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.

IMPORTANT: The appliances are for use with NATURAL GAS ONLY.

NOTE TO INSTALLER: LEAVE THESE INSTRUCTIONS ADJACENT TO THE GAS METER
<table>
<thead>
<tr>
<th>Table 1: GENERAL DATA</th>
<th>PERFORMANCE DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boiler Size</strong></td>
<td><strong>RS 30N</strong></td>
</tr>
<tr>
<td>Main Burner Bar</td>
<td>AEROMATIC AC19/123267</td>
</tr>
<tr>
<td>Gas Control</td>
<td>HONEYWELL V4070E 1007, 240V</td>
</tr>
<tr>
<td>Burner Injector</td>
<td>BRAY 103 650</td>
</tr>
<tr>
<td>Pilot Injector</td>
<td>SIT 0.977 113.1</td>
</tr>
<tr>
<td><strong>Gas Supply Connection</strong></td>
<td>in. BSP</td>
</tr>
<tr>
<td><strong>Flow Connections</strong></td>
<td>Rs. 1/8</td>
</tr>
<tr>
<td><strong>Return Connections</strong></td>
<td>Rs. 1/8</td>
</tr>
<tr>
<td>Maximum Static Water Head</td>
<td>m</td>
</tr>
<tr>
<td>Minimum Static Water Head</td>
<td>m</td>
</tr>
<tr>
<td><strong>Electric Supply</strong></td>
<td>240 V ~ 50 Hz</td>
</tr>
<tr>
<td><strong>External Fuse Rating</strong></td>
<td>3 A</td>
</tr>
<tr>
<td><strong>Water Content (lit. gal.)</strong></td>
<td>10.9</td>
</tr>
<tr>
<td><strong>Dry Weight (kg) (lbs.)</strong></td>
<td>70.0 (154)</td>
</tr>
<tr>
<td><strong>Maximum Installation Weight (kg) (lbs.)</strong></td>
<td>0.1 (234)</td>
</tr>
<tr>
<td><strong>Boiler Size</strong></td>
<td>Height (mm (in.))</td>
</tr>
<tr>
<td></td>
<td>Width (mm (in.))</td>
</tr>
<tr>
<td></td>
<td>Depth (mm (in.))</td>
</tr>
</tbody>
</table>

**PERFORMANCE DATA**

**Boiler Input**

<table>
<thead>
<tr>
<th><strong>Boiler Input (kW (Btu/h))</strong></th>
<th><strong>RS 30N</strong></th>
<th><strong>RS 40N</strong></th>
<th><strong>RS 50N</strong></th>
<th><strong>RS 60N</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>To obtain gas consumption</td>
<td>5.7</td>
<td>8.6</td>
<td>15.1</td>
<td>19.9</td>
</tr>
<tr>
<td>(a) For, divide heat input (kW) (Btu/h)</td>
<td>(27,300)</td>
<td>(40,000)</td>
<td>(53,600)</td>
<td>(68,000)</td>
</tr>
<tr>
<td>(b) For Ethanol, divide heat input (kW) (Btu/h)</td>
<td>(33,100)</td>
<td>(46,000)</td>
<td>(60,000)</td>
<td>(73,000)</td>
</tr>
<tr>
<td>Gas Consumption (kWh)</td>
<td>0.25 (31.9)</td>
<td>0.35 (44.3)</td>
<td>0.45 (57.8)</td>
<td>0.56 (71.2)</td>
</tr>
</tbody>
</table>

**Boiler Output**

<table>
<thead>
<tr>
<th><strong>Boiler Output (kW (Btu/h))</strong></th>
<th><strong>RS 30N</strong></th>
<th><strong>RS 40N</strong></th>
<th><strong>RS 50N</strong></th>
<th><strong>RS 60N</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>0.8</td>
<td>9.6</td>
<td>11.7</td>
<td>14.0</td>
</tr>
<tr>
<td>(Btu/h)</td>
<td>(20,000)</td>
<td>(30,000)</td>
<td>(40,000)</td>
<td>(50,000)</td>
</tr>
<tr>
<td>MID</td>
<td>7.3</td>
<td>10.3</td>
<td>13.2</td>
<td>16.1</td>
</tr>
<tr>
<td>(Btu/h)</td>
<td>(25,000)</td>
<td>(35,000)</td>
<td>(45,000)</td>
<td>(55,000)</td>
</tr>
<tr>
<td>Maximum</td>
<td>8.8</td>
<td>11.2</td>
<td>14.7</td>
<td>17.6</td>
</tr>
<tr>
<td>(Btu/h)</td>
<td>(30,000)</td>
<td>(40,000)</td>
<td>(50,000)</td>
<td>(60,000)</td>
</tr>
</tbody>
</table>

**Burner Setting Pressure (Hot)**

<table>
<thead>
<tr>
<th><strong>Burner Setting Pressure (Hot)</strong></th>
<th><strong>Min</strong></th>
<th><strong>Max</strong></th>
<th><strong>Min</strong></th>
<th><strong>Max</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(mbar) (in. w.g.)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(mbar) (in. w.g.)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GENERAL GUIDANCE**

**INTRODUCTION**

The Ideal W 2000 is a water-mixed steel mild steel casing which contains a drop down door and removable base. The boiler thermostat is located behind the controls access door, in the front mounted adjacent to the gas valve. Programme pump and motor kit, which may be fitted within the casing, are available as optional extras. Separate lifting instructions are included with these kits. The burners are set at standard, for connection with open vented systems only. An optional overhead thermostat kit is available to allow the boiler to be fitted to gas systems. The OPTIONAL PUMP KIT CAN NOT BE USED IN CONJUNCTION WITH THE OVERHEAD THERMOSTAT KIT.

