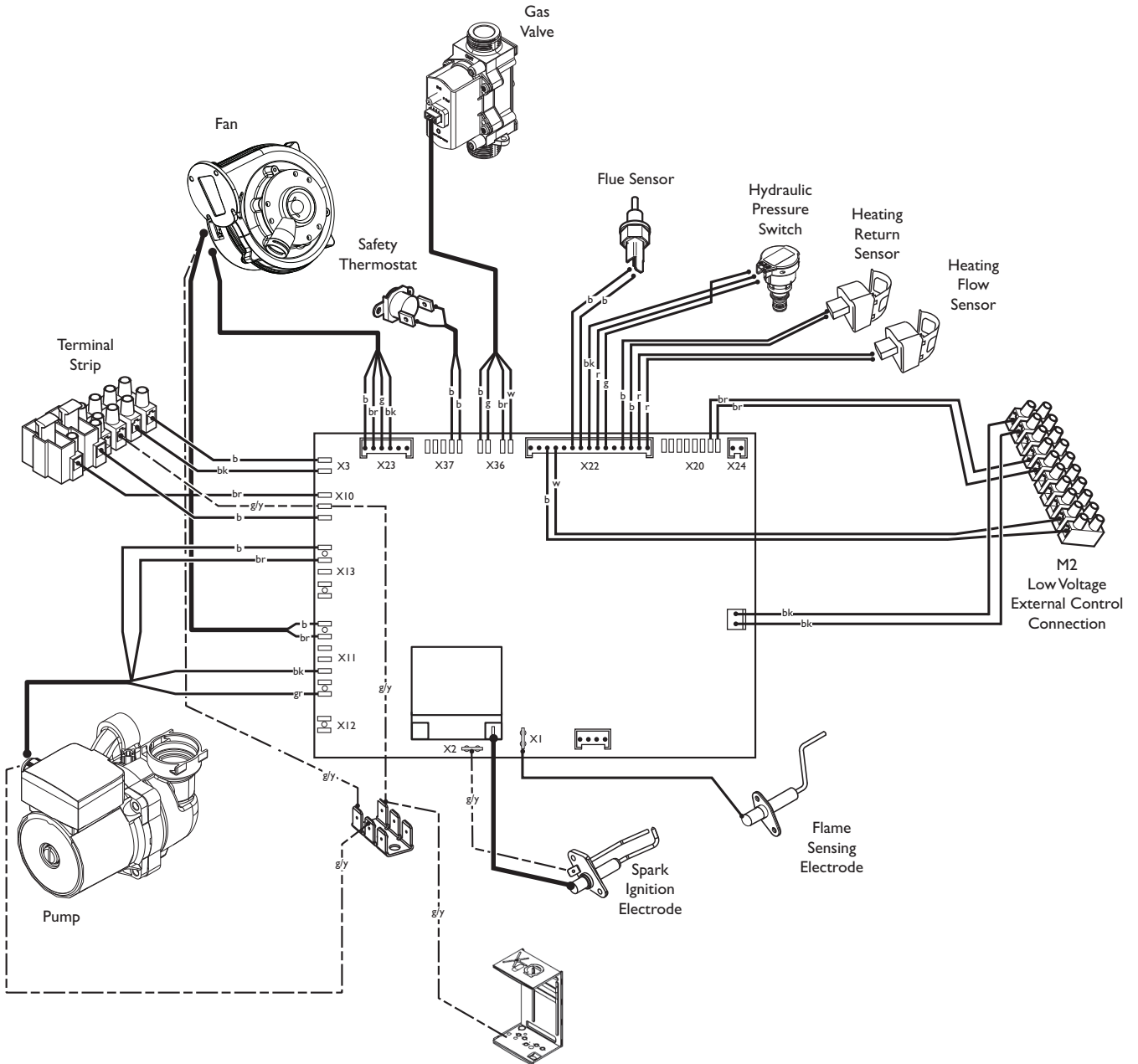
14.2 Calibration Function

IMPORTANT: Do not commence the Calibration Function whilst the burner is lit! The Case Front Panel MUST be fitted.

Note: To obtain an accurate measurement on smaller capacity systems it may be necessary to open one or more hot taps in order to maintain the boiler at full rate.

1. The function is activated by pressing buttons **||||-** and **OR** together for 6 seconds then quickly pressing button **iP** while 'On' is displayed. The Ignition Phase fan speed code will then be displayed. Calibration will take approximately 5 minutes.
2. If '304' is displayed, then the Calibration Function has not been activated correctly. Isolate and reinstate all power sources to the boiler and repeat the above.
3. The boiler will automatically calibrate at '100', the Ignition Phase speed then '00'. These represent the percentage of MAXIMUM fan speed (i.e. '00' is MINIMUM fan speed). Once the boiler has stabilised and self-calibrated at each fan speed the **P** and **||||** symbols will be displayed before the next speed is automatically set.
4. When self-calibration is complete the boiler will run at MINIMUM fan speed ('00' displayed). The following symbols will also be displayed **🔥** **🔧** **||||** flashing together at regular intervals.
5. To exit the function press **OR**. 'ESC' will be displayed and the calibration function completed.

