

# IDEAL CLASSIC

## RS30, RS40, RS50 & RS60

### Wall Mounted, Balanced Flue Gas Boilers

## Installation & Servicing

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

**IMPORTANT:** *This appliance is for use with*  
**NATURAL GAS ONLY.**

#### Ideal Classic

RS 30

RS 40

RS 50

RS 60

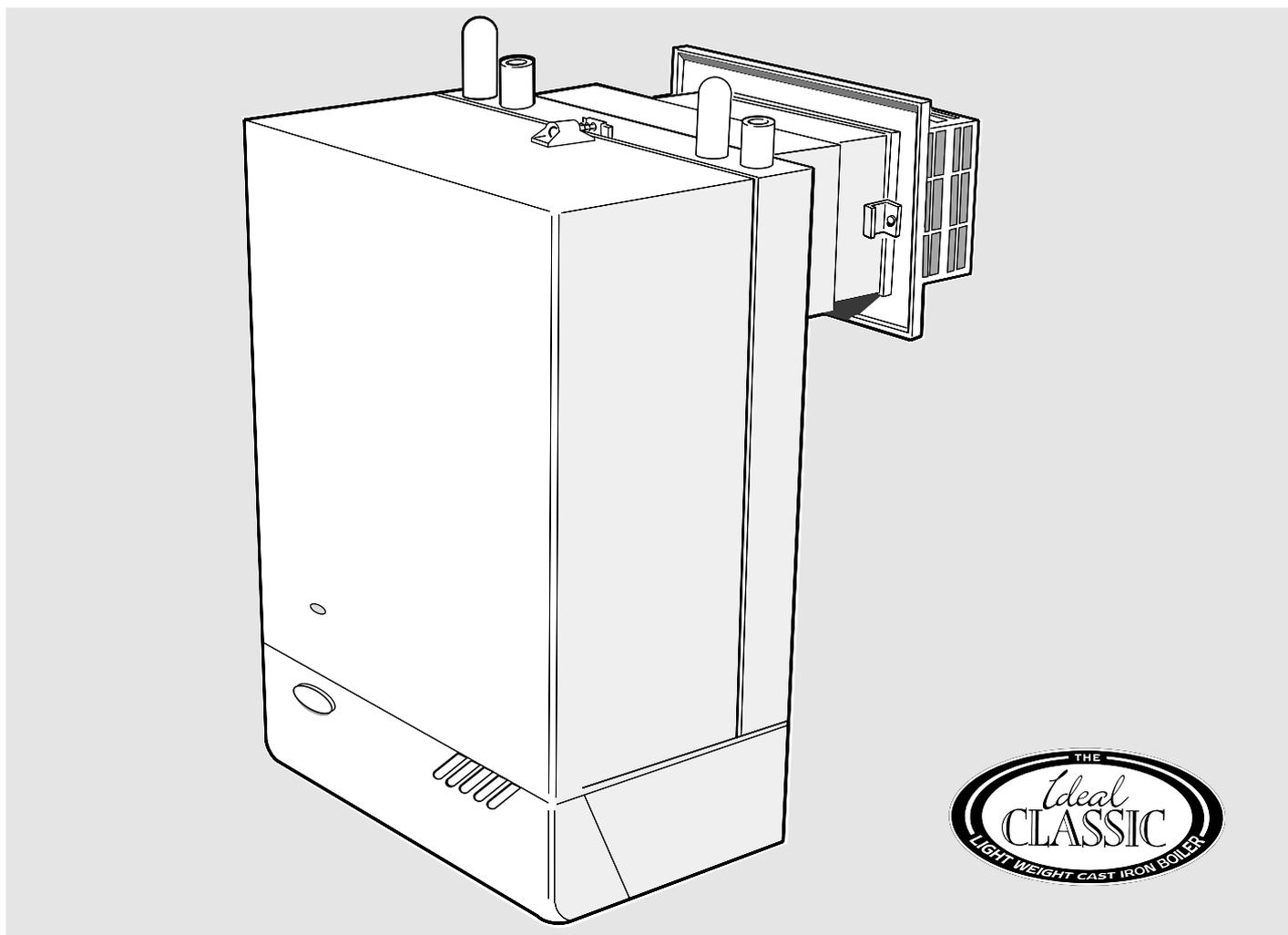
#### G.C. Appliance No.

41 429 35

41 429 36

41 429 37

41 429 38



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

**BOILERS**  
**iIdeal**

# GENERAL

# PERFORMANCE DATA

Table 1- GENERAL DATA

Boiler Size			RS 30	RS 40	RS 50	RS 60
Main burner bar			Aeromatic AC 19/123 263	Aeromatic AC 19/123 262		Aeromatic AC 19/123 261
Gas control			HONEYWELL V 4700E 1072, 240V.			
Burner Injector	BRAY		Cat 10 Size 750	Cat 10 Size 1050	Cat 10 Size 1350	Cat 10 Size 1600
Pilot injector			HONEYWELL 45900421 - 001 (STAMPED 38/36A)			
Gas supply connection (in. BSP)			Rc 1/2 (1/2)			
Flow connections - PUMPED & GRAVITY			22 mm copper (Gravity must be increased to 28 mm at the boiler)			
Return connections - PUMPED & GRAVITY			22 mm copper (Gravity must be increased to 28 mm at the boiler)			
Maximum static water head		m (ft.)	30.5 (100)			
Minimum static water head		m (ft.)	0.45 (1.5)			
Electrical supply			240 V ~ 50 Hz			
External fuse rating			3 A			
Water content	litre (gal.)		2.7 (0.6)	3.65 (0.8)	3.65 (0.8)	4.6 (1.0)
Dry weight	kg (lb.)		33.0 (72.6)	39.0 (86.0)	39.0 (86.0)	44.0 (97.0)
Maximum installation weight		kg (lb.)	28.0 (61.6)	34.0 (75.0)	34.0 (75.0)	40.5 (89.0)
Boiler size	Height	mm (in.)	600 (23.6)			
	Width	mm (in.)	380 (15.0)			
	Depth	mm (in.)	300 (11.8)			

Table 2- PERFORMANCE DATA

Boiler Size			RS 30	RS 40	RS 50	RS 60
Boiler input	MINIMUM	kW	5.8	11.3	15.0	18.8
		(Btu/h)	(19 800)	(38 500)	(51 200)	(64 100)
(a) For l/s; divide heat input (kW) by C.V. of the gas (MJ/m <sup>3</sup> ).	Gas consumption	l/s (ft <sup>3</sup> /h)	0.15 (19.0)	0.29 (37.0)	0.39 (49.3)	0.48 (61.7)
	MID	kW	8.5	13.0	16.7	20.4
(b) For ft <sup>3</sup> /h; divide heat input (Btu/h) by C.V. of the gas (Btu/ft <sup>3</sup> ).		(Btu/h)	(29 000)	(44 350)	(56 850)	(69 600)
	Gas consumption	l/s (ft <sup>3</sup> /h)	0.22 (27.9)	0.34 (42.7)	0.43 (54.8)	0.53 (67.0)
Heat inputs are pre-set to the highest nominal rating.	MAXIMUM	kW	11.0	14.7	18.30	22.0
		(Btu/h)	(37 500)	(50 000)	(62 500)	(75 000)
	Gas Consumption	l/s (ft <sup>3</sup> /h)	0.28 (36.1)	0.38 (48.2)	0.47 (60.2)	0.57 (72.2)
Boiler output	MINIMUM	kW	4.4	8.8	11.7	14.7
		(Btu/h)	(15 000)	(30 000)	(40 000)	(50 000)
	MID	kW	6.6	10.3	13.2	16.1
		(Btu/h)	(22 500)	(35 000)	(45 000)	(55 000)
	MAXIMUM	kW	8.8	11.7	14.7	17.6
		(Btu/h)	(30 000)	(40 000)	(50 000)	(60 000)
Burner setting pressure (HOT)	MINIMUM	mbar (in.w.g.)	4.5 (1.8)	8.9 (3.6)	9.7 (3.9)	11.0 (4.4)
	MID	mbar (in.w.g.)	9.5 (3.8)	12.0 (4.8)	12.1 (4.9)	12.7 (5.1)
	MAXIMUM	mbar (in.w.g.)	16.0 (6.4)	15.0 (6.0)	14.5 (5.8)	15.4 (6.2)

## INTRODUCTION

The **Ideal Classic** RS 30, RS 40, RS 50 and RS 60 are wall mounted, balanced flue, natural draught gas boilers. They are range rated to provide central heating outputs of 4.4kW (15 000 Btu/h) to 8.8kW (30 000 Btu/h), 8.8kW (30 000 Btu/h) to 11.7kW (40 000 Btu/h), 11.7kW (40 000 Btu/h) to 14.7kW (50 000 Btu/h) and 14.7 kW (50 000 Btu/h) to 17.6kW (60 000 Btu/h).

The boiler casing is of white enamelled mild steel with a removable controls pod containing a drop down door.

The boiler thermostat is located behind the controls access door, in the box mounted on the gas valve.

A **Programmer Kit**, which fits neatly within the casing, is available as an optional extra. Separate fitting instructions are included with this kit.

The boilers are suitable, as standard, for connection to open vented systems **ONLY**.

An **Overheat Thermostat Kit** is available to allow the boiler to be used on sealed water systems.

A complete **Sealed System Module**, which fits on top of the appliance, is also available as an optional extra.

The boiler is suitable for connection to pumped, open vented central heating systems; pumped central heating combined with pumped, or gravity, indirect domestic hot water systems; gravity or pumped, indirect domestic hot water supply systems. See *Frame 3 for details of the correct boiler tapplings to use*.

The boilers are suitable for the following wall thicknesses:

114 mm	(4 1/2 in)	to	191 mm	(7 1/2 in)	
229 mm	(9 in)	to	305 mm	(12 in)	
318 mm	(12 1/2 in)	to	394 mm	(15 1/2 in)	and
406 mm	(16 in)	to	584 mm	(23 in)	

Wall thicknesses outside of these sizes cannot be accommodated .

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

It is 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 the law is complied with.

The installation of the boiler **MUST** also be in accordance with the latest I.E.E. Wiring Regulations, the local building regulations, bye-laws of the local water authority, the Building Regulations and the Building Standards (Scotland) and any relevant requirements of the local authority. Detailed recommendations are contained in the following British Standard Codes of Practice:

BS 6891	Low pressure installation pipes.
BS 6798	Installation of gas fired hot water boilers of rated input not exceeding 60 kW.
BS 5449	Forced circulation hot water 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	Ventilation (for gas appliances of rated input not exceeding 60 kW).

*Manufacturer's notes must NOT be taken, in any way, as overriding statutory obligations.*

**IMPORTANT.** These appliances are certificated by the British Standards Institution for safety and performance. It is, therefore, important that no external control devices, e.g. flue dampers, economisers etc., are directly connected to these appliances - unless covered by these 'Installation and Servicing' instructions or otherwise recommended by Caradon Ideal Ltd. in writing. If in doubt please enquire.

