INSTALLATION AND SERVICING

MEXICO
HE15, HE18, HE24, HE30, HE36

For details of document amendments, refer to page 3

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

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

March 2013
UIN 201787 A09
NOTES FOR THE INSTALLER

FOR ANY TECHNICAL QUERIES PLEASE RING THE IDEAL INSTALLER/TECHNICAL HELPLINE: 01482 498663

DOCUMENT AMENDMENTS

Relevant installation changes implemented in this book from Mod Level A08 (Mar 12) to A09 (Mar 13)

Page 25, Frame 32 - Flue Arrangement
Update to UIN’s on Weather Collar

Page 50, Short Parts List
Delete Parts list
### GENERAL

**Table 1 - General Data**

<table>
<thead>
<tr>
<th>Boiler Size</th>
<th>HE15</th>
<th>HE18</th>
<th>HE24</th>
<th>HE30</th>
<th>HE36</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gas Supply Connection in. BSP</strong></td>
<td>Rc 1/2</td>
<td>Rc 1/2</td>
<td>Rc 1/2</td>
<td>Rc 1/2</td>
<td>Rc 1/2</td>
</tr>
<tr>
<td><strong>Flow and Return Connections</strong></td>
<td>22mm copper</td>
<td>22mm copper</td>
<td>22mm copper</td>
<td>22mm copper</td>
<td>22mm copper</td>
</tr>
<tr>
<td><strong>MAXIMUM Static Water Head m (ft.)</strong></td>
<td>30.5 (100)</td>
<td>30.5 (100)</td>
<td>30.5 (100)</td>
<td>30.5 (100)</td>
<td>30.5 (100)</td>
</tr>
<tr>
<td><strong>MINIMUM Static Water Head m (ft.)</strong></td>
<td>0.45 (1.5)</td>
<td>0.45 (1.5)</td>
<td>0.45 (1.5)</td>
<td>0.45 (1.5)</td>
<td>0.45 (1.5)</td>
</tr>
<tr>
<td><strong>Electrical Supply</strong></td>
<td>230V - 50Hz</td>
<td>230V - 50Hz</td>
<td>230V - 50Hz</td>
<td>230V - 50Hz</td>
<td>230V - 50Hz</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>38W</td>
<td>38W</td>
<td>38W</td>
<td>42W</td>
<td>42W</td>
</tr>
<tr>
<td><strong>Fuse Rating</strong></td>
<td>External: 3A internal 13.15A L250V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Water Content litre (gal.)</strong></td>
<td>2.0 (0.44)</td>
<td>2.0 (0.44)</td>
<td>2.0 (0.44)</td>
<td>4.7 (1.0)</td>
<td>4.7 (1.0)</td>
</tr>
<tr>
<td><strong>Packaged Weight kg. (lb.)</strong></td>
<td>55.4 (122.4)</td>
<td>55.4 (122.4)</td>
<td>55.4 (122.4)</td>
<td>69 (152)</td>
<td>69 (152)</td>
</tr>
<tr>
<td><strong>Maximum Inst Weight kg. (lb.)</strong></td>
<td>52 (114.6)</td>
<td>52 (114.6)</td>
<td>52 (114.6)</td>
<td>68 (150)</td>
<td>68 (150)</td>
</tr>
<tr>
<td><strong>Boiler Size Height mm (in.)</strong></td>
<td>850 (33.5)</td>
<td>850 (33.5)</td>
<td>850 (33.5)</td>
<td>850 (33.5)</td>
<td>850 (33.5)</td>
</tr>
<tr>
<td><strong>Width mm (in.)</strong></td>
<td>450 (17.7)</td>
<td>450 (17.7)</td>
<td>450 (17.7)</td>
<td>450 (17.7)</td>
<td>450 (17.7)</td>
</tr>
<tr>
<td><strong>Depth mm (in.)</strong></td>
<td>530 (20.9)</td>
<td>530 (20.9)</td>
<td>530 (20.9)</td>
<td>530 (20.9)</td>
<td>530 (20.9)</td>
</tr>
<tr>
<td><strong>Gas Type</strong></td>
<td>I2H-G20</td>
<td>I2H-G20</td>
<td>I2H-G20</td>
<td>I2H-G20</td>
<td>I2H-G20</td>
</tr>
<tr>
<td><strong>Gas Supply Pressure</strong></td>
<td>20mb</td>
<td>20mb</td>
<td>20mb</td>
<td>20mb</td>
<td>20mb</td>
</tr>
<tr>
<td><strong>Flue duct diameter mm (in.)</strong></td>
<td>100 (4)</td>
<td>100 (4)</td>
<td>100 (4)</td>
<td>100 (4)</td>
<td>100 (4)</td>
</tr>
<tr>
<td><strong>Flue horizontal duct length (max) m</strong></td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Table 2 - Performance Data**

<table>
<thead>
<tr>
<th>Boiler Size</th>
<th>HE15 max</th>
<th>HE18 max</th>
<th>HE24 max</th>
<th>HE30 max</th>
<th>HE36 max</th>
<th>HE15-24 min</th>
<th>HE30-36 min</th>
</tr>
</thead>
<tbody>
<tr>
<td>**Input ‘Q’ **</td>
<td>Nett CV kW (Btu/h)</td>
<td>Gross CV kW (Btu/h)</td>
<td>Gas Consumption l/s (cu.ft/h)</td>
<td>Input ‘P’ 70°C Mean Water temp. kW (Btu/h)</td>
<td>Output ‘P’ 40°C Mean Water temp. kW (Btu/h)</td>
<td>Seasonal efficiency (SEDBUK) * Band A</td>
<td>NOx classification</td>
</tr>
<tr>
<td><strong>Gas Consumption l/s (cu.ft/h)</strong></td>
<td>0.43 (54.7)</td>
<td>0.53 (68.0)</td>
<td>0.70 (89.7)</td>
<td>0.88 (111.9)</td>
<td>1.07 (136.0)</td>
<td>90.4%</td>
<td>Class 5</td>
</tr>
<tr>
<td><strong>Output ‘P’ 70°C Mean Water temp. kW (Btu/h)</strong></td>
<td>11.5 (50.00)</td>
<td>19.2 (65.70)</td>
<td>25.1 (85.70)</td>
<td>32.8 (111.8)</td>
<td>39.8 (135.8)</td>
<td>11.4 (38,900)</td>
<td></td>
</tr>
<tr>
<td>**NOx classification **</td>
<td>Band A</td>
<td>[90.4]%</td>
<td>[90.3]%</td>
<td>[90.2]%</td>
<td>[90.4]%</td>
<td>-</td>
<td></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.

**Key to symbols**

- **GB** = United Kingdom  
- **IE** = Ireland  
- **PMS** = Maximum operating pressure of water

### Note.

Gas consumption is calculated using a calorific value of 38.7 MJ/m$^3$ (1038 Btu/ft$^3$) gross or 34.9 MJ/m$^3$ (935 Btu/ft$^3$) nett. To obtain the gas consumption at a different calorific value:-

- **a.** For l/s - divide the gross heat input (kW) by the gross C.V. of the gas (MJ/m$^3$)
- **b.** For ft$^3$/h - divide the gross heat input (Btu/h) by the gross C.V. of the gas (Btu/ft$^3$)
- **c.** For m$^3$/h - multiply l/s by 3.6

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

**Natural Gas only**

<table>
<thead>
<tr>
<th>Boiler size</th>
<th>G.C. Appliance No.</th>
<th>PI No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE15</td>
<td>41-429-39</td>
<td>0063 BQ 3906</td>
</tr>
<tr>
<td>HE18</td>
<td>41-429-65</td>
<td>0063 BQ 3906</td>
</tr>
<tr>
<td>HE24</td>
<td>41-429-98</td>
<td>0063 BQ 3906</td>
</tr>
<tr>
<td>HE30</td>
<td>41-429-99</td>
<td>0063 BQ 3906</td>
</tr>
<tr>
<td>HE36</td>
<td>41-415-20</td>
<td>0063 BQ 3906</td>
</tr>
</tbody>
</table>

Destination Countries: GB, IE

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For GB, to comply with Building Regulations Part L1 (Part 6 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.

Before installing this boiler, read the Code of Practice sheet at the rear of this book.

### BENCHMARK COMMISSIONING CHECKLIST DETAILS

#### Boiler

- **Make and model** .......................................................... 5
- **Appliance serial no. on data badge** ............................... 14
- **SEDBUK No. %** ........................................................... 4

#### Controls

- **Time and temperature control to heating** ....................... 29
- **Time and temperature control to hot water** .................... 29
- **Heating zone valves** ..................................................... n/a
- **TRV’s** .......................................................................... 9
- **Auto bypass** .................................................................. 9
- **Boiler interlock** ........................................................... 9

For .......................................................... all boilers

- **Flushing to BS.7593** .................................................... 13
- **Inhibitor** ..................................................................... 13

**Central heating mode**

**Heat input** ................................................................. to be calculated

**Burner operating pressure** ........................................... measure and record

**Central heating flow temp.** ........................................... measure and record

**Central heating return temp.** ....................................... measure and record

#### For combination boilers only

- **Scale reducer** ............................................................... n/a

**Hot water mode**

- **Heat input** ................................................................. n/a
- **Max. operating burner pressure** .................................... n/a
- **Max. operating water pressure** ...................................... n/a
- **Cold water inlet temp** .................................................. n/a
- **Hot water outlet temp** .................................................. n/a
- **Water flow rate at max. setting** ..................................... n/a

#### For condensing boilers only

- **Condensate drain** ....................................................... 17

**For all boilers:**  complete, sign & hand over to customer

---

**NOTE TO THE INSTALLER:** COMPLETE THE BENCHMARK COMMISSIONING CHECKLIST AND LEAVE THESE INSTRUCTIONS WITH APPLIANCE

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**mexico HE - Installation & Servicing**
1. **BOILER SERVICE CONNECTIONS**

1. This appliance is **NOT** suitable for use in a direct hot water system.
2. If the boiler is to be used on a sealed system an **Overheat Thermostat** is fitted as standard.

---

### GENERAL

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

- 450 (17¾")
- 225 (8½")
- 850 (33½")
- 288 (11¾")
- 232 (9½")
- 348 (13½")
- 530 (21")
- 690 (27¼")

---

**2. FLOOR MOUNTING AND BOILER CLEARANCES**

*Flammable materials must not be placed in close proximity to the appliance. Materials giving off flammable vapours must not be stored in the same room as the appliance.*

**Floor mounting**

1. The floor must be flat, level and of suitable load bearing capacity.
2. The back of the boiler may be fitted up to the wall.

**Boiler clearances**

The minimum overall dimensions of the space in which the boiler is to operate and to facilitate servicing are as shown.

Additional space may be required for installation, depending upon site conditions.

In addition a **MINIMUM** clearance of 450 mm (17¾") **MUST** be available at the front of the boiler, for servicing.

Minimum front clearance when built behind a concealing panel is 5mm (⅛").

---

### INTRODUCTION

The **mexico HE** range of boilers are fully automatically controlled, floor standing, low water content, balanced flue, fanned, condensing gas boilers. They have full modulating central heating outputs of:

- **HE15** 8.8 kW (30,000 Btu/h) to 14.6 kW (50,000 Btu/h).
- **HE18** 8.8 kW (30,000 Btu/h) to 18.2 kW (62,300 Btu/h).
- **HE24** 8.8 kW (30,000 Btu/h) to 23.4 kW (80,000 Btu/h).
- **HE30** 10.6 kW (36,200 Btu/h) to 30.1 kW (102,700 Btu/h).
- **HE36** 10.6 kW (36,200 Btu/h) to 37.0 kW (126,200 Btu/h).

Due to the very high efficiency of the boiler a plume of water vapour will form at the flue terminal during operation depending on external conditions.

The boiler casing is of white painted mild steel with the user controls capable of being mounted remotely from the boiler, if the option is required.

The heat exchanger is of cast aluminium.

Artificially softened water must **NOT** be used.

A pre-piping frame is provided to allow system and gas connection to be made prior to boiler installation.

**Note.**

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

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

---

*mexico HE - Installation & Servicing*
OPERATION

When there is a demand for heat, the heating system is supplied at the selected temperature of between 30°C and 82°C. The boiler features a comprehensive diagnostic system which gives detailed information on the boiler status when operating, and performance of key components to aid commissioning and fault finding.

