

INSTALLATION AND SERVICING

EVOMAX

30, 40, 60, 80, 100, 120, 150
30P, 40P, 60P, 80P

For users guide see reverse of book

When replacing any part on this appliance, use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by Ideal.

For the very latest copy of literature for specification and maintenance practices visit our website www.idealheating.com where you can download the relevant information in PDF format.

June 2011
UIN 206210 A03

GENERAL

Table 1 Performance Data (Natural Gas)

Evomax Model			30	30P	40	40P	60	60P	80	80P	100	120	150
Boiler Output (non-condensing) Mean 70°C	Max	kW	30	30	40	40	60	60	80	80	100	120	150
		Btu/hr	102350	102350	136500	136500	204750	204750	273000	273000	341200	409450	511800
	Min	kW	6	6	8	8	12	12	16	16	20	24	30
		Btu/hr	20450	20450	27300	27300	40950	40950	54600	54600	68250	81900	102350
Boiler Output (condensing) Mean 40°C	Max	kW	31.54	30.9	42.0	41.2	63.5	62.1	84.4	82.6	103.9	124.7	158.0
		Btu/hr	107600	105450	143300	140600	216650	211900	288000	281850	357360	428900	539100
	Min	kW	6.5	6.4	8.5	8.3	12.6	12.4	17.3	17	21.6	26.0	32.5
		Btu/hr	22200	21850	29000	28300	43000	42300	59050	58000	81620	98250	110800
Boiler Input Max Rate	Nett	kW	30.4	30.4	40.5	40.5	60.8	60.8	82.0	82	102.4	122.9	153.7
		Btu/hr	103700	103700	138250	138250	207400	207400	279650	279650	349550	419500	524350
	Gross	kW	33.7	33	44.9	44	67.4	66	90.9	88.9	113.6	136.4	170.5
		Btu/hr	115000	112600	153350	150150	230050	225200	310200	303350	387750	465300	581600
Boiler Input Min Rate	Nett	kW	6.1	6.1	8.1	8.1	12.2	12.2	16.4	16.4	20.5	24.6	30.7
		Btu/hr	20750	20750	27650	27650	41500	41500	55950	55950	69900	83900	104900
	Gross	kW	6.7	6.6	9.0	8.8	13.5	13.2	18.2	17.8	22.7	27.3	34.1
		Btu/hr	23000	22500	30650	30050	46000	45050	62050	60750	77550	93050	116300
Gas Rate	Max Rate	m³/hr	3.2	1.26	4.3	1.69	6.4	2.53	8.7	3.41	10.8	13.0	16.2
		ft³/hr	113.4	44.7	151.2	59.6	226.9	89.3	305.9	120.3	382.4	458.9	573.6
Flue Gas Flow Rate	Max Rate	m³/hr	47.6	46.5	63.4	62.1	95.1	93.1	128.3	125.4	160.3	192.5	240.7
		ft³/hr	1680	1644	2238	2194	3360	3287	4531	4430	5662	6799	8499
CO ₂ (±0.5%)	Max Rate	%	9.7	11.4	9.7	11.4	9.7	11.4	9.7	11.4	9.7	9.7	9.7
	Min Rate	%	8.7	10.2	8.7	10.2	8.7	10.2	8.7	10.2	8.7	8.7	8.7
NO _x	weighted	mg/kWh	31.0	79	39.1	80	32.3	58	39.8	76	39.6	38.8	38.1
		ppm	17.6	45	22.2	45	18.3	33	22.9	43	22.5	22.0	21.6
Efficiency	Seasonal	%	96.7	97.2	96.2	96.7	96.4	96.9	97.2	97.7	96.7	96.6	96.7
	*SEDBUK 2009	%	89.6	90.6	89.3	90.3	89.4	90.5	n/a	n/a	n/a	n/a	n/a

Table 2 General Data

Evomax Model		30	30P	40	40P	60	60P	80	80P	100	120	150	
Gas Supply		2H – G20 – 20mbar / 3P - G31 - 37mbar											
Gas Supply Connection		G 3/4											
Flow Connection		G1 1/4											
Return Connection		G1 1/4											
Max Pressure (sealed sys)	Bar (psi)	4.0 (58)											
Maximum Static Head	m	40.7											
Electricity Supply		230V - 50Hz											
Fuse Rating	A	4.0											
Power Consumption	W	126		207		131		265		370	403	400	
IP Rating		IP20											
Nominal flue dia - Concent.		80/125								100/150			
Condensate Drain		25											
Water Content	L	3.0				5.0				7.0		9.2	
Dry Weight	Kg	49				60.30				75.70		89.75	

* The value is used in the UK Government's Standard Assessment Procedure (SAP) for energy ratings of dwellings. The test data from which it has been calculated have been certified by a notified body.

Note.

Natural gas consumption is calculated using a calorific value of 37.8MJ/m³ (1038Btu/ft³) gross or 34 MJ/m³ (910 Btu/ft³) nett at 15°C and 1013.25 mbar.

- For l/s divide the gross heat input (kW) by the gross C.V. of the gas (MJ/m³)
- For ft/h³ divide the gross heat input (Btu/h) by the gross C.V. of the gas (Btu/ft³).
- For m³/h multiply l/s by 3.6.

Propane gas consumption is calculated using a calorific value of 95.7 MJ/m³ (2500 Btu/ft.³) gross or 88.0 MJ/m³ (2300 Btu/ft.³) net at 15°C and 1013.25 mbar.

To obtain the fuel consumption in liquid form divide the above figures by 270.

HEALTH & SAFETY DOCUMENT NO. 635

The electricity at work regulations, 1989. The manufacturer's notes must NOT be taken, in any way, as overriding statutory obligations.

IMPORTANT. These appliances are CE certified for safety and performance. It is, therefore, important that no external control devices, e.g. flue dampers, economisers etc., are directly connected to these appliances unless covered by these Installation and Servicing Instructions or as otherwise recommended by **Ideal Stelrad Group** in writing. If in doubt please enquire.

Any direct connection of a control device not approved by **Ideal Stelrad Group** could invalidate the certification and the normal appliance warranty. It could also infringe the Gas Safety Regulations and the above regulations.

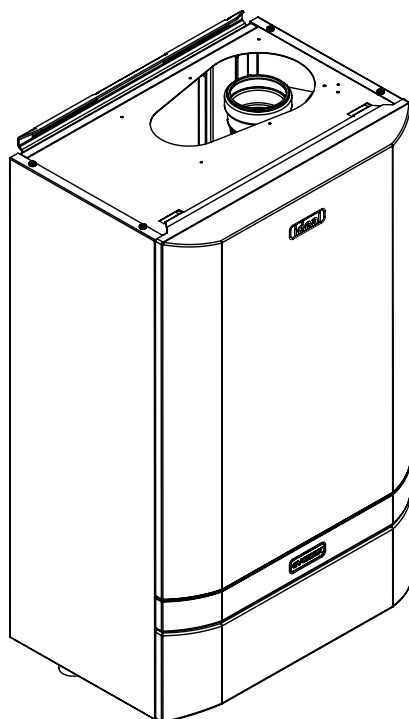
EVOMAX

**30, 40, 60, 80, 100, 120, & 150
30P, 40P, 60P & 80P**

Natural Gas & LPG

Destination Countries: GB, IE

Boiler size	G.C. Appliance No. (Benchmark No.)	PI No.
30	41-750-33A	86-CL-166
40	41-750-34A	86-CL-166
60	41-750-35A	86-CL-166
80	41-750-36A	86-CL-166
100	41-750-37A	86-CL-166
120	41-750-38A	86-CL-166
150	41-750-39A	86-CL-166
30P	41-750-40	86-CL-166
40P	41-750-41	86-CL-166
60P	41-750-42	86-CL-166
80P	41-750-43	86-CL-166



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Key to symbols

IE = Ireland, GB = United Kingdom (Countries of destination)

PMS = Maximum operating pressure of water

C13 C33 = A room sealed appliance designed for connection via ducts to a horizontal or vertical terminal, which admits fresh air to the burner and discharges the products of combustion to the outside through orifices which, in this case, are concentric. The fan is up stream of the combustion chamber.

C63 = A room sealed appliance intended to be connected to a separately approved and marketed system for the supply of combustion air and discharge of combustion products. The fan is up stream of the combustion chamber.

B23 = An appliance intended to be connected to a flue which evacuates the products of combustion to the outside of the room containing the boiler. The combustion air is drawn directly from the room. The fan is up stream of the combustion chamber.

II2H3P = An appliance designed for use on 2nd and 3rd Family gases.

CAUTION. To avoid the possibility of injury during the installation, servicing or cleaning of this appliance, care should be taken when handling edges of sheet steel components.

INTRODUCTION

The EVOMAX boilers are fully automatically controlled, wall mounted, fanned, super efficient condensing appliances.

The EVOMAX condensing boilers can be installed either on the wall or into a prefabricated floor mounted frame.

The boilers are suitable for use with a room sealed flue or open flue application.

Through a sophisticated control system combined with premix burner arrangement the boilers are capable of high seasonal efficiencies of >96% and low emissions.

These boilers are certified to meet the requirements of the EC Gas Appliance Directive, Boiler Efficiency Directive, EMC and Low Voltage Directive.

Note. *These boilers cannot be used on systems that include gravity circulation.*

The boiler are suitable for connection to fully pumped, open vented or sealed water systems. Adequate arrangements for completely draining the system by provision of drain cocks MUST be provided in the installation pipework.

OPTIONAL EXTRA KITS

- Vertical Roof Flue Kit 80/125
- Vertical Roof Flue Kit 100/150
- Horizontal Wall Flue Kit 80/125
- Horizontal Wall Flue Kit 100/150
- Open Flue Kit 80
- Open Flue Kit 100
- Pitched and Flat Roof Tiles
- Frame and Header Kits
- Pump Kits
- Programmable Room Thermostat Kit
- Modulating Sequencer Kit
- Outside Sensor Kit
- Tank Sensor Kit
- Room Sensor Kit
- Safety Interlock Kit

SAFETY

Current Gas Safety (Installation and Use) Regulations or rules in force

The appliance is suitable only for installation in GB and IE and should be installed in accordance with the rules in force.

In GB, the installation must be carried out by a Gas Safe Registered Engineer or in IE by a competent person. It must be carried out in accordance with the relevant requirements of the:

- Gas Safety (Installation and Use) Regulations
- The appropriate Building Regulations either The Building Regulations, The Building Regulations (Scotland), Building Regulations (Northern Ireland).
- The Water Fittings Regulations or Water byelaws in Scotland.
- The Current I.E.E. Wiring Regulations.

Where no specific instructions are given, reference should be made to the relevant British Standard Code of Practice.

In IE, the installation must be carried out by a Competent Person and installed in accordance with the current edition of I.S.813 "Domestic Gas Installations" or I.S. 820 "Non-Domestic Gas Installations" as appropriate, the current Building Regulations and reference should be made to the current ETCI rules for electrical installation.

The Evomax boilers have been tested and certified to;

EN 483, EN 677, PREN 15420, BSEN 15417, BSEN 656, BSEN 60335-2-102, BSEN 55014-1 and BSEN 55014-2 for use with Natural Gas & LPG.

Detailed recommendations are contained in the following Codes of Practice:

BS. 6891	Installation of low pressure gas pipework of up to 28mm (R1) in domestic premises (2nd family gas).
BS. 5482 Pt. 1	Domestic butane and propane gas burning installations.
BS. 5440	Inst. and maintenance of flues and ventilation for gas appliances of rated input not exceeding 70kW net (1st, 2nd and 3rd family gases).
Part 1	Specification for installation of flues.
Part 2	Specification for installation and maintenance of ventilation for gas appliances.
BS. 6644 : 2005	Installation of gas fired hot water boilers of rated inputs between 70kW and 1.8MW (net) (2nd and 3rd family gases).
BS. 6798	Installation and maintenance of gas fired hot water boilers of rated input not exceeding 70kW net.
BS. 6880	Low temperature hot water heating systems of output greater than 45kW.
Part 1	Fundamental and design considerations.
Part 2	Selection of equipment.
Part 3	Installation, commissioning and maintenance.
BSEN.12828:2003	Heating Systems in buildings: Design for water based systems.
BSEN.12831:2003	Heating Systems in buildings: Method for calculation of the design heat load.
BSEN.13831	Specification for: Expansion vessels using an internal diaphragm, for sealed hot water heating systems.
BSEN.14336:2004	Heating Systems in buildings: Installation and commissioning of water based heating systems.
IGE/UP/1	Soundness testing and purging of industrial and commercial gas installation.
IGE/UP/2	Gas installation pipework, boosters and compressors on industrial and commercial premises.
IGE/UP/10	Installation of gas appliances in industrial and commercial premises.

Where reference is made throughout these instructions I.S.813:2002 "Domestic Gas Installations" reference should also be made to I.S.820:2000 "Non-Domestic Gas Installations" as applicable.

SAFE HANDLING

This boiler may require 2 or more operatives to move it to its installation site, remove it from its packaging base and during movement into its installation location. Manoeuvring the boiler may include the use of a sack truck and involve lifting, pushing and pulling.

Caution should be exercised during these operations.

Operatives should be knowledgeable in handling techniques when performing these tasks and the following precautions should be considered:

- Grip the boiler at the base.
- Be physically capable.
- Use personal protective equipment as appropriate, e.g. gloves, safety footwear.

NOTE TO THE INSTALLER: LEAVE THESE INSTRUCTIONS ADJACENT TO THE GAS METER.

During all manoeuvres and handling actions, every attempt should be made to ensure the following unless unavoidable and/or the weight is light.

- Keep back straight.
- Avoid twisting at the waist.
- Avoid upper body/top heavy bending.
- Always grip with the palm of the hand.
- Use designated hand holds.
- Keep load as close to the body as possible.
- Always use assistance if required.

SAFE HANDLING OF SUBSTANCES

No asbestos, mercury or CFCs are included in any part of the boiler or its manufacture.

LOCATION OF BOILER

The boiler must be installed on a flat and vertical wall, capable of adequately supporting the weight of the boiler and any ancillary equipment or on a boiler frame supplied in kit form by **Ideal Stelrad Group**.

The boiler must not be fitted outside.

GAS SUPPLY

The local gas supplier should be consulted, at the installation planning stage, in order to establish the availability of an adequate supply of gas. An existing service pipe must NOT be used without prior consultation with the local gas supplier.

A gas meter can only be connected by the local gas supplier or by a Gas Safe Registered Engineer or in IE by a competent person.

An existing meter should be checked, preferably by the gas supplier, to ensure that the meter is adequate to deal with the rate of gas supply required. A minimum working gas pressure of 17.5mbar MUST be available at the boiler inlet for Natural gas and 37mbar for Propane.

Do not use pipes of smaller size than the boiler inlet gas connection.

The complete installation MUST be tested for gas soundness and purged in accordance with the appropriate standards listed on page 4.

FLUE INSTALLATION

The flue kits are suitable for use with the EVOMAX boiler only.

These kits and the associated options are suitable for both roof and wall mounting applications. The Horizontal Wall Flue Kit is not for use with Evomax 150 boilers in compliance with the requirements of the Clean Air Act Memorandum.

The roof flue kits are suitable for both flat and pitched roof termination, using either concentric or flue only terminals.

Connection to the top of the boiler is made using a separately supplied vertical connector in concentric and open flue configurations (supplied in our optional extra kits).

Additional information covering the selection and installation can be found with this booklet.

Weather Proofing

Where the flue passes through the roof line an adequate seal must be made. This can be achieved by using either:

- Flat weather collar
- Pitched weather collar

Flue duct extension kits are available for concentric flue configuration. These packs contain additional 1 metre ducts and may be cut to the desired length.

Flue duct extension kits are available for open flue configurations. These packs contain 2 x 1 metre ducts and may be cut to the desired length.

If obstructions prevent direct flue routing then both 90° and 45° elbows can be provided to offset the flue system.

Terminal Position

Due to the high efficiency of the boilers pluming will occur. For this reason, vertical termination is recommended, and in any case, terminal positions which could cause problems should where possible be avoided. Particular care should be taken in the case of large multiple boiler installations, and complying with the requirements of the Clean Air Act.

IMPORTANT

It is the responsibility of the installer to ensure, in practice, that products of combustion discharging from the terminal cannot re-enter the building or any other adjacent building through ventilators, windows, doors, other sources of natural air infiltration, or forced ventilation / air conditioning.

If this should occur the appliance MUST be turned OFF, labelled as 'unsafe' and corrective action taken.

Where the lowest part of the terminal is fitted less than 2m (80") above a balcony, above ground or above a flat roof to which people have access then the terminal MUST be protected by a purpose designed guard. The minimum spacing between the balcony and the terminal should be 75mm, in order to allow a terminal guard to be fitted.

Terminal guards are available from boiler suppliers - for all requirements contact:

Grasslin (UK) Ltd., Tower House, Vale Rise,
Tonbridge, Kent TN9 1TB.
Tel: +44 (0) 1732 359 888. Fax: +44 (0) 1732 354 445
www.tfc-group.co.uk

Ensure that the guard is fitted centrally.

The air inlet/products outlet duct and the terminal of the boiler MUST NOT be closer than 25mm (1") to combustible material. Detailed recommendations on the protection of combustible material are given in BS. 5440-1: 2008. In IE refer to I.S.813:2002.

The flue must be installed in accordance with Building Regulations and the recommendations of BS. 5440-1:2008 for inputs up to 70kW nett. For larger installation BS. 6644 should be complied with. In IE refer to I.S.820:2000.

WATER CIRCULATION SYSTEM

The system pump MUST be connected to the boiler, see below.

The boiler must NOT be used for direct hot water supply. The hot water storage cylinder MUST be of the indirect type.

Single feed, indirect cylinders are not recommended and MUST NOT be used on sealed systems.

The appliances are NOT suitable for gravity central heating nor are they suitable for the provision of gravity domestic hot water.

The hot water cylinder and ancillary pipework, not forming part of the useful heating surface, should be lagged to prevent heat loss and any possible freezing - particularly where pipes run through roof spaces and ventilated underfloor spaces.

The boiler must be vented.

Draining taps MUST be located in accessible positions, which permit the draining of the whole system - including the boiler and hot water storage vessel. They should be at least 1/2" BSP nominal size and be in accordance with BS. 2879.

The central heating system should be in accordance with the relevant standards listed on page 4.

Due to the compact nature of the boiler the heat stored within the castings at the point of shutdown of the burner must be dissipated into the water circuit in order to avoid overheating. In order to allow pump operation after burner shutdown the boiler control box incorporates a 4 minute pump overrun facility. In order to make use of this, the pump must be supplied from the terminals inside the boiler. Note: for pumps requiring a current greater than 1.3 amps inductive, they must be connected via a relay.

When sizing pumps, reference should be made to the graphs below which show the boiler resistance against flow rates, to achieve the required temperature differential.

Flow rates for common systems using either 11°C, 15°C or 20°C temperature differentials are given in the table below.

	11°C	15°C	20°C
EVOMAX 30/30P	39 l/m	28.8 l/m	21.6 l/m
EVOMAX 40/40P	52.2 l/m	38.4 l/m	28.8 l/m
EVOMAX 60/60P	76.8 l/m	57.6 l/m	41.4 l/m
EVOMAX 80/80P	101.4 l/m	76.2 l/m	56.4 l/m
EVOMAX 100	n/a	95.4 l/m	72 l/m
EVOMAX 120	n/a	n/a	86.4 l/m
EVOMAX 150	n/a	n/a	108 l/m

Note.

- With the boiler firing at maximum rate, the temperature differential should not be less than figures quoted in table above. High flow rates required for lower temperature differentials could lead to erosion of the heat exchanger water ways.
- With the boiler firing at minimum rate, the temperature differential should not be greater than 35°C. Lower flow rates generating higher temperature differentials will lead to lock out of the boiler.
- The lower the return temperature to the boiler, the higher the efficiency.

In installations where all radiators have been provided with thermostatic radiator valves, it is essential that water circulation through the boiler is guaranteed. This can be best achieved by means of a differential pressure valve, which is installed in a bypass between the flow and return pipes. The bypass should be fitted at least 6m from the boiler, and should use a minimum size of 28mm pipe. The bypass should be capable of allowing a minimum flow rate to achieve a temperature differential of no greater than 35°C at minimum rate.

WATER TREATMENT

These boilers incorporate an **ALUMINIUM** heat exchanger.

IMPORTANT. The application of any other treatment to this product may render the guarantee of **Ideal Stelrad Group** **INVALID**.

Ideal Stelrad Group recommend Water Treatment in accordance with Guidance Notes on Water Treatment in Central Heating Systems.

Ideal Stelrad Group recommend the use of Fernox Copal or MB1 or GE Betz Sentinel X100 inhibitors and associated water treatment products, which must be used in accordance with the manufacturers' instructions.

For further information contact:

Fernox Manufacturing Co. Ltd., Cookson Electronics,
Forsyth Road, Sheerwater, Woking, Surrey, GU21 5RZ
Tel: +44 (0) 1799 521133

or

Sentinel Performance Solutions, The Heath Business and
Technical Park, Runcorn, Cheshire, WA7 4QX
Tel: 0800 389 4670

www.sentinel-solutions.net

Notes.

1. It is most important that the correct concentration of the water treatment products is maintained in accordance with the manufacturers' instructions.
2. If the boiler is installed in an existing system any unsuitable additives **MUST** be removed by thorough cleansing. BS7593:1992 details the steps necessary to clean a domestic heating system.
3. In hard water areas, treatment to prevent limescale may be necessary - however the use of artificially softened water is **NOT** permitted.
4. Under no circumstances should the boiler be fired before the system has been thoroughly flushed.

ELECTRICAL SUPPLY

Wiring external to the appliance **MUST** be in accordance with the current I.E.E. (BS7671) Wiring Regulations and any local regulations which apply. For Ireland reference should be made to the current ETCI rules for electrical installations

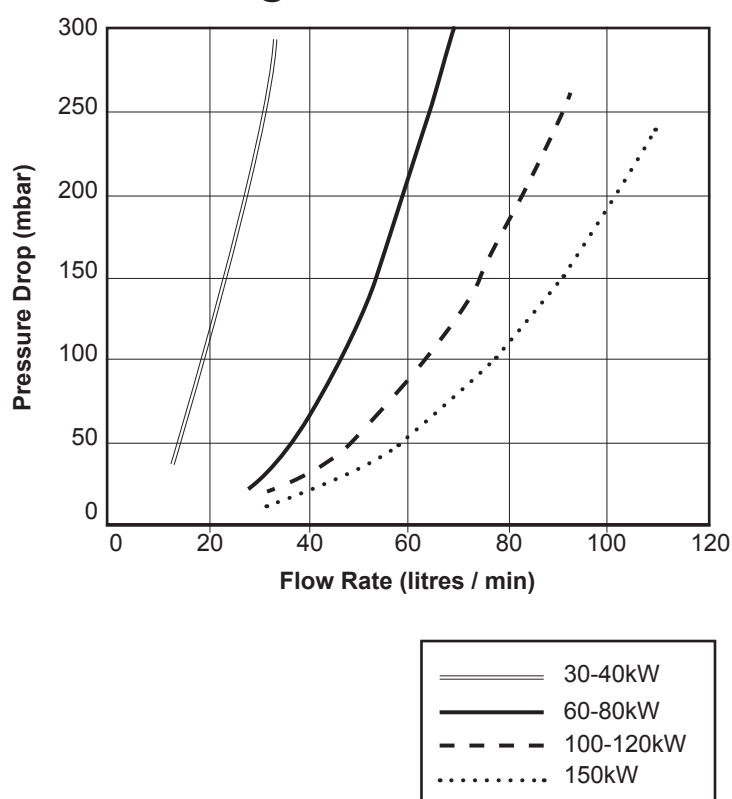
The point of connection to the mains should be readily accessible and adjacent to the boiler.

CONDENSATE DRAIN

A condensate drain is provided on the boiler. This drain must be connected to a drainage point on site. All pipework and fittings in the condensate drainage system **MUST** be made of plastic - no other materials may be used.

IMPORTANT. Any external runs must be insulated.

HYDRAULIC RESISTANCE @ 20°C TEMP DIFF



GENERAL

1 BOILER CLEARANCES AND CONNECTIONS

The following minimum clearances must be maintained for operation and servicing.

Front of boiler - 450mm

Sides of boiler - 25mm

Above boiler - dependent upon the flue system see drawings

Below boiler - 300mm

Clearance between multiple boiler installations - 25mm

80/125 Concentric Flue Connector

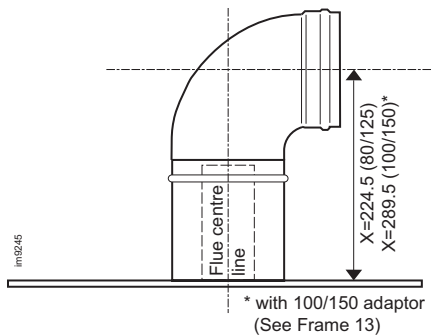
EVOMAX 30, 40, 60 & 80

Minimum boiler top clearances:

for vertical flue 200mm

for horizontal flue 350mm (415mm for 100/150)

for open flue 350mm



100/150 Concentric Flue Connector

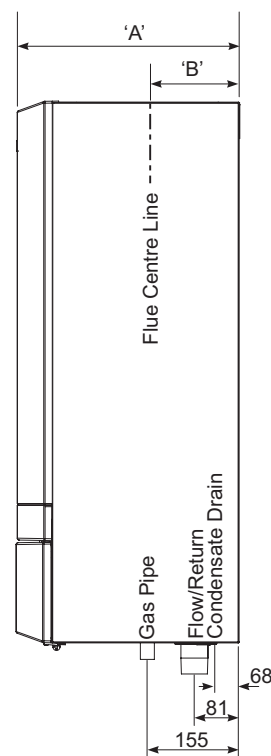
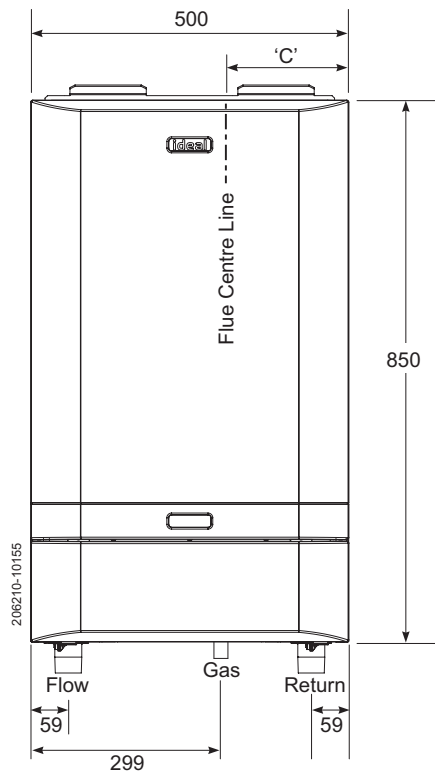
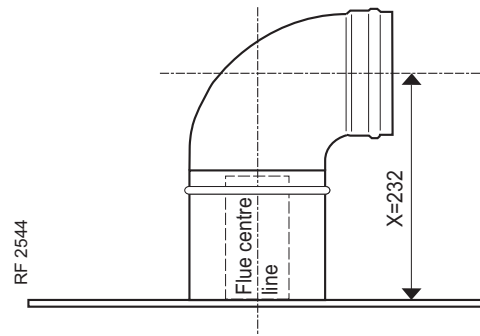
EVOMAX 100, 120 & 150

Minimum boiler top clearances:

for vertical flue 200mm

for horizontal flue 370mm

for open flue 350mm



Boiler	Dim. A	Dim. B	Dim. C
30, 40, 60, 80	360	130	118
100, 120	520	226	118
150	610	233	120

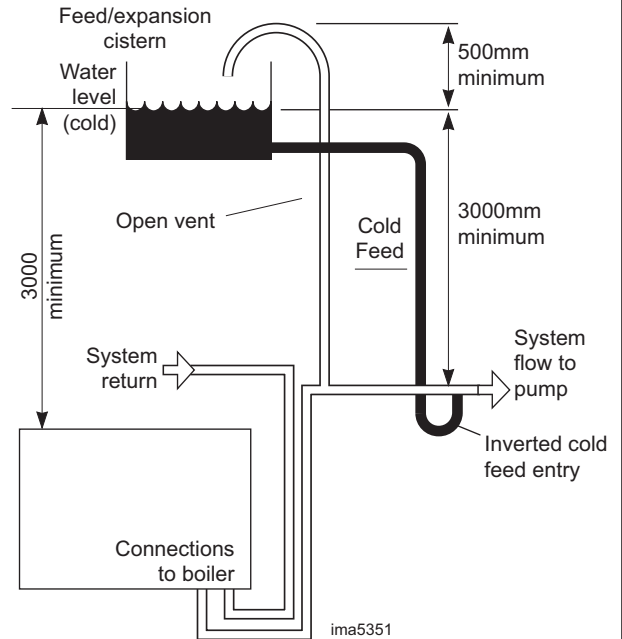
2 OPEN VENTED SYSTEM REQUIREMENTS

Detail reference should be made to the appropriate standards listed on page 4.

The information and guidance given below is not intended to override any requirements of the above publications or the requirements of the local authority, gas or water undertakings.

The vertical distance between the pump and feed/expansion cistern **MUST** comply with the pump manufacturer's minimum requirements, to avoid cavitation. Should these conditions not apply either lower the pump position or raise the cistern above the minimum requirement specified by **Ideal Steirad Group**. The isolation valves should be fitted as close to the pump as possible.

The boiler is fitted with an automatic air vent, located in the left top side of the interior. This air vent must never be shut off, as this could result in dry firing of the boiler and subsequent damage to the heat exchanger.



3 SEALED SYSTEM REQUIREMENTS

Note. The method of filling, refilling, topping up or flushing sealed primary hot water circuit from the mains for a non-domestic property is shown below.

