

# IDEAL SPRINT 80 F P

August, 1987

## Wall Mounted, Fanned, Balanced Flue Combination Boiler. Installation & Servicing

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

**IMPORTANT:** This appliance is for use with **PROPANE ONLY.**

### IMPORTANT

The domestic hot water output is pre-set at the factory.

The central heating output may be adjusted.

**Please read these instructions carefully**

**NOTE TO INSTALLER: LEAVE THESE INSTRUCTIONS ADJACENT TO THE APPLIANCE**



**Table 1 - GENERAL DATA**

|                                                   |              |                                       |
|---------------------------------------------------|--------------|---------------------------------------|
| Main Burner                                       |              | FURIGAS Type R No. 118 500 055        |
| Gas Control Valve                                 |              | HONEYWELL VR 4920M 2029               |
| Burner Injector<br><i>Pilot Injector</i>          |              | BRAY Cat. 10; 850<br>HONEYWELL 0 23 P |
| Gas Supply Connection                             |              | Rc. 1/2 (1/2 in. BSP/t)               |
| Inlet Connection - DHW                            |              | 15mm. O.D. Copper                     |
| Outlet Connection - DHW                           |              | 15mm. O.D. Copper                     |
| Flow Connection - CH                              |              | 22mm. O.D. Copper                     |
| Return Connection - CH                            |              | 22mm. O.D. Copper                     |
| Maximum Working Pressure<br>(Sealed systems)      | bar (psi)    | 2.65 (38.5)                           |
| Maximum Static Water Head                         | m (ft)       | 27.5 (90.0)                           |
| Minimum Static Water Head<br>(Open water systems) | m (ft)       | 1.80 (6.0)                            |
| Maximum DHW Inlet Pressure                        | bar (psi)    | 6.0 (87.0)                            |
| Minimum DHW Inlet Pressure                        | bar (psi)    | 1.5 (21.5)                            |
| Electrical Supply                                 |              | 220 V ~ 50Hz                          |
| External Fuse Rating                              |              | 3 A                                   |
| Water Content CH                                  | litre (gal.) | 2.9 (0.64)                            |
| Water Content DHW                                 | litre (gal.) | 0.55 (0.12)                           |
| Dry Weight                                        | kg. (lb.)    | 63.0 (138.6)                          |
| Maximum Installation Weight                       | kg. (lb.)    | 53.0 (116.6)                          |

**Table 2 - PERFORMANCE DATA**
**(a) central heating**

|                               |                              |               |               |               |
|-------------------------------|------------------------------|---------------|---------------|---------------|
| Burner Setting Pressure (Hot) | mbar<br>(in.w.g.)            | 35.4 (14.2)   | 24.3 (9.7)    | 12.4 (5.0)    |
| Inlet pressure                | mbar<br>(in.w.g.)            | 37.0 (14.8)   |               |               |
| Output                        | kW.<br>(Btu/hr)              | 22.0 (75 000) | 17.6 (60 000) | 11.7 (40 000) |
| Input                         | kW.<br>(Btu/hr)              | 27.0 (90 000) | 22.2 (75 700) | 15.2 (51 900) |
| Gas Consumption (HOT)         | l/s<br>(ft <sup>3</sup> /hr) | 0.29 (36.8)   | 0.24 (30.3)   | 0.16 (20.8)   |

**(b) domestic hot water**

|                                                                                        |                    |                  |
|----------------------------------------------------------------------------------------|--------------------|------------------|
| MAX. Burner Setting Pressure<br>(HOT)                                                  | mbar.<br>(in.w.g.) | 35.4 (14.2)      |
| Maximum DHW Output                                                                     | kW.<br>(Btu/hr)    | 22.0<br>(75 000) |
| DHW flowrate; 35°C. temp.<br>rise at min. mains water pres-<br>sure (1.5 bar absolute) | l/m<br>(gpm)       | 9.0<br>(2.0)     |

**Notes;**

(a) Gas consumption is calculated on a basis of a calorific value of 95 MJ/m<sup>3</sup> (2500 Btu/ft<sup>3</sup>).

(b) The actual gas

## INTRODUCTION

The IDEAL SPRINT 80 F P is a fully automatically controlled, wall mounted, low water content, fanned, balanced flue, combination boiler.

It can be adjusted to provide central heating outputs of 11.7 kW (40 000 Btu/h) to 22.0 kW (75 000 Btu/h) maximum, with instantaneous domestic hot water priority at an output of 22.0 kW (75 000 Btu/h) maximum.

The boiler is designed for use with fully pumped, sealed water systems.

Consult Stelrad Group Ltd. if connection is to be made to open water systems.

It is supplied, fully assembled, with a domestic hot water calorifier, diverter valve, circulating pump, bypass valve, pressure gauge, safety valve, and an expansion vessel. Two selector switches control the choice of service between 'central heating and hot water' or 'hot water' only.

An optional programmer kit is available to control the central heating.

With the HEATING switch set to OFF and the WATER switch set to ON the boiler fires only when domestic hot water is drawn off.

With both switches set to ON then central heating is supplied at the required preset output, until domestic hot water is drawn off. The boiler will then fire at maximum rate and the full output is directed, via the diverter valve, to the calorifier to supply a maximum DHW output of 22.0 kW (75 000 Btu/h).

At a minimum DHW drawoff rate of 3 l/min (0.7 gpm) the maximum temperature is limited to approx 65°C by the modulating gas control.

The boiler is supplied with a standard flue kit, suitable for rear or side outlet applications from 114mm (4 1/2 in.) to 406mm (16 in.), with optional extension duct kits for rear or side outlets up to 610mm (24 in.), and for side outlet applications ONLY up to 2m (79 in.) total length. A further optional kit is required for installation from inside the building.

The boiler casing is of white enamelled mild steel with a removable smoked brown fascia. The controls compartment, below the boiler, has a brown enamelled mild steel cover with a 'cutout', through which, the boiler controls can be seen.

### Gas Safety (Installation and Use) Regulations, 1984

It is the law that all gas appliances are installed by competent persons (e.g. CORGI, identified by ) in accordance with the above Regulations. Failure to install appliances correctly could lead to prosecution.

It is in your own interest, and that of safety, to ensure that the law is complied with.

The installation of the boiler MUST also be in accordance with the current I.E.E. Wiring Regulations, the Local Building Regulations, the by laws of the Local Water Undertaking and any relevant requirements of the Local Authority.

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

#### Codes of Practice:

- BS.5482:1 Domestic butane & propane gas burning appliances
- BS.5376:2 Boilers of rated input not exceeding 60 kW.
- BS.5449:1 Forced circulation hot water systems (small bore and microbore domestic central heating systems).
- BS.5546 Installation of gas hot water supplies for domestic purposes (2nd Family Gases).
- BS.5440:1 Flues (for gas appliances of rated input not exceeding 60 kW).
- BS.5440:2 Air supply (for gas appliances of rated input not exceeding 60 kW).

### IMPORTANT

It is important that no external control devices, (e.g. flue dampers, economisers, etc.) are directly connected to this appliance unless covered by these Installation and Servicing instructions or otherwise recommended by Stelrad Group Ltd. In writing. For further advice enquire. Any direct connection of a control device not recommended by Stelrad Group Ltd. is a breach of the Gas Safety Regulations.

### LOCATION OF BOILER

The boiler MUST be installed on a flat and vertical non-combustible wall capable of adequately supporting the weight of the boiler and any ancillary equipment.

### THE BOILER IS NOT SUITABLE FOR EXTERNAL INSTALLATION.

### IMPORTANT NOTICE

If the boiler is to be fitted in a timber framed building it should be fitted in accordance with the 'British Gas publication Guide for Gas Installations in Timber Frame Housing'. Reference DM2. If in doubt advice must be sought from Stelrad Group Ltd.

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

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

Where installation will be in an unusual location special procedures may be necessary and BS.5376:2 gives detailed guidance on this aspect.

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

Details of essential features of cupboard/compartment design, including airing cupboard installations, are given in BS.5376:2.

In siting the boiler, the following limitations MUST be observed:

1. The position selected for installation MUST allow adequate space for servicing in front of the boiler and for air circulation around the boiler.
2. This position MUST also permit the provision of a satisfactory balanced flue termination.

### GAS SUPPLY

The Local Propane Gas Supplier should be consulted, at the installation planning stage, in order to establish the availability of an adequate supply of gas.

Installation pipes, cylinders and pressure regulators should be fitted in accordance with BS.5482:1.

Bulk tank installations must comply with the requirements of the Home Office code of practice for the storage of liquefied petroleum gas at fixed installations.

The complete installation MUST be tested for soundness as described in the above standard.

### FLUING

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 the free passage of air across it at all times.
  3. The minimum acceptable spacings 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 ft) above a balcony, above 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: Quinnet, Barret & Quinnet Ltd., 884 Old Kent Road, London SE15, and from Tower Flue Components Ltd., Vale Rise, Tonbridge, Kent. TN9 1TB.
  5. Where the terminal is fitted within 850 mm (34 in) of a plastic or painted gutter, or 450 mm (18 in) of painted eaves, an aluminium shield of at least 750 mm (30 in) long should be fitted to the underside of the gutter or painted surface.
  6. The air inlet products outlet duct and the terminal of the boiler MUST be NOT closer than 25 mm (1 in) to combustible material.
- Further recommendations for protection of the terminal are given in BS.5440:1.

### IMPORTANT

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

If this eventually should occur, the appliance MUST be turned OFF IMMEDIATELY and the Local Gas Region consulted.

Table 3

| Terminal Position                                                                | Minimum Spacing; |
|----------------------------------------------------------------------------------|------------------|
| 1. Directly below an openable window, air vent or any other ventilation opening. | 300mm. (12in.)   |
| 2. Below guttering, drain-pipes or soil pipes.                                   | 75mm. (3in.)     |
| 3. Below eaves, balconies or car port roof                                       | 200mm. (8in.)    |
| 4. Above adjacent ground, roof or balcony level                                  | 300mm. (12in.)   |
| 5. From vertical drain pipes or soil pipes                                       | 75mm. (3in.)     |
| 6. From internal or external corners                                             | 300mm. (12in.)   |
| 7. From a surface facing the terminal                                            | 600mm. (24in.)   |
| 8. From a terminal facing the terminal                                           | 1200mm. (48in.)  |
| 9. From an opening in the car port (eg door, window) into dwelling               | 1200mm. (48in.)  |
| 10. Vertically from a terminal on the same wall                                  | 1500mm. (60in.)  |
| 11. Horizontally from a terminal on the same wall                                | 300mm. (12in.)   |

### TERMINAL

The terminal assembly of the balanced flue can be adapted to accommodate various wall thickness; refer PACKAGING.

### AIR SUPPLY

Detailed recommendations for air supply are given in BS.5440:2. The following notes are intended for general guidance:-

1. It is NOT necessary to have a purpose provided air vent in the room or internal space in which the boiler is installed.

2. If the boiler is to be installed in a cupboard or compartment, permanent air vents are required (for cooling purposes) in the cupboard/compartment, at both high and low levels.

The air vents must either communicate with a room/internal space, or be direct to outside air.

The minimum effective areas of the permanent air vents, required in the cupboard/compartment, are specified below and are related to the maximum rated heat input of the boiler.

Table 4

| Position of air vent                               | Air from room/ internal space | Air direct from outside |
|----------------------------------------------------|-------------------------------|-------------------------|
| HIGH LEVEL<br>cm. <sup>2</sup> (in. <sup>2</sup> ) | 243 (38)                      | 132 (19)                |
| LOW LEVEL<br>cm. <sup>2</sup> (in. <sup>2</sup> )  | 243 (38)                      | 232 (19)                |

Note: Both air vents MUST communicate with the same room or internal space, or MUST both be on the same wall to outside air.

### WATER CIRCULATION SYSTEM

The boiler is designed for connection to sealed water central heating systems.

Consult Stelrad Group Ltd, if connection is to be made to open water systems.

The domestic hot water (DHW) calorifier is incorporated within the boiler casing and only requires connection to the mains water supply.

### IMPORTANT

Ensure that the mains water supply pressure is adequate to provide the required DHW flowrate- Refer Table 2, Page 2.

The central heating system should be in accordance with the relevant recommendations given in BS.5376:2 and, in addition, for smallbore and microbore systems; BS.5449:1.

The domestic hot water system should be in accordance with the relevant recommendations of BS.5546.

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

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.

Draining taps should be at least 1/2 in. BSP nominal size and be in accordance with BS.2879.

Maximum recommended system hydraulic losses are given in Table 5.

Table 5

|                    |                  |                |                |                |                |
|--------------------|------------------|----------------|----------------|----------------|----------------|
| Boiler output      | kW.<br>Btu/h     | 11.7<br>40,000 | 14.6<br>50,000 | 17.6<br>60,000 | 22.0<br>75,000 |
| Water flow rate    | l/min.<br>gal./h | 15.2<br>200    | 19.0<br>250    | 22.8<br>300    | 24.7<br>326    |
| Temp. differential | °C<br>°F         | 11<br>20       | 11<br>20       | 11<br>20       | 13<br>23       |
| Pressure available | mbar<br>in.w.g.  | 400<br>160     | 315<br>125     | 235<br>95      | 204<br>82      |

### ELECTRICAL SUPPLY

Wiring external to the appliance MUST be in accordance with the I.E.E. Wiring Regulations and any Local Regulations which apply.

The boiler is supplied for 240 V ~ 50 Hz, A.C. Single Phase. Fuse rating is 3 A.

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

Alternatively, a fused double pole switch, having 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.

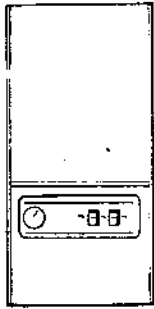
**PROCEED TO THE INSTALLATION SECTION WHICH SHOULD BE FOLLOWED FRAME BY FRAME UNTIL THE SERVICES ARE TO BE**

# INSTALLATION

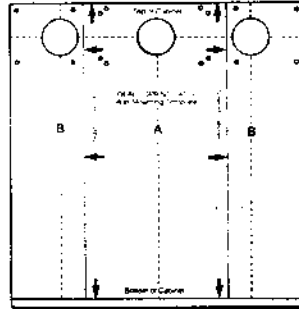
# UNPACKING-LOCATION

## 1 UNPACKING

### PACK 'A' Contents



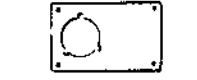
Complete Boiler



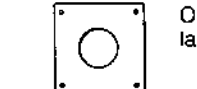
Wall Mounting Template



Wall Mounting Plate



Side Outlet Terminal Mounting Plate

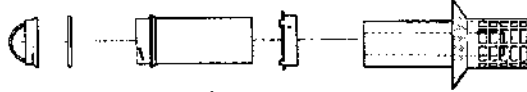


Terminal Wall Plate

### PACK 'A' Hardware Pack Contents

- 6 - OFF Shims
- 10 - OFF No. 10 2in long screws
- 14 - OFF Wall plugs
- 2 - OFF M6 wing nuts
- 2 - OFF Sealing discs
- 4 - OFF Cable clips
- 1 - OFF Roll of sealing tape
- 1 - OFF Connector block

### PACK 'B' Contents



Locking collar and 6mm gasket (supplied in bag)

Telescopic air inlet/ flue outlet duct assembly with sliding collar

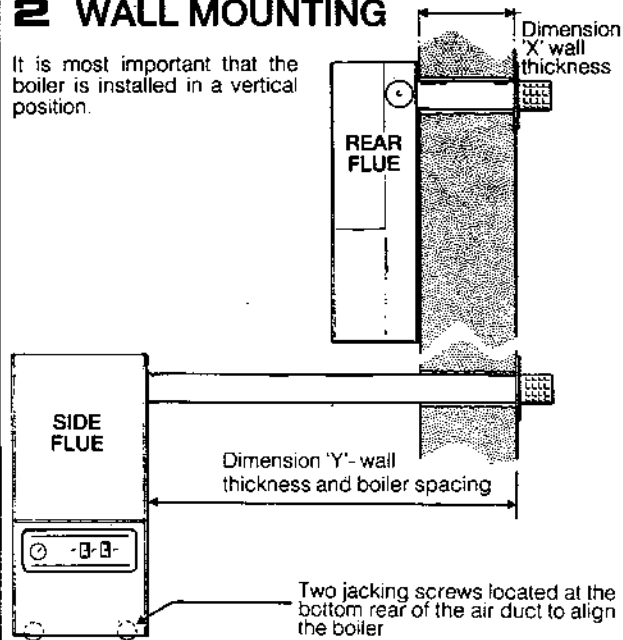
- 1 - OFF 3.2mm dia drill
- 8 - OFF No. 8 x 6mm (1/2in lg) self tapping screws
- 1 - OFF sachet of sealing compound and length of adhesive tape.
- 2 - OFF Duct cutting support rings

### PACK 'E' Contents (For inside installation ONLY)

- 5in dia sleeve 610mm (26in)lg
- 3 Duct cutting support ring

## 2 WALL MOUNTING

It is most important that the boiler is installed in a vertical position.



## 3 WALL THICKNESS

Flue Kits -  
Pack 'B' supplied as standard  
Pack 'B1' optional extension kit  
Pack 'D' optional extension kit for side flue outlet only.  
Pack 'E' optional internal installation kit.

| Wall Thickness - Dimension 'X' shown in frame 2 | Flue Packs Required                  |
|-------------------------------------------------|--------------------------------------|
| 114 - 216mm<br>4 1/2 - 8 1/2in                  | Pack 'B' (cut down as in frame 9)    |
| 216 - 406mm<br>8 1/2 - 16in                     | Pack 'B'                             |
| 406 - 610mm<br>16 - 24in                        | Pack 'B' + Pack 'B1' (Frame 29)      |
| 406 - 2000mm<br>16 - 79in                       | Pack 'B' + 2-off Pack 'D' (Frame 29) |

## 4 BOILER CLEARANCES

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

**Note:** In the case of installation between cupboards it will be necessary to allow additional clearance to that stated for servicing, for the boiler to be installed.

### Side Flue Only

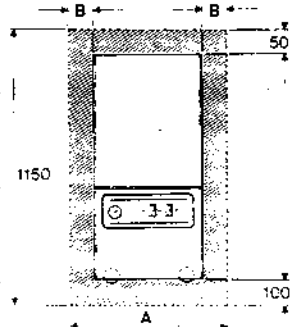
(a) For wall thickness greater than the width of the boiler the space in which the boiler is to be installed must be at least equal to the wall thickness plus the length of the terminal grille (inside installation only).

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

(c) Once the boiler has been installed, the clearance on the non-flue side may be reduced to 10mm.