Any direct reconnection of a control device not approved by Caradon Ideal Ltd. could invalidate the B.S.I. certification and the normal appliance warranty. It could also infringe the Gas Safety Regulations and the above regulations.

### LOCATION OF BOILER

The boiler **MUST** be installed on a flat and vertical external wall, capable of adequately supporting the weight of the boiler and any ancillary equipment.

The boiler may be fitted on a combustible wall, and insulation between the wall and the boiler is not necessary - unless required by the local authority. **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 the local gas region of British Gas.

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.

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

Where installation will be in an unusual location, special procedures may be necessary and BS.6798 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 cupboards / compartment design, including airing cupboard installation, are given in BS.6798.

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. For the minimum clearances required for safety and subsequent service, see the Wall Mounting Template, Frame 6 and Frame 7. In addition, sufficient space may be required to allow lifting access on to the wall mounting plate.
2. This position **MUST** also permit the provision of a satisfactory balanced flue termination.

### GAS SUPPLY

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

A gas meter can only be connected by the local gas region or by a local regional contractor.

## GENERAL

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

Installation pipes MUST be fitted in accordance with BS. 6891. Pipework from the meter to the boiler MUST be of an adequate size. Do NOT use pipes of smaller size than the boiler inlet gas connection.

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

## FLUE INSTALLATION

The flue must be installed in accordance with the recommendations of BS. 5440:1

The following notes are intended for general guidance:

1. The boiler MUST be installed so that the terminal is exposed to external air.
2. It is important that the position of the terminal allows the free passage of air across it at all times.
3. Minimum acceptable 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 2 m (6.6 ft.) above a balcony, above ground or above a flat roof to which people have access then the terminal MUST be protected by a purpose designed guard. Terminal guards are available from:

Quinnel, Barret & Quinnel Ltd.,  
884 Old Kent Road, London SE15 (Model P6) and

Tower Flue Components Ltd.,  
Vale Rise, Tonbridge, Kent. TN9 1TB (Model C).

Ensure that the guard is fitted centrally.

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 then an aluminium shield 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 NOT be closer than 25 mm (1 in.) to combustible material. Detailed recommendations on the protection of combustible material are given in BS. 5440:1, 1990.

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

*If this should occur, the appliance MUST be turned OFF immediately and the local gas region consulted.*

## TERMINAL

The terminal assembly can be adapted to accommodate various wall thicknesses. Refer to Frame 1 'Unpacking'.

## AIR SUPPLY

Detailed recommendations for air supply are given in BS.5440:2. The following notes are 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 room/internal space or be direct to outside air. The minimum effective

## FLUE INSTALLATION - AIR SUPPLY

areas of the permanent air vents required in the cupboard/ compartment are specified as follows and are related to maximum rated heat input.

3. Both air vents MUST communicate with the same room or internal space or MUST be on the same wall to outside air.
4. In siting the air vents care must be taken to avoid the freezing of pipework.

Refer to Tables 4 - 7 for details of air vent positioning and sizing.

**Table 3 - BALANCED FLUE TERMINAL POSITION**

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

**Table 4 - RS 30 AIR SUPPLY**

Position of air vent	Air from room/ internal space	Air direct from outside
HIGH LEVEL	cm <sup>2</sup> (in <sup>2</sup> ) 102 (16)	51 (8)
LOW LEVEL	cm <sup>2</sup> (in <sup>2</sup> ) 102 (16)	51 (8)

**Table 5 - RS 40 AIR SUPPLY**

Position of air vent	Air from room/ internal space	Air direct from outside
HIGH LEVEL	cm <sup>2</sup> (in <sup>2</sup> ) 135 (21)	68 (11)
LOW LEVEL	cm <sup>2</sup> (in <sup>2</sup> ) 135 (21)	68 (11)

# GENERAL

**Table 6 - RS 50 AIR SUPPLY**

Position of air vent		Air from room/ internal space	Air direct from outside
HIGH LEVEL	cm <sup>2</sup> (in <sup>2</sup> )	170 (27)	85 (14)
LOW LEVEL	cm <sup>2</sup> (in <sup>2</sup> )	170 (27)	85 (14)

**Table 7 - RS 60 AIR SUPPLY**

Position of air vent		Air from room/ internal space	Air direct from outside
HIGH LEVEL	cm <sup>2</sup> (in <sup>2</sup> )	203 (32)	102 (16)
LOW LEVEL	cm <sup>2</sup> (in <sup>2</sup> )	203 (32)	102 (16)

## WATER CIRCULATION SYSTEM

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

**Note:** All water connections MUST be made to the boiler TOP tappings.

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

The domestic hot water system, if applicable, should be in accordance with the relevant recommendations of BS.5546. Copper tubing to BS.2871 :1 is recommended for water carrying pipework.

The hot water storage cylinder MUST be of the indirect type and should preferably be manufactured of copper.

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

The appliances are NOT suitable for gravity central heating systems, with or without additional gravity domestic hot water supply nor are they suitable for the provision of gravity domestic hot water requirements above a 181.8 litre (40 gal) tank capacity, depending on the model.

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

*The boiler must be vented.*

If venting cannot be done via a flow connection then a separate vent MUST be fitted by the installer. This does NOT mean that more than one open vent is required. Other parts of the system, which may become unavoidably air locked, can be automatically vented.

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

# AIR SUPPLY- ELECTRICAL SUPPLY

The boiler is fitted with a special drain plug which is provided to drain the BOILER ONLY in the event of the system drain plug being unable to do so.

The hydraulic resistance of the boilers, at MAXIMUM OUTPUT with an 11 °C (20°F) temperature differential, are shown in Table 8.

## THERMOSTATIC RADIATOR VALVES

Caradon Ideal Ltd. recommend that heating systems utilising full thermostatic radiator valve control of temperature in individual rooms should also be fitted with a room thermostat controlling the temperature, in a space served by radiators not fitted with such a valve - as stated in BS 5449.

When thermostatic radiator valves are used, the space heating temperature control over living / dining area or hallway, having a heating requirement of at least 10% of the boiler heat output, should be achieved using a room thermostat whilst other rooms are individually controlled by thermostatic radiator valves. However, if the system employs thermostatic radiator valves on all radiators then a bypass must be fitted to ensure a flow of water should all the TRV's be in the closed position.

**Table 8 - WATER FLOW RATE AND PRESSURE LOSS**

Boiler Size	RS 30	RS 40	RS 50	RS 60
Boiler output kW Btu/h	8.8 30 000	11.7 40 000	14.7 50 000	17.6 60 000
Water flow rate l/min gal/h	11.4 150	15.2 200	19.0 250	22.8 300
Pressure loss mbar in w.g.	22.0 8.9	20.4 8.3	31.5 12.6	41.7 16.7

## ELECTRICAL SUPPLY

Wiring external to the appliance MUST be in accordance with the current 1. E. E. Wiring Regulations and any local regulations which apply.

The boiler is supplied for 240 V ~ 50 Hz  
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, unswitched three-pin plug and a shuttered socket outlet, both complying with the requirements of BS.1363. Alternatively, a fused double pole switch, having at least a 3 mm (1/8 in.) contact separation in both poles and servicing 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 of the bathroom.

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

# INSTALLATION

# UNPACKING - BOILER ASSEMBLY

## 1 UNPACKING

The boiler is supplied fully assembled in one pack 'A' together with one of four packs, B, B1, C and D, containing the flue terminal appropriate to the wall thickness. Optional extras, if ordered (programmer kit, complete sealed system module and overheat thermostat kit) are supplied in separate boxes.

- PACK 'A' CONTENTS**
- Complete boiler
  - Wall mounting template
  - Wall mounting plate
  - Installation & Servicing Instructions
  - User's Instructions
  - Hardware pack
  - Controls pod door
  - Cover plate

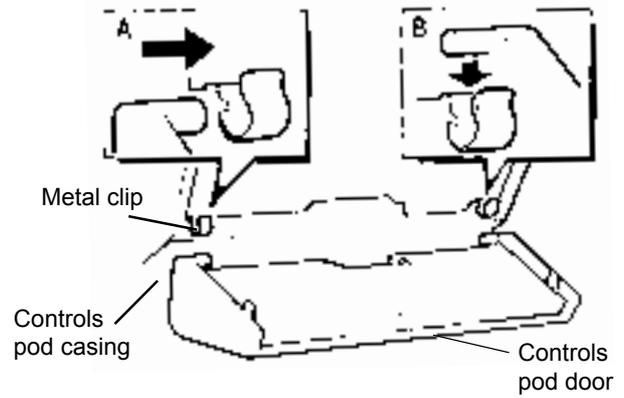
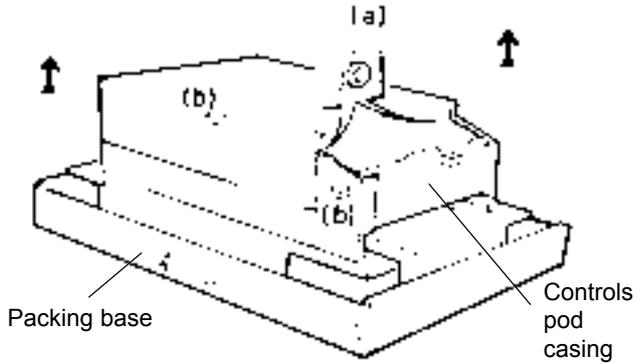
- HARDWARE PACK CONTENTS**
- No.14 x 50mm wood screws, 3 off
  - No.10 x 50mm wood screws, 3 off
  - Wall plug (TP2B - brown), 6 off
  - Data plate indication
  - arrow, 1 off
  - Back panels to wall
  - sealing strip, 3 off

# INSTALLATION

# UNPACKING - BOILER ASSEMBLY

## 1 A UNPACKING - continued

1. Unpack the boiler
2. Remove the casing as follows, and place to one side to avoid damage.
  - (a) Release the controls pod fixing screws (a) 3 full turns only. Remove the pod by pulling it forward to disengage from the keyhole slots.
  - (b) Undo the 3 screws (b) retaining the casing to the back panel.
  - (c) Remove the casing in the direction of the arrows.