SAFE HANDLING

This boiler may require 2 or more operatives to move it to its installation site, remove it from its packaging base and during movement into its installation location. Maneuvring the boiler may include the use of a sack truck and involve lifting, pushing and pulling. Caution should be exercised during these operations. Operatives should be knowledgeable in handling techniques when performing these tasks and the following precautions should be considered:

• Grip the boiler at the base.
• Be physically capable.
• Use PPE as appropriate, e.g. gloves, safety footwear.

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

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

OPTIONAL EXTRA KITS

FLUING:

• Flue Extension Ducts. (1000mm long)
  HE15, 18 & 24 - up to 6m
  HE30, & 36 - up to 3m

• 90° Elbow Kit (60/100 dia maximum no. per installation)
  HE15, 18 & 24 - up to 4 elbows
  HE30, & 36 - up to 2 elbows

• 45° Elbow Kit (60/100 dia maximum no. per installation)
  HE15, 18 & 24 - up to 4 elbows
  HE30, & 36 - up to 2 elbows

• Concentric Flue Screw Retaining Kit

• Roof Flue Kit (60/100)
  HE15, 18 & 24 - up to a maximum of 8m
  HE30, & 36 - up to a maximum of 5m

• Pitched Roof Tile (for roof flue kit)
• Flat Roof Tile (for roof flue kit)

• Vertical Flue Adaptor

• Vertical Outlet Flue Kit with Elbow (60/100)
  HE15, 18 & 24 - to a maximum length of 6m
  HE30, & 36 - to a maximum length of 3m

• Flue Finishing Kit
• High Level Flue Outlet Kit
• Flue Deflector Kit

OTHER OPTIONAL KITS:

• Remote User Control Kit
• Condensate Pump Kit
• Concealment Panel Kit
• RS Boiler Terminal Wall Plate Kit
• Adjustable Flue Support Bracket

SAFETY

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

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

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

• Gas Safety (Installation and Use) Regulations

• The appropriate Building Regulations either The Building Regulations, The Building Regulations (Scotland), Building Regulations (northern Ireland).

• The Water Fittings Regulations or Water bye-laws 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 Registered Gas Installer 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 ETCC 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. 6798 Installation of gas fired hot water boilers of rated input not exceeding 60 kW.
BS. 6891 Low pressure installation pipes.

Health & Safety Document No. 635

The Electricity at Work Regulations, 1989.

The manufacturer’s notes must NOT be taken, in any way, as overriding statutory obligations.

IMPORTANT. These appliances are CE 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 Heating in writing. If in doubt please enquire.

Any direct connection of a control device not approved by Ideal Heating may 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 or its manufacture.
GENERAL

LOCATION OF BOILER

The boiler must be installed on a flat and level floor, capable of adequately supporting the weight of the boiler and any ancillary equipment.

The boiler may be fitted on a combustible floor. Insulation is not necessary, unless required by the local authority.

For electrical safety reasons there must be no access from the back of the boiler.

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 Engineering document IGE/UP/7:1998.

Bathroom Installations

This appliance is rated IP20.

The boiler may be installed in any room or internal space, although particular attention is drawn to the requirements of the current IEE (BS.7671) Wiring Regulations and the electrical provisions of the building regulations applicable in Scotland.

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

The boiler MUST be installed so that the terminal is exposed to ventilation.

In both cases details of essential features of cupboard / compartment design, including airing 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 Frame 2.
- This position MUST also permit the provision of a satisfactory flue termination.
- Boiler may be fitted under a worktop/surface. Boiler can be fitted behind a kitchen cupboard door without need for ventilation.

GAS SUPPLY

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

The boiler MUST be installed on a gas supply with a governed meter only.

A gas meter can only be connected by the local gas supplier or by a Gas Safe Registered Engineer. In IE by a Registered Gas Installer (RGII).

An existing meter should be checked, preferably by the gas supplier, to ensure that the meter is adequate to deal with the rate of gas supply required.

It is the responsibility of the Gas Installer to size the gas installation pipework in accordance with BS6891:2005. Whilst the principle of the 1:1 gas valve ensures the Logic + range is able to deliver it’s full output at inlet pressures as low as 14mb, other gas appliances in the property may not be as tolerant. When operating pressures are found to be below the minimum meter outlet of 19mb these should be checked to ensure this is adequate for correct and safe operation.

Allowing for the acceptable pressure loss of 1mb across the installation pipework, it can be assumed that a minimum permitted operating pressure of 18mb will be delivered to the inlet of the appliance. (Reference BS 6400-1 Clause 6.2 Pressure Absorption).

The external gas cock could further reduce the operating pressure when measured at its test point. The pressure drop is relative to the heat input to the boiler (kW), refer to graph below.

![Gas Cock Pressure Drop](image)

**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. no longer than 20m and not less than 15mm O.D.

The complete installation MUST be tested for gas tightness and purged as described in the above code.

**FLUE INSTALLATION**

Pluming will occur at the terminal so terminal positions which would cause a nuisance should be avoided.

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 3.
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.

Terminal guards are available from boiler suppliers. Ask for TFC Flue Guard Model No. K6 (round plastic-coated). In case of difficulty contact:

mexico HE - Installation & Servicing
5. The flue assembly shall be so placed or shielded as to prevent ignition or damage to any part of the building.

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.5440-2000. In IE refer to I.S.813:2002.

**IMPORTANT.** It is essential to ensure, in practice, that products of combustion discharging from the terminal cannot re-enter the building or buildings through any openings into the building such as ventilators, windows, doors, or other sources of natural air infiltration, such as forced ventilation openings etc.

If products of combustion re-entry is identified or suspected this should be immediately investigated and corrected following the guidance provided in the current Gas Industry Unsafe Situation Procedure.

### Table 3 - Balanced Flue Terminal Position

<table>
<thead>
<tr>
<th>Flue Terminal Positions</th>
<th>Min. Spacing*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Directly below or alongside an opening window, air vent or other ventilation opening.</td>
<td>300mm (12&quot;)</td>
</tr>
<tr>
<td>2. Below guttering, drain pipes or soil pipes.</td>
<td>25mm (1&quot;)&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>BS5440-1 2000</td>
<td>75mm (3&quot;)</td>
</tr>
<tr>
<td>3. Below eaves.</td>
<td>25mm (1&quot;)&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>BS5440-1 2000</td>
<td>200mm (8&quot;)</td>
</tr>
<tr>
<td>4. Below balconies or a car port roof.</td>
<td>25mm (1&quot;)&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>BS5440-1 2000</td>
<td>200mm (8&quot;)</td>
</tr>
<tr>
<td>5. From vertical drain pipes or soil pipes.</td>
<td>25mm (1&quot;)&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>BS5440-1 2000</td>
<td>150mm (6&quot;)</td>
</tr>
<tr>
<td>6. From an internal or external corner or to a boundary along side the terminal.</td>
<td>25mm (1&quot;)&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>BS5440-1 2000</td>
<td>300mm (12&quot;)</td>
</tr>
<tr>
<td>7. Above adjacent ground, roof or balcony level.</td>
<td>300mm (12&quot;)</td>
</tr>
<tr>
<td>8. From a surface or a boundary facing the terminal.</td>
<td>60mm (24&quot;)</td>
</tr>
<tr>
<td>9. From a terminal facing a terminal.</td>
<td>1,200mm (48&quot;)</td>
</tr>
<tr>
<td>10. From an opening in a car port (e.g. door or window) into dwelling.</td>
<td>1,200mm (48&quot;)</td>
</tr>
<tr>
<td>11. Vertically from a terminal on the same wall.</td>
<td>1,500mm (60&quot;)</td>
</tr>
<tr>
<td>12. Horizontally from a terminal on the wall.</td>
<td>300mm (12&quot;)</td>
</tr>
</tbody>
</table>

**Vertical Terminals**

| Above the roof pitch with roof slope of all angles. | 300mm (12") |
| Above flat roof. | 300mm (12") |
| 14. From a single wall face. | 600mm (24") |
| From corner walls. | 1000mm (40") |
| 15. Below Velux Window | 2000mm (79") |
| 16. Above or side of velux window | 600mm (24") |

* Only one reduction down to 25mm is allowable per installation otherwise BS5440-1 2000 dimensions must be followed.

**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 BS 6798, Clause 12, and BS 5440:2 may be disregarded. In IE the requirements of I.S.813:2002 may be disregarded.
GENERAL

ELECTRICAL SUPPLY

WARNING.
This appliance must be 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 ETCSI rules for electrical installations.

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

N.B. THE FAN VOLTAGE IS 325V DC.

CONDENSATE DRAIN - Refer to Frames 13, 15 and 18

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

IMPORTANT.
Installation must be in accordance with BS 6798.
The drain outlet on the boiler is sized for standard 21.5mm (3/4") overflow pipe. It is a universal fitting to allow use of different brands of pipework.

3 OPEN VENT SYSTEM REQUIREMENTS

The system should be vented directly off the boiler flow pipe, as close to the boiler as possible. The cold feed entry should be inverted and MUST be positioned between the pump and the vent, and not more than 150mm (6") away from the vent connection.

Note. Combined feed and vent pipes may also be fitted.

There should be a minimum height 450mm (18") of open vent above the cistern water level. If this is not possible refer to Frame 5. The vertical distance between the highest point of the system and the feed/expansion cistern water level MUST not be less than 450 mm (18"). The pump must be fitted on the flow side of the boiler.

A suitable pump is a domestic circulator capable of providing a maximum 11°C (20°F) temperature differential across the boiler with the whole of the heating circuit open (e.g. Grundfos UPS 15/50, 15/60 or equivalent). With the minimum flow circuit allowed by the controls the differential must not exceed 25°C. (18°C for the HE15)

The vertical distance between the pump and feed/expansion cistern MUST comply with the pump manufacturer’s minimum requirements, to avoid cavitation. Should these conditions not apply either lower the pump position or raise the cistern above the minimum requirement specified by Ideal Heating.

The isolation valves should be fitted as close to the pump as possible.

4 SCHEMATIC PIPEWORK AND SYSTEM BALANCING

The boiler does not normally need a bypass but at least some radiators on the heating circuit, of load at least 10% of the minimum boiler output, must be provided with twin lockshield valves so that this minimum heating load is always available (see footnote re. thermostatic radiator valves).

Balancing

1. Set the programmer to ON for both CH and HW. Turn the cylinder thermostat down. Close the manual or thermostatic valves on all radiators, leaving the twin lockshield valves (on the radiators referred to above) in the open position. Turn up the room thermostat and adjust these lockshield valves to give boiler flow and return temperatures not more than 20°C apart. These valves should now be left as set.

2. Open all manual or thermostatic radiator valves and adjust the lockshield valves on remaining radiators to give around 11°C temperature drop at each radiator.

3. Turn up the cylinder thermostat and adjust the cylinder balancing valve so that the cylinder achieves a maximum flow consistent with adequate flow to the radiators. Check that with only the domestic hot water loop in circuit a differential temperature of 20°C across the boiler is not exceeded.

4. Adjust room and cylinder thermostats and programmer to NORMAL settings.
5 LOW HEAD AND LARGE SYSTEMS WITH EXTENSIVE PIPE RUNS - OPEN VENT

This arrangement is useful for large systems where radiators at the extremities are difficult to vent. This can lead to pumping over with conventional feed and vent arrangements.

The following conditions MUST be observed:

1. The top of the automatic air vent must be below the cold water level.
2. The static water level (cold) must be at least 200mm above the top of the horizontal flow pipe, fitted as shown. The vent connection MUST NOT be made immediately off the top of the boiler as venting is made less efficient.
3. The maximum practical length of 22mm cold feed pipe should be used in order to reduce the effective volume of hot system water expanding into the feed/expansion cistern to a minimum.

Note. The pump manufacturers' minimum requirements must be complied with.

All dimensions in mm (in.).

NB. Imperial dimensions are approximate.

6 SEaled SYSTEM REQUIREMENTS

Notes.

a. The method of filling, refilling, topping up or flushing sealed primary hot water circuit from the mains via a temporary hose connection is only allowed if acceptable to the local water authority.

b. When installing the filling device, it must be connected as shown to fully comply with the water regulations. This may involve the fitting of an additional WRAS approval isolator valve to the mains supply.

1. General

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

b. The installation should be designed to work with flow temperatures of up to 82 °C.

c. All components of the system, including the heat exchanger of the indirect cylinder, must be suitable for a working pressure of 3 bar (45lb/in²) and temperature of 110°C. Care should be taken in making all connections so that the risk of leakage is minimised.