1. General

- a. Detail reference should be made to the appropriate standards listed on page 4. The information and guidance given below is not intended to override any requirements of these publications or the requirements of the local authority, gas or water undertakings.
- b. The installation should be capable of working with flow temperatures of up to 90°C and a temperature differential of up to 20°C.
- c. All components of the system, including the heat exchanger of the indirect cylinder, must be suitable for a working pressure of 4 bar (60 lbf/in²) and temperature of 110°C. Care should be taken in making all connections so that the risk of leakage is minimised.
- d. The boiler is fitted with an automatic air vent, located in the left top side of the interior. This air vent must never be shut off, as this could result in dry firing of the boiler and subsequent damage to the heat exchanger.

2. Safety Valve

A spring loaded safety valve complying with the relevant requirements of BS. 6759 Pt. 1 must be fitted in the flow pipe as close to the boiler as possible and with no intervening valve or restriction. The valve should have the following features:

- a. A non-adjustable preset lift pressure not exceeding 4 bar (60 lbf/in²).
- b. A manual testing device.

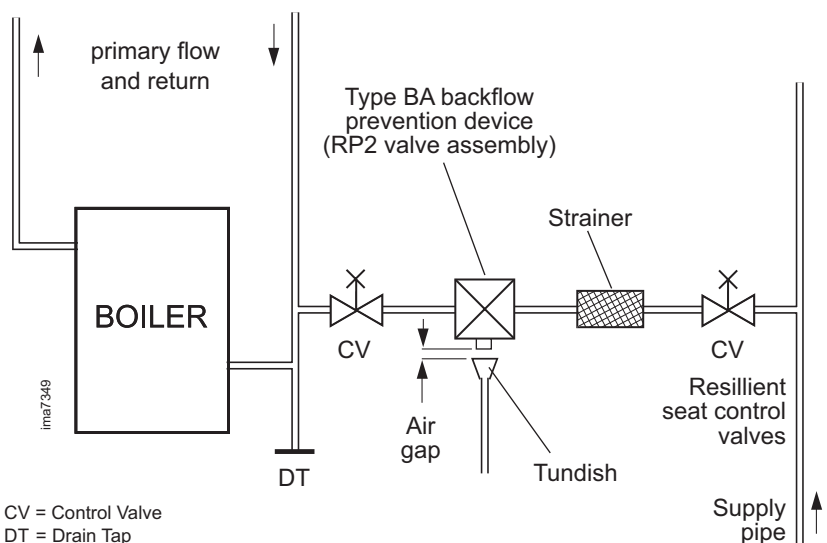
- c. Provision for connection of a discharge pipe. The valve or discharge pipe should be positioned so that the discharge of water or steam is visible, but will not cause hazard to user or plant.

3. Pressure Gauge

A pressure gauge covering at least the range 0-4bar must be fitted to the system. The gauge should be easily seen from the filling point and should preferably be connected at the same point as the expansion vessel.

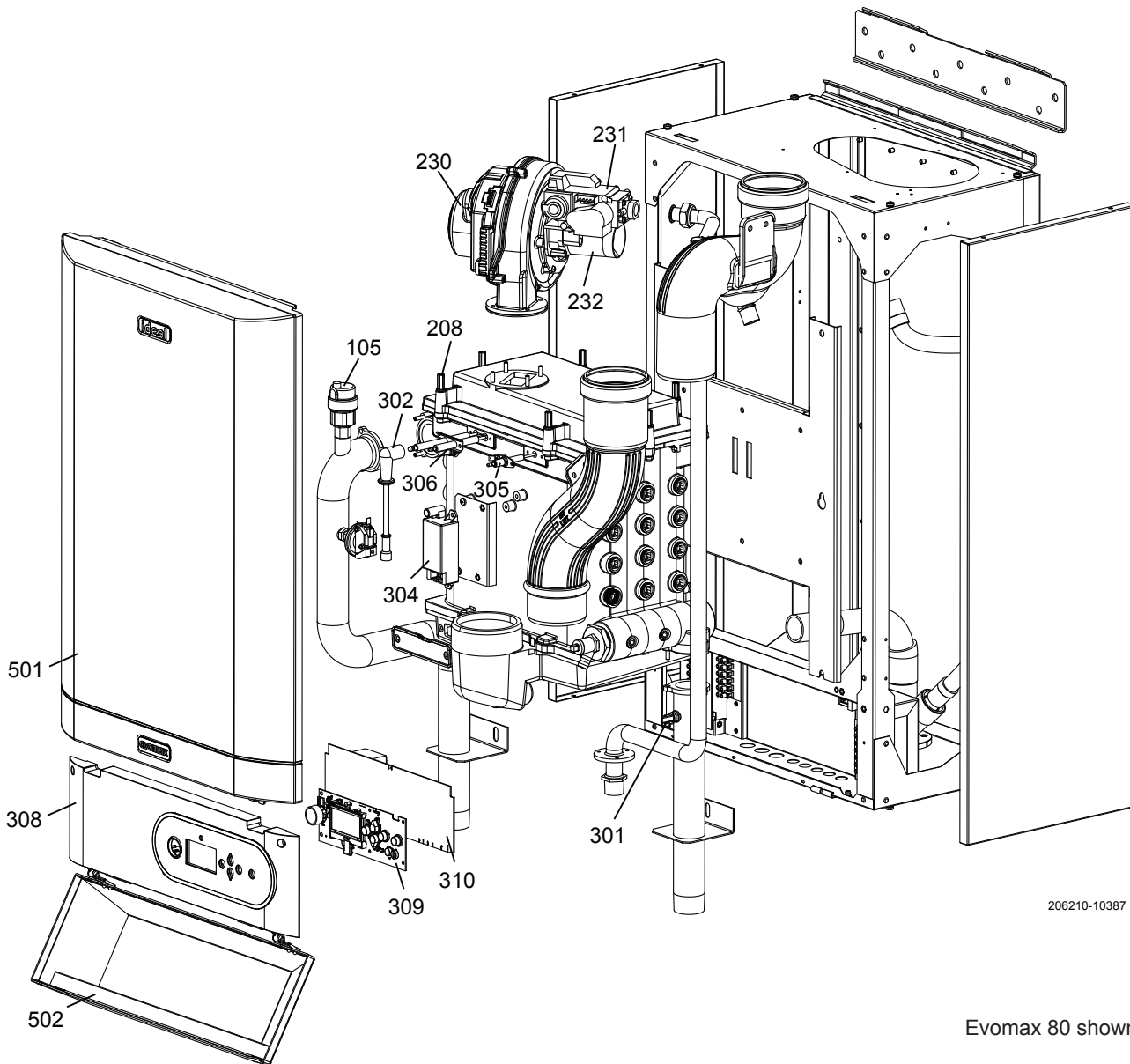
4. Expansion Vessel

Expansion vessels used must comply with BS. EN 13831. Connection to the system must not incorporate an isolating valve.



CV = Control Valve
DT = Drain Tap

4 BOILER ASSEMBLY - Exploded View



206210-10387

Evomax 80 shown

KEY

105	Auto Air Vent	301	Dry Fire Thermistor Kit	308	Fascia Plastic
208	Burner Fixings Kit	302	Lead Ignition Kit	309	HMI Board
230	Fan	304	Ignitor Unit	310	Primary PCB
231	Gas Valve Kit	305	Electrode Detection Kit	501	Jacket Assembly Evomax Kit
232	Venturi 30kW Kit	306	Ignition Electrode Kit	502	Door Assembly Evomax Kit

INSTALLATION

5 PACKAGING REMOVAL

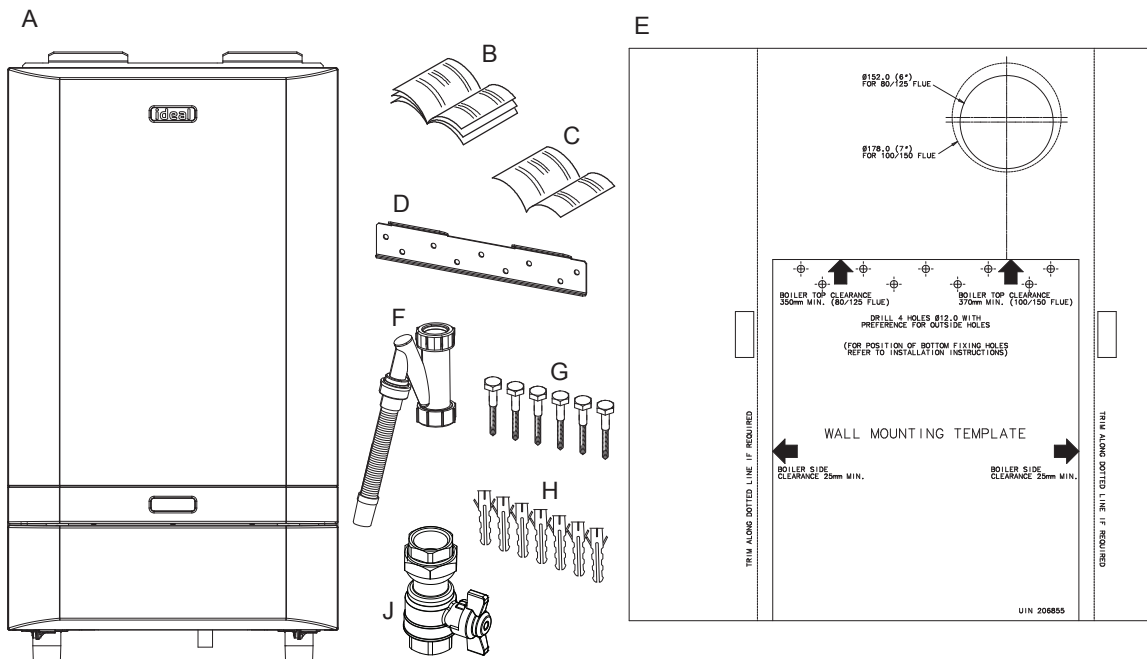
- The boiler should be laying on its back with the straps removed.
- Carefully read the installation instructions before proceeding.
- Remove the outer packing sleeve.
- Remove the protective cardboard wall mounting template from the front of the boiler.
- Remove the packing piece from the top of the boiler.
- Check the contents against the list in Frame 6 'Unpacking'. Note: some items are contained within the top packing piece.
- The boiler may now be stood on its base, with the cardboard bottom packing piece still in place to protect the connections. Due care should be taken when standing up the boilers, with respect to their weights, see Table 2 on page 2.

6 UNPACKING

The boiler is supplied fully assembled in one pack. When unpacking the boiler check the contents against the list shown. Do not dispose of the packaging until all contents are accounted for, as some parts are held within the cardboard packing pieces.

Pack Contents

- A Fully assembled boiler
- B Installation & Servicing/User Instructions
- C Log Book
- D Wall mounting bracket
- E Wall mounting template
- F Condensate Trap
- G M10 x 70 Hex Head Coach Screws - 6 off
- H M10 Wall Plug - 6 off
- J Gas cock

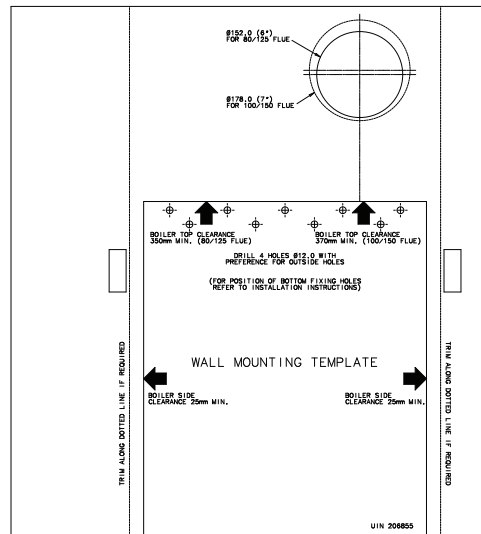


7 WALL MOUNTING TEMPLATE

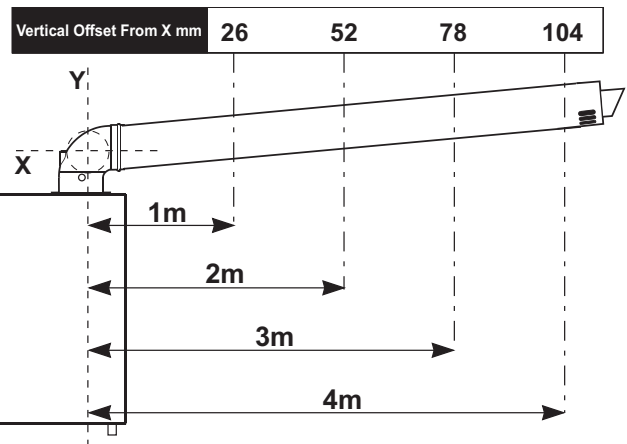
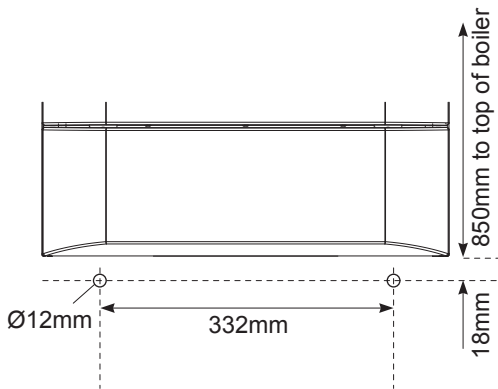
Note. The template shows the positions for the top fixing holes. Care must be taken to ensure the correct holes are drilled.

1. Tape template into the selected position.
2. Ensure squareness by hanging a plumbline.
3. Mark on to the wall:
 - a. The top 4 wall mounting plate screw positions.
 - b. The 2 boiler lower fixing positions using diagram below
 - c. The position of the flue duct. Mark the centre of the hole as well as the circumference.
4. Remove the template from the wall.

Note: Horizontal flue runs must be inclined at 1.5-3° to the horizontal to allow condensate to drain back to the boiler.



BOILER LOWER FIXING POSITIONS

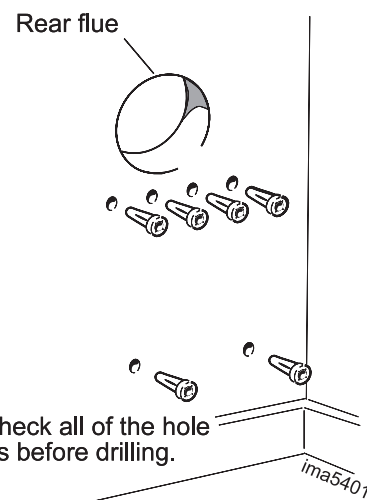


Distance from flue centre line (Y) to outside wall surface. For lengths greater than 4m, increase offset (X) by 26mm for every additional 1m.

8 PREPARING THE WALL

IMPORTANT. Ensure that, during the cutting operation, masonry falling outside of the building does not cause damage or personal injury.

1. Cut the flue hole ensuring that the hole is square to the wall. Both wall faces immediately around the cut hole should be flat.
2. Drill 4 boiler top fixing holes with a 12mm ($\frac{1}{2}$ ") masonry drill and insert the plastic plugs provided, for the wall mounting plate.
3. Drill the 2 boiler lower fixing holes with a 12mm ($\frac{1}{2}$ ") masonry drill, insert the plastic plugs provided.
4. Fix the wall bracket into place with 4 M10x70 hex head coach screws provided.

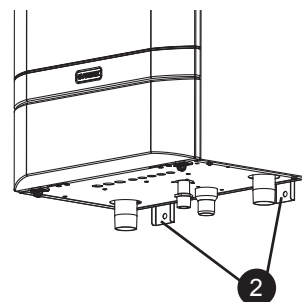
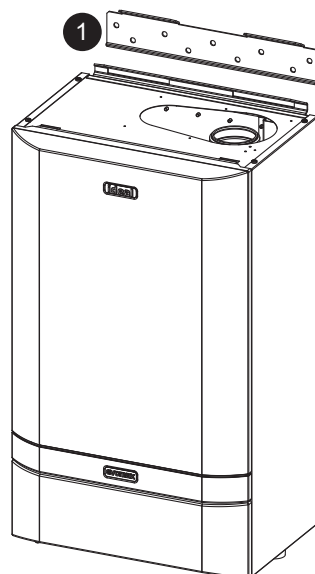


Note. Check all of the hole positions before drilling.

9 MOUNTING THE BOILER

- Due care should be taken when lifting the boilers, with respect to their weights, see Table 2 on Page 2. Also refer to Safe Handling on Page 4.

- Lift the boiler onto the wall mounting plate as shown.
Note: It is not necessary to hold the boiler at an angle to engage the wall mounting plate.
- Using the remaining coach screws, secure the bottom of the boiler to the wall through the attached brackets.



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10 VENTILATION

The ventilation requirements of these boilers is dependant on the type of flue system used, and their heat input. All vents must be permanent with no means of closing, and positioned to avoid accidental obstruction by blocking or flooding.

EVOMAX 30/30P, 40/40P, 60/60P

Detail reference should be made to BS. 5440 Pt. 2. In IE refer to the current edition of I.S. 813.

The following notes are for general guidance only:

If installed as a room sealed appliance in a room or internal space, then no purpose provided ventilation is required.

If installed as an open flued appliance in a room or internal space then a permanent air vent is required. The sizes given below are for vents directly communicating with outside air. For other situations refer to BS. 5440 Pt. 2. In IE refer to the current edition of I.S. 813.

Boiler Size	30 & 30P	40 & 40P	60 & 60P
Minimum vent free area (cm ²)	117	167	269

If installed in a compartment, then permanent air vents are required at high and low level. These vents may communicate direct to outside air, or to a room/internal space. If to a room/internal space, it must itself be adequately ventilated as above.

Evomax 80, 80P, 100, 120, 150 and multiple boiler applications

Detail reference should be made to BS. 6644 for inputs between 70kW and 1.8MW (net). In IE refer to the current edition of I.S.820. The following notes are for general guidance only:

If ventilation is to be provided by means of permanent high and low vents communicating direct with outside air, then reference can be made to the sizes below. For other ventilation options refer to BS. 6644. In IE refer to the current edition of I.S.820.

EVOMAX 80, 80P, 100, 120 & 150

Open Flued Installations

Required area (cm²) per kW of total rated input (net)

	Boiler room	Enclosure
Low level (inlet)	4	10
High level (outlet)	2	5

Note: Where a boiler installation is to operate in summer months (e.g. DHW) additional ventilation requirements are stated, if operating for more than 50% of time (refer to BS6644).

Room Sealed Installations

A minimum of 2cm² free area per kW of net heat input at both high and low level is required for boiler rooms. For enclosures refer to BS6644.

Evomax Ventilation Requirements (not exceeding 70kW net Input) when installed in a compartment

Room Sealed Application - Min. Vent Free Area (cm ²)							Open Flue Application - Min. Vent Free Area (cm ²)					
	To a room or internal space			To outside Air			To a room or internal space			To Outside Air		
Boiler Size	30	40	60	30	40	60	30	40	60	30	40	60
High Level	310	410	610	155	205	305	310	410	610	155	205	305
Low level	310	410	610	155	205	305	620	820	1220	310	410	610

The temperature within the boiler room shall not exceed 25°C within 100mm of the floor, 32°C at mid height and 40°C within 100mm of the ceiling.

INSTALLATION

11 FLUE SYSTEMS

A comprehensive range of flue kits are available from **Ideal Stelrad Group**. Examples of horizontal and vertical concentric and open flue options are demonstrated on the following pages. Tables are provided with these examples, giving the maximum extensions which may be added. The flue lengths achievable without any extensions are also provided.

For horizontal flues: this is the distance from the flue outlet centre line on the boiler to the outside wall. Horizontal flues are not available for Evomax 150.

For vertical flue: this is the distance from the top of the boiler case to the aperture in the weather collar.

If elbows are to be used, then the equivalent length of that fitting (see page 17) must be subtracted from the maximum flue extensions allowed for that flue option.

Note: Horizontal terminal resistance includes 1 x 90° elbow. Worked examples are shown on page 17 and 18.

Alternatively the resistances of flue components are given on page 16, together with the maximum flue resistance each boiler can work against. These may be used to calculate the total flue resistance of the system, and to determine if they are acceptable to run on the boiler.

Multiple boilers may be installed with a common flue header (not supplied by Ideal Heating). The flue system should be designed and supplied by a specialist flue company. BS 6644 and IGE UP/10 provide guidance on design and the drainage of condensate from flue stack and headers. Condensate from a flue stack and header must be collected and drained before entering the boiler.

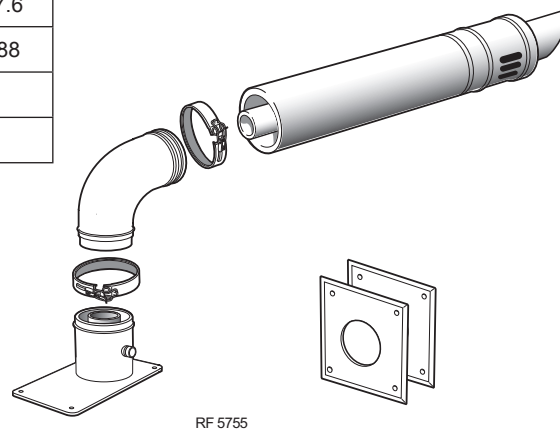
12 HORIZONTAL WALL FLUE KIT

Evomax horizontal concentric flue application ~ maximum lengths and pressure differentials						
Model	30/30P	40/40P	60/60P	80/80P	100	120
Max flue length (m)	42	42	7.5	12	20	17.6
Max flue press diff (Pa)	140	200	117	260	220	288
Flue Size	80 / 125				100 / 150	
Wall flue kit No	158659				158661	

Contents

- Boiler adapter + screws (x6)
- 90° elbow
- Terminal
- Locking collars (x2)
- Wall plates (x2)

Note: See Frame 18 for elbow equivalent lengths.



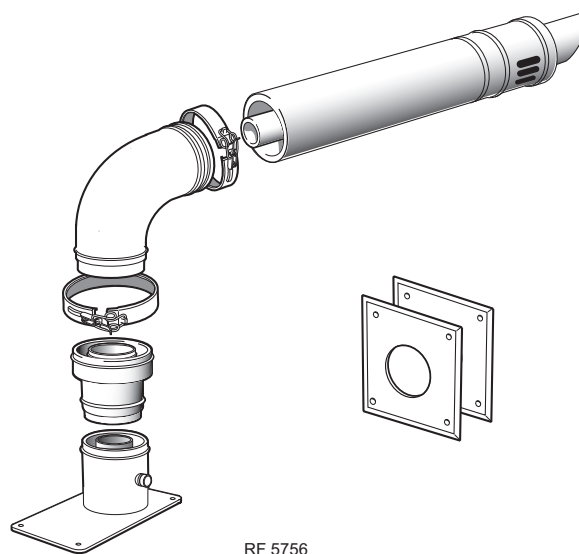
13 HORIZONTAL WALL FLUE KIT - For longer flue lengths for the Evomax 60 & 80

Evomax 60 & 80 horizontal concentric flues of longer length		
Model	60/60P	80/80P
Max flue length (m)	30	35
Max flue press diff (Pa)	133	250
Flue Size	100 / 150	
Wall flue kit No	158660	

Contents

- Boiler adapter + screws (x6)
- Increaser
- 90° elbow
- Terminal
- Locking collars (x2)
- Wall plates (x2)

Note: See Frame 18 for elbow equivalent lengths.



INSTALLATION

14 VERTICAL ROOF FLUE KIT

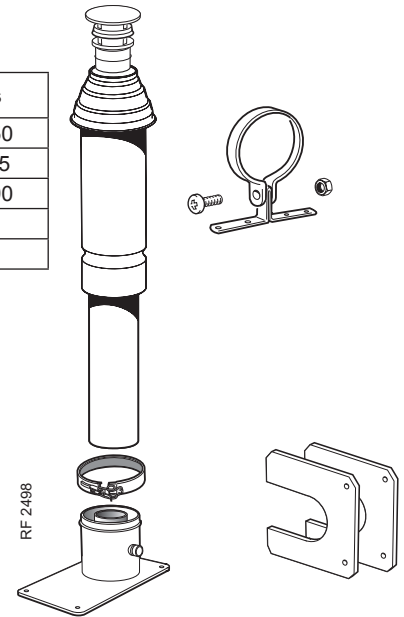
Evomax vertical concentric flue application ~ maximum lengths and pressure differentials

Model	30/30P	40/40P	60/60P	80/80P	100	120	150
Max flue length (m)	42	42	7.5	12	20	17.6	7.5
Max flue press diff (Pa)	140	200	117	260	220	288	290
Flue Size	80 / 125				100 / 150		
Vertical flue kit No	158654				158656		

Contents

- Boiler adapter + screws (x6)
- Terminal
- Locking Collar
- Finishing plates (x2)
- Bracket

Note: See Frame 18 for elbow equivalent lengths.



15 VERTICAL ROOF FLUE KIT -

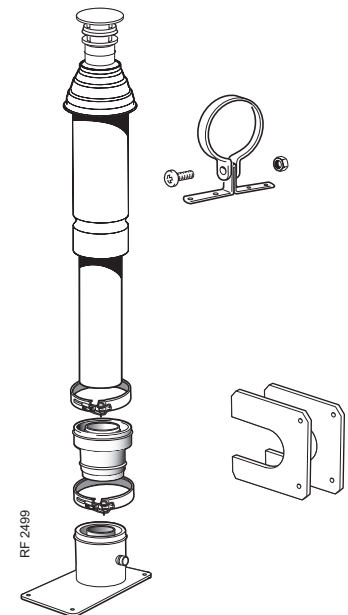
Evomax 60 & 80 vertical concentric flues of longer length

Model	60/60P	80/80P
Max flue length (m)	30	35
Max flue press diff (Pa)	133	250
Flue Size	100 / 150	
Vertical flue kit No	158655	

Contents

- Boiler adapter + screws (x6)
- Increaser
- Terminal
- Locking Collars (x2)
- Finishing plates (x2)
- Bracket

Note: See Frame 18 for elbow equivalent lengths.



16 OPEN FLUE KITS

Evomax open flue application ~ maximum lengths and pressure differentials

Model	30/30P	40/40P	60/60P	80/80P	100	120	150
Max flue length (m)	65	70	25	22	20	49	32
Max flue press diff (Pa)	140	225	150	312	220	365	430
Flue Size	80/125				100/150		
Open flue kit No	158662 + 158769				158663 + 158770		

Contents

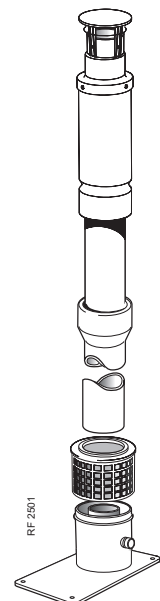
158662 / 158663

- Boiler adapter + screws (x6)
- Air inlet grille

158769 / 158770

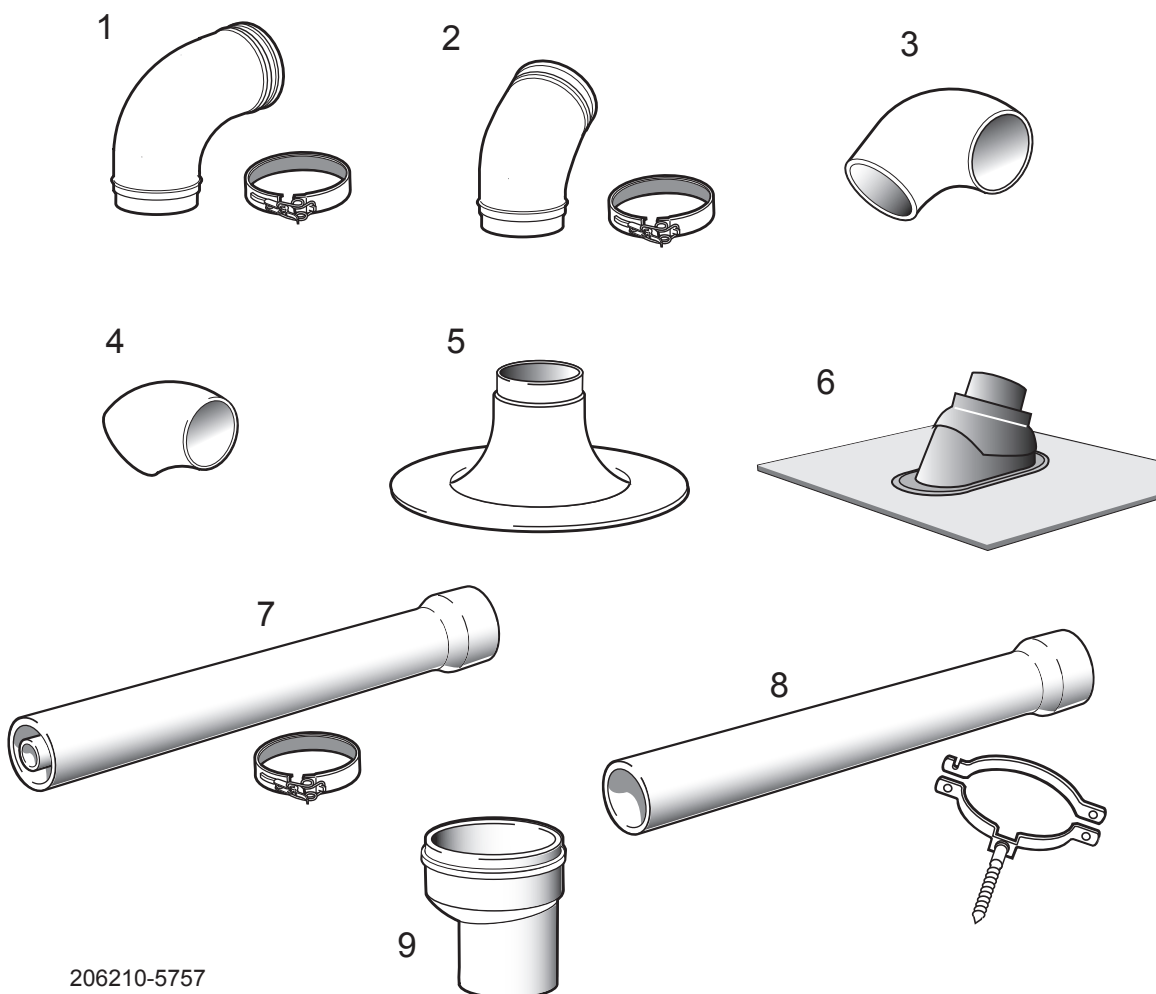
- Terminal

Note: See Frame 18 for elbow equivalent lengths.