3. Fit the plastic controls pod door to the controls casing as follows:
  - A. Insert the L.H. door catch into the L.H. metal clip, fitted to the controls pod casing.
  - B. Push the R.H. door catch into the R.H. metal clip.
4. Unpack the flue terminal.
5. Remove the boiler from its packing base. *Do not remove the pod casing controls protection box.*

### FLUE PACKS

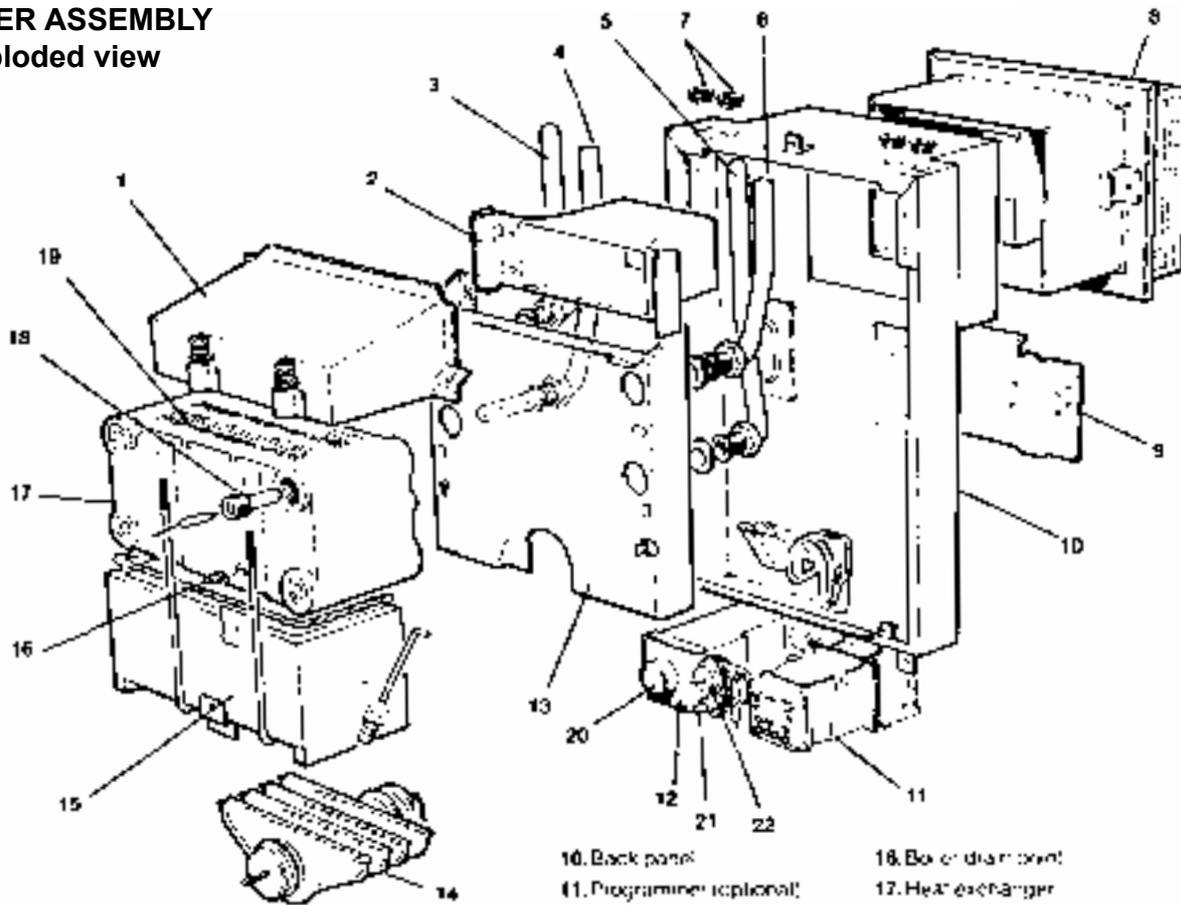
**Note:** All flue packs contain 2 sachets of sealant.

- PACK B.** Contains a balanced flue terminal suitable for wall thicknesses from 229 mm ( 9 in.) to 305 mm (12 in.)
- PACK B1.** Contains a balanced flue terminal suitable for wall thicknesses from 318 mm (12 1/2 in.) to 394 mm (15 1/2 in.)
- PACK C.** Contains a balanced flue terminal suitable for wall thicknesses from 114 mm ( 4 1/2 in.) to 191 mm ( 7 1/2 in.)
- PACK D.** Contains extension ducts which, when used in conjunction with PACK B, are suitable for wall thicknesses from 406 mm (16 in. ) to 584 mm (23 in.).

**Note:** Wall thicknesses outside those specified cannot be accommodated. An overlap of at least 50 mm at any duct joints must be allowed

## 2 BOILER ASSEMBLY

### Exploded view



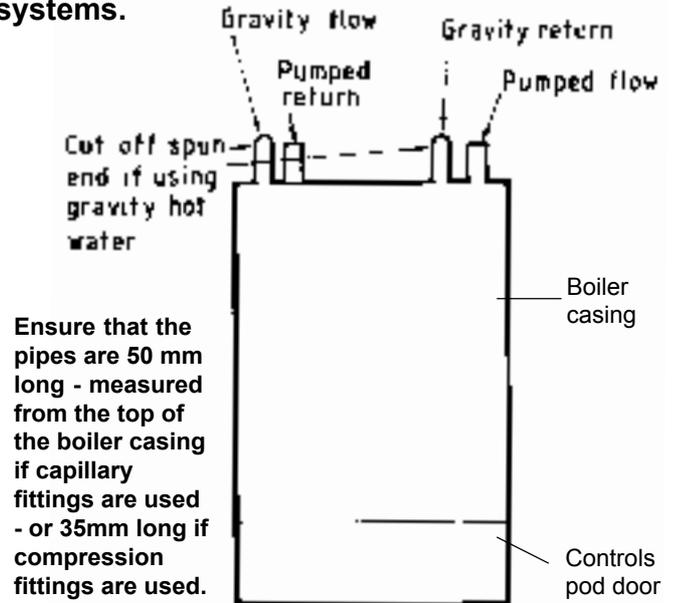
#### LEGEND

- |                       |                            |  |                                     |
|-----------------------|----------------------------|--|-------------------------------------|
| 1. Collector hood     | 5. Gravity return pipe     | 10. Back panel                                     | 16. Box on diam mount               |
| 2. Boiler flue duct   | 6. Pumped flow pipe        | 11. Programmer (optional)                          | 17. Heat exchanger                  |
| 3. Gravity flow pipe  | 7. Rubber sealing grommets | 12. Control box (mounted on the gas control valve) | 18. Thermostat pocket               |
| 4. Pumped return pipe | 8. Balanced flue terminal  | 13. Interpanel                                     | 19. Flue baffles                    |
|                       | 9. Wall mounting plate     | 14. Main burner                                    | 20. Boiler thermostat               |
|                       |                            | 15. Combustion chamber                             | 21. Igniter button                  |
|                       |                            |  | 22. Overhead thermostat (if fitted) |

**3 BOILER WATER CONNECTIONS. Open vented systems.**

1. This appliance is NOT suitable for use in a direct hot water system
2. If the boiler is to be used on a sealed system an overheat thermostat kit is available and must be installed, in accordance with the instructions supplied with the kit.
3. If the boiler is to be used for gravity domestic hot water supply then cut off the spun ends of the gravity flow and return pipes and fit a 22 mm to 28 mm copper connection at the boiler gravity flow and return connections in order to run the gravity circuits in 28 mm pipe.

*For Sealed System applications (fully pumped) refer to the Overheat Thermostat Kit instructions*



**4 OPEN VENT SYSTEM REQUIREMENTS. Fully pumped.**

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

**Note:** Alternatively, the redundant gravity flow and return connections may be used for feed and vent if a close coupled feed and vent system is not desired

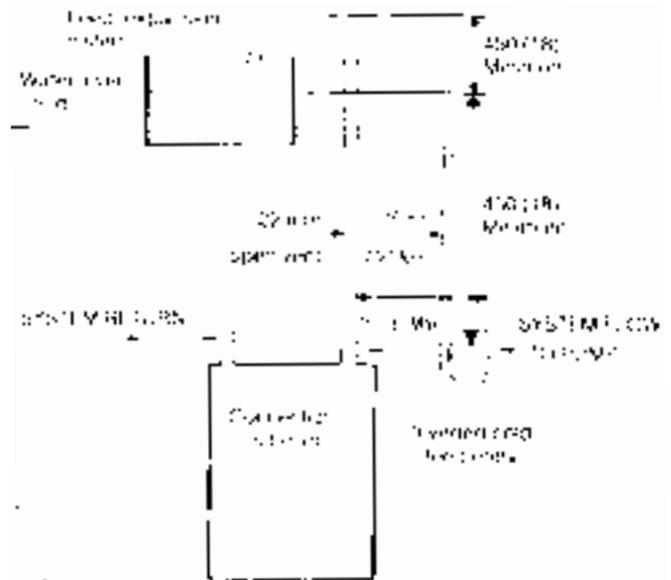
There should be a minimum height - 450 mm (18 in.) of open vent above cistern water level. If this is impossible refer below.

The vertical distance between the highest point of the system and the feed/expansion cistern water level MUST not be less than 450 mm (18 in.). The pump MUST be fitted on the flow side of the boiler.

A suitable pump is a domestic circulator capable of providing an 11°C (20°F) temperature differential (e.g. Grundfos UPS 15 /50 or equivalent). The vertical distance between the pump and feed / expansion cistern MUST comply with the pump manufacturer's minimum requirements to avoid cavitation. Should these conditions not apply, either lower the pump position or raise the cistern above the minimum requirement specified by Caradon Ideal Ltd. **Note:** A cold water feed path must be available back to the boiler, when all automatic valves are in the closed position (refer BS.6798) and when close coupled the feed must not be in a vertical leg.

All dimensions in mm. (in.)

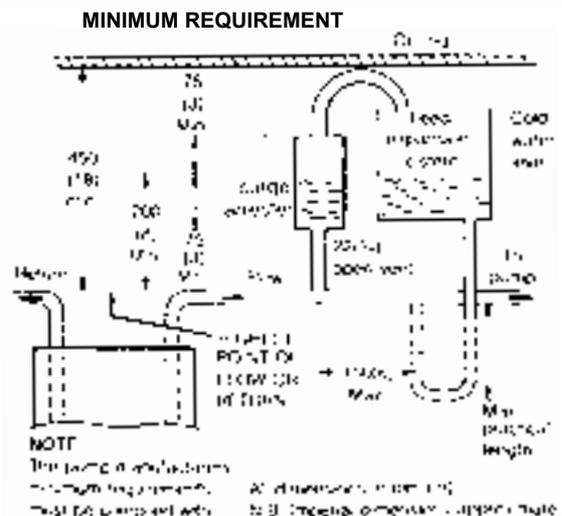
All dimensions in mm. (in.)