### Side and Rear Flues:

The boiler is to be installed at low level over a solid floor. The recommended minimum clearances are as follows: The boiler is to be installed on a solid floor and the clearances are as follows:

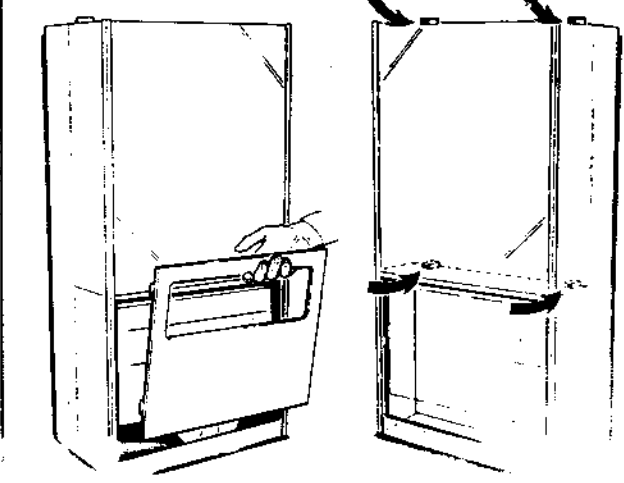


| Dim | Side Flue      | Rear Flue       |
|-----|----------------|-----------------|
| A   | 510mm          | 485mm           |
| B   | 10mm flue side | 10mm both sides |
| C   |                |                 |

## 5 BOILER CASING REMOVAL

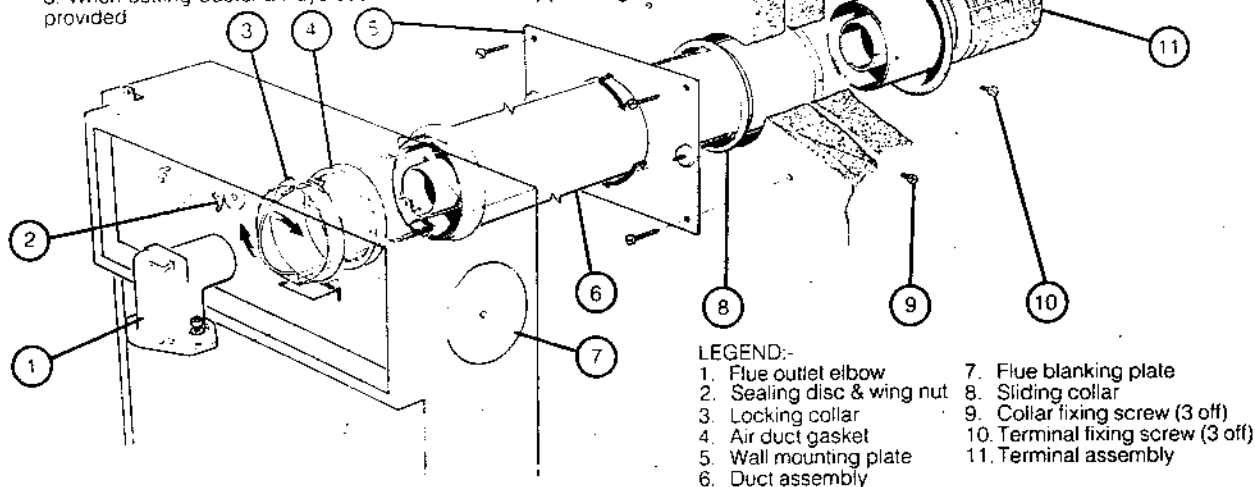
To facilitate installation the casing must be removed. Take care not to damage the glass facia panel.

- Lift off the controls compartment front cover.
- Release the four captive screws and lift the casing off the boiler and place safely to one side.



## 6 FLUE ASSEMBLY-Exploded View

- Notes:
1. An optional duct extension kit is required for wall thickness greater than 406mm (16in) - refer to Frame 28
  2. An optional wall sleeve kit is required for installation from inside the building
  3. When cutting ducts, always use the cardboard support rings provided



## 7 WALL MOUNTING TEMPLATE

1. Discard both sections 'B'
2. Tape the template into the selected position.
3. Position a spirit level on the centre line to ensure horizontal squareness.
4. Mark, onto the wall, the 4 mounting plate screw positions and the two lower fixing screw positions.
5. Mark, onto the wall, the position of the flue duct. Note:- Mark the centre of the hole as well as the circumference.
6. Remove, now, the template from the wall.

## 8 PREPARING THE WALL

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

1. Cut the duct hole preferably with a 5in core boring tool, ensuring the hole is square to the wall.
2. Measure the wall thickness 'X'.
3. Drill the 6 fixing holes with an 8mm (5/16in) masonry drill.
4. Insert the 6 plastic plugs provided.
5. Locate four No. 10 x 2in screws in the wall mounting plate holes and screw home to within 6mm (1/4in) of the wall surface.
6. Installation from INSIDE the building ONLY. Cut the wall sleeve to length (x-10mm) and fit into the wall opening, with the inside end flush with the wall, and make good at both ends.

## 9 CUTTING DUCT ASSEMBLY

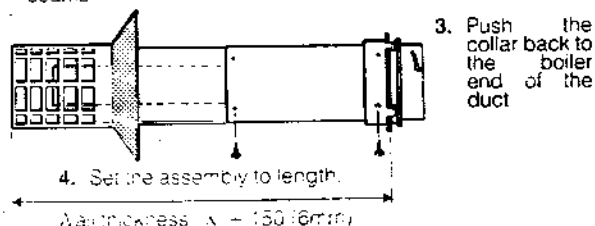
Wall thickness: 114mm (4.5in) - 216mm (8.5in)

1. Separate the duct assembly.
2. Cut 102mm (4in) off terminal.
3. Cut and discard the remaining portion.
4. Apply a light coating of sealing compound to the INSIDE of duct 'A' and reassemble the terminal, aligning the seams.
5. Set the sliding collar to length: wall thickness 'X' + 10mm (3/8in).
6. Use the sliding collar as a template to mark the position of the duct and the terminal.
7. Slide the terminal into the duct.

## 10 SETTING DUCT ASSEMBLY

Wall thickness upto 406mm (16in)

1. Separate the duct assembly and apply a light coating of sealing compound to the INSIDE of the flue duct 'A'.
2. Re-assemble the terminal and duct assembly, aligning the seams.

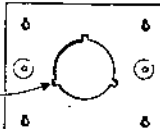
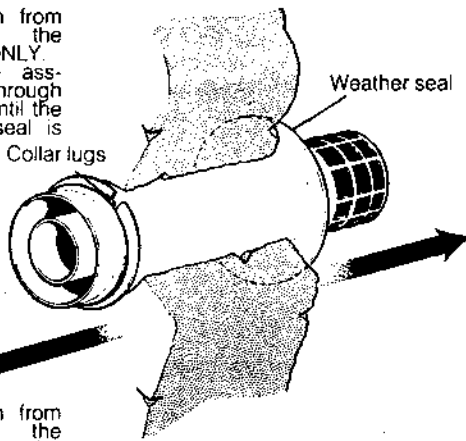


5. Use the sliding collar as a template to mark the position of the ducts and mark the position of the terminal.
6. Use the sliding collar as a template to mark the position of the ducts and mark the position of the terminal.
7. Push the collar back to the boiler end of the duct.
8. Seal the air duct joint adhesive surface provided.

For wall thicknesses greater than 406mm (16in) refer to

## 11 MOUNTING FLUE ASSEMBLY

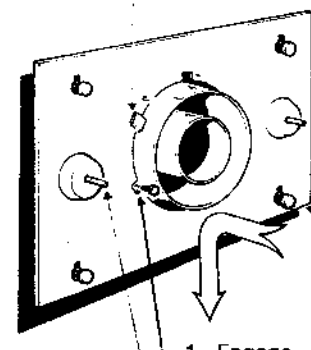
- Installation from **INSIDE** the building **ONLY**.
  - Push the assembly through the wall until the weather seal is free.
  - Pull the assembly back until the air duct flange is proud of the inside wall surface.
- Installation from **OUTSIDE** the building **ONLY**. Push the assembly through the wall until the air duct flange is proud of the inside wall surface.
- Engage the collar lugs with the wall mounting plate slots and rotate the flue assembly to lock.



## 12 WALL MOUNTING PLATE

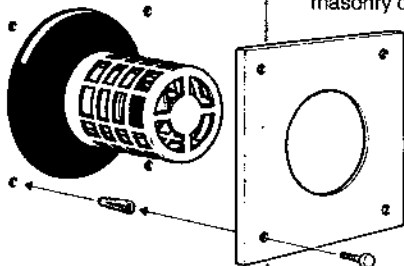
Flue is shown locked into position.

- Engage the wall mounting plate on the fixing screws.
- Check with a spirit level that the plate is vertical, and adjust if necessary using the shims provided.
- Drive home the four fixing screws.
- Align the holes in the sliding collar flange with 2 cut-outs in the wall plate. Insert 2 of the self tappers, provided, to secure the assembly.



## 13 TERMINAL WALL PLATE

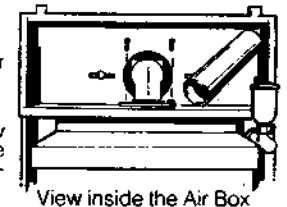
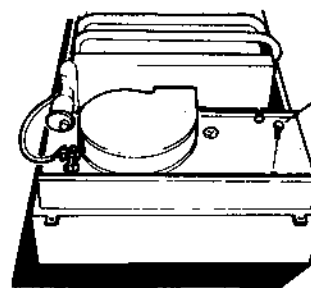
- Position the terminal wall plate over the terminal, as shown.
- Drill four fixing holes with an 8mm ( $\frac{5}{16}$ ) masonry drill.
- Insert the four plastic plugs provided.
- Secure the plate with four of the No. 10 x 2in screws provided.



OPTIONAL FITTING:- LOW LEVEL AND INSTALLATIONS FROM OUTSIDE THE BUILDING

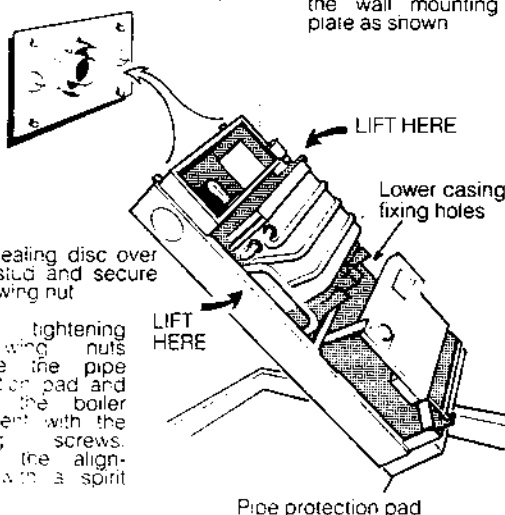
## 14 BOILER MOUNTING

- Unplug the fan and pressure switch connections.
- Slacken the bottom two screws.
- Remove the top two screws.
- Remove, now, the fan plate assembly.
- Discard flue pipe connector (for use with side flue only).
- Remove the 2 screws shown.
- Lift off the flue outlet elbow taking care not to damage the sealing gasket which is adhered in position.



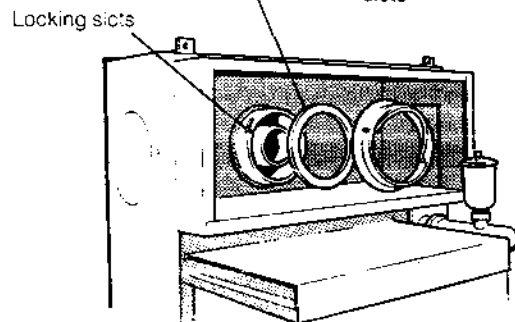
## 15 BOILER MOUNTING

- The studs fit into slots in the back panel and the air duct spigot enters the flue outlet hole in the back panel.
- Lift the boiler onto the wall mounting plate as shown.
  - Fit a seating disc over each stud and secure with a wing nut. Note: Before tightening the wing nuts remove the pipe protection pad and adjust the boiler alignment with the locking screws. Check the alignment with a spirit level.
  - Secure the lower casing to the wall with two of the No. 10 x 2in screws provided.



## 16 SEALING BOILER AND FLUE

- Stretch the rubber gasket over the air duct spigot.
- Fit the collar as shown and rotate it to lock into the slots.
- Fold locking handle as shown.
- Apply a joint coating of sealing compound to the **INSIDE** of the terminal flue outlet elbow and the flue outlet elbow. Apply the reverse procedure to the flue outlet elbow on the side of the boiler.
- Refit fan assembly.

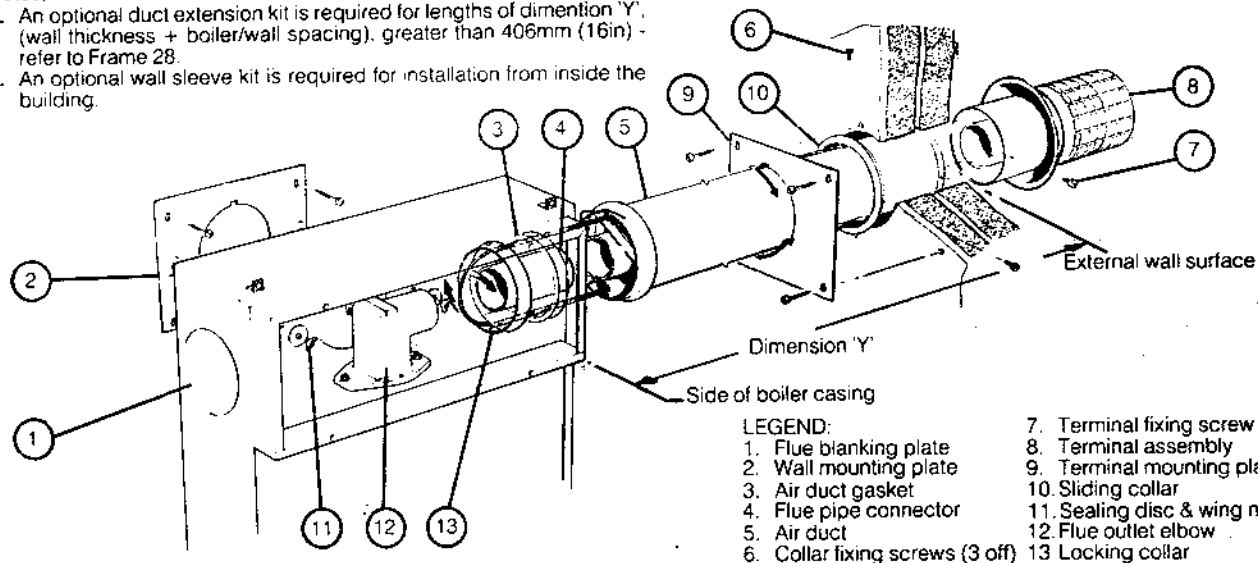


## 17 FLUE ASSEMBLY-Exploded View

### Notes:

1. An optional duct extension kit is required for lengths of dimension 'Y', (wall thickness + boiler/wall spacing), greater than 406mm (16in) - refer to Frame 28.
2. An optional wall sleeve kit is required for installation from inside the building.

3. When cutting ducts, always use the cardboard support rings provided.



### LEGEND:

- |                                 |                             |
|---------------------------------|-----------------------------|
| 1. Flue blanking plate          | 7. Terminal fixing screw    |
| 2. Wall mounting plate          | 8. Terminal assembly        |
| 3. Air duct gasket              | 9. Terminal mounting plate  |
| 4. Flue pipe connector          | 10. Sliding collar          |
| 5. Air duct                     | 11. Sealing disc & wing nut |
| 6. Collar fixing screws (3 off) | 12. Flue outlet elbow       |
|                                 | 13. Locking collar          |

## 18 WALL MOUNTING TEMPLATE

1. Separate the templates

2. Tape both templates into the selected position locating template 8 via an extended centre line as shown

4. Mark, onto the wall, the 4 mounting plate screw positions and the two lower fixing screw positions

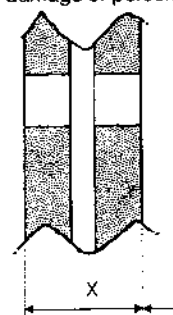
3. Use a spirit level to ensure the squareness of both templates
5. Mark on the wall the 4 terminal mounting plate screw positions

6. Mark, onto the wall, the positions of the flue duct. Note: mark the centre of the hole as well as circumference

7. Remove, now, both templates from the wall.

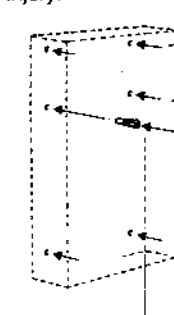
## 19 PREPARING THE WALL

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



Section through wall

2. Measure the wall thickness 'X' and calculate Dimension Y ie. (Boiler Spacing) + X - Refer Frame 17



Side of jacket (shown dotted)

6. Installation from INSIDE the building ONLY. Cut the wall sleeve to length (X-10mm) and fit into the wall opening with the inside end flush with the wall. Make good at both ends

1. Cut the duct hole preferably using a 5in core boring tool - ensure the hole is square to wall

3. Drill all 10 fixing holes with an 8mm (5/16in) masonry drill

4. Insert, into the drilled holes, the 10 plastic plugs provided.

5. Locate 4 No. 10 x 2in screws in the terminal mounting plate holes ONLY and screw home to within 6mm (1/4in) of wall surface

## 20 CUTTING DUCT ASSEMBLY

Dimension 'Y': 114mm (4.5in) - 216mm (8.5in)

1. Separate the duct assembly.

2. Cut the 102mm (4in) terminal
3. Push the sliding collar to the cover end of the duct and measure dimension 'Y'
4. Cut and discard the remaining portion
5. Apply a light coating of sealing compound to the INSIDE of the duct
5. Set the assembly to length: Dimension Y = 150mm (6in)

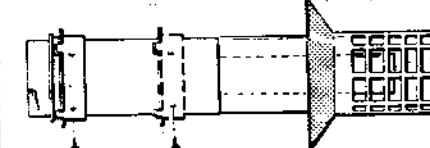


## 21 SETTING DUCT ASSEMBLY

Dimension 'Y' upto 406mm (16in)

1. Separate the duct assembly and apply a light coating of sealing compound to the INSIDE of the flue duct 'A'
2. Re-assemble the terminal and duct assembly, aligning the seams

4. Set the assembly to length: Dimension Y = 150mm (6 in.)



Dimension 'Y' + 150mm (6in)

5. Use the sliding collar as a template at the join of the ducts and mark the position of the 3 fixing screws
6. Set the collar to the required position (X' + 150mm) and mark the position of the 3 fixing screws

3. Push the collar back to the boiler end of the duct

7. Drill the 6 fixing holes using the 3.2mm drill provided and insert the self tapping screws provided to fix the collar in position and lock the duct assembly in position

8. Seal the air duct join with the adhesive tape provided

Note: If the duct assembly locking screws restrict the sliding collar, then use the collar locking screws to secure the whole assembly

## 22 MOUNTING FLUE ASSEMBLY

1. Installation from **INSIDE** the building **ONLY**.

(a) Push the assembly through the wall until the weather seal is free

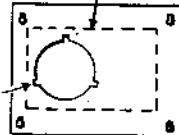
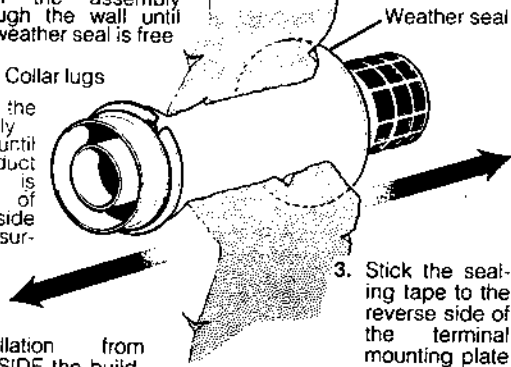
Collar lugs

(b) Pull the assembly back until the air duct flange is proud of the inside wall surface.

