installation and servicing

mini
Your Ideal installation and servicing guide

For details of document amendments, refer to page 3

Model

Serial No.

C24,C28,C32
S24,S28
For users guide see reverse of book

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

For the very latest copy of literature for specification purposes please visit our website www.idealboilers.com where you will be able to download the relevant information in pdf format.
DOCUMENT AMENDMENTS


- Further guidance added to Important Notes section of User Guide

Ideal Stelrad Group reserve the right to vary specification without notice
Table 1 – Boiler Data

<table>
<thead>
<tr>
<th>Mini C24</th>
<th>Mini C28</th>
<th>Mini C32</th>
<th>Mini S24</th>
<th>Mini S28</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gas supply type &amp; connection</strong></td>
<td></td>
<td>I2H3P</td>
<td>G20 20mbar, G31 37mbar, 22 mm copper</td>
<td></td>
</tr>
<tr>
<td><strong>Inlet / Outlet connection – Domestic Hot Water</strong></td>
<td></td>
<td></td>
<td>15 mm copper</td>
<td></td>
</tr>
<tr>
<td><strong>Flow &amp; return connection – Central Heating</strong></td>
<td></td>
<td></td>
<td>22 mm copper</td>
<td></td>
</tr>
<tr>
<td><strong>Flue terminal diameter</strong></td>
<td>mm (in.)</td>
<td>100 (4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max working pressure (sealed system)</strong></td>
<td>bar (lb/in²)</td>
<td>2.5 (36.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max DHW water inlet pressure</strong></td>
<td>bar (lb/in²)</td>
<td>10.0 (145.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Min DHW water inlet pressure</strong></td>
<td>bar (lb/in²)</td>
<td>0.3 (4.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Electrical supply</strong></td>
<td></td>
<td></td>
<td>230 Vac 50 Hz</td>
<td></td>
</tr>
<tr>
<td><strong>Max power consumption</strong></td>
<td>W</td>
<td>150</td>
<td>170</td>
<td>180</td>
</tr>
<tr>
<td><strong>External fuse rating</strong></td>
<td></td>
<td>3 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Internal fuse rating</strong></td>
<td></td>
<td>3.15 AF</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Water content – CH</strong></td>
<td>litre (gal.)</td>
<td>1.0 (0.22)</td>
<td>1.1 (0.242)</td>
<td>1.0 (0.22)</td>
</tr>
<tr>
<td><strong>Water content – DHW</strong></td>
<td>litre (gal.)</td>
<td>0.2 (0.044)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dry weight</strong></td>
<td>kg (lb.)</td>
<td>37 (81.6)</td>
<td>39 (86.0)</td>
<td>39 (86.0)</td>
</tr>
<tr>
<td><strong>Size: Height / Width / Depth</strong></td>
<td>mm (in.)</td>
<td>703 (27 11/16”) / 400 (15 3/4”) / 310 (12 3/16”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lift weight</strong></td>
<td>kg (lb.)</td>
<td>35.5 (78.4)</td>
<td>36.5 (80.6)</td>
<td>36.5 (80.6)</td>
</tr>
</tbody>
</table>

Table 2 – Performance Data – Central Heating

<table>
<thead>
<tr>
<th>Mini C24</th>
<th>Mini S24</th>
<th>Mini C28</th>
<th>Mini S28</th>
<th>Mini C32</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Burner pressure (Hot)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G20 mbar</td>
<td>11.7 (4.7)</td>
<td>1.8 (0.7)</td>
<td>11.7 (4.7)</td>
<td>1.8 (0.7)</td>
</tr>
<tr>
<td>G31 (in.w.g.)</td>
<td>35.7 (14.3)</td>
<td>6.1 (2.4)</td>
<td>35.7 (14.3)</td>
<td>5.7 (2.3)</td>
</tr>
<tr>
<td><strong>Input based on nett CV</strong></td>
<td>kW (btu/h)</td>
<td>26.60 (90 759)</td>
<td>11.00 (37 532)</td>
<td>31.10 (106 111)</td>
</tr>
<tr>
<td><strong>Input based on gross CV</strong></td>
<td>kW (btu/h)</td>
<td>29.52 (100 732)</td>
<td>12.21 (41 656)</td>
<td>34.52 (117 773)</td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td>kW (btu/h)</td>
<td>24.30 (82 912)</td>
<td>9.10 (31 049)</td>
<td>28.40 (96 901)</td>
</tr>
<tr>
<td><strong>Gas consumption (Hot)</strong></td>
<td>l/s (ft³/h)</td>
<td>0.763 (97.0)</td>
<td>0.315 (40.1)</td>
<td>0.892 (113.5)</td>
</tr>
<tr>
<td><strong>Seasonal efficiency</strong></td>
<td>%</td>
<td>Band D</td>
<td>78.2</td>
<td>Band D</td>
</tr>
<tr>
<td><strong>NOx classification</strong></td>
<td></td>
<td>Class 3</td>
<td></td>
<td>Class 2</td>
</tr>
</tbody>
</table>

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

Table 3 – Performance Data – Domestic Hot Water

<table>
<thead>
<tr>
<th>Mini C24</th>
<th>Mini C28</th>
<th>Mini C32</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Burner pressure (Hot)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G20 mbar</td>
<td>11.7 (4.7)</td>
<td>11.7 (4.7)</td>
</tr>
<tr>
<td>G31 (in.w.g.)</td>
<td>35.7 (14.3)</td>
<td>35.7 (14.3)</td>
</tr>
<tr>
<td><strong>Input based on nett CV</strong></td>
<td>kW (btu/h)</td>
<td>26.60 (90 759)</td>
</tr>
<tr>
<td><strong>Input based on gross CV</strong></td>
<td>kW (btu/h)</td>
<td>29.52 (100 732)</td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td>kW (btu/h)</td>
<td>24.30 (82 912)</td>
</tr>
<tr>
<td><strong>Gas consumption (Hot)</strong></td>
<td>l/s (ft³/h)</td>
<td>0.763 (97.0)</td>
</tr>
<tr>
<td><strong>Flow 35 °C temp. rise</strong></td>
<td>l/m (gpm)</td>
<td>10.0 (2.2)</td>
</tr>
<tr>
<td><strong>Domestic hot water specific rate</strong></td>
<td>l/m (gpm)</td>
<td>11.6 (2.6)</td>
</tr>
</tbody>
</table>

Note: the gas consumption is calculated using a calorific value of 38.7 MJ/m³ (1038 Btu/ft³) gross or 34.9 MJ/m³ (935 Btu/ft³) nett.

To obtain the gas consumption at different calorific value: –

a. FOR l/s – divide the gross heat input (kW) by the gross C.V. of the gas (MJ/m³)

b. FOR ft³/h – divide the gross heat input (Btu/h) by the gross C.V. of the gas (Btu/ft³)

Key to Symbols:

IE = Ireland, GB = United Kingdom (Countries of destination)
PMS = Maximum operating pressure of water
C12 C32 C52 = a room sealed appliance designed for connection via concentric ducts to a horizontal or vertical terminal or twin flue system.
U2H3P = appliance designed for use on 2nd family gas group H or 3rd family gas group 3P

CAUTION. To avoid the possibility of injury during the installation, servicing or cleaning of this appliance care should be taken handling edges of sheet steel components.
For GB, to comply with Building Regulations Part L1 (Part J in Scotland) the boiler should be fitted in accordance with the manufacturer’s instructions. Self-certification that the boiler has been installed to comply with Building Regulations can be demonstrated by completing and signing the Benchmark Commissioning Checklist.

### BENCHMARK COMMISSIONING CHECKLIST DETAILS

<table>
<thead>
<tr>
<th>Boiler</th>
<th>Page</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make and model</td>
<td>5</td>
<td>Burner operating pressure measure and record</td>
</tr>
<tr>
<td>Appliance serial no. on data badge</td>
<td>13</td>
<td>Central heating flow temp. measure and record</td>
</tr>
<tr>
<td>SEDBUK No. %</td>
<td>4</td>
<td>Central heating return temp. measure and record</td>
</tr>
<tr>
<td>Controls</td>
<td></td>
<td>For combination boilers only</td>
</tr>
<tr>
<td>Time and temperature control to heating</td>
<td>24/25</td>
<td>Scale reducer</td>
</tr>
<tr>
<td>Time and temperature control to hot water</td>
<td>24/25</td>
<td>Heat input to be calculated</td>
</tr>
<tr>
<td>Heating zone valves</td>
<td>24</td>
<td>Max. operating burner pressure measure and record</td>
</tr>
<tr>
<td>TRV’s</td>
<td>11</td>
<td>Max. operating water pressure measure and record</td>
</tr>
<tr>
<td>Auto bypass</td>
<td>11</td>
<td>Cold water inlet temp. measure and record</td>
</tr>
<tr>
<td>Boiler interlock</td>
<td>11</td>
<td>Hot water outlet temp. measure and record</td>
</tr>
<tr>
<td>For all boilers</td>
<td></td>
<td>Water flow rate at max. setting measure and record</td>
</tr>
<tr>
<td>Flushing to BS.7593</td>
<td>9</td>
<td>For condensing boilers only</td>
</tr>
<tr>
<td>Inhibitor</td>
<td>9</td>
<td>Condensate drain n/a</td>
</tr>
<tr>
<td>Central heating mode</td>
<td></td>
<td>For all boilers: complete, sign &amp; hand over to customer</td>
</tr>
<tr>
<td>Heat input to be calculated</td>
<td></td>
<td>For assistance see Technical Helpline on the back page</td>
</tr>
</tbody>
</table>

NOTE TO THE INSTALLER: COMPLETE THE BENCHMARK COMMISSIONING CHECKLIST AND LEAVE THESE INSTRUCTIONS WITH APPLIANCE.
1 **BOILER WATER CONNECTION**

**Wall mounting plate**

**Pipe size** | **O.D. mm**
---|---
CH flow | 22
CH return | 22
Gas inlet | 22
DHW cold inlet * | 15
DHW hot outlet * | 15

* Pipe connections not used on system boilers

2 **BOILER CLEARANCES**

**All dimensions in mm (in.)**

The following minimum clearances must be maintained for operation and servicing. Additional space will be required for installation, depending upon site conditions.

**Bottom clearance**

The bottom clearance, after installation, can be reduced to 20mm. However, 200mm must be available for servicing.

**Front clearance**

The minimum front clearance when built into a cupboard is 50mm (2") from the cupboard door. However 450mm (17 3/4") overall clearance is still required, with the cupboard door open, to allow for servicing.

**Side and Rear Flue**

a. Provided that the flue hole is cut accurately, e.g. with a core drill, the flue can be installed from inside the building where wall thickness does not exceed 600 mm (24").

Where the space into which the boiler is going to be installed is less than the length of flue required the flue must be fitted from the outside.

**Installation from inside ONLY**

b. If a core boring tool is to be used inside the building the space in which the boiler is to be installed must be at least wide enough to accommodate the tool.
INTRODUCTION

Mini C24, Mini C28 and Mini C32 are wall mounted, low water content, balanced flue combination gas boilers.

Mini S24 and Mini S28 are wall mounted, low water content, balanced flue system gas boilers.

Central heating (CH) output and domestic hot water (DHW) output (on combination versions) are both fully modulating:

- between 9.10 (31 049) and 24.30 (82 912) kW (btu/h) for model Mini C24 and Mini S24;
- between 10.80 (36 849) and 28.40 (96 900) kW (btu/h) for model Mini C28 and Mini S28;
- between 12.70 (43 435) and 32.00 (109 184) kW (btu/h) for model Mini C32.

The boilers are suitable for connection to fully pumped, pressurised sealed water systems ONLY.

A system bypass is not required when TRV's are fitted to all radiators (see Frame 5). The boiler incorporates an automatic bypass.

A circulating pump, pressure gauge, safety valve and heating expansion vessels are provided.

The CH flow temperature is controlled by a temperature probe. In DHW mode the boiler modulates to sustain a nominal adjustable water flow temperature of 55 °C.

The boiler casing is of white painted mild steel with a drop-down controls access door.

The boiler temperature control is located behind the control panel door.

The main heat exchanger is made of copper.

The DHW heat exchanger is stainless steel.

The system pipework must include drain cocks in appropriate places. Pipework may be taken downwards.

For upwards pipework installation an additional frame (optional) must be used (see frame 18).

OPTIONAL EXTRA KITS

Programmer Kit (Mini C24, Mini C28, Mini C32 only) fits neatly within the casing. Separate fitting instructions are included with the kit. Note. If using an alternative programmer read Frame 26 first.

Horizontal Concentric Extension Ducts

Up to 4 m (13’ 1”) for models: Mini C24, Mini S24, Mini C28, Mini S28.

Up to 2,7 m (8’ 10”) for model Mini C32

Other available kits are listed in frame 9.

DHW OPERATION (combi versions)

With no call for CH the boiler fires only when DHW is drawn off. When there is a call for CH, the heating system is supplied at the selected temperature until DHW is drawn off. The output is then directed by the diverter valve to heat the secondary heat exchanger and supply a maximum draw-off of:

- Mini C24. 10.0 (2.2) l/min (gpm) at 35 degree rise.
- Mini C28. 11.6 (2.6) l/min (gpm) at 35 degree rise.
- Mini C32. 13.1 (2.9) l/min (gpm) at 35 degree rise.

The nominal DHW temperature is 55 °C, but water drawn off when the boiler has been on for central heating may be hotter than this, for a short period of time.

GENERAL

GAS 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 CORGI Registered Installer. It must be carried out in accordance with the relevant requirements of:

- 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", the current Building Regulations and reference should be made to the current ETCI rules for electrical installation.

Detailed recommendations are contained in the following British Standard Codes of Practice:

- BS 5440:1 Flues (for gas appliances of rated input not exceeding 70 kW).
- BS 5440:2 Ventilation (for gas appliances of rated input not exceeding 70 kW).
- BS. 5449 Forced circulation hot water systems.
- BS. 5546 Installation of gas hot water supplies for domestic purposes (2nd Family Gases)
- BS 6700 Design, installation testing and maintenance of services supplying hot water for domestic use.
- BS. 6798 Installation of gas fired hot water boilers of rated input not exceeding 70 kW.
- BS. 6891 Low pressure installation pipes.


The manufacturers notes must NOT be taken, in any way, as overriding statutory obligations.

IMPORTANT These appliances are CE certificated 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.

SAFE HANDLING OF SUBSTANCES

Care should be taken when handling the boiler insulation panels, which can cause irritation to the skin. No asbestos, mercury or CFCs are included in any part of the boiler in its manufacture.

LOCATION OF BOILER AND FLUE OUTLET

The boiler must be installed on a flat and vertical wall, capable of adequately supporting the weight of the boiler and any ancillary equipment.
THE BOILER MUST NOT BE FITTED OUTSIDE.

Timber Framed Buildings

If the boiler is to be fitted in a timber framed building it should be fitted in accordance with the Institute of Gas Engineers document IGE/UP/7, 1998.

Bathroom Installations

The boiler may be installed in any room or internal space, although particular attention is drawn to the requirements of the current I.E.E. (BS.7671) Wiring Regulations and, in Scotland, the electrical provisions of the building regulations applicable in Scotland with respect to the installation of the boiler in a room or internal space containing a bath or shower.