**LOW HEAD INSTALLATIONS**

The **Ideal Classic** range of boilers can be installed in low head situations by fitting a 'surge arrester' in the expansion pipe - as shown. The following conditions MUST be observed;

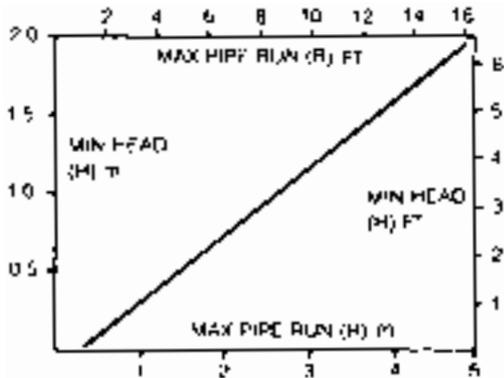
1. The surge arrester must be at least 42 mm in diameter x 150 mm long, thus ensuring a MINIMUM air gap and a MINIMUM depth of water below the static water level (cold) of 75 mm.
2. The static water level (cold) must be at least 200 mm above the top of the horizontal flow pipe, fitted as shown. The vent connection MUST NOT be made immediately off the top of the boiler, as venting is made less efficient.
3. The maximum practical length of 15 mm cold feed pipe should be used in order to reduce the effective volume of system water expanding into the feed / expansion cistern



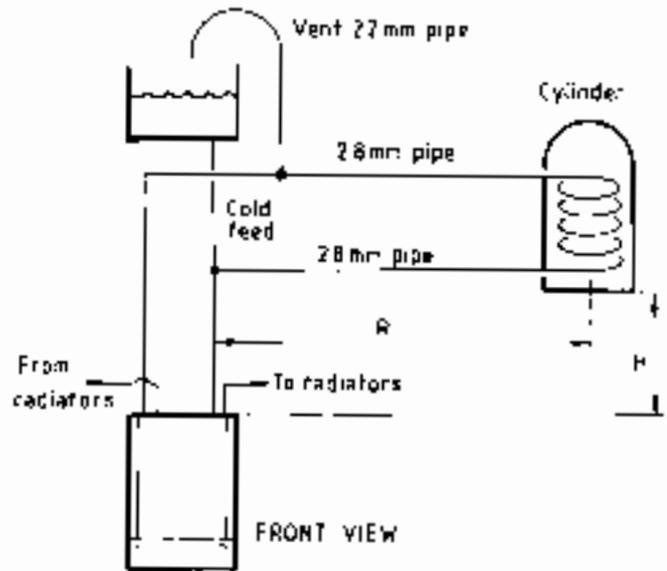
# INSTALLATION SYSTEM DESIGN - BOILER DIMENSIONS & CLEARANCES

## 5 REQUIREMENTS FOR CORRECT GRAVITY HOT WATER PERFORMANCE

**NOTE:** Gravity horizontal pipes should be ABOVE ceiling level and as SHORT as possible. A MINIMUM inclination of 25 mm per 3 m run (1 in per 10 ft.) is required to avoid air locks. If these conditions cannot be met, pumped primaries MUST be used.

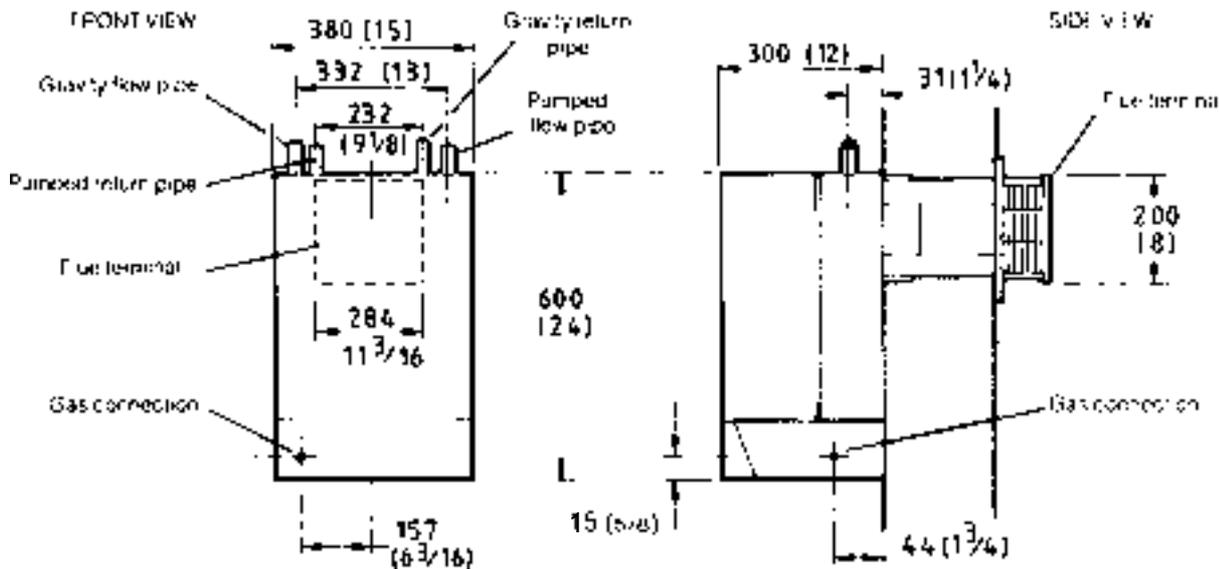


The above graph assumes 8 elbows in the gravity circuit. For each elbow in excess of 8, (R) must be reduced by 300 mm (12 in.) or (H) increased by 100 mm (4 in.)

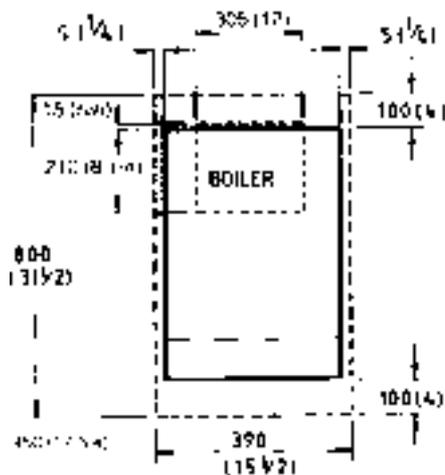


## 6 BOILER DIMENSIONS / SERVICES

All dimensions in mm (in.)



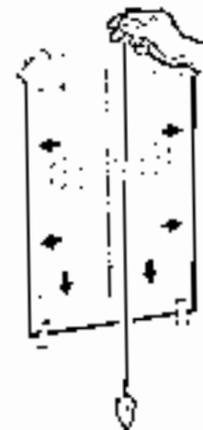
## 7 CLEARANCES & TERMINAL OPENING



**Front clearance** from the front of the boiler casing. These are the minimum clearances needed to allow access to service the boiler, but additional space may be needed for installation, depending on site conditions. **Note:** If using the sealed system module, refer to the instructions packed with the module for the necessary clearances.

## 8 WALL MOUNTING TEMPLATE

1. Tape the template to the wall in the selected position. Ensure squareness by use of a plumbline - as shown.
2. Mark out the position of the 3 wallplate screws, choosing 1 from each group of 3 holes. Also mark the position of the hole for the duct, the jacking plate screw and the top cover plate screws.
3. Drill the three holes, 8 mm (5/16 in.), and insert the 3 plastic plugs. Also drill the jacking plate screw and the top cover plate screw holes and insert the plastic plugs.
4. Remove the template from the wall.



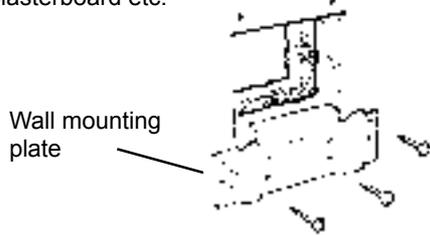
# INSTALLATION

# PREPARING THE WALL - MOUNTING THE BOILER

## 9 PREPARING THE WALL

**NOTE:** THE WALL MUST BE OF SUITABLE LOAD BEARING CAPACITY.

1. Cut the appropriate hole in the wall for insertion of the terminal assembly. **Note:** The terminal must not come into contact with a combustible material, such as that used in the non-standard construction of timber framework and plasterboard etc.

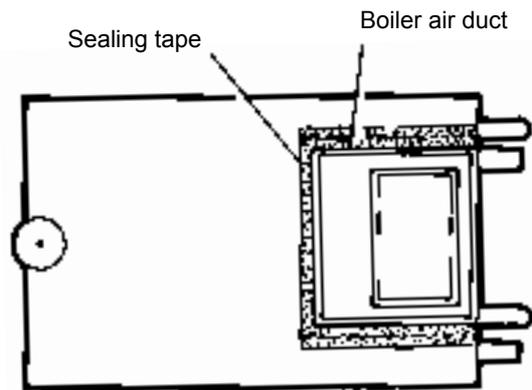


2. Fix the mounting plate to the wall with the 3 (No. 14 x 50 mm) screws provided.

## 10 PREPARING THE BOILER

Carefully place the boiler on its side and stick the self adhesive sealing tape to the boiler back panel as shown

REAR VIEW OF BOILER



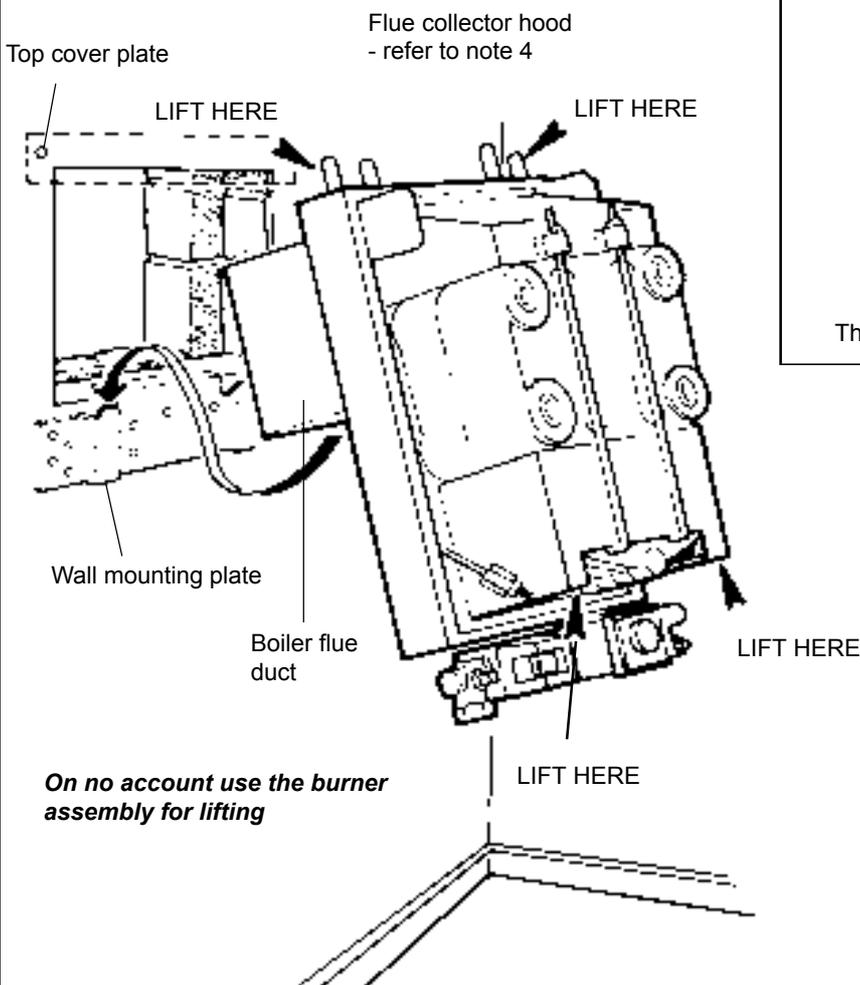
**Note:** Do not remove the controls protection box until the boiler has been lifted onto the wall mounting plate.

## 11 MOUNTING THE BOILER

1. Lift the boiler onto the wall mounting plate, entering the projecting flue duct into the opening cut in the wall, and lowering the two slots in the boiler back panel onto the angled tabs on the top of the wall mounting plate.