2. Safety Valve

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

a. A non-adjustable preset lift pressure not exceeding 3bar (45lb/in²).

b. A manual testing device.

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

3. Pressure Gauge

A pressure gauge covering at least the range 0-4 bar (0-60 lb/in²) must be fitted to the system. The gauge should be easily seen from the filling point and should preferably be connected at the same point as the expansion vessel.
7  SEaled systEm REQUIREments - continued

4. Expansion Vessel
   a. A diaphragm type expansion vessel must be connected to a point close to the inlet side of the pump, the connecting pipe being not less than 15 mm (1/2" nominal) size and not incorporating valves of any sort.
   b. The vessel capacity must be adequate to accept the expansion of the system water when heated to 110°C (230°F).
   c. The charge pressure must not be less than the static water head above the vessel. The pressure attained in the system when heated to 110°C (230°F) should be at least 0.35 bar (5 lb/in²) less than the lift pressure of the safety valve.

5. Cylinder
   The cylinder must be either of the indirect coil type or a direct cylinder fitted with an immersion calorifier which is suitable for operating on a gauge pressure of 0.35 bar (5 lb/in²) in excess of the safety valve setting. Single feed indirect cylinders are not suitable for sealed systems.

6. Make-up Water
   Provision must be made for replacing water loss from the system, either:
   a. From a manually filled make-up vessel with a readily visible water level. The vessel should be mounted at least 150 mm (6") above the highest point of the system, and be connected through a non-return valve to the system, fitted at least 300 mm (12") below the make-up vessel on the return side of the domestic hot water cylinder or radiators.
   or
   b. Where access to a make-up vessel would be difficult by pre-pressureisation of the system. Refer to ‘Filling’, below.

7. Mains Connection
   There must be no direct connection to the mains water supply or to the water storage tank supplying domestic water, even through a non-return valve, without the approval of the local water authority.

8. Filling
   The system may be filled by one of the following methods:
   a. Through a cistern, used for no other purposes, via a ball valve permanently connected directly to a service pipe and/or a cold water distributing pipe. The static head available from the cistern should be adequate to provide the desired initial system design pressure. The cold feed pipe from the cistern should include a non-return valve and a stop valve with an automatic air vent connected between them, the stop valve being located between the system and the automatic air vent. The stop valve may remain open during normal operation of the system if automatic water make-up is required.
   b. Through a self-contained unit comprising a cistern, pressure booster pump (if required) and, if necessary, an automatic pressure reducing valve and flow restrictor. The cistern should be supplied through a temporary connection from a service pipe or cold water distributing pipe. This unit may remain permanently connected to the heating system to provide limited automatic water make-up. Where the temporary connection is supplied from a service pipe or distributing pipe which also supplies other draw-off points at a lower level then a double check valve shall be installed upstream of the draw-off point.
   c. 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.

   The following fittings shall form a permanent part of the system and shall be fitted in the order stated:
   A stop valve complying with the requirements of BS. 1010, Part 2 (the hose from the draw-off tap shall be connected to this fitting).
   A test cock.
   A double check valve of an approved type.

Sizing procedure for expansion vessels: The volume of the expansion vessel (litres) fitted to a sealed system shall not be less than that given by the table on the following page, multiplied by a factor of 0.8 (for flow temperatures of less than 83°C).
### GENERAL

#### 8 SEALLED SYSTEM REQUIREMENTS - continued

<table>
<thead>
<tr>
<th>Safety valve setting</th>
<th>3.0 bar</th>
<th>2.5 bar</th>
<th>2.0 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel charge and initial system pressure</td>
<td>0.5 bar</td>
<td>1.0 bar</td>
<td>1.5 bar</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total water content of system litres</th>
<th>Expansion vessel volume litres</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>2.1 2.7 3.9 2.3 3.3 5.9 2.8 5.0</td>
</tr>
<tr>
<td>50</td>
<td>4.2 5.4 7.8 4.7 6.7 11.8 5.6 10.0</td>
</tr>
<tr>
<td>75</td>
<td>6.3 8.2 11.7 7.0 10.0 17.7 8.4 15.0</td>
</tr>
<tr>
<td>100</td>
<td>8.3 10.9 15.6 9.4 13.4 23.7 11.3 20.0</td>
</tr>
<tr>
<td>125</td>
<td>10.4 13.6 19.5 11.7 16.7 29.6 14.1 25.0</td>
</tr>
<tr>
<td>150</td>
<td>12.5 16.3 23.4 14.1 20.1 35.5 16.9 30.0</td>
</tr>
<tr>
<td>175</td>
<td>14.6 19.1 27.3 16.4 23.4 41.4 19.7 35.0</td>
</tr>
<tr>
<td>200</td>
<td>16.7 21.8 31.2 18.8 26.8 47.4 22.6 40.0</td>
</tr>
<tr>
<td>225</td>
<td>18.7 24.5 35.1 21.1 30.1 53.3 25.4 45.0</td>
</tr>
<tr>
<td>250</td>
<td>20.8 27.2 39.0 23.5 33.5 59.2 28.2 50.0</td>
</tr>
<tr>
<td>275</td>
<td>22.9 30.0 42.9 25.8 36.8 65.1 31.0 55.0</td>
</tr>
<tr>
<td>300</td>
<td>25.0 32.7 46.8 28.2 40.2 71.1 33.9 60.0</td>
</tr>
</tbody>
</table>

### Notes

1. It is most important that the correct concentration of the water treatment product is maintained in accordance with the manufacturers’ instructions.
2. If the boiler is installed in an existing system any unsuitable additives MUST be removed by thorough cleansing.
3. In hard water areas, treatment to prevent lime scale may be necessary - however, the use of artificially softened water is NOT permitted.
4. Under no circumstances should the boiler be fired before the system has been thoroughly flushed.

---

9 WATER TREATMENT

The mexico HE boiler range have an ALUMINIUM alloy heat exchanger

**IMPORTANT.** The application of any other treatment to this product may render the guarantee of Ideal Heating invalid.

**Ideal Heating** recommend water treatment in accordance with the Benchmark Guidance Notes on Water Treatment in Central Heating systems.

**Ideal Heating** recommend the use of FERNOX Quantomat, Sentinel Combiguard & Calmag Calphos 1 scale reducing devices or Scalemaster inline scale inhibitor branded Ideal, which must be used in accordance with the manufacturers’ instructions. For further information contact:

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

- **Sentinel Performance Solutions**
  - The Heath Business & Technical Park
  - Runcom
  - Cheshire
  - WA7 4QX
  - Tel: 0800 389 4670
  - www.sentinel-solutions.net

- **Scalemaster Water Treatment Products**
  - Emerald Way
  - Stone
  - Staffordshire
  - ST15 0SR
  - Tel: +44 (0) 1785 811636

**Notes**

1. It is most important that the correct concentration of the water treatment product is maintained in accordance with the manufacturers’ instructions.
2. If the boiler is installed in an existing system any unsuitable additives MUST be removed by thorough cleansing.
3. In hard water areas, treatment to prevent lime scale may be necessary - however, the use of artificially softened water is NOT permitted.
4. Under no circumstances should the boiler be fired before the system has been thoroughly flushed.

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mexico HE - Installation & Servicing 13
10 BOILER ASSEMBLY - Exploded view

mexico HE24 shown

LEGEND

1 Front casing panel
2 Sealing panel
3 Top casing panel
4 LH casing side panel
5 RH casing side panel
6 Lower front panel
7 Sump cover plate
8 Return pipe
9 Flow pipe
14 Burner assembly
17 Injector & housing
19 Fan assembly
20 Gas pipe assembly
22 Gas valve assembly
25 Dry fire thermistor
26 Control thermistor
27 Overheat thermostat
28 Ignition electrode
29 Flame detection electrode
34 Condensate ‘S’ trap
36 Condensate ‘S’ trap hose
37 User controls
38 PCB primary control
41 Main switch c/w harness
43 Pre-piping frame
54 Burner earth pin (ionisation probe)

mexico HE36
heat exchanger
11 UNPACKING
The boiler is supplied fully assembled in one Pack A, together with a standard flue assembly for lengths up to 650mm, rear or side flue outlet, in Pack B.

Unpack and check the contents.

Pack A Contents
A The boiler
B These Installation & Servicing/User Instructions
C Floor standing template
D 1 year guarantee form
E Hardware Pack Box

Hardware Pack Box Contents (E)
A Pre-piping frame
B Flue turret
C Screws - 4 off
D Gasket
E Flue connector
F Screws - 5 off
G Condensate Pipe Bracket
H Flue turret lubricant
I Sealing washers - 3 off
(1 x 1/2" gas and 2 x 22mm water connection)

Pack B Contents
Flue terminal

12 PACKAGING REMOVAL
1. Fold back the top flaps and remove outer sleeve.
2. The Installation & Servicing/Users Instructions can be found on top of the boiler.
3. Remove wood screw at bottom rear of boiler, retaining the hardware pack box and remove box.
4. When the boiler is to be fitted to the pre-piping Frame (refer to Frame 21) remove the top and inner sleeve and the boiler from its wooden base.
   The inner sleeve can be used to protect the floor when fitting the boiler to the pre-piping frame.

13 FITTING AND CONNECTING THE PRE-PIPING FRAME/CONDENSATE PIPE SUPPORT BRACKET
1. Determine the position required for the boiler and tape template into place.

Note.
The template gives positions for both wall or flush with 600mm deep kitchen units and the positional options of the condensate pipe bracket dependant upon boiler size. To facilitate upward routing of pipework behind boiler, position the template 40mm (minimum) away from the back wall.

2. Using the floor template, mark the pre-piping frame fixing holes, the boiler fixing holes, the condensate pipe support bracket fixing holes and the flue hole (refer to Frame 14).
3. Drill the 4 holes in the floor and screw the pre-piping frame in place.
4. Drill the 2 holes in the floor and screw the condensate pipe support bracket in place. If the condensate pipe is to be fitted through the rear wall then fit a short piece of plastic pipe to the bracket and mark the wall for drilling. Refer to Frame 15 for condensate drain detail. When complete retain condensate pipe with bracket clamp and fixing screws, protruding 20mm as shown.
5. The gas, water flow and water return can now be connected.

Note. Measure and cut out flue hole using template (Refer to Frame 14).
14 FLUE HOLE TEMPLATE

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

Note.
The template shows the position of the flue hole centres lines. (Flue options can be flush to wall or in line with 600mm deep kitchen units)

1. Extend flue centre line vertically, (for rear, left or right as appropriate), up to 690mm (centre line of flue).
2. Mark onto the wall the position of the flue duct hole.
3. Cut the flue hole preferably with a 125mm (5") coreboring tool, ensuring that the hole is square to the wall.
4. Remove the template from the floor.

See wall mounting template

15 GAS CONNECTION

GAS CONNECTION
The boiler gas connection is built into the pre-piping frame.

IMPORTANT: the gas service cock is sealed with a non-metallic fibre washer seal so must not be overheated when making capillary connections.

Refer to Frame 1 for details of the position of the gas connection.
Ensure that the gas supply pipe does not foul the boiler casing.
Refer to Frame 40 for details of the pressure test point position.

16 BOILER WATER CONNECTIONS

The boiler flow and return connections are built into the pre-piping frame.

Note.
For heating loads in excess of 60 000 Btu/h use 28mm x 22mm connectors to connect the boiler flow and return pipes to 28mm.
If flow and return pipes are required to run behind the boiler, this can be facilitated by fitting the boiler in line with the front of 600mm deep kitchen units thus creating a 70mm space behind the boiler.
17 CONDENSATE DRAIN

This appliance is fitted with a siphonic 75mm condensate trap system that requires filling before operating the appliance for the 1st time or after maintenance.

All condensate pipework should conform to the following:

a. Where a new or replacement boiler is being installed, access to an internal ‘gravity discharge’ termination should be one of the main factors considered in determining boiler location.

b. Plastic with push fit or solvent connections.

c. Internal plastic pipe work a minimum of 19mm ID (typically 22mm OD)

d. External plastic pipe must be a minimum of 30mm ID (typically 32 OD) before it passes through the sleeved wall.

e. All horizontal pipe runs, must fall a minimum of 45mm per metre away from the Boiler.

f. External & unheated pipe work should be kept to a minimum and insulated with Class “O” waterproof pipe insulation.

g. All installations must be carried out in accordance to the relevant connection methods as shown in the “Condensate installation diagrams” & BS6798:2009

h. Pipe work must be installed so that it does not allow spillage into the dwelling in the event of a blockage (through freezing)

i. All internal burrs should be removed from the pipe work and any fittings.