17 FLUE KIT ACCESSORIES

Accessory		Part No.			
		80/125	100/150	80	100
1.	90° elbow (concentric)	152616	152617	n/a	n/a
2.	45° elbow (concentric)	152618	152619	n/a	n/a
3.	90° elbow	n/a	n/a	158773	158774
4.	45° elbow (pair)	n/a	n/a	158775	158776
5.	Flat Weather Collar	152611	152612	158780	158780
6.	Pitched Weather Collar	152609	152610	158779	158779
7.	1m Extension (concentric)	152400	152401	n/a	n/a
8.	1m Extension (pair)	n/a	n/a	158771	158772
9.	Increaser 80-100	n/a	n/a	152404	n/a



18 FLUE RESISTANCES

CONCENTRIC FLUE SYSTEMS

For concentric flue systems with elbows fitted, use the table to correct the maximum flue extension capability. Alternatively use the ☐ flue for that boiler.

The maximum pressure drop allowed in the flue is given below.

Note: The resistances are given in Pa and also the equivalent length of straight concentric pipe.

Pressure drop & resistances for concentric flue systems														
Model	30/30P		40/40P		60/60P		80/80P		100		120		150	
Flue gas flow rate (m ³ /hr) - max	47.6		63.4		95.1		128.3		160.3		192.5		240.7	
	Pa	m	Pa	m	Pa	m	Pa	m	Pa	m	Pa	m	Pa	m
Terminals														
Vertical roof kit 80 / 125	21	6	45	7	86	6.2	135	4.8						
Vertical roof kit 100 / 150					30	7.6	70	8	65	3.5	100	3.3	172	4.3
Horizontal wall kit 80 / 125 + 90°	21	6	45	7	86	6.2	135	4.8						
Horizontal wall kit 100 / 150 + 90°					30	7.6	70	8	65	3.5	100	3.3		
Pipes & Elbows														
45° bend 80 / 125	3.5	1.1	7.5	1.1	13.5	1.1	22	1.1						
45° bend 100 / 150					8	1.2	15	1.2	24	1.2	35	1.2	50	1.2
90° bend 80 / 125	7.0	1.6	14.0	1.6	25	1.6	40	1.6						
90° bend 100 / 150					13	2	23	2	37	2	50	2	75	2
Straight 1m length 80 / 125	3.3	1	4.8	1	15.6	1	21.7	1						
Straight 1m length 100 / 150					4.4	1	7.1	1	11	1	16.4	1	38.7	1

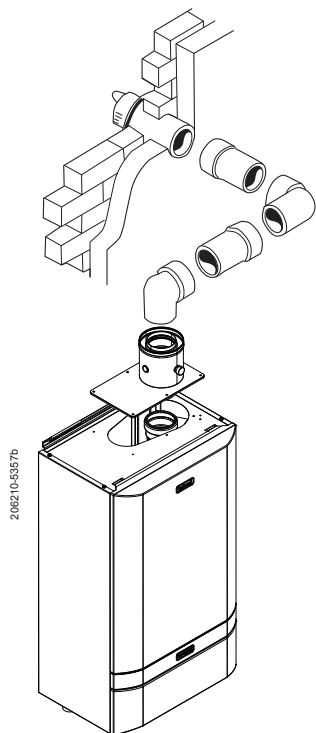
For open flue systems with elbows fitted, use this table to correct the maximum extension capability. The table shows the equivalent length of flue tube for the elbow required.

Open Flue Systems ~ Equivalent flue resistances in metres		
	Models 30/30P, 40/40P, 60/60P, 80/80P	Models 100 / 120 / 150
90° Elbow	2.1	2.7
45° Elbow	0.6	1.8

Maximum allowable pressure diff & flue length Concentric flues including terminal			
Model	Flue Size	Pressure diff (Pa)	Length (m)
30/30P	80 / 125	140	42
40/40P	80 / 125	200	42
60/60P	80 / 125	117	7.5
	100 / 150	133	30
80/80P	80 / 125	260	12
	100 / 150	250	35
100	100 / 150	220	20
120	100 / 150	288	17.6
150	100 / 150	291	7.5

INSTALLATION

19 EXAMPLES OF CALCULATING FLUE RESISTANCES/LENGTHS - EXAMPLE 1



Example 1

Horizontal Flue for Evomax 40		
	Resistance (Pa)	Resistance (m)
Flue Size	80/125	80/125
Horizontal Wall Flue Kit 80/125	45	7
2 x 1m extension flue	2 x (4.8)	2 x (1)
1 x 90° elbow	14	1.6
Total Flue Resistance	68.6	10.6

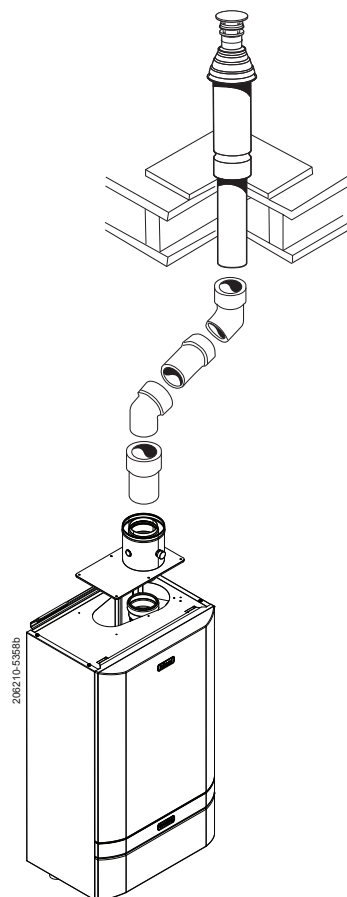
The total maximum flue resistance for an Evomax 40 is 200Pa or 42m 80/125. Therefore this installation is acceptable.

20 EXAMPLES OF CALCULATING FLUE RESISTANCES/LENGTHS - EXAMPLE 2

Example 2

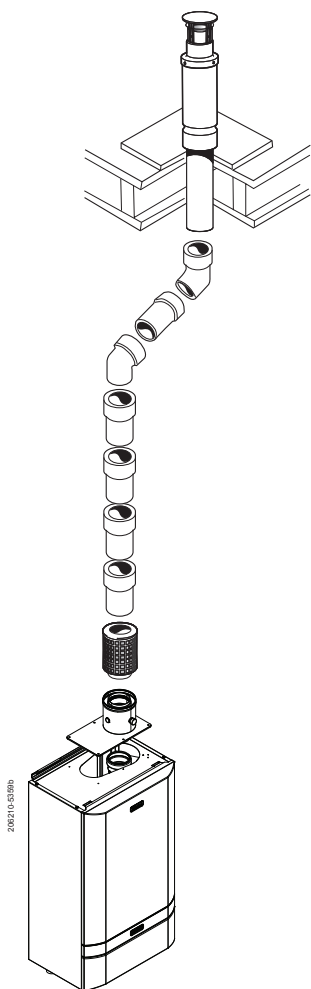
Vertical Roof Flue for Evomax 80		
	Resistance (Pa)	Resistance (m)
Flue Size	80/125	80/125
Vertical Flue Kit 80/125	135	4.8
2 x 1m extension flue	2 x (21.7)	2 x (1)
2 x 45° elbow	2 x (22)	2 x (1.1)
Total Flue Resistance	222	9

The total maximum flue resistance for an Evomax 80 is 260 Pa or 12m 80/125. Therefore this installation is acceptable.



INSTALLATION

21 EXAMPLES OF CALCULATING FLUE RESISTANCES/LENGTHS - EXAMPLE 3

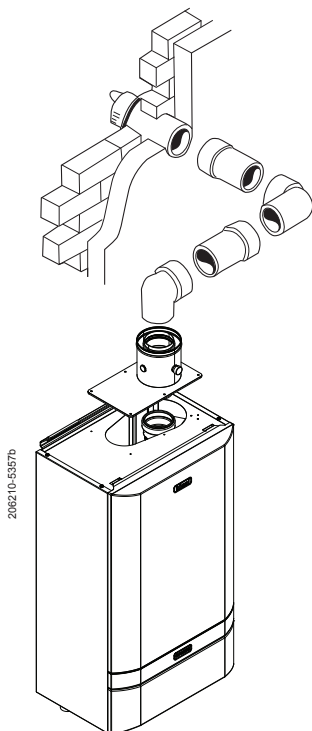


Example 3

	Open Flue for Evomax 30
	Resistance (m)
Flue Size	80
5 x 1m extension	5 x 1
2 x 45° elbow	2 x 0.6
Total Flue Resistance	6.2

The maximum flue extension for an Evomax 30 on open flue is 65m. Therefore this installation is acceptable.

22 EXAMPLES OF CALCULATING FLUE RESISTANCES/LENGTHS - EXAMPLE 4



Example 4

	Horizontal Flue for Evomax 120	
	Resistance (Pa)	Resistance (m)
Flue Size	100/150	100/150
Horizontal Wall Flue Kit 100/150	100	3.3
2 x 1m extension flue	2 x (16.4)	2 x (1)
1 x 90° elbow	50	2
Total Flue Resistance	183	7.3

The total maximum flue resistance for an Evomax 120 is 288 Pa or 17.6m 100/150. Therefore this installation is acceptable.

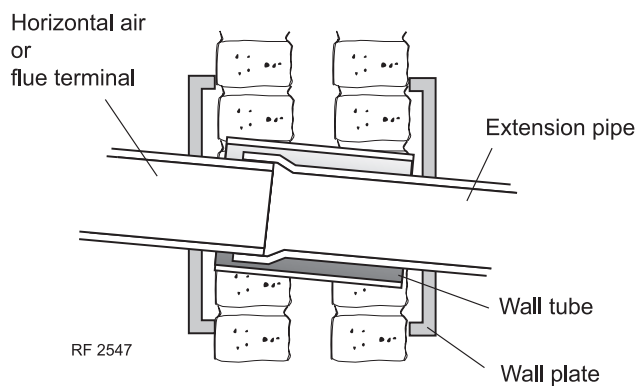
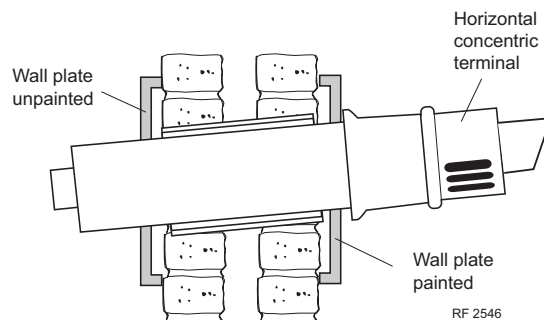
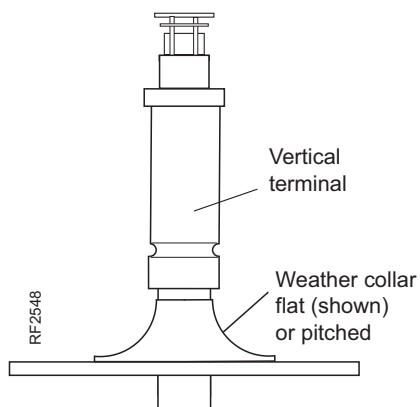
23 ASSEMBLING THE FLUE

Flue terminals or extension ducts may be cut to shorter lengths if required. When cutting a duct ensure it is square by marking the length all the way around and only cut back the plain end. When cutting concentric duct it is important that the inner duct is maintained at 20mm longer than the outer duct to allow correct connection of the ducts. Care should be taken to support the inner duct when cutting the flue.

Note. Horizontal flue runs must be angled down between 1.5° - 3° towards the boiler to allow the condensate to drain. For this reason it is recommended that a support bracket is used for every 1m of extension pipe.

Care must be taken when assembling flues, not to damage the seals.

See below for flue assembly examples.



24 FLUE TERMINATION POSITION

Due to the high efficiency of these boilers plumbing will occur. For this reason vertical termination is recommended, and in any case, terminal positions which could cause problems should where possible be avoided.

Particular care should be taken in the case of large multiple boiler installations, and complying with the requirements of the Clean Air Act.

The information below is extracted from BS. 5440 Pt. 1 and is for boilers with heat inputs not exceeding 70kW nett, and the latest Building Regulation Part J. Detailed reference should still be made to these standards. In IE refer to I.S. 813:2002.

Concentric Wall Terminal Positions	Minimum spacing	
A. Below an opening (1)	300 mm	12"
B. Above an opening (1)	300 mm	12"
C. Horizontally to an opening (1)	300 mm	12"
D. Below gutters, soil pipes or drain pipes	75 mm	3"
E. Below eaves	200 mm	8"
F. Below balcony or car port roof	200 mm	8"
G. From a vertical drain pipe or soil pipe	150 mm	6"
H. From an internal or external corner or to a boundary alongside the terminal	300 mm	12"
I. Above ground, roof or balcony level	300 mm	12"
J. From a surface or a boundary facing the terminal	600 mm	24"
K. From a terminal facing the terminal	1200 mm	48"
L. From an opening in the car port into the building	1200 mm	48"
M. Vertically from a terminal on the same wall	1500 mm	60"
N. Horizontally from a terminal on the same wall	300 mm	12"
Concentric Roof Terminal Positions		
Directly below an opening, air brick, windows, etc.	300 mm	12"
Below plastic/painted gutters	500 mm*	20"
Below painted surface	500 mm*	20"
Below eaves or balcony	500 mm	20"
From wall	1000 mm	40"
Below velux window	2000 mm	80"
Above or side of velux window	600 mm	24"

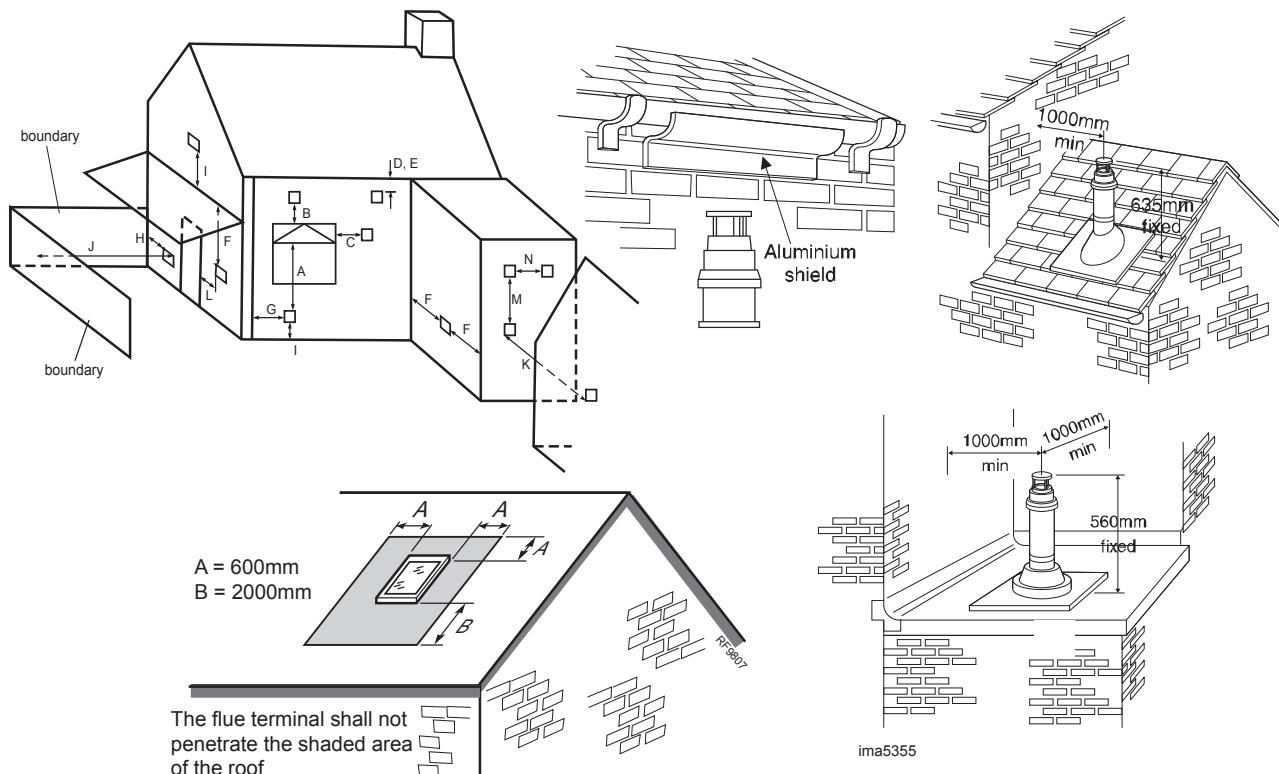
* may be reduced to 300mm if a shield fitted

EVOMAX-10154

- (1) An opening here means an openable element, such as an openable window, or a fixed opening such as an air vent. However, in addition, the outlet should not be nearer than 150mm (fanned draught) to an opening into the building fabric formed for the purpose of accommodating a built in element, such as a window frame.

If the terminal is long should be fitted to protect the surface.

For positioning of open flue terminals reference should be made to BS. 5440 Pt. 1. In IE refer to I.S.813.2002.



HEAT INPUTS IN EXCESS OF 70kW NETT

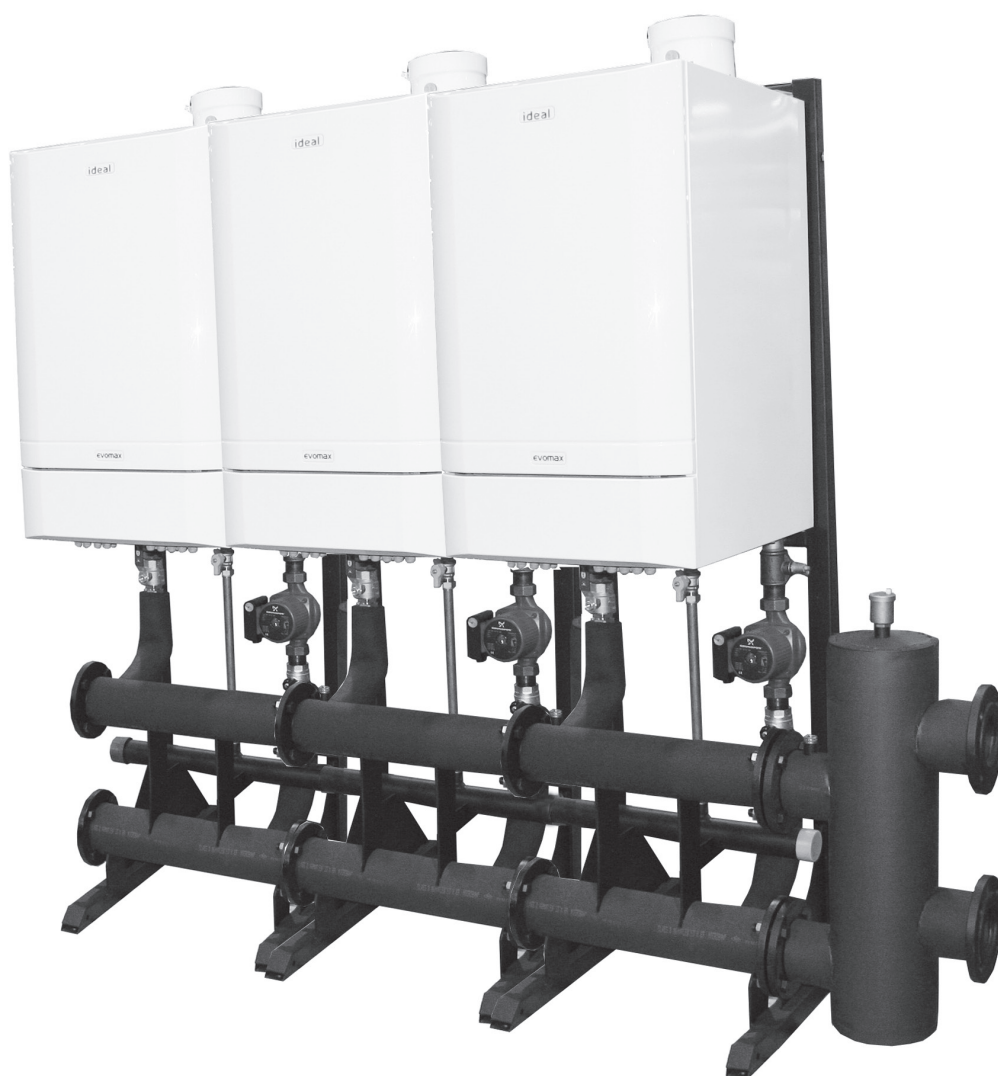
For boiler installations with total heat inputs in excess of 70kW nett, reference should be made to BS6644. In IE refer to I.S.820.2000.

25 BOILER FRAME AND HEADER KITS

Heat output to a maximum of 600kW can be achieved by cascading up to six Evomax boilers.

This can be achieved by the use of Evomax multiple boiler Frame & Header Option Kits.

Boilers can be fitted either side by side or back to back using Frame & Header Option Kits.



INSTALLATION

26 SEQUENCER CONTROL OF MULTIPLE BOILERS

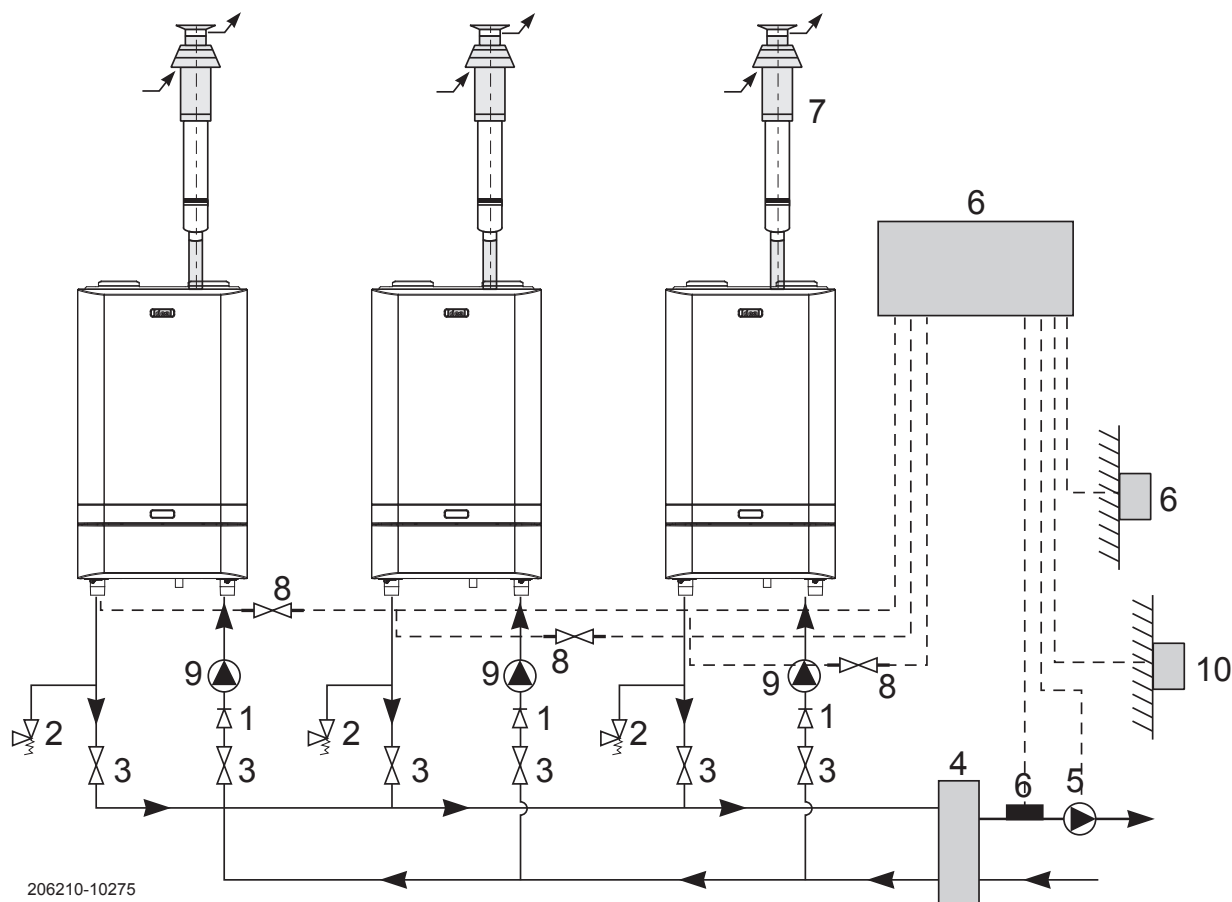
In installations where the heat load is greater than the boiler capacity an ideal solution is to use multiple boiler arrangements.

The ideal way to control a multiple boiler installation is with our modulating sequencer

See below a typical installation with our modulating sequencer kit. This device is capable of controlling up to 5 boilers.

Legend

- | | |
|--|----------------------|
| 1. Non-return valve | 7. Flue gas terminal |
| 2. Safety valve | 8. Drain cock |
| 3. Service valve | 9. Shunt pump |
| 4. Mixing header | 10. Room Sensor |
| 5. System pump | |
| 6. Modulating Sequencer kit complete with outdoor sensor and flow sensor | |



27 CONDENSATE DRAIN

The condensate trap provided within the hardware pack must be connected to the condensate drain on the bottom of the boiler and then connected to a drainage point, preferably within the building.

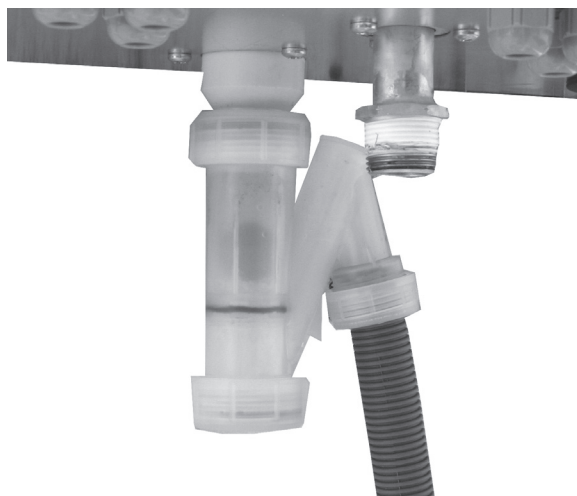
The pipe size from the condensate trap is 25mm.

The routing of the drain must be made to allow a minimum fall of 1 in 20 away from the boiler, throughout its length.

IMPORTANT. Any external runs must be kept to a minimum and insulated. This is to avoid freezing in cold weather causing blocking.

All pipework and fittings in the condensate drain system must be made of plastic. No other materials may be used.

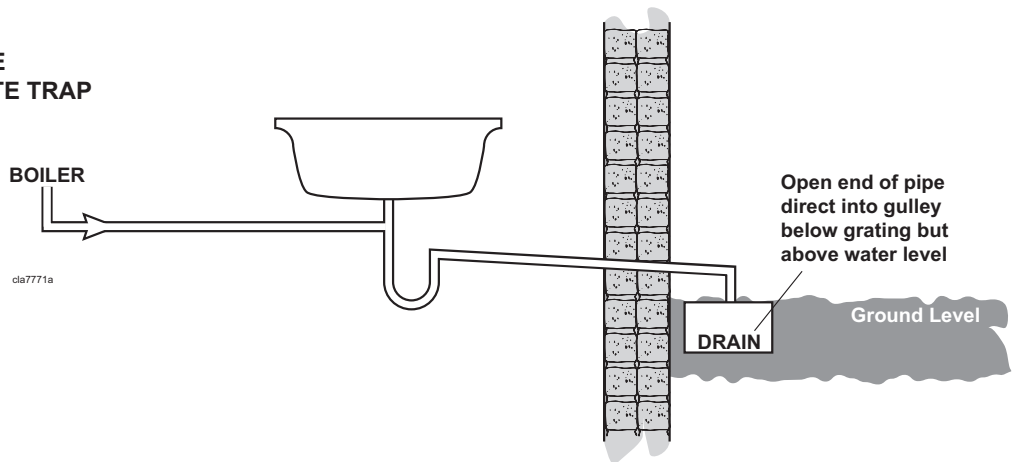
Ensure condensate trap is full of water before lighting.