15.1 Illustrated Wiring Diagram

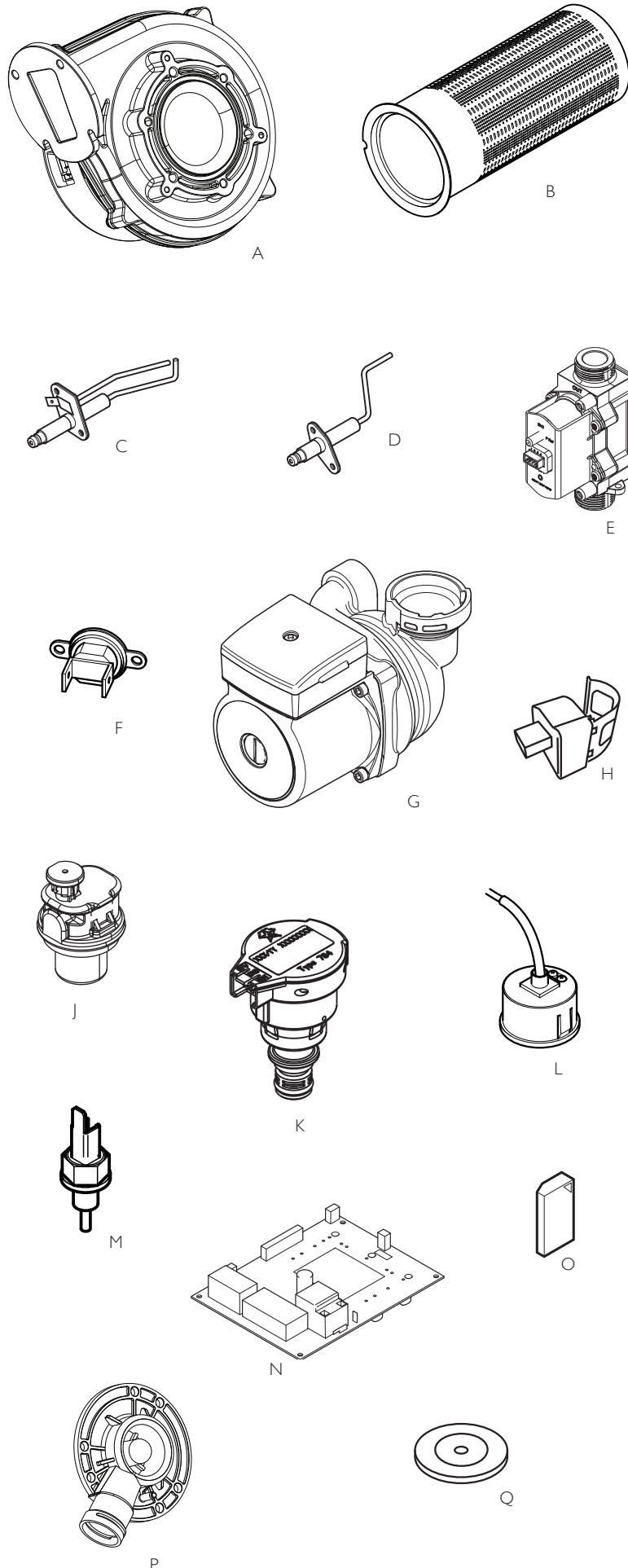


Key To Wiring Colours

- | | |
|------------|--------------------|
| b - Blue | r - Red |
| bk - Black | g - Green |
| br - Brown | g/y - Green/Yellow |
| w - White | y - Yellow |
| gr - Grey | |

16.0 Short Parts List

Short Parts List



Key No.	Description	Manufacturers Part No.
A	Fan	720768101
B	Bumer (12/15/18/24/28) Bumer (32)	720767901
C	Spark Ignition Electrode	720767301
D	Flame Sensing Electrode	720767101
E	Gas Valve	720752301
F	Safety Thermostat	720765301
G	Pump	720777401
H	Heating Flow/ Return Sensor	720747101
J	Pump Air Vent	720777601
K	Hydraulic Pressure Sensor	720778001
L	Heating Pressure Gauge	720776601
R	Flue Sensor	720851401
N	PCB only	720878102
O	R.D.S. - 12	720845601
	R.D.S. - 15	720845901
	R.D.S. - 18	720846201
	R.D.S. - 24	720846501
	R.D.S. - 28	720846801
	R.D.S. - 32	720847101
	R.D.S. - 12 LPG	720847401
	R.D.S. - 15 LPG	720847701
	R.D.S. - 18 LPG	720848001
	R.D.S. - 24 LPG	720848301
	R.D.S. - 28 LPG	720848601
	R.D.S. - 32 LPG	720848901
P	Air/Gas Venturi 12	720820701
	Air/Gas Venturi 15	720750301
	Air/Gas Venturi 18	720750501
	Air/Gas Venturi 24	720750701
	Air/Gas Venturi 28	720785401
	Air/Gas Venturi 32	720785601
Q	Injector Washer - 12 (Ø 3.0)	720821101
	Injector Washer - 15 (Ø 3.3)	720821301
	Injector Washer - 18 (Ø 3.6)	720821501
	Injector Washer - 24 (Ø 4.6)	720775801
	Injector Washer - 28 (Ø 4.9)	720776001
	Injector Washer - 32 (Ø 5.8)	720786601

Table Of Error Codes

E 09	Gas Valve Connection Cable
E 15	Gas Valve Fault
E 20	Central Heating NTC Fault
E 28	Flue NTC Fault
E 40	Central Heating Return NTC Fault
E 55	Calibration Required
E 109	Pre-circulation Fault
E 110	Safety Thermostat Operated
E 117	Primary System Water Pressure Too High
E 118	Primary System Water Pressure Too Low
E 125	Circulation Fault (Primary)
E 128	Flame Failure
E 130	Flue NTC Operated
E 133	Interruption Of Gas Supply or Flame Failure
E 134	Elapsed Time - Gas Valve Open Without Gas
E 135	Interruption Of Gas Supply (Internal Error)
E 154	Flow/Return Sensor Temperature Test
E 160	Fan or Fan Wiring Fault
E 270	Circulation Fault (Dry Fire)
E 384	False Flame

The **iP** button can be pressed so that the display shows the following information:-

- 1 press - '00' alternates with Sub-Code (only when fault on boiler) or '000'
- 2 presses - '01' alternates with CH Temperature
- 3 presses - '02' alternates with Outside Temperature (where Sensor fitted)
- 4 presses - '03' alternates with DHW Temperature
- 5 presses - '04' alternates with DHW Temperature
- 6 presses - '05' alternates with System Water Pressure
- 7 presses - '06' alternates with Return Temperature
- 8 presses - '04' alternates with Flue Temperature
- 9 presses - '05' alternates with Heat Exchanger Temperature

'Service Due' Message

1. After 11 months operation the 'Service Due' message will be shown on the boiler display. (If the installation has been subject to prolonged electrical isolation or power cuts this period may be longer than 11 months)

2. Once the service has been completed satisfactorily the 'Service Due' message can be reset or de-activated.

To Reset

3. Press **||||-** & **||||+** for 6 seconds. Using **||||+** scroll through until '22' is displayed. Press **iP**.

4. Press **||||+** to scroll to '15'. Confirm with **iP** then press **OR** to return the display to normal.

To De-activate

5. Press **||||-** & **||||+** for 6 seconds. Using **||||+** scroll through until '22' is displayed. Press **iP**.

8. Press **||||+** until '22' is displayed again. Press **iP**. Using **||||+** scroll through to '50'. Press **iP**.

9. Press **||||+** until '25' is displayed. Confirm with **iP** then press **OR** to return the display to normal.

17.0 Fault Finding

17.1 Initial Fault Finding Checks

1. Check that gas, water and electrical supplies are available at the boiler.
2. Electrical supply = 230V ~ 50 Hz.
3. The preferred minimum gas pressure is 20mb (NG) 37mb (LPG).
4. Carry out electrical system checks, i.e. Earth Continuity, Resistance to Earth, Short Circuit and Polarity with a suitable meter.