2. Installation from **OUTSIDE** the building **ONLY**. Push the assembly through the wall until the air duct flange is proud of the inside wall surface.

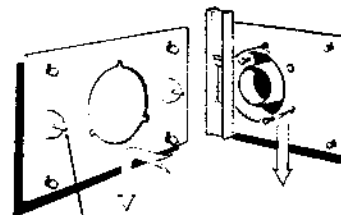
3. Stick the sealing tape to the reverse side of the terminal mounting plate

4. Engage the collar lugs with the terminal mounting plate slots and rotate the flue assembly to lock



## 23 WALL MOUNTING PLATE

Flue is shown locked into position.



1. Engage the terminal mounting plate on the fixing screws.

Wall mounting studs

5. Locate four N° 10x2 in. screws in the wall mounting plate holes & screw home to within 6mm (1/4 in.) of the wall surface

6. Engage the wall mounting plate on the fixing screws

7. Check with a Spirit Level - as detailed in note 2

8. Drive home the four fixing screws

2. Check with a spirit level that the plate is vertical, and adjust if necessary using the shims provided

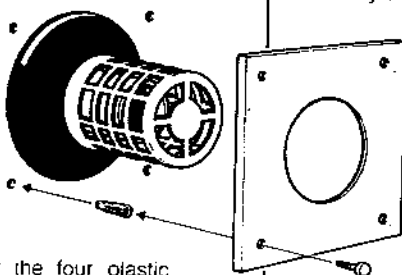
3. Drive home the 4 fixing screws & make good between the plate & the corner of the wall

4. Align the holes in the sliding collar flange with 2 of the cut-outs in the wall plate. Insert 2 of the self-tappers, provided, to secure the flue assembly

## 24 TERMINAL WALL PLATE

1. Position the terminal wall plate over the terminal; as shown

2. Drill four fixing holes with an 8mm (5/16) masonry drill

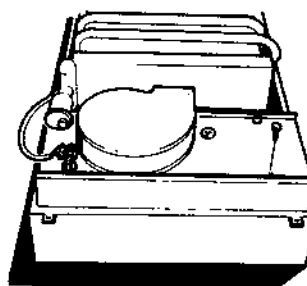


3. Insert the four plastic plugs provided

4. Secure the plate with four of the No. 10 x 2 in screws provided.

**OPTIONAL FITTING:- LOW LEVEL INSTALLATIONS AND INSTALLATIONS FROM OUTSIDE THE BUILDING.**

## 25 BOILER MOUNTING



1. Unplug the fan and pressure switch connections

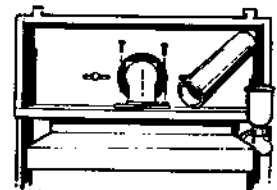
2. Slacken the bottom two screws

5. Remove flue pipe connector

6. Remove the 2 screws shown

7. Lift off the flue outlet elbow taking care not to damage the sealing gasket

8. Remove the blanking plate from the appropriate side of the air box and transfer it to the rear.



View inside the Air Box

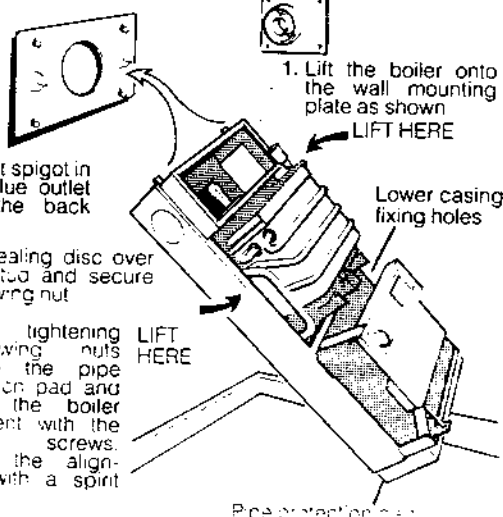
## 26 BOILER MOUNTING

2. Slide the boiler side ways to centralise the studs in the slots and engage the air duct spigot in the side flue outlet hole in the back panel.

3. Fit a sealing disc over each stud and secure with a wing nut

Note: Before tightening the wing nuts remove the pipe protection pad and adjust the boiler alignment with the lacing screws. Check the alignment with a spirit level.

4. Secure the lower casing to the wall with the supplied screws.

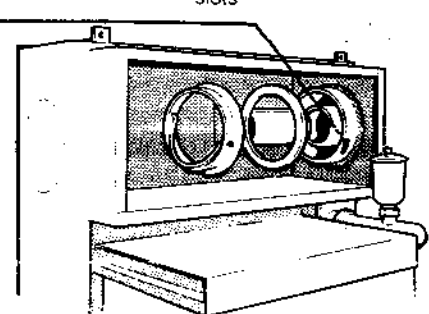


## 27 SEALING BOILER AND FLUE

1. Stretch the rubber gasket over the air duct spigot

2. Fit the collar as shown and rotate it to lock into the slots

Locking slots



3. Fit the collar as shown

4. Apply a thin coating of sealing compound to the INSIDE of the air box and the outside of the Air Box flange.

5. Apply a thin coating of sealing compound to the INSIDE of the air box and the outside of the Air Box flange.

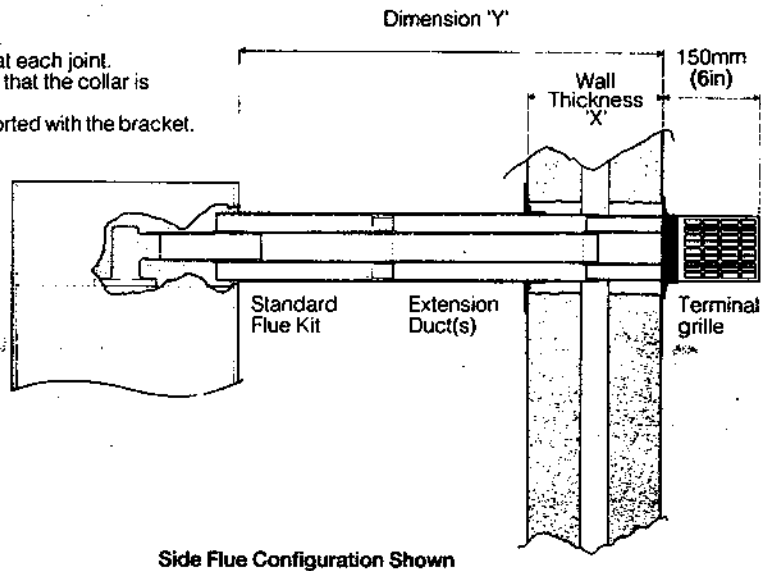
## 28 GENERAL ARRANGEMENT

### Notes:

1. A MAXIMUM of two kits may be used together.
2. Cut extension ducts at the plain ends only.
3. Ensure that there is, at least, a 25mm (1in) over lap at each joint.
4. For wall thicknesses less than 216mm (8in) ensure that the collar is positioned on an air duct (outer).
5. Extensions of greater than 1m (39in) should be supported with the bracket.
6. Apply a light coating of sealing compound to all flue and tape all air duct connections

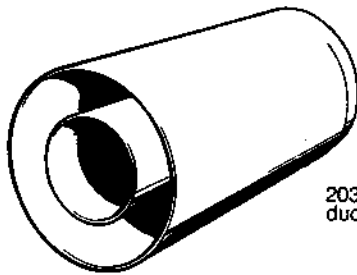
7. Always align seams when re-assembling ducts

| Dimension 'Y' (Side Flue) or 'X' (Rear Flue) | Standard Flue Kit B | Kit B1 | Extension Kit D | Cutting Details    |
|----------------------------------------------|---------------------|--------|-----------------|--------------------|
| <b>Side Flue (Dimension 'Y')</b>             |                     |        |                 |                    |
| Length upto 406mm (16in)                     | 1 off               |        |                 | Side Flue P. 8     |
| 406mm (16in) - 610mm (24in)                  | 1 off               | 1 off  |                 | Page 8 and Page 10 |
| 610mm (24in) - 1257mm (49 1/2in)             | 1 off               |        | 1 off           | Page 8 and Page 10 |
| 1257mm (49 1/2in) - 2m (79in)                | 1 off               |        | 2 off           | Page 8 and Page 10 |
| <b>Rear Flue (Dimension 'X')</b>             |                     |        |                 |                    |
| 114mm (4 1/2in) - 406mm (16in)               | 1 off               |        |                 | Rear Flue P. 6     |
| 406mm (16in) - 610mm (24in)                  | 1 off               | 1 off  |                 | Page 6 and Page 10 |



## 29 PACK B1

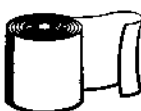
For wall thickness (X or Y) to 610mm (24in). SEE ABOVE TABLE  
This kit is suitable for both rear and side outlet flue configurations



203mm(8in) extension duct:- 1off



Sachet of sealing compound



Length of adhesive tape

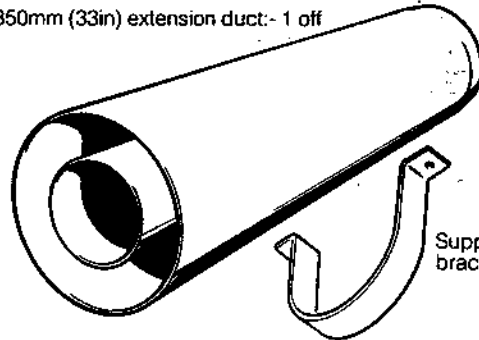


No. 8 x 1/4in self tapping screws:- 3 off

## PACK D

For wall thickness ('Y' only) upto 2m (79in). Use a maximum of 2 kits only. SEE ABOVE TABLE.  
This kit is suitable for side outlet flue configurations only

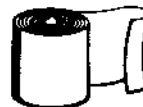
850mm (33in) extension duct:- 1 off



Support bracket:- 1 off



Sachet of sealing compound



Length of adhesive tape

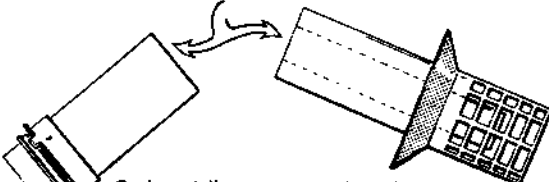


No. 8 x 1/4in self tapping screw:- 3 off

## 30 FITTING

**IMPORTANT:** Read in conjunction Frame 31

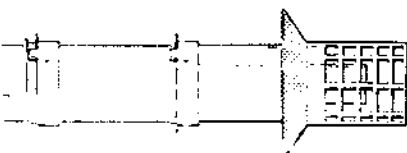
1. Separate the duct assembly



2. Insert the appropriate extension duct(s) with the plain end toward the terminal

3. Re-assemble the terminal and the duct assemblies

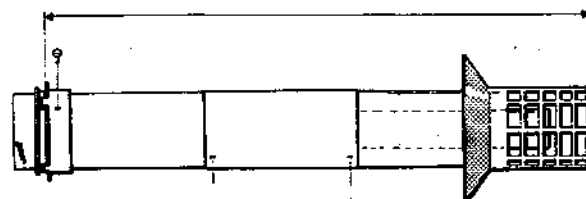
4. Use the sliding collar as a template at the joints at any ducts (after setting the flue length see frame 31)



5. Mark at any joints, the positions for 3 fixing screws. (After setting the flue length - see frame 31)

## 31 FITTING

1. Push the collar back to the boiler end of the duct, or to it's intended position
2. Set the assembly to length. Dimension 'Y' + 150mm (6in)



3. Drill at the markings with a 3.2mm diameter drill
4. Lock the assembly in position with the self tapping screws provided
5. Drill through the holes of the collar into the air duct with a 3.2mm diameter drill. Now lock the sliding collar into position with 3 of the self tapping screws provided.

**Note:** If the flue duct assembly locking screws restrict the sliding collar then use the collar locking screws to lock the whole assembly.

Refer back to Frame 11 or 22 depending upon flue arrangement.

# LEGEND

- |                        |                         |                               |                                          |
|------------------------|-------------------------|-------------------------------|------------------------------------------|
| 1. Wall mounting plate | 11. Gas service cock    | 20. DHW inlet isolating valve | 30. Diverter valve                       |
| 2. Flue outlet elbow   | 12. Control panel       | 21. DHW flow regulator        | 31. DHW thermistor sensor                |
| 3. Fan plate assembly  | 13. Overheat thermostat | 22. DHW outlet                | 32. DHW throttle screw                   |
| 4. Fan                 | 14. No. 1 reset button  | 23. Pressure gauge connection | 33. DHW expansion vessel                 |
| 5. Automatic air vent  | 15. Spark electrode     | 24. CH flow isolating valve   | 34. Temperature gauge sensor             |
| 6. Flue collector hood | 16. Pilot burner        | 25. CH return isolating valve | 35. Overheat thermostat No. 1            |
| 7. Heat exchanger      | 17. Safety valve        | 26. Drain cock                | 36. CH expansion vessel                  |
| 8. Main burner         | 18. Control thermostat  | 27. Bypass valve adjuster     | 37. Back panel assembly                  |
| 9. Gas control valve   | 19. Diverter valve      | 28. Bypass valve              | 38. Side flue outlet blanking plate(LHS) |
| 10. Modureg solenoid   |                         | 29. Circulating pump          | 39. Overheat thermostat No. 2            |

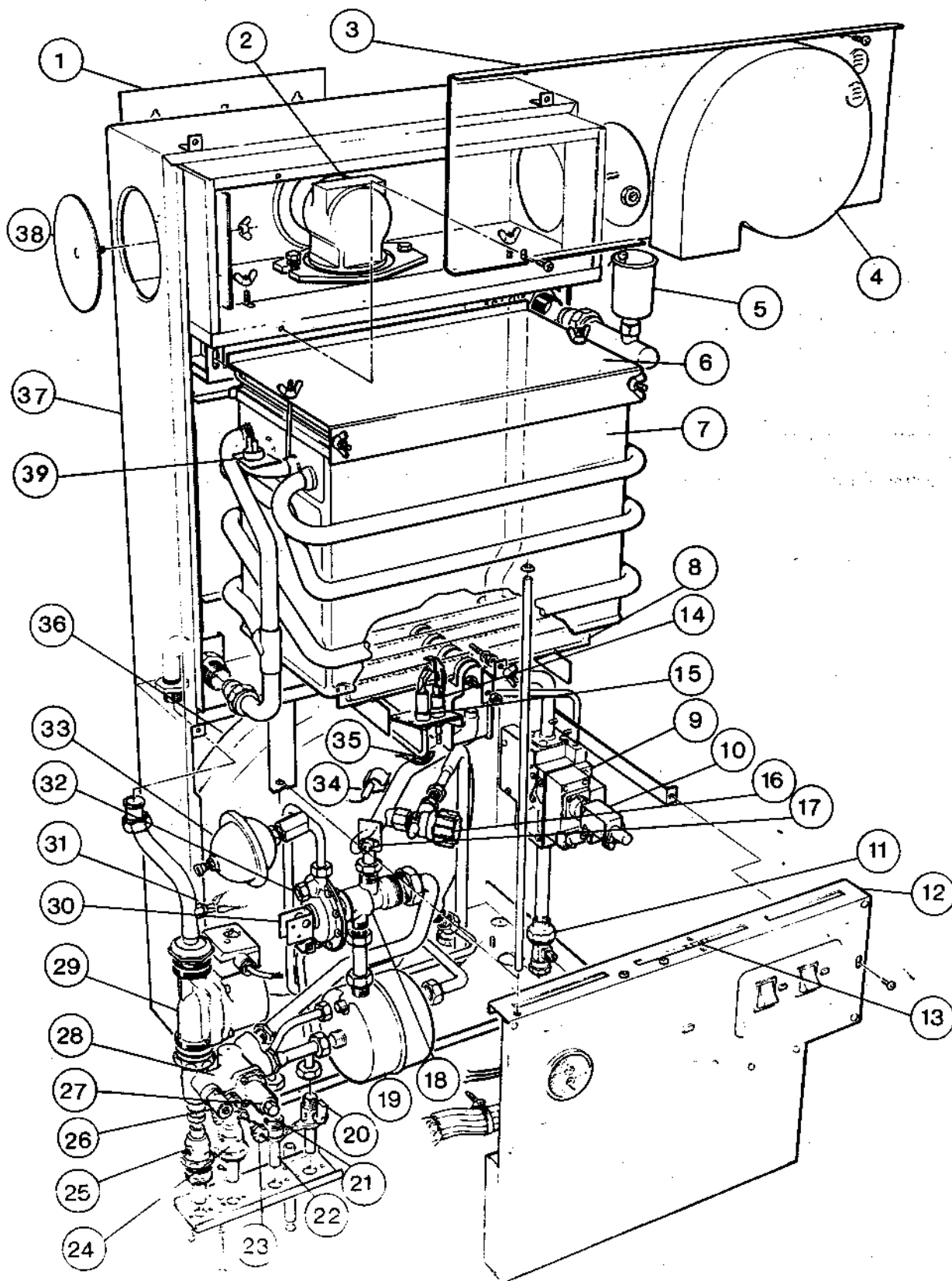
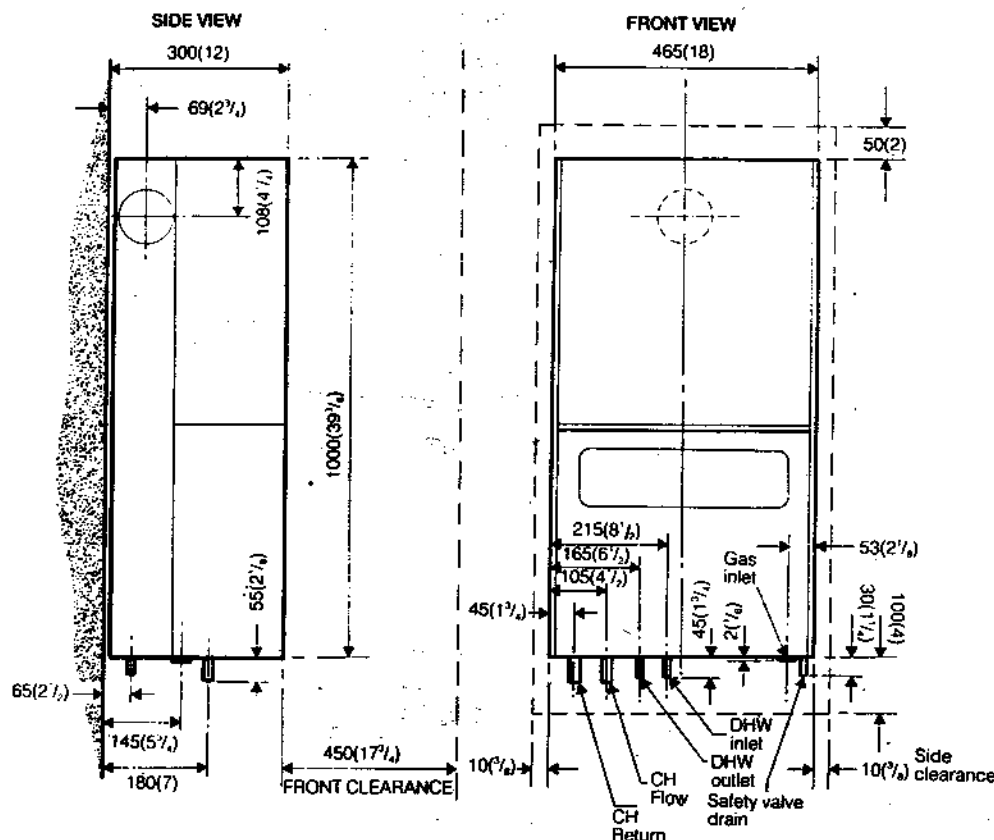


Fig.1

BOILER: Exploded View

All dimensions in mm. (ins)



## WATER CONNECTIONS; Refer Fig. 2

### 1. Central Heating

#### Notes:

- When the boiler output exceeds 14.4 kW (49 000 Btu/h) then 28 mm (1 in) pipes should be used, both to and from the boiler. If access is restricted, connect to the boiler in 22 mm (3/4 in) pipe and increase to 28 mm (1 in) as soon as is practical.
- Before any connections are made to the boiler all system valves should be opened and the system thoroughly flushed with cold water.