28 CONDENSATE PIPE TERMINATION CONFIGURATIONS

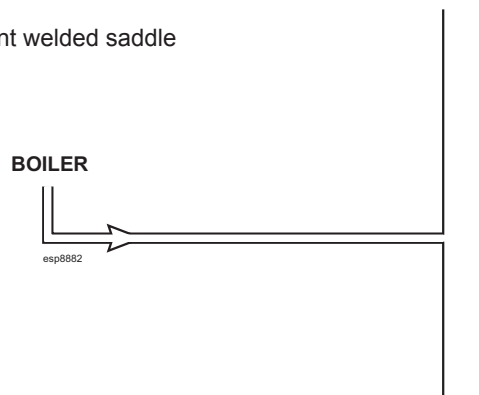
Notes: ALL EXTERNAL PIPE RUNS MUST BE IN ACCORDANCE WITH BS 6798

1. INTERNAL TO SINK WASTE UPSTREAM OF SINK WASTE TRAP

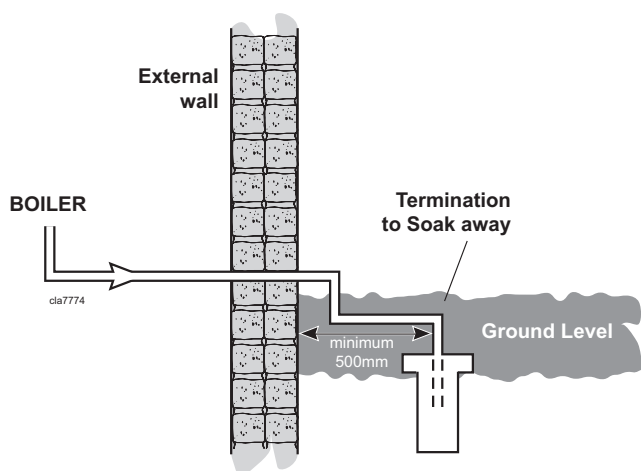


2. INTERNAL CONNECTION TO SOIL AND VENT STACK

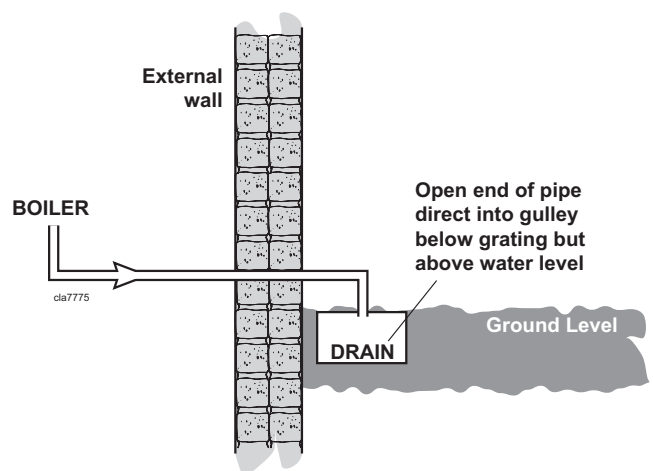
* Make connection to SVP using a solvent welded saddle



3. TERMINATION TO SOAK AWAY



5. TERMINATION TO DRAIN / GULLY

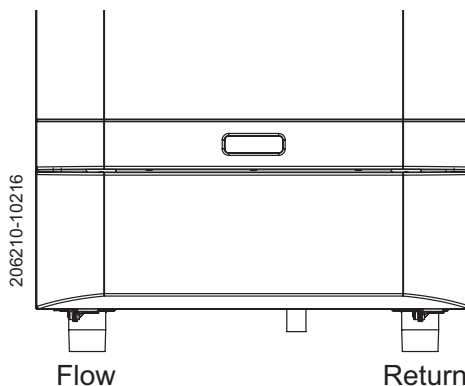


29 BOILER WATER CONNECTIONS

The boiler flow and return pipes are terminated with a 1 1/4" BSP male taper connection located at the bottom of the appliance.

Note. *This appliance is NOT suitable for use with a direct hot water cylinder.*

Plastic plugs fitted into the open ends of the flow and return pipes must be removed before connecting the system pipework.



30 FROST PROTECTION

The Evomax boiler has built into its control system the facility to protect the boiler only against freezing.

If the boiler flow temperature T_f , falls below 5°C the pump and burner run until the temperature exceeds 19°C.

Central heating systems fitted wholly inside the building do not normally require frost protections as the building acts as a 'storage heater' and can normally be left at least 24 hours without frost damage. However, if parts of the pipework run outside the building or if the boiler will be left off for more than a day or so, then a frost thermostat should be wired into the system, see Frame 49.

31 GAS CONNECTION

Refer to Frame 1 for details of the position of the gas connection.

A MINIMUM working gas pressure of 17.5 mbar (7" w.g.) must be available at the boiler inlet for natural gas and 37mbar for propane with the boiler firing. Refer to Frame 58 for details of the pressure test point position.

Extend a gas supply pipe NOT LESS THAN 22mm O.D. to the boiler and connect using the gas cock provided.

Note. *If the pipe run from the meter to the boiler is greater than 3m (10') it is recommended that a 28 mm O.D. pipe is used.*

IMPORTANT. The gas service cock contains a non-metallic seal so must not be overheated when making capillary connections.

32 ELECTRICAL CONNECTIONS

Warning. This appliance MUST be efficiently earthed.

A mains supply of 230V 50Hz is required. The supply wiring MUST be suitable for mains voltage. Wiring should be 3 core PVC insulated cable NOT LESS than 0.75mm² (24 x 0.2 mm) and to BS. 6500, Table 16. The fuse rating should be 4A.

Wiring external to the boiler MUST be in accordance with the current I.E.E. (BS7671) Wiring Regulations and any local regulations. For Ireland reference should be made to the current ETCI rules for electrical installations.

Connection should be made in a way that allows complete isolation of the electrical supply - such as a double pole

switch, having a 3mm (1/8") contact separation in both poles, or a plug and unswitched socket serving only the boiler and system controls. The means of isolation must be accessible to the user after installation.

When making mains electrical connections to the boiler it is important that the wires are prepared in such a way that the earth conductor is longer than the current carrying conductors, such that if the cord anchorage should slip the current carrying conductors become taut before the earthing conductor.

4 self adhesive cable clips are provided to aid routing of the wiring across the bottom panel of the boiler.

33 EXTERNAL WIRING

External wiring MUST be in accordance with the current I.E.E. (BS7671) Wiring Regulations. For Ireland reference should be made to the current ETCI rules for electrical installations.

The wiring diagrams illustrated in Frames 45-48 cover the systems most likely to be used with this appliance.

For wiring external controls to the boiler, reference should be made to the systems wiring diagram supplied by the relevant manufacturer in conjunction with the connection diagram shown in Frame 34.

Difficulty in wiring should not arise, providing the following directions are observed:

1. The appliance must be wired with a permanent live supply. External controls should NOT be wired in series with this mains input. Controlling the mains input in this way will prevent the pump over-run sequence and may cause damage to the heat exchanger.
2. 230V AC output is provided and must be used for the system pump and optionally for a DHW pump or valve, programmer and thermostats. Care must be taken to ensure that the earth conductor is longer than the current carrying conductors for reasons given in Frame 32.

3. Input terminals are available for connecting a variety of system controls for heating demand, and optionally for DHW demand.

Heating demand can be controlled by:

- 230V programmer and/or room thermostat
- programmable room thermostat kit
- Modulating sequencer kit
- a bms
- outside temperature sensor

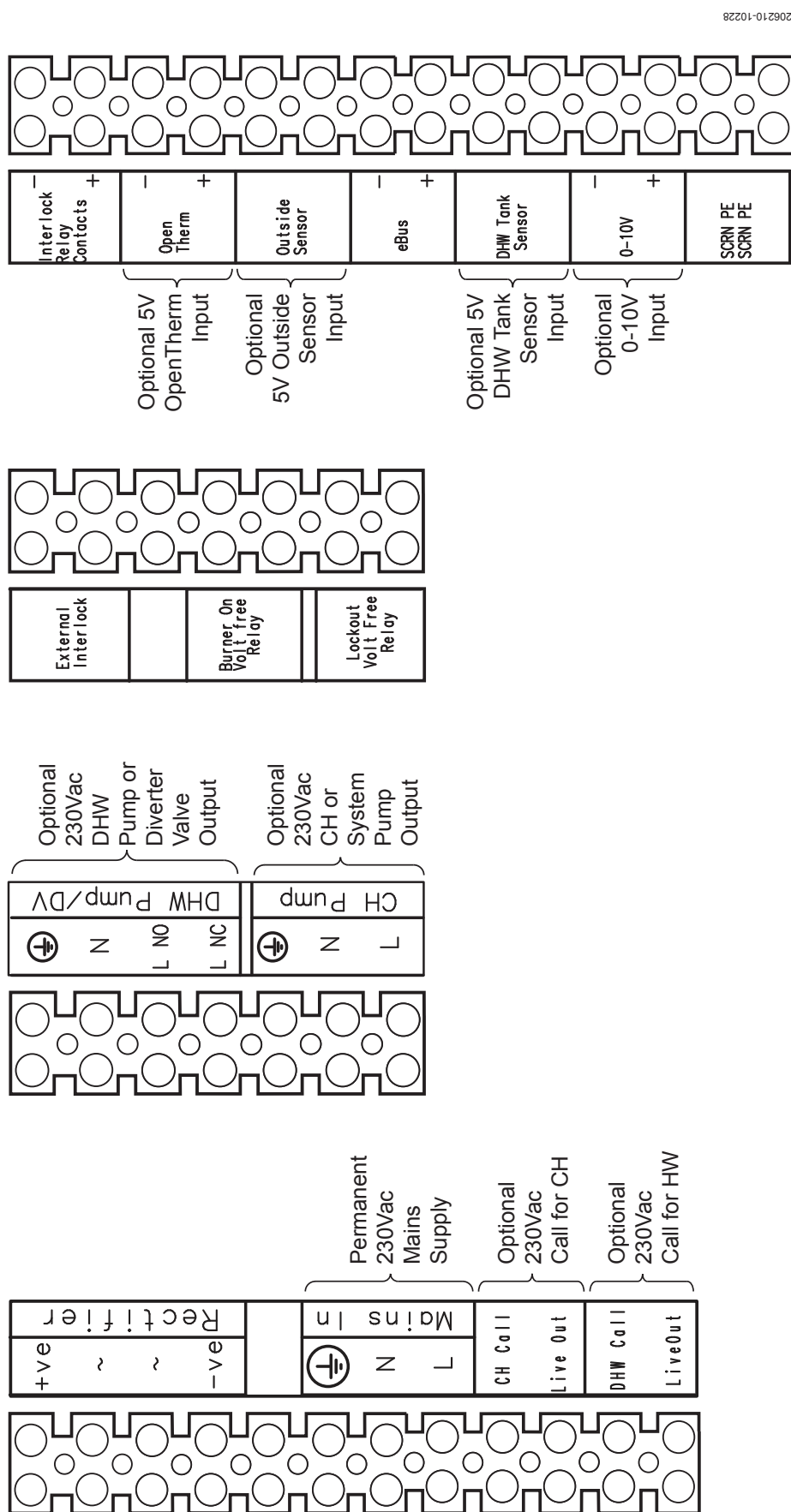
DHW demand can be controlled by:

- 230V programmer and/or cylinder thermostat
- tank sensor kit

The electrical supply and their inputs onto the boiler can be seen in Frame 34.

4. An optional outside temperature sensor may be fitted for outside weather compensation. See Frame 34 for connection details.

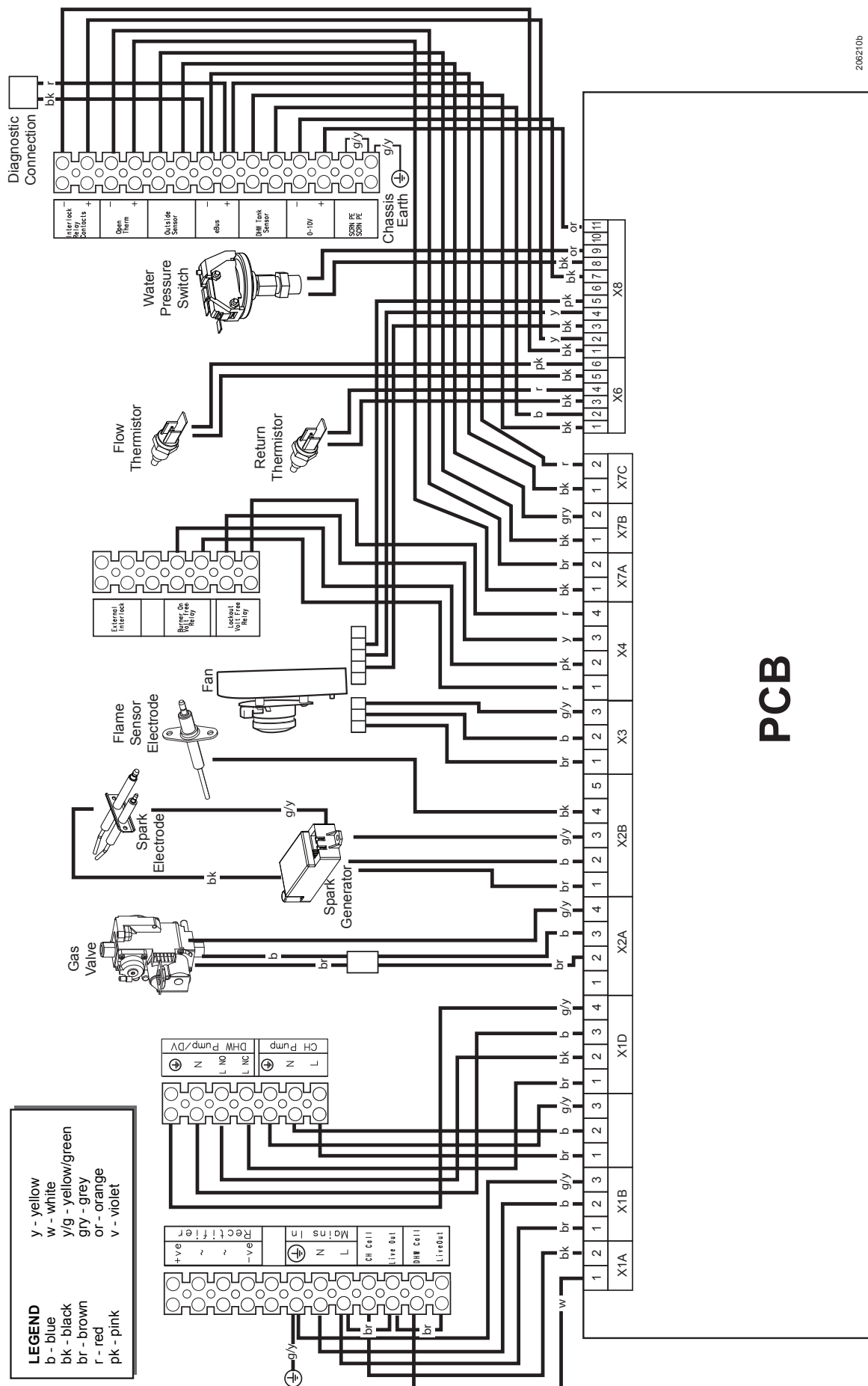
34 INSTALLER CONNECTIONS



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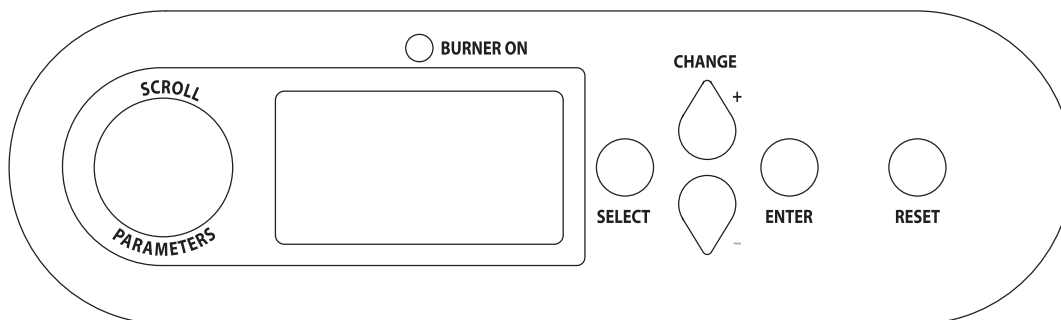
1. If a Pump is to be run from the boiler and the electrical current draw is 1.3A inductive or less then the pump can be connected directly into the CH Pump or DHW Pump connections, as appropriate (e.g. Grundfos 40/60 UPS is satisfactory). If the current draw is more than this (eg a Grundfos 40/120 UPS) then an external relay should be operated by the CH Pump or DHW Pump connections, with the external relay then powering the pump.
2. The Lockout Volt Free Relay contacts will close 4 minutes after a Fault occurs.
3. The Burner On Volt Free Relay contacts will close when the Burner is on.
4. Only Ideal Outside Sensor and DHW Tank Sensor kits should be connected to the boiler.
5. The External Interlock and Interlock Relay Contacts connections are only used in conjunction with the External Interlock Kit.
6. The Rectifier connections must not be used (only used in the existing internal boiler wiring).
7. The eBus connections are not for use.

35 INTERNAL WIRING



200210b

36 BASIC CONTROLS DISPLAY



EVOMAX USER INTERFACE

Mains On

When the mains to the boiler is switched on a screen similar to the following will be displayed
The designation at the end of the bottom line indicates whether the boiler is suitable for Natural Gas or LPG.

Ideal		
Initialising	Please Wait	
U/I PCB	330.E18	
Pri' PCB	00.54	Nat Gas

Standby Mode

If the boiler has been switched to Standby Mode the following screen will be displayed
No Boiler operation will take place with this setting. See Frame 38 to change to Summer or Winter setting

Standby Mode	
For Central Heating	
select Winter Mode	
For Hot Water	
select Summer or Winter	

Summer Mode

If the boiler has been switched to Summer Mode a screen similar to the following will be displayed
(line 5 may vary depending on setup)
Domestic Hot Water operation will take place with this setting but Central Heating will not.
See Frame 38 to enable Central Heating by changing to Winter setting

Summer Mode	
For Central Heating	
select Winter Mode	
No Hot Water Demand	
Switched Live	Off

Winter Mode

If there is no current Heat Demand a screen similar to the following will be displayed (line 5 may vary depending on setup)
Line 5 indicates "Switched Live" or "OpenTherm" or "0-10V" depending on which controls are connected to the boiler

Winter Mode	
No Central Heating	
Demand	
No Hot Water Demand	
Switched Live	Off

Domestic Hot Water Mode (DHW Thermostat)

If there is an ongoing Domestic Hot Water Demand using a DHW Thermostat, screens similar to the following will be displayed
Line 2 indicates whether Switched Live or OpenTherm is controlling the boiler
Line 3 indicates the current operating State (Pre-Purge or Ignition or Burner On or Pump Overrun)
Burner Power and Flow Temperature will vary as the boiler operates

Hot Water	
DHW Switched Live On	
Burner On	
DHW Thermostat	
Flow Temp	80°C



Hot Water	
Burner Power	100%
Burner On	
DHW Thermostat	
Flow Temp	80°C

Domestic Hot Water Mode (DHW Thermistor)

If there is an ongoing Domestic Hot Water Demand using a DHW Thermistor, screens similar to the following will be displayed
Line 2 indicates whether Switched Live or OpenTherm is controlling the boiler
Line 3 indicates the current operating State (Pre-Purge or Ignition or Burner On or Pump Overrun)
Burner Power and Hot Water Temp' will vary as the boiler operates
See Frame 38 for adjusting DHW Setpoint
See Frame 43 for configuring the boiler to use a DHW Thermistor

Hot Water	
DHW Switched Live On	
Burner On	
DHW Setpoint	65°C
Hot Water Temp'	65°C



Hot Water	
Burner Power	100%
Burner On	
DHW Setpoint	65°C
Hot Water Temp'	65°C

continued

37 BASIC CONTROLS DISPLAY CONTINUED.....

Central Heating Mode

If there is an ongoing Central Heating Demand screens similar to the following will be displayed
Line 2 indicates whether Switched Live or OpenTherm is controlling the boiler
Line 3 indicates the current operating State (Pre-Purge or Ignition or Burner On or Pump Overrun)
Outside temperature will only be shown if an outside sensor is connected to the boiler
Burner Power and Flow Temp will vary as the boiler operates
See Frame 42 for adjusting Flow Setpoint

Central Heating	
CH Switched Live On	
Burner On	
Flow Setpoint	80°C
Flow Temp	80°C



Central Heating	
Burner Power	100%
Outside Temp'	10°C
Flow Setpoint	80°C
Flow Temp	80°C

Boiler Frost Protection Mode

If the boiler flow temperature drops below 5°C screens similar to the following will be displayed
Line 3 indicates the current operating State (Pre-Purge or Ignition or Burner On or Pump Overrun)
Outside temperature will only be shown if an outside sensor is connected to the boiler
Burner Power and Flow Temp will vary as the boiler operates

Boiler Frost Protect	
Burner Power	100%
Burner On	
Frost Setpoint	5°C
Flow Temp	80°C



Boiler Frost Protect	
Burner Power	100%
Outside Temp'	10°C
Frost Setpoint	5°C
Flow Temp	80°C

System Frost Protection Mode

If an Outside Sensor is fitted and the Outside Temperature drops below the system frost protection temperature setpoint a screen similar to the following will be displayed
Line 3 indicates the current operating State (Pre-Purge or Ignition or Burner On or Pump Overrun)
Flow Temperature and Outside Temperature will vary as the boiler operates
See Frame 42 for adjusting the system frost protection temperature setpoint.

System Frost Protect	
Flow Temp	80°C
Burner On	
Frost Setpoint	-10°C
Outside Temp'	10°C

Cylinder Frost Protection Mode

If a Domestic Hot Water Thermistor is connected to the boiler and the DHW temperature drops below 5C a screen similar to the following will be displayed
Line 3 indicates the current operating State (Pre-Purge or Ignition or Burner On or Pump Overrun)
Burner Power, Hot Water Temp' and Outside Temp' will vary as the boiler operates
Outside temperature will only be shown if an outside sensor is connected to the boiler

Cylinder Frost Protect	
Burner Power	100%
Burner On	
Frost Setpoint	5°C
Hot Water Temp'	4°C



Cylinder Frost Protect	
Burner Power	100%
Outside Temp'	10°C
Frost Setpoint	5°C
Hot Water Temp'	4°C

0-10V Capacity Operating Mode

If 0-10V Capacity operation is ongoing screens similar to the following will be displayed
Line 3 indicates the current operating State (Pre-Purge or Ignition or Burner On or Pump Overrun)
Flow Temp' and Burner Power will vary as the boiler operates
0-10V Input and Burner Setpoint Target will vary as the external Building Management System controls them
See Frame 40 for configuring the boiler for 0-10V Capacity Operation

0-10V Operation	
0-10V Input =	10.0V
Burner On	
Burner Setpoint Target	100%
Flow Temp	80°C



0-10V Operation	
Burner Power	100%
Burner On	
Burner Setpoint Target	100%
Flow Temp	80°C

0-10V Temperature Operating Mode

If 0-10V Temperature operation is ongoing screens similar to the following will be displayed
Line 3 indicates the current operating State (Pre-Purge or Ignition or Burner On or Pump Overrun)
Flow Temp' and Burner Power will vary as the boiler operates
0-10V Input and Flow Setpoint will vary as the external Building Management System controls them.
See Frame 40 for configuring the boiler for 0-10V Temperature Operation.

0-10V Operation	
0-10V Input =	10.0V
Burner On	
Flow Setpoint	80°C
Flow Temp	80°C



0-10V Operation	
Burner Power	100%
Burner On	
Flow Setpoint	80°C
Flow Temp	80°C

continued

38 EVOMAX USER INTERFACE - BASIC OPERATING INSTRUCTIONS

SETTING FLOW TEMPERATURE

Press SELECT and a screen similar to the following will be displayed
The kW output number in the 1st line will vary depending the maximum output of the boiler

Ideal Evomax 80kW
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until a screen similar to the following is displayed

Ideal Evomax 80kW
Normal Operation
Set Flow Temp'
Set DHW Temp'
Set Off/Sum/Win

Press SELECT and a screen similar to the following will be displayed

Set Flow Temp'
80°C

Press + and - to change to the required setting and then press ENTER to store
Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

SETTING DOMESTIC HOT WATER TEMPERATURE

Note that DHW Temperature can only be set if a DHW Thermistor has been connected to the boiler and the boiler configured for its use.

Press SELECT and a screen similar to the following will be displayed

The kW output number in the 1st line will vary depending the maximum output of the boiler

Ideal Evomax 80kW
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until a screen similar to the following is displayed

Ideal Evomax 80kW
Set Flow Temp'
Set DHW Temp'
Set Off/Sum/Win
Out' Sensor Slope

Press SELECT and a screen similar to the following will be displayed

Set DHW Temp'
65°C

Press + and - to change to the required setting and then press ENTER to store
Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

SETTING SUMMER, WINTER AND STANDBY OPERATION

Note that Standby Mode will disable Domestic Hot Water and Central Heating, Summer Mode will disable Central Heating

Press SELECT and a screen similar to the following will be displayed
The kW output number in the 1st line will vary depending the maximum output of the boiler

Ideal Evomax 80kW
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate KNOB clockwise until a screen similar to following is displayed

Ideal Evomax 80kW
Set DHW Temp'
Set Off/Sum/Win
Out' Sensor Slope
Normal Operation

Press SELECT and a screen similar to the following will be displayed

Set Off/Sum/Win
Standby
Summer
Winter
Press - for more

Press + and - to change to required setting, press ENTER to store
Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

SETTING THE OUTSIDE SENSOR SLOPE

Note that an Outside Sensor must be fitted to the boiler for this feature to be active (this will be detected automatically)

Press SELECT and a screen similar to the following will be displayed

The kW output number in the 1st line will vary depending on the maximum output of the boiler

Ideal Evomax 80kW
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate KNOB clockwise until a screen similar to following is displayed

Ideal Evomax 80kW
Set Off/Sum/Win
Out' Sensor Slope
State of Inputs
State of Outputs

Press SELECT and a screen similar to the following will be displayed

Out' Sensor Slope
1.5

Note that a higher number gives a higher room temperature and a lower number gives a lower room temperature

Press + and - to change to required setting, press ENTER to store
Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

continued

39 EVOMAX USER INTERFACE - BASIC OPERATING INSTRUCTIONS CONTINUED...

VIEWING THE STATE OF THE BOILER INPUTS

Press SELECT and a screen similar to the following will be displayed
The kW output number in the 1st line will vary depending the maximum output of the boiler

Ideal Evomax 80kW	
Normal Operation	
Set Flow Temp'	
Set DHW Temp'	

Rotate KNOB clockwise until a screen similar to the following is displayed

Ideal Evomax 80kW	
Out' Sensor Slope	
State of Inputs	
State of Outputs	
Fault History	

Press SELECT and a screen similar to the following will be displayed

State of Inputs	
Flow Temp'	80°C
Return Temp'	60°C
Flue Temperature	70°C
Press - for more	

The state of the inputs will vary as the boiler operates

Press SELECT to exit this option

Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

VIEWING THE STATE OF THE BOILER OUTPUTS

Press SELECT and a screen similar to the following will be displayed
The kW output number in the 1st line will vary depending the maximum output of the boiler

Ideal Evomax 80kW	
Normal Operation	
Set Flow Temp'	
Set DHW Temp'	

Rotate KNOB clockwise until a screen similar to the following is displayed

Ideal Evomax 80kW	
State of Inputs	
State of Outputs	
Fault History	
Show Hours Run	

Press SELECT and a screen similar to the following will be displayed

State of Outputs	
Boiler Pump	On
DHW Pump/Valve	Off
Fan	3000rpm
Press - for more	

The state of the outputs will vary as the boiler operates

Press SELECT to exit this option

Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

VIEWING THE FAULT HISTORY OF THE BOILER

Press SELECT and a screen similar to the following will be displayed
The kW output number in the 1st line will vary depending the maximum output of the boiler

Ideal Evomax 80kW	
Normal Operation	
Set flow Temp'	
Set DHW Temp'	

Rotate KNOB clockwise until a screen similar to the following is displayed

Ideal Evomax 80kW	
State of Outputs	
Fault History	
Show Hours Run	
Normal Operation	

Press SELECT and a screen similar to the following will be displayed

Fault History: Max 10	
Fault 1 [Latest]	
Ignition Lockout [16]	
23 days ago	
Press - for more	

The Fault History will vary depending on the operation of the boiler

Press SELECT to exit this option

Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

VIEWING THE BOILER HOURS RUN

Press SELECT and a screen similar to the following will be displayed
The kW output number in the 1st line will vary depending the maximum output of the boiler

Ideal Evomax 80kW	
Normal Operation	
Set Flow Temp'	
Set DHW Temp'	

Rotate KNOB clockwise until a screen similar to following is displayed

Ideal Evomax 80kW	
Fault History	
Show Hours Run	
Normal Operation	

Press SELECT and a screen similar to the following will be displayed

Show Hours Run	
Total Hours	20 h
Flame On	10 h

The times will vary depending on the operation of the boiler

Press SELECT to exit this option

Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

continued

40 EVOMAX USER INTERFACE - ADVANCED OPERATING INSTRUCTIONS

SETTING TO 0-10V

Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
Show Hours Run
Set to 0-10V Input
Set Night Setback
DHW Pump / Valve

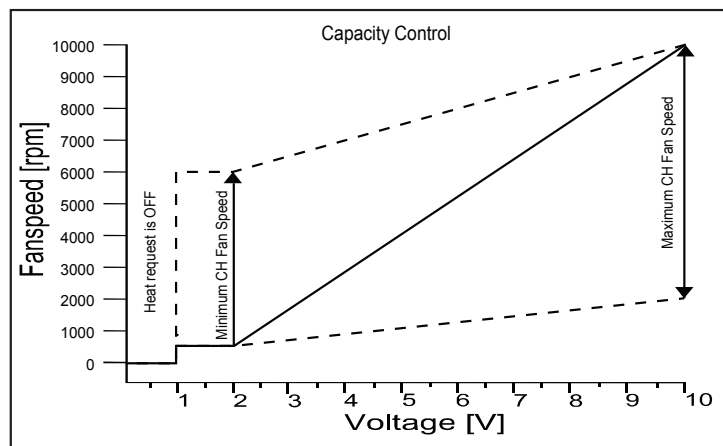
Press SELECT and the following screen will be displayed

Set to 0-10V Input
0-10V Off
0-10V Capacity
0-10V Temperature

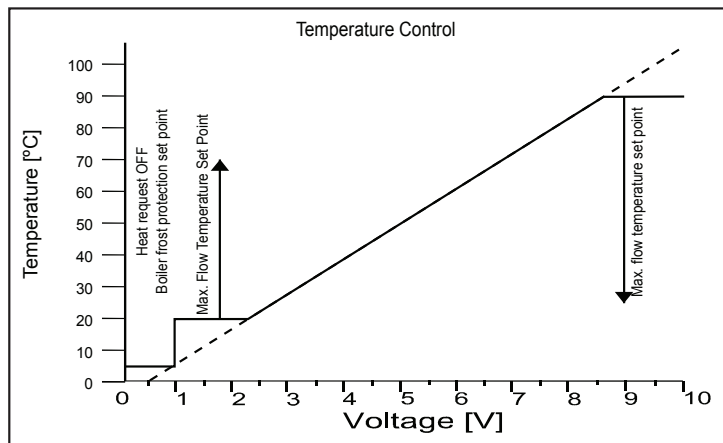
Press + and - to change to the required setting and then press ENTER to store

Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

0-10V Capacity Control is governed by the following relationship



0-10V Temperature Control is governed by the following relationship



continued

41 EVOMAX USER INTERFACE - ADVANCED OPERATING INSTRUCTIONS CONTINUED....

ENABLING NIGHT SETBACK

Note- Night Setback is only operational if Outside Sensor has been connected
When Night Setback is enabled the boiler will run at the normal flow temp. during CH Demand and reduced temperature when for no demand

Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
Set to 0-10V Input
Set Night Setback
DHW Pump / Valve
Set Booster

Press SELECT and the following screen will be displayed

Set Night Setback
On
Off

Press + and - to change to required setting and then press ENTER to store
Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

Note- Booster Function is only operational if Outside Sensor has been connected
If Booster function is enabled and CH Demand is ongoing for more than 10 minutes then the Flow Temp. target is increased by 10°C
When the Burner switches off the temperature is reset

Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
DHW Pump / Valve
Set Booster
CH/DHW Priority
Set Max Flow Temp'

Press SELECT and the following screen will be displayed

Set Booster
On
Off

Press + and - to change to required setting then press ENTER to store
Rotate the KNOB anti-clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

CHANGING CH / DHW PRIORITY

The boiler default setting is DHW always has priority ahead of CH
It is possible to change this so CH always has priority ahead of DHW or the boiler alternates between DHW and CH every 10 mins
Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
Set Booster
CH/DHW Priority
Set Max Flow Temp'
Set Min Flow Temp'

Press SELECT and the following screen will be displayed

CH/DHW Priority
Priority = DHW
Priority = CH
Priority = Equal

Press + and - to change to the required setting and then press ENTER to store

Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

continued

42 EVOMAX USER INTERFACE - ADVANCED OPERATING INSTRUCTIONS

CHANGING THE MAXIMUM FLOW TEMPERATURE SETPOINT

Boiler default setting is that maximum flow temperature setpoint is 80°C. This feature limits the maximum flow temperature that can be set in the Basic Operating Mode.

Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
CH/DHW Priority
Set Max Flow Temp'
Set Min Flow Temp'
Sys Frost Protect

Press SELECT and the following screen will be displayed

Set Max Flow Temp'
80°C

Press + and - to change to the required setting and then press ENTER to store

Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

CHANGING THE MINIMUM FLOW TEMPERATURE SETPOINT

Boiler default setting is that minimum flow temperature setpoint is 30°C. This feature limits the minimum flow temperature that can be set in the Basic Operating Mode.

Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
Set Max Flow Temp'
Set Min Flow Temp'
Sys Frost Protect
Soft Start Time

Press SELECT and the following screen will be displayed

Set Max Flow Temp'
30°C

Press + and - to change to the required setting and then press ENTER to store

Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

CHANGING THE SYSTEM FROST PROTECTION TEMP. SETPOINT

Note that System Frost Protection Function is only operational if an Outside Sensor has been connected.

The CH pump is switched on if the Outside Temp. is less than the System Frost Protection Temp.

The CH pump is switched off if the Outside Temp. is more than the System Frost Protection Temp. +5°C.

The boiler default setting is the system frost protection temp. setpoint is -10°C.

Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
Set Min Flow Temp'
Sys Frost Protect
Soft Start Time
O/S Room Temp'

Press SELECT and the following screen will be displayed

Sys Frost Protect
-10°C

Press + and - to change to required setting, press ENTER to store. Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation.

CHANGING THE SOFT START TIME

The Soft Start Time is the time for which the boiler will run at the ignition rate after a flame is detected.

This feature helps make the boiler fully compatible with the CH/DHW system. The default Soft Start time is 60s.

Care should be taken in adjusting this feature as system noise and/or boiler lockout could occur.

Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
Sys Frost Protect
Soft Start Time
O/S Room Temp'
DHW Sensor

Press SELECT and the following screen will be displayed

Soft Start Time
5s

Press + and - to change to required setting then press ENTER to store. Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation. Note that the minimum setpoint after adjustment is 60s.

continued

43 EVOMAX USER INTERFACE - ADVANCED OPERATING INSTRUCTIONS CONTINUED....

CHANGING THE NOMINAL ROOM TEMPERATURE ACHIEVED DURING OUTSIDE SENSOR OPERATION (O/S ROOM TEMP')

Note that the O/S Room Temp' Function is only operational if an Outside Sensor has been connected

The O/S Room Temp' is the notional room temperature that the boiler will try to achieve under Weather Compensation operation

The default O/S Room Temp' is 20°C

Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
Soft Start Time
O/S Room Temp'
DHW Sensor
Factory Settings

Press SELECT and the following screen will be displayed

O/S Room Temp'
20°C

Press + and - to change to required setting, press ENTER to store

Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

ENABLING THE DOMESTIC HOT WATER THERMISTOR

The default is for a DHW Heat Demand to be indicated by a DHW Thermostat providing a 230V input to the DHW Switched Live. Instead a DHW Thermistor, available as a kit from Ideal, can be connected to the DHW Thermistor input

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
O/S Room Temp'
DHW Sensor
Factory Settings
Anti-Legion Temp'

Press SELECT and the following screen will be displayed

DHW Sensor
Heating Only
DHW Thermistor
DHW Switched Live

Press + and - to change to the required setting and then press ENTER to store

Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

REVERTING TO FACTORY SETTINGS

Press SELECT, hold + and - together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
DHW Sensor
Factory Settings
Anti-Legion Temp'
Anti-Legion Enable

Press SELECT and the following screen will be displayed

Factory Settings
Reset?

Press ENTER and a screen similar to the following will be displayed

Factory Settings
Are you sure?
Press Enter to Reset
Press Select not to
Reset

Press ENTER and a screen similar to the following will be displayed

Factory Settings
Reset?

Press Select then Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

CHANGING THE ANTI-LEGIONELLA TEMPERATURE

Note Anti-Legionella Temp. Function is only operational if a DHW Thermistor has been connected

Care should be taken reducing this temp. as unsafe condition could result. Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
Factory Settings
Anti-Legion Temp'
Anti-Legion Enable
BUS Address

Press SELECT and the following screen will be displayed

Anti-Legion Temp'
70°C

Press + and - to change to required setting, press ENTER to store

Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

continued

INSTALLATION

44 EVOMAX USER INTERFACE - ADVANCED OPERATING INSTRUCTIONS CONTINUED....

DISABLING THE ANTI-LEGIONELLA FUNCTION

Note that the Anti-Legionella Temperature Function is only operational if a Domestic Hot Water Thermistor has been connected Care should be taken in disabling this function as an unsafe condition could result

Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
Anti-Legion Temp'
Anti-Legion Enable
BUS Address
Flame/LPG Relay

Press SELECT and the following screen will be displayed

Anti-Legion Enable
On
Off

Press + and - to change to required setting then press ENTER to store Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

CHANGING THE VOLT FREE BURNER ON RELAY TO OPERATE AS AN LPG RELAY FOR BELOW GROUND LEVEL LPG APPLICATIONS

If LPG is to be used in an application below ground level then an additional valve is required to control the LPG input to the boiler This valve should be wired from the Volt Free Burner on Relay and enabled as follows

Press SELECT and then hold + and - down together for more than 5s, the following screen will be displayed

Installer Mode
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate the KNOB clockwise until the following screen is displayed

Installer Mode
BUS Address
Flame/LPG Relay
Normal Operation

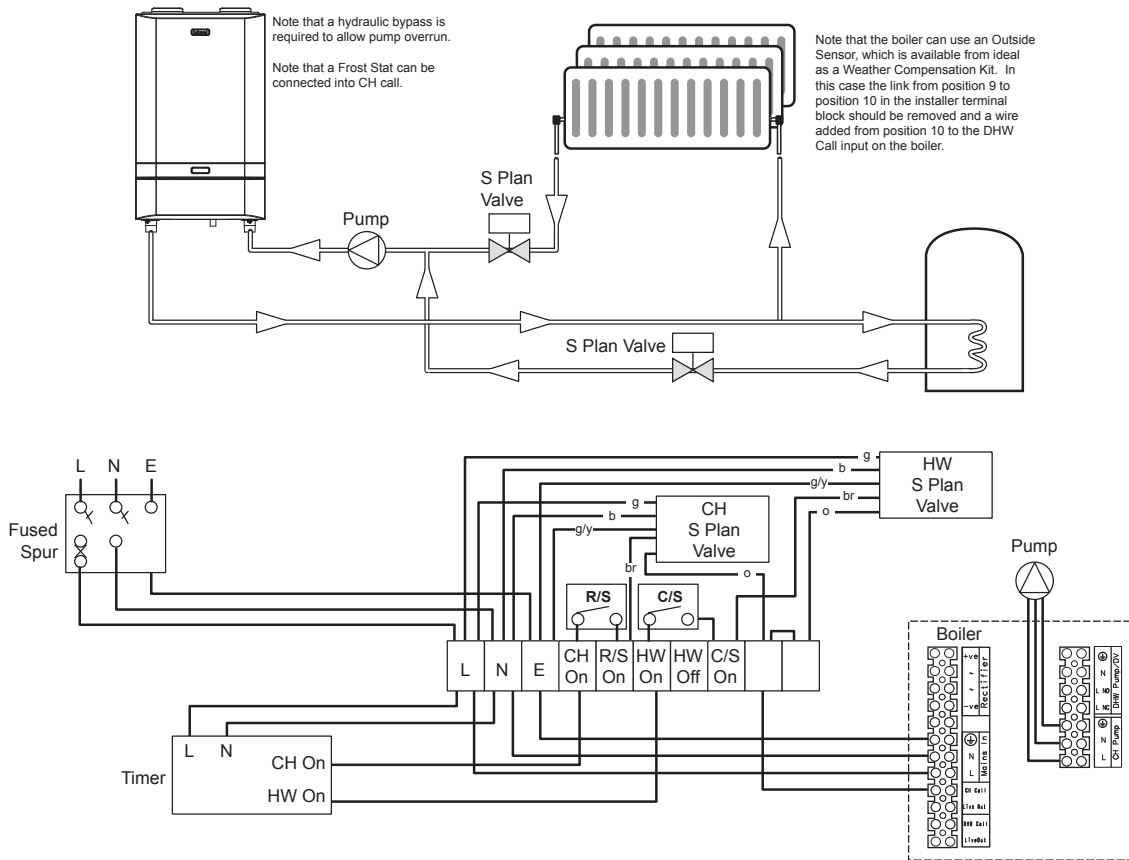
Press SELECT and the following screen will be displayed

Flame/LPG Relay
-
Flame On
LPG Gas Valve

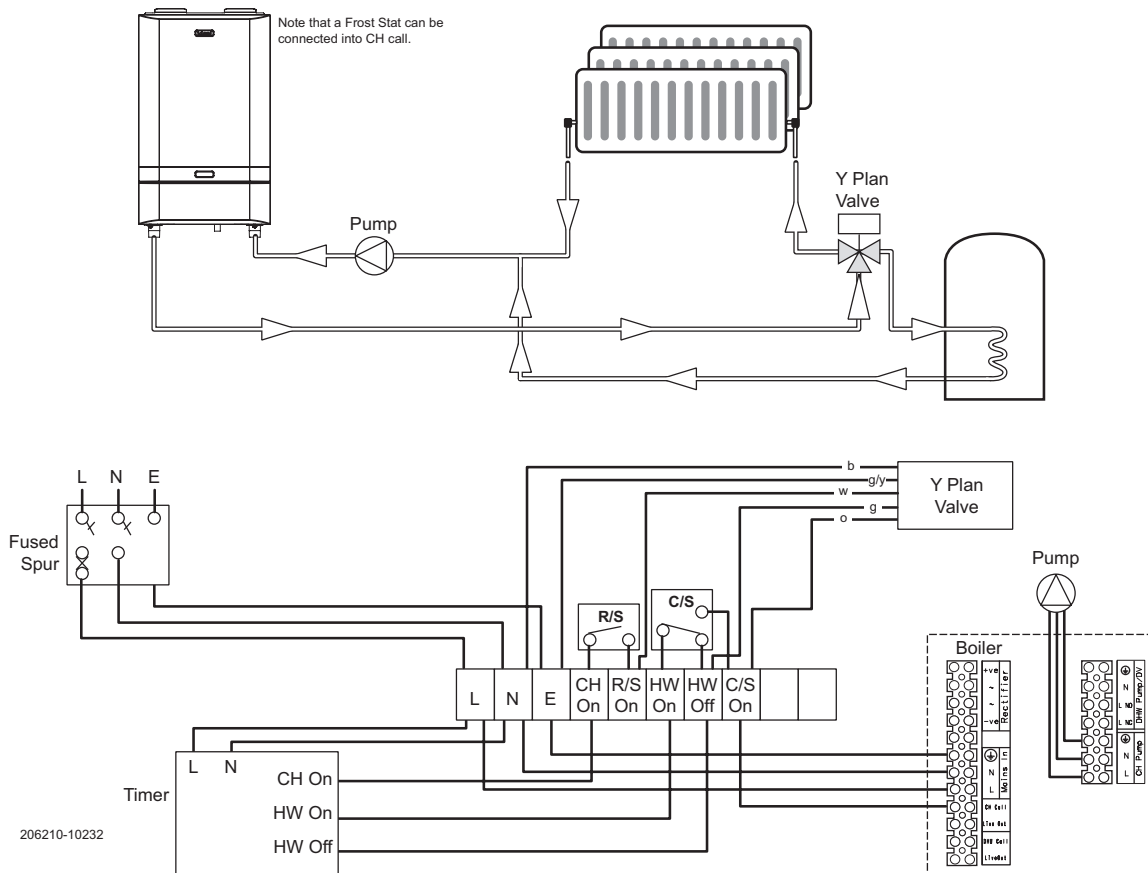
Press + and - to change to the required setting and then press ENTER to store Rotate the KNOB clockwise until Normal Operation is highlighted again and press SELECT to return to normal operation

continued

45 EVOMAX WITH S PLAN SYSTEM

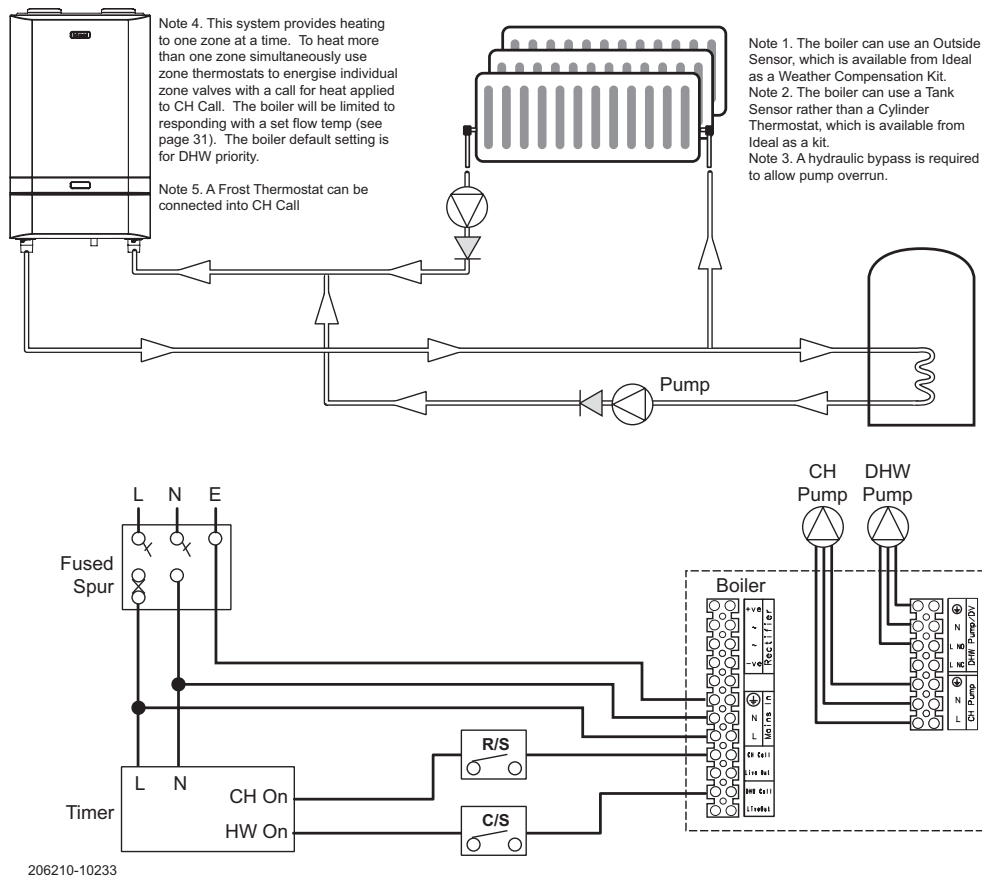


46 EVOMAX WITH Y PLAN SYSTEM

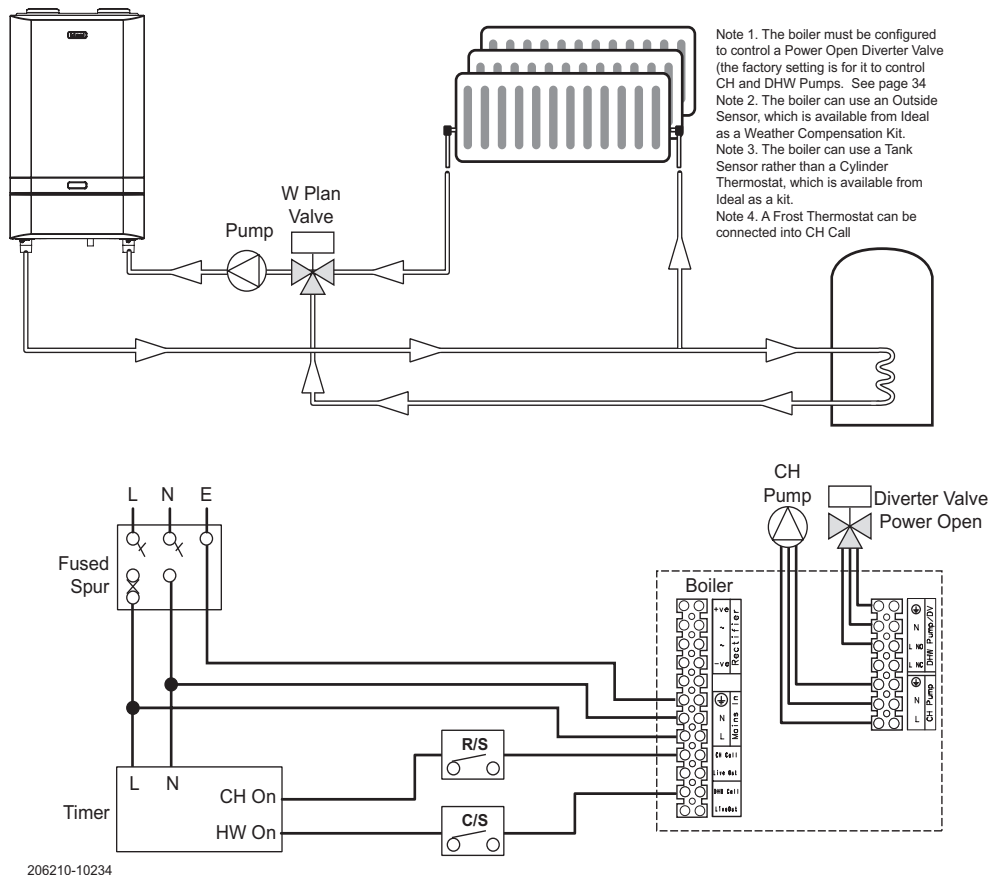


INSTALLATION

47 EVOMAX WITH BOILER CONTROL OF CH AND DHW PUMPS

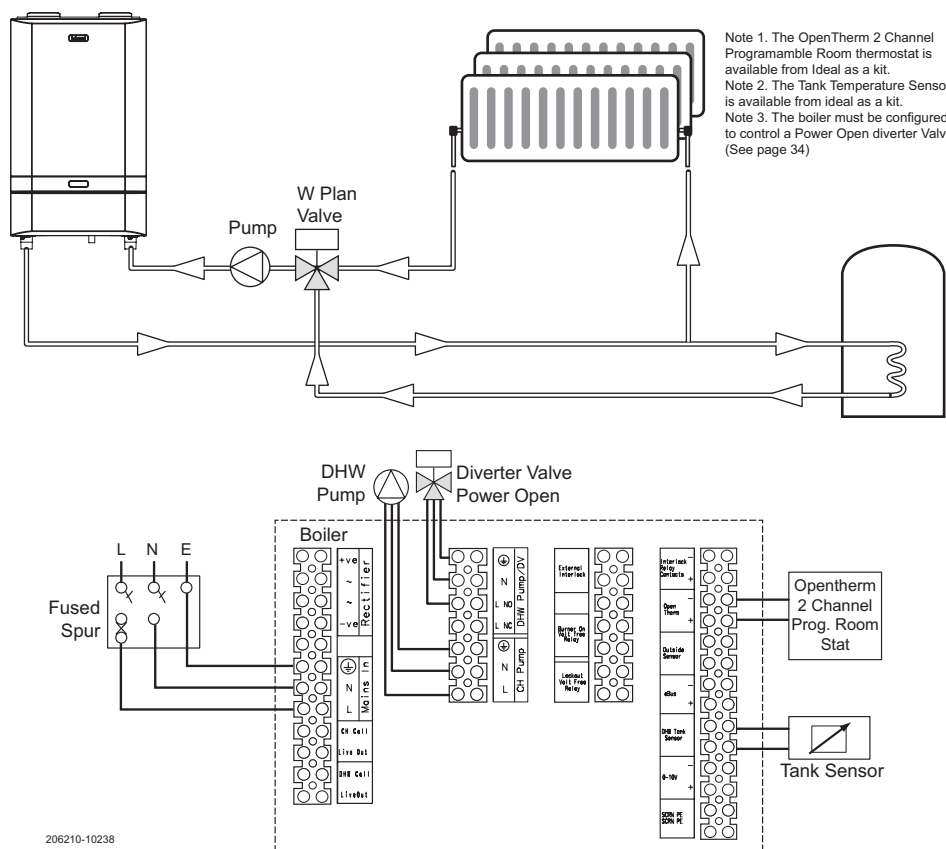


48 EVOMAX WITH BOILER CONTROL OF PUMP AND DIVERTER VALVE



INSTALLATION

50 EVOMAX WITH OPENTHERM 2 CHANNEL PROGRAMMABLE ROOM STAT



51 COMMISSIONING AND TESTING

A. ELECTRICAL INSTALLATION

1. Checks to ensure electrical safety should be carried out by a competent person.
2. ALWAYS carry out the preliminary electrical system checks, i.e. earth continuity, polarity, resistance to earth and short circuit, using a suitable meter.

B. GAS INSTALLATION

1. The whole of the gas installation, including the meter, should be inspected and tested for soundness and then purged in accordance with the recommendations of the relevant standards listed on page 4, by the installer.

In IE refer to I.S.813:2002.

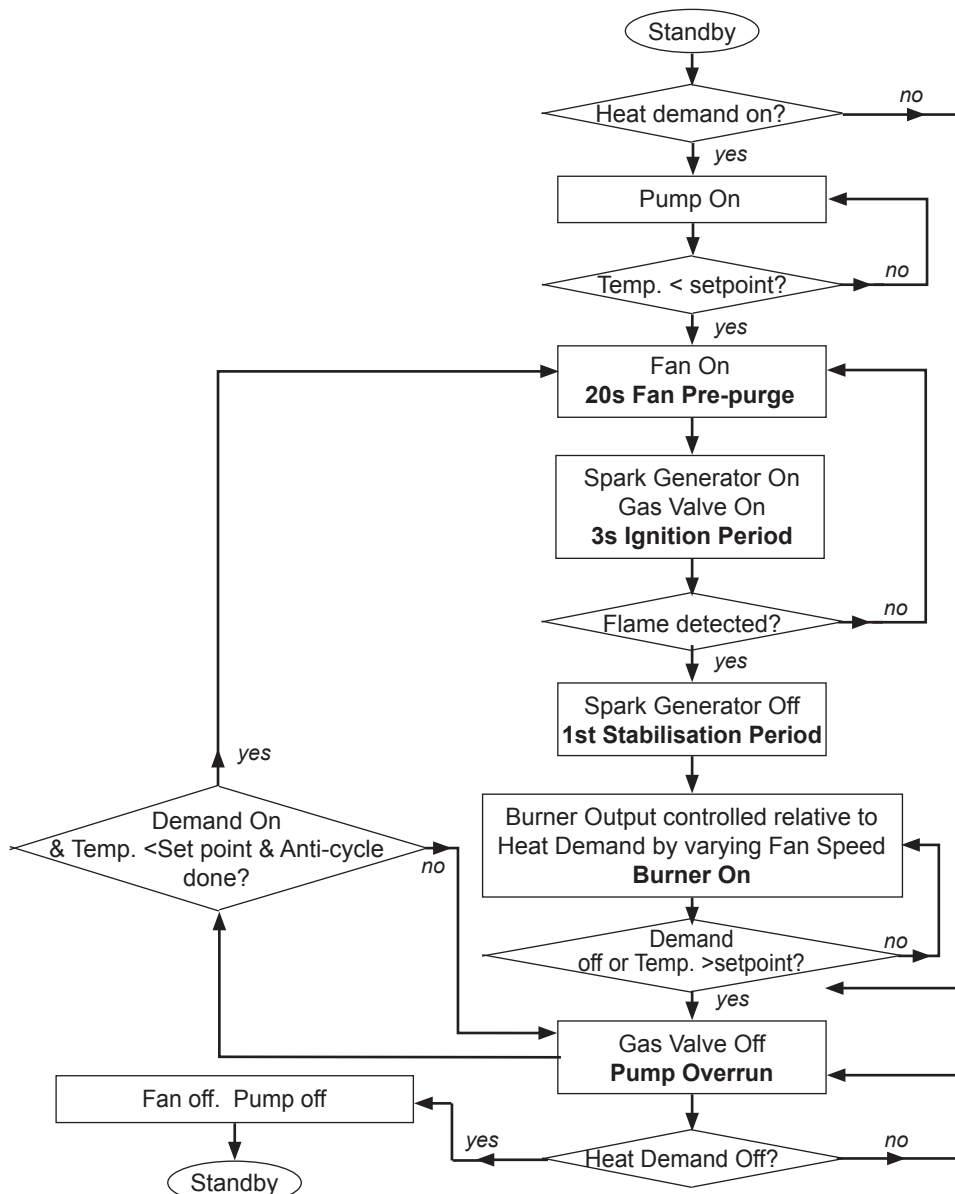
WARNING. Whilst effecting the required gas soundness test and purging air from the gas installation, open all windows and doors, extinguish naked lights and DO NOT SMOKE.

52 INITIAL LIGHTING

1. Check that the system has been filled and the boiler is not air locked - air in the boiler could damage the heat exchanger. For this reason the airvent located in the left top side must never be shut off.
2. Check that all the drain cocks are closed and any valves in the flow and return are open.
3. Check that the GAS SERVICE COCK IS ON.
4. Fill the condensate trap with water before putting the unit into operation (see Frame 62 for condensate trap removal).
5. Check the indication on the pressure gauge. If the pressure is less than 1 bar the installation should be filled up first (sealed system only).
6. Switch the electricity supply ON and check that all the external controls are calling for heat. Check boiler is set for winter operation - see Evomax user interface basic operating instructions.
7. The boiler will commence the ignition sequence. If after 5 attempts the boiler has failed to light then it will lock out. Press the reset button to restart the ignition sequence.
8. Operate the boiler for 10 minutes and check the gas rate (Table 1). You should be able to read at least 90% of the nominal.

Evomax ~ Flue CO ₂ % measurements (hot condition)											
	30	40	60	80	100	120	150	30P	40P	60P	80P
Max Rate	9.7%							11.4%			
Min Rate	8.7%							10.2%			

OPERATING SEQUENCE



Note. The fan runs for 4 mins after the burner switches off

53 GENERAL CHECKS

Make the following checks for correct operation.

1. The correct operation of ANY secondary system controls should be proved. Operate each control separately and check that the main burner or circulating pump, as the case may be, responds.
2. Water circulation system;
 - a. With the system HOT examine all water connections for soundness.
 - b. With the system still HOT, turn off the gas, water and electricity supplies to the boiler and drain down to complete the flushing process.

c. Refill and vent the system, clear all air locks and again check for water soundness.

d. Balance the system.

3. Check the condensate drain for leaks and check it is discharging correctly.

4. Finally set the controls to the User's requirements.

Note. If an optional programmer kit is fitted then refer to the instructions supplied with the kit.

54 HANDING OVER

ROUTINE OPERATION

Full instructions covering routine lighting and operation of the boiler are given on the Lighting and Operation Instruction Label located on the inside of the lower controls door.

Draw the attention of the boiler owner or his representative to the Lighting and Operating Instruction Label. Give a practical demonstration of the lighting and shutting down of the boiler.

Describe the function of the boiler and system controls and show how they are adjusted and used.

Hand these Installation and Servicing Instructions, User's Instructions and Log book to the customer and request him to keep them in a safe place for ready reference. For IE, it is necessary to complete a "Declaration of Conformity" to indicate compliance to the appropriate standard.