In order to minimise the risk of freezing during prolonged very cold spells, one of the following methods of terminating condensate drainage pipe should be adopted.

Internal Drain Connections
Wherever possible, the condensate drainage pipe should be routed to drain by gravity to a suitable internal foul water discharge point such as an internal soil and vent stack or kitchen or bathroom waste pipe etc.  See Figs 1 and 2.

Condensate Pump
Where gravity discharge to an internal termination is not physically possible or where very long internal pipe runs would be required to reach a suitable discharge point, a condensate pump of a specification recommended by the boiler or pump manufacturer should be used terminating into a suitable internal foul water discharge point such as an internal soil and vent stack or internal kitchen or bathroom waste pipe etc. (fig 3).

External Drain Connections
The use of an externally run condensate drainage pipe should only be considered after exhausting all internal termination options as described previously. An external system must terminate at a suitable foul water discharge point or purpose designed soak away. If an external system is chosen then the following measures must be adopted:

- For connections to an external soil/vent stack see Fig 4.

- When a rainwater downpipe is used, an air break must be installed between the condensate drainage pipe and the downpipe to avoid reverse flow of rainwater into the boiler should the downpipe become flooded or frozen, see Fig 5.

- Where the condensate drain pipe terminates over an open foul drain or gully, the pipe should terminate below the grating level, but above water level, to minimise “wind chill” at the open end. The use of a drain cover (as used to prevent blockage by leaves) may offer further prevention from wind chill. See Fig 6.

- Where the condensate drain pipe terminates in a purpose designed soak away (see BS 6798) any above ground condensate drain pipe sections should be run and insulated as described above. See Fig 7

Unheated Internal Areas
Internal condensate drain pipes run in unheated areas, e.g. lofts basements and garages, should be treated as external pipe.

Ensure the customer is aware of the effects created by a frozen condensate and is shown where this information can be found in the user manual.

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**Figure 1** - Connection of Condensate Drainage Pipe to Internal Soil & Vent Stack

**Figure 2** - Connection of a Condensate Drainage Pipe Downstream of a Sink, Basin, Bath or Shower Water Trap to Internal Soil Vent Stack

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mexico HE - Installation & Servicing

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**Figure 3** - Connection of a Condensate Pump Typical Method (see manufacturers detailed instructions)

- **Boiler with 75mm sealed condensate trap**
- **Min Ø 19mm Internal pipe**
- **Condensate pump** (install in accordance with manufacturers instructions)

**Figure 4** - Connection of condensate Drainage Pipe to External Soil & Vent Stack

- **Boiler with 75mm sealed condensate trap**
- **Min Ø 19mm Internal pipe**
- **Water/weather proof insulation**
- **Min Ø 15mm Internal pipe**
- **Boilers without 75mm sealed condensate trap must be filled with a 75mm trap and visible air break**

**Figure 5** - Connection of a Condensate Drainage Pipe to an External Rainwater Downpipe (only combined foul/rainwater drain)

- **Boiler with 75mm sealed condensate trap**
- **Min Ø 19mm Internal pipe**
- **Min Ø 30mm Internal pipe**
- **Terminated and cut at 45º**
- **43mm 90º male/ female bend**
- **68mm Ø PVCU Strap on fitting**

**Figure 6** - Connection of Condensate Drainage Pipe Upstream of a Sink, Basin, Bath or Shower Waste Trap to External Drain, Gulley or Rainwater Hopper

- **Boiler with 75mm sealed condensate trap**
- **Min Ø 19mm Internal pipe**
- **Visible air break at plug hole**
- **Sink, basin, bath or shower with integral overflow and 75mm trap**
- **Minimum 30mm internal pipe**
- **Water/weather proof insulation**
- **45º pipe termination**
- **≥ 25 Below grate**

**Figure 7** - Connection of a Condensate Drainage Pipe to an External Purpose Made Soak Away.

- **Boiler with 75mm sealed condensate trap**
- **Min Ø 30mm Internal pipe**
- **Water/Weather proof insulation**
- **Max 3m external pipework**
- **Limestone chippings**
- **2 rows of three Ø12mm holes**
- **≥ 500**
- **≥ 300**
- **≥ 25**
- **Boilers without 75mm sealed condensate trap must be filled with a 75mm trap and visible air break**
- **Termination and cut at 45º**
- **≥ 450**
- **≥ 250**
- **≥ 25**
- **Below grate**
19 DETERMINING THE FLUE LENGTH AND FLUE PACKS REQUIRED

IMPORTANT. The boiler MUST be installed in a vertical position
Dimension X - Wall thickness.
Dimension L - Wall thickness plus boiler spacing.

FLUE KITS
Pack B - supplied as standard.
Finishing Kit - supplied as an optional extra.
Screw Kit - optional kit for mechanical fixing of flue joints.
Pack D - optional extension kit for side flue or rear flue outlet.
Refer to ‘Flue Extension Ducts’.

Note. MAXIMUM FLUE LENGTHS:
HE15, 18 AND 24 - 6M (HORIZONTAL FLUE)
HE30 AND 36 - 3M (HORIZONTAL FLUE)
HE15, 18 AND 24 - 8M (VERTICAL FLUE)
HE 30 AND 36 - 5M (VERTICAL FLUE)
90° ELBOW KIT (EQUIVALENT FLUE LENGTH RESISTANCE = 1.5M)
45° ELBOW KIT (EQUIVALENT FLUE LENGTH RESISTANCE = 1.0M)

Notes.
1. It is recommended that a support bracket is fitted for every 1 metre of extension pipe used and a bracket should be used at every joint, to ensure pipes are held at the correct angle.
   If a slip joint coupling is to be used then a bracket should be used to secure the collar.
2. Only use water as lubricant during assembly.

20 FLUE ASSEMBLY - Exploded View

An optional flue duct extension kit is required for wall thicknesses greater than:
   Side 545mm (21\(\frac{1}{4}\)"
   Rear 705mm (27\(\frac{1}{4}\)"

LEGEND
1. Duct assembly
2. Flue turret
3. Turret fixing screws
4. Flue connector
5. Flue connector screws
6. Turret gasket
7. Foam sealing tape
21 MOUNTING THE BOILER ONTO THE PRE-PIPING FRAME

NOTE. USE THE BOILER PACKAGING SLEEVE TO PROTECT THE FLOOR.

1. Remove the two screws retaining the lower front panel and remove the panel.
2. Remove the two screws retaining the upper front panel.
3. Lift the upper front panel and remove. If the optional extra concealment panel kit is to be fitted to either left or right hand side panel, it must NOW be fitted (refer to separate instructions provided with kit).
4. At this stage fit the flue assembly and turret (see Frame 28 or 33) and in the case of rear flue fit the optional flue finishing kit, refer to Frame 27, if required. Remove the top panel to facilitate turret fitting.
5. Fit the sealing washers to the water and gas connections.
6. If the condensate pump is to be used, it must now be fitted (if not to be fitted go to No. 7)
   a. Fit the condensate pump fixing slots over the two screw heads. The screws position the pump but cannot be tightened.
   b. Prepare to route the condensate pump cable, the mains cable and the remote user controls wiring (if required) up the rear of the boiler and through the grommet to be found at the top left of the boiler.
   c. Using the rubber connecting joint, provide a plastic outlet pipe from the pump outlet connection, to a suitable drain point connection taking care to route the pipework such that it will not foul the boiler when fitted. Refer to Frame 18.
   d. Make up the inlet plastic pipe connection to the following drawing and fit to the ‘S’ trap flexible hose connection.
7. Remove the four screws retaining the boiler to the wooden packaging base and using the packaging sleeve to protect the floor, slide the boiler onto the pre-piping frame ensuring the mains cable and the condensate pump cable (if fitted) is routed through the grommet at the top left of the boiler.
8. Screw the boiler frame to the floor through the 2 slots in the front of the boiler runners.
9. Connect the gas and water union connections ensuring the sealing washers are in place.
10. Connect the condensate pump inlet ensuring the pipe is pushed to bottom of the pump housing. If no pump is fitted connect the S trap flexible hose to the previously installed condensate drain pipe. Refer to Frame 13.
11. Wire the mains connection, the condensate pump connection (if fitted) and the remote user control (if fitted). Refer to Frame 35.
22 CUTTING THE FLUE - REAR  Wall thicknesses of 114 to 705mm

Note. If using the extension ducts go to Frame 24, 25 and 26.
1. Measure and note wall thickness X. Refer to Frame 19.
2. Add 5mm (1/4”) to dimension X and, measuring from the ring, cut both outer and inner tube. Ensure support spring clip is in position to facilitate cutting.
3. To ensure the tube is cut square, mark the flue all the way around.
4. De-burr the cut edges.

23 CUTTING THE FLUE LH OR TO RH SIDE - Wall thickness of 114 to 545mm

Note. If using the extension ducts go to Frame 24, 25 and 26.
1. Measure and note side flue length L. Refer to Frame 19.
2. Add 60mm (23/8”) to dimension L and measuring from the ring, cut both outer and inner tube. Ensure support spring clip is in position to facilitate cutting.
3. To ensure the tube is cut square, mark the flue all the way around.
4. De-burr the cut edges.

24 FLUE EXTENSION DUCTS - for flue lengths greater than 775mm

Pack D Flue extension duct kit contents

Extension duct & clamp 1.0m (39”) long
Wall plugs - 2 off
Washers - 2 off
Support fixing screws - 2 off
Clamp screws - 2 off

Note. Only use water as a lubricant during assembly.

25 FLUE EXTENSION DUCTS - continued

Use a maximum of 6m extended flue ONLY (HE15, HE18, HE24)

Use a maximum of 3m extended flue ONLY (HE30, HE36)

General arrangement
1. A maximum of 6 extension ducts for the HE15, HE18 and HE24 and a maximum of 3 extension ducts for the HE30 and HE36 (one suitably cut) plus the standard flue duct may be used together.
2. Flue extensions of greater length than 1m (39”) should be supported with the bracket provided, suitably adjusted. Refer to Frame 24.
26 FITTING THE KIT

1. Fit the inner flue extension duct onto the inner flue duct.
2. Fit the outer flue extension duct onto the outer air duct.
3. Repeat steps 1 and 2 if a second flue extension is required.
4. Measure and mark the flue length required onto the flue, measuring from the ring near the terminal. (Refer to Frames 19 and 23 for detail of length measurement)
5. To ensure a square cut, mark the flue all the way around.
6. De-burr the cut edges.

27 FITTING THE OPTIONAL FLUE FINISHING KIT AND OPTIONAL RS SEALING PLATE

Flue Finishing Kit

1. Fit black outer wall seal over terminal and ensure the retaining rim is located in the terminal depression.
2. Fit flue pipe assembly through the hole previously cut in wall.
3. Fit white inner wall seal to pipe assembly (side flue).
4. Fit outer wall sealing plate over outer wall seal and retain with the 4 screws and wall plugs provided.

Contents:
Wall Seal White - 1 off
Wall Seal Black - 1 off
Wall Sealing Plate - 1 off
Screws No. 10x2" - 4 off
Wallplugs - 4 off

RS Sealing Plate

If the mexico HE is replacing a room sealed appliance, an optional extra terminal wall sealing plate is available to make good the rectangular flue hole.