**LOCATION OF BOILER**

The boiler must be installed on a flat and vertical external wall, capable of adequately supporting the weight of the boiler and any ancillary equipment. The boiler may be installed in any room or internal space, although particular attention is drawn to the requirements of the current regulations. The gas supply must be installed in a room containing a bath or shower. Where a non-exhausted appliance is installed in a room containing a bath or shower, the appliance and any electrical equipment must be installed in such a manner as to prevent the risk of ignition or explosion. A compartment used to enclose the boiler MUST be designed and constructed for this purpose. An existing cupboards, or compartment, may be used provided it is modified for the purpose. Details of essential features of cupboards compartment design, including cupboards installation and installation are given in BS 6789.

**GAS SAFETY**

It is the law that all gas appliances are installed by competent persons (e.g. CCRG) in accordance with the above Regulations. Failure to install appliances correctly could lead to prosecution. It is in your interest to ensure that safety is provided by the law is complied with. The installation of the boiler MUST be also in accordance with the latest L.E.E. WRP Regulations, the Local Building Regulations, the by-laws of the Local Water Authority, the Building Regulations and the Building Standards (Scotland) and any relevant requirements of the Local Authority. Detailed recommendations are contained in the following British Standards Code of Practice.

**BS 6981**

Low pressure installation sites

**BS 6798**

Installation of gas-fired hot water boilers of rated input not exceeding 60 kW

**BS 5440-1**

Forced circulation hot water systems.

**BS 5546**

Installation of gas hot water supplies for domestic purposes (2nd Family Gas)

**BS 5440-2**

Air supply for gas appliances of rated input not exceeding 60 kW

Manufacturing’s notes must not be taken, in any way, as overriding statutory obligations.
GENERAL GUIDANCE

Do NOT use pipes of smaller size than the boiler inlet gas connection.
The complete installation MUST be tested for gas soundness and purged as described in the above Code.

FLUEING

Detailed recommendations for fluing are given in BS 5440:1.
The following notes are intended for general guidance:
1. The boiler MUST be installed so that the terminal is
   exposed to the external air.
2. It is important that the position of the terminal allows free passage of air across it at all times.
3. Minimum acceptable spacings from the terminal to obstructions & ventilation openings are specified in Table 3.
4. Where the lowest part of the terminal is fitted less than 3m (6 ft) above a balcony ground, or above a flat roof, to which people have access.
   The terminal MUST be protected by a purpose designed guard.
   Terminal guards are available from: Quinzel, Barret & Quinzel Limited, 684 Old Kent Road, London SE 15; Model P6, or Tower Fast Components Limited, Vale Rise, Tonbridge, Kent TN 9; Model C.
   Ensure that the guard is fitted correctly.

Table 3

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

GENERAL GUIDANCE

WATER CIRCULATION SYSTEM

The boiler must NOT be used for direct hot water supply.
For the types of system and correct piping procedures—see Introduction and Frame 3.

Note: All water connections MUST be made to the boiler REAR tapping.

The central heating system should be in accordance with BS 6798 and in addition, for Smallbone and Microbore systems - BS 5446.
The domestic hot water system, if applicable, should be in accordance with the relevant recommendations of BS 5546.
Copper tubing, to BS 2871:1987, is recommended for water carrying pipework.
The hot water storage cylinder MUST be of the indirect type and should preferably be manufactured of copper.
Single-feed indirect cylinders are not recommended, and MUST NOT be used on sealed systems.
The appliances are NOT suitable for gravity central heating systems with, or without, additional gravity domestic hot water supply, nor are they suitable for the provision of gravity domestic hot water requirements above a 181.8 litre (40 gallon) tank capacity, depending on the model.
The hot water cylinder and ancillary pipework, not forming part of the useful heating surface, should be lagged to prevent heat loss and any possible freezing, particularly where pipes run through roof spaces and ventilated under floor spaces.
The boiler MUST be vented. If venting cannot be done via a flow connection, a separate vent MUST be fitted by the installer. This DOES NOT mean that more than one open vent is required. Other plots of the system, which may become unacceptably air locked, can be automatically vented.
Draining taps MUST be located in accessible positions, which permit the draining of the whole system, including the boiler and hot water storage vessel.
Draining taps should be, at least 1/2 in BSP nominal size and be in accordance with BS 2870.
The hydronic resistance of the boilers, at MAXIMUM OUTPUT, with an 11°C (20°F) temperature differential, are shown in Table 8.