**DO NOT USE THE BURNER ASSEMBLY FOR LIFTING.**

2. Remove the controls protection box.

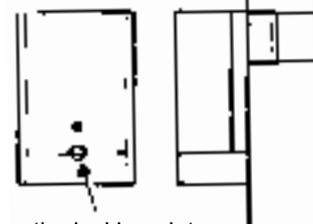


## FLUE ALIGNMENT

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

FRONT VIEW      SIDE VIEW

Dimension 'X' wall thickness



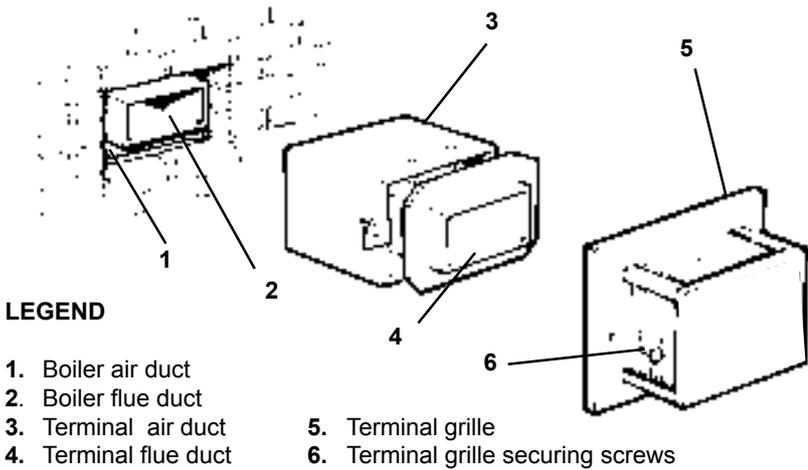
Use the jacking plate to align the boiler

The wall must be of suitable load-bearing capacity

3. Adjust the flue to its horizontal position by tilting the boiler forward at the bottom and then turning the jacking plate. Release and check alignment with a spirit level. Secure the jacking plate with a No. 10 x 50 mm wood screw.
4. Remove the flue collector hood (refer Frame 5, 'Servicing') and ensure that the flue baffles are fully inserted in the flueways
5. Fit the top cover plate in position above the boiler air duct with the two No.10 x 50 mm screws provided.
6. Make all water connections.

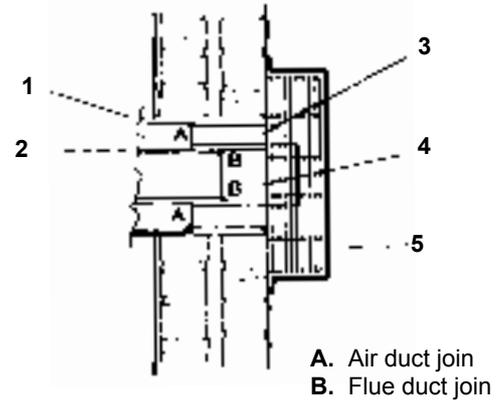
## 12 FITTING THE FLUE ASSEMBLY. Duct lengths up to 400 mm (16 in.)

### FLUE TERMINAL ASSEMBLY



#### LEGEND

- |                       |                                    |
|-----------------------|------------------------------------|
| 1. Boiler air duct    | 5. Terminal grille                 |
| 2. Boiler flue duct   | 6. Terminal grille securing screws |
| 3. Terminal air duct  |                                    |
| 4. Terminal flue duct |                                    |



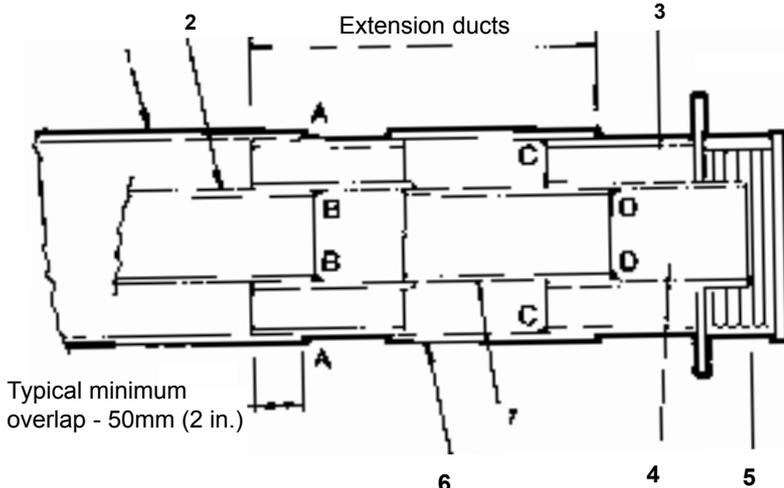
### FLUE TERMINAL SHOWN IN POSITION

**Note:** For duct lengths greater than 400 mm (16 in.), refer to Frame 13.

- Remove the two securing screws and separate the terminal grille from the terminal assembly.
- Remove the four securing screws and separate the terminal flue duct from the terminal air duct.
- Smear sealant around outer perimeter of terminal air duct at the opposite end to the brackets and on the mating face of the boiler air duct (use one sachet of sealant).
- Push the terminal air duct fully in- until the fixing brackets contact the wall face.
- Make good between the wall and duct, from OUTSIDE of the building.
- From OUTSIDE of the building, pass the terminal flue duct through the wall opening and slide it over the boiler flue duct. Locate it as shown and fix it in position with the four screws previously removed.
- Seal the flue duct joint (B) with the remaining sachet of sealant provided, either from inside the building (through the flue duct) or from outside of the building.
- Fasten the terminal grille to the duct assembly.
- Replace the collector hood.

## 13 EXTENSION DUCTS. Duct lengths greater than 400 mm (16 in.)

### EXTENSION DUCTS SHOWN FITTED



#### LEGEND

- |                       |                        |                             |
|-----------------------|------------------------|-----------------------------|
| 1. Boiler air duct    | 5. Terminal grille     | A. Air duct joint           |
| 2. Boiler flue duct   | 6. Extension air duct  | B. Flue duct joint          |
| 3. Terminal air duct  | 7. Extension flue duct | C. Terminal air duct joint  |
| 4. Terminal flue duct |                        | D. Terminal flue duct joint |

- BEFORE PLACING THE BOILER IN POSITION, loosely fit the extension air duct and terminal assembly to the boiler air duct and adjust to the required overall duct length. **Note:** Ensure that any of the duct overlaps are not less than 50 mm (2 in.).
- Secure the extension air duct in position, using the adhesive tape provided, at join A. Ensure that a good seal is made.

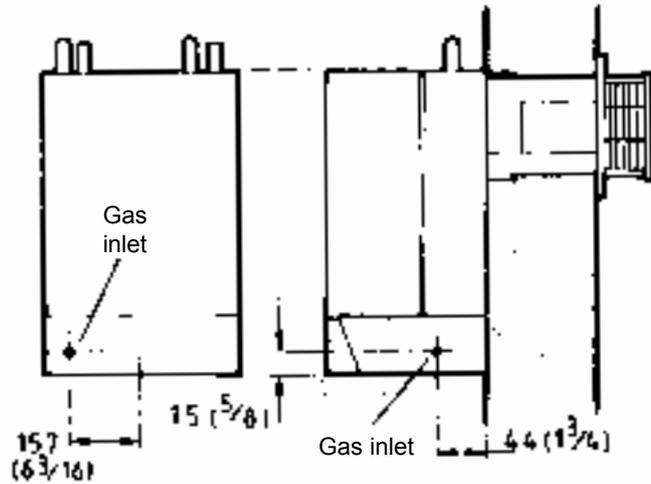
- Remove the terminal assembly.
- Place the boiler in position - entering the extension duct into the wall opening.
- Make good the brickwork around the wall opening.
- Separate the terminal grille, terminal air duct and terminal flue duct. Refer to Frame 12.
- From OUTSIDE of the building, pass the terminal air duct through the wall opening and slide it into the extension air duct, locating it as shown.
- Smear sealant around outer perimeter of terminal air duct at the opposite end to the brackets and on the mating face of the boiler air duct (use one sachet of sealant).
- Push the duct fully in until the fixing brackets contact the wall face.
- Ensure that the duct is level and make good between the wall and the duct from OUTSIDE of the building.
- From OUTSIDE of the building, slide the extension flue duct over the boiler flue duct to the same distance as the extension air duct. Seal the duct joint (B) with the sealant provided.
- From OUTSIDE of the building, pass the terminal flue duct through the wall opening and slide it into the extension flue duct. Locate it as shown, and fix in position with the four screws previously removed.
- From OUTSIDE of the building, seal the duct joint D with the sealant provided.
- Fasten the terminal grille to the duct assembly.
- Replace the collector hood.

# INSTALLATION

# SERVICE CONNECTIONS - WIRING DIAGRAMS

## 14 GAS CONNECTION

A MINIMUM gas pressure of 20 mbar (8 in.w.g.) MUST be available at the boiler inlet.  
 The main gas cock is on the left hand side of the gas control valve, as shown.  
 To facilitate connection it is recommended that the gas cock is not removed from the gas control valve.



Also refer to 'Gas supply' - page 3.

## 16 EXTERNAL CONTROLS

The wiring diagrams illustrated in Frames 18 - 21 cover the systems most likely to be fitted to this appliance.  
 For wiring external controls to the **Ideal Classic** RS boiler, reference should be made to the system wiring diagrams supplied by the relevant manufacturer, in conjunction with the wiring diagrams shown in Frames 17 - 21.  
 Difficulty in wiring should not arise, providing the following directions are observed:

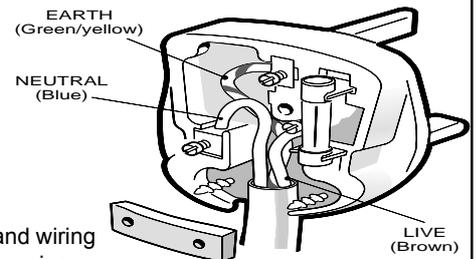
1. Controls that switch the system ON and OFF, e.g. a time switch MUST be wired in series in the live mains lead to the boiler.
2. Controls that over-ride an ON/OFF control, e.g. a frost thermostat, MUST be wired into the mains lead, in parallel, with the control(s) to be over-riden - refer to Frame 21.
3. Controls that switch the circulation pump only ON and OFF, e.g. a room thermostat, MUST be wired in series with the pump in the live pump lead.
4. If a proprietary system is used, follow the instructions supplied by the manufacturer.
5. SYSTEM DESIGNS FEATURING CONTROLS OR WIRING ARRANGEMENTS WHICH ALLOW THE BOILER TO FIRE WHEN THERE IS NO PUMPED OR GRAVITY CIRCULATION TAKING PLACE SHOULD NOT BE FITTED.

Advice on required modifications to the wiring may be obtained from the component manufacturers.

- Notes**
1. Connections between a frost thermostat and the time control should be made without disturbing other wiring.
  2. A frost thermostat should be sited in a cool place in the house, but where it can sense heat from the system.

## 15 ELECTRICAL CONNECTIONS

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



A mains supply of 240 V ~ 50 Hz is required.