Contents:
Wall Seal plate - 1 off
Screws No. 10x2" Woodscrew - 4 off
Wallplugs - 4 off
28 CONNECTING THE FLUE TO THE BOILER

1. Measure 68mm from the cut end of the flue assembly and mark a line on the flue.
2. Fit the flue connector over the end of the flue and align the end of the connector with the marked line.
3. Ensure the ‘V’ cutout on the flue connector is aligned with the top of the turret (use label as a guide).
4. Mark the 3 fixing screw holes and drill the three holes with a 3.2 (1/8") dia drill. Do not drill through the inner flue pipe.
5. Retain the connector with the 3 screws provided.
6. Adhere the 70mm wide x 20mm deep foam strip (found in the hardware pack box) to the flue assembly tube to provide an inner seal to the hole cut in the wall.
7. Insert the flue assembly through the prepared hole in the wall.
8. Remove the top outlet blanking plate or boiler top panel to facilitate turret fitting. To ensure a positive flue seal is confirmed it may be necessary to remove the worktop or adjacent cupboard to view the joint.
9. Fit the sealing gasket and push the flue turret into the top of the boiler flue sealing ring and retain with the 4 screws provided.
10. Smear lubricant (to be found in hardware pack) over both inner flue duct seal and outer air duct seal and locate the flue onto the turret ensuring the 2 bayonet fixings on the flue connector (B) engage to the lugs on the turret (A).
11. Replace the top outlet blanking plate.
12. Flues over 1 metre long.
   Fix the flue support bracket to the wall, using the wall plug and wood screw.
**29 FITTING THE OPTIONAL ROOF FLUE KIT (Flat or Pitched)**

**Note.**
A flat or pitched roof flashing plate (not supplied) is required before proceeding with the installation of this kit.

This kit is suitable for both flat and pitched roof terminations, using a concentric flue to run vertically from the top of the boiler and terminating above roof level.

Connection to the top of the boiler is made using a separately supplied vertical connector

**WEATHER PROOFING**
Where the flue passes through the roof line an adequate seal must be made. This is achieved by using either:
- Flat roof weather collar or Universal weather collar.

**ACCESSORIES**
Flue Duct Extension Kits are available for flue lengths extending beyond 1m. These packs contain 1m extension ducts and may be cut to the desired length.

If the offset vertical option is used an elbow Kit is required. For a full accessories list refer to page 7, Optional Extras.

**30 ROOF FLUE KIT CONTENTS / OPTIONS**

**NOTE. ITEMS D, E, F, G AND H ARE NOT SUPPLIED WITH THE ROOF FLUE KIT.**

A. Flue assembly with terminal
B. Flue seal collar
C. 3.5x13 screw
D. Pitched roof tile/flat roof tile weather collar
E. Vertical connector (60/100) comes with gasket and fixing screws
F. Roof flue extension duct kit (60/100)
G. 90° elbow kit (60/100)
H. 45° elbow kit (60/100)
31 FLUE TERMINAL POSITION

The terminal should be positioned so that products of combustion can safely disperse at all times.

Plumbing may occur at the termination so, where possible, terminal positions where this could cause a nuisance should be avoided.

Minimum dimensions are shown below.

<table>
<thead>
<tr>
<th>Terminal Position</th>
<th>Minimum Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directly below an opening, air brick, windows, etc.</td>
<td>300 mm</td>
</tr>
<tr>
<td>Below plastic / painted gutters</td>
<td>300 mm</td>
</tr>
<tr>
<td>Painted surface</td>
<td>300 mm</td>
</tr>
<tr>
<td>Below eaves or balcony</td>
<td>500 mm</td>
</tr>
<tr>
<td>Below velux windows</td>
<td>2000 mm</td>
</tr>
<tr>
<td>Above or side of velux windows</td>
<td>600 mm</td>
</tr>
</tbody>
</table>

The flue terminal shall not penetrate the shaded area of the roof.

Note.
The equivalent flue length resistance of the elbow kits are:
90° elbow kit = 1m
45° elbow kit = 0.6m

32 FLUE ARRANGEMENT

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>60/100 Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>HE18</td>
</tr>
<tr>
<td>n/a</td>
<td>Maximum Flue Length (m)</td>
<td>8</td>
</tr>
<tr>
<td>201 180</td>
<td>Flue ext. 60/100</td>
<td>7</td>
</tr>
<tr>
<td>201 189</td>
<td>Terminal Vertical Roof 60/100</td>
<td>1</td>
</tr>
<tr>
<td>152 258</td>
<td>Weather Collar Pitched Roof</td>
<td>1</td>
</tr>
<tr>
<td>152 259</td>
<td>Weather Collar Flat Roof</td>
<td>1</td>
</tr>
<tr>
<td>201 182</td>
<td>90° Elbow Kit (60/100)</td>
<td>4</td>
</tr>
<tr>
<td>201 183</td>
<td>45° Elbow Kit (60/100)</td>
<td>4</td>
</tr>
<tr>
<td>201 869</td>
<td>Vertical Connector</td>
<td>1</td>
</tr>
</tbody>
</table>

Note.
The equivalent flue length resistance of the 90° elbow kit (60/100) is 1m and the 45° elbow kit (60/100) is 0.75m.
33 ASSEMBLING THE ROOF FLUE KIT

Determine the correct height that the flue should terminate above the roof. If after calculating or measuring the overall flue height from the top of the boiler, it is necessary to cut both pipes of assembly A, then ensure they are cut equally leaving the inner flue tube longer than the outer air tube as supplied. (Refer to No. 5 below)

Ensure the cut pipe ends are free from any burrs.

1. Ensure the flue seal collar B is located onto the flue assembly A.

2. Position the roof flashing plate D (supplied separately) over the hole cut in the roof and insert flue assembly A from the roof end.

3. Remove the casing top outlet blanking plate (2 screws) or boiler top panel to facilitate fitting the vertical connector. Fit the sealing gasket and push fit the vertical connector E (supplied separately) into the boiler flue connection and retain with the four securing screws provided.

4. “Push” fit extension duct F (if required, supplied separately) and the roof flue kit assembly into the vertical connector E. Using the lubricant found in the hardware pack to facilitate fitting.

5. If the last extension duct requires cutting, measure the distance (outer ducts) between the duct and the terminal and add 100 mm to this dimension. This gives the length of the last extension duct.

Note. Check the position of the inner flue duct relative to the outer duct on the assembled extension duct(s) and ensure the terminal flue duct is cut longer than the air duct to ensure engagement in the final flue duct seal.

6. Slide down and position the flue seal collar B over the roof plate D and secure it with the 3 screws C to the flue assembly A.

7. Finally ensure the roof flashing plate D is correctly sealed to the roof.
## 34 ELECTRICAL CONNECTIONS

**WARNING.** This appliance MUST be earthed.

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

All external controls and wiring MUST be suitable for mains voltage.

The fuse rating should be 3 A.

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

Wiring should be 3 core PVC insulated cable NOT LESS than 0.75 mm² (24 x 0.2mm) and to BS. 6500, Table 16.

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

Connection must be made in a way that allows complete isolation of the electrical supply - such as a double pole switch having a 3mm (1/8") contact separation in both poles, or a plug and socket serving only the boiler and system controls. The means of isolation must be accessible to the user after installation.

## 35 INTERNAL WIRING

A pictorial wiring diagram is shown in Frame 40.

1. Route the mains cable via the rear of the boiler through the grommit at the left hand side.
2. Wire the permanent live supply into the 5-way remote plug terminals, L3, N & .

**IMPORTANT.**

A permanent live is ESSENTIAL in order for the advanced diagnostic controls to function correctly.

Ensure that the lengths of the live and neutral wires are shorter than the earth wires so that if the cable slips in its anchorage the current carrying wire become taut before the earth wire.

3. Wire any switched live supply into L2 or connect L1 and L2 via external control switching as shown in Frame 39. In either case remove the wire link fitted to L1 to L2.
4. Secure the mains lead with the cable clamp.
5. Connect the mains lead connector. Ensure it is fully located into the socket.

If a condensate pump is to be fitted:

1. Route the cable via the rear of the boiler through the grommit at the left hand side.
2. Remove the condensate pump plug from mating connector.
3. Remove wire link between L1 and L2.
4. Wire in condensate pump as shown below.
5. Secure cable sheath in cable clamps.

Ensure that the lengths of the live and neutral wires are shorter than the earth wires so that if the cable slips in its anchorage the current carrying wire become taut before the earth wire.
36 PICTORIAL WIRING DIAGRAM

LEGEND
- blue
- black
- brown
- grey
- orange
- pink
- red
- violet
- white
- yellow
- yellow/green

37 FUNCTIONAL FLOW WIRING DIAGRAM

LEGEND
- blue
- black
- brown
- grey
- orange
- pink
- red
- violet
- white
- yellow
- yellow/green

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38 EXTERNAL ELECTRICAL CONTROLS

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

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

The fuse should be 3A.

Room Thermostat
If the thermostat has a neutral connection use it. (It provides for more energy efficient operation by reducing switching temperature differentials.)

Frost Protection
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. This is usually done at the programmer, in which case the programmer selector switches are set to OFF and all other 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.

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

Important. Ensure that the frost thermostat is wired so that the system pump and/or external diverter valve is energised, as appropriate.

Designation of the terminals will vary but the programmer and thermostat manufacturers’ leaflets will give full details.

Diagram A shows an application to boilers fitted with a room thermostat only.

Diagrams B and C show applications to boilers fitted with alternative time controls.

*Earths are not shown for clarity but MUST NEVER BE OMITTED.*

39 COMMISSIONING AND TESTING

A. ELECTRICAL INSTALLATION

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

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

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

PLEASE NOTE: The combustion for this appliance has been checked, adjusted and preset at the factory for operation on the gas type defined on the appliance data plate. No measurement of the combustion is necessary. Do not adjust the air/gas ratio valve.

having checked:
• That the boiler has been installed in accordance with these instructions.
• The integrity of the flue system and the flue seals.
• The integrity of the boiler combustion circuit and the relevant seals.

1. Check that the system has been filled and that the boiler is not air locked.

Note. It is important the burner is not operated before the system is fully vented of air. If it is necessary to operate the system pump to assist venting of the air this must be done with the gas service cock turned off.

2. Check that all drain cocks are closed and any valves in the flow and return are open.

3. Check the electrical supply is off.

4. Check the gas service cock is open.

5. Check that the boiler on/off switch (A) is OFF

6. Slacken the screw in the inlet pressure test point (G) and connect a gas pressure gauge via a flexible tube.

7. Switch the electricity supply ON and check all external controls are calling for heat.

8. Set the boiler thermostat knob (B) to maximum and switch the boiler on/off switch (A) to ON. The boiler control should now go through its ignition sequence until the burner is established.

9. If the boiler does not light after 3 attempts the fault codes $\text{L} \ ' \ F'$ will be displayed. Press the reset button (C); the boiler will then repeat its ignition sequence. When the burner is established the WHITE burner ON neon (D) will be permanently illuminated.

10. CHECK THE OPERATIONAL (WORKING) GAS INLET PRESSURE

With the boiler operating in the maximum rate condition check that the operational (working) gas pressure at the inlet gas pressure test point (G) complies with the requirements of “Gas Supply” on page 8.

Ensure that this inlet pressure can be obtained with all other gas appliances in the property working.

N.B. The principle of the 1:1 gas valve ensures that the mexico HE range is able to deliver their full output at inlet pressures down to 14mb. However if dynamic pressures below 20mb are experienced ensure this is adequate for ALL other gas appliances in the property.

IMPORTANT.
The gas input to the burner is regulated by the gas valve according to the air flow produced by the fan. It is NOT user-adjustable. Any interference to sealed settings on the gas valve will adversely affect operation and render our warranty void.

11. Switch OFF the boiler on/off switch.

12. Remove the pressure gauge and tube. Tighten the sealing screw in pressure test point. Ensure a gas tight seal is made.

13. Refit the boiler front panel.

THE DISPLAY

The user control has one neon and one display to inform the user about the status: the display will show the status of the boiler and the neon will show the status of the flame. If no flame is detected the neon is blinking. When the flame is detected the neon will be lit permanently.

Below is a list with display function in normal operation.

O Standby. No demand for heat present.
C Boiler is active for central heating or domestic hot water.
H Boiler is in lockout for a specific error. The display will be blinking, alternating with a number or letter to show which error is detected.
L Boiler is in lockout for a specific error. The display will be blinking, alternating with a number or letter to show which error is detected.
P Boiler frost protection. Boiler will fire when temperature is less than 3 degrees.

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41 GENERAL CHECKS

Make the following checks for correct operation:

1. Central Heating
   The correct operation of ANY programmer and all other system controls should be proved. Operate each control separately and check that the main burner or circulating pump, as the case may be, responds. Ensure the external controls are calling for heat. After ignition the display should read:

   c ☑ - white neon on

2. Gas Rate
   Operate the boiler for 10 minutes. Check the boiler gas rate (see Table 2), ensuring the boiler is at full output whilst measurements are recorded.