Table 8 - WATER FLOW RATE AND PRESSURE LOSS

<table>
<thead>
<tr>
<th>Boiler Size</th>
<th>RS 30N</th>
<th>RS 40N</th>
<th>RS 50N</th>
<th>RS 60N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiler Output kW</td>
<td>8.8</td>
<td>11.7</td>
<td>14.7</td>
<td>17.6</td>
</tr>
<tr>
<td>Input l/min</td>
<td>11.4</td>
<td>15.2</td>
<td>19</td>
<td>22.9</td>
</tr>
<tr>
<td>Pressure</td>
<td>mbar</td>
<td>15</td>
<td>27</td>
<td>39</td>
</tr>
<tr>
<td>Loss</td>
<td>in.w.g.</td>
<td>6</td>
<td>10.8</td>
<td>15.6</td>
</tr>
</tbody>
</table>

ELECTRICITY SUPPLY

The method of connection to the mains electricity supply MUST facilitate complete electrical isolation of the boiler, preferably by the use of a fused, unswitched three-phase and a shuttered socket-outlet, both complying with the requirements of BS 1363.

Alternatively, a fused double-pole switch, having at least a 3 mm (1/8 in) contact separation in both poles and serving only the boiler, may be used.
The point of connection to the mains should be readily accessible and adjacent to the boiler, except that, for bathroom installations, the point of connection to the mains MUST be situated outside the bathroom.

NOTE: Where a number of appliances is installed in a room containing a bath or shower, the appliance, any electrical switch or appliance control utilising mains electricity should not be touched by a person using the bath or shower.
UNPACKING
The boiler is supplied fully assembled in one pack, A, together with one of four packs: B, C, D, and E, containing the flue terminal appropriate to the wall thickness. Optional extras, if ordered (Pump Kit, Programmer Kit and Sealed System Kit), are supplied in separate boxes.

1 UNPACKING
1. Unpack the boiler.
2. Remove the casing as follows and place on one side to avoid damage:
   - Open the screws and remove the flue terminal.
   - Remove the casing in the directions of the arrow.
3. Unpack the flue terminal.
4. Remove the boiler from its packing case.

2 BOILER ASSEMBLY - Exploded view

3 BOILER WATER CONNECTIONS (Open vented systems)
1. Use approved jointing compound for all water connections.
2. All water connections must be made to the REAR tappings. Ensure that the water connections are in accordance with the instructions given in the manual, which is available from the manufacturer.
3. The stop valves must be fitted to the HEATING return tappings. Ensure that the stop valve is the correct size for the boiler and that it is fitted in accordance with the instructions given in the manual.
4. All water connections must be made to the REAR tappings. Ensure that the water connections are in accordance with the instructions given in the manual, which is available from the manufacturer.
5. The stop valves must be fitted to the HEATING return tappings. Ensure that the stop valve is the correct size for the boiler and that it is fitted in accordance with the instructions given in the manual, which is available from the manufacturer.
6. All water connections must be made to the REAR tappings. Ensure that the water connections are in accordance with the instructions given in the manual, which is available from the manufacturer.
7. The stop valves must be fitted to the HEATING return tappings. Ensure that the stop valve is the correct size for the boiler and that it is fitted in accordance with the instructions given in the manual, which is available from the manufacturer.

4 MINIMUM REQUIREMENTS - (Fully pumped, open vented systems)
1. Open vent a cold feed connection made to the boiler flow return tappings as shown.
2. The boiler should be manufactured to the specification of the manufacturer.
3. The boiler should be manufactured to the specification of the manufacturer.
4. The boiler should be manufactured to the specification of the manufacturer.
5. The boiler should be manufactured to the specification of the manufacturer.
6. The boiler should be manufactured to the specification of the manufacturer.

5 REQUIREMENTS FOR CORRECT GRAVITY HOT WATER PERFORMANCE
Note: Gravity horizontals pipes should be ABYC certified and must be sized according to the manufacturer's recommendations. A minimum number of 25 pipes per 3m run (1 in per 10 ft) is required to avoid air locks. If these conditions cannot be met, copper pipes must be used.

The above graph assumes 8 elbows in the gravity circuit. For each elbow in excess of 8 (8) must be reduced by 500 mm (1250) or 600 mm (2400) increased by 100 mm (4 in).
WALL MOUNTING TEMPLATE
1. Tape the template to the wall in the selected position. Ensure symmetry by use of a plumbline as shown.
2. Mark out the position of the 3 wall screws, choosing 1 from each of the 3 holes.
3. Drill the three holes (No 20 or 10 mm) and insert the 3 TP-3 plastic plugs (Blue). Also drill the jacketing plate screw hole and insert the plastic plug (Brown).
4. Remove the template from the wall.