**IMPORTANT; Use Compression Fittings to avoid damage to non metallic components inside the boiler.**

- Connect the central heating flow pipe to the pipe end marked 'CH FLOW'.
- Connect the central heating return pipe end marked 'CH RETURN'.
- Fill and vent the system. Check for water soundness.

**Note:** The cap on the automatic air vent Refer Fig 1. MUST be loose at all times. When filling there may be a slight water leak from the vent, so electrical connections on the gas control valve should be protected.

### 2. DHW Supply : Refer Fig3

#### Notes:

- It is recommended that a filter be fitted on the cold water inlet supply to the boiler, and especially in hard water areas, a water softening device. The DHW supply pipe MUST be thoroughly flushed BEFORE connecting to the boiler particularly if there is no filter fitted.
- If the mains pressure is less than 1.5 bar remove the flow regulator from the DHW OUTLET pipe, as follows:
  - Release the captive screw (RHS control panel) and swing open the panel.
  - Undo the unions on the pipe connecting the DHW OUTLET to the calorifier and remove the pipe.
  - Lift out the flow regulator and re-assemble in reverse order.
- In areas where the mains water pressure is known to be high (greater than 6 bar) it is recommended that a water governor is fitted on the cold inlet supply to the boiler

**IMPORTANT; Use Compression Fittings to avoid damage to non metallic components inside the boiler.**

Connect the cold water supply to the pipe end marked 'DHW INLET'

### 3. Safety Valve Drain

Route a 15 mm OD pipe from the safety valve drain connection (bottom R.H. side of the boiler) to a position outside of the building such that any discharge of water or steam from the valve cannot create a hazard to the occupants or damage to electrical components and wiring.

#### GUIDE TO SYSTEM REQUIREMENTS; Refer Fig. 3

- The installation must comply with the requirements of BS 5376:2 and BS 5449:1.
- The installation should be designed to work with flow temperatures of up to 82°C.
- All components of the system, must be suitable for a working pressure of 3 bar (45 psi) and temperature of 110°C. Great care should be taken in making all connections so that the risk of leakage is minimised.

The following components are incorporated within the appliance.

- Circulating pump
- Automatic by-pass valve
- Safety valve with a non-adjustable pre-set lift pressure of 3 bar (45 psi).
- Pressure gauge, covering a range of 0.6 bar (0 to 90 psi).
- 8 litre expansion vessel with initial charge pressure of 0.75 bar.

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

- 'Make up' water.  
Provision must be made for replacing water loss from the system either:
  - From a manually filled 'make up' vessel with a readily visible water level. The vessel should be mounted at least 150 mm (6 in) above the highest point of the system and be connected through a nonreturn valve to the system fitted at least 300 mm (12 in.) below the make-up vessel on the return side of the domestic hot water cylinder or radiators (Refer Fig. 3).
  - Where access to a 'make up' vessel would be difficult, by pre-pressurisation of the system (Refer Section 6: 'Filling').
  - The maximum cold water capacity of the system should not exceed 150 litres if not pre-pressurised. However, if the system is to be pre-pressurised the efficiency of the expansion vessel must be considered and a larger vessel (or smaller system) may be necessary. If the capacity of the expansion vessel is considered sufficient for the system, then no additional provision is necessary for the return to the system.

Table 6-SIZING OF EXPANSION VESSELS

|                                                                                       |                                  |       |                                 |       |
|---------------------------------------------------------------------------------------|----------------------------------|-------|---------------------------------|-------|
| Safety valve setting (bar)                                                            | 3.0                              |       |                                 |       |
| Vessel charge pressure (bar)                                                          | 0.5                              |       | 0.75 (as standard-from factory) |       |
| System pre-charge pressure (bar)                                                      | None                             | 1.0   | None                            | 1.0   |
| System volume (litres)                                                                | Expansion vessel volume (litres) |       |                                 |       |
| 25                                                                                    | 1.2                              | 1.5   | 1.3                             | 1.5   |
| 50                                                                                    | 2.4                              | 3.0   | 2.7                             | 3.0   |
| 75                                                                                    | 3.6                              | 4.5   | 4.0                             | 4.5   |
| 100                                                                                   | 4.8                              | 6.0   | 5.3                             | 6.0   |
| 125                                                                                   | 6.0                              | 7.5   | 6.7                             | 7.5   |
| 150                                                                                   | 7.2                              | 9.0   | 8.0                             | 9.0   |
| 175                                                                                   | 8.4                              | 10.5  | 9.3                             | 10.5  |
| 190                                                                                   | 9.1                              | 11.4  | 10.1                            | 11.4  |
| 200                                                                                   | 9.6                              | 12.0  | 10.7                            | 12.0  |
| 250                                                                                   | 12.0                             | 15.0  | 13.3                            | 15.0  |
| 300                                                                                   | 14.4                             | 18.0  | 16.0                            | 18.0  |
| 350                                                                                   | 16.8                             | 21.0  | 18.7                            | 21.0  |
| 400                                                                                   | 19.2                             | 24.0  | 21.3                            | 24.0  |
| 450                                                                                   | 21.6                             | 27.0  | 24.0                            | 27.0  |
| 500                                                                                   | 24.0                             | 30.0  | 26.6                            | 30.0  |
| For system volumes other than those given above, then multiply by the factor across:- | 0.048                            | 0.060 | 0.053                           | 0.060 |

#### 5. 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 nonreturn valve, without the approval of the Local Water Authority.

#### 6. Filling

The system may be filled by one of the following methods:

- Through a cistern, used for no other purposes, via a ballvalve 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 nonreturn valve and a stopvalve with an automatic air vent connected between them; the stopvalve being located between the system and the automatic air vent. The stopvalve may remain open during normal operation of the system if automatic water 'make up' is required.

- Through a self-contained unit comprising a cistern pressure booster pump if required, and if necessary, an automatic pressure reducing valve or flow restrictor. The cistern should be supplied to a pump or pump unit from a service pipe or cold water distributing pipe.

Where the temporary connection is supplied from a

service pipe or distributing pipe which also supplies other 'draw off' points at a lower level a combined check valve and anti-vacuum valve shall be installed upstream of the 'draw off' point.

- 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.

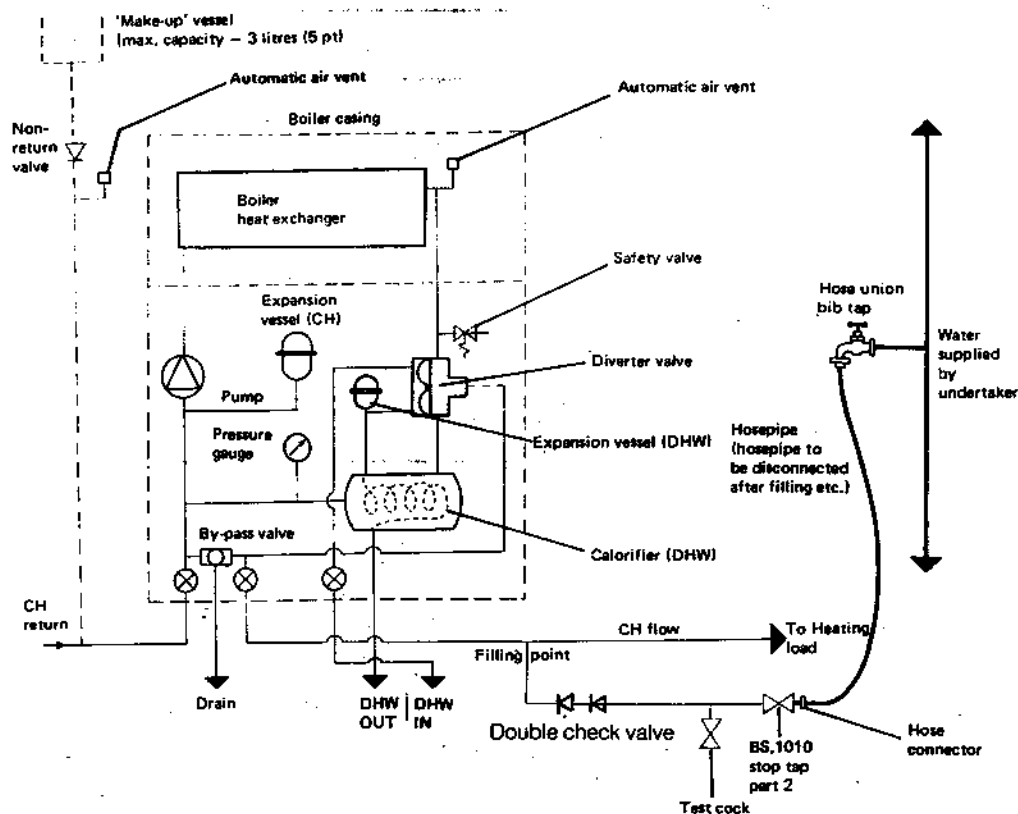
The following fittings shall form a permanent part of the system and shall be fitted in the order stated.

A stopvalve 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 accepted type

- Thoroughly flush out the whole of the system with cold water.
- Fill and vent the system until the pressure gauge registers 1.5 bar (21.5 psi), and examine for leaks.
- Check the operation of the safety valve by manually raising the water pressure until the valve lifts. This should occur within  $\pm 0.3$  bar ( $\pm 4.3$  psi) of the pre-set lift pressure.
- Release water from the system until the minimum system design pressure is reached. The system is to be re-pressurised.



#### Notes:

(1) Any connection for filling or replenishing of a sealed primary circuit from a supply pipe is conditional upon a water undertaker seeking and obtaining consent for a relaxation of its Byelaws 388(1) from the Secretary of State.

Fig.3

(2) The method of filling, re-filling, topping up or flushing sealed primary hot water circuits from the mains via a temporary hose connection is only allowed if acceptable to the Local Water Authority.

#### SCHEMATIC PIPEWORK LAYOUT

#### 7. By Pass

The boiler is fitted with an automatic by-pass valve. Therefore no external system by-pass is required.

#### 8. Thermostatic Radiator Valves

Stelrad Group Ltd, support the recommendations made by leading manufacturers of domestic heating controls that, heating systems utilising full thermostatic radiator valve control of temperature in individual rooms should also be fitted with a room thermostat controlling the temperature in a space served by radiators not fitted with such a valve.

Such an arrangement will provide for a potentially more efficient control of the environment and will also avoid the continuous running of the circulation pump during programmed heating "On" periods, thus saving electrical energy. It is recommended strongly therefore that, when thermostatic radiator valves are used, that space heating temperature control over living/dining area or hallway having a heating requirement of at least 2kW(7000 Btu/h) be achieved using a room thermostat whilst other rooms are individually controlled by thermostatic radiator valves. If a room thermostat is not fitted as described above, it is recommended that the system includes one uncontrolled radiator having a minimum heat loss of 1.5kW(5000 Btu/h) under design conditions.

#### 9. Open Water Systems

The IDEAL SPRINT 80F is designed for use with sealed systems.

Consult Stelrad Group Ltd, if connection is to be made to open water systems.

#### GUIDE TO DHW REQUIREMENTS

- 1 The Ideal Sprint is suitable for connection to most types of washing machines and dishwashing appliances.
2. When connecting to showers.
  - (a) The cold inlet to the boiler must be fitted with an approved anti vacuum or syphon non return valve.
  - (b) Ensure that the hot & cold water supplies to the shower are of equal pressure

#### GAS CONNECTIONS

A minimum gas pressure of 37 mbar (14.8 w.g.) MUST be available at the boiler inlet.

Gas inlet pipe NOT LESS THAN 15 mm O.D. to the boiler and connect to the gas service.

the bottom, right hand side of the controls compartment. Connection must be made from below the boiler.

#### ELECTRICAL CONNECTIONS

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

A mains supply of 240 V ~ 50 Hz, single phase is required

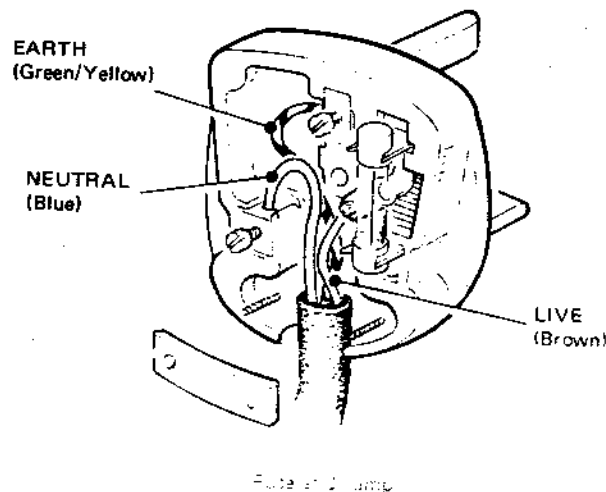
ALL external controls and external wiring MUST be suitable for mains voltage.

Wiring should be in three core, PVC insulated cable, NOT LESS than 24/0.2 mm(0.75 mm<sup>2</sup>) to BS.6500, table 16.

Wiring external to the boiler MUST be in accordance with the current I.E.E. Wiring Regulations and any Local Regulations which apply.

The supply connection may be made via a removable plug to a shuttered socket/outlet and should such a plug be used for connection to the mains, it MUST be of 3-pin type, wired as shown in Fig. 4, fused at 3 A, and comply with the requirements of BS.1363.

Alternatively a fused, double pole switch, having a 3 mm (1/8 in) contact separation in both poles and serving only, the boiler may be used.



## INTERNAL WIRING

The internal wiring of the control box is shown in Fig. 6 and 7. A wiring diagram is also included on the 'Lighting Instruction' label affixed to the inside of the controls compartment lift off cover.

1. Release the captive screw, located at the RH side of the control panel and swing open the panel.
2. Remove the 3 screws and paint cutting washers, securing the controls inner cover and remove the cover.
3. Pass the mains lead into the bottom RH side of the controls compartment via the grommetted hole and route along the outside front edge of the bottom panel. Secure with the clips provided.
4. Wire into the supply terminals marked L, N and E. Secure with the cable clamp.

**Notes:** (a) The mains lead connection MUST be made in such a way that, should the lead slip from the anchorage, the current carrying conductors become taut before the earthing conductor.  
(b) The "T" rating of the mains lead should be 70°C.

## EXTERNAL CONTROLS

External wiring MUST be in accordance with the current I.E.E. Wiring Regulations. Difficulty in wiring should not arise, providing the following directions are observed:

1. **Room Thermostat**  
Remove the link between terminals L1 and L2 and wire in the room thermostat; Refer Fig. 8 (c).
2. Controls that over-ride an ON/OFF control, e.g. a frost thermostat MUST be wired into the mains in parallel with the controls to be over-riden. Wire the frost thermostat into terminal Lo and L2; refer Fig. 8 (a).
3. **Time Switch**  
(a) EXTERNAL: Wire the time switch into terminals Lo, L1 and L2; refer Fig. 8 (b) or Fig. 8 (d) [including room thermostat].  
**Note:** The time switch must have isolated contacts.  
(b) OPTIONAL PROGRAMMER KIT  
Refer to the IDEAL SPRINT Programmer Kit Installation Instructions.  
**Note:** secure each lead with one of the cable clamps provided

## COMMISSIONING AND TESTING

### Electrical Installation:

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

ALWAYS carry out the Preliminary Electrical System Checks as detailed in the Instructions for the British Gas Multimeter or similar test meter.

Refit the controls inner cover.

### Gas Installation:

The whole of the gas installation, including the meter should be inspected and tested for soundness, and purged in accordance with the recommendations of BS 5482:1

Purging air from the gas installation may be expedited by loosening the union on the gas service cock and purging until gas is smelled.

Tighten the union and check for gas soundness.

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

### INITIAL LIGHTING; Refer Fig. 9

1. Check that the gas service cock (N) is ON and that the HEATING and WATER switches (T), (W) respectively are OFF.
2. Check that the pump is set to N°3.
3. Slacken the screw in the burner pressure test nipple (T) and connect a gas pressure gauge via a flexible tube.
4. Disconnect one of the black leads from the gas control valve.
5. Disconnect the BROWN fan lead and the YELLOW pressure switch lead from the fan mounting plate, and link the two together with the connector provided-Refer Fig. 9.
6. Switch the electricity supply ON and check that all external controls are calling for heat. The 'MAINS' on neon

switch (T) to ON. The pilot solenoid should click and intermittent spark commence, after a few seconds established. Check the

**Note:** the pilot adjuster is factory set and sealed

8. Test the pilot supply connections at the pilot burner for gas soundness- using leak detection fluid
9. Set the 'HEATING' switch to OFF and switch the electricity supply to OFF.
10. Reconnect the gas control, fan and pressure switch leads.
11. Fit the boiler casing.

## FITTING THE CASING

**WARNING:** The casing MUST be properly fitted for the boiler to operate correctly.

**Note:** Before fitting the casing remove the glass fascia retaining tape (and fascia, if required).

Lift the boiler casing up to the boiler assembly and secure with the four fixing screws.

The casing MUST seat correctly and compress the sealing strip to make an air-tight joint.

If side clearance is limited this may be checked by ensuring that the top and bottom edges of the casing are correctly located.

**IMPORTANT:** This appliance must not be operated without the casing being correctly fitted and forming an adequate seal.

12. Switch the electricity supply to ON.

## HOT WATER ONLY

13. Set the WATER switch to ON and the HEATING switch to OFF. The WATER neon (V) will glow and will continue to do so as long as the WATER switch is ON.
14. Turn the DHW inlet cock ON and fully open a DHW tap. Check that the pump and the fan start. After the fan has run for a few seconds the pilot solenoid should open and the intermittent spark commence, continuing until the pilot is established.
15. Once the pilot is established the main gas will come on. Check that the main burner cross lights smoothly. If this sequence does not occur then refer to the Fault Finding Section.
16. Test for gas soundness around the boiler gas components using leak detection fluid.
17. Fully open all DHW taps, to ensure that the boiler fires at maximum rate, and operate the boiler for ten minutes to stabilise the burner temperature.  
**Note:** If the DHW inlet temperature is high e.g. (greater than 10°C) pull one of the leads off the thermistor sensor to avoid modulation.  
The burner pressure should be 35.4 mbar (14.2 in.wg.)  $\pm$  2.0 mbar (0.4 in.wg.)