IMPORTANT. Point out to the owner that the boiler must have regular maintenance and cleaning, at least annually, in order to ensure reliable and efficient operation. Regular attention will also prolong the life of the boiler and should preferably be performed at the end of the heating season.

After servicing, complete the service section of the log book and return to the owner or their representative.

Recommend that a contract for this work should be made with the regional gas authority or a Gas Safe Registered Engineer. In IE servicing work must be carried out by a competent person.

55 SAFETY

It is the law that any service work must be carried out by a Gas Safe Registered Engineer. In IE service work must be carried out by a competent person.

WARNING. Always turn off the gas supply at the gas service cock, and switch off and disconnect the electricity supply to the appliance and any external controls before servicing or replacing components.

NOTE.

When the burner switch is in the off position the boiler control module remains live.

IMPORTANT.

After completing the servicing or replacement of components always:

- Test for gas soundness.

- Check the water system is correctly filled and free of air. Air in the boiler could cause damage to the heat exchanger. For this reason the automatic air vent in the left top side must never be shut off.
- Check the jacket front panel is correctly fitted, ensuring that a good seal is made. Secure the controls fascia in place.
- With the system hot examine all water connections for soundness.
- Check the gas rate and measure the combustion CO/CO₂ content. The CO/CO₂ ratio of the flue gas should not be greater than 0.004 ratio and the CO₂ should match the values given in Frame 56.
- Carry out functional checks as appropriate.

56 SERVICING SCHEDULE

To ensure the continued safe and efficient operation of the appliance it is recommended that it is checked at regular intervals and serviced as necessary. The frequency of servicing will depend upon the installation condition and usage but should be carried out at least annually.

Ideal Stelrad Group does not accept any liability resulting from the use of unauthorised parts or the repair and servicing of appliances not carried out in accordance with the Company's recommendations and specifications.

Note.

Some aluminium oxide build-up within the heat exchanger assembly is quite usual with this type of condensing boiler. Though removal and cleaning is recommended annually, the heat exchanger, sump and condensate trap must be inspected and cleaned after a maximum of 2 years operation.

1. Light the boiler and carry out function checks, noting any operational faults.
2. Run the boiler for 5 minutes and then check the gas consumption rate. Refer to procedure opposite on how to force the burner to maximum rate.
3. Optional test - Connect a suitable gas analyser to the sampling point fitted in the flue adapter. For correct boiler operation the CO/CO₂ ratio of the flue gas should not be greater than 0.004 ratio and the CO₂ values should match those in table 1. If this is the case and the gas input is at least 90% of the nominal, once compliance with the note above is ensured, then no further action need be taken. If not proceed to 4.
4. Remove and clean the burner. Refer to Frames 59 and 60.
5. Inspect the heat exchanger through the burner opening. If there are signs of aluminium oxide build up, spray water down the flueways. Refer to Frame 60.
6. Remove the sump cover and scrape out any deposits. Refer to Frame 61.
7. Remove the condensate trap and flush through with water. Refer to Frame 62.
8. Check that the flue terminal is unobstructed and that the flue system is sealed correctly.
9. After completion of servicing refer to Frame 55 for reference to final safety checks.

SETTING TO MAXIMUM OUTPUT

Ensure that there is a current CH demand to the boiler (e.g. the CH Switched Live is on)

Press SELECT and the following screen will be displayed.

The kW output number in the 1st line will vary depending on the maximum output of the boiler.

Ideal 80kW
Normal Operation
Set Flow Temp'
Set DHW Temp'

Rotate KNOB clockwise until the following screen is displayed

Ideal 80kW
Set DHW Temp'
Set Off/Sum/Win
Out' Sensor Slope
State of Inputs

Press SELECT and the following screen will be displayed

Set Off/Sum/Win
Standby
Summer
Winter
Press - for more

Press + and - until the following screen is displayed.

Set Off/Sum/Win
Minimum
Maximum
Press - for more

Press ENTER and the boiler will go to Maximum Rate for 5 minutes
Operation will be automatically reset at the end of 5 minutes

57 CASING REMOVAL

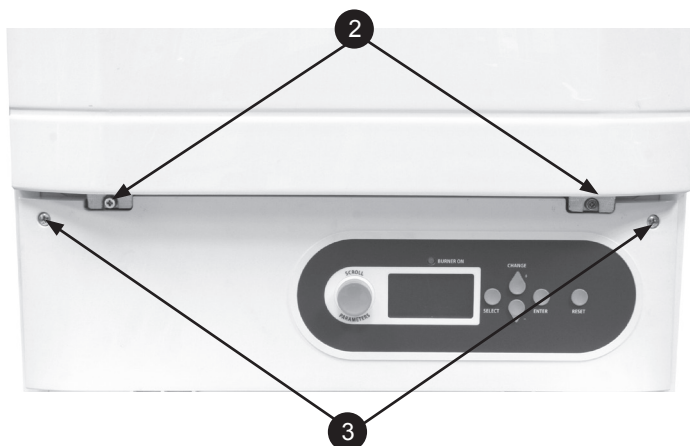
Front Panels

1. Pull the two sides of the control casing door to open.
2. Remove the two screws retaining the front panel, lift the panel to remove.
3. Remove the two screws retaining the control panel and swing the panel down into the service position.

Side Panels

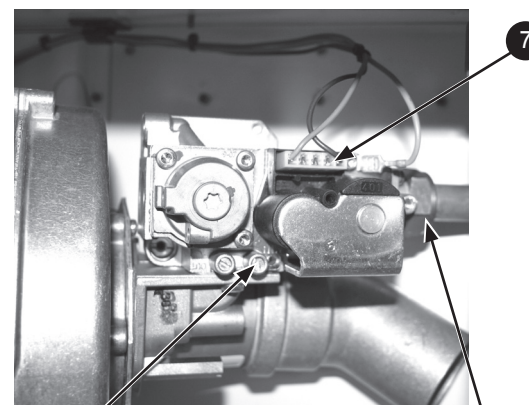
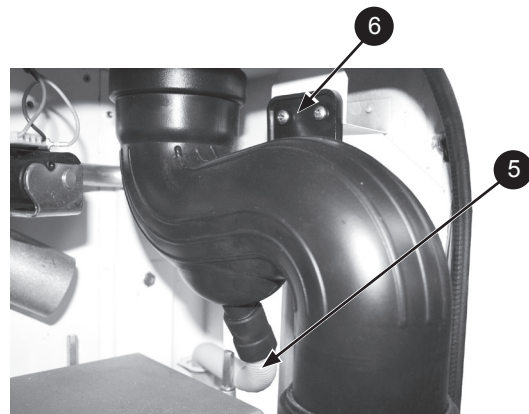
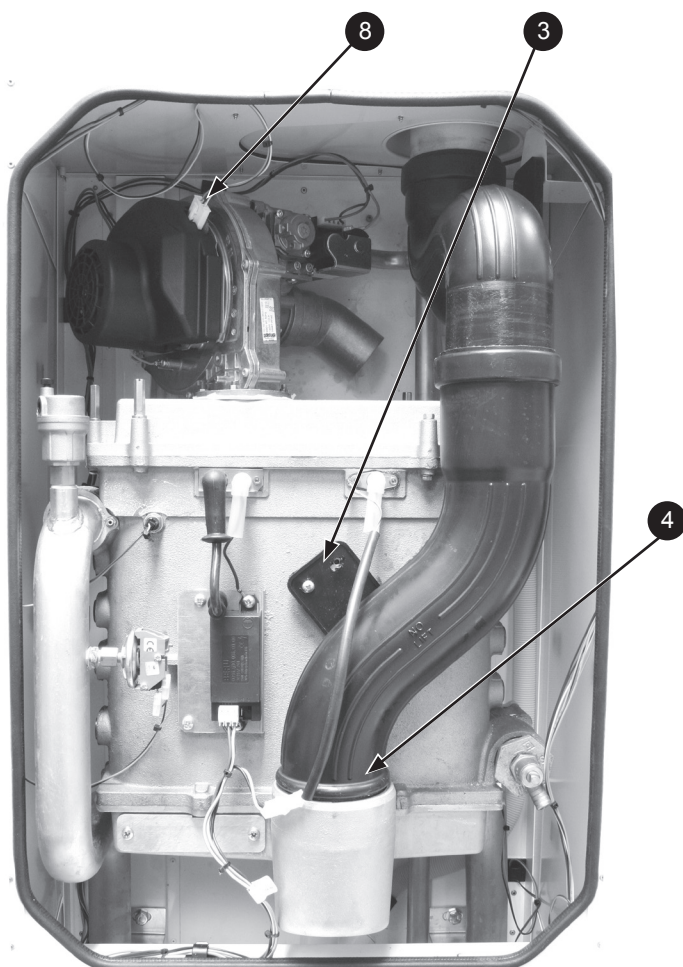
Note. Removal is not required for normal service.

1. Remove the two (or three) screws from the top and bottom of the side panels.
2. Re-assemble in reverse order.

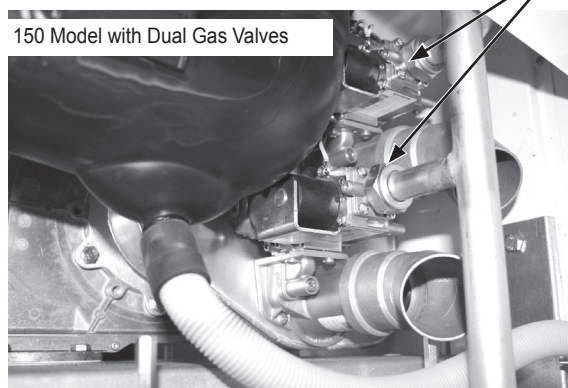
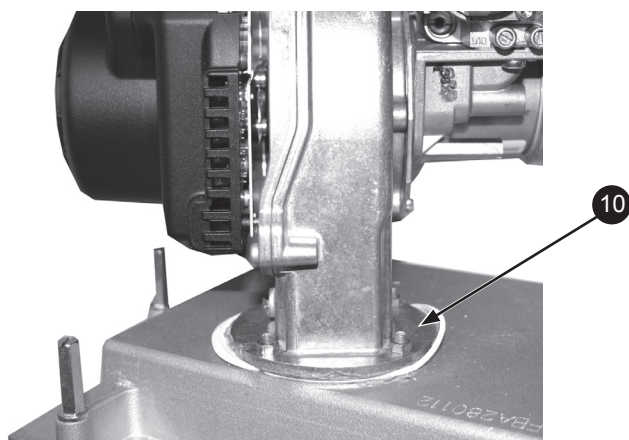


58 REMOVAL OF FAN AND GAS VALVE ASSEMBLY

1. Refer to Frame 55.
2. Remove the upper front panel, Refer to Frame 57.
3. Remove the two screws retaining the flue tube to the heat exchanger.
4. Lift the lower section of flue upwards to disengage from the sump then twist outwards and pull down to completely remove..
5. Disconnect condensate pipe from upper flue elbow.
6. Remove the flue tube elbow fixing screws and remove elbow by pulling downwards.
7. Disconnect the electrical connections from the gas valve/s.
8. Disconnect the electrical connections from the fan.
9. Undo the gas valve union nut/nuts and retain the fibre washer/s.
10. Remove the four nuts/washers (or screws depending upon boiler size) retaining the fan assembly and remove the fan assembly.
11. Inspect & clean as necessary.
12. Re-assemble in reverse order replacing all gaskets.

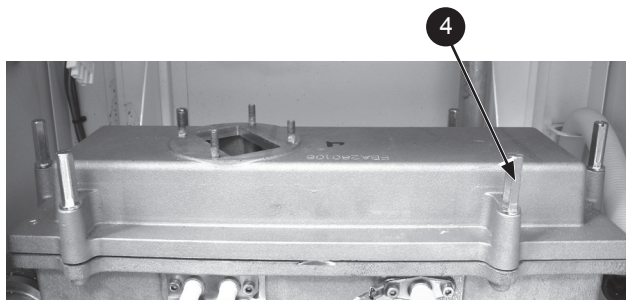


Inlet Gas Pressure Test Point for 30, 40, 60 80 & 150 models
For 100 & 120 models the inlet gas pressure test point can be found on the inlet gas manifold



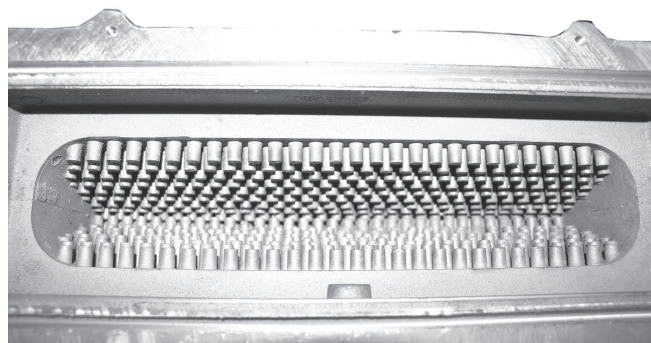
59 BURNER REMOVAL

1. Refer to Frame 55.
2. Remove the front panel (Refer to frame 57)
3. Remove the fan and gas valve assembly (Refer to frame 58)
4. Remove the six/eight extended nuts securing the burner to release the burner body.
5. Lift the burner body to remove it from the studs and lift the burner out of its recess.
6. The burner can now be cleaned on the back face only, the metal fibre surface must not be touched. The burner must be replaced if it shows signs of damage.
7. After cleaning the burner replace it in the recess and check the burner body seal for signs of damage. If damage is apparent it must be replaced.
8. Reassemble in reverse order. The six (or eight) extended nuts should be fitted following a diagonal tightening sequence twice. The nuts should be secured firmly.
9. Check the operation of the boiler (Refer to Frame 55).



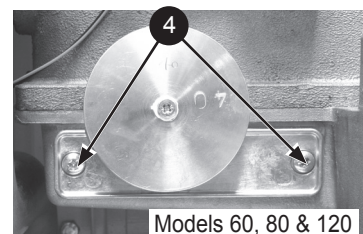
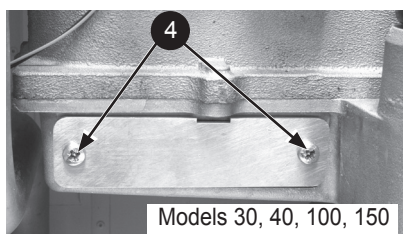
60 HEAT EXCHANGER INSPECTION / CLEANING

1. Refer to Frame 55.
2. Remove the front panel (Refer to frame 57)
3. Remove the fan and gas assembly (Refer to frame 58)
4. Remove the burner (Refer to frame 59)
5. Remove the ignition and detection electrodes (Refer to frame 66/67)
6. Inspect the heat exchanger for signs of aluminium oxide deposits. If necessary clean the heat exchanger by spraying water down the flue ways.
7. Reassemble in reverse order replacing all gaskets.
8. Check the operation of the boiler (Refer to frame 55)



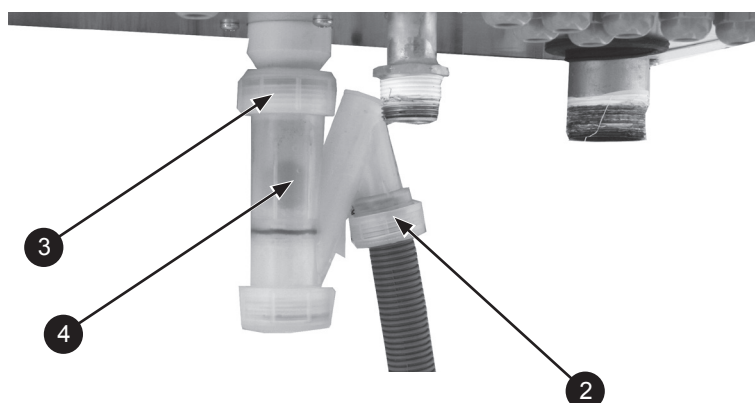
61 REMOVAL OF SUMP COVER

1. Refer to Frame 55.
2. Remove the front panel (Refer to frame 57)
3. Prepare boiler for possible water spillage during the process.
4. Remove the two screws from the helmholtz/clean-out cover and pull away from the boiler.
5. Scrape out any deposits.
6. Reassemble in reverse order replacing all gaskets.



62 CONDENSATE TRAP

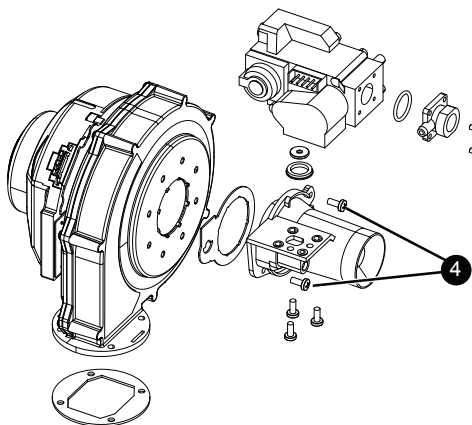
1. Refer to Frame 55.
2. Unscrew the nut and disconnect the flexible pipe.
3. Unscrew the top nut and remove the condensate trap.
4. Remove the ball from the condensate trap and flush out with water to remove any debris.
5. Reassemble in reverse order.
6. Check the operation of the boiler (Refer to frame 55)



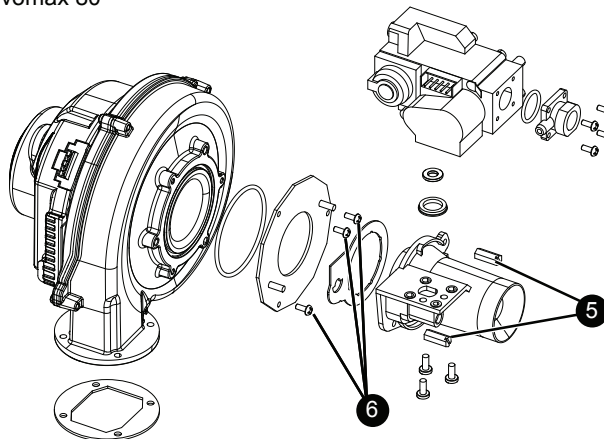
63 FAN REPLACEMENT

1. Refer to Frame 55.
2. Remove the upper front panel (Refer to frame 57).
3. Remove the fan and gas assembly (Refer to frame 58).
4. Remove the screws retaining the venturi to the fan (for 30, 40, 60, 80, 100 & 120 or mixing chambers (150 only)).
5. Remove the extended nuts holding the venturi to the fan (80 only).
6. Remove the screws retaining the fan plate (80 only) or mixing chamber to fan (150 only).
7. Transfer venturi and gas valve assembly to the new fan.
8. Reassemble in reverse order replacing all gaskets.
9. Check the operation of the boiler (Refer to frame 55).

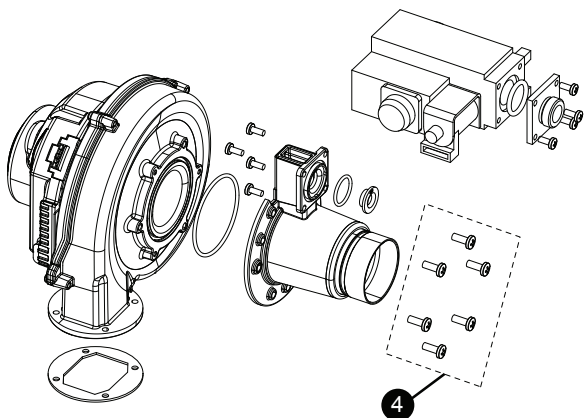
Evomax 30, 40 & 60



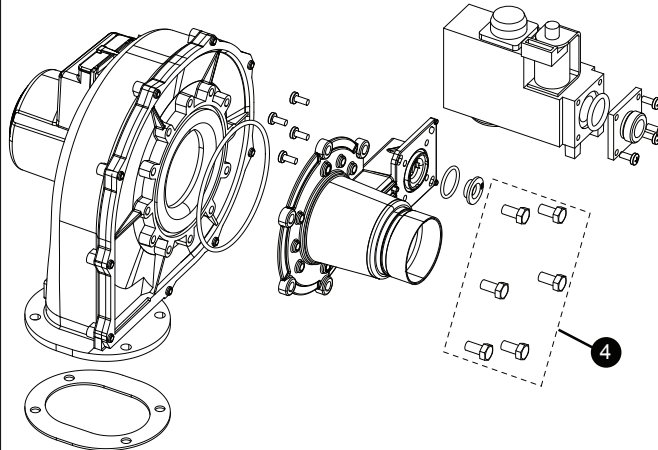
Evomax 80



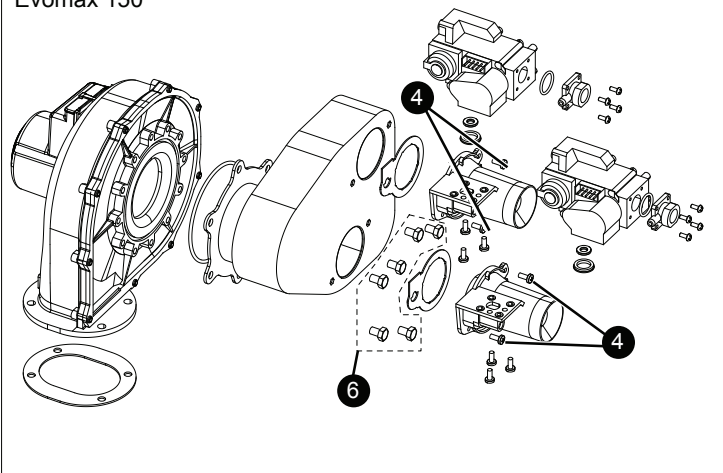
Evomax 100



Evomax 120



Evomax 150



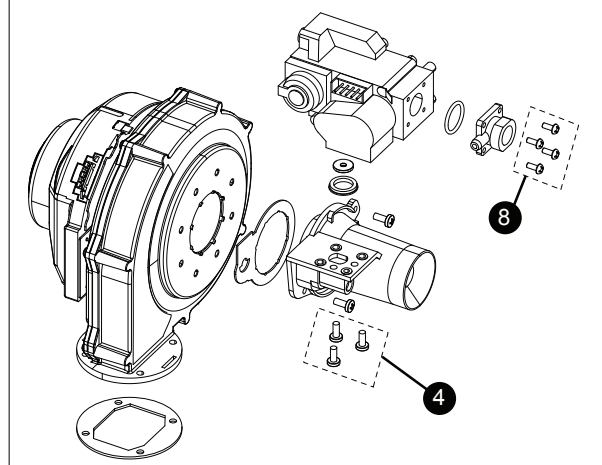
Gas Management Assembly Part No's				
Model	Fan	Venturi	Valve	Injector
30	176272	176359	176313	176368
30P	176272	176359	176313	176558
40	176272	176360	176313	176369
40P	176272	176360	176313	176559
60	176272	176361	176313	176370
60P	176272	176361	176313	176560
80	176273	176362	176313	176371
80P	176273	176362	176313	176561
100	176273	175232	176358	176373
120	176274	174381	176358	176373
150	176274	176362	176313	176371

206210-10389_2

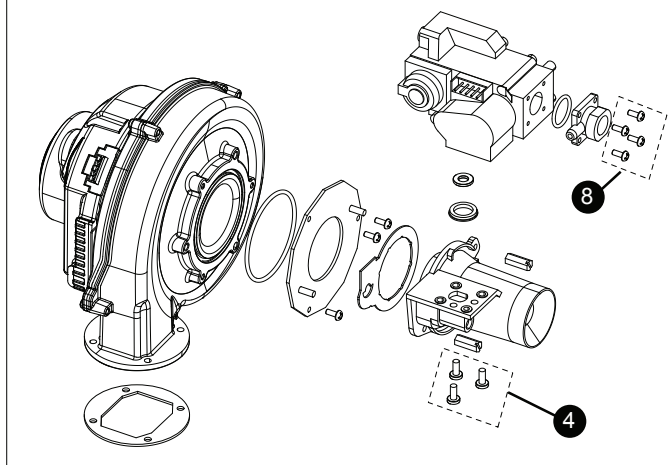
64 GAS VALVE REPLACEMENT

1. Refer to Frame 55.
2. Remove the upper front panel (Refer to frame 57).
3. Remove the fan and gas assembly (Refer to frame 58).
4. Remove the 3 screws holding the gas valve to the venturi (30,40,60,80 only).
5. Remove the venturi from the fan to access the gas valve fixing screws (100/120 only Refer to frame 63).
6. Remove the four screws retaining the gas valve.
7. Remove the venturi from the mixture chamber before removing the gas valve (as in (4) - 150 only).
8. Remove the 4 screws retaining the inlet flange to gas valve & transfer to new valve (100/120 only).
9. Fit new gas valve to venturi using the new seal provided, ensure gas injector is fitted correctly.
10. Reassemble in reverse order replacing all gaskets.
11. Check the operation of the boiler (Refer to frame 55).

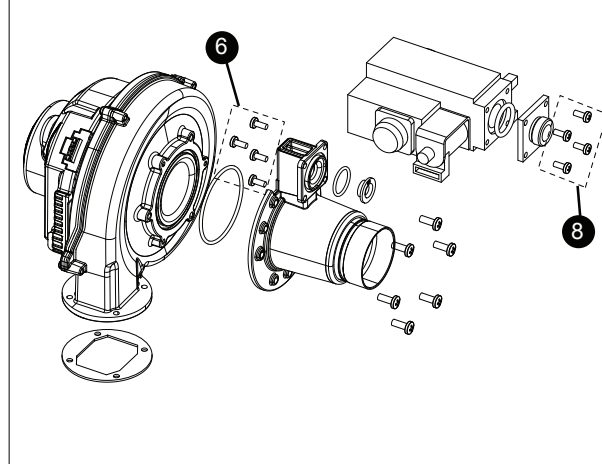
Evomax 30, 40 & 60



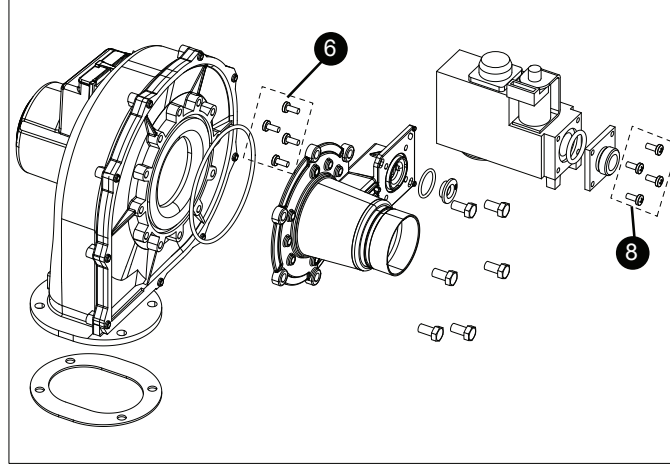
Evomax 80



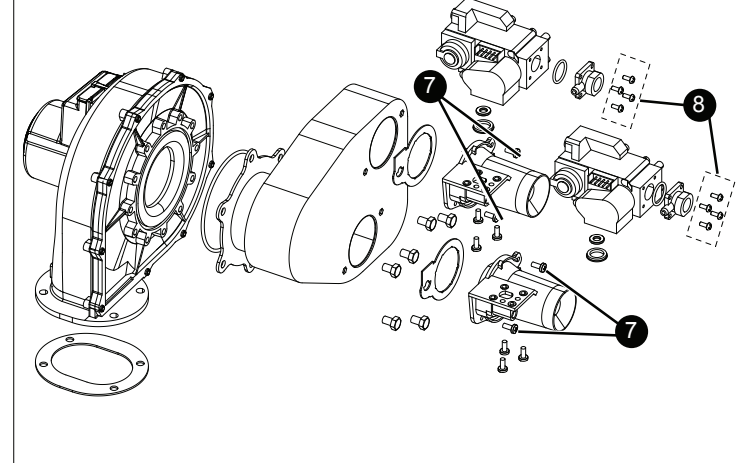
Evomax 100



Evomax 120



Evomax 150



Gas Management Assembly Part No's

Model	Fan	Venturi	Valve	Injector
30	176272	176359	176313	176368
30P	176272	176359	176313	176558
40	176272	176360	176313	176369
40P	176272	176360	176313	176559
60	176272	176361	176313	176370
60P	176272	176361	176313	176560
80	176273	176362	176313	176371
80P	176273	176362	176313	176561
100	176273	175232	176358	176373
120	176274	174381	176358	176373
150	176274	176362	176313	176371

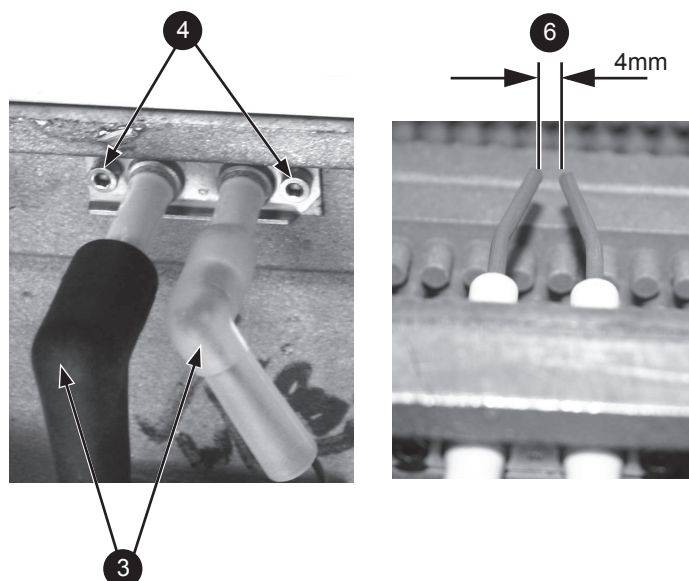
206210-10389_3

65 VENTURI REPLACEMENT

1. Refer to Frame 55.
2. Remove the front panel (Refer to frame 57)
3. Remove the fan and gas assembly (Refer to frame 58)
4. Remove venturi from fan / mixture chamber and gas valve (Refer to frame 63/64)
5. Replace with new venturi ensuring the gas orifice is fitted and seal is replaced.
6. Reassemble in reverse order replacing all gaskets.
7. Check the operation of the boiler (Refer to frame 55)

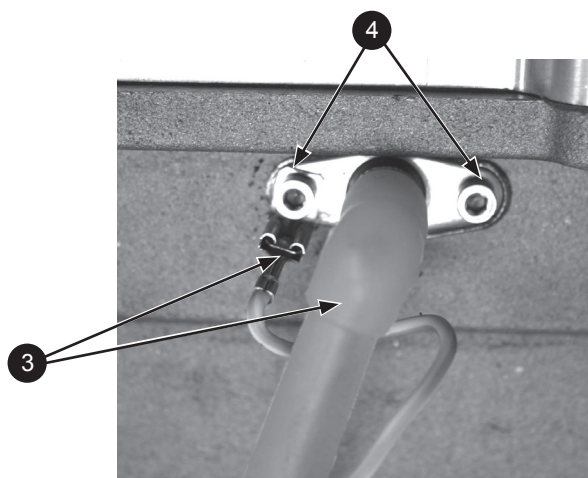
66 IGNITION ELECTRODE REPLACEMENT

1. Refer to Frame 55.
2. Remove the front panel (Refer to frame 57)
3. Pull off the spark lead and earth connection.
4. Remove the two retaining cap head screws.
5. Pull out the electrode and pull off the old gasket.
6. Replace with new electrode and gasket supplied checking the spark gap is 4mm.
7. Reassemble in reverse order.
8. Check the operation of the boiler (Refer to frame 55)



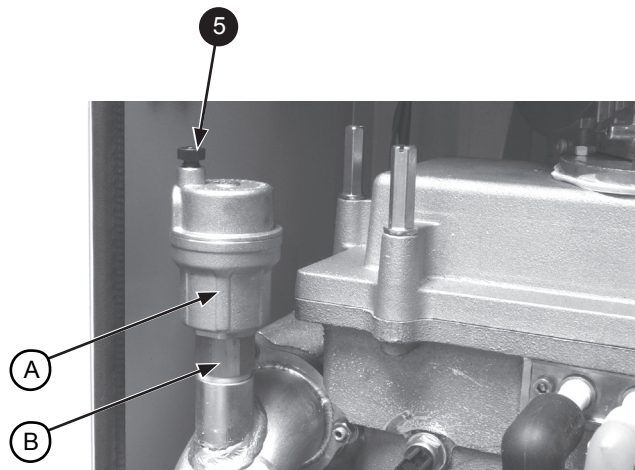
67 DETECTION ELECTRODE REPLACEMENT

1. Refer to Frame 55.
2. Remove the front panel (Refer to frame 57)
3. Pull off the HT lead and earth connection.
4. Remove the two retaining cap head screws.
5. Pull out the electrode and pull off the old gasket.
6. Replace with new electrode and gasket.
7. Reassemble in reverse order.
7. Check the operation of the boiler (Refer to frame 55)



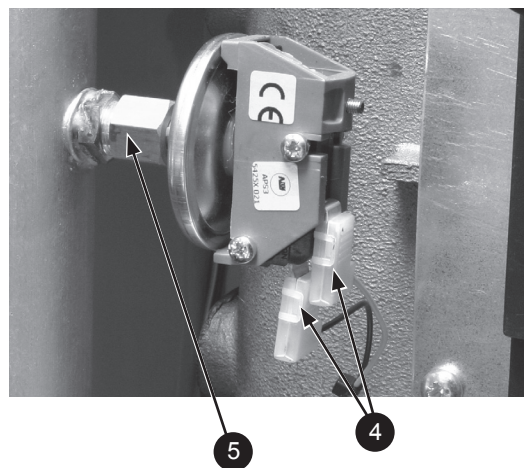
68 AUTOMATIC AIR VENT REMOVAL

1. Refer to Frame 55.
2. Remove the front panel. Refer to Frame 67.
3. Unscrew the air vent (A) from the self sealing fitting (B) on the top left of the flow pipe.
4. Fit the new air vent.
5. Ensure the black plastic vent cap is loose to allow air to escape. Air in the boiler could cause damage to the heat exchanger.
6. Re-assemble in reverse order.
7. Check the operation of the boiler. Refer to Frame 55.