PREPARING THE WALL
1. Cut the appropriate hole in the wall for insertion of the terminal assembly. Note: the terminal must not come into contact with a combustible material, such as that used in the non-standard construction of timber framework and plasterboard etc.
2. If the optional pump kit is to be used, mark and drill the two holes with a No 20 (10 mm) masonry drill as shown on the pump kit and then insert the two TP-3 plastic plugs.
3. Fix the mounting plate to the wall with the 3 B/50 x 50 mm coach screws provided.
4. If applicable, screw the pump mounting bracket to the wall using the screws provided in the pump kit.

PREPARING THE BOILER
1. Fit distributor tube to the chosen pumped heating return connection. Align the line mark on tube with arrow on the black panel. Refer to Frame 3. Note: if the optional programmer kit is to be fitted, do so at this stage, up to point of fitting boiler on the wall. Refer to separate fitting instructions supplied with kit.
2. The thermostat is pre-fitted to the upper R.H. side taping, but should be re-positioned if required such that it is always in an upper tapping on the same side as the distributor tube.
3. Fit the stub connections for the heating flow and return, and gravity flow and return, if required. If the side clearance is limited, ensure the stub connections are continued upwards or downwards to clear the top or bottom of the boiler casing. To fit the boiler casing the gas and water connections must run within the space available.
4. Plug spare tappings with the necessary plugs provided.
5. Route and clip the thermostat capillary and capillary (shown in Frame 3. Servicing).

BOILER VENTING DUCTS

Fitting the Extension Duct
1. Extension duct has ends of unequal size, corresponding to the metal thickness. Take the larger duct & apply sealing compound over 25 mm (1 in.) of the OUTER surface of the SMALLER end.
2. Apply sealing compound to 25 mm (1 in.) of the INNER surface of the bigger terminal end. This is the OUTER duct. Slide the SMALL end of the air duct extension through the wall opening & approximately 50 mm (2 in.) into the boiler terminal air duct.
3. Apply sealing compound on the INSIDE of the LARGE end of the flue duct extension & slide it OVER the boiler flue duct for 50 mm (2 in.).
4. Apply sealing compound liberally to the first 25 mm (1 in.) of the INNER surface of the air duct extension & the OUTER surface of the terminal air duct. Apply the sealing compound to the inside of the terminal air duct.
5. The terminal duct assembly from outside the building. The terminal grille MUST be removed by means of the screws (F).
6. Slide the flue duct OVER the extension flue duct, and the air duct INTO the extension air duct.
7. Push the terminal duct assembly inward until the outermost side fixing brackets contact the wall surface.
8. Make good between ducts inside & outside the building, such that the inner sealing brackets are firmly embedded and held in the wall.
9. When thoroughly dry, fasten the terminal grille (E) to the flue duct assembly (D) with the two screws (F).
10. Fit the terminal guard as required.
15 ELECTRICAL CONNECTIONS

WARNING: The appliance MUST be efficiently earthed.
A mains supply of 240 V – 50 Hz, Single Phase, is required.
All external controls & wiring MUST be suitable for mains voltage.
Wiring should be in 3-core PVC insulated cable, NOT more than 2.5 mm² (0.75 mm²) to BS 6500 Table 16.
All wiring external to the boiler, including the room thermostat etc., MUST be in accordance with the latest I.E.E. Wiring Regulations and Local Regulations which apply.
The supply connection should be made via a removable plug to an unscrewed shuttered socket outlet and should such a plug be used for connection to the mains, it MUST be at 3-pin type, wired as shown, fused at 3 A and complying with the requirements of BS 1363.
Alternatively, a fused, double pole switch, having at least a 3 mm (1/8”) contact separation in both poles and serving only the boiler may be used.

16 EXTERNAL CONTROLS

The wiring diagrams illustrated in Frames 19–22 cover the systems mostly likely to be fitted to this appliance.
For wiring external controls to the IDEAL W2000 RS Boiler, reference should be made to the system wiring diagrams supplied by the relevant manufacturer, in conjunction with this wiring diagram shown in Frames 16 and 18.
Difficulty in wiring should not arise, providing the following instructions are followed:
1. Controls that switch the system ON/OFF, e.g. a time switch, MUST be wired in series, in the live mains lead to the boiler.
2. Controls that override an ON/OFF control, e.g. a frost thermostat, MUST be wired into the mains lead, in parallel, with the control(s) to be overridden – refer to Frame 22.
3. Controls that switch the circulation pump only ON/OFF, e.g. a room thermostat, MUST be wired in series, with the pump in the live pump lead.
4. If a proprietary system is used, follow the instructions supplied by the manufacturer.
5. SYSTEM DESIGNS FEATURING CONTROLS OR WIRING ARRANGEMENTS, WHICH ALLOW THE BOILER TO FIRE WHEN THERE IS NO PUMPED OR GRAVITY CIRCULATION TAKING PLACE, SHOULD NOT BE FITTED.

17 PICTORIAL WIRING

Note: 1. Connections between a frost thermostat and the time control should be made without disturbing other wiring.
2. A frost thermostat should be sited in a cool place in the house, where it can sense heat from the system.
Wires the mains connections, supplied stripped to the control box, as follows:
Live (brown) to L
Neutral (blue) to N
Earth (green/yellow) to Y

Note: When the optional programmer kit is fitted, the incoming mains lead should be connected to the programmer mains plug.
The boiler control box three-pin plug should be wired in accordance with the system diagrams shown in Frames 19 to 22 and the Programmer Installation Instructions.