NOTE: These checks must be repeated after any servicing or fault finding.

5. Ensure all external controls are calling for heat and check all external and internal fuses. Before any servicing or replacement of parts, ensure the gas and electrical supplies are isolated.

17.2 Error Codes

1. If a fault occurs on the boiler an error code may be shown by the facia display.

2. The codes are a flashing number, either two or three digit, preceded by the symbol **E**:-

E followed by 20, 28, 40, or 160 indicates possible faulty components.

E followed by 55 (after replacing R.D.S.) indicates calibration required (Section 14.2).

E 110 indicates overheat of the primary system water.

E 117 is displayed when the primary water pressure is greater than 2.7 bar.

E 118 is displayed when the primary water pressure is less than 0.5 bar.

E 133, 134 and 135 indicate that the gas supply has been interrupted, ignition has failed or the flame has not been detected.

E 128 is displayed if there has been a flame failure during normal operation.

E 125 is displayed in either of two situations:-

i) If between 15 and 30 seconds of the burner lighting the boiler temperature has not changed by 1°C.

ii) If within 10 minutes of the burner lighting the boiler actual temperature twice exceeds the selected temperature by 30°.

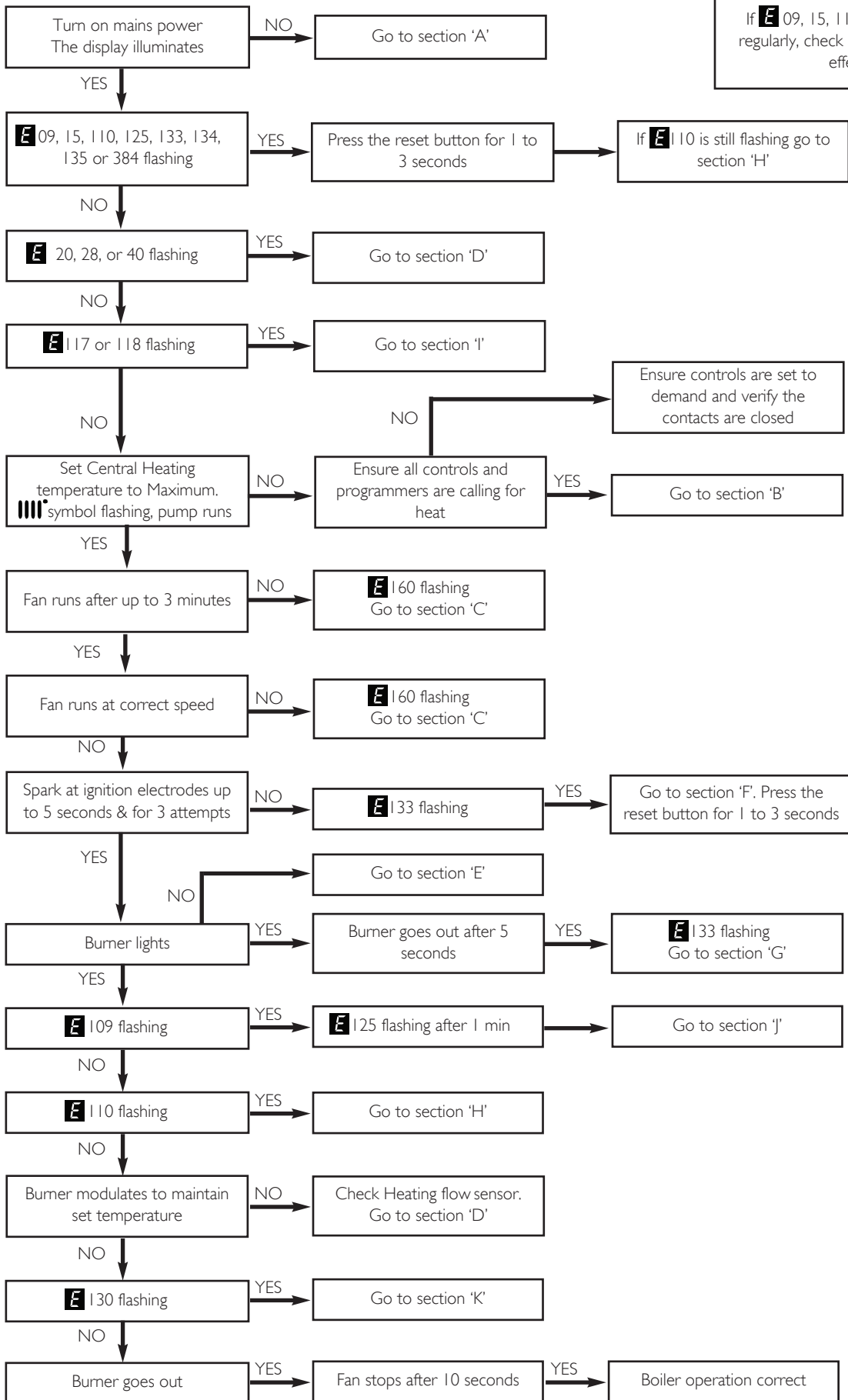
In these instances poor primary circulation is indicated.

3. By pressing the 'Reset' button for 1 to 3 seconds when **E** 110, 125, 133, 134, 135, 09, 15, 128 & 384 are displayed it is possible to relight the boiler.