All external controls and wiring MUST be suitable for mains voltage. Wiring should be in 3-core PVC insulating cable NOT LESS than 0.75 mm<sup>2</sup> (24 x 0.2 mm) to BS.6500, Table 16.

Wiring external to the boiler MUST be in accordance with current I.E.E. Wiring Regulations and local regulations.

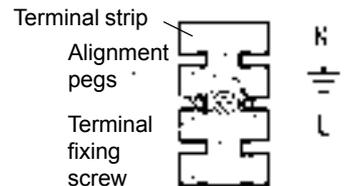
The supply connection may be made via a removable plug to a shuttered socket/outlet, preferably adjacent to the boiler, and, should such a plug be used for connection to the mains, it MUST be of the 3-pin type, wired as shown, fused at 3A and comply with the requirements of BS.1363. Alternatively, a fused double-pole switch, having a 3 mm contact separation in both poles, serving only the boiler and its external controls, may be used.

**Note:** If the optional Programmer Kit is to be fitted, refer to the instructions provided with the kit, ignore this Frame and go to Frame 16.

The internal wiring of the control box is shown in Frame 17. A wiring diagram is also contained in the Lighting Instructions (inside the control pod door).

### DETAIL OF CONTROL BOX TERMINALS

**Note:** In order to connect the incoming mains wires, first remove the control box cover, then remove the terminal fixing screw and lift the terminal strip clear of the control box (refer to Fr. 23 'Servicing').



Ensure that the earth lead is longer than the live and neutral so that if the cable slips in its anchorage the current carrying conductors become taut before the earth conductor and that the cable is routed through the strain relief clamp. Ensure all cables are secure and that no basic insulation is accessible outside of the control box. (Refer diagram in Frame 23, 'Servicing').

### FLOW WIRING DIAGRAM



## 17 PICTORIAL WIRING



### LEGEND

br brown      g/y green/yellow      b blue

# INSTALLATION

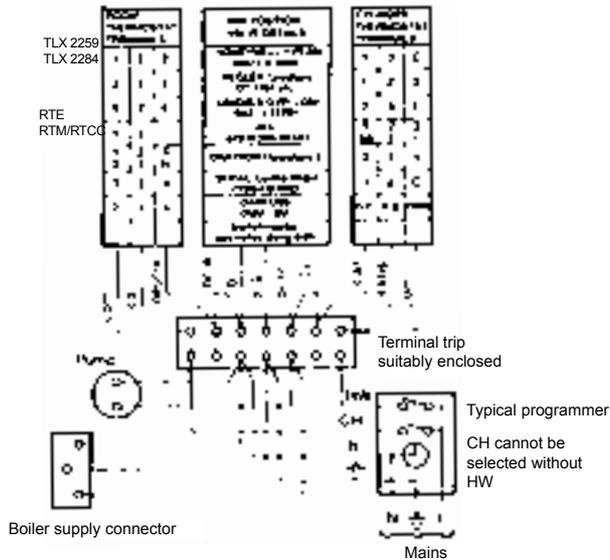
## 18 MID POSITION VALVE

**Notes:** **Pumped only**

1. Some earth wires are omitted for clarity. Ensure proper earth continuity when wiring.
2. Numbering of terminals on thermostats is specific to the manufacturer.
3. This is a fully controlled system - set the boiler thermostat to maximum.
4. Switchmaster 'Midi' is similar in operation but the wiring differs slightly; see manufacturer's literature.

**LEGEND**

b - blue	gy - grey	r - red
bk - black	g - green	y - yellow
br - brown	or - orange	w - white



# SYSTEM WIRING DIAGRAMS

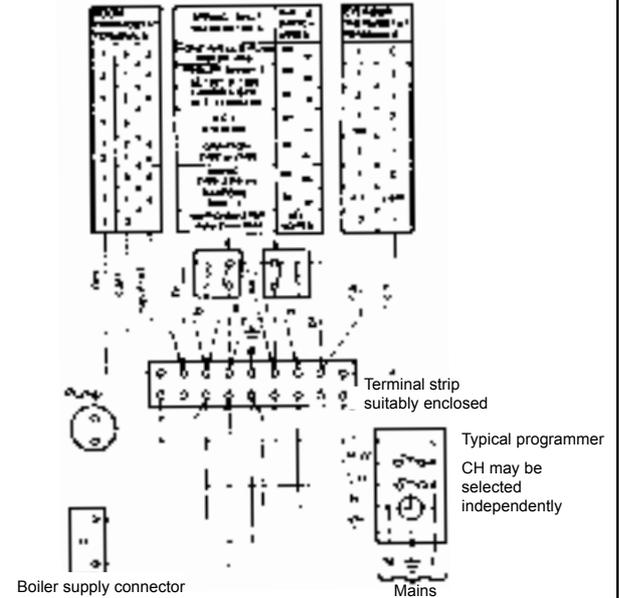
## 19 TWO SPRING CLOSED VALVES

**Notes:** **Pumped only**

1. Some earth wires are omitted for clarity. Ensure proper earth continuity when wiring.
2. Numbering of terminals on thermostats is specific to the manufacturer.
3. This is a fully controlled system - set the boiler thermostat to maximum.
4. Switchmaster valve has grey & orange auxiliary switch leads but the grey wire must be connected to the live supply.

**LEGEND**

b - blue	gy - grey	bk - black	r - red
br - brown	or - orange	w - white	



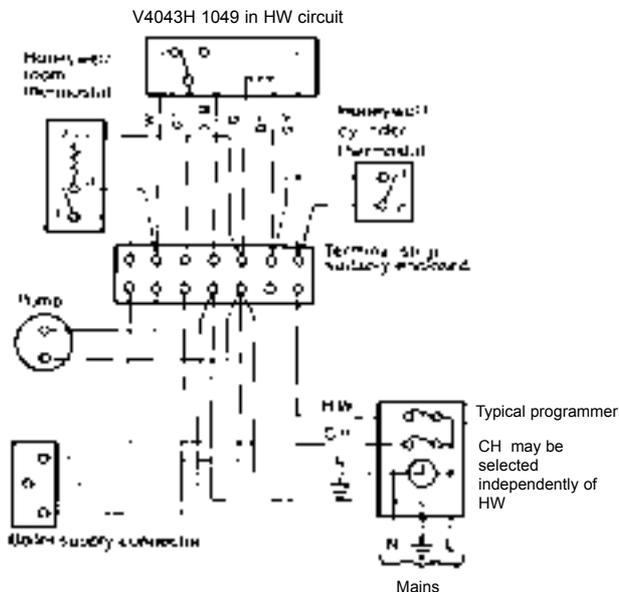
## 20 HONEYWELL 'C' PLAN

**Gravity HW & Pumped CH**

- Notes:**
1. Some earth wires are omitted for clarity. Ensure proper earth continuity when wiring
  2. Numbering of terminals on thermostats is specific to the manufacturer.

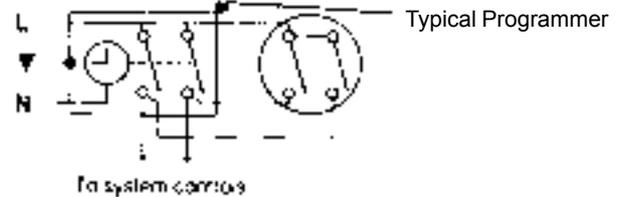
**LEGEND**

w - white	bk - black	br - brown
or - orange	b - blue	gy - grey
g - green	r - red	y - yellow

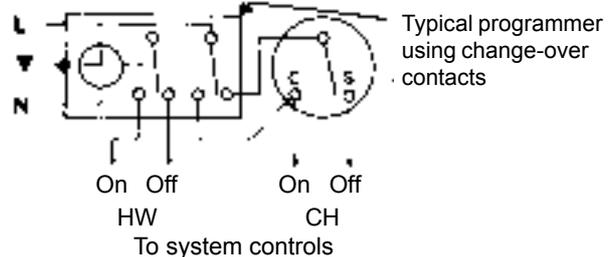


## 21 FROST PROTECTION

**A. Double pole frost 'stat, e.g. SOPAC TA37.04**



**B. Change-over frost stat, (shown satisfied)**



Central heating systems fitted wholly inside the house do not normally require frost protection as the house acts as a 'storage heater' and can normally be left at least 24 hrs. without frost damage. However, if parts of the pipework run outside the house or if the boiler will be left off for more than a day or so, then a frost 'stat' should be wired into the system. This is usually done at the programmer, in which case the programme selector switches are set to 'Off' and all other controls MUST be left in the running position. The frost 'stat' should be sited in a cold place but where it can sense heat from the system. Wiring should be as shown, with minimal disturbance to other wiring of the programmer. Designation of the terminals will vary, but the programmer and thermostat manufacturer's leaflets will give full details. Diagram A shows a double pole frost 'stat', which should suffice for all systems which do not use the 'OFF' terminals of the programmer. Diagram B shows a 'change-over' frost 'stat', which will cover most systems which do use 'CH OFF.' If, however, on such a system the HW pipework is in an isolated part of the house, a second frost 'stat' may be used to protect it. If in doubt, ask your installer for advice.

## 22 COMMISSIONING AND TESTING

### (a) Electrical Installation

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

### (b) Gas Installation

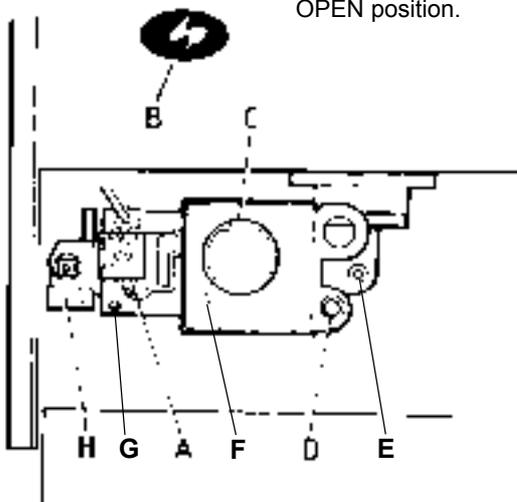
1. The whole of the gas installation, including the meter, MUST be inspected and tested for soundness, and purged in accordance with the recommendations of BS. 6891.
2. Purging air from the gas installation may be expedited by loosening the screws on the gas service cock and purging until gas is smelled.
3. Retighten the screws 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.**

## 23 INITIAL LIGHTING

### BOILER CONTROLS

**Note:** The gas service cock is shown in the OPEN position.



### LEGEND

- |                            |                                 |
|----------------------------|---------------------------------|
| A Gas valve control button | E Burner pressure test nipple   |
| B Sightglass               | F Main burner pressure adjuster |
| C Thermostat control knob  | G Inlet pressure test nipple    |
| D Piezo unit ignition      | H Gas service cock              |

1. Check that all drain cocks are CLOSED, and that the stop valves in the flow and return lines are OPEN and that the thermostat dial is in its pocket. Determine the required heat input and fix the adhesive arrow (supplied in the Hardware Pack) to the data plate on the bottom right hand side of the back panel, indicating the intended burner setting pressure heat input.
2. Check that the gas service cock (H) is ON and that the boiler thermostat control knob (C) is OFF. Fit the boiler casing (Frame 24) but do not fit the controls casing pod.
3. Loosen the screw in the burner pressure test nipple (E) and connect a gas pressure gauge via a flexible tube.
4. Slide the gas felt button (A) to the RIGHT until resistance is felt and then release it. WAIT FOR THREE MINUTES.
5. Push in and retain fully depressed the gas control button (A). Press and release the piezo unit button (D) repeatedly until the pilot is seen to light through the sightglass (B).
6. Hold the gas control button depressed for 15 seconds after the pilot burner has ignited, then release.
7. If the pilot burner fails to remain alight at this stage, repeat the procedure detailed above but wait longer than 15 seconds before releasing the gas control button.