18 FROST PROTECTION

Central heating systems fitted wholly inside the house do not normally require frost protection, as the house acts as a storage heater. This normally be left at not least 24 hrs, without frost damage. However, if parts of the system extend outside the house, or if the boiler is left off for more than a day or two, a frost thermostat should be wired into the system. This is usually wired as the programmer, in which case the programmer operates switches are set to "OFF" and all other controls MUST be left in the standing position. The frost thermostat should be sited in a cold position, but where it can sense heat from the system. Wiring should be as shown, with minimal disturbance to other wiring of the programmer. Designation of the terminals will vary, but the programmer and thermostat manufacturer's literature will give full details. Diagram A shows a double pole frost switch, which should suffice for all systems which do not use the "OFF" terminals of the programmer. Diagram B shows a "change-over" frost switch, which will cover most systems which do use "OFF" terminals. However, on such a system, the heat output is in an isolated part of the house, a second frost switch may be used to protect it. If doubt, ask your installer for advice.
24 INITIAL LIGHTING
1. Check that all gas cocks are CLOSED, and that the stop valves in the flow and return lines are OPEN.
2. Check that the gas service cock is OPEN and that the boiler thermostat control knob (G) is OFF. Fill the boiler casing (Frame 25) and make programmer electrical connections if fitted (Frame 6 - Routine Servicing).
3. Make sure the boiler casing is empty before proceeding further.
4. Slide the gas control button (A) to the RIGHT until resistance is felt, then release it. WAIT FOR THREE MINUTES.
5. Push in and retain fully depressed the gas control button (A). Press and release the push unit button (E) repeatedly until the pilot unit is set to light.
6. Hold the gas control button depressed for 15 seconds after the pilot burner has ignited.
7. Turn the boiler thermostat control knob (G) to position 5. Note that the burner control is set to 5 for the pilot flame to ensure that it envelops the tip of the thermocouple and is approximately 25 mm (1 in) long.
8. The pilot flame is factory set and no adjustment should be necessary. If the pilot flame is incorrect refer to Frame 7 of the Routine Servicing Instruction card.
9. Check that the electricity supply and all external controls are ON.
10. Set the boiler thermostat control knob to position 5 and check that the burner control settings smoothly follow the pilot flame.
11. Test for gas soundness around the boiler gas component joints, available at this time, using leak detection fluid.
12. Operate the boiler for ten minutes to stabilize the burner temperature.
13. Check the burner setting pressure against the relevant values quoted in Table 2, Page 2.
14. If the burner setting pressure requires adjustment, remove the gas valve cover. Adjust the pressure adjusting screw (G) as required (CLOCKWISE to DECREASE).
15. Replace the valve cover.
16. Set the boiler thermostat control knob to OFF.
17. Turn on the electrical supply and set the thermostat control knob to 6. Check for gas soundness at the pilot, pilot supply connections and the pressure test point screw.
18. Programming refers to inserting the main electrical plug (previously in base of programmer) into the rear of the boiler control box.
19. Turn on the electrical supply and set the thermostat control knob to 6. Check for gas soundness at the pilot, pilot supply connections and the pressure test point screw.
20. Programming refers to inserting the main electrical plug (previously in base of programmer) into the rear of the boiler control box.
21. Turn on the electrical supply and set the thermostat control knob to 6. Check for gas soundness at the pilot, pilot supply connections and the pressure test point screw.
22. Programming refers to inserting the main electrical plug (previously in base of programmer) into the rear of the boiler control box.
23. Turn on the electrical supply and set the thermostat control knob to 6. Check for gas soundness at the pilot, pilot supply connections and the pressure test point screw.
24. Programming refers to inserting the main electrical plug (previously in base of programmer) into the rear of the boiler control box.
25. Turn on the electrical supply and set the thermostat control knob to 6. Check for gas soundness at the pilot, pilot supply connections and the pressure test point screw.
26. Programming refers to inserting the main electrical plug (previously in base of programmer) into the rear of the boiler control box.
27. Turn on the electrical supply and set the thermostat control knob to 6. Check for gas soundness at the pilot, pilot supply connections and the pressure test point screw.
28. Programming refers to inserting the main electrical plug (previously in base of programmer) into the rear of the boiler control box.
29. Turn on the electrical supply and set the thermostat control knob to 6. Check for gas soundness at the pilot, pilot supply connections and the pressure test point screw.
30. Programming refers to inserting the main electrical plug (previously in base of programmer) into the rear of the boiler control box.
31. Turn on the electrical supply and set the thermostat control knob to 6. Check for gas soundness at the pilot, pilot supply connections and the pressure test point screw.
32. Programming refers to inserting the main electrical plug (previously in base of programmer) into the rear of the boiler control box.
2. BOILER CASING REMOVAL

1. Open the controls panel door. Unlatch and remove door.

2. Disconnect the controller plug from the rear of the control box.

3. If a programmer is fitted, remove the two screws retaining the bottom of the programmer to the control casing bottom panels.