With the boiler firing as above pull one of the low voltage grey electrical leads off the Modureg solenoid. Refer Fig. 1, on the gas control valve. The burner pressure should reduce to the minimum setting of 8.0 mbar (3.2 in.wg.)  $\pm$  1.0 mbar (0.4 in.wg.)

This is factory set and requires no adjustment

18. Re-connect the grey electrical lead to the Modureg solenoid to return the burner pressure to the maximum setting.
19. Reduce the DHW draw-off rate to the minimum required to keep the boiler firing and check that the burner pressure decreases in response to DHW temperature rise.
20. Close the DHW tap and check that the main burner extinguishes and the pump stops.

## HEATING AND HOT WATER

21. Set the WATER switch to ON and the HEATING switch to ON.  
The HEATING neon (U) and WATER (V) will glow.
22. Check that the pump and fan start, that the main burner ignites and crosslights smoothly; as described previously.
23. The boiler is pre-set at the factory to its lowest nominal rating, but can be adjusted to suit the system design requirements; Refer Table 2 on Page 2.  
if the burner pressure setting requires adjustment proceed as follows:-
  - (a) Remove the securing screw of the cover (Q) on the control panel and swing the cover aside to expose the CH setting pressure adjuster (D).
  - (b) Turn the adjusting screw (D) ANTICLOCKWISE to INCREASE the pressure.
  - (c) To ensure that the setting pressure is maintained turn the HEATING switch OFF and then ON.

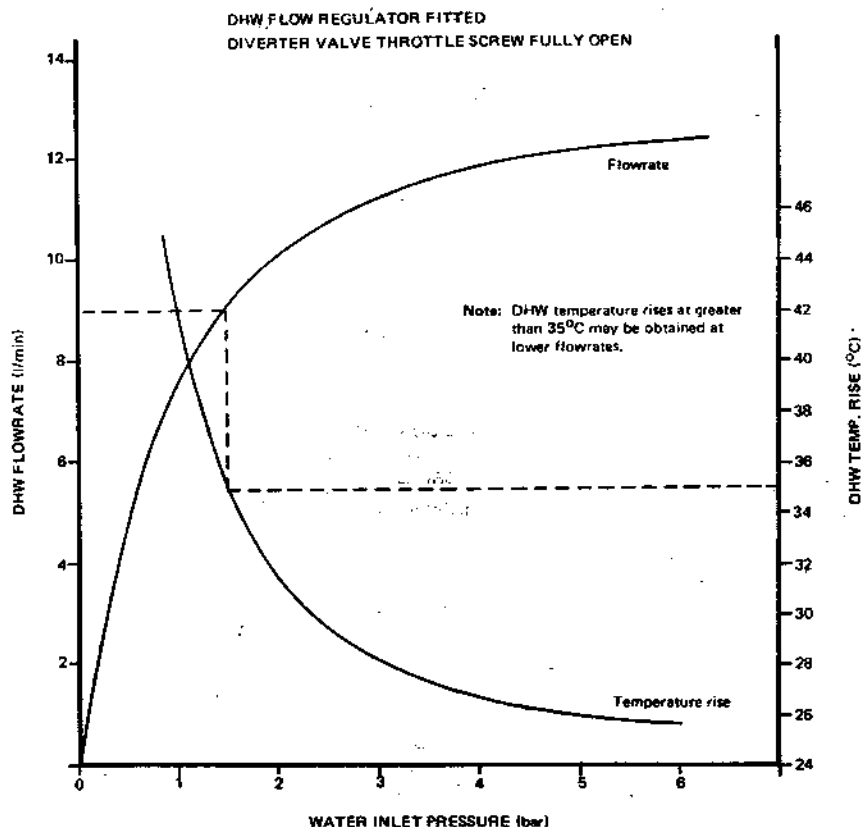


Fig. 5

DHW FLOW CHARACTERISTICS

Check the setting pressure and readjust if it has deviated more than 0.5 mbar (0.2 in w.g.).

(d) Make final adjustment as (c) above.

(e) Swing the cover (Q) back into position and secure.

24. Affix an arrow indicator label, supplied, to the appropriate burner setting pressure on the Data Plate located at the front RH side of the bottom panel

Note: Automatic Bypass Valve. This is factory set, but if required, may be adjusted as follows:

- Remove the end cap from the valve (E)-Refer Fig. 9.
- Turn the adjuster screw ANTICLOCKWISE to open the valve, increasing the flow through the boiler, and reducing the flow through the system.

#### DHW FLOW-RATE SETTING

- Set the WATER switch to ON and the HEATING switch to OFF.
  - Fully open all DHW taps in turn and ensure that water flows freely from them.
  - Close all taps except the furthest one from the boiler and check that the boiler is firing at maximum rate.
  - Adjust the DHW flowrate by turning the throttle screw (32) on the diverter valve (22) Refer Fig. 1, until a DHW temperature of approximately 35°C rise is obtained at the tap. This corresponds to a flowrate of about 9.0 l/min (2.0 gpm).
- Note: If the water supply pressure is low, a temperature rise greater than 35°C will result at the taps -refer to Fig. 5.
- Turn off the DHW tap.
  - Remove the pressure gauge and tube and retighten the sealing screw in the pressure test nipple, ensuring that a gas tight seal is made.

#### GENERAL CHECKS

Make the following checks for correct operation.

##### 1. HOT WATER MODE

- Set the WATER switch to ON and the HEATING switch to OFF. Check that the WATER indicator neon glows.
- Fully open a DHW tap and check that the pump starts and the main burner lights in response.
- Close the DHW tap and check that the burner extinguishes and the pump stops. The WATER indicator neon should remain illuminated.

##### 2. HEATING AND HOT WATER MODE

- Set the WATER and HEATING switches to ON. Check that the main burner lights and both HEATING and WATER indicator neons glow in response.

Note: If a programmer is fitted the HEATING neon will only glow during ON periods.

- Fully open a DHW tap and check that hot water is delivered.
- Close the DHW tap, set the HEATING switch to OFF and check that the main burner extinguishes and the pump stops.

3. The correct operation of the programmer, if fitted, and all other system controls should be proved. Operate each control separately and check the main burner responds.

4. Check that the casing is seated correctly and compressing the sealing strip all around the casing.

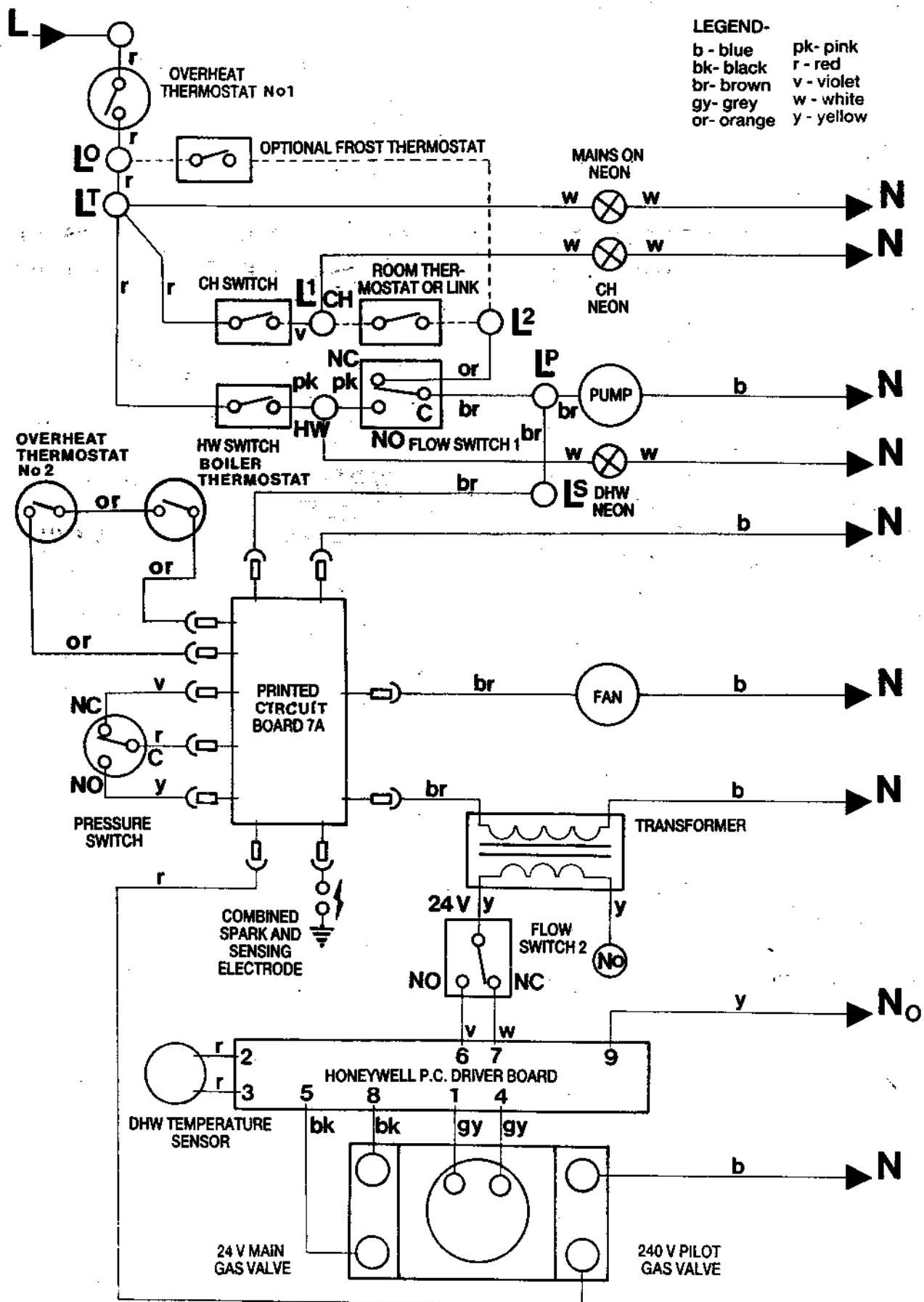
##### 5. WATER CIRCULATION SYSTEM

- With the system cold check that the initial pressure is correct to the system design requirements. For pre-pressurised systems this should be 1.0 bar (14.5 psi).
- Set the RED 'fill pressure' indicator on the pressure gauge, (C) [refer Fig. 9] to the initial system pressure.
- With the system hot examine all water connections for soundness. The system pressure will increase with temperature rise but should not exceed 2.5 bar (36.3 psi).
- With the system still hot turn off the gas, water and electricity supplies to the boiler and drain down in order to complete the flushing process.
- Refill and vent the system as described in 'Guide to System Requirements'. Clear all air locks and again check for water soundness.
- Re-set the system initial pressure to the design requirements.

##### Finally:

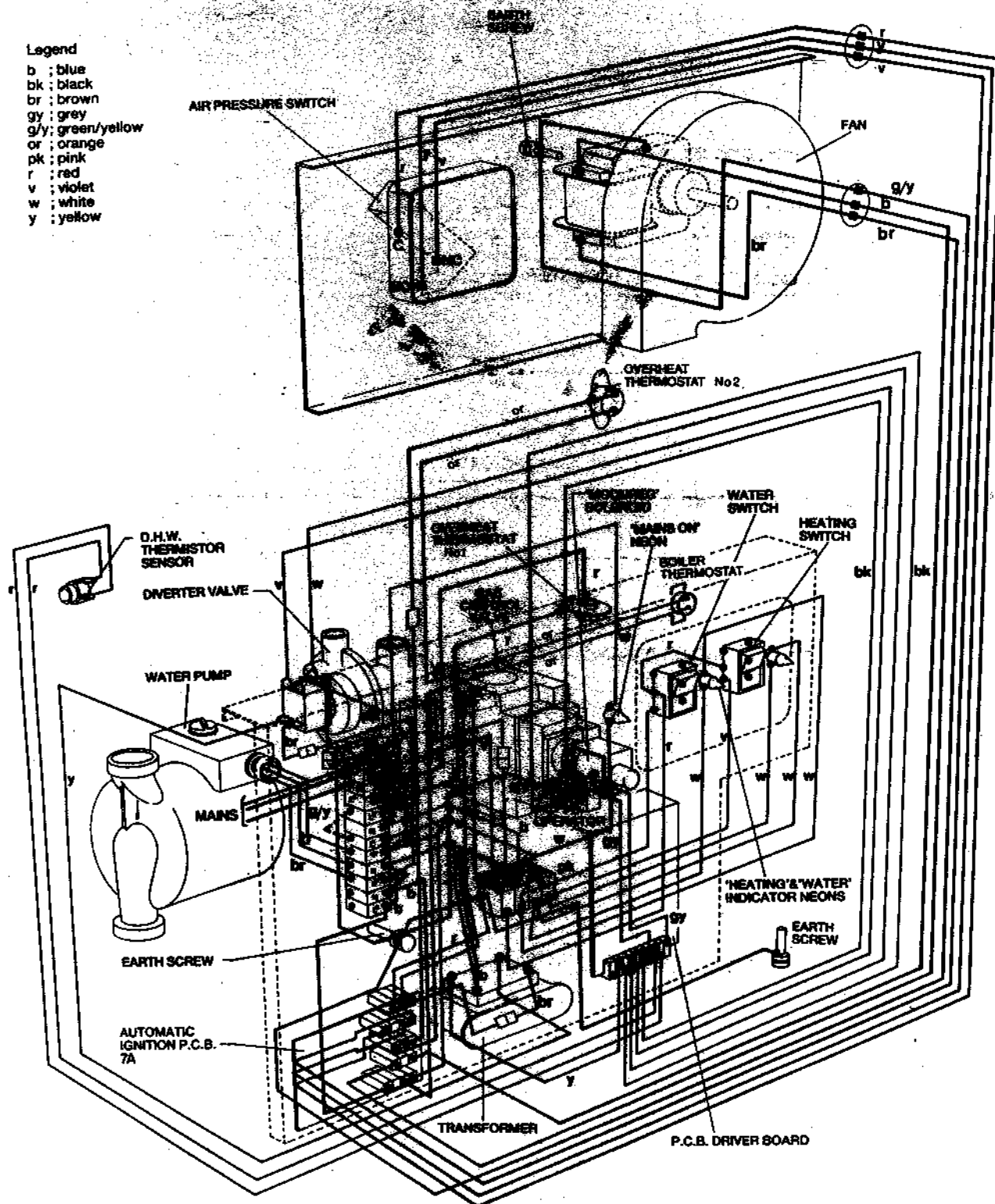
- Swing the control panel back into its working position and secure.
- Refit the bottom panel and front cover and set the controls to the user's requirements.

Note: If a programmer is fitted refer to the programmer instructions.

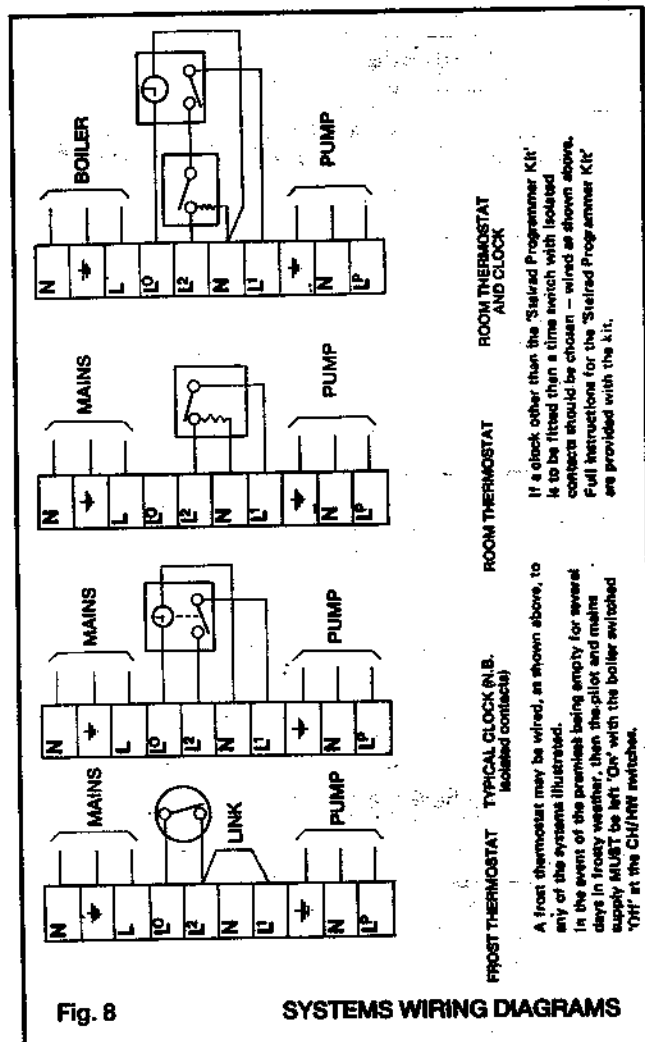


Legend

b : blue  
 bk : black  
 br : brown  
 gy : grey  
 g/y : green/yellow  
 or : orange  
 pk : pink  
 r : red  
 v : violet  
 w : white  
 y : yellow