For Ireland reference should be made to the current ETCI rules for electrical installations and I.S.813:2002

Where a room sealed appliance is installed in a room containing a bath or shower then the appliance and any electrical switch or appliance control utilising mains electricity should be so situated that it cannot be touched by a person using the bath or shower.

Note. It is not permissible to install a mains socket in a bathroom.

Where installation will be in an unusual location, special procedures may be necessary and BS 6798 gives detailed guidance on this aspect.

Compartment Installations

A compartment used to enclose the boiler should be designed and constructed specially for this purpose. An existing cupboard or compartment may be used, provided that it is modified for the purpose.

In both cases details of essential features of cupboard / compartment design, including air cupboard installation, are to conform to the following:

- BS 6798 (No cupboard ventilation is required -- see "Air supply" for details)
- The position selected for installation MUST allow adequate space for servicing in front of the boiler.
- For the minimum clearances required for safety and subsequent service, see the wall mounting template and frame 2. In addition, sufficient space may be required to allow lifting access to the wall mounting plate.

GAS SUPPLY

The local gas supplier should be consulted, at the installation 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.

Natural gas boilers must be installed on a gas supply with a governed meter. A gas meter can only be connected by the local gas supplier or by a registered CORGI engineer.

Propane gas boilers MUST be installed with pipes, cylinders and pressure regulators fitted in accordance with BS.5482.1. Bulk tank installations MUST comply with the Home Office code of practice for storage of liquefied petroleum gas at fixed installations. The complete installation MUST be tested for gas soundness and purged as described in the above code.

The boiler is adjusted at the factory for use with the relevant supply gas. A working gas pressure equal to that stated in Table 1 MUST be available at the boiler inlet.

Where applicable, the appliance can be converted for G20 – Natural Gas or G31 – Propane Gas by using the appropriate conversion kit.

GENERAL

IMPORTANT Installation pipes MUST be fitted in accordance with BS. 6891. In IE refer to I.S. 813:2002. Pipework from the meter to the boiler MUST be of an adequate size, i.e. not less than 22 mm O.D. copper or 3/4” BSP iron.

FLUE INSTALLATION REQUIREMENTS

The flue must be installed in accordance with the recommendations of BS. 5440–1 2000. In IE refer to I.S. 813:2002.

The following notes are intended for general guidance.

1. The boiler MUST be installed so that the terminal is exposed to external air.

2. It is important that the position of the terminal allows the free passage of air across it at all times.

3. Minimum acceptable spacing from the terminal to obstructions and ventilation openings are specified in Table 4.

4. Where the lowest part of the terminal is fitted less than 2m (6’6”) 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. Ensure that the guard is fitted centrally.

5. Where the terminal is fitted within 850mm (34”) of a plastic or painted gutter or 450mm (18”) of painted eaves then an aluminium shield at least 750mm (30”) long should be fitted to the underside of the gutter or painted surface fitted centrally above the flue.

6. 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. 5440–1:2000. In IE refer to I.S. 813:2002.

Table 4 – Balanced flue terminal position

<table>
<thead>
<tr>
<th>Terminal position</th>
<th>Minimum spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Directly below, above or along side of an openable window, air vent or other ventilation opening</td>
<td>300 mm (12”)</td>
</tr>
<tr>
<td>2. Below guttering, drain pipes or soil pipes</td>
<td>75 mm (3”) **</td>
</tr>
<tr>
<td>3. Below eaves</td>
<td>200 mm (8”) **</td>
</tr>
<tr>
<td>4. Below balconies or a car port roof</td>
<td>300 mm (12”) **</td>
</tr>
<tr>
<td>5. From vertical drain pipes or soil pipes*</td>
<td>60 mm (2 1/2”) **</td>
</tr>
<tr>
<td>6. From an internal or external corner or to a boundary along side the terminal</td>
<td>150 mm (6”) **</td>
</tr>
<tr>
<td>7. Above adjacent ground, roof or balcony level</td>
<td>300 mm (12”)</td>
</tr>
<tr>
<td>8. From a surface or a boundary facing the terminal.</td>
<td>600 mm (24”)</td>
</tr>
<tr>
<td>9. From a terminal facing a terminal</td>
<td>1200 mm (48”)</td>
</tr>
<tr>
<td>10. From an opening in a car port (e.g. door or window) into dwelling</td>
<td>1200 mm (48”)</td>
</tr>
<tr>
<td>11. Vertically from a terminal on the same wall</td>
<td>1500 mm (60”)</td>
</tr>
<tr>
<td>12. Horizontally from a terminal on the wall</td>
<td>300 mm (12”)</td>
</tr>
</tbody>
</table>

* If the terminal is within 150mm of any vertical soil or drain pipe, an aluminium shield at least 400mm (15 3/4”) long should be fitted equi-distant from the terminal and close to the pipe.

** If a reduction down to 25mm(1”) is required in any of the indicated positions, horizontal flue kit no. 200889 MUST be used. Only 1 reduction down to 25mm is allowable per installation.
Any soldered joints on potable water pipework MUST NOT be made with solder containing lead.

### Central Heating

Antifreeze fluid, corrosion and scale inhibitor fluids suitable for use with boilers having copper heat exchangers may be used in the central heating system.

### WATER TREATMENT

#### Domestic Hot Water

In hard water areas where mains water can exceed 200ppm Total Hardness (as defined by BS 7593:2006 Table 2) a scale reducing device should be fitted into the boiler cold supply within the requirements of the local water company. The use of artificially softened water, however, is NOT permitted.

#### DOMESTIC HOT WATER

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 the Benchmark Guidance Notes on Water Treatment in Central Heating Systems.

Ideal Stelrad Group recommend the use of Fernox, GE Betz Sentinel or Salamander water treatment products, which must be used in accordance with the manufacturers instructions.

### AIR SUPPLY

It is NOT necessary to have a purpose-provided air vent in the room or internal space in which the boiler is installed. Neither is it necessary to ventilate a cupboard or compartment in which the boiler is installed, due to the low surface temperatures of the boiler casing during operation; therefore the requirements of BS6798, Clause 12, BS 5440:2

### WATER CIRCULATION SYSTEM

The boilers are designed for connection to pressurised, fully pumped, sealed water central heating systems ONLY. The domestic hot water (DHW) calorifier is incorporated within the combi boiler and only requires connection to the mains water supply.

### Additional Pumps.

The boiler is supplied with an integral circulating pump. If the boiler is to be used in conjunction with any additional circulating pumps, please contact the Technical Helpline for advice on application.

### IMPORTANT

A minimum length of 1m of copper pipe MUST be fitted to both flow and return connections from the boiler before connection to any plastic piping.

Ensure that the mains water supply pressure is adequate to provide the required DHW flow rate. Refer to Table 1 on page 4.

The central heating system should be in accordance with BS. 6798 and, in addition, for smallbore and microboire systems BS. 5449.

The domestic hot water system should be in accordance with BS. 5546 and BS. 6700.

Copper tubing to BS 2871:1 is recommended for water carrying pipework and MUST be used for pipework carrying potable water.

Any soldered joints on potable water pipework MUST NOT be made with solder containing lead.

### Vertical Terminals

<table>
<thead>
<tr>
<th>Distance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 mm (1/2&quot;)</td>
<td>Above the roof pitch with roof slope of all angles. Above flat roof</td>
</tr>
<tr>
<td>14 mm (5&quot;)</td>
<td>From wall face</td>
</tr>
<tr>
<td>15 Centre distance between air inlet and flue outlet ducts</td>
<td>120mm (5&quot;) ***</td>
</tr>
</tbody>
</table>

*** Where the twin flue ducts are positioned at or near the above minimum centres the wall sealing gaskets should be trimmed to allow them to fit flat to the wall. This should be done for both inside and outside wall gaskets.

Terminals guards are available from boiler suppliers – ask for Tower Flue Guard, Model K6. In case of difficulty seek advice from:

Grasslin UK Ltd, Tower house, Vale Rise, Tonbridge, Kent TN9 1TB Tel. +44 (0) 1732 359 888 Fax No. +44 (0) 1732 354 455 www.tfc-group.co.uk

IMPORTANT It is absolutely ESSENTIAL 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” until corrective action taken.

### GENERAL

The boilers are designed for connection to pressurised, fully pumped, sealed water central heating systems ONLY. The domestic hot water (DHW) calorifier is incorporated within the combi boiler and only requires connection to the mains water supply.

### Twin Flue Applications

| Terminals guards are available from boiler suppliers – ask for Tower Flue Guard, Model K6. In case of difficulty seek advice from: |
| Grasslin UK Ltd, Tower house, Vale Rise, Tonbridge, Kent TN9 1TB Tel. +44 (0) 1732 359 888 Fax No. +44 (0) 1732 354 455 www.tfc-group.co.uk |
| IMPORTANT It is absolutely ESSENTIAL 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” until corrective action taken. |
| The boilers are designed for connection to pressurised, fully pumped, sealed water central heating systems ONLY. The domestic hot water (DHW) calorifier is incorporated within the combi boiler and only requires connection to the mains water supply. |
| Additional Pumps. The boiler is supplied with an integral circulating pump. If the boiler is to be used in conjunction with any additional circulating pumps, please contact the Technical Helpline for advice on application. |
| IMPORTANT A minimum length of 1m of copper pipe MUST be fitted to both flow and return connections from the boiler before connection to any plastic piping. Ensure that the mains water supply pressure is adequate to provide the required DHW flow rate. Refer to Table 1 on page 4. The central heating system should be in accordance with BS. 6798 and, in addition, for smallbore and microboire systems BS. 5449. The domestic hot water system should be in accordance with BS. 5546 and BS. 6700. Copper tubing to BS 2871:1 is recommended for water carrying pipework and MUST be used for pipework carrying potable water. Any soldered joints on potable water pipework MUST NOT be made with solder containing lead. |
3 ELECTRICAL SUPPLY

Warning. This appliance must be efficiently earthed.

Wiring external to the appliance MUST be in accordance with the current I.E.E. (BS.7671) Wiring Regulations and any local regulations which apply. For Ireland reference should be made to the current ETCI rules for electrical installations.

4 SEALED SYSTEM REQUIREMENTS

Central Heating

Note. Mini boilers are suitable for fully pumped pressurised sealed systems only.

REQUIREMENTS

1 General
The installation must comply with the requirements of BS. 6798 and BS. 5449.

2 Flow Temperature
The installation should be designed to work with flow temperatures of up to 90 °C.

3 Working Pressure
All components of the system must be suitable for a working pressure of 3 bar (45 lb/in²) and temperature of 110 °C. Extra care should be taken in making all connections so that the risk of leakage is minimised.

The following components are incorporated within the appliance:

a. Circulating pump.

b. Safety valve; with a non-adjustable pre-set lift pressure of 3 bar (45 lb/in²).

c. Pressure gauge; covering a range of 0–4 bar.

d1. 6 litre expansion vessel; with an initial charge pressure of 0.7 bar (10.5 lb/in²) for Mini C24, Mini C28, Mini S24 and Mini S28.

d2. 7 litre expansion vessel; with an initial charge pressure of 1.0 bar (15.0 lb/in²) for Mini C32.

For further details refer to BS.5449:1 and the British Gas Corporation publication ‘Specifications for Domestic Central Heating and Hot Water’.

4 Filling the system

Fill the system through a temporary hose connection from a draw-off tap supplied from a service pipe under mains pressure. Where the mains pressure is excessive a pressure reducing valve shall be used to facilitate filling.

When installing the filling connection provided with the boiler an additional WRAS approved valve must be fitted to the mains water supply upstream of the double check valve to fully comply the Water Regulations

Multiply this factor by system volume and deduct 6 litres to obtain size of additional vessel for other system volumes.

Table 5 Mini C24, Mini S24, Mini C28, Mini S28

<table>
<thead>
<tr>
<th>System charge pressure (bar)</th>
<th>0.5</th>
<th>0.7</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety valve setting</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vessel pre-charge pressure</td>
<td></td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>System volume (litres)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume of expansion vessel in addition to 6 litre unit fitted to boiler</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>100</td>
<td>0.3</td>
<td>0.8</td>
<td>1.4</td>
</tr>
<tr>
<td>125</td>
<td>1.8</td>
<td>2.5</td>
<td>3.2</td>
</tr>
<tr>
<td>150</td>
<td>3.4</td>
<td>4.2</td>
<td>5.0</td>
</tr>
<tr>
<td>175</td>
<td>5.0</td>
<td>6.0</td>
<td>7.0</td>
</tr>
<tr>
<td>200</td>
<td>6.5</td>
<td>7.6</td>
<td>8.7</td>
</tr>
<tr>
<td>225</td>
<td>8.1</td>
<td>9.3</td>
<td>10.6</td>
</tr>
<tr>
<td>250</td>
<td>9.6</td>
<td>11.1</td>
<td>12.4</td>
</tr>
<tr>
<td>275</td>
<td>11.2</td>
<td>12.8</td>
<td>14.3</td>
</tr>
<tr>
<td>300</td>
<td>12.8</td>
<td>14.5</td>
<td>16.1</td>
</tr>
</tbody>
</table>

5 Size of expansion vessel

For the system water expansion to be contained by the 6 litre expansion vessel fitted to the following models:

Mini C24, Mini S24, Mini C28, Mini S28

the cold system volume must not exceed:

- 96 litres when pressurised to 0.5 bar (cold)
- 88 litres when pressurised to 0.7 bar (cold)
- 81 litres when pressurised to 1.0 bar (cold)

If the pressure exceeds 2.65 bar when the boiler is up to temperature with all radiators in use then an additional expansion vessel MUST be installed on the return pipework.
For expansion volumes see Table 5.

### Table 6 Mini C32

<table>
<thead>
<tr>
<th>System charge pressure (bar)</th>
<th>0.5</th>
<th>0.7</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety valve setting</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vessel pre-charge pressure (bar)</td>
<td>0.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System volume (litres)</th>
<th>Volume of expansion vessel in addition to 7 litre unit fitted to boiler</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>-</td>
</tr>
<tr>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>125</td>
<td>0.8</td>
</tr>
<tr>
<td>150</td>
<td>2.5</td>
</tr>
<tr>
<td>175</td>
<td>4.0</td>
</tr>
<tr>
<td>200</td>
<td>5.6</td>
</tr>
<tr>
<td>225</td>
<td>7.2</td>
</tr>
<tr>
<td>250</td>
<td>8.8</td>
</tr>
<tr>
<td>275</td>
<td>10.3</td>
</tr>
<tr>
<td>300</td>
<td>11.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Multiply this factor by system volume and deduct 7 litres to obtain size of additional vessel for other system volumes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.063</td>
</tr>
<tr>
<td>0.074</td>
</tr>
</tbody>
</table>

For the system water expansion to be contained by the 7 litre expansion vessel fitted to the following model:

**Mini C32**

the cold system volume must not exceed:

- 111 litres when pressurised to 0.5 bar (cold)
- 101 litres when pressurised to 0.7 bar (cold)
- 95 litres when pressurised to 1.0 bar (cold)

If the pressure exceeds 2.65 bar when the boiler is up to temperature with all radiators in use then an additional expansion vessel MUST be installed on the return pipework.