4. Remove the screws retaining the control casing bottom panel and slide it out.

5. Pull out the main connector plug from the base of the programmer.

6. Remove the two screws securing the external controller/pump plug connector and pull it out.

3. If a programmer is fitted, remove the two screws retaining the bottom of the programmer to the control casing bottom panels.

4. Remove the screws retaining the control casing bottom panel and slide it out.

5. Pull out the main connector plug from the base of the programmer.

6. Remove the two screws securing the external controller/pump plug connector and pull it out.

7. PROGRAMMER MODELS

8. STANDARD & PROGRAMMER MODELS

9. BURNER AND CONTROLS ASSEMBLY REMOVAL

1. Undo the union on the gas service cock.

2. Undo the boiler thermostat capillary from the backplate.

3. Remove the boiler thermostat from the thermostat pocket and carefully coil up the capillary, taking care not to kink it.

4. If the boiler is used on a sealed system, unlock the two overheat thermostat reset hinged bracket screws and pull the sensing head clear of the bracket.

5. Remove the two nuts securing the burner sealing plate to the bottom of the casing.

6. Support the burner and remove the three nuts and washers securing the burner to the boiler back panel (2 left, 1 right).

7. Remove burner assembly and controls to a safe place for inspection and attention.

4. CLEANING THE BURNER ASSY.

1. Brush off any deposits that may have fallen on to the burner head, ensuring the flue ports are unobstructed and remove any debris that may have collected.

2. Remove the main burner (Refer Frame 17).

3. Remove the main burner injector, ensure there is no blockage or damage.

4. Retract injector using approved jointing compound sparingly.

5. Inspect the pilot burner, thermocouple and spark electrode: ensure they are clean and in good condition. Check that:
   a) The pilot burner injector is not blocked or damaged. (Refer Frame 8 for removal details).
   b) The pilot burner is clean and unobstructed.
   c) The spark electrode is clean and undamaged.
   d) The spark lead is in good condition and securely connected.
   e) The spark gap is correct. (Refer Frame 7).
   f) The thermocouple tip is not burned or cracked.
   g) The distance between the thermocouple tip and the pilot burner is correct. (Refer Frame 7).
   h) The thermocouple terminal at the gas valve is clear.
   i) Re-assemble the burner assembly in reverse order. Note: The pilot flame should be located around the pilot easy bracket.

8. PILOT BURNER SETTING

1. Turn on the gas supply.

2. Light the pilot and check that the pilot flame envelopes the tip of the thermocouple and is approximately 25 mm (1 in) long. The pilot burner is factory set at minimum and no further adjustment should be necessary. However, if the pilot flame appears small, check the adjustment of the pilot; proceed as follows:
   a) Press the green button to the right in the direction of the arrow to turn pilot off.

9. SIGHTGLASS REPLACEMENT

1. Refer to Frame 6.

2. Unlatch the two nuts and washers holding the sight-glass assembly to the casing front panel.

3. When fitting the new assembly, make certain that the parts are in the correct order.

4. Tighten the two nuts to ensure an airtight seal. Do not overtighten.

5. Replace the boiler casing. Refer to Frame 6.
18 GAS CONTROL VALVE REPLACEMENT
1. Refer to Frame 6.
2. Remove the burner/controls assembly (Frame 3).
3. Remove the inlet union arrangement from the gas control valve by undoing the four retaining screws.
4. Remove the pilot and unit (Frame 10).
5. Remove the gas control valve cover by unscrewing the control fixing screw.
6. Disconnect the electrical supply to the gas valve.
7. Remove the two screws securing the control box to the mounting bracket and remove the box (Remove the overheat thermostat first if it is sealed system kit is fitted).
8. Undo the pilot pipe connection at the gas control valve and remove the pipe.
9. Undo the thermocouple connection at the gas control valve and remove the thermocouple.
10. Undo the four screws securing the gas control valve outlet gas manifold and remove the gas control valve. The sealing 'O' rings should be discarded and new ones fitted.
11. Fix a new valve and reassemble in reverse order.
12. Recheck the gas valve operation.

19 PILOT FILTER REPLACEMENT
1. Refer to Frame 8.
2. Remove the burner/controls assembly (Frame 3).
3. Draw out the frame 8 assembly (Frame 3) system.
4. In order to remove the boiler from the wall it is necessary to disconnect all water connections at the rear of the heat exchanger. If this cannot be done because of fitted side clearances the pipes must be cut & then removed on reassembly.
5. If a sealed system kit is fitted the PLOW pipe must be cut above the overhead thermostat fixing bracket & a fill in piece must be replaced upon re-assembly. The pipe is fitted with the overhead thermostat MUST NOT be dislocated.
6. Remove the gas control valve body from the boiler.
7. Withdraw the pilot filter.
8. Fit the new filter and re-assemble in reverse order.
9. Refit the boiler casing (Refer to Frame 6).