4. If this does not have any effect, or the codes are displayed regularly further investigation is required.

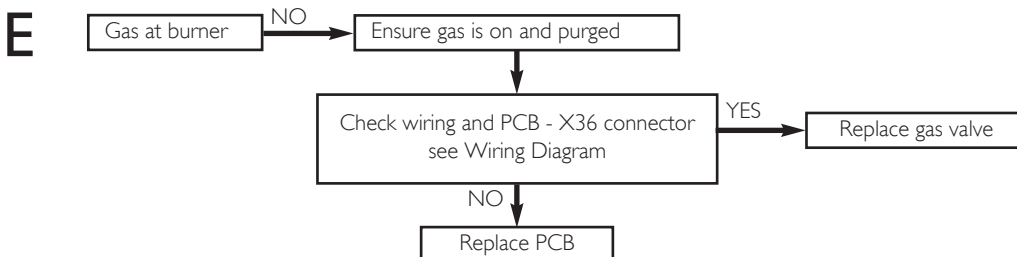
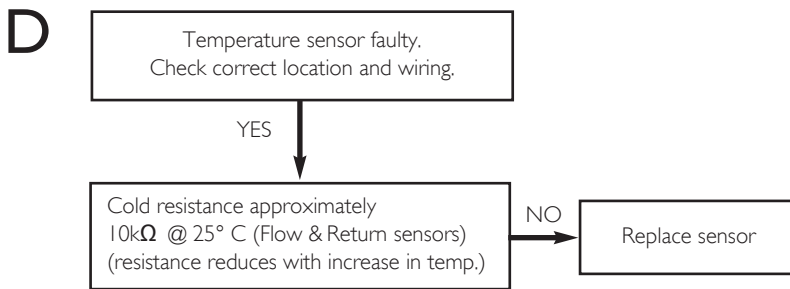
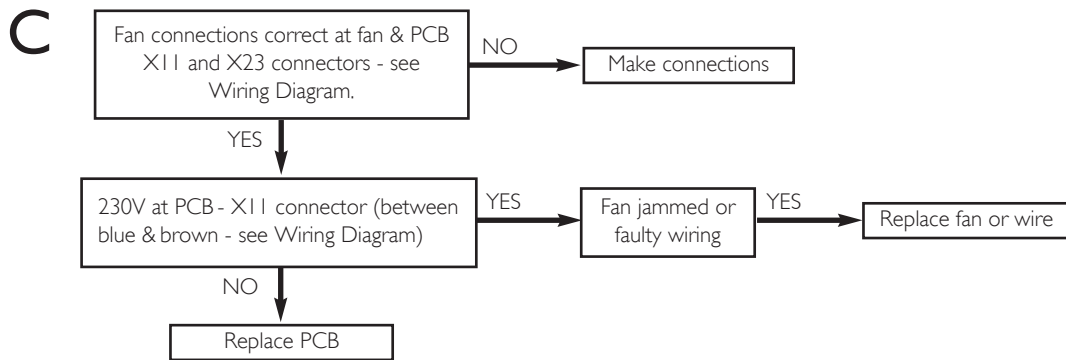
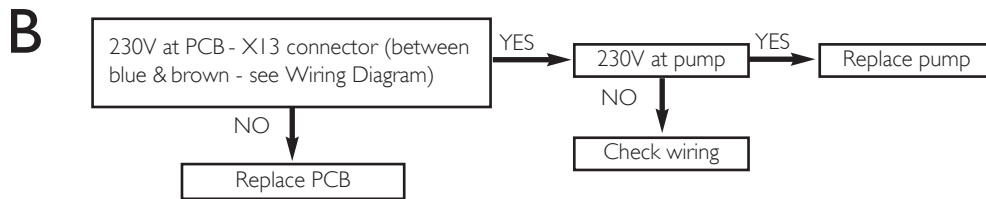
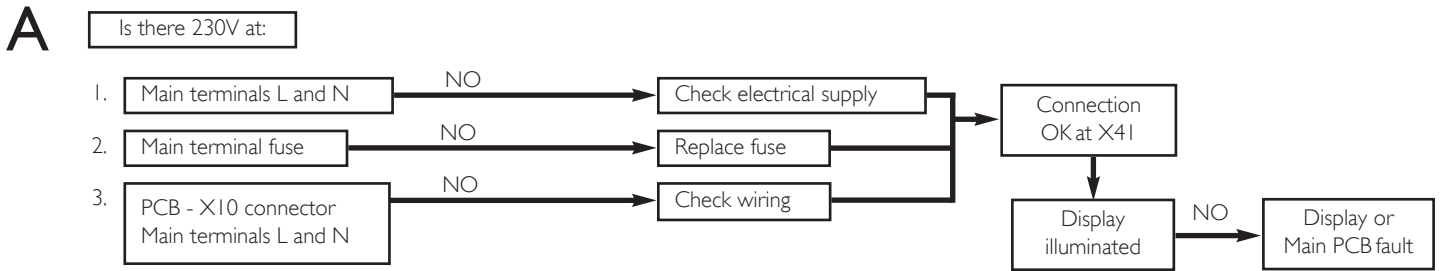
17.0 Fault Finding