For expansion volumes see Table 6.

Guidance on vessel sizing is given in BS 7074:1 and BS 5449

For IE refer to the current edition of I.S. 813.

### 6 Hydraulic Loss

**Remaining pump capacity**

![Graph showing hydraulic loss](image)

### 7 Draining the system

Draining taps MUST be located in accessible positions to permit the draining of the whole central heating system, including the central heating side of the boiler. The taps should be at least 1/2" BSP nominal size and be in accordance with BS 2879.

For further information refer to “Good Practise Guide 143” a publication of the energy efficiency office, available from the building research establishment Garston Watford WD2 7JR tel: +44 (0) 1923 664258

The boiler is fitted with an automatic internal bypass. No further system bypass is required.

For IE refer to the current edition of I.S. 813.

### 5 BOILER CONTROL INTERLOCKS

Thermostatic radiator valves.

*Ideal Stelrad Group.* support the recommendations made by leading manufacturers of domestic heating controls that heating systems utilising full thermostatic radiator valve control of temperature in individual rooms should also be fitted with a room thermostat controlling the temperature in a space served by radiators not fitted with such a valve as stated in BS5449. Such an arrangement will provide for a more efficient control of the environment and will also avoid the continuous running of the circulation pump during programmed heating ON periods, saving electrical energy.

It is therefore strongly recommended that, when thermostatic radiator valves are used, the space heating temperature control over a living/dining area or a hallway, having a heat requirement of at least 10% of the boiler output, is achieved using a room thermostat whilst other rooms are individually controlled by TRV as stated in BS5449.

### 6 DOMESTIC HOT WATER REQUIREMENTS

1. The domestic hot water service must be in accordance with BS 5546 and BS 6700.
2. For the minimum and maximum working pressures of the Mini C24, Mini C28 and Mini C32 domestic hot water circuit refer to Table 1, page 4.
3. The cold water supply pipe should be flushed before fitting the boiler.
4. The boilers are suitable for connection to most types of washing machine and dishwashing appliances.

5. When connecting to suitable showers, i.e. those designed for modulating domestic hot water, ensure that:
   a. The cold inlet to the boiler is fitted with an approved anti-vacuum or syphon non-return valve.
   b. Hot and cold supplies are of equal pressure.
6. Hard water areas
   In areas where the water is ‘hard’ it is recommended that a proprietary scale-reducing device is fitted into the boiler cold supply, within the requirements of the local water company.

*Mini Installation & Servicing*
7 BOILER WATER CIRCUIT DIAGRAM

Mini C24 – Mini C28 – Mini C32

1 Domestic hot water (DHW) heat exchanger
2 Domestic hot water (DHW) flow switch
3 Domestic hot water (DHW) outlet pipe
4 Domestic cold water inlet cock
5 Three-way diverter valve
6 Main circuit drainage cock
7 Central heating flow cock
8 By-pass valve
9 Central heating (CH) return cock
10 3 bar pressure relief valve
11 Gas cock
12 Expansion vessel
13 Gas valve inlet pressure tap
14 Modulating gas valve
15 Burner pressure tap
16 Flame detection electrode
17 Ignition electrodes
18 Burner
19 Combustion chamber
20 Primary heat exchanger
21 Fan
22 Air pressure switch
23 Venturi device
24 Flue outlet pipe
25 Air intake pipe
26 Automatic air vent
27 Overheat thermostat
28 Pump
29 Pump vent plug
30 CH temperature probe
31 CH flow switch
32 DHW temperature probe
33 CH circuit temperature/pressure gauge

Mini S24 – Mini S28
8  BOILER ASSEMBLY – Exploded View

1  Venturi
2  Fan
3  Flue hood
4  Flame detection electrode
5  Overheat thermostat
6  Primary heat exchanger
7  Inner case cover
8  Ignition electrodes
9  Heat exchanger return pipe
10 CH temperature probe
11 DHW temperature probe
12 Main circuit drainage cock
13 Auto air vent
14 Pump
15 Electronic control pcb
16 3 bar pressure relief valve
17 Return manifold
18 DHW flow switch*
19 Right hand panel
20 Boiler front panel
21 Appliance data badge (inside)
22 Left hand panel
23 CH circuit pressure gauge
24 Model identification & instructions
25 Control panel door
26 CH flow switch
27 3 way diverter valve*
28 Heat exchanger flow pipe
29 DHW heat exchanger*
30 Bypass pipe
31 Gas valve
32 Gas valve outlet pipe
33 Injector manifold
34 Burner
35 Air pressure switch
36 Expansion vessel

* Mini C24, Mini C28 and Mini C32 only

Mini Installation & Servicing
9 UNPACKING

The boiler is supplied fully assembled in one pack A, together with a standard flue assembly for lengths up to 960 mm (37” 3/4), rear or side flue outlet, in pack B.

Unpack and check the contents.

Pack A contents
A The boiler.
B Hardware pack
C Wall mounting plate
D Wall mounting template
E Installation & Servicing instructions.
F The User’s Instructions.
G Filling loop assembly
H Restrictor pack

Hardware pack contents
- 22 mm CH connection pipe - 2 off.
- 22 mm Gas supply connection pipe - 1 off.
- 15 mm DHW cold inlet connection pipe - 1 off.
- 15 mm DHW hot outlet connection pipe - 1 off.
- 1/2” connection nut - 2 off.
- 1/2” sealing washer - 3 off.
- 3/4” sealing washer - 6 off.
- 3/4” Gas supply isolating valve - 1 off.
- 3/4” CH circuit isolating valve - 2 off.
- 1/2” DHW cold inlet isolating valve - 1 off.

* Mini C24, Mini C28 and Mini C32 only

Pack B contents
I Air intake pipe ø 100 mm (4”)
J Flue pipe ø 60 mm (2” 3/8) with terminal grille assembly
K Band
L Turret – air pipe gasket
M Flue pipe gaskets - 2 off
N Boiler – turret gasket
O Flue turret
P Self tapping screws 4,8x13 – 4 off
Q Self tapping screw 4,2x13 – 2 off
R Wall finishing gaskets – 2 off

Optional extras, if ordered, are available in separate boxes.
- Electronic programmer kit *
- Extension duct kit pack D (ø 60/100)
- Flue support kit
- Vertical outlet flue kit with elbow (ø 60/100)
- 90˚ Elbow kit (ø 60/100)
- 45˚ Elbow kit (ø 60/100)
- Roof flue kit (ø 80/125)
- Pitched roof tile (for roof flue kit)
- Flat roof tile (for roof flue kit)
- Extension duct kit (ø 80/125)
- 90˚ Elbow kit (ø 80/125)
- 45˚ Elbow kit (ø 80/125)
- Condense drain (ø 80/125)
- Twin pipe kit (ø 80) with air and flue terminals
- Extension duct kit (ø 80)
- 90˚ Elbow kit (ø 80) female – female
- 90˚ Elbow kit (ø 80) male – female
- 45˚ Elbow kit (ø 80) male – female
- Condense drain (ø 80)
- Condense trap
- Stand – off bracket
- Pre – piping frame
- Natural gas to LPG conversion kit
- LPG to natural gas conversion kit

10 PACKAGING

To unpack the boiler refer to the instructions on carton end flap.
11 FITTING THE FLUE SYSTEM

The maximum total equivalent lengths are given in Table 7 and Table 8 for co-axial pipes ø 60–100 mm, Table 9 for co-axial pipes ø 80–125 mm and in the diagrams for the ø 80 mm twin pipes air-flue systems.

Refer to the assembly instructions contained within the chosen flue kit packaging for the correct assembly and installation.

Condensate Collection

When a length of vertical pipe is used in the system and the length of flue exceeds the following, a condensate drain and trap must be fitted to the lowest point of the system.

ø80–125mm co-axial pipes – 1 metres
ø80 twin flue pipes – 7 metres

Flue Restrictors

Two different sized restrictors are supplied with the boilers Mini C24, Mini S24, Mini C28, Mini S28.

A 44 mm size is fitted to the boiler and a 47 mm size is supplied in a separate bag.

Two different sized restrictors are supplied with the boiler Mini C32.

A 47 mm size is fitted to the boiler and a 50 mm size is supplied in a separate bag.

The appropriate restrictor, when necessary, must be fitted in the flue outlet elbow as indicated in following picture.

For the correct use of the restrictors with co-axial pipes ø 60/100 mm refer to:
Table 7 for models Mini C24, Mini S24, Mini C28, Mini S28.
Table 8 for model Mini C32.

For the correct use of the restrictors with vertical roof kit ø 80/125 mm refer to:
Table 9 for models Mini C24, Mini S24, Mini C28, Mini S28.
Table 10 for model Mini C32.

<table>
<thead>
<tr>
<th>Table 7 – Models Mini C24, Mini S24, Mini C28, Mini S28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe length (ø 60/100)</td>
</tr>
<tr>
<td>Between 0.5 (19.5&quot;) and 1 m (39&quot;)</td>
</tr>
<tr>
<td>More than 1 m (39&quot;) up to 2 m (78.5&quot;)</td>
</tr>
<tr>
<td>More than 2 m (78.5&quot;) up to 4 m (157&quot;)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 8 – Model Mini C32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe length (ø 60/100)</td>
</tr>
<tr>
<td>Between 0.5 (19.5&quot;) and 1 m (39&quot;)</td>
</tr>
<tr>
<td>More than 1 m (39&quot;) up to 2.7 m (8' 10&quot;)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 9 – Models Mini C24, Mini S24, Mini C28, Mini S28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe length (ø 80/125)</td>
</tr>
<tr>
<td>Between 0.5 (19.5&quot;) and 1.5 m (59&quot;)</td>
</tr>
<tr>
<td>More than 1.5 m (59&quot;) up to 6.5 m (21' 4&quot;)</td>
</tr>
<tr>
<td>More than 6.5 m (21' 4&quot;) up to 8.5 m (27' 10&quot;)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 10 – Model Mini C32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe length (ø 80/125)</td>
</tr>
<tr>
<td>Between 0.5 (19.5&quot;) and 4 m (13' 1&quot;)</td>
</tr>
<tr>
<td>More than 4 m (13' 1&quot;) up to 6 m (19' 8&quot;)</td>
</tr>
</tbody>
</table>
11 FITTING THE FLUE SYSTEM (cont.)

Co-axial Flue kits.

Horizontal.
For calculation of total flue length, the distance MUST be measured from the centreline of the concentric elbow to the end of the terminal grille.

Vertical outlet
For calculation of total flue length, the distance MUST be measured from the centreline of the outlet connector at the boiler top panel to the end of the terminal grille.

For each additional 45° and 90° flue bend used, the maximum permissible length of flue system must be reduced by 1m or 1,5m respectively.

Horizontal and Vertical Outlet kits (60 – 100) have a minimum 300mm length, up to a maximum shown in tables 7 & 8.

Cutting lengths of flue and air ducts

Measure the wall thickness and, when using a side outlet, the gap between the inner wall and the boiler side casing. Use the following chart to calculate the cutting length of both flue and air duct.

Mark and cut the flue duct so it protrudes 27 mm from the air duct edge.

For each additional 45° M&F and 90° M&F flue bend used, the maximum permissible length of flue system must be reduced by 0,9m or 1,65m respectively.

For each additional 90° F&F Flue bend used, the maximum permissible length of flue system must be reduced by 2,75m.

Lengths of allowable equivalent flue outlet and air inlet ducts are indicated in the graphs within this frame.

N.B.: The air intake and flue outlet must not terminate on opposite sides of the building.

Cutting lengths of flue and air ducts

Measure the wall thickness and, when using a side outlet, the gap between the inner wall and the boiler side casing. Use the following chart to calculate the cutting lengths of both flue and air ducts.

<table>
<thead>
<tr>
<th>Duct Type</th>
<th>Wall Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall thickness + 67 mm</td>
<td>Rear Outlet</td>
</tr>
<tr>
<td>Wall thickness + 102 mm</td>
<td>Rear outlet + Stand-off</td>
</tr>
<tr>
<td>Wall thickness + Gap + 120mm</td>
<td>Side Outlet – LH &amp; RH</td>
</tr>
</tbody>
</table>

Twin pipe flue kits

For calculation of total flue length, the distance MUST be measured from the centreline of the flue duct/air duct connection to the end of the flue outlet grille/air inlet duct.

12 REAR FLUE ASSEMBLY

Legend
1. Wall finishing gaskets
2. Self tapping screw 4,2x13
3. Self tapping screws 4,8x13
4. Flue turret
5. Boiler – turret gasket
6. Flue pipe gaskets
7. Turret – air pipe gasket
8. Band
9. Flue pipe ø 60 mm with terminal grille assembly
10. Air intake pipe ø 100 mm

When installing a horizontal flue system, Co-axial or Twin Pipe, all ducts MUST have a fall of 3% AWAY from the boiler.
13 WALL MOUNTING TEMPLATE (rear flue)

**IMPORTANT**

Detailed installation steps are given directly on the wall mounting template

1. Tape the template into the selected position.
2. Ensure squareness by hanging a plumbline.
3. Mark onto the wall the following:
   a. the wall mounting plate screw positions
   b. the position of the flue duct.
      (Mark the centre of the hole as well as the circumference)
4. Remove the template from the wall.

14 WALL MOUNTING TEMPLATE (side flue)

**IMPORTANT**

Detailed installation steps are given directly on the wall mounting template

1. Tape the template into the selected position.
2. Ensure squareness by hanging a plumbline.
3. Mark onto the wall the following:
   a. the wall mounting plate screw position
   b. Extend the centre line as shown.
      Mark the flue duct centre from the corner (see diagram and template)

   **Note.** mark the centre of the hole as well as the circumference.

4. Remove the template from the wall.

15 DRILLING THE WALL
Reflue shown

**IMPORTANT**

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

1. Cut the flue hole (preferably with a 5” core boring tool), ensuring that the hole is square to the wall.
2. Drill the fixing holes with an 8mm (5/16”) masonry drill. Fit suitable wall plugs (not provided).

   **Note.** If the terminal is to be sited within 25—40 mm of a corner or vertical pipe (refer to Table 4) then the hole MUST be accurately cut and the rubber weather seal trimmed around the groove provided.

   **Note:** Check all of the hole positions before drilling.
16 FITTING THE WALL MOUNTING PLATE

Refer to frame 18 for service connections.

Fit the wall mounting plate

Directly to the wall

- Offer up wall mounting plate.
- Screw through the fixing holes using 3 off no. 14x2” screws (not provided).
- Check alignment with spirit level.
- Tighten screws.

17 MOUNTING THE BOILER

Lift the boiler onto the wall mounting plate locating the bar at the rear of the back panel assembly into the bracket.

As added protection, the boiler should be lifted with the lower polystyrene packaging in place.

Lower the boiler into position.

Remove the lower packaging. Remove the front and side panels (refer to frame 21) and strip off the protective coating. The panels may be placed to one side and re-fitted when the installation is complete.

Fit the horizontal flue system referring to the instructions contained with the kit.

Make good the internal wall surface using the seal provided.