69 WATER PRESSURE SWITCH REPLACEMENT

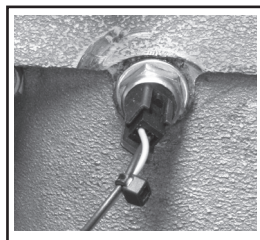
1. Refer to Frame 55.
2. Remove the front panel (Refer to frame 57).
3. Isolate the water circuit and drain the boiler.
4. Disconnect the electrical connections from the switch.
5. Unscrew the water pressure switch.
6. Refit new switch.
7. Connect electrical connections.
8. Refill the system ensuring all the air escapes via the air vent.
9. Reassemble in reverse order.
10. Check the operation of the boiler (Refer to frame 55).



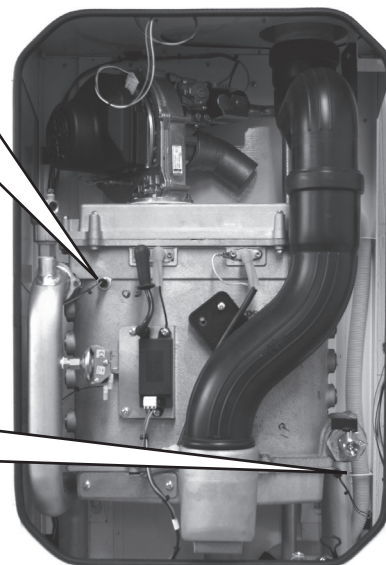
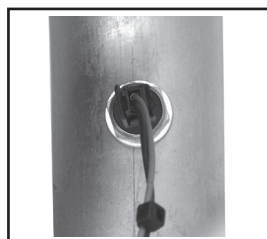
70 FLOW/RETURN THERMISTOR REPLACEMENT

1. Refer to Frame 55.
2. Remove the front panel. Refer to Frame 57.
3. Isolate the water circuit and drain the system.
4. Disconnect the electrical connections from the thermistor.
5. Unscrew the thermistor.
6. Fit the new thermistor with built in 'O' ring seal. Do not overtighten.
7. Refill the system ensuring all the air in the heat exchanger is vented through the air vent.
8. Re-assemble in reverse order.
9. Check the operation of the boiler. Refer to Frame 55.

FLOW

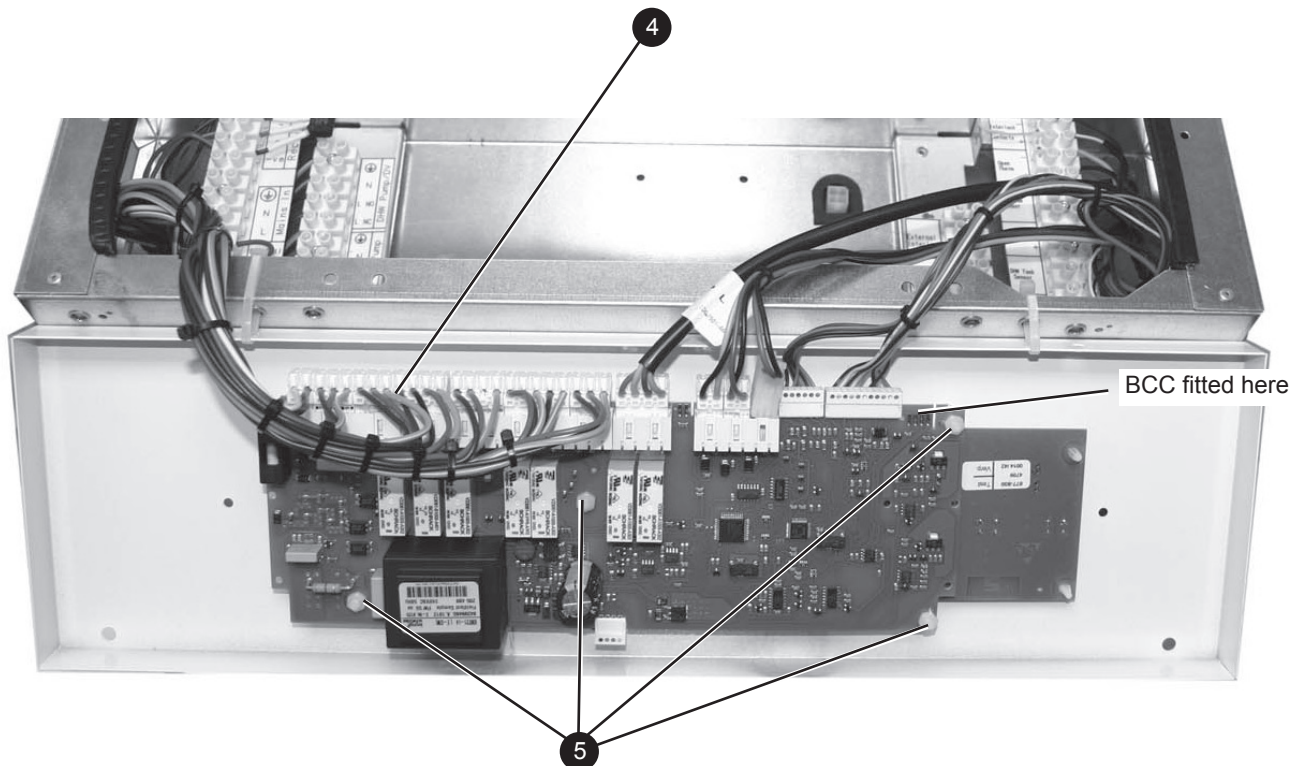


RETURN



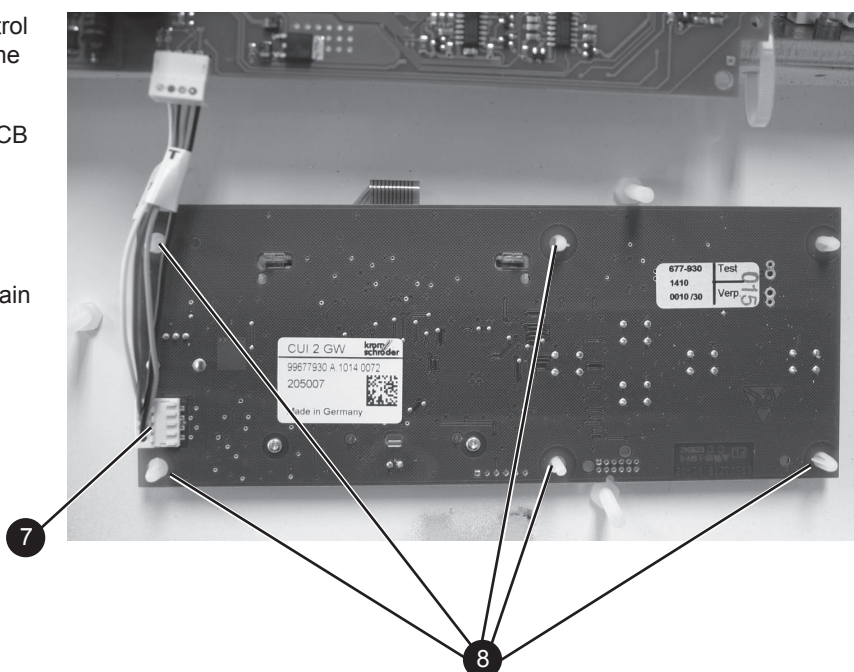
71 MAIN PCB REPLACEMENT

1. Refer to Frame 55.
2. Remove the upper front panel & put the control panel into the service position. Refer to Frame 57.
3. Fit the earth strap provided with the spare PCB to your wrist and to a suitable earthed metal.
4. Pull off all of the main PCB connectors.
5. Remove the four plastic nuts retaining the main PCB.
6. Fit new PCB and BCC (BCC must be fitted or boiler will not work) and re-assemble in reverse order.
7. Check the operation of the boiler. Refer to Frame 55.

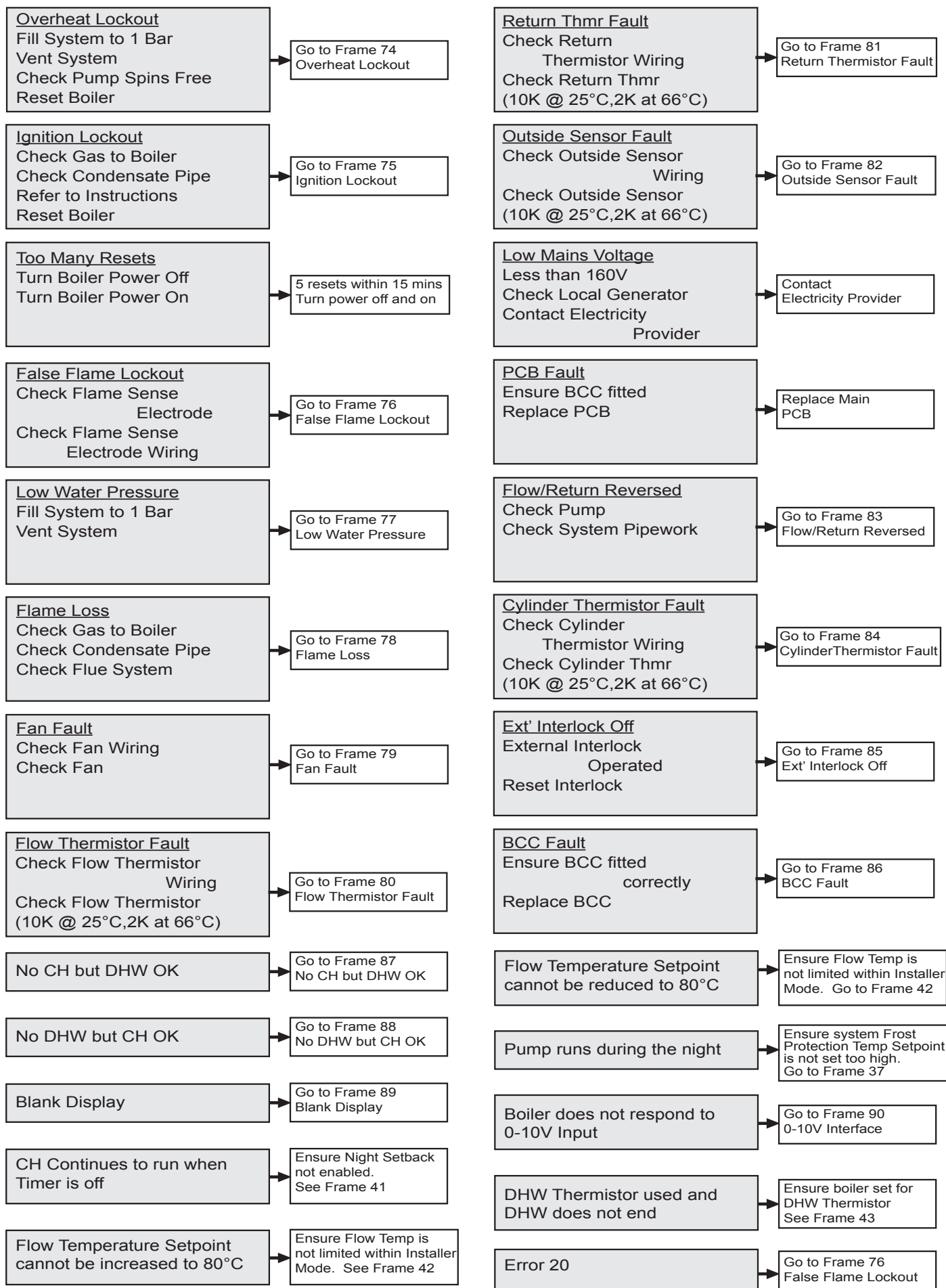


72 USER INTERFACE BOARD

1. Refer to Frame 55.
2. Remove the upper front panel & put the control panel into the service position. Refer to Frame 57.
3. Fit the earth strap provided with the spare PCB to your wrist and to a suitable earthed metal.
4. Pull off all of the main PCB edge connectors (refer to Frame 71).
5. Remove the four plastic nuts retaining the main PCB - see item 5 in Frame 71.
6. Remove the main PCB.
7. Pull off the user interface edge connector.
8. Unclip the board and lift to clear the six mounting posts.
9. Fit the new user interface.
10. Reassemble in reverse order.
10. Check the operation of the boiler. Refer to Frame 55.



73 FAULT FINDING CHART - MAIN MENU




```

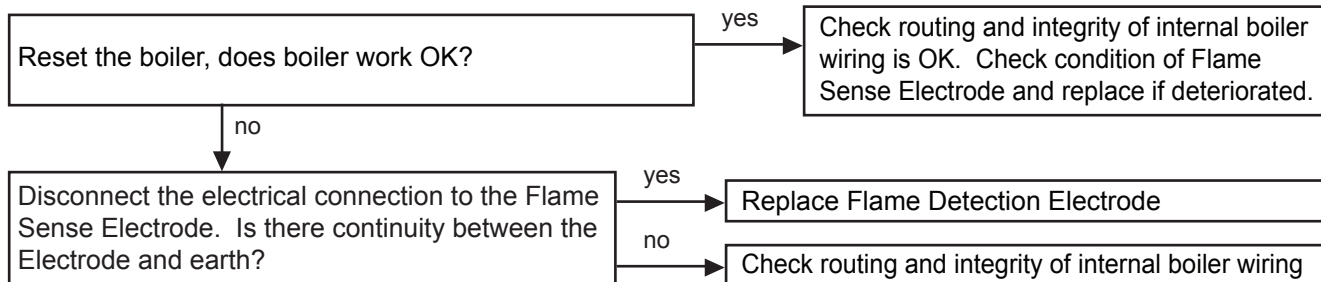
graph TD
    Q1[Has PCB just been replaced?] -- yes --> A1[Reset Boiler]
    Q1 -- no --> Q2[Are the boiler and CH/DHW system filled with water and are all isolation valves and radiator valves open?]
    Q2 -- no --> A2[Fill and vent the system and open all isolation valves, then reset the boiler.]
    Q2 -- yes --> Q3[Is the flow/return differential across the boiler in excess of 30°C?]
    Q3 -- no --> A3[Check the flow and return thermistors (refer to Frame 80 & 81)]
    Q3 -- yes --> Q4[Check that the pump is rotating freely. Is the differential now below 20°C?.]
    Q4 -- no --> A4[Replace the pump, then reset the boiler]
    Q4 -- yes --> A5[Reset the boiler]
  
```

```

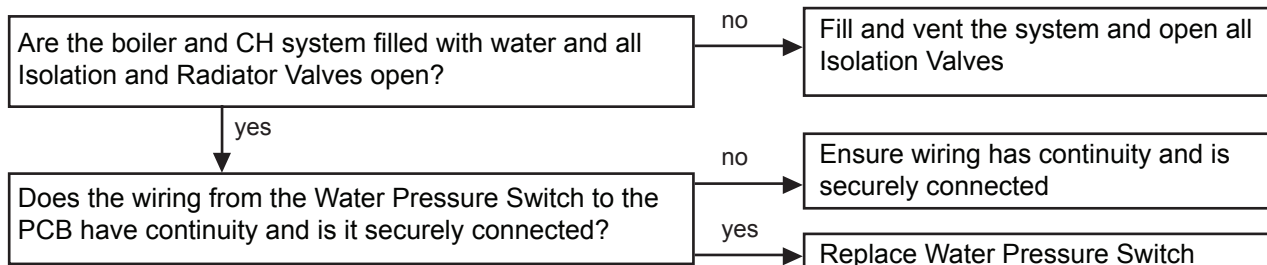
graph TD
    Q1[If the boiler is reset, does it ignite for a short time and then extinguish?] -- yes --> A1[Check the detection electrode and associated harness for continuity, visual condition and position (refer to Frame 67). Check if the condensate pipe is blocked.]
    Q1 -- no --> Q2[Is the gas pressure available at the boiler > 18mbar?]
    Q2 -- no --> A2[Check gas supply and rectify fault]
    Q2 -- yes --> Q3[Is the following voltage available at the Gas Valve?  
(approximately 215Vdc for 30, 40, 60, 80 and 150kW)  
(approximately 240Vac for 100 and 120kW)(* See note)]
    Q3 -- no --> A3[Check wiring from Gas Valve to PCB and replace if necessary, otherwise replace the main PCB]
    Q3 -- yes --> Q4[Unplug the Gas Valve, is the resistance between the outside pins between 1kΩ and 10kΩ?]
    Q4 -- no --> A4[Replace Gas Valve]
    Q4 -- yes --> Q5[Check Spark Generator and associated Harness for continuity, visual condition and position (refer to Frame 58). Are these functioning correctly?]
    Q5 -- no --> A5[Replace Spark Generator and Harness as necessary]
    Q5 -- yes --> Q6[Check Ignition Electrode and associated Harness for continuity, visual condition and position (refer to Frame 66). Are these functioning correctly?]
    Q6 -- no --> A6[Replace Ignition Electrode and associated Harness as necessary]
    Q6 -- yes --> Q7[Check Syphon and condensate drain pipework for blockage and rectify if necessary. Boiler now working OK?]
    Q7 -- no --> A7[Replace Gas Valve]
    Q7 -- yes --> End(( ))
  
```

52

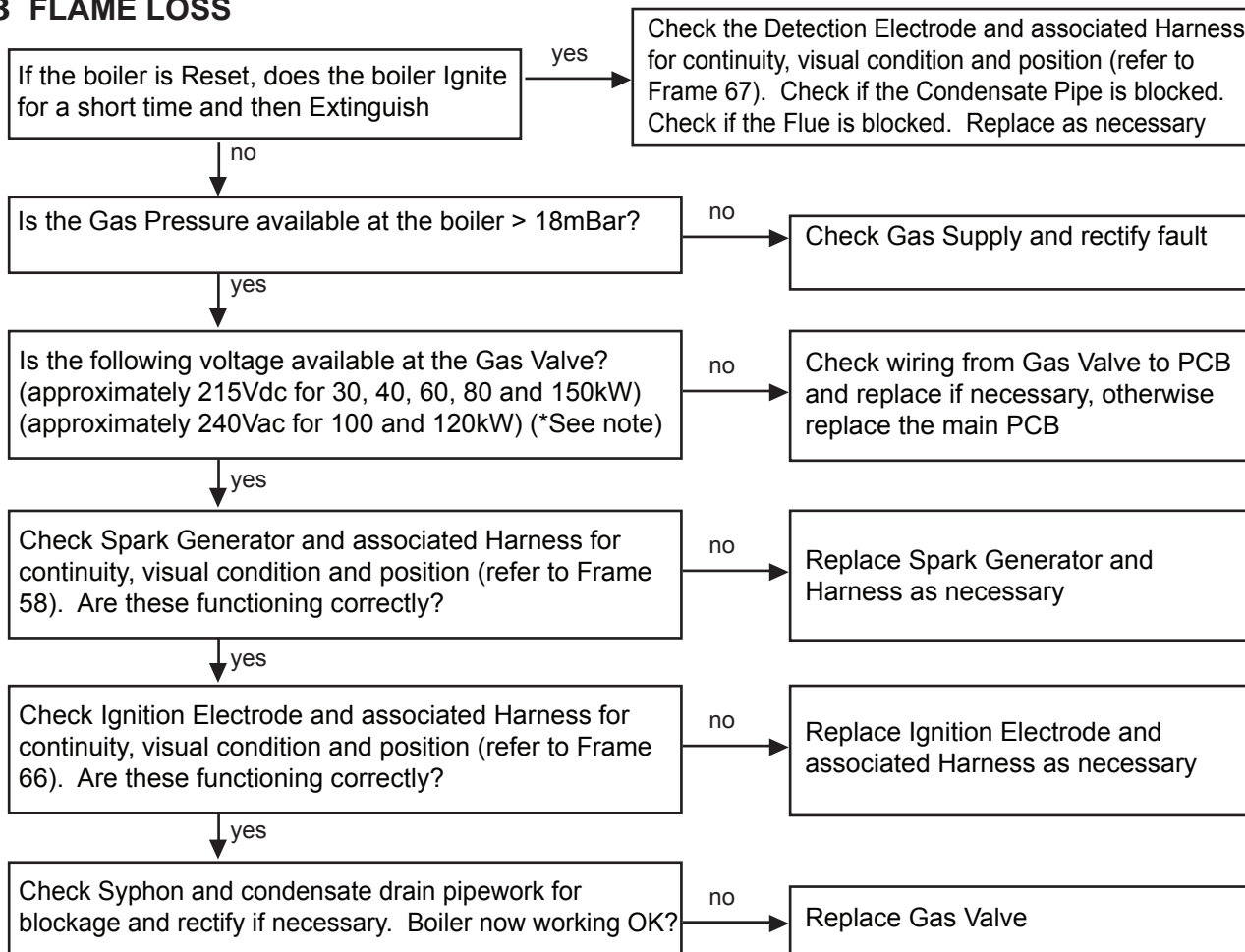
76 FALSE FLAME LOCKOUT / ERROR 20



77 LOW WATER PRESSURE

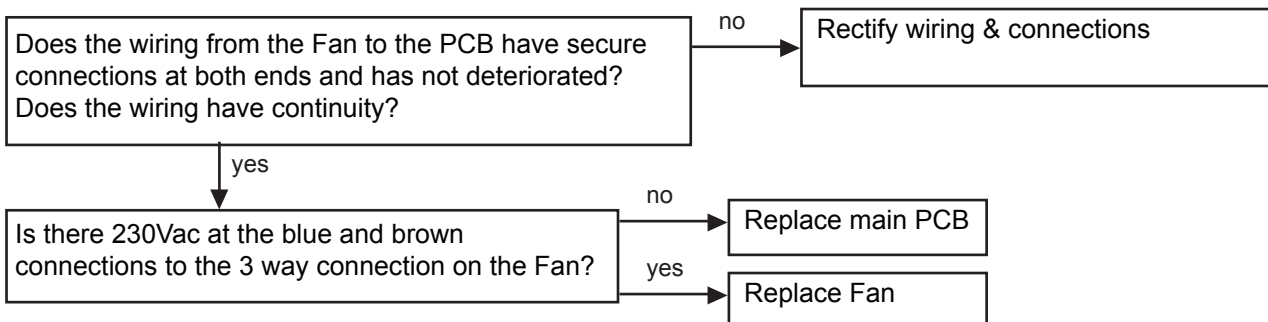


78 FLAME LOSS

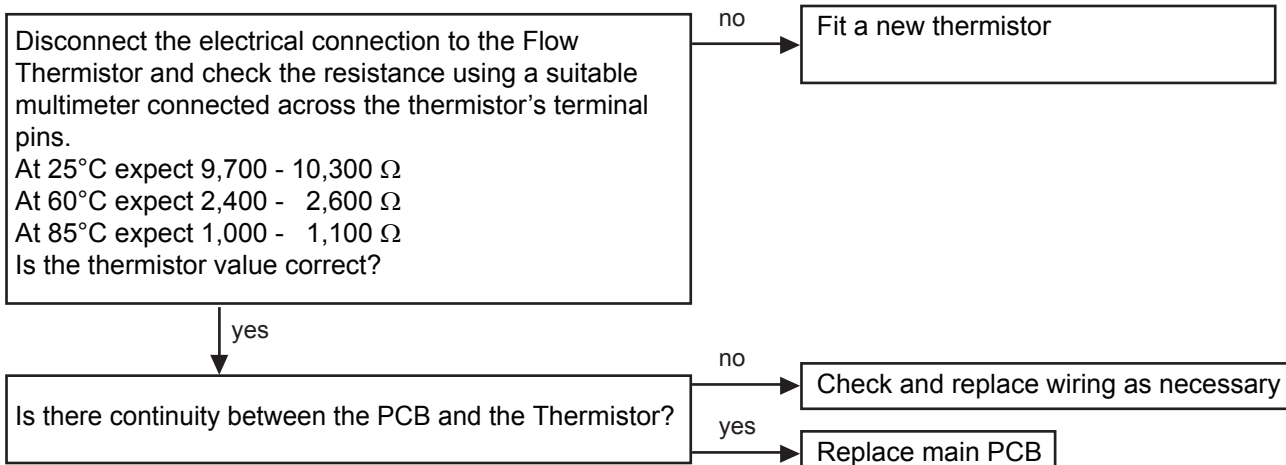


* Note: due to the wave form of the rectified voltage, the reading will vary depending on the type of meter used to measure the value. In general terms a reading of greater than 150V indicates that the correct voltage is supplied to the gas valve