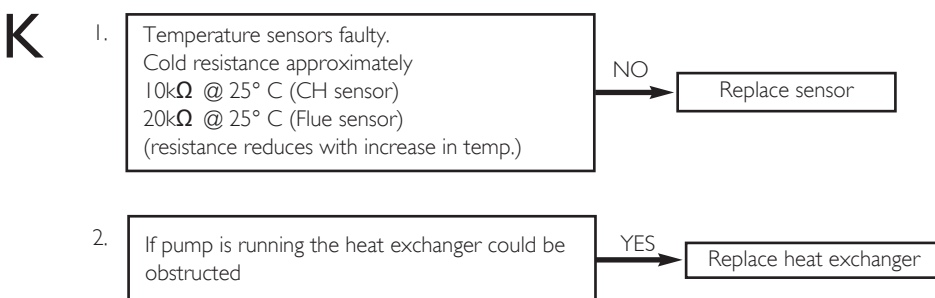
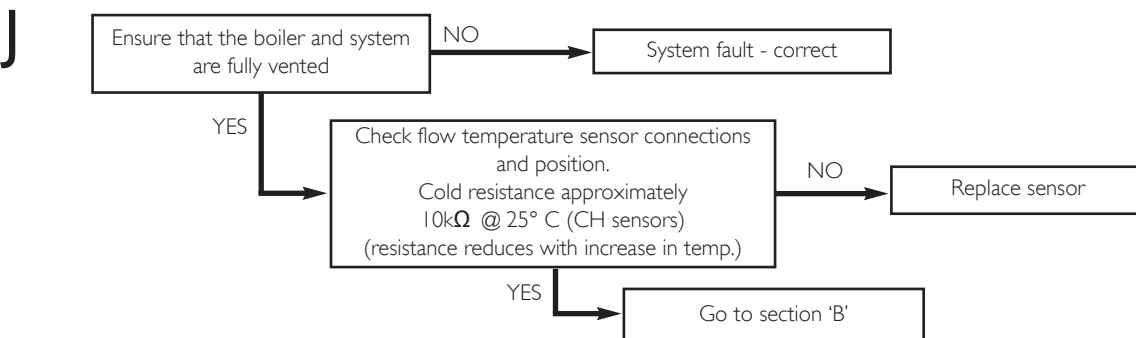
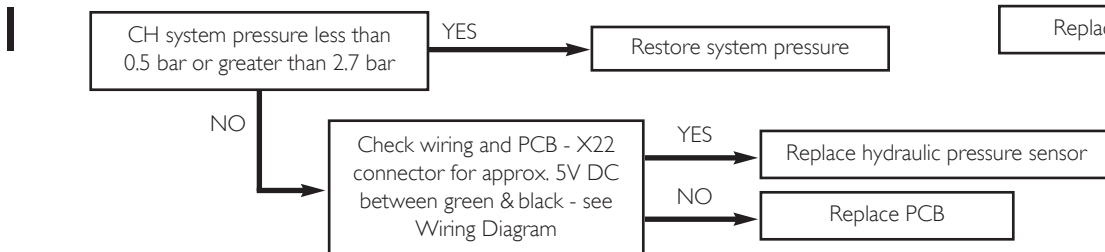
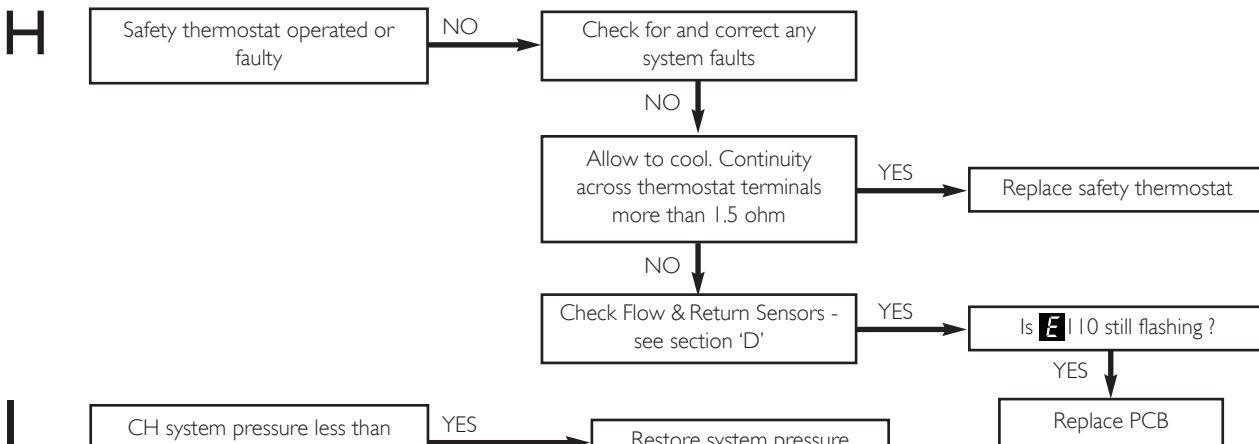
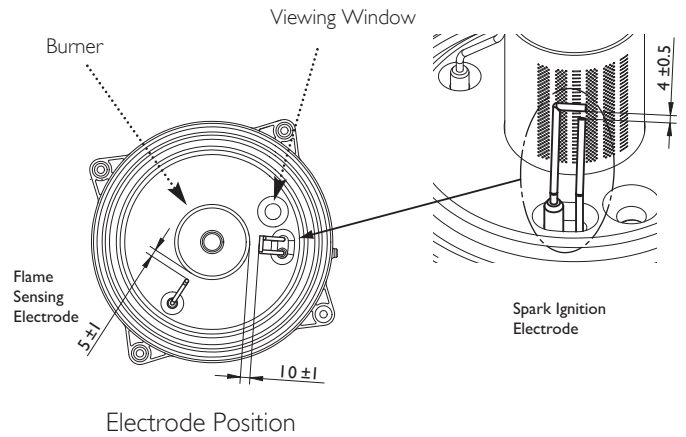
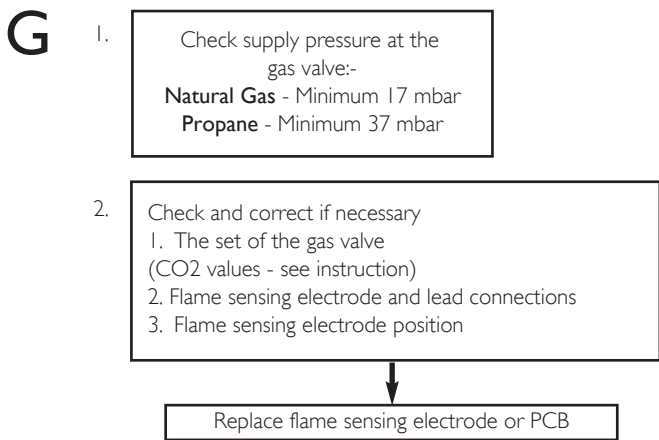
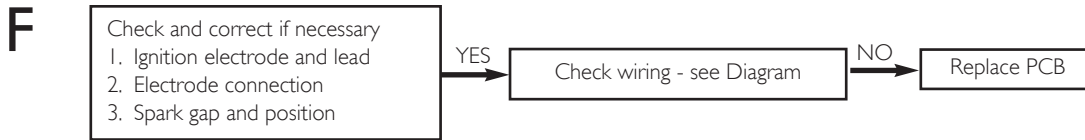
Refer to "Illustrated Wiring Diagram" for position of terminals and components
Central Heating - Follow operational sequence



If **E 09, 15, 110 or 384** is flashing or re-occurs regularly, check all PCB connections. If this has no effect replace the PCB.