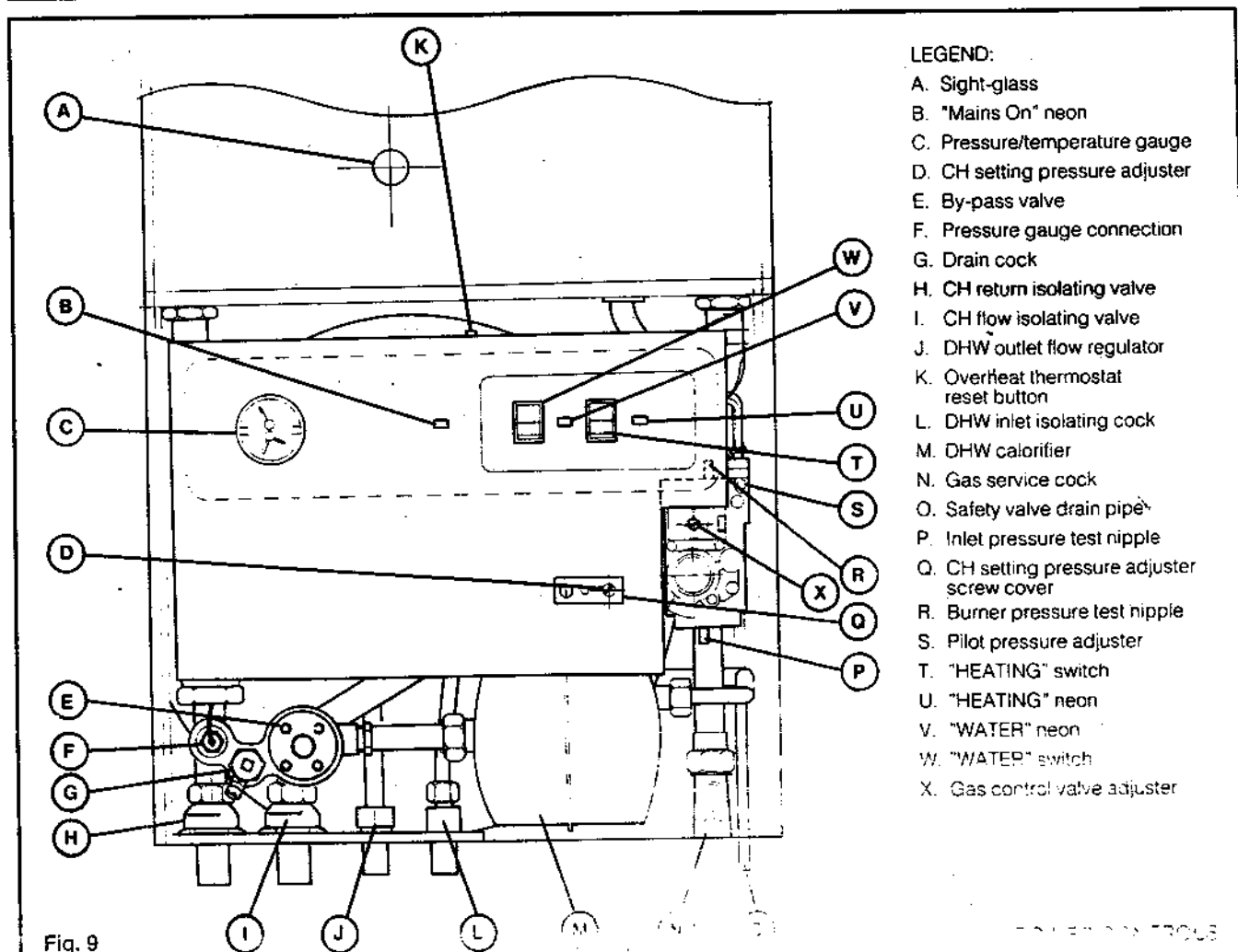
PICTORIAL WIRING DIAGRAM



## HANDING OVER

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

1. Hand the 'User's Instructions' to the Householder and explain his/her responsibilities under the 'Gas Safety (Installation and Use) Regulations 1984'.
2. Draw attention to the Lighting Instruction label affixed to the inside of the control compartment front cover.
3. Explain and demonstrate the lighting and shutting down procedures.
4. The operation of the boiler, including the use and adjustment of ALL system controls, should be fully explained to the Householder. This then ensures 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 frost conditions.
5. Explain the function and the use of the boiler HEATING and WATER switches.
6. Explain the function of the boiler over-heat thermostat and emphasise that, if cut-out persists, the boiler should be turned off and the local Heating Installer consulted.
7. Explain and demonstrate the function of time and temperature controls, radiator valves, etc., for the economic use of the system.
8. If an Optional Programmer Kit is fitted, then draw attention to the Programmer Kit User's Instructions and hand them to the Householder.
9. Explain and demonstrate the cylinder changing procedure - see User's Instructions
10. Stress the importance of regular servicing by a qualified Heating Engineer.
11. Draw attention to the User's Instructions Emergency Action Notice.



# SERVICING

## THE FOLLOWING SHOULD BE CARRIED OUT AT PERIODS NOT EXCEEDING ONE YEAR

- Carry out a pre-service check & note any operational faults.
- Clean the main burner.
- Clean the heat exchanger.
- Clean the main and pilot injectors.
- Check the flue terminal is unobstructed & that the flue system, including the inner cover is sealed correctly.
- If the appliance has been installed in a compartment check that the ventilation areas are clear.

SOME OF THE SERVICING POINTS ARE COVERED MORE FULLY IN THE FOLLOWING PARAGRAPHS.

**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:** After completing servicing or exchange of components always test for gas soundness and carry-out functional checks as appropriate.

**TO REMOVE THE BOILER CASING-** Refer INSTALLATION Frame 5.

**Note:** Take care not to damage the glass fascia panel (if fitted).

- Lift off the controls compartment front cover.
- Release the two captive screws at the top of the casing, the two captive screws within the controls compartment and lift the casing off the boiler.

**TO REMOVE THE MAIN BURNER AND CONTROLS ASSEMBLY-** Refer Fig. 1

- Release the captive screw at the RH side of the control panel and swing the panel open.
- Pull off the four electrical leads from the front of the gas control valve - the grey wires should be connected to the green Modureg solenoid on the gas control valve - Refer Fig. 1.  
Disconnect the earth lead from the front of the valve.
- Disconnect the ignition/ detection lead from the automatic ignition PCB.
- Undo the union nut on the gas service cock.
- Undo the two screws securing the gas manifold sealing plate to the backpanel.
- Support the burner assembly and remove the wing nut securing the burner front support bracket to the heat exchanger skirt.
- Draw the assembly forward and pull off the red and blue electrical leads from the back of the valve.
- Remove the assembly to a convenient working surface for attention.
- Brush off any deposits that may have fallen on to the burner head. Ensure that the flame ports are un-obstructed & remove any debris that may have collected.

**Note:** Brushes with metallic bristles must NOT be used.

- Remove the main burner injector; ensure there is no blockage or damage.
- Replace the injector - use an approved jointing compound, sparingly.
- Inspect the pilot burner, thermocouple and spark electrode; ensure they are clean and in good condition. In particular, check that:
  - The pilot burner injector is not blocked or damaged.
  - The pilot burner is clean and unobstructed.
  - The ignition/detection electrode is clean and undamaged.
  - The ignition/detection lead is in good condition.
  - The spark gap is correct - Refer Fig. 10.

**TO CLEAN DHW flow regulator-** Refer Fig. 9

- Close the isolating valve (L) on the DHW inlet.
- Open the lowest DHW draw off tap.
- Undo the unions on the pipe connecting the DHW OUTLET to the boiler and remove the pipe.
- Unscrew the Flow Regulator and clean carefully.
- Re-assemble in reverse order. Use new sealing

- Unplug the fan and pressure switch electrical connections from the fan mounting plate. NOTE THEIR POSITIONS - Refer Fig. 7.
- Slacken the bottom & remove the top fan mounting plate screws. Remove the complete assembly from the boiler. Check that the fan is running freely & clean the impeller blades with a soft brush. Note: the impeller is finely balanced & care must be taken when handling the fan.
- Slacken the two wing nuts on top of the flue collector hood and the two wing nuts at the front of the hood.
- Disengage the tie-rods - NOTING THEIR POSITIONS-and remove the hood.
- Place a plastic sheet or similar beneath the heat exchanger. Remove all loose deposits from the heat exchanger finned block; brushing from above and below, - and also from the copper skirt, using a suitable brush and/or clearing rod.
- Refit the flue collector hood in reverse order, replacing any damaged or deteriorating sealing gaskets.
- Refit the fan assembly in reverse order.
- Refit the burner and controls assembly in reverse order. Ensure that the electrical leads are connected to the back of the valve, these may be fitted either way round.
- Reconnect the gas and electrical supplies.
- Ensure that the sight glass in the boiler casing is clean and undamaged.
- Swing the control panel closed and secure.
- Refit the boiler casing.
- Refit the controls compartment front cover.

## PILOT BURNER SETTING

Light the boiler & check that the pilot flame is 50 mm (2 in) long, as shown in Fig. 10. The pilot adjuster screw is factory set to maximum & no adjustment should be necessary. However, if the pilot flame appears small, check the adjustment of the pilot pressure adjuster screw (S)- refer Fig. 9- as follows:

- Turn the boiler OFF and remove the controls compartment front cover.
- Turn the pilot pressure adjuster screw (S) CLOCKWISE until fully CLOSED.
- Turn the pilot pressure adjuster screw ANTI-CLOCKWISE 4 full turns to give maximum setting.
- Relight the pilot in accordance with the Lighting Instructions. **Note:** The pilot adjusting screw is sealed against User interference and must be re-sealed if disturbed during servicing.

**ADJUSTMENT OF GAS PRESSURE-** Refer Fig. 9.

After each occasion of servicing, reference should be made to Table 2 which quotes details of the rated output, in relation to the burner setting pressure and the heat input, for both Central Heating and Domestic Hot Water modes. Any required adjustment of Central Heating Output should be made using the pressure adjustment screw (D). Refer to 'Initial Lighting' on Page 15.

The maximum DHW output is fixed at a burner pressure of 35.4 mbar (14.2 in.w.g).

## REPLACEMENT OF COMPONENTS

**WARNING:** ALWAYS turn OFF the gas supply at the gas service cock. Switch switch OFF & DISCONNECT the electricity supply BEFORE WORKING ON THE APPLIANCE.

**Boiler Control Thermostat-** Refer Fig. 1

- Release the captive screw at the right hand side of the control panel and swing the panel open.
- Remove the two screws securing the thermostat to the mounting plate and withdraw the thermostat.
- Pull the two electrical leads off the thermostat.
- Smear the sensing head of the new thermostat with surface contact cream.
- Fit the new thermostat & re-assemble in reverse order.

**Note:** To replace the following components, it will be necessary to remove the boiler casing, as previously described. In all cases ensure that the boiler casing is correctly refitted.

**Boiler Overheat thermostat No. 1 - Refer Fig. 1**

- Swing open the control panel & remove the 3 screws & paint cutting washers securing the controls inner cover. Lift off the inner cover as previously described.
- Release the clip securing the thermostat 'pancake' sensing head to the boiler flow pipe.
- Remove the nut securing the thermostat to the control

4. Pull the two electrical connections off the thermostat and withdraw the thermostat.
5. Fit the new thermostat & re-assemble in reverse order, taking care not to damage the thermostat capillary, and ensuring that the sensor is positively located.

#### **Boiler Overheat Thermostat No. 2- Refer Fig. 1**

1. Remove the two screws securing the thermostat to the mounting plate & withdraw the thermostat.
2. Pull the two electrical leads off the thermostat
5. Fit the new thermostat & re-assemble in reverse order,

#### **Sightglass**

1. Remove the fascia panel, if fitted, from the casing by sliding it upwards.
2. Unfasten the two nuts and washers holding the sightglass assembly to the casing front panel.
3. When fitting the new assembly, ensure the parts are in the correct order, i.e. gasket, glass, gasket & frame. The frame MUST have the return edge at the bottom.
4. Retighten the two nuts to ensure an airtight seal. Do NOT overtighten.
5. Refit the fascia panel.

#### **Pilot Burner Assembly- Refer Fig. 1**

1. Release the captive screw at the right hand side of the control panel and swing the panel open.
2. Undo the spark electrode locking nut and withdraw the electrode and nut.
3. Undo the pilot pipe connection at the pilot burner and pull the pipe clear of the pilot burner. Do NOT lose the pilot injector which is a push fit in the pilot pipe connection to the pilot burner.
4. Remove the two screws securing the pilot burner to the main burner and withdraw the pilot burner.
5. Fit the new pilot burner and re-assemble in reverse order, ensuring that the pilot injector is in position when refitting the pilot pipe.

#### **Spark Electrode and Lead Assembly- Refer Fig. 1.**

1. Remove the burner and controls assembly as previously described.
2. Remove the clip securing the spark lead to the pilot supply pipe.
3. Undo the two screws securing the pilot pipe sealing plate to the underside of the burner manifold sealing plate, and remove the plate and gasket.
4. Undo the spark electrode nut and withdraw the electrode complete with the integral spark lead.
5. Fit the new spark electrode/ lead & re-assemble in reverse order.

#### **Main Burner- Refer Fig. 1.**

1. Remove the burner and controls assembly as previously described.
2. Remove the pilot burner assembly as previously described.
3. Remove the two nuts securing the burner to the manifold and withdraw the burner.
4. Remove the burner end bracket & transfer to the new burner.
5. Fit the new burner and re-assemble in reverse order.

#### **Gas Control Valve- Refer Fig. 1.**

1. Remove the burner and controls assembly as previously described.
2. Undo the pilot pipe connection at the gas valve.
3. Undo the four screws securing the gas valve outlet pipe flange and withdraw the valve. The sealing 'O' ring should be discarded and a new one fitted.
4. Unscrew the inlet pipe and transfer it to the new valve using a suitable jointing compound.
5. Fit the new gas valve ensuring that:
  - (a) The valve is fitted the right way round; an arrow engraved on the valve indicates the direction of flow.
  - (b) The sealing 'O' ring, supplied with the valve, is correctly fitted at the outlet flange.
6. Re-assemble in reverse order.

#### **Pilot Filter Replacement**

1. With the main burner and controls assembly removed as previously described, remove the five screws securing the pilot filter assembly to the control panel.
2. Pull the pilot filter assembly from the control panel.
3. Fit the new pilot filter assembly and re-assemble in reverse order.

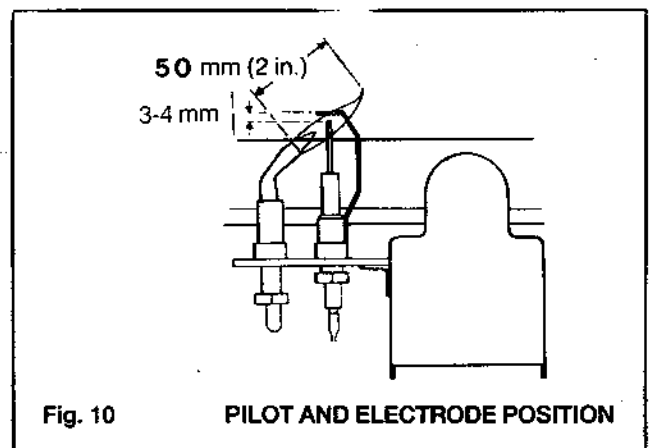


**Fig. 10**

**PILOT AND ELECTRODE POSITION**

#### **Modureg Solenoid- Refer Fig. 1.**

1. Pull the two grey leads off the solenoid.
2. Remove the two screws securing the solenoid operator to the gas valve and lift off the solenoid.
3. Fit the new solenoid in reverse order.

#### **Complete Fan Unit- Refer Fig. 1.**

1. Unplug the fan and pressure switch electrical connections from the fan mounting plate. Disconnect the electrical leads from Overheat Thermostat No. 2, on the LH side of the boiler, & disengage the leads from the clips on the top edge of the fan mounting plate.
  2. Slacken the bottom two and remove the top two fan mounting plate securing screws. Remove the complete assembly from the boiler.
  3. Remove the screw retaining the fan pressure switch wiring harness.
  4. Remove the nut securing the brass pressure sensing fitting to the fan plate.
  5. Remove the two screws securing the fan pressure switch.
  6. Disconnect the electrical leads from the connector blocks as follows:-
    - (a) VIOLET lead from top terminal
    - (b) RED lead from second terminal
    - (c) YELLOW lead from third terminal
    - (d) BLUE lead from fourth terminal
    - (e) BROWN lead from fifth terminal
    - (f) GREEN/YELLOW lead from bottom terminal
  7. Disconnect the fan earth lead from the earth post.
  8. Remove the earth post from the fan mounting plate.
  9. Disengage connector blocks from fan mounting plate.
  10. Refit the pressure switch, brass pressure sensing fitting, earth post, electrical connector blocks and pressure switch wiring harness to the new fan unit.
  11. Re-connect all electrical leads - Refer Fig. 6.
- Re-assemble the complete fan unit in reverse order.

#### **Pressure Switch- Refer Fig. 7**

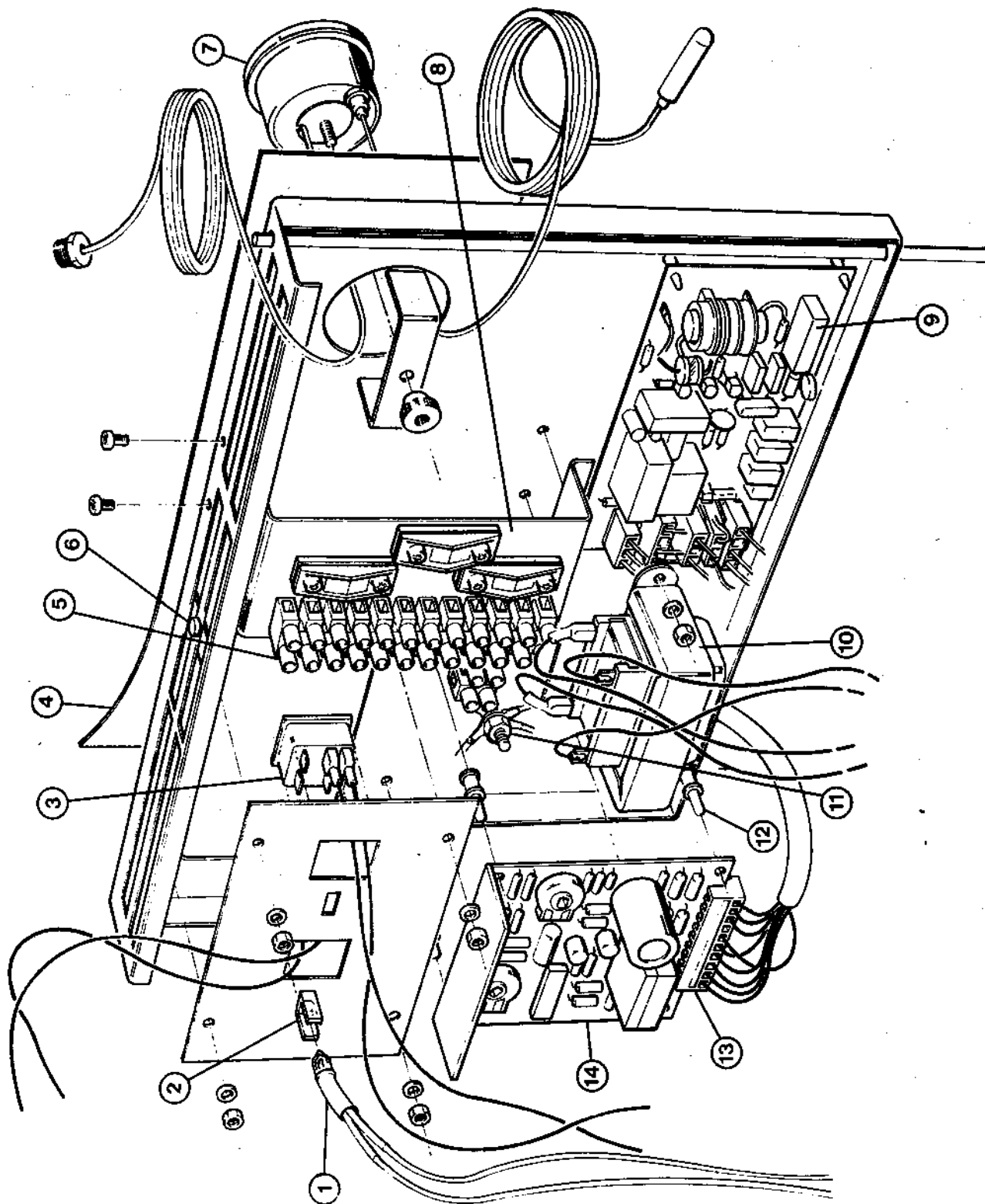
1. Proceed as described in steps 1 and 2 under Complete Fan Unit removal
2. Disconnect the electrical leads from the pressure switch as follows:-
  - (a) RED lead from terminal P (COM)
  - (b) YELLOW lead from terminal 2 (NO)
  - (c) VIOLET lead from terminal 1 (NC)
3. Disconnect the pressure sensing pipe from the switch.
4. Remove the two screws securing the pressure switch to the fan plate & withdraw the switch.
5. Fit the new pressure switch and re-assemble in reverse order, ensuring that:-
  - (a) The pressure sensing pipe is connected to the tapping marked +
  - (b) All electrical connections are correctly re-made.