20 HEAT EXCHANGER REPLACEMENT
1. Refer to Frame 22 of 'Exploded Views', on the next page, for the illustration of any parts itemised below.
2. Remove the burner/controls assembly (Frame 3).
3. Refer to Frame 8 assembly (Frame 3) system.
4. In order to remove the boiler from the wall it is necessary to disconnect all water connections at the rear of the heat exchanger. If this cannot be done because of fitted side clearances the pipes must be cut & then removed on reassembly.
5. If a sealed system kit is fitted the PLOW pipe must be cut above the overhead thermostat fixing bracket & a fill in piece must be replaced upon re-assembly. The pipe is fitted with the overhead thermostat MUST NOT be dislocated.
6. Remove the gas control valve body from the boiler.
7. Withdraw the pilot filter.
8. Fit the new filter and re-assemble in reverse order.
9. Refit the boiler casing (Refer to Frame 6).

21 CASING SEAL REPLACEMENT
1. Refer to INNER VIEW OF BOILER CASING Frame 8.
2. Remove the old seal from the casing channel in the casing surround and replace with a new seal.
3. Replace the casing seal (Refer to Frame 6).

22 BOILER ASSEMBLY-Exploded view

23 BURNER & CONTROLS-Exploded view

EXPLODED VIEWS

LEGEND
1 Heat exchanger
2 Flowway baffles
3 Collector hood
4 Flue clearout cover
5 Flue clearout tube
6 Distributor tube (left or right, one side only)
7 Main burner
8 Pilot burner assembly
9 Gas valve
10 Vace unit
11 Thermocouple
12 Boiler thermostat
13 Boiler thermostat pocket (left or right)
14 Balanced flow terminal
15 Aligning distributor tube
16 Wall mounting plate
17 Back panel
18 Ducts
19 Heat exchanger flue
20 Thermostat capillary
21 Boiler thermostat phi
22 Jacketing plate
23 Thermostat capillary clips
24 CASING SUPPORT CLIPS
25 GAS SERVICE PLATE

**Fault Finding**

Before attempting any electrical fault finding, ALWAYS carry out the preliminary electrical system check as detailed in pages 1-9 of these instructions for the British Gas Multimeter, or similar test meter.

**24 Pilot Will Not Light**

- Is there a spark or the ignition electrode?
  - Yes
  - No

- Is there gas at the pilot burner when the gas valve button is pressed?
  - Yes
  - No

- Light the pilot burner with a match. Check the pilot is correctly set to maximum. Screw adjuster fully COUNTERCLOCKWISE until closed. Then ANTI-COUNTERCLOCKWISE turn full turns. Confirm satisfactory ignition, using the piezo unit.
  - Yes
  - No

allow time to purge any air present. Check the following; the gas valve button is being pressed fully. Is there gas pressure at the boiler inlet? Is the boiler union gas cock open? Is the pilot jet not blocked? Is the pilot filter not blocked; the overheat thermostat (if fitted)?

- No

- Faulty piezo unit - replace.

**25 Pilot Will Not Stay Lit When the Gas Valve Button is Released**

- Is the connection between the thermostat & the gas valve clean & tight?
  - Yes
  - No

- Check the flame concentricity to maximum?
  - Yes
  - No

- Check the thermostat output (2-15 mV closed circuit). Replace thermostat if output is outside the rated range. Reference may be made to British Gas Multimeter Instruction Book - Procedure 8. Does pilot now stay light?

- Yes

- No

**26 Pilot Lit but No Mains Gas**

- Is there a supply voltage at the input to the control box?
  - Yes
  - No

- Set any CH and HW controls to the 'Continuous' position. Is there a supply voltage between the CH and N, also between HW and N? Expect 240V ± 10%.
  - Yes
  - No

- Have you confirmed that the system controls are 'Calling for Heat'?
  - Yes
  - No

- Check the thermostat setting in the room thermostat, and the cylinder thermostat. Check the control system. Reference may be made to British Gas Multimeter Instruction Book - Procedure 5.
  - Yes
  - No

- Is there a supply voltage between the gas valve terminals? Expect 240 V ± 10%.
  - Yes
  - No

- Does the main burner light?
  - Yes
  - No

- Faulty gas valve - check. Reference may be made to British Gas Multimeter Instruction Book - Procedure 8.

- Yes

After any faults have been corrected, return all thermostat and other controls to the previously noted settings.

---

**Short List of Parts**

The following list comprises parts commonly required as replacements due to damage, expendability, or such that their failure, or absence, is likely to affect safety or performance. This List is extracted from the British Gas List of Parts, which contains all available spares parts.

Details of the British Gas Lists are held by Gas Regions, STELRAD Distributors and by Merchants.