8. Check the appearance of the pilot flame to ensure that it envelopes the tip of the thermocouple and is approximately 25mm (1 in) long. Check that the thermocouple output is between 8 and 15 mV closed circuit. The pilot flame is factory set and no adjustment is possible. If the pilot flame is incorrect refer to Frame 7 of the 'Servicing' instructions.
9. Check that the electricity supply and all external controls are ON.
10. Set the boiler thermostat control knob to position '6' and check that the burner cross lights smoothly from the pilot flame.
11. Test for gas soundness around the boiler gas component joints, using leak detection fluid.
12. Operate the boiler for ten minutes to stabilise the burner temperature.
13. Check the burner setting pressure against the relevant values quoted in Table 2, Page 2.
14. If the burner setting pressure requires adjustment, turn the pressure adjusting screw (F) as required (CLOCKWISE to DECREASE).
15. Set the boiler thermostat control knob to OFF. Remove the pressure gauge tube and tighten the sealing screw in the pressure test nipple. Relight and check for gas soundness at the pressure test nipple.
16. Refit the controls casing pod and tighten the two front fixing screws.
17. Close the pod door.

## 22 FITTING THE CASING

1. Check that the sealing strip is in place along the four rear edges of the boiler casing.



2. Lift the boiler casing up to the boiler assembly, locate over the upper support bracket and secure with the 3 captive screws

3. The casing must be sealed correctly. This MUST be checked by ensuring that, at the top and bottom edges of the casing, the seal is compressed over its complete length.

## 25 GENERAL CHECKS

**Make the following checks for correct operation:**

1. Turn the boiler thermostat OFF and ON, and check that the main burner is extinguished and relit in response.
2. **Flame failure device**  
  
**Check the operation of the flame failure device in the gas control valve as follows:**  
  
(a) Extinguish the pilot flames by closing the gas service cock (H) and note the time taken for the flame failure device to shut down - identified by a click within the gas control valve. This MUST NOT be longer than 50 seconds.  
  
(b) Open the gas service cock and relight the pilot.
3. With the burner alight again, slide the gas control button to the right until resistance is felt and then release it. The burner and pilot flames should shut down immediately.  
**Note:** A latch in the gas control provides a safety delay period before the boiler can be relit.
4. The correct operation of ANY programmer and all other system controls should be proved. Operate each control separately and check that the main burner or circulating pump, as the case may be, responds.

5. With the system HOT, examine all water connections for soundness. Then turn OFF the gas, electricity and water supplies to the appliance and drain down whilst the system is still hot, in order to complete the flushing process. Refill and vent the system and again check for water soundness.
6. Finally, set the controls to the User's requirements.

The temperatures quoted below are approximate and vary between installations.

Knob Setting	Flow Temperature	
	°C	°F
1	56	133
2	61	142
3	66	152
4	72	161
5	77	170
6	82	180

**WARNING.** The boiler MUST NOT be operated with the casing removed.

## 26 HANDING OVER

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

1. Hand the User's Instructions to the Householder and explain his or her responsibilities under the Gas Safety (Installation and Use) Regulations 1984.
2. Draw attention to the Lighting Instruction label affixed to the controls pod door.
3. Explain and demonstrate the lighting and shutting down procedures.
4. The operation of the boiler and the use and adjustment of ALL system controls should be fully explained to the Householder, to ensure the greatest possible fuel economy, consistent with household requirements of both heating and hot water consumption.  
Advise the User of the precautions necessary to prevent damage to the system and to the building, in the event of the system remaining inoperative during frosty conditions.
5. Explain the function and the use of the boiler thermostat and external controls.
6. Explain the function of the boiler overheat thermostat (ONLY FITTED FOR SEALED SYSTEM USE) and emphasise that if cutout 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 any Programmer Kit is fitted, then draw attention to the Programmer Kit User's Instructions and hand them to the Householder.
9. Stress the importance of regular servicing by the local gas region or by a qualified heating engineer and that a comprehensive service should be carried out AT LEAST ONCE A YEAR.

# SERVICING

## 1 SCHEDULE

To ensure the continued safe and efficient operation of the appliance, it is recommended that it is checked at regular intervals and serviced as necessary. The frequency of servicing will depend upon the installation condition and usage, but should be carried out at least annually .  
It is the law that any service work must be carried out by a competent person.

- (a) Light the boiler and carry out a pre-service check, noting any operational faults.
- (b) Clean the main burner.
- (c) Clean the heat exchanger.
- (d) Clean the main and pilot injectors.
- (e) Check that the flue terminal is unobstructed and that the flue system, including the inner cover, is sealed correctly.
- (f) If the appliance has been installed in a compartment, check that the ventilation areas are clear.

The servicing procedures are covered more fully in Frames 2 to 7 and must be carried out in sequence.

**WARNING.** Disconnect the electrical supply.

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

**Note.** In order to carry out either servicing or replacement of components, the boiler casing must be removed (Frame 2).

**IMPORTANT.** When work is complete the casing **MUST** be correctly refitted, ensuring that a good seal is made.

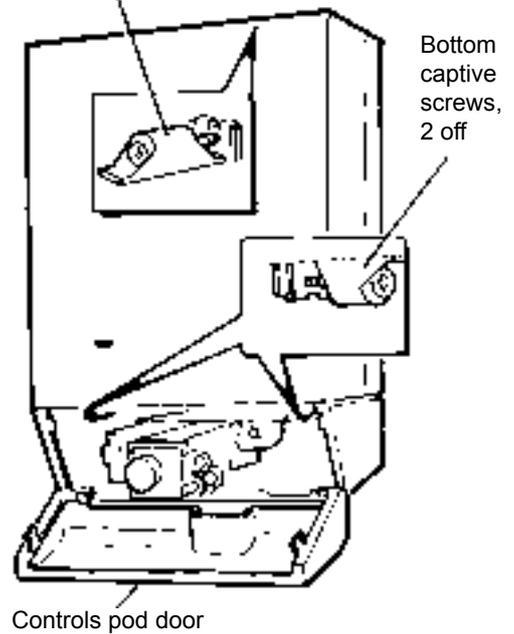
**The boiler must NOT be operated if the casing is not fitted.**

# GENERAL - CLEANING AND ADJUSTMENT

## 2 BOILER CASING REMOVAL

1. Refer to Frame 1.
2. If the Ideal Classic sealed system module is fitted lift off the casing to expose the boiler casing top fixing screw.
3. Open the controls pod door.
4. Release the three captive screws at the top and bottom of the casing. Lift the casing off the boiler and retain in a safe place .

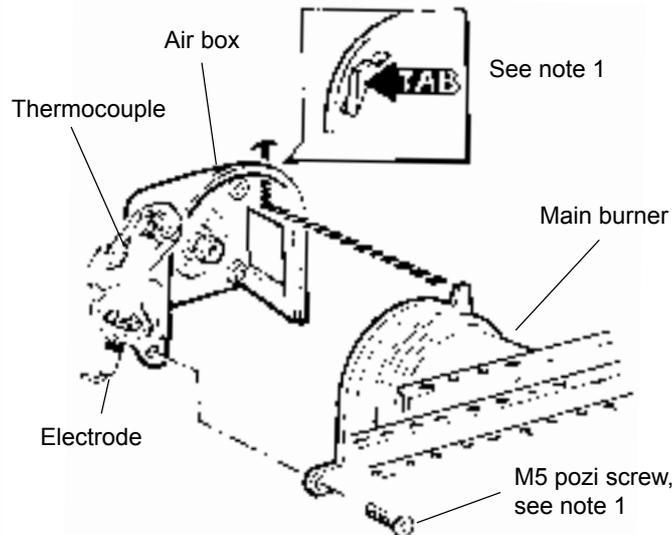
Top captive screw, 1 off



5. Isolate the gas supply at the service cock. Refer to Frame 8.

## 3 BURNER AND AIR BOX REMOVAL

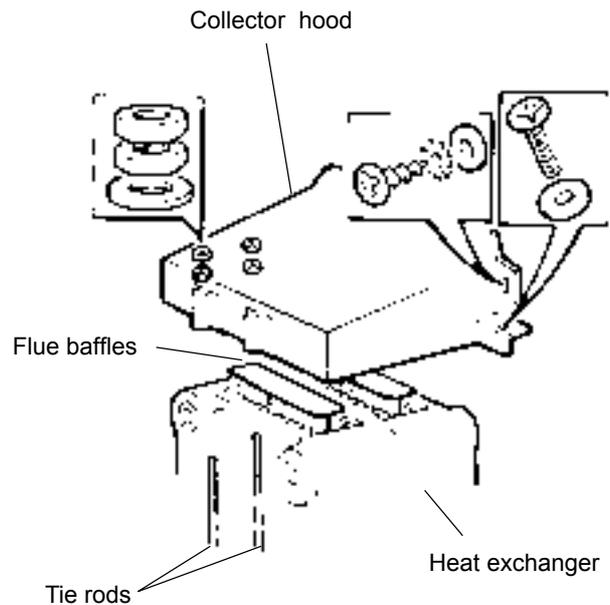
1. Remove the screw retaining the front burner support bracket to the combustion chamber.
2. Remove the M5 pozi screw situated at the left hand, bottom rear of the burner and pull the burner downwards in order to disengage the retention tab. Remove burner to a safe place for inspection and cleaning.
3. Unscrew the thermocouple connection at the gas control.



4. Remove the four screws retaining the air box / pilot assembly to the vertical manifold.
5. Pull off the electrode lead at the piezo unit.
6. Unhook the clip retaining the thermocouple and H.T. lead. Remove the air box assembly to a safe place for inspection and cleaning.

## 4 CLEANING THE FLUEWAYS

1. Remove the collector hood by undoing the front tie rod double nuts and washers. Withdraw the rods.
2. Remove the 4 collector hood retaining screws and washers



3. Unclip and remove the flue baffles from the heat exchanger.
4. Remove all loose deposits from the heat exchanger, particularly between the fins, using a suitable brush or rod.

**5 CLEANING THE BURNER AND PILOT ASSEMBLY**

Refer to Frame 3 for illustration of the procedure below.

1. Brush off any deposits that may have fallen onto the burner head, ensuring the flame ports are unobstructed, and remove any debris that may have collected.  
**Note:** Brushes with metallic bristles **MUST NOT** be used.
2. Remove the main burner injector and ensure that there is no blockage or damage.
3. Refit injector using an approved jointing compound sparingly.
4. Inspect the pilot burner, thermocouple and spark electrode; ensure they are clear and in good condition. Check that:
  - (a) The pilot burner injector is not blocked or damaged (refer Frame 11 for removal details).