18 CONNECTIONS

Fit the service valves, washers and tail pipes as shown.

* Mini C24, Mini C28 and Mini C32 only

Connect to the tail pipes by proprietary fittings.

The pipework may be directed down or through the rear wall as required.

The pipework may be directed upwards by using an optional additional frame available in separate box. See illustration for upward pipework routing
19 SAFETY VALVE DRAIN

The discharge pipe should be positioned so that the discharge of water or steam cannot create a hazard to the occupants of the premises or damage to electrical components and wiring.

20 ELECTRICAL CONNECTIONS

Warning. This appliance MUST be efficiently earthed

A mains supply of 230 V ~ 50 Hz is required.

Mains wiring should be 3 core PVC insulated flexible cord NOT LESS than 0.75 mm$^2$ (24 x 0.2mm) and to BS. 6500, Table 16. (0.5mm$^2$ flex is not acceptable – for mechanical, not electrical reasons.)

Mains 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.

21 ELECTRICAL CONNECTIONS

Incoming mains wiring detail

To gain access to the power supply and external controls terminal blocks:

1. Remove the screws A and the front panel of the case.

2. Remove the screws B.

3. Loosen the screws C.

4. Remove the side panels or move the lower part of the side panels and pull the control panel.

When completely pulled out, the panel can rotate 45° downwards to facilitate the operations on the internal parts.

5. Loosen the screws D and remove the service panel.

The supply connection is intended to be made via a double pole switch having a 3 mm (1/8") contact separation in both poles, serving only the boiler and system controls. A 3 pin UNSWITCHED socket may, alternatively, be used.

The fuse rating should be 3.15 AF.

Mini C24, Mini C28 Mini C32 only

For external controls wiring see frame 26.

Note: the switch contacts of any external programmer, room or frost thermostat must be volt free.

Connecting a switched live feed to external controls terminal block may be dangerous and will result in serious damage to the boiler.

For Mini S24, Mini S28 refer to frame 27.

Mini C24, Mini C28, Mini C32 only

Thermostat link.

Remove when wiring external thermostats.

Refer to frames 26 and 27

Note: Ensure that the lengths of the current conductors are shorter than the earth conductor so that if the cable slips in its anchorage the current carrying conductors become taut before the earth conductor.
23 PICTORIAL WIRING
Mini S24, Mini S28

Wiring diagram for boiler equipped with electronic control p.c.b. type: Bertelli & Partners DIMS11-SA03/16740

Electronic control P.C.B.

- Electric supply terminal block
- External controls terminal block
- Pump
- Fan
- Primary circuit flow switch
- Air pressure switch
- Ignition electrodes
- Flame detection electrode
- C.h. temperature probe NTC
- Modulating gas valve
- Safety thermostat

BN = brown
BU = blue
BK = black
WH = white
RD = red
GY = grey
YE = yellow
VT = violet
OG = orange
GNYE = green/yellow
FUNCTIONAL FLOW DIAGRAM

Mini C24, Mini C28, Mini C32

Gas Valve (on-off operators)
Fan
Air pressure switch
Safety thermostat

Electronic control pcb

DHW temp. probe NTC
DHW temp. probe NTC

Three way div. valve

Gas Valve (modulation coil)

Ignition electrodes
Detection electrode

N
25 FUNCTIONAL FLOW DIAGRAM
Mini S24, Mini S28

Electronic control pcb

Gas Valve (on-off operators)
Fan
Air pressure switch
Safety thermostat

Gas Valve (modulation coil)
CH temp. probe NTC
Pump
Ignition electrodes
Detection electrode

N
Installation

26 External Electrical Controls

Wiring external to the boiler MUST be in accordance with the current I.E.E. (BS.7671) Wiring Regulations.

For Ireland reference should be made to the current ETCI rules for electrical installations.

The fuse rating should be 3.15 AF.

Route the electrical supply flexible cord and the external control flexible cord as illustrated.

Lock the flexible cords in place with the clamps provided.

Route the electrical supply flexible cord and the external control flexible cord as illustrated.

Lock the flexible cords in place with the clamps provided.

Electrical Connections for a Combi Boiler

Optional Programmer Kit

For the models Mini C24, Mini C28 and Mini C32 (combi) an optional digital programmer kit is available with its relevant instructions.

Note: the switch contacts of any external programmer, room or frost thermostat must be volt free. Connecting a switched live feed to external controls terminal block may be dangerous and will result in serious damage to the boiler.

Room Thermostat

This should be wired as shown in diagrams A.

Frost protection

Central heating systems fitted wholly inside the house do not normally require frost protection as the house 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 house 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. To maintain frost protection with the programmer selector switches set to OFF, all the controls MUST be left in the running position.

The frost thermostat should be sited in a cold place but where it can sense heat from the system.

Wiring should be as shown, with minimal disturbance to other wiring.

External Programmers

On the combi boilers, this should be of the single channel type (as this boiler does not incorporate a pre-heat facility for the instantaneous hot water service).

For system boilers refer to frame 27.

Programmers with room thermostat – see diagram B.

Note. If the boiler is installed in a garage it may be necessary to fit a pipe thermostat, preferably on the return pipework.

E Electr ical C onnections for a System Boiler

The following diagram shows a possible way to connect an external programmer to a mid–position diverter valve to provide independent timed and thermostatic control of heating and water.

The earth wires are not shown for clarity. Earth wiring must be fitted as necessary.

Valve Colour Key

BR – Brown
BL – Blue
GR – Grey
OR – Orange

Do not remove

Main 230V a.c.
Switched 3 Amp fused, spur

Optional frost stat
Room thermostat

Programmer

Cylinder thermostat

N.B. These diagrams are schematic only and do not show external terminal strips etc.
28 INITIAL LIGHTING

Legend
A Appliance operation lamps
B Domestic hot water temperature control Mini C24, Mini C28, Mini C32
C Main switch and radiator temperature control
D Boiler reset button
E Lock-out signal lamp
F Programmer (optional) for Mini C24, Mini C28, Mini C32 boilers only.
G System pressure and temperature gauge

IMPORTANT Before lighting the boiler you should note especially that:

1. Check that all the drain cocks are closed and any valves in the flow and return are open.
2. Check that the system has been filled and pressurised and that the boiler is not air locked.
3. Remove boiler front panel.
4. Ensure that the pump is free to rotate
   i. Remove the vent plug
   ii. Using a screwdriver, rotate the shaft several times
   iii. Replace the vent plug
   Note: Some slight water leakage will occur
5. Remove the screw in the burner pressure test point indicated on the following picture and connect a gas pressure gauge via a flexible tube.
   Be sure to select the correct pressure test point. Refer to Tables for pressures.

6. Check that the gas service cock is ON.
7. Switch the electricity supply ON and check that all external controls are calling for heat.

8. Set the main switch C to 'ON'. Following a pre-purge period the gas control solenoid valve should open and the spark commence, continuing until the burner is established.
9. Check that the burner lights smoothly. If this does not occur within 20 seconds, turn the main switch to 'O' position, wait for 5 seconds then try again by pressing the reset button 'D'. If the burner still does not light, refer to the 'Fault Finding' section.
10. Test for gas soundness around ALL boiler gas components, using leak detection fluid.
11. Operate the boiler for 10 minutes to stabilise the burner temperature.
12. Check that the burner pressures are correct. The boiler is factory pre-set and should not need adjustment. However if adjustment is required refer to frame 29.
13. Set the boiler main switch to 'O'.
14. Remove the pressure gauge and tube. Replace the sealing screw in the pressure test point. Ensure a gas tight seal is made.
15. Refit the boiler front panel using the screws previously removed.
16. Switch the boiler on again.
TO ADJUST PRESSURES

Nomenclature of the parts on the gas valve

A  Modulation operator’s electric connectors
B  Minimum gas pressure adjustment
C  Maximum gas pressure adjustment
D  Gas valve inlet pressure test point
E  Burner pressure test point

1. Remove the front panel of the case.
2. Open the gas valve inlet pressure test point D at the valve input, connect a suitable pressure gauge and check the gas pressure of the supply network.
3. Remove the gauge and close the pressure test point D.
4. Open the burner pressure test point E and connect the gauge.
5. Remove the protection cap from the mechanical pressure adjustment components (B and C)
6. Start the boiler at its maximum power. Operate the boiler in DHW mode or ensure that the boiler is not range rated if the test is carried out in CH mode.

Maximum valve setting

7. If necessary, rotate the maximum gas pressure adjustment C using a spanner until you obtain the required pressure as indicated on Table 2 at page 4 (burner pressure). By rotating clockwise the pressure increases.

Minimum valve setting

8. Disconnect one of the two connectors A.
9. If necessary, rotate the minimum gas pressure adjustment B using a pozidrive screwdriver until you obtain the required pressure as indicated on Table 2 at page 4 (burner pressure). By rotating clockwise the pressure increases.
10. Turn the boiler off and re-connect the wire to the modulating operator.
11. Start the boiler and check again the maximum gas pressure setting.
12. Turn the boiler off and disconnect the gauge and close the gas valve outlet pressure test point E

Important: after the gas pressure checks and any adjustment operations, all of the test points must be sealed and replace the adjustment protection cap.

Ignition rate adjustment

1. Turn on the boiler.
2. Check that the boiler lights up uniformly and adjust the ignition gas pressure, if necessary.

To adjust the ignition gas pressure:

3. Open the gas valve outlet pressure test point E and connect the gauge.
4. Rotate the radiator temperature control C as indicated in the next figure and ensure that the room thermostat, if fitted, is set to "heat demand".
5. Run the boiler in c.h. mode (for combi boilers: do not open any d.h.w. tap)

6. Press and hold the reset button D for about 10 seconds until the lock-out signal light E blinks.
7. The lamps A should give the indication of the next figure; if not then press the reset button D until you obtain it.

<table>
<thead>
<tr>
<th>Where:</th>
<th>Lamp ON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• • •</td>
</tr>
<tr>
<td></td>
<td>Lamp OFF</td>
</tr>
</tbody>
</table>

8. Press and hold the reset button D for about 5 seconds until the lock-out signal light E is switched off.

The boiler runs in c.h. mode and the lights A give the follow indication:

<table>
<thead>
<tr>
<th>Where:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashing lamp, alone or simultaneously with an other lamp.</td>
</tr>
<tr>
<td>Lamp OFF</td>
</tr>
</tbody>
</table>

9. Rotate the knob B on a position corresponding to an adequate ignition pressure. By rotating clockwise the pressure increases.

Suggested ignition pressures:

- Natural gas G20 – 6 (2,4) mbar (in w.g.)
- Propane G31 – 13 (5,3) mbar (in w.g.)

10. Make a note of the position of the knob B.
INSTALLATION

11 Turn the boiler off and on positioning the main switch C as indicated in the next figure.

12 Press and hold the reset button D for about 10 seconds until the lock-out signal lamp E blinks.

30 ANTI CYCLING SETTING

It is possible to set the minimum delay time that must pass between two ignitions of the burner in c.h. function mode.

1 Turn the boiler on positioning the main switch C as follow:

2 Press and hold the boiler reset button D for about 10 seconds until the lock-out signal lamp E blinks.

3 The lamps A should give the indication as in next figure (reignition frequency). If not, press the reset button D repeatedly to obtain it.

4 To change the setting turn the knob B to a position corresponding to the desired delay. By turning the control B, the lock-out signal lamp E blinks quickly (2 per second) indicating that the setting has changed and must be memorized.

5 To memorize the setting press and hold the reset button D for about 5 seconds until the lamps A briefly blink simultaneously.

6 To reset the boiler to the normal operation turn it off and on by the main switch C checking the ignition pressure and that the burner lights up uniformly. The boiler automatically resets to its normal operation after 10 minutes if the above reset operation is not performed.

31 COMMISSIONING AND TESTING

The benchmark Logbook or equivalent self certification should be completed and signed to demonstrate compliance with Building Regulations.

A. Electrical Installation

Checks to ensure electrical safety should be carried out by a competent person.

ALWAYS carry out the preliminary electrical system checks, i.e. earth continuity, polarity, resistance to earth and short circuit, using a suitable test meter.

B. Gas Installation

1 The whole of the gas installation, including the meter, should be inspected and tested for soundness and purged in accordance with the recommendations of BS. 6891. In IE refer to I.S. 813:2002.

2 Purge air from the gas installation by loosening the gas cock union and purge until gas odour is detected.

3 Retighten the union and test for gas soundness.

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.
32 GENERAL CHECKS

Make the following checks for correct operation:

1. Hot water (Mini C24, Mini C28 and Mini C32 models).
   a. Fully open all DHW taps in turn and ensure that water flows freely from them.
   b. Close all taps except the furthest one from the boiler and check that the boiler is firing at maximum rate.
   c. Ensure that DHW temperature of approximately 35 °C rise is obtained at the tap. This corresponds to a flow rate of about
      10.0 (2.2) l/min (gpm) Mini C24
      11.6 (2.6) l/min (gpm) Mini C28
      13.1 (2.9) l/min (gpm) Mini C32
   d. Turn off the DHW tap.

2. Central heating (all models)
   Operate each control separately and check that the main burner or circulating pump, as the case may be, responds.

3. Gas rate – G20
   Check the boiler gas rate when the boiler is at full output.
   The gas rate will normally be
   47.0 (1.66) litres/min (ft³/min) for the models Mini C24 and Mini S24
   54.8 (1.94) litres/min (ft³/min) for the models Mini C28 and Mini S28
   62.2 (2.20) litres/min (ft³/min) for the model Mini C32
   checked at the gas meter, with no other appliance in use.

If this check is not possible, ensure that the burner pressure is:
   11.7 (4.7) mbar (in. w.g.) for all models.

4. Water circulation system
   Note. Fernox Superfloc flushing solution should be used during the flushing procedure.
   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 the system, adding inhibitor (see ‘Water Treatment’), if required.
   Vent as necessary to clear all air and, again, check for water soundness. After venting, repressurise as required.
   d. Balance the system. It is suggested that, initially, all radiator handwheel valves (or TRVs if fitted) be set fully open, that all lockshield valves be set a half-turn open.
   Make minor adjustments to each radiator to achieve the same differential on all.

5. Flue system
   Check the integrity of the flue outlet and air inlet system to the boiler ensuring no leaks are evident from piping joints or flue/air sampling points.
   Finally, set the system controls to the users requirements.
   If an optional programmer kit is fitted refer to the instructions supplied.
33 GAS CONVERSION

1. Check that the gas cock fitted under the boiler is turned off and the appliance is switched off at the mains isolating spur.
2. Remove the front panel of the case.
3. Take off the lid of the sealed chamber.
4. Take the front panel of the combustion chamber off and remove the burner as explained in frame 37.
5. Carry out the conversion for the type of gas, replacing the burner injectors correctly as explained in frame 45.
6. Re-assemble the burner, the front panel of the combustion chamber and the lid of the sealed chamber.
7. Switch on the appliance at the mains isolating spur.
8. Turn the boiler OFF positioning the main switch C as in figure below.