Fault Finding Solutions Sections





Appliance Type	C ₁₃	C ₃₃	C ₄₃	C ₅₃
Appliance Category	CAT II _{2H} 3P			
Heat Input CH (Net)		Max	Min	
32 model	kW	32	4.6	
Heat Output CH (Non-Condensing)		Max	Min	
32 model	kW	32	4.6	
Heat Output CH (Condensing)		Max	Min	
32 model	kW	33.8	5	
Injector				
32 model	mm	5.8		

NATURAL GAS ONLY !

Max Gas Rate	(Natural Gas - G20) (After 10 mins)	
32 model	m ³ /h	3.40

Inlet Pressure	(Natural Gas - G20)	
mbar	20	

PROPANE ONLY !

Max Gas Rate	(Propane - G31) (After 10 mins)	
32 model	kg/h	2.49

Inlet Pressure	(Propane - G31)	
mbar	37	

Power Consumption		
32 model	W	132

Outer Case Dimensions

Casing Height	-	763mm
Overall Height Inc Flue Elbow	-	923mm
Casing Width	-	450mm
Casing Depth	-	355mm

Weights

		(32 model)
Packaged Boiler Carton		42.5kg
Installation Lift Weight		37.5kg

Expansion Vessel - (For Central Heating only.
Integral with appliance)

	bar
Min Pre-charge Pressure	0.5
	32 model
	litre
Max Capacity of CH System	155

Primary Water Content of Boiler (unpressurised)	2.8
---	-----

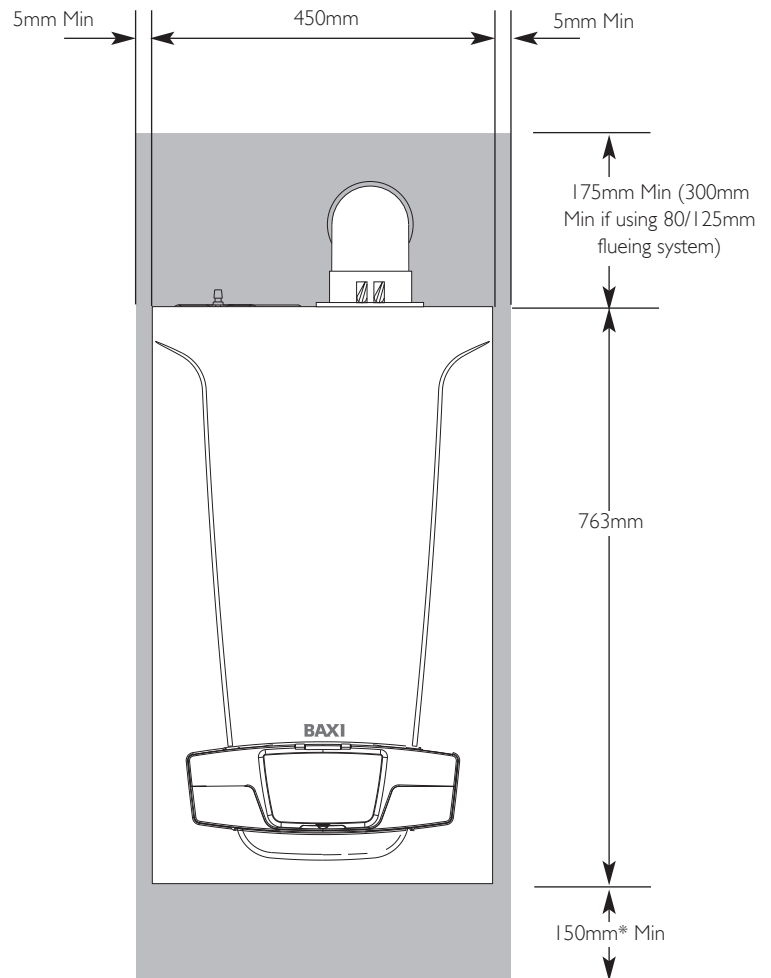
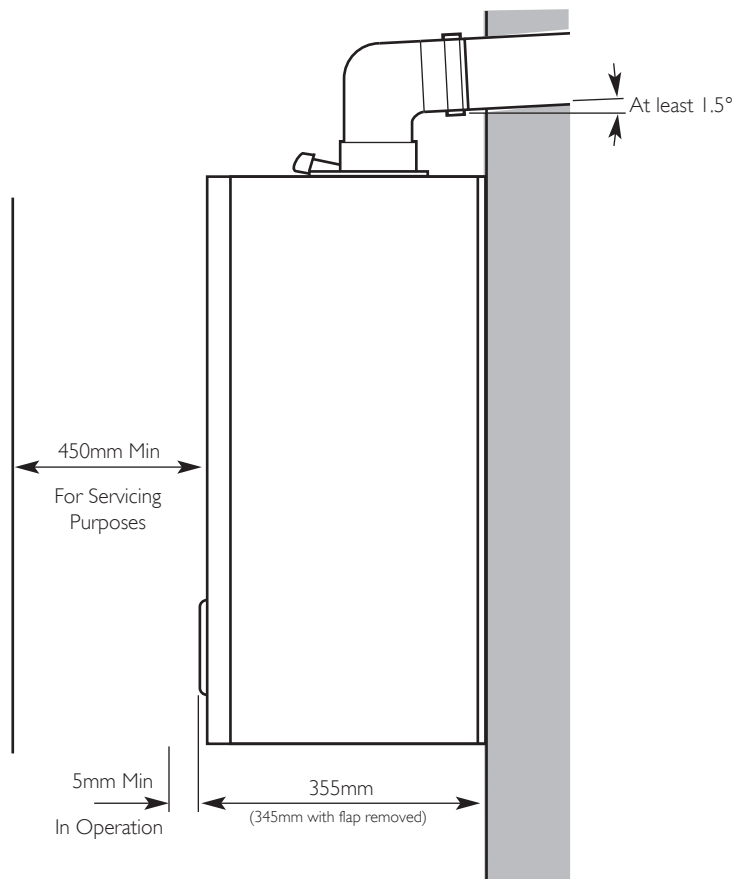
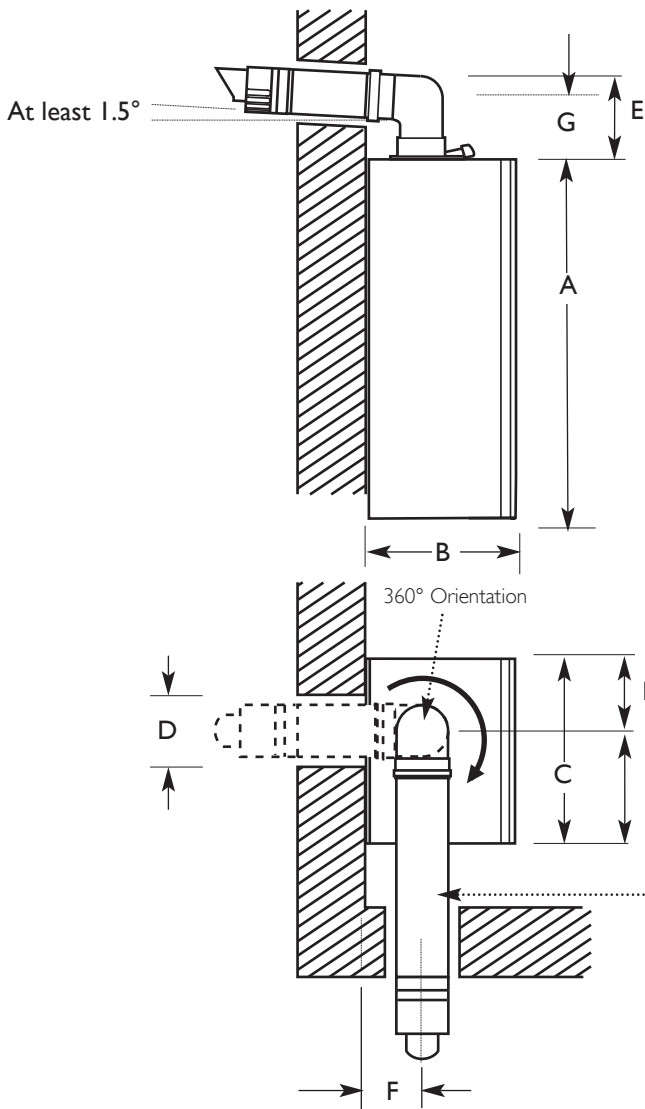