3. Water Circulation System

<table>
<thead>
<tr>
<th>Knob Setting</th>
<th>Flow Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Min</td>
<td>30</td>
</tr>
<tr>
<td>Max</td>
<td>82</td>
</tr>
</tbody>
</table>

   Note. Fernox Superfloc, Sentinel X300 (new systems) / X400 (existing systems) or Salamander products flushing solutions should be used during the flushing procedure. Refer to Frame 9.
   a. With the system HOT examine all water connections for soundness.
   b. With the system still HOT, turn off the gas, water and electricity supplies to the boiler and drain down to complete the flushing process.
   c. Refill and vent the system, add inhibitor (see Frame 9), clear all air locks and again check for water soundness.
   d. Balance the system. Refer to Frame 4.

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

5. Finally set the controls to the user’s requirements.

   - The temperatures quoted alongside are approximate, and vary between installations.

42 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 Installation / User’s Instructions to the householder and explain his or her responsibilities under current Gas Safety (Installation and Use) Regulations or rules in force.

2. Explain and demonstrate the lighting and shutting down procedures.

3. 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. 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.

4. Explain the function and the use of the boiler heating controls.

5. Explain the function of the boiler fault mode. Emphasise that if a fault is indicated the boiler should be turned off and a Gas Safe Registered Engineer consulted. In IE contact a Registered Gas Installer.

6. Explain and demonstrate the function of time and temperature controls, radiator valves, etc., for the economic use of the system.

7. If any programmer is fitted then draw attention to the Programmer User’s Instructions and hand them to the householder.

8. After installation and commissioning please complete the 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.

9. IMPORTANT

   Stress the importance of regular servicing by a Gas Safe Registered Engineer and that a comprehensive service should be carried out AT LEAST ONCE A YEAR. In IE servicing work must be carried out by a Registered Gas Installer.

10. As the installer you may wish to undertake the service contract yourself or alternatively offer to the customer the benefits of the Ideal Care Scheme, details of which are outlined in the household pack supplied with this boiler.
43 SERVICING SCHEDULE

For the very latest copy of literature for specification & maintenance practices, visit our website www.idealheating.com, where you will be able to download the relevant information. N.B. Technical Bulletins are also available on www.idealheating.com.

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 annually. It is the law that any service work must be carried out by a GAS Safe RegisterRed Engineer. In IE service work must be carried out by a Registered Gas Installer.

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

- The integrity of the flue system and the flue seals.
- The integrity of the boiler combustion circuit and the relevant seals.
- The operational (working) gas inlet pressure at maximum rate. Refer to Frame 40.
- The gas rate. Refer to Frame 41.
- The combustion performance. Refer to step 3.

1. Light the boiler and carry out a pre-service check, noting any operational faults.
2. Check the gas consumption.
3. Connect a suitable gas analyser to the sampling point on top of the boiler or into the flue terminal, if access is possible. Refer to Frame 46.

For correct boiler operation the CO/CO₂ ratio of the flue gas should not be greater than 0.004 ratio. If the combustion reading is greater than the acceptable value AND the integrity of the complete flue system and combustion circuit seals have been verified and the inlet gas press (and gas rate) have been verified, then contact Ideal.

4. Clean the main burner.
5. Clean the heat exchanger and ‘S’ trap.
6. Check the condition of the combustion chamber insulation. Any cracked or damaged pieces should be replaced (HE15, HE18 and HE24 only).

Ionisation probes are a servicable component and require inspecting annually and replacing if distorted.

7. Check the main injector for blockage or damage.
8. Wherever possible, remove and clean the condensate ‘S’ trap (refer to Frame 48) and check the drain for blockage.
9. Check that the flue terminal is unobstructed and that the flue system is sealed correctly.
10. If fitted, clean the condensate pump.

The servicing procedures are covered more fully in Frames 46 to 50 and MUST be carried out in sequence.

Note. In order to carry out either servicing or replacement of components the boiler front panels, and sealing panel must be removed. Refer to Frames 44 and 45.

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.

IMPORTANT.
11. After completing the servicing or exchange of components always test for gas tightness and carry out functional checks as in paragraphs 2 and 3.
12. When work is complete the sealing panel MUST be correctly refitted, ensuring that a good seal is made.

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

13. Complete the service section of the Benchmark Commissioning Checklist.

44 BOILER FRONT PANEL REMOVAL

1. Remove the two screws retaining the lower front panel and remove the panel.
2. Remove the two screws retaining the upper front panel.
3. Lift the upper front panel and remove.

PLEASE NOTE. BS6798: 2009 Specification for Installation and maintenance of Gas Fired boiler of rated input not exceeding 70 kW net advises that:

- The person carrying out a combustion measurement should have been assessed as competent in the use of a flue gas analyser and the interpretation of the results;
- The flue gas analyser used should be one meeting the requirements of BS7927 or BS-EN50379-3 and be calibrated in accordance with the analyser manufacturers' requirements.
- Competence can be demonstrated by satisfactory completion of the CPA1 ACS assessment, which covers the use of electronic portable combustion gas analysers in accordance with BS 7967, parts 1 to 4.

- Competence to carry out the check of Combustion Performance
45 BOILER SEALING PANEL REMOVAL

1. To remove the sealing panel remove the 4 screws.
2. Remove the panel.

46 FAN AND VENTURI ASSEMBLY REMOVAL AND CLEANING

1. Undo the gas pipe union connection to the injector housing.
2. Undo the screw on the fan mounting bracket.
3. Lift off the fan and venturi assembly.
4. Disconnect the electrical leads from the fan.
5. Inspect the injector for blockage or damage.

47 BURNER REMOVAL AND CLEANING

1. Remove the 6 fixings securing the burner (the 3 screws at the rear are extended to ease access).
2. Lift off the burner from the combustion chamber.

IMPORTANT
The burner head is a ceramic plaque construction. Care must be taken to ensure that the burner is not placed down upon its face as this may cause damage to the ceramic.
3. Brush off any deposits that may be on the ceramic with a SOFT brush.
4. Inspect the sealing gasket around the burner and combustion chamber insulation for any signs of damage. Replace as necessary.

Note.
Take care not to disturb the ionisation probes at the front and rear of the combustion chamber.
48 CLEANING THE CONDENSATE ‘S’ TRAP & CONDENSATE PUMP (IF FITTED)

If condensate pump fitted refer to separate instructions for cleaning procedure.

1. If a condensate pump is fitted, it must be removed and pulled forward to gain access to the condensate ‘S’ trap. Refer to Frame 69.
   Note. Care must be taken with residual water when removing the outlet pipe.
2. Remove the plastic union sealing nut on the bottom of the condensate ‘S’ trap.
3. Remove and clean from the cartridge and ball any residual deposits.
4. Inspect the opaque ‘S’ trap for further signs of dirt and clean as necessary.
5. Replace the cartridge and ball and replace the plastic sealing nut.
6. Replace the condensate pump.

49 CLEANING THE HEAT EXCHANGER

1. Remove ignition and flame detection electrodes. Refer to Frames 55 and 56.
2. Remove the 3 screws retaining the sump cover and remove.
3. Using a suitable tool clean the exposed heat exchanger fins through the sump cover. Also vacuum any debris from the top of the heat exchanger.
4. Remove any loose deposits from the sump.
5. Inspect the ignition and detection electrodes. Ensure that they are clean and in good condition - replace if necessary.
6. Check the condition of the combustion chamber insulation (HE15, 18 and 24 only). Any cracked or damaged pieces must be replaced.

   Note. Take care not to disturb the ionisation probes at the front and rear of the combustion chamber.
7. Check that the ignition and detection gaps are correct. Refer to Frames 55 and 56.

50 REASSEMBLY

Reassemble the boiler in the following order.

1. Refit the sump cover plate.
2. Refit the electrodes (check dimensions Frames 55 and 56).
3. Refit the burner.
4. Refit the fan / venturi assembly.
5. Reconnect the fan electrical leads.
6. Refit the boiler sealing panel.

   IMPORTANT.
   Ensure the boiler sealing panel is correctly fitted and that a good seal is made.
7. Refit the boiler front panels.
8. Turn on the gas supply at the gas service cock.
9. Reconnect the electrical supply.
51 REPLACEMENT OF COMPONENTS

GENERAL
When replacing ANY component:

1. Isolate the electricity supply.
2. Turn off the gas supply.
3. Remove the boiler front panels and inner sealing panel.
   Refer to Frames 44 and 45.

After replacing ANY component check operation of the boiler including gas tightness, gas rate and combustion test.

IMPORTANT
When work is complete, the sealing panel must be correctly fitted, ensuring that a good seal is made.

Note.
In order to assist fault finding, the control panel has an LED diagnostic display. The key to boiler fault conditions is shown in Frame 70.

THE BOILER MUST NOT BE OPERATED WITHOUT THE SEALING PANEL FITTED

52 FLOW THERMISTOR REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler front panels and inner sealing panel. Refer to Frames 44 and 45.
   Note. Only the boiler front panels need removing on the HE15, 18 and 24 models.
3. Pull the electrical leads off the flow thermistor and remove earth connection.
4. Remove the two screws retaining the flow thermistor.
5. Replace flow thermistor retaining with the fixing screws previously removed and reconnect leads.
6. Reassemble the boiler in reverse order.
7. Check the operation of the boiler. Refer to Frame 51.
53 FAN REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler front panels and inner sealing panel. Refer to Frames 44 and 45.
3. Unscrew the gas pipe union connection to the injector housing.
4. Unscrew and remove the screw retaining the fan mounting bracket.
5. Remove the fan and venturi assembly.
6. Disconnect the electrical leads from the fan.
7. Remove the 3 screws and remove the venturi assembly, noting the orientation of the venturi in relation to the fan body.
8. Transfer the venturi assembly to the new fan, replacing the gasket if evidence of damage or deterioration is visible.
9. Fit the new fan / venturi assembly.
10. Reassemble the boiler in reverse order, taking care not to over tighten the screw on the fan mounting bracket.
11. Check the operation of the boiler. Refer to Frame 51.

54 BURNER REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler front panels and inner sealing panel. Refer to Frames 44 and 45.
3. Remove the fan assembly. Refer to Frame 53 (no’s 3 to 6.)
4. Remove the 6 fixings securing the burner (the 3 screws at the rear are extended to ease access).
5. Lift off the burner from the combustion chamber.
6. Fit the new burner, replacing any damaged or deteriorating sealing gasket.
7. Reassemble in reverse order.
8. Check the operation of the boiler. Refer to Frame 51.

Note. Take care not to disturb the burner ionisation probes at the front and rear of the combustion chamber. (burner earth pins are at the front only on the HE30 and HE36)
55 IGNITION ELECTRODE REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler front panels and inner sealing panel. Refer to Frames 44 and 45.
3. Unplug the ignition lead from the electrode.
4. Remove the burner. Refer to Frame 54.
5. Remove the earth lead from the ignition electrode.
6. Remove the remaining screw holding the ignition electrode to the combustion chamber.
7. Remove the electrode.
8. Fit the new ignition electrode, using the new gasket supplied. Check dimensions as shown.
9. Reassemble in reverse order and check that no damage to the combustion chamber insulation has occurred during the electrode replacement. (HE15, HE18 and HE24 only)
10. Check operation of the boiler. Refer to Frame 51.

56 FLAME DETECTION ELECTRODE REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler front panels and inner sealing panel. Refer to Frames 44 and 45.
3. Unplug the flame detection lead from the electrode.
4. Remove the burner. Refer to Frame 54.
5. Remove the 2 screws holding the flame detection electrode to the combustion chamber.
6. Remove the flame detection electrode.
7. Fit the new flame detection electrode, using the new gasket supplied. Check dimension as shown.
8. Reassemble in reverse order and check that no damage to the combustion chamber insulation has occurred during the electrode replacement. (HE15, HE18 and HE24 only)
9. Check operation of the boiler. Refer to Frame 51.
**SERVICING**

### 57 SPARK GENERATOR REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler front panels and inner sealing panel. Refer to Frames 44 and 45.
3. Disconnect the leads from the spark generator and bracket.
4. Remove the 2 M4 screws securing the spark generator to the bracket.
5. Fit the new spark generator and reassemble in reverse order.
6. Check operation of the boiler. Refer to Frame 51.

### 58 BURNER INJECTOR REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler front panels and inner sealing panel. Refer to Frames 44 and 45.
3. Remove the fan / venturi assembly. Refer to Frame 53.
4. Remove the 2 injector housing screws.
5. Withdraw the injector housing.
6. Fit the new injector housing, complete with injector.
7. Reassemble in reverse order, ensuring that the new gas seal supplied is located correctly in the injector housing.
8. Check operation of the boiler. Refer to Frame 51.