9. Disconnect the CH temperature probe (30 on page 12).
10. Press and hold the reset button D for about 10 seconds until the lock-out signal lamp E blinks.
11. Connect the CH temperature probe (30 on page 12).
12. Press the reset button D repeatedly (4 times) until the lamps A give the follow indication:

<table>
<thead>
<tr>
<th>Lamp ON</th>
<th>Lamp OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At this time it is possible to determine the current setting by keeping the reset button D pressed for more than 5 seconds. The lamps A will flash a number of times corresponding to the setting of the knob B (see next figure).

<table>
<thead>
<tr>
<th>Gas supply</th>
<th>Position of knob B</th>
<th>Approx. Max current through the modulator device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural gas</td>
<td>1</td>
<td>125 mA</td>
</tr>
<tr>
<td>L.P.G.</td>
<td>4</td>
<td>165 mA</td>
</tr>
</tbody>
</table>

13. To change the setting turn the knob B to a position corresponding to the gas used as shown in the figure above.
   By turning the control B, the lock-out signal lamp E blinks quickly (2 per second) indicating that the setting has changed and must be memorized.
14. To memorize the setting press and hold the reset button D for about 5 seconds until the lamps A briefly blink simultaneously.
15. Open the gas cock.
16. To reset the boiler to the normal operation turn it ON by the main switch C on the desired operation and checking the ignition pressure and that the burner lights up uniformly. The boiler automatically resets to its normal operation after 10 minutes if the above reset operation is not performed.

The factory setting is Natural gas.
17. Calibrate the gas valve according to the instructions given in this manual.
18. Set the correct gas pressure for central heating output required.
19. Stick the self-adhesive label (included with the conversion kit, indicating the type of gas, and the gas pressures to which the appliance has been set) over the existing label on the bottom of the control panel and replace the adjustment protection cap.
20. Replace the front panels of the case.
21. Check the correct operation of the boiler.

34 HANDING OVER

After completing the installation and commissioning of the system, the installer should hand over to the householder by the following actions:

1. Hand the User’s Instructions to the householder and explain his or her responsibilities under the Gas Safety (Installation and Use) Regulations 1994 and amendments 1996 or rules in force.
2. Draw attention to the Lighting Instruction label affixed to the inside of the lower front door.
3. Explain and demonstrate the lighting and shutting down procedures.
4. The operation of the boiler and the use and adjustment of ALL system controls should be fully explained to the householder, to ensure the greatest possible fuel economy consistent with household requirements of both heating and hot water consumption.
5. Advise the user of the precautions necessary to prevent damage to the system and to the building, in the event of the system remaining inoperative during frosty conditions.
6. If a programmer is fitted, draw attention to the Programmer Instructions and hand them to the householder.
7. After installation and commissioning please complete the “Benchmark” Commissioning Checklist before handover to the customer.
   For IE, it is necessary to complete a “Declaration of Conformity” to indicate compliance to I.S. 813:2002.
8. Stress the importance of regular servicing by a CORGI registered installer and that a comprehensive service should be carried out AT LEAST ONCE A YEAR.
   In IE, servicing work must be carried out by a competent person.

Emphasise to the user that the boiler may stop working if the system pressure is lowered by draining radiators to decorate behind them. In particular, explain to the user how the domestic hot water temperature varies with flow rate. This is especially important when water is drawn off while the boiler is already running for central heating.
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.

It is the law that any service work must be carried out by a registered CORGI installer. In IE, servicing work must be carried out by a competent person.

1. Turn the heating controls to maximum so that the boiler lights and remains running. Check that no other gas appliances in the house are in use or likely to be used.
2. When the boiler has settled down check the gas rate at the meter (if the meter is of the pointer type you should time only complete revolutions of the pointer). Check the gas rate against the figures given in Table 2 for CH operation.
3. For a combination boiler, fully open a hot water tap. When the boiler has settled down check the gas rate, as in step 2, checking the measured rate against the figures given in Table 3 for HW operation.
4. Run the boiler and check the percentage of CO and CO2 in the flue gasses at the sampling point indicated in the following drawing.

Note. If your meter reads CO in parts per million the figure must be divided by 10,000 to convert it to a percentage.

5. If the ratio of CO/CO2 is less than .004 and the gas rates measured in steps 3 and 4 are close to nominal then no further action need be taken. If not, proceed to step 6.
6. Clean the main burner.
7. Clean the heat exchanger.
8. Check the injectors for blockage or damage.
9. Check that the flue terminal is unobstructed.

The servicing procedures are covered more fully in Frames 36 to 41 and MUST be carried out in sequence.

WARNING.
ALWAYS turn off the gas supply at the gas service cock, and switch off and disconnect the electricity supply to the appliance before servicing.

Switching the boiler on/off switch ‘off’ does not fully isolate the boiler.
ALWAYS test for gas soundness and carry out functional checks on reassembly.

IMPORTANT. When work is complete the boiler inner front sealing panel MUST be correctly refitted, making a good seal.

DO NOT OPERATE THE BOILER IF THE SEALING PANEL IS NOT FITTED.

Complete the service section in the Benchmark Commissioning Checklist.
36 REMOVAL OF OUTER AND INNER CASING

1. Turn off the gas supply at the gas service cock and disconnect the electricity supply.
2. Remove the screws A and lift off the boiler front panel.
3. Loosen the screws B.
4. Bring the base of the panels away from the boiler and lift them, freeing them from the top hooks.
5. Remove the screws C and remove the boiler inner casing.

Mini C shown
37 BURNER REMOVAL AND CLEANING

1. Disconnect the electrical supply.
2. Remove outer and inner casing (refer to frame 36).
3. Undo the screws A and remove the combustion chamber panel B.
4. Disconnect the electrodes leads.
5. Undo the four screws C placed at the right and left sides of the burner and extract it.
6. Brush off any deposits that may have collected on the burner, ensuring that the flame ports are unobstructed. Note: brushes with metallic bristles MUST NOT be used.
7. Inspect the spark and detection electrodes. Ensure they are clean and in good condition; replace if necessary.
8. Check the spark electrodes gap is correct.

9. Check that the spark and detection electrodes leads are in good condition and renew as necessary.

38 BURNER PRESSURE CHECK

After any servicing, reference should be made to:

- Table 2 and Table 3 (or the data plate) which quote details of the burner pressures.

If the burner pressures are incorrect ensure the inlet pressure, with the appliance running, is correct (refer Table 1).

If the burner pressures require adjustment refer to frame 29 “To adjust pressures”.

If the appliance still does not operate correctly refer to the appropriate fault finding chart.

39 CLEANING THE HEAT EXCHANGER

1. Open the combustion chamber as explained in steps 1 to 3 of frame 37.
2. Place a plastic sheet or similar beneath the heat exchanger and remove all visible loose deposits from the heat exchanger fins, using a suitable brush.
40 RE-ASSEMBLY
Re-assemble the boiler in the following order:
3 Refit the burner.
4 Reconnect the electrodes to the electronic pcb. See frame 37 for correct connectors.
5 Refit the combustion chamber panel.

6 Refit the inner case cover. IMPORTANT. Ensure the boiler sealing panel is correctly fitted and that a good seal is made.
7 Refit the boiler side and front panels.
8 Turn on the gas supply at the gas service cock.
9 Reconnect the electrical supply.

41 FAN AND VENTURI REMOVAL AND CLEANING
1 Disconnect the electrical supply.
2 Remove outer and inner casing.
3 Disconnect the connectors A and the earth connection B.

4 Disconnect the pipe which connects the venturi device to the air pressure switch.
5 Unscrew the screws C and remove the clamp D.

If the right clearance is less than 50 cm (20")....
6 Remove the combustion chamber panel (see frame 36)
7 Remove the 3 screws F and remove the flue hood with the fan.
8 Unscrew the 3 screws E and remove the fan.
9 Check that the impeller runs freely. Clean with a soft brush or renew as necessary. Refer to frame 52 for replacement.
Note: Always take care when handling the fan, in order to preserve the balance of the impeller.
10 Check the venturi G for cleanliness.
11 Re-assemble in reverse order.

To correctly connect the venturi device to the air pressure switch, refer to the following illustration.
42  GENERAL

When replacing any component:

1. Isolate the electricity supply at the switched spur.
   
   **N.B.** Turning the boiler “ON/OFF” switch does not isolate the live supply to the boiler.

2. Turn off the gas supply.

**IMPORTANT.** When work is complete the inner case cover must be correctly fitted, ensuring that a good seal is made.

43  SPARK AND DETECTION  
ELECTRODE REPLACEMENT

1. Disconnect the electrical supply.

2. Remove outer and inner casing (refer to frame 36).

3. Open the combustion chamber and disconnect the electrodes leads.

4. Remove the burner. Refer to frame 37.

5. Undo the screws that hold the electrodes and remove.

6. For models Mini C24, Mini C28, Mini S24, Mini S28, fit new electrodes as necessary following the sequence illustrated.

   **Ignition 1st**

   **Ignition 2nd**

   **Detection 3rd**

7. Check the spark gap.

   4 mm (5/32”)

44  BURNER REPLACEMENT

1. Remove the burner as explained in frame 37

2. Remove the spark and detection electrodes. Refer to frame 43.

3. Fit the electrodes on the new burner and check the spark gap.

4. Re-assemble in reverse order.

5. Check the operation of the boiler.
45  BURNER INJECTORS REPLACEMENT
1  Remove the burner. Refer to frame 37.
2  Unscrew the injectors from the gas manifold.
3  Check that the new injectors are of the correct size and fit it using new gaskets.
4  Re-assemble in reverse order.
5  Check the operation of the boiler.

46  OVERHEAT THERMOSTAT REPLACEMENT
1  Remove outer and inner casing (refer to frame 36).
   For models Mini C28, Mini S28 and Mini C32 remove the screw A and the plate B.
2  Disconnect the wiring C.
3  Remove the spring D which holds the overheat thermostat on the pipe of the primary heat exchanger and remove it.
4  Re-assemble in reverse order.
5  Apply an adequate quantity of heat conducting compound between the pipe and the thermostat.
47 TEMPERATURE PROBE REPLACEMENT

1 Disconnect the electrical supply.
2 Remove the front and right hand side casing panels (refer to frame 36).

Removal of CH temperature probe
3 To remove the CH temperature probe close off the isolating cocks of the CH circuit at the bottom of the boiler.
4 Release system pressure by opening the main circuit drainage cock.
   Do not release CH pressure using the pressure relief valve. It may cause debris within the system to foul the valve.

Removal of DHW temperature probe (Combi boilers)
3 To remove the DHW temperature probe close off the isolating cock of the DHW circuit at the bottom of the boiler.
4 Empty the DHW circuit.

Replacement
5 Disconnect the leads from the probe to be replaced and unscrew it.
6 Screw in the new probe, using a new gasket, reconnect and reassemble in reverse order.

48 GAS VALVE ON–OFF OPERATOR COILS REPLACEMENT

Check
1 Disconnect the electrical supply.
2 Remove the front casing panel.
3 Disconnect the connector A and check the electrical resistance of the coils referring to the following diagram

 Upper on–off operator approx. 6 400 Ω*
 Lower on–off operator approx. 920 Ω*

* at ambient temperature.
4 If the resistance of either of the coils is different from the value stated by ±10% or greater, replace the unit as described below.

Replacement
5 Remove the screw B, withdraw the coils unit C.
6 Replace it and reassemble in reverse order.
49 GAS VALVE REPLACEMENT

1. Turn off the gas supply at the gas service cock and disconnect the electricity supply.
2. Remove the front casing panel (refer to frame 36).
3. Disconnect the connectors A and B.
4. Disconnect the earth wiring from the gas valve.
5. Unscrew the connectors C and remove the pipe D.
6. Unscrew the inlet connector.
7. Unscrew the screws E and remove the valve.
8. Fit the new gas valve in reverse order ensuring new gaskets are fitted and check for gas soundness.
9. Check the operation of the boiler.

50 WATER TEMPERATURE-PRESSURE GAUGE REPLACEMENT

1. Disconnect the electrical supply.
2. Remove the front and right hand side casing panels (refer to frame 36).
3. Release system pressure by opening the main circuit drainage cock A. Do not release CH pressure using the pressure relief valve. It may cause debris within the system to foul the valve.
4. Remove the fork B and the probe holder spring C.
5. Pull out the control panel (see frame 21).
6. Squeeze the tabs D to release the temperature-pressure gauge E and remove it.
7. Re-assemble in reverse order.

51 EXPANSION VESSEL REPLACEMENT

If the CH expansion vessel is faulty, there are 2 options:

A. If it has a punctured diaphragm, but is otherwise leak free, than it can be left in place and a new vessel added to the return side of the system, external to the boiler, provided it is of adequate capacity and pre-charge pressure.

B. If there is at least 400 mm (16") clearance above the boiler, the expansion vessel can be changed without removing the boiler (rear exit flues will have to be disturbed).

For option B, proceed as follows:
1. Disconnect the electrical supply.
2. Gain access to the controls area by removing the boiler front panel (refer to frame 36).
3. Close off the isolating cocks of the CH circuit at the bottom of the boiler.
4. Release system pressure by opening the main circuit drainage cock.

Do not release CH pressure using the pressure relief valve. It may cause debris within the system to foul the valve.

5. Completely unscrew the connection A, the locknut B and remove the expansion vessel from the top of the boiler.

6. Re-assemble in reverse order.
52 FAN REPLACEMENT

1. Disconnect the electrical supply.
2. Remove outer and inner casing.
3. Disconnect the connectors A and the earth connection B.
4. Disconnect the pipe which connects the venturi device to the air pressure switch.
5. Unscrew the screws C and remove the clamp D.
6. Unscrew the 3 screws E and remove the fan.
7. Re-assemble in reverse order.

If the right clearance is at least 50 cm (20”),...

If the right clearance is less than 50 cm (20”),...
6. Remove the combustion chamber lid (see frame 37)
7. Remove the 3 screws F and remove the flue hood with the fan.
8. Unscrew the 3 screws E and remove the fan.
9. Re-assemble in reverse order.

To correctly connect the venturi device to the air pressure switch, refer to the following illustration.

53 VENTURI REPLACEMENT

1. Remove the fan (see frame 52).
2. Remove and replace the venturi device A by unscrewing the screw B.
3. Re-assemble in reverse order.

A
54 AIR PRESSURE SWITCH REPLACEMENT

Two different types of air pressure switch may be used in the boiler. Refer to the following drawings in accordance with the type of air pressure switch used.

1. Disconnect the electrical supply.
2. Remove outer and inner casing as explained in frame 36.
3. Disconnect the pressure sensing pipe from the air pressure switch.
4. Disconnect the electrical harness from the air pressure switch.
5. Undo the two screws which hold the air pressure switch to the chassis and remove it.
6. Replace the switch.
7. Reassemble in reverse order.

To correctly connect the venturi device to the air pressure switch, refer to the illustration of frame 52 and to the following illustrations in accordance with the type of pressure switch used.