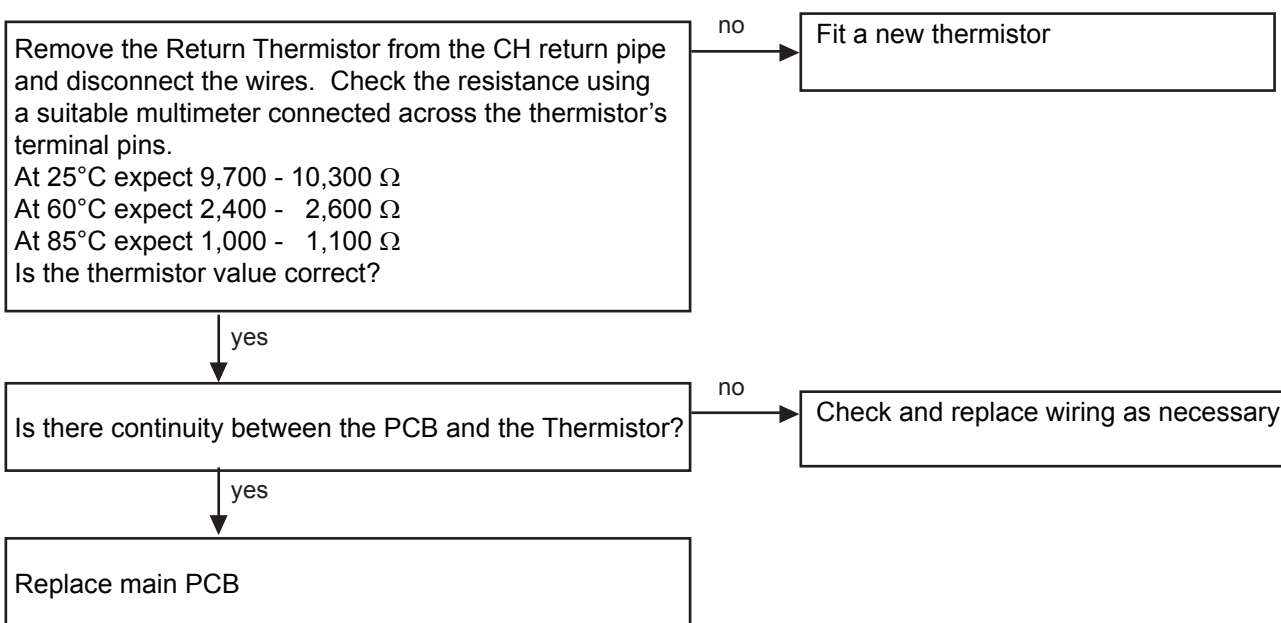
79 FAN FAULT



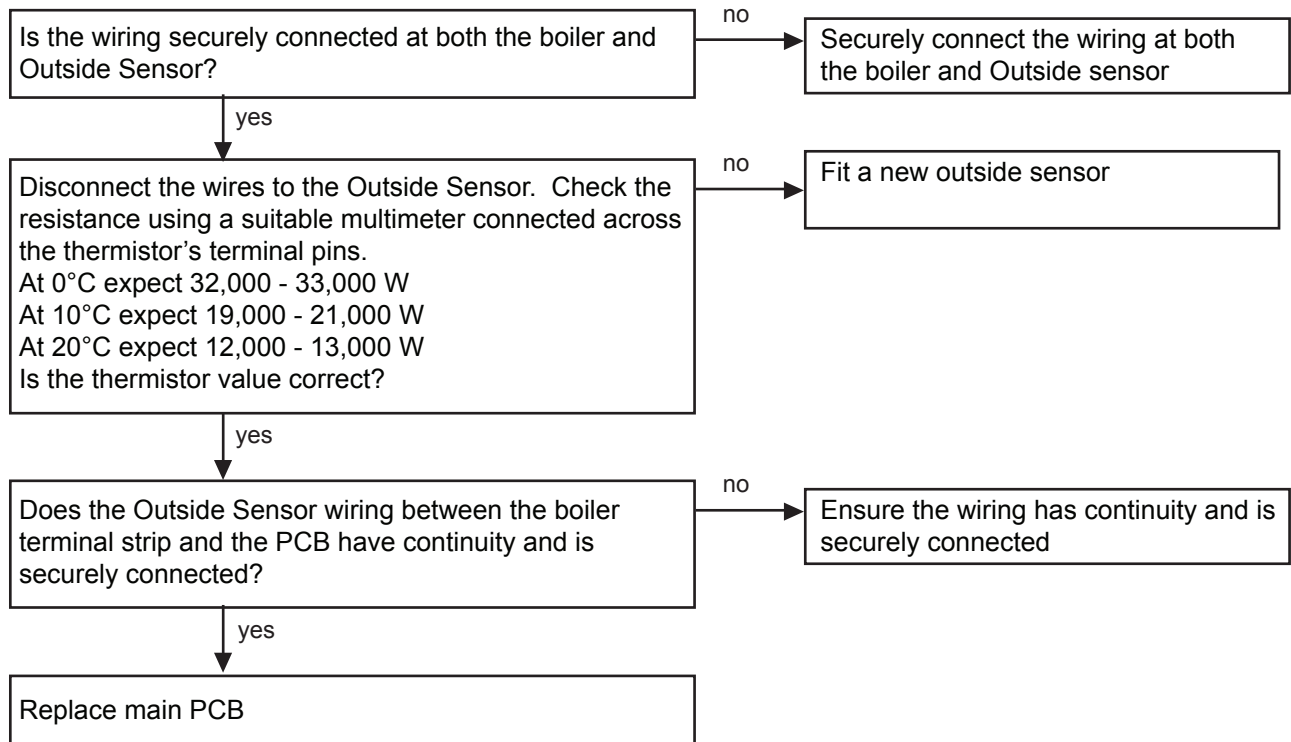
80 FLOW THERMISTOR FAULT



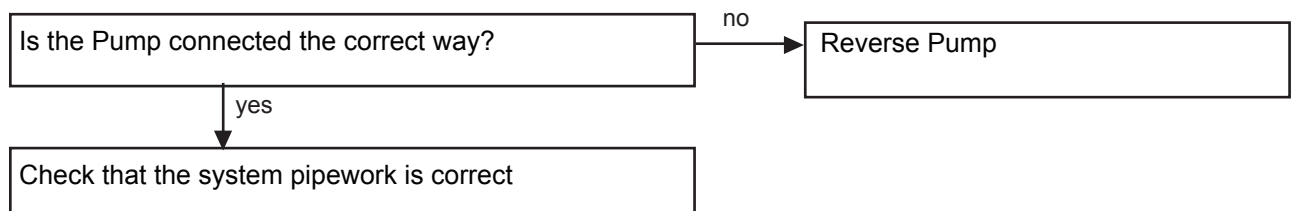
81 RETURN THERMISTOR FAULT



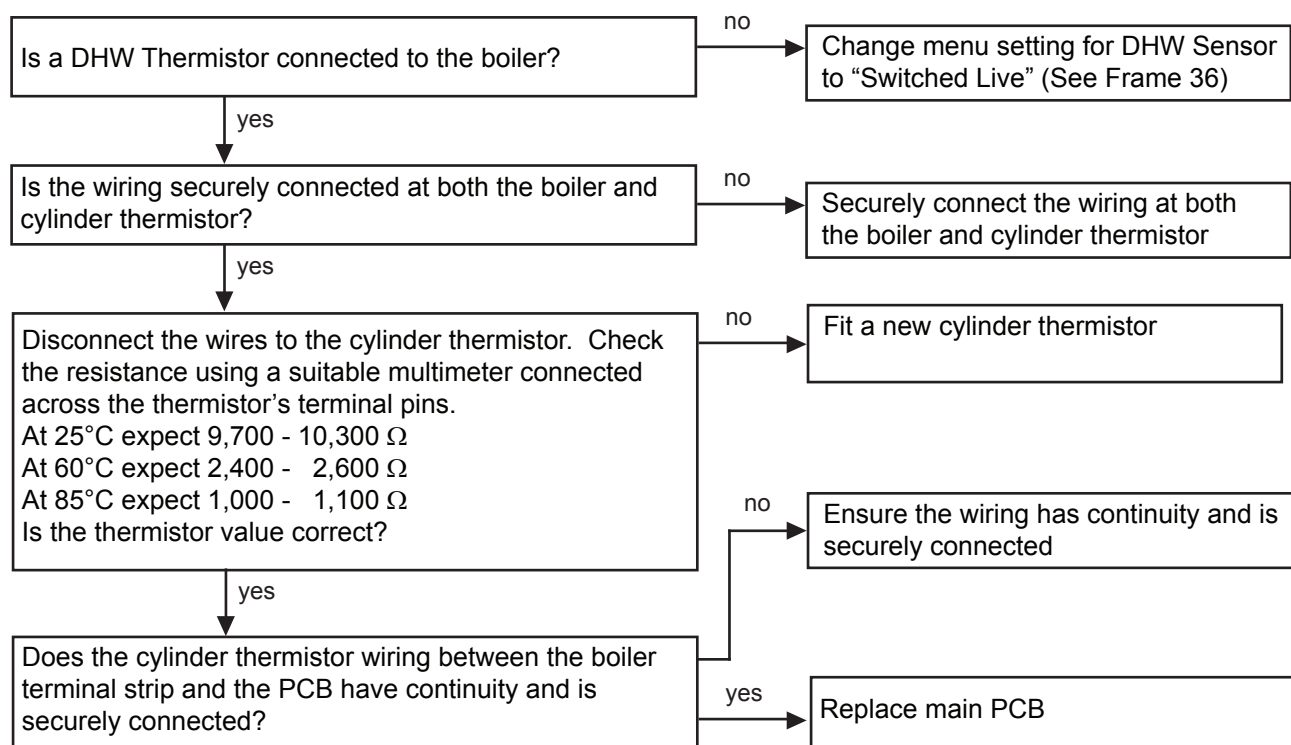
82 OUTSIDE SENSOR FAULT



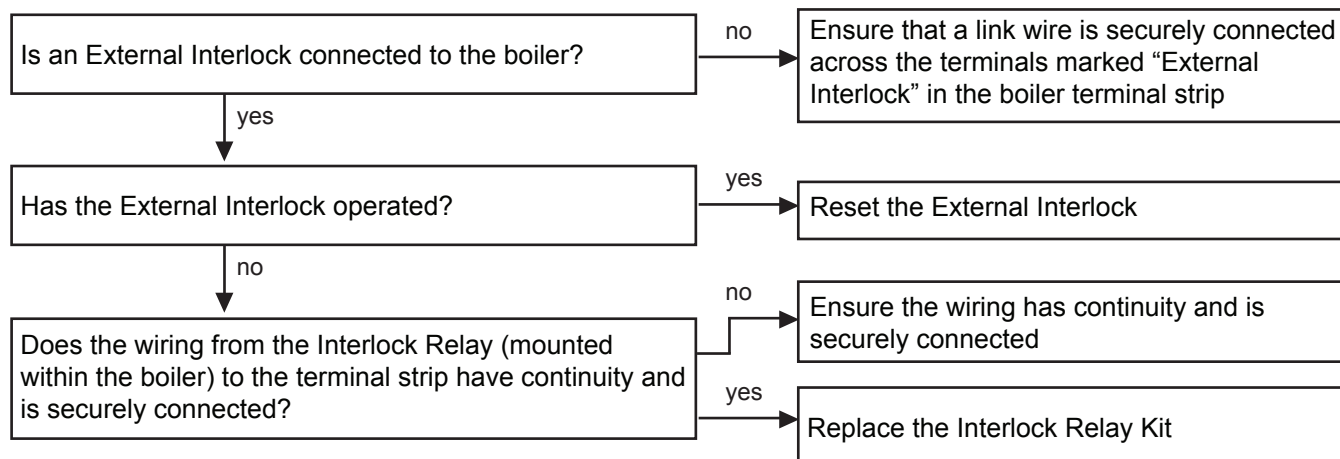
83 FLOW/RETURN REVERSED



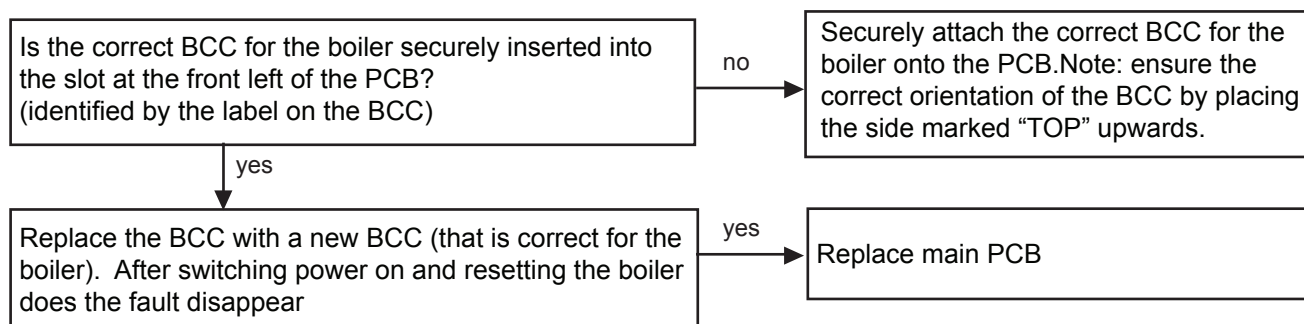
84 CYLINDER THERMISTOR FAULT



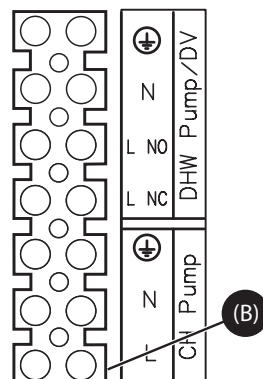
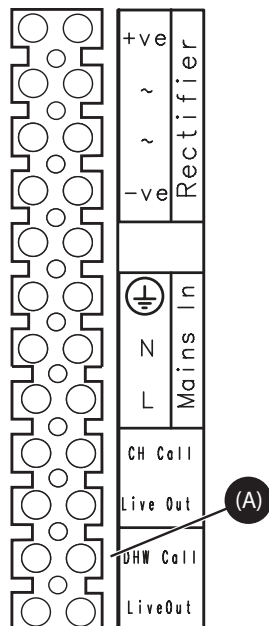
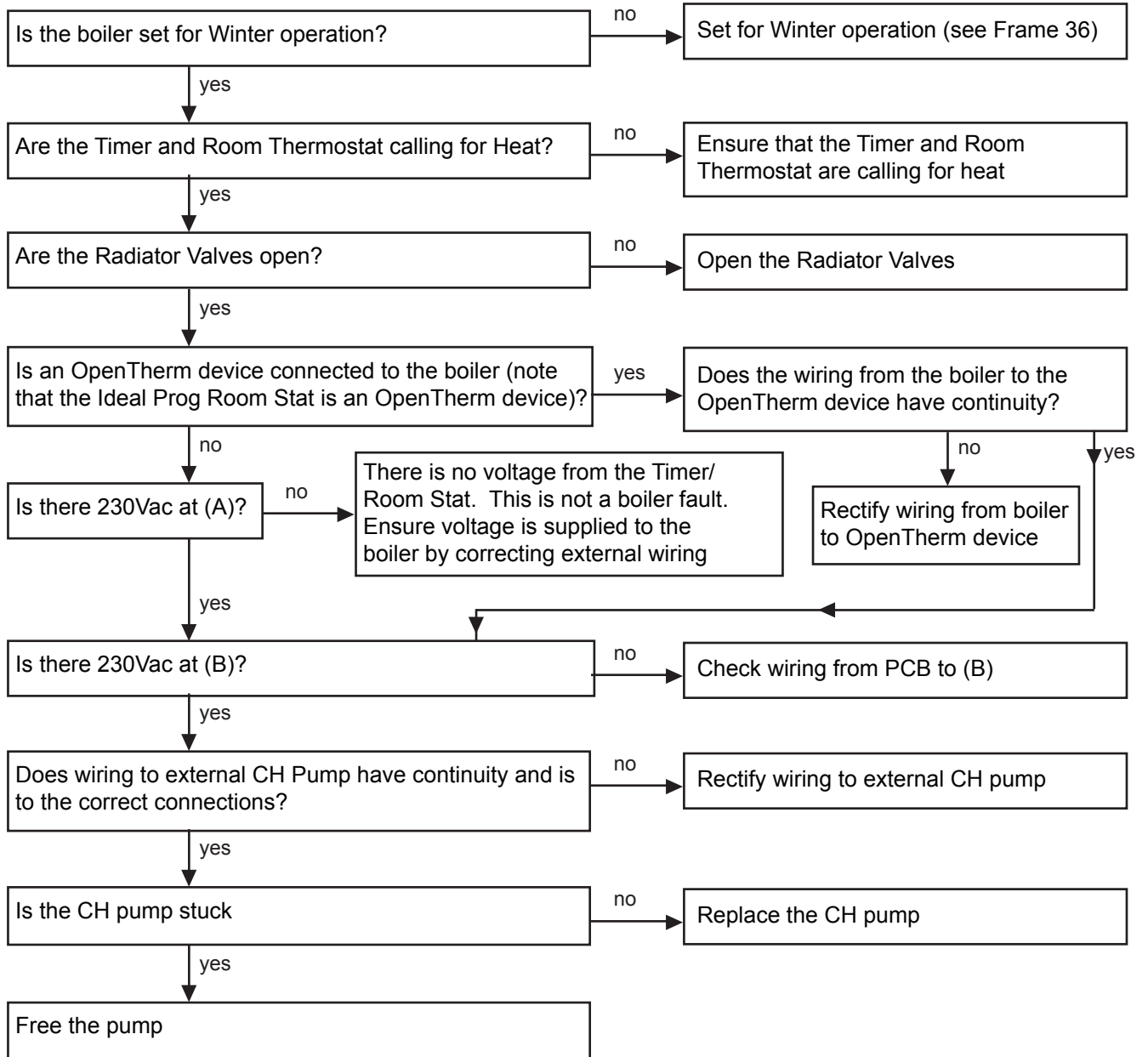
85 EXTERNAL INTERLOCK OFF



86 BCC FAULT



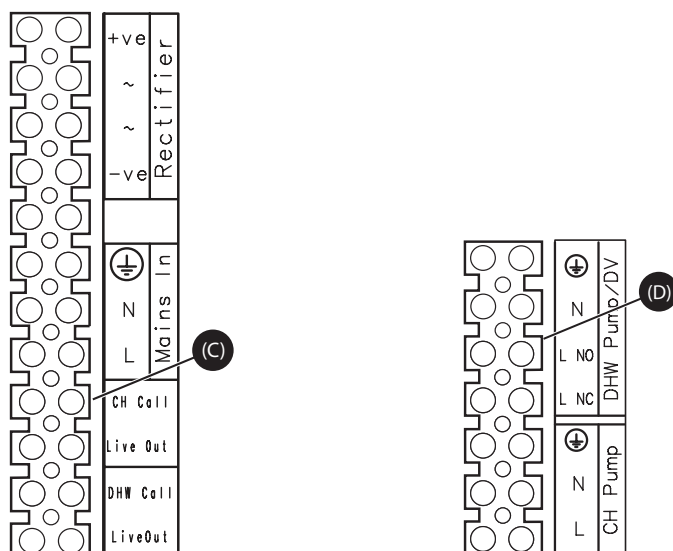
87 NO CH BUT DHW OK



```

graph TD
    Q1[Are the Timer and Cylinder Thermostat/ Thermistor calling for Heat?] -- yes --> Q2[Is an OpenTherm device connected to the boiler (note that the ideal programmable Room Stat is an OpenTherm device)?]
    Q1 -- no --> A1[Ensure that the Timer and Cylinder Stat/Thermistor are calling for heat (if a DHW Thermistor is used see Frame 38 for setting DHW Temp.)]
    Q2 -- yes --> Q3[Does the wiring from the boiler to the OpenTherm device have continuity?]
    Q2 -- no --> Q4[Is there 230Vac at (C)?]
    Q3 -- yes --> Q5[Does the system have a DHW Pump or Power Open Diverter Valve?]
    Q3 -- no --> A2[Rectify wiring from boiler to OpenTherm device]
    Q4 -- yes --> Q5
    Q4 -- no --> A3[There is no voltage from the Timer/Cylinder Stat. This is not a boiler fault. Ensure voltage is supplied to the boiler by correcting external wiring.]
    Q5 -- yes --> Q6[Is the boiler correctly set for a DHW Pump or Power Open Diverter Valve?]
    Q5 -- no --> Q7[Is the system correctly set for a Power Closed Diverter Valve?]
    Q6 -- yes --> Q8[Is there 230Vac at (D)?]
    Q6 -- no --> A4[Set boiler correctly (See page 41)]
    Q7 -- yes --> A5[Replace the DHW pump/valve]
    Q7 -- no --> A6[Set boiler correctly (See page 41)]
    Q8 -- yes --> Q9[Does wiring to external DHW Pump have continuity and is to the correct connections?]
    Q8 -- no --> A7[Check wiring from PCB to (D)]
    Q9 -- yes --> Q10[Is the boiler set for DHW priority (default setting)?]
    Q9 -- no --> A8[Rectify wiring to external DHW pump/valve]
    Q10 -- yes --> Q11[Is the DHW Pump/Valve stuck]
    Q10 -- no --> A9[Set boiler for DHW priority (see Frame 41)]
    Q11 -- yes --> A10[Free the pump/valve]
    Q11 -- no --> A11[Replace the DHW pump/valve]
  
```

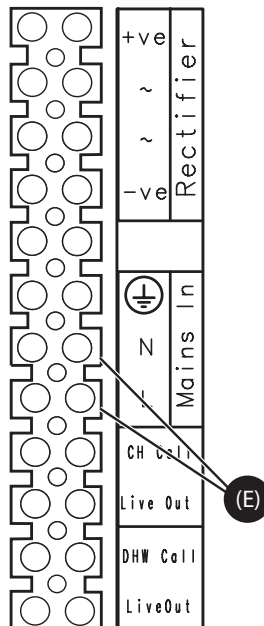
The flowchart is a troubleshooting guide for a DHW heating issue. It starts with a decision box: "Are the Timer and Cylinder Thermostat/ Thermistor calling for Heat?". If "yes", it goes to "Is an OpenTherm device connected to the boiler (note that the ideal programmable Room Stat is an OpenTherm device)?". If "yes", it goes to "Does the wiring from the boiler to the OpenTherm device have continuity?". If "yes", it goes to "Does the system have a DHW Pump or Power Open Diverter Valve?". If "yes", it goes to "Is the boiler correctly set for a DHW Pump or Power Open Diverter Valve?". If "yes", it goes to "Is there 230Vac at (D)?". If "yes", it goes to "Does wiring to external DHW Pump have continuity and is to the correct connections?". If "yes", it goes to "Is the boiler set for DHW priority (default setting)?". If "yes", it goes to "Is the DHW Pump/Valve stuck". If "yes", it goes to "Free the pump/valve". If "no", it goes to "Replace the DHW pump/valve". If "no" at any other point, it goes to a specific action box: "Ensure that the Timer and Cylinder Stat/Thermistor are calling for heat (if a DHW Thermistor is used see Frame 38 for setting DHW Temp.)", "Rectify wiring from boiler to OpenTherm device", "There is no voltage from the Timer/Cylinder Stat. This is not a boiler fault. Ensure voltage is supplied to the boiler by correcting external wiring.", "Set boiler correctly (See page 41)", "Check wiring from PCB to (D)", "Rectify wiring to external DHW pump/valve", "Set boiler for DHW priority (see Frame 41)", or "Free the pump/valve".



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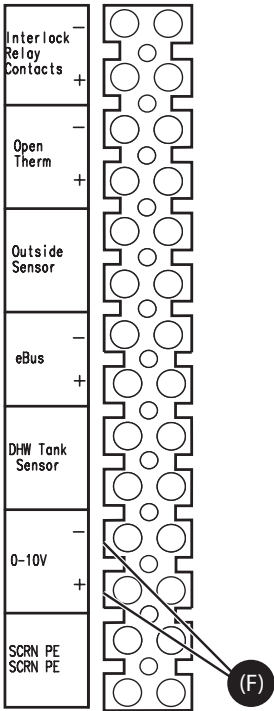
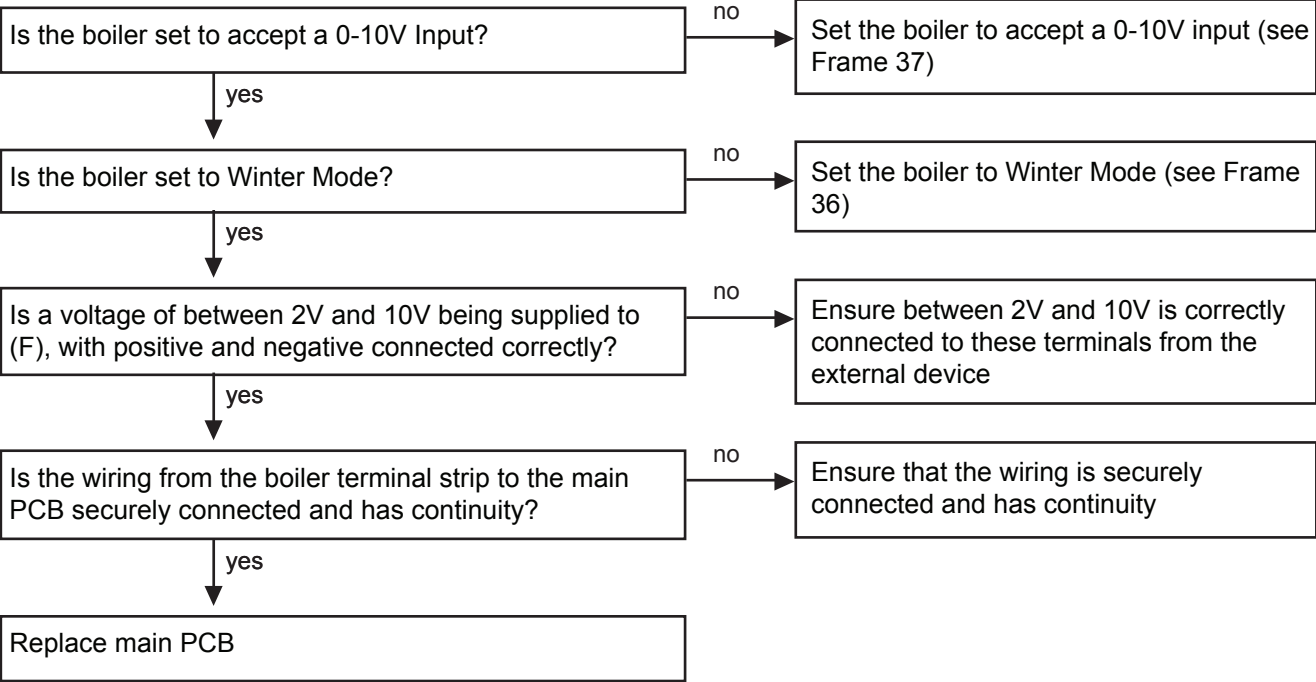
graph TD
    Q1[Is there 230Vac to the boiler at (E)?] -- yes --> Q2[Is the wiring from the boiler terminal block to the main PCB connected securely?]
    Q1 -- no --> A1[Supply power to the boiler]
    Q2 -- yes --> Q3[Is the cable from the main PCB to the user interface PCB connected securely?]
    Q2 -- no --> A2[Connect the wiring from the terminal block to the main PCB securely]
    Q3 -- yes --> Q4[Does the cable from the main PCB to the user interface PCB have continuity and is un-damaged?]
    Q3 -- no --> A3[Connect the cable from the main PCB to the user interface PCB securely]
    Q4 -- yes --> Q5[Is the Fuse on the main PCB OK?]
    Q4 -- no --> A4[Replace cable from main PCB to user interface PCB]
    Q5 -- yes --> Q6[Replace the user interface PCB, still no display?]
    Q5 -- no --> A5[Check for shorts on Pumps/Diverter Valve/Fan/Spark Generator/Gas Valve and replace Fuse]
    Q6 -- no --> A6[Replace main PCB]

```



FAULT FINDING

90 0-10V INTERFACE



SHORT LIST OF PARTS

The following are parts commonly required as replacements, due to damage or expendability.

A full list of spares is held by **Ideal Stelrad Group** distributors and merchants.

Their failure or absence will affect the safety and/or performance of this appliance.

When ordering spare parts please quote:

1. Boiler model
2. Boiler serial no. (refer to the data plate on boiler)
3. Boiler P.I. No. (refer to the data plate on boiler)
4. Description
5. Quantity
6. Part no.

When replacing any part on this appliance use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by Ideal.

Key No.	Description	Qty.	Part No.
105	Auto Air Vent	1	172668
207	Burner Seal kit 30/40kW	1	176363
207	Burner Seal kit 60/80kW	1	176364
207	Burner Seal kit 100/120kW	1	176365
207	Burner Seal kit 150kW	1	176366
208	Burner Fixings Kit	1	176367
230	Fan 30/40/60kW	1	176272
230	Fan 80/00kW	1	176273
230	Fan 120/150kW	1	176274
231	Gas Valve Kit 30/40/60/80/150kW	1	176313
231	Gas Valve Kit 100/120kW	1	176358
232	Venturi Kit 30kW	1	176359
232	Venturi Kit 40kW	1	176360
232	Venturi Kit 60kW	1	176361
232	Venturi Kit 80/150kW	1	176362
232	Venturi 100kW	1	175232
232	Venturi 120kW	1	174381
233	Orifice (Ø4.75) Kit 30kW	1	176368
233	Orifice (Ø3.4) Kit 30PkW	1	176558
233	Orifice (Ø5.25) Kit 40kW	1	176369
233	Orifice (Ø3.9) Kit 40PkW	1	176559
233	Orifice (Ø7.8) Kit 60kW	1	176370
233	Orifice (Ø5.7) Kit 60PkW	1	176560
233	Orifice (Ø8.0) Kit 80/150kW	1	176371
233	Orifice (Ø5.9) Kit 80PkW	1	176561
233	Orifice (Ø8.8) Kit 100/120kW	1	176373
301	Dry Fire Thermistor Kit	1	176203
302	Lead Ignition Kit	1	176204
303	Lead - HT Earth Kit	1	176205
304	Ignitor Unit	1	175593
305	Electrode Detection Kit	1	176206
306	Ignition Electrode Kit	1	176207
308	Fascia Plastic	1	176209
309	HMI Board	1	176210
310	Primary PCB	1	176211
501	Jacket Assembly Evomax Kit	1	176374
502	Door Assembly Evomax Kit	1	176375

For additional fault finding advice please visit Ideal Heating's website

www.idealheating.com

Technical Training

The Ideal Heating Technical Training Centre offers a series of first class training courses for domestic, commercial and industrial heating installers, engineers and system specifiers. For details of courses please ring: 01482 498 432

Ideal Boilers, P.O. Box 103, National Ave, Kingston upon Hull, HU5 4JN. Telephone: 01482 492 251 Fax: 01482 448 858. Registration No. London 322 137.



Ideal Stelrad Group pursues a policy of continuing improvement in the design and performance of its products. The right is therefore reserved to vary specification without notice.



Ideal Stelrad Group

Ideal Installer/Technical Helpline: 01482 498 376

www.idealheating.com