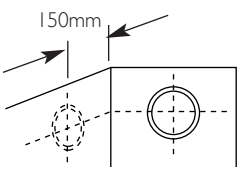
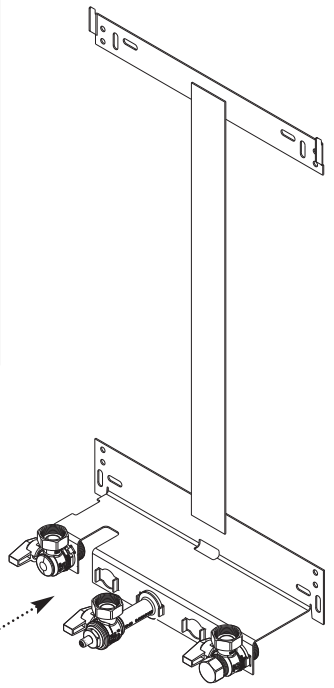
Fig. 8

* This is MINIMUM recommended dimension. Greater clearance will aid installation and maintenance

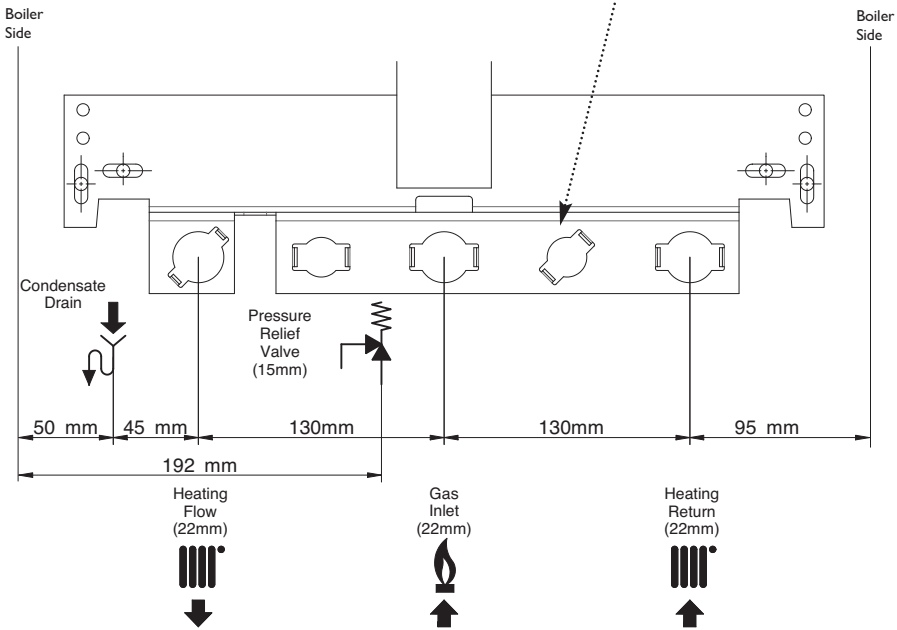




Dimensions	
A	763mm
B	355*mm *This can be reduced to 345mm by removing the boiler control access flap
C	450mm
D	116mm Ø Min.
E	160mm (207mm for 80/125mm flue systems)
F	150mm
G	106mm
H	170mm
J	280mm