55 PUMP REPLACEMENT COMPLETE

1. Disconnect the electrical supply.
2. Remove the front and right hand side casing panels (refer to frame 36).
3. Release system pressure by opening the main circuit drainage cock. Do not release CH pressure using the pressure relief valve. It may cause debris within the system to foul the valve.
4. Disconnect the connector A.
5. Unscrew the locknut B and move the pipe upwards freeing it from the outlet port of the pump.
6. Remove the fork C and the capillary pipe.
7. Remove the locking plate D right.
8. Loosen the connection E, remove the fork F and remove the pipe G.
9. Unscrew the two screws H that hold the pump on the frame.
10. Remove the pump towards the front of the boiler.

Reassemble in reverse order.

When reassembling the pump, check the correct location of the O-ring gasket in the inlet port of the pump that seals the connection between the pump and the brass group.

If the motor only needs replacing, disconnect the connector A, unscrew the 4 screws I and remove the pump motor forwards.
56 MAIN CONTROL PCB REPLACEMENT

1 Disconnect the electrical supply.
2 Gain access to the controls area by removing the boiler front panel and pulling the control panel (refer to frame 21).
3 Remove the screws A and remove the service panel.
4 To gain access to the electronic control/ignition p.c.b. remove the screws B and remove the control panel lid.

5 Remove all the wiring connected to the main control p.c.b. To disconnect the connectors indicated, delicately flex the hook present on one side of each socket.

6 To disconnect the connectors indicated in the next figure, delicately press the hook present on one side of each socket.

7 Remove the spindles of the two control knobs by delicately pulling them with pliers in the direction shown by the arrows.

8 Unscrew the four screws that hold the electronic control/ignition p.c.b. on to the control panel.
9 Remove it by lifting its rear edge and freeing it from any of the wiring.
10 Re-assemble in reverse order.

Important

When re-assembling the electronic control/ignition p.c.b.:

11 Fit the p.c.b. into the control panel by first inserting the front lower edge under the control knob shafts. Lower the rear edge and ensure that no wiring is trapped beneath.
12 Insert the spindles in the control panel knobs until the notch C reaches the potentiometer edge. It is not necessary to force them in the knob.
13 While tightening the screws that fix the electronic control/ignition p.c.b. on the control panel, keep the p.c.b. towards the control panel fascia making sure of the contact between the boiler reset button D and the tab E. Replace the wiring connections ensuring correct engagement in the sockets.

Attention

After installing the electronic control/ignition p.c.b.:

Combi boilers (Mini C24, Mini C28, Mini C32)

14 Make sure the CH (\(\text{\\textcircled{C}}\)) and DHW (\(\text{\\textcircled{H}}\)) temperature adjustment knobs can move freely for the complete range. If not, remove the spindle again as described at step 7, turn the knob half a turn and re-insert the spindle.

System boilers (Mini S24, Mini S28)

14 Make sure the CH (\(\text{\\textcircled{C}}\)) temperature and Service (\(\text{\\textcircled{S}}\)) adjustment knobs can move freely for the complete range. If not, remove the spindle again as described at step 7, turn the knob half a turn and re-insert the spindle.
15 Operate the boiler and close the gas inlet cock so that the boiler goes into the safety lock-out state. Verify the correct operation of the boiler reset button by pressing and releasing it.
16 Open the gas inlet cock and check the boiler operates correctly.

The replacement PCB is supplied pre-set for Natural Gas and an anti cycling time of 3 minutes. If the installation requires adjustment of these settings refer to frames 29 and 30 for the procedures.

If required, to check the PCB is set correctly for this boiler type the following procedure should be followed.

**Boiler mode setting**

17 Remove the front panel of the case.
18 Position the control knob C as in the figure below and disconnect the C.h. temperature probe.
19 Press and hold the reset button D for about 10 seconds until the lock-out signal lamp E blinks.
20 Connect the c.h.temperature probe.
21 Press the reset button D repeatedly (twice) until the lamps A give the indication as follows (boiler mode).

<table>
<thead>
<tr>
<th>Lamp ON</th>
<th>Lamp OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At this time it is possible to determine the current setting by keeping the reset button D pressed for more than 5 seconds. The lamps A will flash a number of times corresponding to the setting as on next figure:

1 **flash** for combi models
4 **flashes** for system boilers

22 To change the setting turn the knob B to the position shown on the previous figure. By turning the knob B the lock-out signal lamp E blinks quickly (twice per second) indicating that the setting as changed and must be memorised.
23 To memorize the setting keep pressed the reset button D for about 5 seconds until the lights A briefly blink simultaneously.
24 Press the reset button D (once) until the lamps A give the indication as follow:

<table>
<thead>
<tr>
<th>Lamp ON</th>
<th>Lamp OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is now possible to check the current setting by pressing reset button D for more than 5 seconds. The three lamps A will flash a number of times corresponding to the setting of point 22. At this point only the right green light flashes.

25 Turn the knob B clockwise and then to minimum position. By turning the knob B, the lock-out signal lamp E blinks quickly (2 per second) indicating that the setting has changed and must be memorized.
26 To memorize the setting press and hold the reset button D for about 5 seconds until all the three lamps A briefly blink simultaneously.
27 To reset the boiler to the normal operation turn it off and on by the main switch and radiator temperature control C. The boiler automatically resets to its normal operation after 10 minutes if the above reset operation is not performed.
57 CH FLOW SWITCH REPLACEMENT
1 Disconnect the electrical supply.
2 Remove the front casing panel.
3 Remove the fork A.
4 Open the box B and disconnect the switch.

5 Re-assemble in reverse order. Refer to the following illustration for the correct wiring connectors on the switch.

Looking through the switch box B it is possible to verify the position of the spindle C.

Boiler OFF
Pump operating

58 CH FLOW SWITCH MEMBRANE REPLACEMENT
1 Disconnect the electrical supply.
2 Remove front casing panel (refer to frame 36).
3 Close off the isolating cocks of the CH circuit at the bottom of the boiler.
4 Release system pressure by opening the main circuit drainage cock. Do not release CH pressure using the pressure relief valve. It may cause debris within the system to foul the valve.
5 Remove the CH circuit flow switch (see frame 57).
6 Unscrew the four screws A, open the hydraulic operator and remove the membrane B.
7 Re-assemble in reverse order. When assembling the membrane, ensure to place the concave side of the membrane towards the actuator plate C and locate the reference hole in the membrane over the pressure transfer nipple D.

59 DHW FLOW SWITCH REPLACEMENT
Mini C only
1 Disconnect the electrical supply.
2 Remove the front panel of the case (refer to frame 36).
3 Disconnect the connector A and remove the sensor B by pulling it towards the front of the boiler (the sensor is held in place by means of a spring).
4 Replace the sensor and re-assemble in reverse order.
60 DHW FILTER AND FLOW LIMITER REPLACEMENT

Mini C only

1 Disconnect the electrical supply.
2 Remove the front panel of the case and empty the DHW circuit.
3 Remove the flow switch A (see frame 59).
4 Unscrew the body C and extract the flow switch group.
5 To remove the filter B from the flow switch group separate it from the threaded ring by levering it.
6 Re-assemble in reverse order.

Flow limiter

The **Mini C24** model is factory fitted with a 10 litre/min. flow limiter.

The **Mini C28** model is factory fitted with a 12 litre/min. flow limiter.

The **Mini C32** model is factory fitted with a 14 litre/min. flow limiter.

**Table 11**

<table>
<thead>
<tr>
<th>Nominal flow rate (litres/min)</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Yellow</td>
</tr>
<tr>
<td>12</td>
<td>Brown</td>
</tr>
<tr>
<td>14</td>
<td>Pink</td>
</tr>
</tbody>
</table>

To install the threaded ring with the flow limiter:

1 Disconnect the electrical supply.
2 Remove the front panel of the case and empty the DHW circuit.
3 Remove the flow switch A (see frame 59).
4 Remove the flow switch group (see frame 59 above)
5 Unscrew the threaded ring and remove it from the body C.
6 Extract the flow limiter.
7 Fit the correct colour coded limiter (see Table 11 above) and screw the threaded ring tight into the body C.
8 Re-assemble in reverse order.
SERVICING

61 PRIMARY HEAT EXCHANGER REPLACEMENT

1. Disconnect the electrical supply.
2. Remove outer and inner casing as explained in frame 36.
3. Close off the isolating cocks of the CH circuit at the bottom of the boiler.
4. Release system pressure by opening the main circuit drainage cock.
   **Do not release CH pressure using the pressure relief valve. It may cause debris within the system to foul the valve.**
5. Remove the combustion chamber panel A by unscrewing the screws B. For models Mini C28, Mini S28 and Mini C32 only, remove the screw C and the plate D.
6. Remove the clips E and the safety thermostat F. It is not necessary to disconnect it from the wiring.
7. Unscrew the locknut G, lift the pipe H and rotate it right then move it downwards freeing it from the heat exchanger connection.
8. Completely unscrew the connection I
9. Move the pipe J downwards freeing it from the heat exchanger connection.
10. Remove the heat exchanger by sliding it forwards.
11. Re-assemble in reverse order.
62 DHW HEAT EXCHANGER REPLACEMENT
Mini C only
1 Disconnect the electrical supply.
2 Remove outer casing (refer to frame 36).
3 Close the isolating cocks of the CH circuit and DHW supply at the bottom of the boiler.
4 Release system pressure by opening the main circuit drainage cock. Do not release CH pressure using the pressure relief valve. It may cause debris within the system to foul the valve.
5 Release the pressure of the DHW circuit by opening a hot tap.
6 Remove the diverter valve actuator (see frame 63).
7 Completely unscrew the two Allen key screws A which hold the exchanger to the brass groups.
8 Move the exchanger towards the rear of the boiler and extract it.
9 Re-assemble in the reverse order.
Attention. When reassembling the exchanger be sure to put the off center location/securing pin indicated towards the left side of the boiler.

63 DIVERTER VALVE ACTUATOR REPLACEMENT
Mini C only
1 Disconnect the electrical supply.
2 Remove front casing panel (refer to frame 36).
3 Disconnect the connectors A.
4 Remove the fixing spring B and remove the actuator C. Re-assemble in reverse order.

When reassembling the actuator, refer to the wiring diagram in frame 22 for the correct wiring connection.
**SERVICING**

64 **DIVERTER VALVE INTERNAL PARTS REPLACEMENT**  
*Mini C only*

1. Disconnect the electrical supply.
2. Remove front and left hand casing panels (refer to frame 36).
3. Close the isolating cocks of the CH circuit and DHW supply at the bottom of the boiler.
4. Release system pressure by opening the main circuit drainage cock.
   **Do not release CH pressure using the pressure relief valve. It may cause debris within the system to foul the valve.**
5. Release the pressure of the DHW circuit by opening a hot tap.
6. Remove the diverter valve actuator (see frame 63).
7. Remove the fork D and remove the primary circuit flow switch E.
8. Disconnect the temperature probe F.
9. Unscrew the connector G, disconnect the CH flow and DHW outlet isolator valves.
10. Remove the DHW heat exchanger (see frame 62).
11. Remove the fork H and move away the pipe I.
12. Unscrew the screw J and remove the diverter (flow) group.
13. Refer to the following exploded view to remove the internal parts of the three way diverter valve.
14. Reassemble in reverse order.

65 **PROGRAMMER REPLACEMENT**  
*Mini C only (if fitted)*

1. Disconnect the electrical supply.
2. Gain access to the main control p.c.b. (steps 1 to NO TAG of frame 56).
3. Disconnect the wiring at the programmer.
4. Squeeze the hooks that hold the programmer on the control panel fascia and withdraw the faulty programmer.
5. Reassemble in reverse order.
6. Replace the panels and check the operation of the new programmer.

66 **CH DRAIN COCK REPLACEMENT**

1. Disconnect the electrical supply.
2. Remove front and right hand casing panels (refer to frame 36).
3. Close off the isolating cocks of the CH circuit at the bottom of the boiler.
4. Release system pressure by opening the main circuit drainage cock.
   **Do not release CH pressure using the pressure relief valve. It may cause debris within the system to foul the valve.**
5. Remove the CH drain cock A from the return body.
6. Reassemble in reverse order.
ELECTRONIC CONTROL/IGNITION

The electronic control/ignition p.c.b. is provided with three lamps (L.E.D. indicators) A, that give optical information during the normal operation of the boiler or for service and fault finding purpose.

Normal operation

The green lamp on the left is directly visible on the control panel fascia and it gives information during the normal operation of the boiler. The other two lamps are normally switched off.

The following table gives the relationship between the visible lamp indication and its meaning.

<table>
<thead>
<tr>
<th>Lamp Combination</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A OFF</td>
<td>Boiler stand-by condition. Function control in position. Anti-freeze system active.</td>
</tr>
<tr>
<td>A ON</td>
<td>Boiler ON condition. Function control in on position.</td>
</tr>
<tr>
<td>A ON, B ON</td>
<td>Normally operating boiler.</td>
</tr>
<tr>
<td>A ON, B OFF</td>
<td>C.h. operation</td>
</tr>
<tr>
<td>A OFF, B ON</td>
<td>D.h.w. operation (Mini C only)</td>
</tr>
<tr>
<td>A OFF, B OFF</td>
<td>Frost protect operation</td>
</tr>
<tr>
<td>A OFF, C ON</td>
<td>D.h.w. operation (Mini C only)</td>
</tr>
<tr>
<td>A OFF, C OFF</td>
<td>Excessive temperature on primary circuit</td>
</tr>
<tr>
<td>A ON, C ON</td>
<td>Faulty c.h. temperature probe NTC</td>
</tr>
<tr>
<td>A OFF, C OFF</td>
<td>Faulty d.h.w temperature probe NTC (Mini C only)</td>
</tr>
<tr>
<td>A OFF, D ON</td>
<td>Faulty primary circuit (no water or absence of flow)</td>
</tr>
<tr>
<td>A OFF, D OFF</td>
<td>Faulty air pressure switch</td>
</tr>
<tr>
<td>A OFF, E ON</td>
<td>Lack of burner ignition (no ignition signal from the full sequence ignition device)</td>
</tr>
<tr>
<td>A OFF, E OFF</td>
<td>Overheat thermostat lock out</td>
</tr>
<tr>
<td>A OFF, F ON</td>
<td>Lack of power supply or faulty electronic control p.c.b. *</td>
</tr>
<tr>
<td>A OFF, F OFF</td>
<td>Faulty Electronic control/ignition p.c.b. *</td>
</tr>
<tr>
<td>A ON, B ON, C OFF</td>
<td>Flashing lamp, alone or simultaneously with an other lamp.</td>
</tr>
<tr>
<td>A OFF, B ON, D OFF</td>
<td>Flashing lamp, alternate with another lamp.</td>
</tr>
</tbody>
</table>

* These conditions are normal only for a short time when the power supply is applied to the boiler. If permanent they indicate a faulty p.c.b.

DIVERTER VALVE ACTUATOR

Mini C only

To remove the diverter valve actuator refer to frame 63.

The following illustrations indicate the relationship between the electric command coming from the main control p.c.b. and the position of the brass spindle when the boiler operates in either DHW mode or CH mode.

In both figures the relationship between the position of the actuator and the resistance of the motor windings (the motor must be disconnected from the wiring) is also given.