#### **Transformer- Refer Fig. 11.**

1. Swing open the control panel and remove the inner cover as previously described.
2. Pull the two yellow, low voltage, leads off the bottom terminals of the transformer. Disconnect the brown, mains voltage, lead at the in line connector and the blue, mains voltage lead from terminal 'N' on the terminal strip - Refer Fig. 8.
3. Remove the two screws securing the transformer from the control panel.
4. Fit the new transformer and re-assemble in reverse order.

LEGEND:

- |                                     |                              |
|-------------------------------------|------------------------------|
| 1. Neon indicators(3-off)           | 8. Insulation pad            |
| 2. Neon indicator lens(3-off)       | 9. Automatic ignition PCB 7A |
| 3. Selector switch(2-off)           | 10. Transformer              |
| 4. Fascia label                     | 11. Earth screw              |
| 5. 12-way connector                 | 12. Fastening spigot(4-off)  |
| 6. Overheat thermostat reset button | 13. Edge connector           |
| 7. Pressure/temperature gauge       | 14. PCB driver board         |



**HEATING AND WATER Switches: Refer Fig.11.**

1. Swing open the control panel and remove the inner cover - as previously described.
2. Pull the red lead off the switch bottom terminal and the pink lead (WATER switch), or violet lead (HEATING switch), off the top terminal.
3. Compress the retaining clips and prise the defective switch out, through the front of the control panel.
4. Fit the new switch and re-assemble in reverse order. Ensure that:
  - (a) The switch is the correct way up - the two terminals should be positioned toward the bottom of the control panel.
  - (b) All electrical connections are correctly re-made; refer Fig. 6.
  - (c) The indicator neons have not been displaced during the switch replacement.

**Indicator Neons: Refer Fig.11.**

1. Swing open the control panel and remove the inner cover - as previously described.
2. Disengage the neon from within the lens, contained in the control panel.
3. Disconnect the leads from the terminals marked 'N' and 'CH' ('HEATING' neon), 'HW' (WATER neon) or 'L' ('MAINS ON' neon).
4. Fit the new neon and re-assemble in reverse order. Ensure that all the electrical connections are correctly remade; refer Fig. 6.

**P.C.B. Driver Board - Refer Fig. 11**

1. Swing open the control panel and remove the inner cover - as previously described.
2. Disengage the board from the four mounting pegs by compressing the pegs with pliers.
3. Unplug the edge connector from the board.
4. Fit the new board and re-assemble in reverse order.

**Automatic Ignition P.C.B. - Refer Fig. 11**

1. Swing open the control panel and remove the inner cover as previously described.
2. Disconnect the five plugs and the ignition/detection lead from the P.C.B.
3. Disengage the board from the four mounting pegs by compressing the pegs with pliers.
4. Fit the new board and re-assemble in reverse order, ensuring that the plug-in connectors are to the left hand side.

**DHW Expansion Vessel-Refer Fig.1.**

1. Swing open the control panel as previously described.
2. Close the isolating valve (L) on the DHW inlet connection to the boiler-Refer Fig.9.
3. Open the lowest DHW drawoff tap.
4. Unscrew the expansion vessel from the pipe applying an appropriate counter force to prevent damage.
5. Fit the new vessel and re-assemble in reverse order.

**IMPORTANT**

IN ADDITION TO REMOVING THE BOILER CASING, IN ORDER TO REPLACE THE FOLLOWING COMPONENTS, IT IS ALSO NECESSARY TO DRAIN THE BOILER.

Close the isolating valves (I) and (H) on the central heating flow and return pipes of the boiler. Drain via the drain cock (G); refer Fig. 9.

There may be some slight water leakage, and gas and electrical components and the floor should be protected with water proof sheets or similar.

To refill the boiler then refer to 'Filling Instructions' on Page 13.

**D.H.W. Thermistor Sensor-Refer Fig1.**

1. Swing open the control panel - as previously described.
2. Pull the electrical leads off the DHW thermistor sensor, located on the boiler return pipe.
3. Unscrew the sensor from the pipe.
4. Fit the new thermistor sensor and re-assemble in reverse order.

**Pressure/Temperature Gauge-Refer Fig11.**

1. Swing open the control panel as previously described.
2. Unclip the temperature sensor from the boiler flow pipe.
3. Undo the SMALL hexagon nut connecting the pressure sensor to the bypass valve block, and withdraw the sensor.
4. Unclip the pressure and temperature sensor capillaries from the back of the control panel, by compressing the buckle of the retaining strap with pliers.
5. Undo the knurled nut at the back of the gauge and remove the retaining clamp.
6. Withdraw the gauge through the front of the control panel.
7. Fit the new gauge and re-assemble in reverse order. Ensure that:
  - (a) The capillaries are correctly connected.

- (b) The gauge is correctly orientated within the control panel.
- (c) The temperature sensor is correctly positioned - on the boiler flow pipe in front of the safety valve boss.

**Diverter Valve Microswitches.**

1. Swing open the control panel, as previously described.
2. Pull off the clip securing the micro switches to the left hand end of the diverter valve and withdraw the switches.
3. Disconnect the electrical leads, as follows:
  - (a) YELLOW lead from the LH side terminal;
  - (b) VIOLET lead from the centre terminal;
  - (c) WHITE lead from the RH side terminal;
  - (d) Unplug the three in-line connectors in the, soldered-on PINK, BROWN and ORANGE leads.
4. Fit the new microswitches and reassemble in reverse order. Ensure that all the electrical connections are correctly remade.

**Diverter Valve:Refer Fig.1.**

1. Swing open the control panel, as previously described.
2. Pull off the clip securing the micro switches to the left hand end of the diverter valve and withdraw the switches.
3. Close the isolating valve (L) on the D.H.W. connection to the boiler—refer Fig. 9
4. Open the lowest D.H.W. draw off tap.
5. Undo the five union connections and remove the valve. Discard the old sealing washers.
6. Fit the new valve, complete with the new sealing washers provided, and reassemble in reverse order.

**DHW Calorifier-Refer Fig.1.**

1. Close the isolating valve (L) on the DHW inlet connection to the boiler; refer Fig. 9
2. Open the lowest DHW draw-off tap.
3. Swing open the control panel - as previously described.
4. Undo the four union connections and remove the calorifier. Discard the old sealing washers.
5. Fit the new calorifier, complete with the new sealing washers provided, and reassemble in reverse order.

**Note: To descale the calorifier:**

- (a) Remove the calorifier from the boiler as described above.
- (b) Descale the domestic hot water coil, using a proprietary descaling agent.
- (c) Rinse thoroughly with clean water.
- (d) Re-assemble in reverse order.

**WARNING:**

These compounds are highly corrosive and ingestion or contact with skin, eyes and clothing MUST be avoided. Protective clothing should be worn and the descaling operation conducted out of doors or in a well ventilated area.

**Pump:Refer Fig.1.**

1. Swing open the control panel and remove the inner cover-as previously described.
2. Remove the burner and control assembly - as previously described.
3. Unclip the temperature gauge sensor from the boiler flow-pipe, remove the overheat thermostat "pancake" sensing head from the flow pipe and pull off the electrical leads from the control thermostat.
4. Unscrew the cable clamp and disconnect the pump lead from terminals marked 'L', N and E on the control panel, and pull the pump lead clear.
5. Pull the leads off the DHW thermistor sensor.
6. Remove the screws securing the control panel top support bracket and swing the bracket aside.
7. Slacken the 2.5mm socket screw, located on the By-pass Valve block and below the bottom pump union.
8. Undo the union connecting the pump outlet pipe to the boiler heat exchanger. Withdraw the pump, complete with inlet and outlet pipes, by rotating it to the left and lifting.
9. Undo the pump union connections and transfer the inlet and outlet pipes to the new pump using the new sealing gaskets provided.

- (a) Remove the four socket screws securing the pump to the boiler heat exchanger. Turn the pump through 90° so that when re-assembled, the pump is in the correct position. Refer Fig. 1.

re-assemble in reverse order ensuring that:

- (a) The electrical connections are correctly re-made -refer to Instruction 4 and the diagram inside the pump terminal box cover.
- (b) The pump selector switch cover is correctly fitted and that the switch is set at position '3'.
- (c) The new sealing washer, provided, is fitted to the pump outlet pipe connection to the boiler heat exchanger.

**Safety Valve:Refer Fig.1.**

1. Remove the burner and controls assembly as previously described.
2. Unclip the temperature sensor from the boiler flow pipe.
3. Unclip the overheat thermostat "pancake" sensing head from the boiler flow pipe.
4. Remove the boiler control thermostat as previously described.
5. Undo the safety valve drain pipe union connection.
6. Undo the unions of the pipe connecting the boiler flow to the diverter valve and remove the pipe.
7. Unscrew the valve from the boiler flow pipe, applying an appropriate counter-force to prevent damage.
8. Unscrew the fitting from the valve outlet and transfer it to the new valve.
9. Fit the new valve using a suitable jointing compound ensuring that the valve is angled approximately 10° down from the horizontal, and re-assemble in reverse order.

**Automatic Air Vent-Refer Fig.1.**

1. Unscrew the automatic air vent from the boiler flow header, applying an appropriate counter force to prevent damage.
2. Fit the new air vent in reverse order.  
Note-Ensure that the vent cap is loose.

**Boiler Heat Exchanger:Refer Fig.1.**

**IMPORTANT:** Before starting the removal procedure protect the gas and electrical controls with a waterproof sheet or similar.

1. Unscrew the automatic air vent from the flow header of the heat exchanger, applying an appropriate counterforce to prevent damage.
2. Remove the fan unit as previously described.
3. Remove the burner and controls assembly and the flue collector hood, as previously described.
4. Remove the two wing nuts securing the air box bottom front panel and remove the panel.

5. Undo the two wing nuts securing the heat exchanger bottom retaining bracket and remove the bracket.
6. Support the heat exchanger and undo the union nuts on the flow header and return pipe of the heat exchanger.
7. Ease the heat exchanger forward slightly to drain any residual water from the return connection, and then withdraw the heat exchanger from the back panel.
8. Fit the new heat exchanger in reverse order.

**By-pass Valve Head :Refer Fig.9.**

1. Remove the four screws securing the valve head to the body, and lift off the head complete with the spring and plunger.
2. Fit new components as necessary and re-assemble in reverse order.

**CH Expansion Vessel:Refer Fig.1.**

In the unlikely event of the failure of the CH expansion vessel it is recommended that a new vessel if fitted exterior to the boiler. It should be positioned on the return pipe and as close to the boiler as possible. If, however, the vessel must be replaced then the following procedure may be used:

1. Remove the main burner and controls assembly as previously described.
2. Remove the pump as previously described.
3. Remove the boiler control thermostat as previously described.
4. Unclip the temperature sensor and overheat thermostat sensing head from the boiler flow pipe as previously described.
5. Disconnect the safety valve drain pipe union connection.
6. Undo the unions on the pipe connecting the boiler flow to the diverter valve and remove the pipe.
7. Remove the diverter valve as previously described.
8. Undo the unions on the DHW inlet pipe and remove the pipe.
9. Remove the DHW inlet pipe to the calorifier.
10. Remove the DHW calorifier as previously described.
11. Undo the pipe connection at the expansion vessel.
12. Remove the expansion vessel retaining clamp.
13. Lift out the expansion vessel.
14. Fit the new vessel and re-assemble in reverse order, using new sealing gaskets throughout.

## SHORT LIST OF PARTS

The following list comprises parts commonly required as replacement components due to damage, expendability, or such that their failure or absence is likely to affect safety or performance.

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

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

### IDEAL SPRINT 80 F P COMBINATION GAS BOILER

When ordering spares please quote:

1. Boiler model
2. Description
3. Maker's Part number
4. Quantity

| Key No. | G.C. Part No. | Description                                                                                                                                                                     | No. Off | Maker's Part No. |
|---------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------------|
| 2       |               | Automatic air vent- TACO                                                                                                                                                        | 1       |                  |
| 4       | 341 489       | Sight-glass assy. comprising sight-glass frame, two sight-glass gaskets, two M4 Hex nuts and M4 shakeproof washers                                                              | 1       | 199116045        |
| 7       |               | Main Burner - FURIGAS Type R No. 118 500 055                                                                                                                                    | 1       | 199256064        |
| 8       |               | Main Injector- BRAY, Cat 10, size 850                                                                                                                                           | 1       | 199256060        |
| 9       |               | Pilot burner - HONEYWELL Q359A (automatic) 27 L                                                                                                                                 | 1       | 589250085        |
| 10      |               | Pilot injector - HONEYWELL 45004 114 004, 0.23 P                                                                                                                                | 1       |                  |
| 11      |               | 1/2 in. BSP HONEYWELL gas control valve VR 4920 M 2029                                                                                                                          | 1       |                  |
| 12      |               | Modureg solenoid- HONEYWELL V 7335A 2067                                                                                                                                        | 1       |                  |
| 14      |               | Spark electrode - VERNITRON 60959/000 with H.T. lead assembly. - 900 mm long                                                                                                    | 1       | 589250088        |
| 17      | 341 990       | 24V Transformer - PEKTRON Type T27                                                                                                                                              | 1       | 589220071        |
| 18      | 341 911       | PCB driver board - HONEYWELL                                                                                                                                                    | 1       | 589220072        |
| 19      |               | Automatic ignition PCB - PACTROL 7A                                                                                                                                             | 1       | 589250068        |
| 20      | 341 932       | Pressure/Temperature gauge with gland nut ; INTERALBION NO. 941611105, with check valve                                                                                         | 1       | 589220075        |
| 21      | 392 919       | Heating/water switch - ARCO ELECTRIC single pole rocker switch No. C1450 SP VQN black                                                                                           | 2       | 589220073        |
| 22      | 341 461       | Neon indicator - READILEADS                                                                                                                                                     | 3       | 589730067        |
| 24      | 392 921       | Thermostat - boiler control ELMWOOD No 2455R-8214                                                                                                                               | 1       | 589730056        |
| 25      |               | Thermostat - Overheat No. 1, RANCO LM 7                                                                                                                                         | 1       | 589250074        |
| 25A     |               | Thermostat - Overheat No. 2, ELMWOOD 2455 RM                                                                                                                                    | 1       |                  |
| 27      |               | Fan assembly, complete (SIFAN)                                                                                                                                                  | 1       | 589255011        |
| 28      | 392 933       | Pressure switch - DUNGS LGW 3A1                                                                                                                                                 | 1       | 589135025        |
| 31      | 392 927       | Domestic hot water thermistor sensor HONEYWELL No T7335 A1004                                                                                                                   | 1       | 589220041        |
| 32      | 341 954       | Domestic hot water diverter valve complete with microswitch and 5 gaskets                                                                                                       | 1       | 589220042        |
| 34      |               | Safety valve - R 1/2 x Rc 1/2 : 3 bar- SYR Type 1917 1                                                                                                                          | 1       |                  |
| 35      | 389 375       | Water pump with gaskets - GRUNDFOS UPS 18-60                                                                                                                                    | 1       | 589030031        |
| 37      | 341 940       | DHW Expansion vessel- ZILMET 160                                                                                                                                                | 1       | 589220046        |
| 56      |               | Boiler casing assembly white stove enamel (less removable smoked brown fascia) with foil insulation, bottom sealing strip, 3 securing and retaining washers including Key No. 4 | 1       | 199224030        |
| 57      |               | Glass fascia - smoked brown                                                                                                                                                     | 1       | 199250088        |
| 58      |               | Controls compartment fit-off cover - brown stove enamel with name badges and Lighting Instructions                                                                              | 1       | 199250089        |
| 67      |               | Boiler casing gasket with adhesive                                                                                                                                              | 1       | 199258088        |

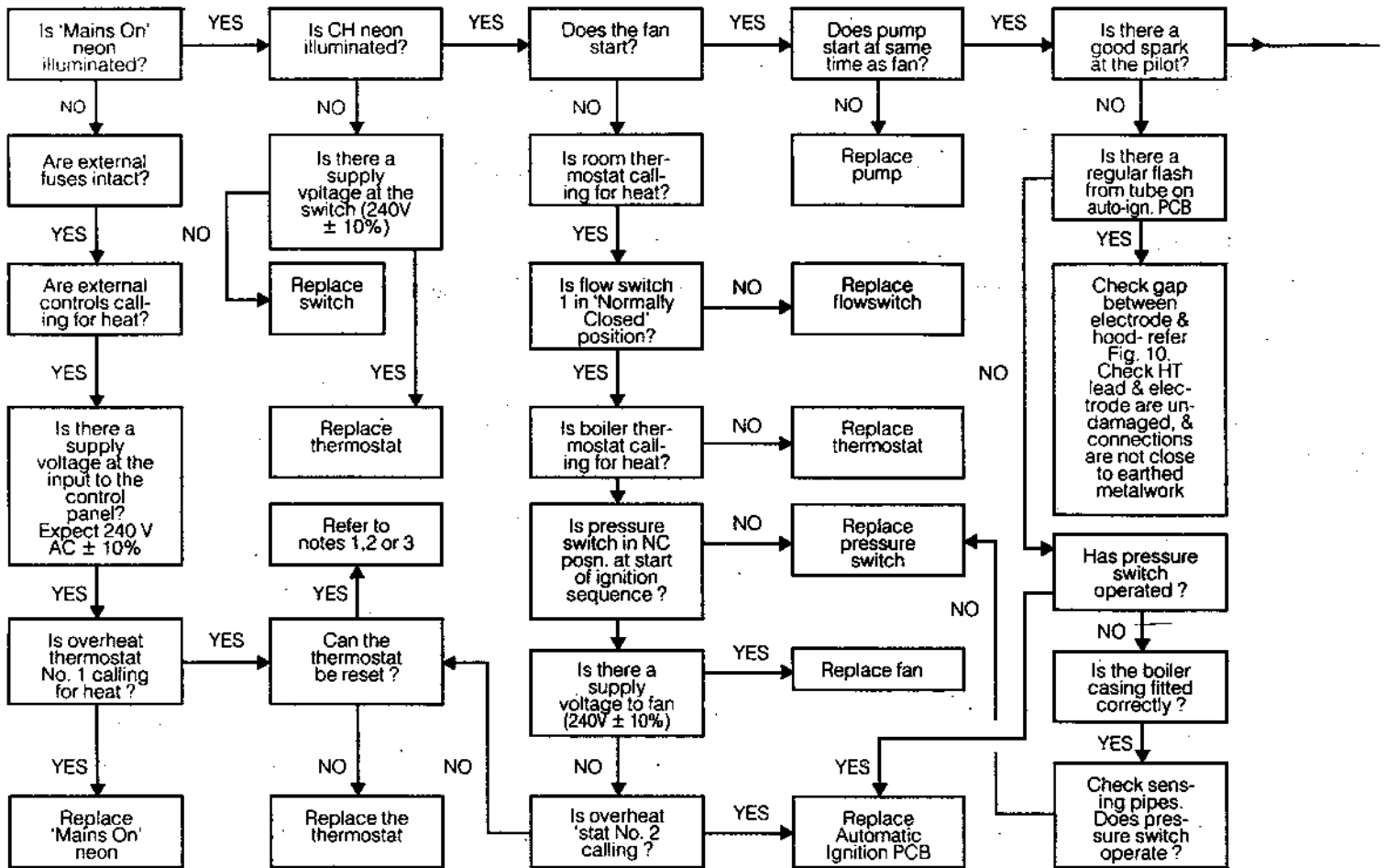
## FAULT FINDING

Before attempting to rectify any electrical fault then, ALWAYS, carry out the preliminary safety checks - as detailed on pages 6 to 9 of the 'Instructions for the British