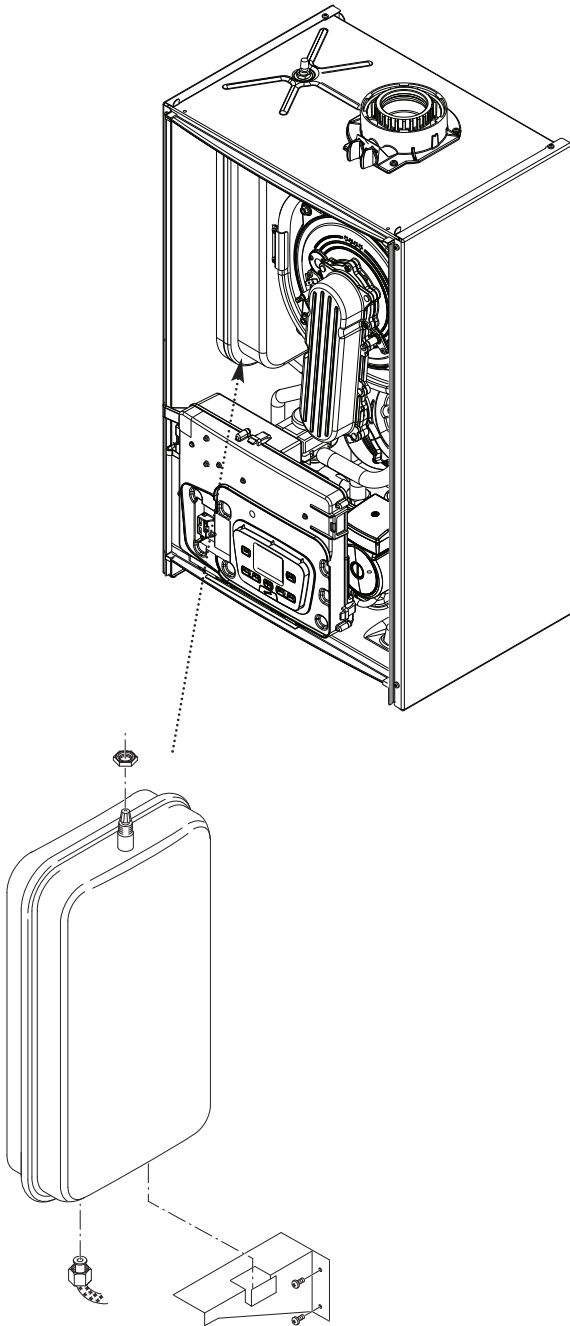
For Side Flue Exit



NOTE: The main difference between Megaflo 32 kW and other models in the range is the position of the expansion vessel. The method of changing this component is described below.

13.21 Expansion Vessel (Fig. 66)

1. Close the flow and return isolation taps and drain the primary circuit.
2. Undo the nut on the pipe connection at the bottom of the vessel, and slacken the nut on the hydraulic inlet assembly.
3. Remove the screws securing the support bracket, and withdraw the bracket.
4. Whilst supporting the vessel undo and remove the locknut securing the vessel spigot to the boiler top panel.
5. Manoeuvre the vessel out of the boiler.
6. Reassemble in reverse order.



GAS BOILER SYSTEM COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the boiler as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission according to the manufacturer's instructions and complete this Benchmark Commissioning Checklist will invalidate the warranty. This does not affect the customer's statutory rights.

Customer name:				Telephone number:			
Address:							
Boiler make and model:							
Boiler serial number:							
Commissioned by (PRINT NAME):				Gas Safe register number:			
Company name:				Telephone number:			
Company address:							
				Commissioning date:			
To be completed by the customer on receipt of a Building Regulations Compliance Certificate*							
Building Regulations Notification Number (if applicable):							
CONTROLS (tick the appropriate boxes)							
Time and temperature control to heating		Room thermostat and programmer/timer Load/weather compensation		Programmable room thermostat Optimum start control			
Time and temperature control to hot water		Cylinder thermostat and programmer/timer		Combination Boiler			
Heating zone valves		Fitted		Not required			
Hot water zone valves		Fitted		Not required			
Thermostatic radiator valves		Fitted		Not required			
Automatic bypass to system		Fitted		Not required			
Boiler interlock				Provided			
ALL SYSTEMS							
The system has been flushed and cleaned in accordance with BS7593 and boiler manufacturer's instructions						Yes	
What system cleaner was used?							
What inhibitor was used?						Quantity	
						litres	
Has a primary water system filter been installed?						Yes	
						No	
CENTRAL HEATING MODE measure and record:							
Gas rate		m ³ /hr		OR		ft ³ /hr	
Burner operating pressure (if applicable)		mbar		OR Gas inlet pressure		mbar	
Central heating flow temperature						°C	
Central heating return temperature						°C	
COMBINATION BOILERS ONLY							
Is the installation in a hard water area (above 200ppm)?						Yes	
						No	
If yes, and if required by the manufacturer, has a water scale reducer been fitted?						Yes	
						No	
What type of scale reducer has been fitted?							
DOMESTIC HOT WATER MODE Measure and Record:							
Gas rate		m ³ /hr		OR		ft ³ /hr	
Burner operating pressure (at maximum rate)		mbar		OR Gas inlet pressure at maximum rate		mbar	
Cold water inlet temperature						°C	
Hot water has been checked at all outlets						Yes	
						Temperature	
						°C	
Water flow rate						l/min	
CONDENSING BOILERS ONLY							
The condensate drain has been installed in accordance with the manufacturer's instructions and/or BS5546/BS6798						Yes	
ALL INSTALLATIONS							
Record the following:		At max. rate:		CO		ppm	
		AND		CO/CO ₂		Ratio	
		At min. rate: (where possible)		CO		ppm	
		AND		CO/CO ₂		Ratio	
The heating and hot water system complies with the appropriate Building Regulations						Yes	
The boiler and associated products have been installed and commissioned in accordance with the manufacturer's instructions						Yes	
The operation of the boiler and system controls have been demonstrated to and understood by the customer						Yes	
The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer						Yes	
Commissioning Engineer's Signature							
Customer's Signature							
(To confirm satisfactory demonstration and receipt of manufacturer's literature)							

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.



SERVICE RECORD

It is recommended that your heating system is serviced regularly and that the appropriate Service Interval Record is completed.

Service Provider

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions. Always use the manufacturer's specified spare part when replacing controls.

SERVICE 01				Date:	
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 02				Date:	
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 03				Date:	
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 04				Date:	
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 05				Date:	
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 06				Date:	
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 07				Date:	
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 08				Date:	
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 09				Date:	
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 10				Date:	
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.



All descriptions and illustrations provided in this leaflet have been carefully prepared but we reserve the right to make changes and improvements in our products which may affect the accuracy of the information contained in this leaflet. All goods are sold subject to our standard Conditions of Sale which are available on request.

BAXI

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After Sales Service 0844 871 1525 Technical Enquiries 0844 871 1555
Website www.baxi.co.uk
e&oe

PART OF BDR THERMEA