Spindle visible

CH mode

Spindle fully retracted

DHW mode

<table>
<thead>
<tr>
<th>Resistance</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.4 Kohm</td>
<td>Open circuit</td>
</tr>
<tr>
<td>9,4 Kohm</td>
<td>0V-9V</td>
</tr>
<tr>
<td>9,4 Kohm</td>
<td>230V-9V</td>
</tr>
</tbody>
</table>

bn = brown
bu = blue
bk = black
**48** **Mini** - Installation & Servicing

---

**FAULT FINDING**

**WARNING**

Care must be taken when conducting fault finding tests to guard against the risk of electric shock.

230 Vac is the nominal UK supply voltage. This may vary between 253 Vac and 196 Vac.

When checking continuity ensure power is off to the appliance.

---

With a fast pulse showing on LED 1 the boiler will continue to operate with a reduced performance in some fault conditions.

Before commencing fault finding please check the following:

- Are all wiring connections OK?
- Are the function selector settings correct
  (Refer to frame 29, 30 and 33)

Pay attention that if the boiler locks out five times in an hour, it is not sufficient to press the reset button to restart the boiler but **it is necessary to disconnect the boiler from the main supply and, after reconnect it, to press the reset button.**

---

START

Ensure the room thermostat (if fitted) and programmer are calling for heat

Also that all services are on and the selector switch is set to heating*

---

* see Table 2 at page 4 for the correct value
Fault Finding

Continued from page 48 of fault finding

With the boiler and heating circuit warm does the burner pressure reduce if the heating temperature setting is reduced to minimum?

no

Is there between 0V dc and 16V dc at the connections on the modulating coil? (0=min, 16=max)

no

Is the burner pressure within min and max value* with the boiler running?

no

Is the continuity of the modulator harness O.K?

no

Repair or replace faulty wiring

yes

Adjust burner pressure. Refer to frame 29.

yes

Repair faulty PCB

yes

Follow the instruction “Boiler mode setting” (Refer to frame 56)

no

Is the red LED illuminated on DHW flow sensor?

yes

Is there 230V ac between Blue and Black at the 3-way valve connection?

no

Remove the motor assembly, with 230V at the connections is the spindle fully retracted? Refer to frame 68.

yes

Replace faulty motor assembly

no

Replace the sensor. Is red LED illuminated?

yes

Faulty sensor now replaced

no

Replace the sensor.

no

Is there 5V dc between Red and Blue on connecting harness?

no

Is the harness continuity O.K?

no

Repair or replace faulty wiring

yes

Repair faulty PCB

yes

Repair or replace faulty PCB

no

Is there 5V dc between Red and Blue on connecting harness?

no

Is the harness continuity O.K?

no

Repair or replace faulty wiring

yes

Repair faulty PCB

yes

Repair faulty PCB

no

Is the boiler mode setting correct? (Refer to frame 56)

no

Follow the instruction “Boiler mode setting” (Refer to frame 56)

yes

Repair faulty gas valve

no

Is the continuity of the modulator harness O.K?

no

Repair or replace faulty wiring

yes

Adjust burner pressure. Refer to frame 29.

yes

Repair faulty PCB

yes

Follow the instruction “Boiler mode setting” (Refer to frame 56)

Continued below

When a DHW tap is opened and the DHW temperature is set to maximum, does the water become hot?

no

Is the burner pressure within min and max value* with the boiler running?

no

Is the continuity of the modulator harness O.K?

no

Repair or replace faulty wiring

yes

Adjust burner pressure. Refer to frame 29.

yes

Repair faulty PCB

yes

Follow the instruction “Boiler mode setting” (Refer to frame 56)

no

Is the red LED illuminated on DHW flow sensor?

yes

Is there 230V ac between Blue and Black at the 3-way valve connection?

no

Remove the motor assembly, with 230V at the connections is the spindle fully retracted? Refer to frame 68.

yes

Replace faulty motor assembly

no

Replace the sensor. Is red LED illuminated?

yes

Faulty sensor now replaced

no

Replace the sensor.

no

Is there 5V dc between Red and Blue on connecting harness?

no

Is the harness continuity O.K?

no

Repair or replace faulty wiring

yes

Repair faulty PCB

yes

Repair faulty PCB

no

Is the boiler mode setting correct? (Refer to frame 56)

no

Follow the instruction “Boiler mode setting” (Refer to frame 56)

yes

Repair faulty gas valve

no

Is the continuity of the modulator harness O.K?

no

Repair or replace faulty wiring

yes

Adjust burner pressure. Refer to frame 29.

yes

Repair faulty PCB

yes

Follow the instruction “Boiler mode setting” (Refer to frame 56)

Continued below

When a DHW tap is opened and the DHW temperature is set to maximum, does the water become hot?

no

Is the burner pressure within min and max value* with the boiler running?

no

Is the continuity of the modulator harness O.K?

no

Repair or replace faulty wiring

yes

Adjust burner pressure. Refer to frame 29.

yes

Repair faulty PCB

yes

Follow the instruction “Boiler mode setting” (Refer to frame 56)

no

Is the red LED illuminated on DHW flow sensor?

yes

Is there 230V ac between Blue and Black at the 3-way valve connection?

no

Remove the motor assembly, with 230V at the connections is the spindle fully retracted? Refer to frame 68.

yes

Replace faulty motor assembly

no

Replace the sensor. Is red LED illuminated?

yes

Faulty sensor now replaced

no

Replace the sensor.

no

Is there 5V dc between Red and Blue on connecting harness?

no

Is the harness continuity O.K?

no

Repair or replace faulty wiring

yes

Repair faulty PCB

yes

Repair faulty PCB

no

Is the boiler mode setting correct? (Refer to frame 56)

no

Follow the instruction “Boiler mode setting” (Refer to frame 56)

yes

Repair faulty gas valve

no

Is the continuity of the modulator harness O.K?

no

Repair or replace faulty wiring

yes

Adjust burner pressure. Refer to frame 29.

yes

Repair faulty PCB

yes

Follow the instruction “Boiler mode setting” (Refer to frame 56)

Continued below

When a DHW tap is opened and the DHW temperature is set to maximum, does the water become hot?

no

Is the burner pressure within min and max value* with the boiler running?

no

Is the continuity of the modulator harness O.K?

no

Repair or replace faulty wiring

yes

Adjust burner pressure. Refer to frame 29.

yes

Repair faulty PCB

yes

Follow the instruction “Boiler mode setting” (Refer to frame 56)

no

Is the red LED illuminated on DHW flow sensor?

yes

Is there 230V ac between Blue and Black at the 3-way valve connection?

no

Remove the motor assembly, with 230V at the connections is the spindle fully retracted? Refer to frame 68.

yes

Replace faulty motor assembly

no

Replace the sensor. Is red LED illuminated?

yes

Faulty sensor now replaced

no

Replace the sensor.

no

Is there 5V dc between Red and Blue on connecting harness?

no

Is the harness continuity O.K?

no

Repair or replace faulty wiring

yes

Repair faulty PCB

yes

Repair faulty PCB

no

Is the boiler mode setting correct? (Refer to frame 56)

no

Follow the instruction “Boiler mode setting” (Refer to frame 56)

yes

Repair faulty gas valve

no

Is the continuity of the modulator harness O.K?

no

Repair or replace faulty wiring

yes

Adjust burner pressure. Refer to frame 29.

yes

Repair faulty PCB

yes

Follow the instruction “Boiler mode setting” (Refer to frame 56)

Continued below

When a DHW tap is opened and the DHW temperature is set to maximum, does the water become hot?

no

Is the burner pressure within min and max value* with the boiler running?

no

Is the continuity of the modulator harness O.K?

no

Repair or replace faulty wiring

yes

Adjust burner pressure. Refer to frame 29.

yes

Repair faulty PCB

yes

Follow the instruction “Boiler mode setting” (Refer to frame 56)

no

Is the red LED illuminated on DHW flow sensor?

yes

Is there 230V ac between Blue and Black at the 3-way valve connection?

no

Remove the motor assembly, with 230V at the connections is the spindle fully retracted? Refer to frame 68.

yes

Replace faulty motor assembly

no

Replace the sensor. Is red LED illuminated?

yes

Faulty sensor now replaced

no

Replace the sensor.

no

Is there 5V dc between Red and Blue on connecting harness?

no

Is the harness continuity O.K?

no

Repair or replace faulty wiring

yes

Repair faulty PCB

yes

Repair faulty PCB

no

Is the boiler mode setting correct? (Refer to frame 56)

no

Follow the instruction “Boiler mode setting” (Refer to frame 56)

yes

Repair faulty gas valve

no

Is the continuity of the modulator harness O.K?

no

Repair or replace faulty wiring

yes

Adjust burner pressure. Refer to frame 29.

yes

Repair faulty PCB

yes

Follow the instruction “Boiler mode setting” (Refer to frame 56)
Continued from page 48 of fault finding. Is there at least one of the LEDs flashing?

Is LED 1 flashing with LED 2 on?

- Yes
  - Are LED2 and LED 3 flashing?
    - Yes
      - Check resistance of CH temperature probe. Is it between 12 kΩ and 1.5 kΩ?
        - Yes
          - Replace faulty thermistor
        - No
          - Repair or replace faulty wiring
    - No
      - Replace faulty pump
  - No
    - Replace faulty micro switch

- No
  - Is the heating circuit pressurised to at least 1 bar and fully vented of air?
    - Yes
      - Re-pressurise system and vent
    - No
      - When the pump runs does the spindle of the water flow detector extend to operate the micro switch? Refer to frame 57.
        - Yes
          - Remove the pump nut. Does the pump rotate freely when turned)
            - Yes
              - Replace faulty pump
            - No
              - Replace faulty micro switch
        - No
          - Is there continuity between C and NO contacts on micro switch when the switch is operated?
            - Yes
              - Is the continuity of the micro switch harness O.K?
                - Yes
                  - Replace faulty PCB
                - No
                  - Repair or replace faulty wiring
            - No
              - Repair or replace faulty wiring

Are LED2 flashing and LED 3 on?

- Yes
  - Check resistance of DHW temperature probe. Is it between 12 kΩ and 1.5 kΩ?
    - Yes
      - Replace faulty thermistor
    - No
      - Repair or replace faulty wiring
- No
  - Are LED2 and LED 3 flashing?
    - Yes
      - Replace faulty thermistor
    - No
      - Repair or replace faulty wiring

Continued on page 51 of fault finding
Continued from page 50 of fault finding

Are LED 1 and LED 3 flashing with LED 2 on, plus lockout LED on the fascia on?

- yes
  - Is there > 17 mbar at the gas valve inlet?
    - yes
      - Press reset button. Is there 230V across the Brown and Blue gas valve connection during ignition?
        - yes
          - Repair or replace faulty wiring
        - no
          - Is there 230V at Brown and Blue at gas valve harness connector on PCB?
            - yes
              - Repair or replace faulty PCB
            - no
              - Replace fuses
    - no
      - Rectify gas supply fault.

- no
  - Is the ignition burner pressure during ignition period?
    - yes
      - Is there between 0V dc and 16V dc at the connections on the modulating coil? (0=min, 16=max)
        - yes
          - Is the burner pressure within min and max value* with the boiler running?
            - yes
              - Repair faulty gas valve
            - no
              - Adjust burner pressure. Refer to frame 29.
        - no
          - Repair faulty PCB
    - no
      - Is there ignition at the burner?
        - yes
          - Is a spark visible at the burner during ignition?
            - yes
              - Replace faulty electrode assy. Make connection.
            - no
              - Is the ignition burner pressure correct? Refer to frame 29.
                - yes
                  - Ensure the ignition electrode position and spark gaps are correct. Rectify or replace. Refer to frame 43.
                - no
                  - Adjust ignition burner pressure
        - no
          - Are the ignition leads disconnected or damaged and sparking to earth?
            - yes
              - Replace faulty PCB
            - no
              - Are the ignition leads correctly connected to PCB?
                - yes
                  - Replace faulty PCB
                - no
                  - Rectify faulty connection

* see Table 2 at page 4 for the correct value
Continued from page 51 of fault finding

Is the burner light on? yes

Can the minimum burner pressure be achieved? (Pressure values are given in Table 2 on page 4)

no

Adjust the burner minimum pressure refer to frame 29

yes

Replace faulty PCB

Is the burner pressure within min and max value* with the boiler running? yes

no

Adjust burner pressure. Refer to frame 29.

Does the burner remain alight more than 10 seconds?

yes

no

no

no

no

no

no

no

no

no

no

no

no

no

no

no

yes

no

no

Is the position of the detection electrode correct, and electrode undamaged? Refer to frame 43.

Is the resistance of the detection electrode assembly < 5Ω from tip to connector?

yes

no

Is the lead connected?

no

no

no

yes

Is the polarity of the mains correct?

no

yes

Replace faulty detection lead assy.

Rectify wiring fault

Rectify electrode position or replace faulty electrode.

Replace faulty PCB

Replace faulty PCB

Rectify electrode position or replace faulty electrode.

Connect lead correctly

* see Table 2 at page 4 for the correct value

Refer back to page 48 of fault finding to continue.
Continued from page 51 of fault finding

Is LED 1 and LED 2 flashing and LED 3 on?
  yes
  no

Is LED 1 and LED 2 flashing and LED 3 on?
  yes
  no

Has the main overheat thermostat operated? (Check continuity)
  yes
  no

Is there continuity of overheat thermostat wiring at PCB connection?
  yes
  no

Allow boiler to cool and press re-set

Replace faulty gas valve

Is there continuity of overheat thermostat wiring at PCB connection?
  yes
  no

Repair or replace damaged wiring

Is LED 1 and LED 2 on and LED 3 flashing?
  yes
  no

Is there 230V at the fan connections?
  yes
  no

Wait for 1 minute. Is the fan still running?
  yes
  no

Replace faulty fan.

Is the burner on?
  yes
  no

Replace faulty PCB

Is there 230V at the fan connections?
  yes
  no

Is there 230V at the fan connections?
  yes
  no

Replace faulty PCB

Is LED 1, LED 2 and LED 3 on?
  yes
  no

Is there continuity between NC and C at the Air Pressure Switch?
  yes
  no

Replace faulty Air Pressure Switch.

Is there continuity of the Air Pressure Switch harness?
  yes
  no

Replace faulty PCB

Is there continuity of the Air Pressure Switch harness?
  yes
  no

Replace faulty PCB

Are the sensing pipes undamaged and connected?
  yes
  no

Is the flue clear and venturi O.K?
  yes
  no

Replace faulty Air Pressure Switch.

Replace sensing pipes.

Replace faulty Air Pressure Switch.

Repair or replace faulty wiring.

Replace faulty PCB

Is the Air Pressure Switch harness continuity O.K?
  yes
  no

Is the Air Pressure Switch harness continuity O.K?
  yes
  no

Replace faulty PCB

Replace faulty PCB

Repair or replace faulty flame detection signal connection harness. Refer to frame 43.
**Fault Finding**

Continued from page 49

Is there a temperature rise of 35 °C across the DHW circuit at:
- 10.0 L/min 24 kW model
- 11.6 L/min 28 kW model
- 13.1 L/min 32 kW model

Is there max burner pressure* when the boiler first lights?

Is there > 17 mbar gas pressure at the gas inlet?

Adjust the max setting on the gas valve. Refer to frame 29. Check that max burner pressure* can be achieved.