### 59 GAS CONTROL VALVE REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler front panels and inner sealing panel. Refer to Frames 44 and 45.
3. Unplug the electrical lead from the gas control valve and disconnect the earth wire.
4. Undo the sensing tube connection at the gas control valve.
5. Undo the union nut at the gas valve pre-piping frame connection.
6. Undo the union nut on the outlet side of the gas control valve and remove valve.
7. Undo the 4 gas valve bracket screws, bracket and gas inlet pipe and remove.
8. Remove the valve bracket fixing screw.
9. Transfer the mounting bracket and gas inlet pipe to the new gas control valve.
10. Fit new gas control valve, ensuring that any seals showing damage or deterioration are replaced.
11. Reassemble in reverse order.
12. Ensure the sensing tubing is correctly replaced.
13. Check operation of the boiler. Refer to Frame 51.
60  CONTROL BOX REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler upper front panel. Refer to Frame 44.
3. Remove the 2 control box mounting bracket screws.
4. Pull the control box forward. Carefully unplug all the electrical wiring from the control box.
5. To remove the user control from the assembly pull the control forward to disconnect the plug.
6. Transfer the mounting brackets to the new control box.
7. Reassemble in reverse order.
8. Check operation of the boiler. Refer to Frame 51.

N.B. To change the user control only.
9. Loosen the screw on the underside of the user control.
10. Pull the display unit forward to remove.
11. Push the new display unit into position.
12. Reassemble in reverse order.
13. Check the operation of the boiler. Refer to Frame 51.

61  WIRING HARNESS REPLACEMENT

A pictorial wiring diagram is shown in Frame 36.

1. Refer to frame 51
2. Remove the boiler upper front panel. Refer to frame 44
3. Remove the sealing panel. Refer to frame 45
4. Disconnect the wiring harness from the Fan, Controls Box, Flow Thermistor, Spark Generator, Gas Valve, Overheat Thermistor, Dry Fire Thermistor, and Earth post.
5. Remove the condensate pump terminal strip securing screw to gain access to the back of the terminal strips.
6. With an Allan key remove the ‘rivscrew’ from the back of the brackets to release the terminal block.
7. Reassemble the new harness to the brackets in reverse order.

62  MAINS SWITCH REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler upper front panel. Refer to Frame 44.
3. Remove the screws retaining the user control. Refer to Frame 60, No. 3.
4. Push out the mains switch from the rear, as shown.
5. Refit the new switch, ensuring that the electrical leads are replaced on the correct terminals and the key on the switch is correctly aligned with the slot in the plastic moulding.
6. Reassemble in reverse order.
7. Check operation of the boiler. Refer to Frame 51.
63 OVERHEAT THERMOSTAT REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler front panels and inner sealing panel (HE30 and HE36 only). Refer to Frames 44 and 45.
3. Pull off the 2 electrical leads from the thermostat body.
4. Remove the 2 screws retaining the O/H thermostat.
5. Fit the new thermostat, and reconnect leads
6. Reassemble in reverse order.
7. Check operation of the boiler. Refer to Frame 51.

64 DRY FIRE THERMISTOR REPLACEMENT

1. Refer to Frame 51.
2. Remove the boiler front panels and inner sealing panel. Refer to Frames 44 and 45.
3. Drain down the system.
4. Pull off the electrical connection.
5. Unscrew and withdraw the thermistor.
6. Fit the new thermistor, using the gasket supplied.
7. Reassemble in reverse order.
8. Check operation of the boiler. Refer to Frame 51.
Ideal Heating recommends that, for your own comfort and safety and to comply with good working practice, the procedure described below is followed:

1. Refer to ‘Replacement of Components’ Frame.
2. Remove the boiler front and sealing panels. Refer to ‘Boiler Front Panel Removal’ and ‘Boiler Sealing Panel Removal’ Frame.
3. Remove the fan / venturi assembly. Refer to ‘Fan and Venturi Assembly removal and cleaning’ Frame.
4. Remove the burner. Refer to ‘Burner removal and cleaning’ Frame.
5. Remove the ignition electrode. Refer to ‘Ignition Electrode replacement’ Frame.
6. Remove the flame detection electrode. Refer to ‘Flame Detection electrode replacement’ Frame.
7. Remove the front and rear ionisation probes and discard.

Prior to removal of the board the following protective equipment should be worn:
- Face mask supplied with the spare part.
- Gloves supplied with the spare part.

8. Damp down the combustion chamber area containing the insulation boards.
9. Remove the split pin and washer from the RHS of the combustion chamber and discard.
10. Remove the insulation boards. The replacement one piece insulation board is supplied in a plastic bag. This bag should be retained and the discarded boards should now be placed into it.
11. Sweep any dampened particles and place in the plastic bag.
12. Fit new insulation board -
   (a) Locate and align the insulation with the electrode holes and position the insulation into the combustion chamber.
   (b) Push the flexible material into the corners of the combustion chamber ensuring it is flat and flush against the combustion chamber wall.
   (c) Interlock the insulation piece along the back wall of the combustion chamber.
   (d) Again push the flexible material into the corners of the combustion chamber ensuring it is flat and flush against the combustion chamber wall.
   (e) Secure the insulation by replacing the ionisation probes with those supplied in the kit. Note that ionisation probes are a serviceable component and require inspecting annually.

Note. The insulation is designed to be interlocking and should be fitted as shown.

13. Remove the gloves and face mask and place them in the plastic bag.
14. Wash your hands and any areas of skin which may have come into contact with any of the particles from the insulation board.

Note. Seal the plastic bag and dispose of it and its contents into a commercial tip.
15. Reassemble in reverse order.
16. Check operation of the boiler. Refer to ‘General Checks’ Frames.

---

**Old Style Insulation**

**New Style Insulation**

*Note: The images show the old and new style of insulation boards, with the new style being supplied as one piece which is flexible and easy to shape and install.*
66 HEAT EXCHANGER REPLACEMENT

Refer also to Frame 10, ‘Boiler exploded view’.  

1. Refer to Frame 51.
2. Remove boiler front panels and inner sealing panel refer frames 44 & 45.
3. Remove the outer wall sealing plate (if fitted) and turn the terminal anticlockwise to unlock the turret bayonet fixing and pull the terminal to disconnect the boiler turret from the flue assembly.
4. Fully drain the system
5. Disconnect the gas, water flow & water return union connections at the pre-piping frame
6. Disconnect the condensate connection at the ‘S’ trap and the condensate pump (if fitted)
7. Protect the floor area front of the boiler, remove the screws fixing the boiler to the pre-piping frame and pull the boiler forward to clear any kitchen unit obstructions taking care with the electrical wiring.
8. Remove the fan & venturi assembly (refer to frame 46)
9. Remove burner (refer to frame 47)
10. Remove ignition electrode (frame 55) & detection electrode (frame 56)
11. HE30 & HE36 models only – Remove the spark generator (frame 57) and remove the electrical connections from the flow thermistor (frame 52 and the overheat thermostat (frame 63)
12. Remove the dry fire thermostat (frame 64)
13. HE15, 18 & 24 only – Remove the rubber plug to gain screwdriver access to the fixing screw retaining the heat exchanger bottom right copper pipe bracket and remove the screw.
14. HE30 &36 only – Unscrew the copper pipe connection at the top left of the heat exchanger and remove the pipe by pulling upwards through the rubber grommet.
15. Remove the 4 screws retaining the flue turret and remove the turret.
16. Remove the 4 screws retaining the flue support bracket.
17. Remove the 19 screws retaining the rear air box and remove the box.
18. HE15, 18 & 24 only- Pull the flue elbow bracket slightly sideways to release the elbow and pull the plastic flue elbow assembly from its joint.
19. HE30 &36 only- Pull the plastic pipe from its joint.
20. HE15, 18 & 24 only- Unscrew the 5mm hex. Hd. Screw

continued . . . .
67 HEAT EXCHANGER REPLACEMENT . . .continued

retaining the copper pipe retention plate and remove plate.

21. HE30 & 36 only - Unscrew the return connection union.

22. Remove the 5 screws retaining the sump.

23. Remove the ‘S’ trap bracket fixing screw and remove the ‘S’ trap.

24. Lift the heat exchanger to clear the bottom panel, pull forward and remove.

25. Fit the new heat exchanger, reassembling in reverse order, replacing gaskets or seals if any sign of damage or deterioration is evident. To ensure a positive flue seal is confirmed it may be necessary to remove the worktop or adjacent cupboard to view the joint.

26. Check the operation of the boiler. Refer to frame 51.

68 INNER SEALING PANEL SEAL REPLACEMENT

1. Refer Frame 51.

2. Remove the boiler front panels and refer to Frame 44.

3. Remove the inner sealing panel. Refer to Frame 45.

4. Remove the old seal from the panel and thoroughly clean the panel surfaces.

5. Fit the new adhesive seals - note that they are supplied to the correct length for the relevant sides.

6. Reassemble in reverse order.

Note.
Ensure that the boiler sealing panel is correctly seated, compressing the seal to make an airtight joint.

7. Check operation of boiler. Refer to Frame 51.
69 CONDENSATE ‘S’ TRAP REPLACEMENT & CONDENSATE PUMP (IF FITTED)

1. Refer to Frame 51.
2. Remove the boiler front panels. Refer to Frame 44.
3. Condense pump removal (if fitted):
   a. Disconnect the outlet pipe rubber connecting joint taking care to capture any liquid held in the pipe.
   b. Lift the inlet pipe to clear the pump.
   c. Remove the pump wiring cover.
   d. Remove the 5 wires from the terminal strip.
   e. Lift the condensate pump from the two screw fixings.
   f. Pull the pump forward and remove the wiring through the top grommet.
4. Undo the plastic union nut on the condensate ‘S’ trap outlet and disconnect the flexible hose.
5. Remove the screw retaining the ‘S’ trap bracket and remove the bracket.
6. Loosen the top nut on the ‘S’ trap then pull the trap down and forward to remove.
7. Reassemble in reverse order, ensuring the condensate pump is correctly replaced.
8. Check operation of the boiler. Refer to Frame 51.
In order to assist fault finding the boiler has an LED diagnostic display. The key to the display codes is as follows:

**IF BOILER FAILS TO RUN WHEN DEMAND IS PRESENT**
GO TO FRAME 71

**ALTERNATING ‘L’ ‘F’**
GO TO FRAME 72

**ALTERNATING ‘L’ ‘E’ OR ‘HE’**
GO TO FRAME 73

**ALTERNATING ‘L’ ‘A’**
GO TO FRAME 74

**ALTERNATING ‘L’ ‘8’**
GO TO FRAME 75

**ALTERNATING ‘H’ ‘1’**
GO TO FRAME 76

**ALTERNATING ‘H’ ‘F’**
GO TO FRAME 77

**ALTERNATING ‘H’ ‘4’ or ‘H9’ or ‘L9’**
GO TO FRAME 78

**ALTERNATING ‘H’ ‘n’**
GO TO FRAME 79
**FAULT FINDING**

### 71 CONDENSATE PUMP FAILURE

Is switched live present on the L2 terminal?

- **NO**
  - Check external controls wiring and function.

- **YES**
  - Power down the boiler and check for continuity between the common (C) and normally closed (NC) wires on the condensate pump. Is there continuity?
    - **NO**
      - Check condensate pump reservoir is empty and check overflow float switch is moving freely.
    - **YES**
      - Re-apply power to the boiler. Is switched live present on the common (C) terminal of the condensate pump connector?
        - **NO**
          - Check wiring continuity from L2 through to the PCB J1 black wire.
        - **YES**
          - Follow normal boiler fault finding procedure.

### 72 L......F...... (FLAME ERROR)

If the boiler reset button is pressed does the boiler ignite for a short time then extinguish?