<table>
<thead>
<tr>
<th>Key No.</th>
<th>G.C. Part No.</th>
<th>Description</th>
<th>No. off.</th>
<th>Maker's Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>319 459</td>
<td>Sight glass assembly, comprising, sight glass and frame, two sight glass gaskets, two M4 Hex nuts and two M4 shakeproof washers</td>
<td>1</td>
<td>160 079 333</td>
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<tr>
<td>10</td>
<td>308 168</td>
<td>Main burner, AEROMATIC</td>
<td>1</td>
<td>199 414 184</td>
</tr>
<tr>
<td>11</td>
<td>308 179</td>
<td>Main burner, BRAY</td>
<td>1</td>
<td>199 514 064</td>
</tr>
<tr>
<td>11</td>
<td>308 740</td>
<td>No. AC 19/122/256, Ideal W 2000 RS 30N &amp; 40N</td>
<td>1</td>
<td>199 544 064</td>
</tr>
<tr>
<td>11</td>
<td>308 730</td>
<td>No. AC 19/122/257, Ideal W 2000 RS 60N</td>
<td>1</td>
<td>199 544 064</td>
</tr>
<tr>
<td>11</td>
<td>308 509</td>
<td>Main burner injector, BRAY</td>
<td>1</td>
<td>199 416 069</td>
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<tr>
<td>11</td>
<td>308 505</td>
<td>Cat 103-Size 95C, Ideal W 2000 RS 30N</td>
<td>1</td>
<td>199 512 060</td>
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<td>11</td>
<td>308 510</td>
<td>Cat 103-Size 115C, Ideal W 2000 RS 40N</td>
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<tr>
<td>11</td>
<td>308 511</td>
<td>Cat 103-Size 145C, Ideal W 2000 RS 50N</td>
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<td>199 496 089</td>
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<tr>
<td>11</td>
<td>308 512</td>
<td>Cat 103-Size 1800, Ideal W 2000 RS 60N</td>
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<td>199 496 089</td>
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<tr>
<td>12</td>
<td>308 303</td>
<td>Pilot burner injector, STifo 977, 113</td>
<td>1</td>
<td>589 089 747</td>
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<tr>
<td>13</td>
<td>308 179</td>
<td>Pilot burner, STifo 140, 020</td>
<td>1</td>
<td>589 410 085</td>
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<tr>
<td>15</td>
<td>308 685</td>
<td>Gas control, HONEYWELL V 4700E 1007, 240 V with 2 'D' rings</td>
<td>1</td>
<td>586 731 900</td>
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<tr>
<td>19</td>
<td>308 705</td>
<td>Piezo unit, VERITRON 6008</td>
<td>1</td>
<td>589 830 086</td>
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<tr>
<td>20</td>
<td>308 175</td>
<td>Ignition electrode and H7 lead assembly, STifo 007 226</td>
<td>1</td>
<td>590 030 086</td>
</tr>
<tr>
<td>21</td>
<td>308 830</td>
<td>Thermostat, STifo 0 299 174</td>
<td>1</td>
<td>576 410 051</td>
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<tr>
<td>21</td>
<td>308 820</td>
<td>Control box, including thermostat, thermostat knob &amp; suppressor assembly</td>
<td>1</td>
<td>594 410 051</td>
</tr>
<tr>
<td>21</td>
<td>308 821</td>
<td>Thermostat RANO CLUB PO149 with 48 in. capillary</td>
<td>1</td>
<td>594 410 051</td>
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<tr>
<td>24</td>
<td>308 823</td>
<td>Thermostat knob</td>
<td>1</td>
<td>585 011 517</td>
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<td>24</td>
<td>308 824</td>
<td>Suppressor assembly (c:n type)</td>
<td>1</td>
<td>589 040 030</td>
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<tr>
<td>24</td>
<td>308 825</td>
<td>Main connector, ASHLEY or BULGIN, to CEE 22, sheet 5 and BS 4419</td>
<td>1</td>
<td>594 410 031</td>
</tr>
<tr>
<td>29</td>
<td>308 194</td>
<td>Boiler casing assembly - white stove enamal, with sightglass trim, foil insulation &amp; also with Key No. 7/</td>
<td>1</td>
<td>594 110 089</td>
</tr>
<tr>
<td>33</td>
<td>308 184</td>
<td>Controls casing door - white stove enamal with Lighting instructions</td>
<td>1</td>
<td>594 110 089</td>
</tr>
<tr>
<td>33A</td>
<td>308 184</td>
<td>L HR/RH Casing Linl Panels</td>
<td>2</td>
<td>594 410 035</td>
</tr>
<tr>
<td>34</td>
<td>319 230</td>
<td>Boiler casing sealing strip</td>
<td>1</td>
<td>594 410 094</td>
</tr>
<tr>
<td>46</td>
<td>308 185</td>
<td>Overheat thermostat, RANO LM7 (Sealed systems only)</td>
<td>1</td>
<td>190 004 706</td>
</tr>
</tbody>
</table>
STELRAD GROUP pursues a policy of continuing improvement in design and performance of its products. The right is therefore, reserved to vary specification without notice.

STELRAD GROUP Limited
Sales and Marketing
Accord House, Goulton Street
Kingston upon Hull
North Humberside, HU3 4DJ
Telephone: 0482223673 Telex: 592756

Head and Registered Office;
Newtown Road, HENLEY-on-Thames. Oxfordshire
RG9 1HL.
Registration No. London 322137
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