Is the cold water supply adequate? Refer to frame 6 and Table 1 at page 4.

Rectify water supply fault.

Is there between 0V dc and 16V dc at the connections on the modulating coil? (0=min, 16=max)

Is the continuity of the modulator harness O.K?

Is the burner pressure within min and max value* with the boiler running?

Yes

Replace faulty gas valve.

No

Adjust burner pressure. Refer to frame 29.

Yes

Repair or replace faulty wiring.

No

Replace faulty PCB

With the DHW hot does the burner pressure modulate if the DHW temperature setting is reduced to minimum?

Yes

Boiler Operating Correctly

No

Is there a temperature rise of 35 °C across the DHW circuit at:
- 10.0 L/min 24 kW model
- 11.6 L/min 28 kW model
- 13.1 L/min 32 kW model

Is there max burner pressure* when the boiler first lights?

Is there > 17 mbar gas pressure at the gas inlet?

Adjust the max setting on the gas valve. Refer to frame 29. Check that max burner pressure* can be achieved.

Is the cold water supply adequate? Refer to frame 6 and Table 1 at page 4.

Rectify water supply fault.

Is the maximum water flow correct
- 10.0 L/min 24 kW model
- 12.0 L/min 28 kW model
- 14.0 L/min 32 kW model

Rectify gas supply fault.

Is there > 17 mbar gas pressure at the gas inlet?

Yes

Adjust the max setting on the gas valve. Refer to frame 29. Check that max burner pressure* can be achieved.

Is the cold water supply adequate? Refer to frame 6 and Table 1 at page 4.

Rectify water supply fault.

Is there between 0V dc and 16V dc at the connections on the modulating coil? (0=min, 16=max)

Is the continuity of the modulator harness O.K?

Yes

Replace faulty gas valve.

No

Adjust burner pressure. Refer to frame 29.

Yes

Repair or replace faulty wiring.

No

Replace faulty PCB

* see Table 2 at page 4 for the correct value
The following are parts commonly required as replacements, due to damage or expendability. The failure or absence is likely to affect the safety and/or performance of this appliance.

The list is extracted from the British Gas List of Parts which contains all available spare parts.

The full list is held by British Gas, **Ideal Stelrad Group** distributors and merchants.

When ordering spares please quote:
1. Boiler model (see Data Plate)
2. Appliance G.C. number (see Data Plate)
3. Description
4. Quantity
5. Product No.

<table>
<thead>
<tr>
<th>Key No.</th>
<th>G.C. No.</th>
<th>Description</th>
<th>No. Off/Boiler</th>
<th>Product No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>173–148</td>
<td>Burner (mod. Mini C24, Mini S24)</td>
<td>1</td>
<td>075427</td>
</tr>
<tr>
<td></td>
<td>173–149</td>
<td>Burner (mod. Mini C28, Mini S28)</td>
<td>1</td>
<td>075535</td>
</tr>
<tr>
<td></td>
<td>H05–182</td>
<td>Burner (mod. Mini C32)</td>
<td>1</td>
<td>173141</td>
</tr>
<tr>
<td>2</td>
<td>169–069</td>
<td>Injectors for natural gas (mod. Mini C24, Mini S24)</td>
<td>12</td>
<td>075692</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Injectors for natural gas (mod. Mini C28, Mini S28)</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H05–180</td>
<td>Injectors for natural gas (mod. Mini C32)</td>
<td>16</td>
<td>173142</td>
</tr>
<tr>
<td></td>
<td>169–070</td>
<td>Injectors for LPG (mod. Mini C24, Mini S24)</td>
<td>12</td>
<td>172530</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Injectors for LPG (mod. Mini C28, Mini S28)</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H08–596</td>
<td>Injectors for LPG (mod. Mini C32)</td>
<td>16</td>
<td>153505</td>
</tr>
<tr>
<td>3</td>
<td>169–127</td>
<td>Air pressure switch (mod. Mini C24, Mini S24)</td>
<td>1</td>
<td>173236</td>
</tr>
<tr>
<td></td>
<td>H03–691</td>
<td>Air pressure switch (mod. Mini C28, Mini S28)</td>
<td>1</td>
<td>173249</td>
</tr>
<tr>
<td></td>
<td>H08–605</td>
<td>Air pressure switch (mod. Mini C32)</td>
<td>1</td>
<td>173136</td>
</tr>
<tr>
<td>4</td>
<td>H03–713</td>
<td>Main heat exchanger + 'O' rings (mod. Mini C24, Mini S24)</td>
<td>1</td>
<td>173238</td>
</tr>
<tr>
<td></td>
<td>H03–715</td>
<td>Main heat exchanger + 'O' rings (mod. Mini C28, Mini S28, Mini C32)</td>
<td>1</td>
<td>173240</td>
</tr>
<tr>
<td>5</td>
<td>E90–627</td>
<td>Gas valve + gaskets</td>
<td>1</td>
<td>172611</td>
</tr>
<tr>
<td>6</td>
<td>H03–699</td>
<td>Fan (mod. Mini C24, Mini S24)</td>
<td>1</td>
<td>173253</td>
</tr>
<tr>
<td></td>
<td>H03–700</td>
<td>Fan (mod. Mini C28, Mini S28)</td>
<td>1</td>
<td>173254</td>
</tr>
<tr>
<td>7</td>
<td>H08–608</td>
<td>Fan (mod. Mini C32)</td>
<td>1</td>
<td>173139</td>
</tr>
<tr>
<td>8</td>
<td>E83–013</td>
<td>Safety valve</td>
<td>1</td>
<td>172494</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Electronic regulation p.c.b.</td>
<td>1</td>
<td>174500</td>
</tr>
<tr>
<td>10</td>
<td>E00–684</td>
<td>Primary circuit flow switch</td>
<td>1</td>
<td>075419</td>
</tr>
<tr>
<td>11</td>
<td>H32–551</td>
<td>DHW flow switch (mod. Mini C24, Mini C28, Mini C32)</td>
<td>1</td>
<td>174462</td>
</tr>
<tr>
<td>12</td>
<td>E00–688</td>
<td>Main. flow switch membrane</td>
<td>1</td>
<td>075421</td>
</tr>
<tr>
<td>13</td>
<td>E83–101</td>
<td>Overheat thermostat</td>
<td>1</td>
<td>172512</td>
</tr>
<tr>
<td>14</td>
<td>E57–048</td>
<td>DHW heat exchanger + 'O' rings (mod. Mini C24)</td>
<td>1</td>
<td>075460</td>
</tr>
<tr>
<td></td>
<td>E57–049</td>
<td>DHW heat exchanger + 'O' rings (mod. Mini C28, Mini C32)</td>
<td>1</td>
<td>173785</td>
</tr>
<tr>
<td>15</td>
<td>H20–987</td>
<td>Automatic air purger valve</td>
<td>1</td>
<td>173813</td>
</tr>
<tr>
<td>16</td>
<td>H23–008</td>
<td>Pump + 'O' rings</td>
<td>1</td>
<td>173778</td>
</tr>
<tr>
<td>17</td>
<td>E83–145</td>
<td>Temperature–pressure gauge</td>
<td>1</td>
<td>172551</td>
</tr>
<tr>
<td>18</td>
<td>E83–086</td>
<td>Three way diverter valve (electric actuator)</td>
<td>1</td>
<td>172505</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mod. Mini C24, Mini C28, Mini C32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>H44–170</td>
<td>Fuse 3.15 AF</td>
<td>1</td>
<td>174470</td>
</tr>
<tr>
<td>20</td>
<td>164–026</td>
<td>Temperature probe (main or DHW circuit)</td>
<td>1</td>
<td>172496</td>
</tr>
<tr>
<td>21</td>
<td>E83–176</td>
<td>Sealed chamber gaskets kit</td>
<td>1</td>
<td>172581</td>
</tr>
<tr>
<td>22</td>
<td>H32–550</td>
<td>Magnetic flow switch and filter (mod. Mini C24, Mini C28, Mini C32)</td>
<td>1</td>
<td>174461</td>
</tr>
<tr>
<td>23</td>
<td>E83–127</td>
<td>Ignition electrode – left (mod. Mini C24, Mini S24, Mini C28, Mini S28)</td>
<td>1</td>
<td>172533</td>
</tr>
<tr>
<td></td>
<td>H05–186</td>
<td>Ignition electrode – left (mod. Mini C32)</td>
<td>1</td>
<td>173502</td>
</tr>
<tr>
<td>24</td>
<td>E83–126</td>
<td>Ignition electrode – right (mod. Mini C24, Mini S24, Mini C28, Mini S28)</td>
<td>1</td>
<td>172532</td>
</tr>
<tr>
<td></td>
<td>H05–185</td>
<td>Ignition electrode – right (mod. Mini C32)</td>
<td>1</td>
<td>173501</td>
</tr>
<tr>
<td>25</td>
<td>E83–122</td>
<td>Detection electrode (mod. Mini C24, Mini S24, Mini C28, Mini S28)</td>
<td>1</td>
<td>172531</td>
</tr>
<tr>
<td></td>
<td>H05–183</td>
<td>Detection electrode (mod. Mini C32)</td>
<td>1</td>
<td>173500</td>
</tr>
<tr>
<td></td>
<td>Part Number</td>
<td>Description</td>
<td>Quantity</td>
<td>Part Number</td>
</tr>
<tr>
<td>---</td>
<td>--------------</td>
<td>------------------------------------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>26</td>
<td>E69–243</td>
<td>Window (glass + rubber frame)</td>
<td>1</td>
<td>170977</td>
</tr>
<tr>
<td>27</td>
<td>169–141</td>
<td>1/2&quot; flat gasket</td>
<td>3</td>
<td>075514</td>
</tr>
<tr>
<td>28</td>
<td>169–033</td>
<td>3/4&quot; flat gasket</td>
<td>4</td>
<td>075415</td>
</tr>
<tr>
<td>29</td>
<td></td>
<td>Side case panel</td>
<td>2</td>
<td>174508</td>
</tr>
<tr>
<td>30</td>
<td>H17–563</td>
<td>Control panel door</td>
<td>1</td>
<td>173637</td>
</tr>
<tr>
<td>31</td>
<td></td>
<td>Front case panel</td>
<td>1</td>
<td>174510</td>
</tr>
</tbody>
</table>
**INSTALLER NOTIFICATION GUIDELINES**

**IT IS A REQUIREMENT OF CORGI MEMBERSHIP TO REGISTER EVERY GAS APPLIANCE**

In addition a change to Building Regulations (England and Wales) requires the installer to notify when installing a heating appliance, as from 1st April 2005.

---

1. Install and commission this appliance to manufacturers’ instructions

2. **Complete the Benchmark Checklist**

3. Choose Buildings Regulations notification route

4. If you notify via CORGI Scheme, CORGI will then notify the Building Control (LABC) who relevant Local Authority Building Control (LABC) scheme on members behalf

5. Scheme members only: Call CORGI on 0870 88 88 777 or log onto: www.corgi-notify.com within 10 days

6. You must ensure that the notification number issued by CORGI is written onto the Benchmark Checklist

7. CORGI will record the data and will send a certificate of compliance to the property

8. Contact your relevant Local Authority Building Control (LABC) who will arrange an inspection or contact a government approved inspector

9. LABC will record the data and will issue a certificate of compliance

---

**IT IS A CONDITION OF THE MANUFACTURERS WARRANTY THAT THE BENCHMARK COMMISSIONING CHECKLIST IS FULLY COMPLETED AND LEFT WITH THE APPLIANCE**
**GAS BOILER COMMISSIONING CHECKLIST**

**BOILER SERIAL No. __________________________  NOTIFICATION No. __________________________**

**CONTROLS**  
To comply with the Building Regulations, each section must have a tick in one or other of the boxes

| TIME & TEMPERATURE CONTROL TO HEATING | ROOM T/STAT & PROGRAMMER/TIMER | PROIterable ROOMSTAT |
| TIME & TEMPERATURE CONTROL TO HOT WATER | CYLINDER T/STAT & PROGRAMMER/TIMER | COMBI BOILER |
| HEATING ZONE VALVES | FITTED | NOT REQUIRED |
| HOT WATER ZONE VALVES | FITTED | NOT REQUIRED |
| THERMOSTATIC RADIATOR VALVES | FITTED | |
| AUTOMATIC BYPASS TO SYSTEM | FITTED | NOT REQUIRED |

**FOR ALL BOILERS CONFIRM THE FOLLOWING**

- THE SYSTEM HAS BEEN FLUSHED IN ACCORDANCE WITH THE BOILER MANUFACTURER'S INSTRUCTIONS?
- THE SYSTEM CLEANER USED
- THE INHIBITOR USED

**FOR THE CENTRAL HEATING MODE, MEASURE & RECORD**

| GAS RATE | m³/hr | ft/hr |
| BURNER OPERATING PRESSURE (IF APPLICABLE) | N/A | mbar |
| CENTRAL HEATING FLOW TEMPERATURE | °C |
| CENTRAL HEATING RETURN TEMPERATURE | °C |

**FOR COMBINATION BOILERS ONLY**

- HAS A WATER SCALE REDUCER BEEN FITTED?  
  - YES ☐  - NO ☐

**FOR THE DOMESTIC HOT WATER MODE, MEASURE & RECORD**

| GAS RATE | m³/hr | ft/hr |
| MAXIMUM BURNER OPERATING PRESSURE (IF APPLICABLE) | N/A | mbar |
| COLD WATER INLET TEMPERATURE | °C |
| HOT WATER OUTLET TEMPERATURE | °C |
| WATER FLOW RATE | lts/min |

**FOR CONDENSING BOILERS ONLY CONFIRM THE FOLLOWING**

- THE CONDENSATE DRAIN HAS BEEN INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS?
  - YES ☐

**FOR ALL INSTALLATIONS CONFIRM THE FOLLOWING**

- THE HEATING AND HOT WATER SYSTEM COMPLIES WITH PARTS 4 & 7 OF THE BUILDING REGULATIONS
- THE APPLIANCE AND ASSOCIATED EQUIPMENT HAS BEEN INSTALLED AND COMMISSIONED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS
- IF REQUIRED BY THE MANUFACTURER, HAVE YOU RECORDED A CO/CO₂ RATIO READING?  
  - N/A ☐  - YES ☐  CO/CO₂ RATIO
- THE OPERATION OF THE APPLIANCE AND SYSTEM CONTROLS HAVE BEEN DEMONSTRATED TO THE CUSTOMER
- THE MANUFACTURER'S LITERATURE HAS BEEN LEFT WITH THE CUSTOMER

**COMMISSIONING ENG’S NAME**  
PRINT __________________________  CORGI ID No. __________________________

SIGN __________________________  DATE __________________________
Service Interval Record

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

**Service Provider:** Before completing the appropriate Service Interval Record below, please ensure you have carried out the service as described in the boiler manufacturer’s instructions. Always use the manufacturer’s specified spare part when replacing all controls.

<table>
<thead>
<tr>
<th>SERVICE 1</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 2</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 3</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 4</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 5</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 6</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 7</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 8</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 9</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 10</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Technical Training

The Ideal Boilers 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