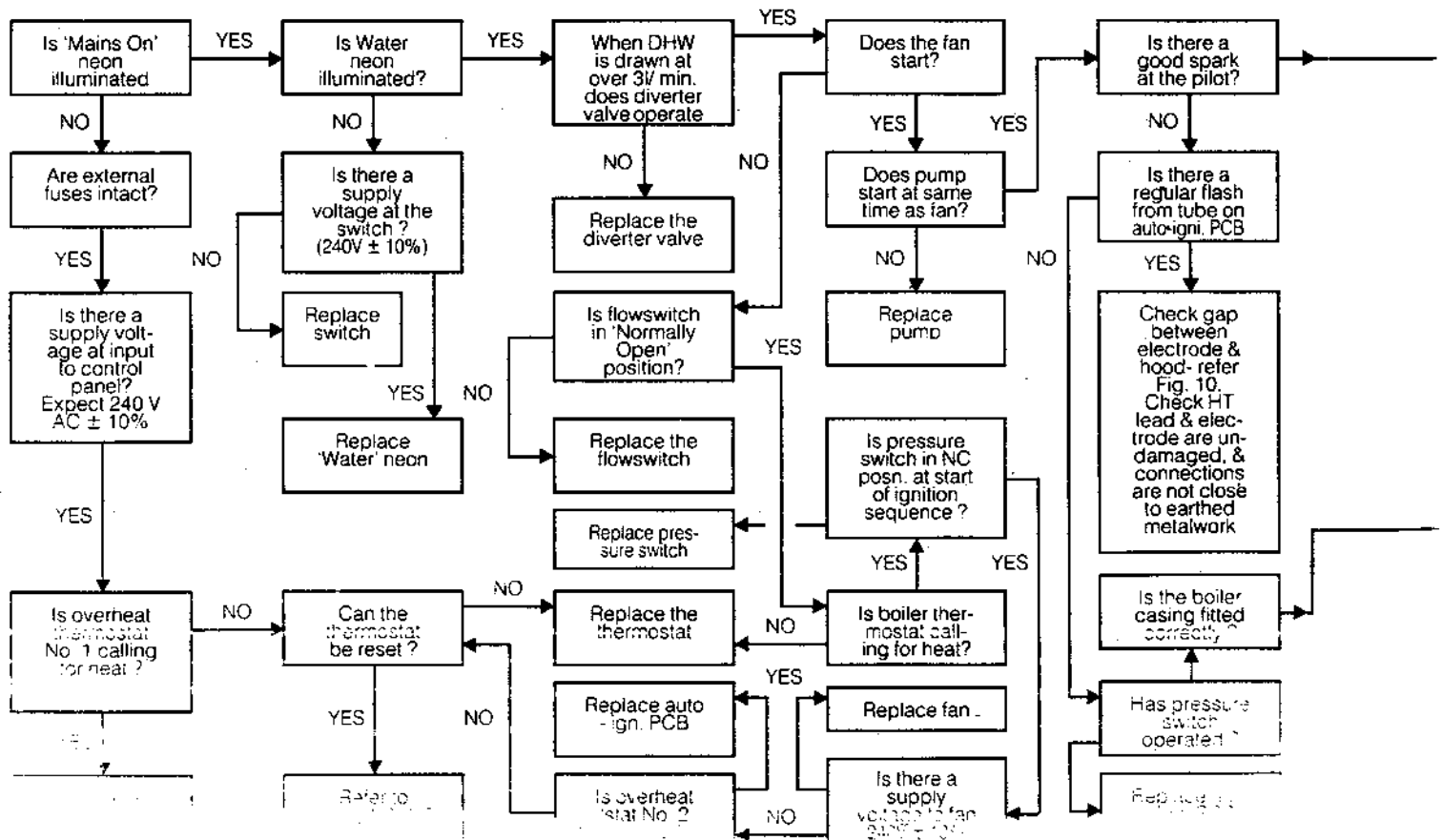
Gas Multimeter'.

Detailed instructions of the replacement of faulty parts are contained within the 'Servicing' section of this publication.

**CH MODE:** Start from cold, set 'CH' switch to 'ON' and 'Water' switch to 'OFF'.



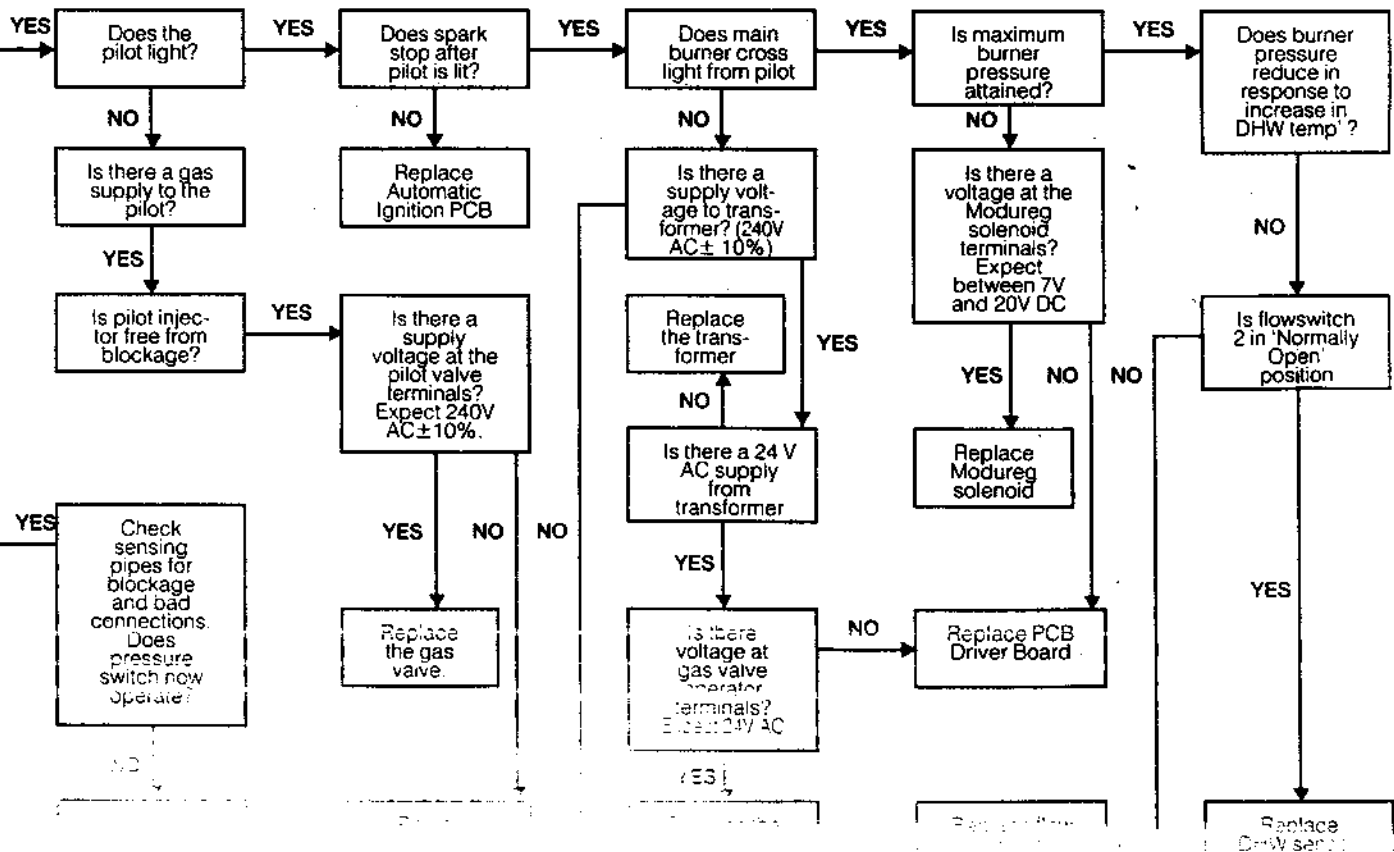
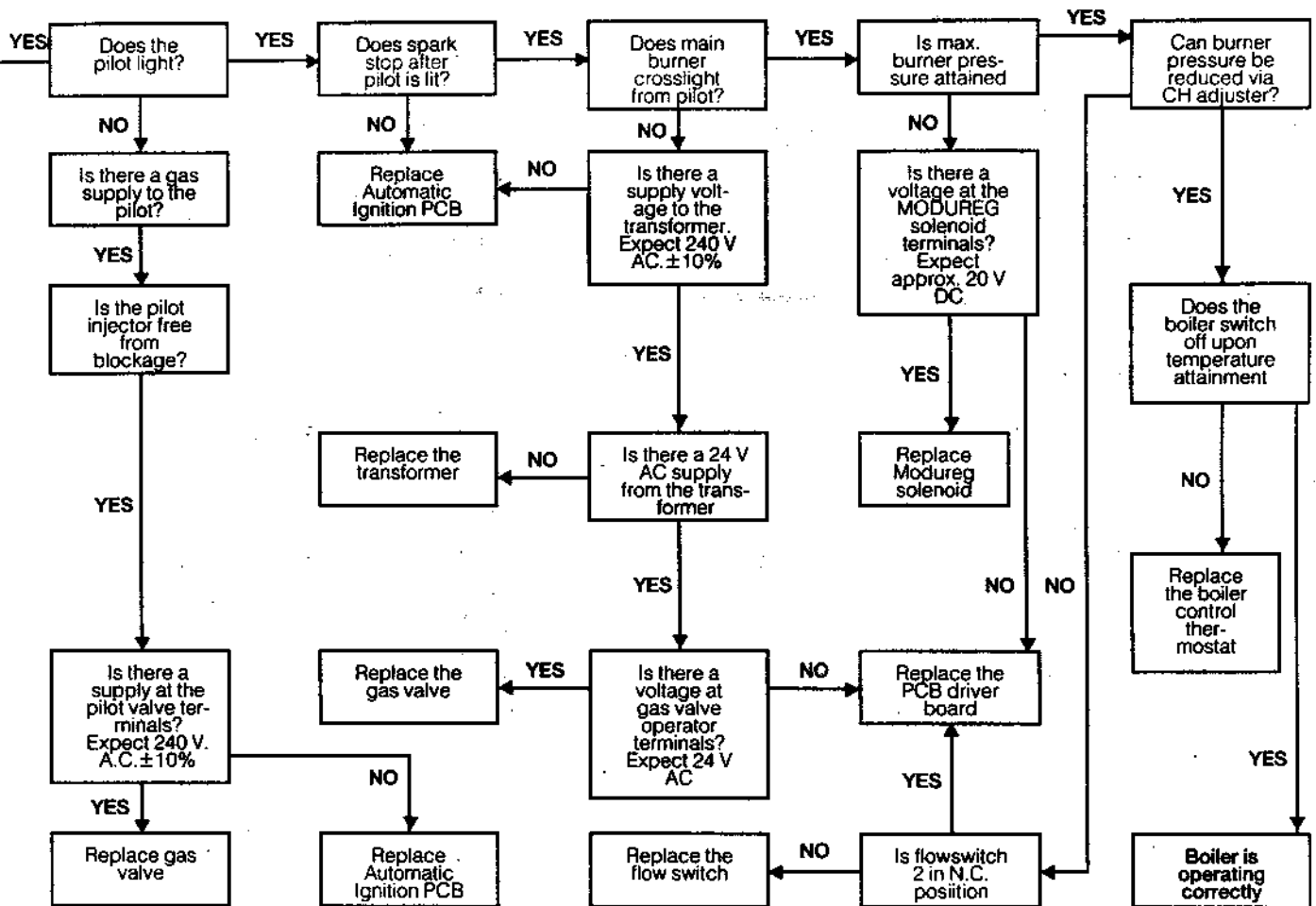
**WATER MODE:** Start from cold, set 'CH' switch to 'OFF' and 'Water' switch to 'ON'.

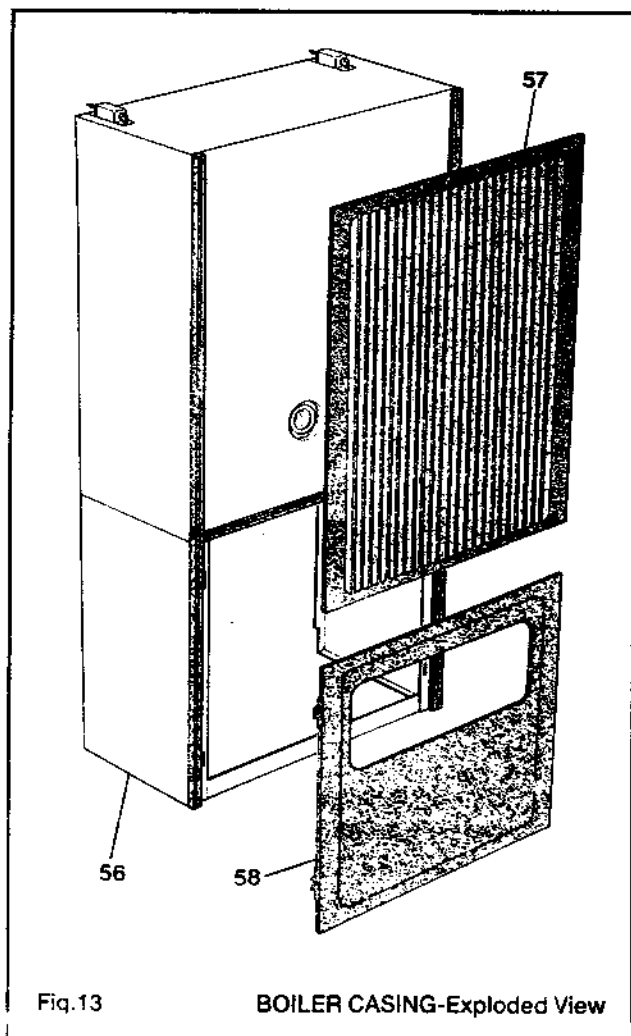
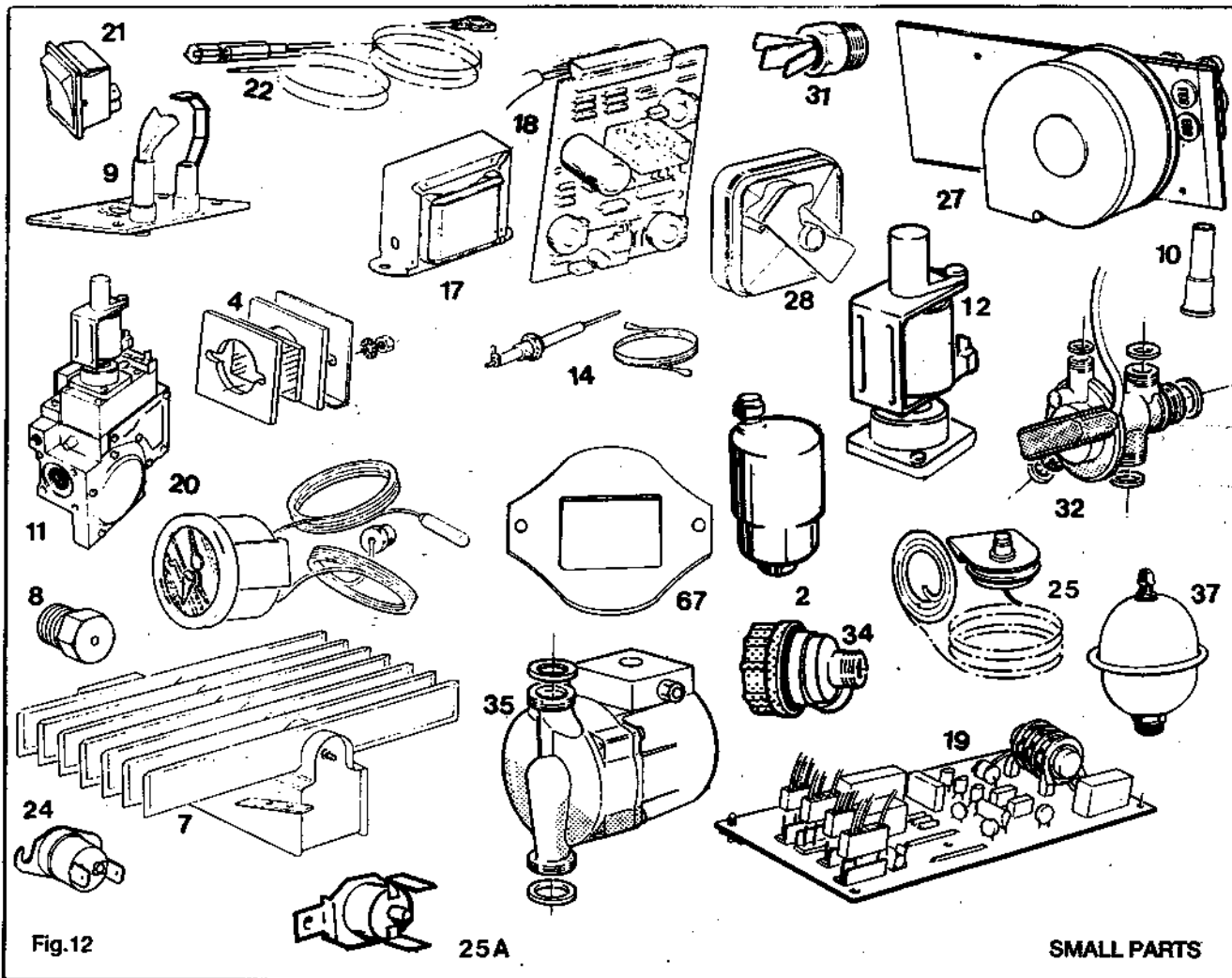


# NOTES

1. Ensure that the boiler & system is full of water, free from air-locks & that the pump is running
2. Press the overheat thermostat No. 1 reset button- refer fig. 1, page 11- & continue with the fault finding procedure. If the thermostat operates before normal working

3. Remove the boiler casing, press the overheat thermostat No. 2 reset button- refer fig. 1, page 11- & continue with the fault finding procedure. If the thermostat operates before the normal working temperature is reached then replace the thermostat





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