- **NO**
  - Check gas pressure available at the boiler inlet?
    - **NO**
      - Check gas supply and rectify fault
    - **YES**
      - Is 200V DC supply available at the gas valve?
        - **NO**
          - Check gas valve wiring for continuity
        - **YES**
          - Check spark generator and associated harness for continuity and visual condition. (Refer to Frame 57). Are these functioning correctly?
            - **NO**
              - Replace PCB
            - **YES**
              - Check the ignition electrode and associated harness for: continuity, visual condition, position (Refer to Frame 55). Are these functioning correctly?
                - **NO**
                  - Replace ignition electrode and associated harness as necessary
                - **YES**
                  - Replace gas valve

**Note.** Due to the wave form of the rectified voltage the reading will vary, depending on the type of meter used to measure the value (some may measure the possible peak voltage of 339V). In general terms, a reading greater than 150V indicates that the correct voltage is supplied to the gas valve. As an alternative to a multimeter a mains checking device may be used. E.g. an electrical screwdriver or a mains tester.
73 L.....E..... or H.....E..... (BOARD ERROR)

- **Check for an excess voltage between neutral and earth. Is the value below 50V?**
  - **YES**
  - **LE ONLY:** Check Continuity of OH thermostat. Is this correct?
    - **YES**
    - **HE ONLY:** Check earth wire is connected to detection lead. Is this correct?
      - **YES**
      - **Internal fault within the PCB**
        - **NO**
        - **Check all earths for continuity. Is continuity OK?**
          - **YES**
          - **Correct Connection**
            - **NO**
            - **Replace PCB**

- **NO**
  - **Check earth connection to the boiler. If value is still in excess of 50V consult a qualified electrician to check the household electrical supply and circuitry**
    - **PRESS and hold reset button for 2 seconds. Does boiler operate correctly?**
      - **YES**
      - **OK**
    - **NO**
      - **Turn boiler off and wait for 5 seconds. Turn boiler on. Does boiler operate correctly?**
        - **YES**
        - **OK**
      - **NO**
      - **Replace PCB**
74  L.......A....... (OVERHEAT ERROR)

- Can the overheat condition be reset by pressing the boiler reset button when the system is cold?
  - **NO**: Replace overheat thermostat
  - **YES**: Does the pump setting give a differential across the boiler in excess of 25°C?
    - **NO**: Fill and vent the system and open all isolation valves
    - **YES**: Increase the pump setting. Is differential now below 25°C?
      - **NO**: Replace the system pump
      - **YES**: OK

- Is the boiler and CH system filled with water and all isolation valves open?
  - **NO**: Fill and vent the system and open all isolation valves
  - **YES**: Set CH control knob to maximum. If the overheat trips again measure the flow temp:
    - **Over 90°C**: Check control thermistor (Refer to Frame 52).
    - **Under 90°C**: Replace overheat 'stat

Note. With V9 Primary Control PCB, overheat L/A or L9 when reset will display 3 horizontal lines and will not attempt to re-fire until the temperature in the heat exchanger drops below 90°C.

75  L.....8..... (FAN ERROR)

- Is nominal 330 V DC present across red and blue at the fan connector as reset button is pressed?
  - **YES**: Replace fan
  - **NO**: Check wiring harness for continuity. Is there continuity?
    - **YES**: Replace PCB
    - **NO**: Replace harness

76  H.....1..... (FLOW THERMISTOR ERROR)

- Remove the boiler flow thermistor from the CH flow pipe and disconnect thermistor wires.
- Check resistance, using a suitable multimeter connected across the thermistors terminal pins:
  - At 25°C: 9,700 - 10,300 Ohms
  - At 60°C: 2,400 - 2,600 Ohms
  - At 85°C: 1,000 - 1,100 Ohms
- Are the thermistor values correct?
  - **NO**: Replace the thermistor
  - **YES**: Is there continuity between the PCB and the thermistor?
    - **YES**: Replace PCB
    - **NO**: Check and replace wiring as necessary
**77 H......F....... (FLAME DETECTION - SHORT CIRCUIT ERROR)**

Remove flame detection electrode terminal from PCB.

Is there continuity between the 2 terminal pins?

- **NO**: Replace PCB.
- **YES**: Replace flame detection electrode

**78 H......4....... (DRY FIRE THERMISTOR ERROR)**

Can the fault condition be reset by switching off the mains supply to the boiler?

- **NO**: Check wiring for continuity from the PCB to the dry fire thermistor

  Check resistance, using a suitable multimeter connected across the dry fire thermistor terminal pins.

  - At 25 °C expect 9,700 - 10,300 Ohms
  - At 60 °C expect 2,400 - 2,600 Ohms
  - At 85 °C expect 1,000 - 1,100 Ohms

  Are dry fire thermistor values correct?

  - **YES**: Replace PCB
  - **NO**: Replace dry fire thermistor

**H9/L9 (FLUE GAS OVERHEAT)**

Is the system filled and vented and all isolation valves open?

- **YES**: Check wiring to the boiler for reversed live and neutral

  - **Note**: With V9 Primary Control PCB, overheat LA/HA or H9/L9 when reset will display 3 horizontal lines and will not attempt to re-fire until the temperature in the heat exchanger drops below 50°C.

  Inspect heat exchanger for blockage or damage in the flueways. Clean or replace as necessary

  - **NO**: Replace thermistor

**79 H......n....... (PHASE REVERSAL ERROR)**

Check wiring to the boiler for reversed live and neutral
SPARE PARTS

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

Comprehensive spares parts information and details of approved Ideal Parts Distributors are available on www.idealparts.com

Our Parts team are also available to help with your Ideal Spare Parts enquiries on 01482 498665.

When calling, and to ensure we can provide you with the most accurate parts information, please ensure you have the following to hand:
- Boiler Model
- Appliance GC Number
- Boiler Serial Number
Code Of Practice
For the installation, commissioning and servicing of domestic heating and hot water products

Benchmark places responsibilities on both manufacturers and installers. The purpose is to ensure that customers are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturer’s instructions by competent persons and that it meets the requirements of the appropriate Building Regulations. Installers are required to carry out work in accordance with the following:

Standards of Work
- Be competent and qualified to undertake the work required.
- Install, commission, service and use products in accordance with the manufacturer’s instructions provided.
- Ensure that where there is responsibility for design work, the installation is correctly sized and fit for purpose.
- Meet the requirements of the appropriate Building Regulations. Where this involves notifiable work be a member of a Competent Persons Scheme or confirm that the customer has notified Local Authority Building Control (LABC), prior to work commencing.
- Complete all relevant sections of the Benchmark Checklist/Service Record when carrying out commissioning or servicing of a product or system.
- Ensure that the product or system is left in a safe condition and, whenever possible, in good working order.
- Highlight to the customer any remedial or improvement work identified during the course of commissioning or servicing work.
- Refer to the manufacturer’s helpline where assistance is needed.
- Report product faults and concerns to the manufacturer in a timely manner.

Customer Service
- Show the customer any identity card that is relevant to the work being carried out prior to commencement or on request.
- Give a full and clear explanation/demonstration of the product or system and its operation to the customer.
- Hand over the manufacturer’s instructions, including the Benchmark Checklist, to the customer on completion of an installation.
- Obtain the customer’s signature, on the Benchmark Checklist, to confirm satisfactory demonstration and receipt of manufacturer’s instructions.
- Advise the customer that regular product servicing is needed, in line with manufacturers’ recommendations, to ensure that safety and efficiency is maintained.
- Respond promptly to calls from a customer following completion of work, providing advice and assistance by phone and, if necessary, visiting the customer.
- Rectify any installation problems at no cost to the customer during the installer’s guarantee period.

*The use of the word “installer” is not limited to installation itself and covers those carrying out installation, commissioning and/or servicing of heating and hot water products, or the use of supporting products (such as water treatment) or test equipment.
**Customer includes householders, landlords and tenants.

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### GAS BOILER SYSTEM COMMISSIONING CHECKLIST

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

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

**Customer Name** ___________  **Telephone Number** ___________

**Address** ___________

**Boiler Make and Model** ___________

**Boiler Serial Number** ___________

**Commissioned by** (print name) ___________  **Gas Safe Register Number** ___________

**Company Name** ___________  **Telephone Number** ___________

**Commissioning Date** ___________

**To be completed by the customer on receipt of a Building Regulations Compliance Certificate**: Building Regulations Notification Number (if applicable)

### CONTROLS

<table>
<thead>
<tr>
<th>Controls</th>
<th>Tick the appropriate boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time and Temperature Control to Heating</td>
<td>Programmable Room Thermostat and Timer</td>
</tr>
<tr>
<td>Heating Zone Valves</td>
<td>Fitted</td>
</tr>
<tr>
<td>Hot Water Zone Valves</td>
<td>Fitted</td>
</tr>
<tr>
<td>Thermostatic Radiator Valves</td>
<td>Fitted</td>
</tr>
<tr>
<td>Automatic Bypass to System</td>
<td>Fitted</td>
</tr>
<tr>
<td>Boiler Interlock</td>
<td>Provided</td>
</tr>
</tbody>
</table>

### ALL SYSTEMS

The system has been flushed and cleaned in accordance with BS583 and boiler manufacturer’s instructions.

What system cleaner was used? ___________  **Quantity** ___________  **Price** ___________

What inhibitor was used? ___________  **Quantity** ___________  **Price** ___________

### CENTRAL HEATING MODE

**Measure and Record:**

<table>
<thead>
<tr>
<th>Gas Rate</th>
<th>m³/hr</th>
<th>OR</th>
<th>m³/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner Operating Pressure (if applicable)</td>
<td>mbar</td>
<td>OR</td>
<td>Gas Inlet Pressure</td>
</tr>
<tr>
<td>Central Heating Flow Temperature</td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Heating Return Temperature</td>
<td>°C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### COMBINATION BOILERS ONLY

Is the installation in a hard water area (above 200ppm)? ___________  **Yes**  **No**

If yes, and if required by the manufacturer, has a water scale reducer been fitted? ___________  **Yes**  **No**

What type of scale reducer has been fitted? ___________

### DOMESTIC HOT WATER MODE

**Measure and Record:**

<table>
<thead>
<tr>
<th>Gas Rate</th>
<th>m³/hr</th>
<th>OR</th>
<th>m³/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner Operating Pressure (at maximum rate)</td>
<td>mbar</td>
<td>OR</td>
<td>Gas Inlet Pressure (at maximum rate)</td>
</tr>
<tr>
<td>Cold Water Inlet Temperature</td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot water has been checked at all outlets</td>
<td>Yes</td>
<td>Temperature</td>
<td>°C</td>
</tr>
<tr>
<td>Water Flow Rate</td>
<td>l/min</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CONDENSING BOILERS ONLY

The condensate drain has been installed in accordance with the manufacturer’s instructions and/or BS5546/BS56798 ___________  **Yes**  **No**

If the condensate pipe terminates externally has the pipe diameter been increased and weatherproof insulation fitted? ___________  **Yes**

### ALL INSTALLATIONS

If required by the manufacturer, record the following:

<table>
<thead>
<tr>
<th>CO</th>
<th>%</th>
<th>OR</th>
<th>CO</th>
<th>ppm</th>
<th>OR</th>
<th>CO/CO₂ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>The heating and hot water system complies with the appropriate Building Regulations</td>
<td><strong>Yes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The boiler and associated products have been installed and commissioned in accordance with the manufacturer’s instructions</td>
<td><strong>Yes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The operation of the boiler and system controls have been demonstrated to and understood by the customer</td>
<td><strong>Yes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The manufacturer’s literature, including Benchmark Checklist and Service Record, has been explained and left with the customer ___________  **Yes**

**Commissioning Engineer’s Signature** ___________

**Customer’s Signature** ___________

(To confirm satisfactory demonstration and receipt of manufacturer’s literature)

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

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**SERVICE RECORD**

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

**Service Provider**

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer’s instructions.

Always use the manufacturer’s specified spare part when replacing controls.

<table>
<thead>
<tr>
<th>SERVICE 1</th>
<th>Date</th>
<th>Engineer Name</th>
<th>Company Name</th>
<th>Telephone Number</th>
<th>Gas Safe Register Number</th>
<th>Comments</th>
<th>Signature</th>
</tr>
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Failure to install and commission according to the manufacturer’s instructions and complete this Benchmark Commissioning Checklist will invalidate the warranty. This does not affect the customer’s statutory rights.

If yes, and if required by the manufacturer, has a water scale reducer been fitted?

If the condensate pipe terminates externally has the pipe diameter been increased and weatherproof insulation fitted?
Ideal, P.O. Box 103, National Ave, Kingston upon Hull, HU5 4JN.
Telephone: 01482 492 251 Fax: 01482 448 858. Registration No. London 322 137.

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

Ideal Installer/Technical Helpline: 01482 498 663
www.idealheating.com