- (b) The pilot burner is clean and unobstructed.
  - (c) The spark electrode is clean and undamaged.
  - (d) The spark lead is in good condition and securely connected.
  - (e) The spark gap is correct. Refer Frame 7.
  - (f) The thermocouple tip is not burned or cracked.
  - (g) The position of the thermocouple relative to the pilot burner and main burner is correct. Refer to Frame 7.
  - (h) The thermocouple terminal at the gas valve is clean.
5. Re-assemble the burner / air box assembly in reverse order. Ensure that the burner tab is correctly located. Refer to Frame 3

**Note:** The pilot shield is positioned around the pilot assembly bracket and is located by the electrode retaining nut

**6 RE-ASSEMBLY**

Re-assemble in reverse order to that shown in Frames 2 to 5.

1. Refit the flue baffles and retain with the spring clips.
2. Refit the collector hood, replacing any damaged or deteriorating gaskets. **Note:** Ensure rear **vertical** hood retaining screws are tightened **before** rear horizontal screws.
3. Refit the burner and air box assembly.
4. Turn on the gas supply
5. Ensure the sightglass in the boiler casing is clean and undamaged .
6. Refit the boiler casing and tighten the three captive screws.
7. Inspect the visible casing seal for correct fit.
8. Refit control casing pod (see Frame 1 Inst.-note 2a)
9. Close the controls pod door.

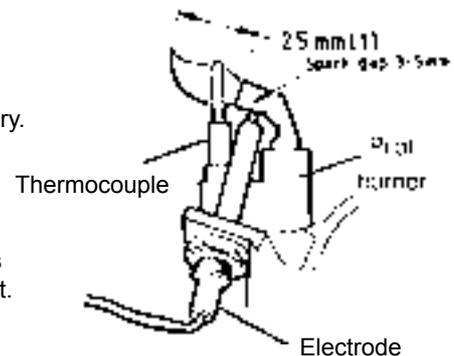
**7 PILOT BURNER SETTING**

1. Turn on the gas supply.
2. Light the pilot (refer to Frame 23 'Installation') and check that the pilot flame envelopes the tip of the thermocouple and is approximately 25 mm (1 in.) long. The pilot is factory set to maximum and no further adjustment should be necessary. However, if the pilot flame appears small, check the pilot injector. Refer to Frame 11.

**Heat Input / Setting Pressure**

After each occasion of servicing, reference should be made to Table 2, which quotes details of the rated output, with the related burner setting pressure and the heat input. Any required adjustment should be made by using the pressure adjustment screw. . Refer to Frame 23, 'Installation'.

DETAIL OF PILOT BURNER FLAME LENGTH

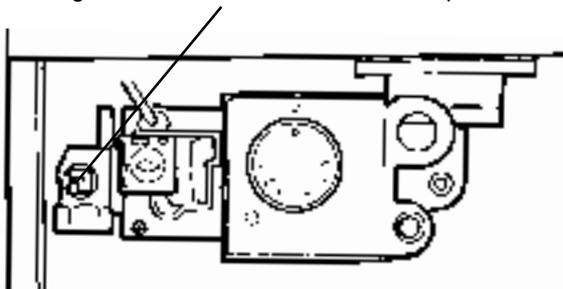


**8 GENERAL**

When replacing any component:

- (a) Isolate the electricity supply.
- (b) Turn off the gas supply at the boiler - refer to the illustration below.

**Note:** The gas cock is shown in the CLOSED position.



- (c) Remove the boiler casing (refer to Frame 2).

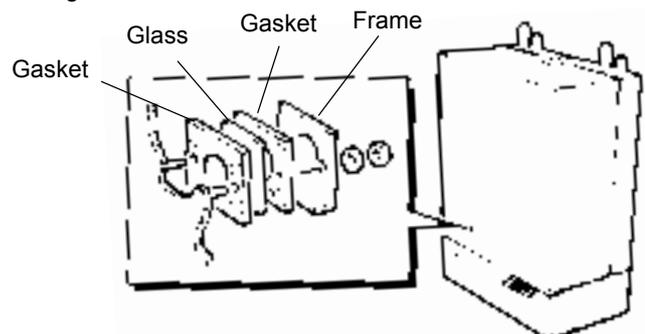
**IMPORTANT.** When work is complete the casing **MUST** be correctly refitted - ensuring that a good seal is made.

**The boiler MUST NOT be operated if the casing is not fitted.**

**REPLACEMENT OF PARTS**

**9 SIGHTGLASS REPLACEMENT**

1. Refer to Frame 8.
2. Unfasten the two nuts and washers holding the sightglass assembly to the casing front panel.
3. When fixing the new assembly, make certain that the parts are in the correct order. The frame **MUST** have the return edge at the bottom.

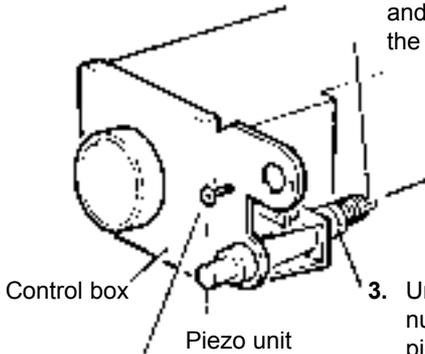


4. Retighten the two nuts to ensure an airtight seal. Do **NOT** overtighten
5. Replace the boiler casing - refer to Frame 6.

# SERVICING

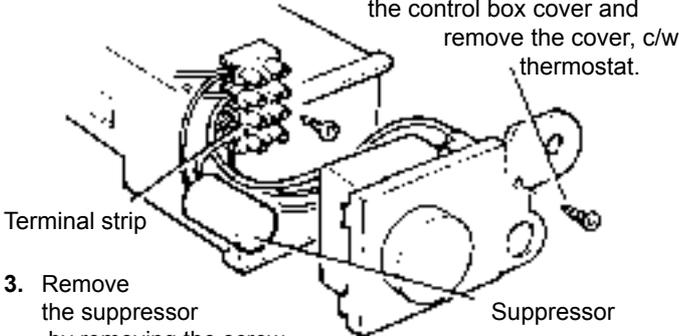
## 10 PIEZO UNIT REPLACEMENT

1. Refer to Frame 8.
2. Disconnect the ignition and earth leads from the piezo unit.
3. Unscrew the locking nut at the rear of the piezo unit mounting bracket.
4. Remove the control box cover.
5. Remove the piezo unit.  
Refit the new unit and re-assemble in reverse order.
6. Replace the boiler casing - Frame 6.
7. Check the operation of the new piezo unit.



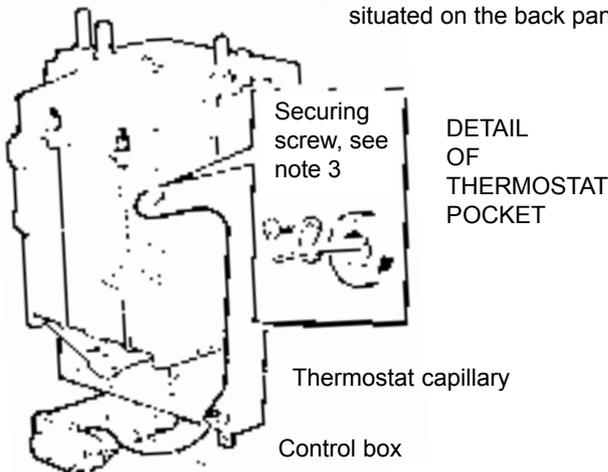
## 12 SUPPRESSOR REPLACEMENT

1. Refer to Frame 8.
2. Remove the screw retaining the control box cover and remove the cover, c/w thermostat.
3. Remove the suppressor by removing the screw retaining the terminal block, lifting the terminal block and unscrewing the suppressor lead connections.
4. Fit the new suppressor and re-assemble in reverse order. Ensure that all of the electrical connections are correctly remade - refer to 'Wiring Diagrams'.
5. Replace the boiler casing. Refer to Frame 6.
6. Check the operation of the control thermostat.



## 13 CONTROL THERMOSTAT REPLACEMENT

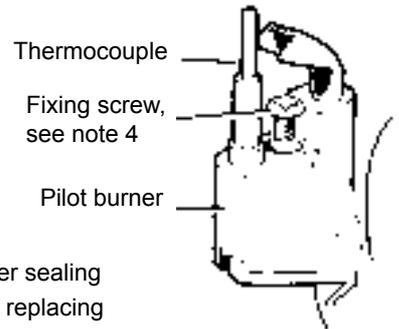
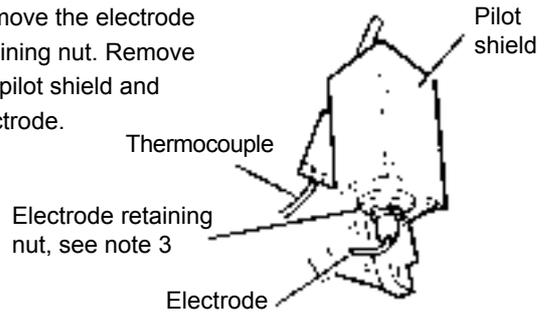
1. Refer to Frame 8.
2. Unclip the thermostat capillary from the two clips situated on the back panel.
3. Slacken the screw at the thermostat pocket retaining screw.



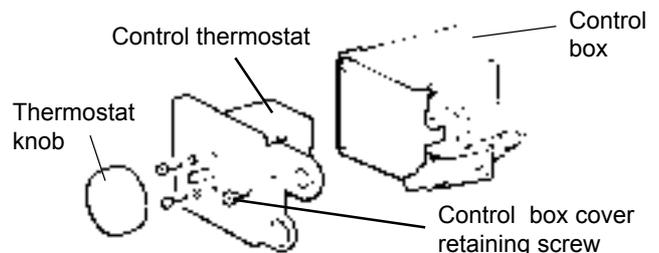
# REPLACEMENT OF PARTS

## 11 PILOT BURNER REPLACEMENT

1. Refer to Frame 8.
2. Remove burner and air box assembly. Refer to Frame 3.
3. Remove the electrode retaining nut. Remove the pilot shield and electrode.
4. Unscrew the central pilot fixing screw and lift the pilot clear of thermocouple and pilot injector.  
If required, the pilot injector may now be unscrewed and the injector checked or replaced as necessary.  
Ensure that the copper sealing washer is fitted when replacing the injector.
5. Replace the pilot burner and retain with the M4 screw previously removed.
6. Replace the electrode and pilot shield - retaining both with the electrode nut.
7. Replace the airbox assembly and ensure that the gasket is in position.
8. Replace the burner.
9. Check the pilot burner relationship to the main burner and spark gap. Refer to Frame 7.
10. Replace the boiler casing. Refer to Frame 6.
11. Check the pilot length. Refer to Frame 7.
12. Check the pilot operation (cross lighting, holding in time, etc.).

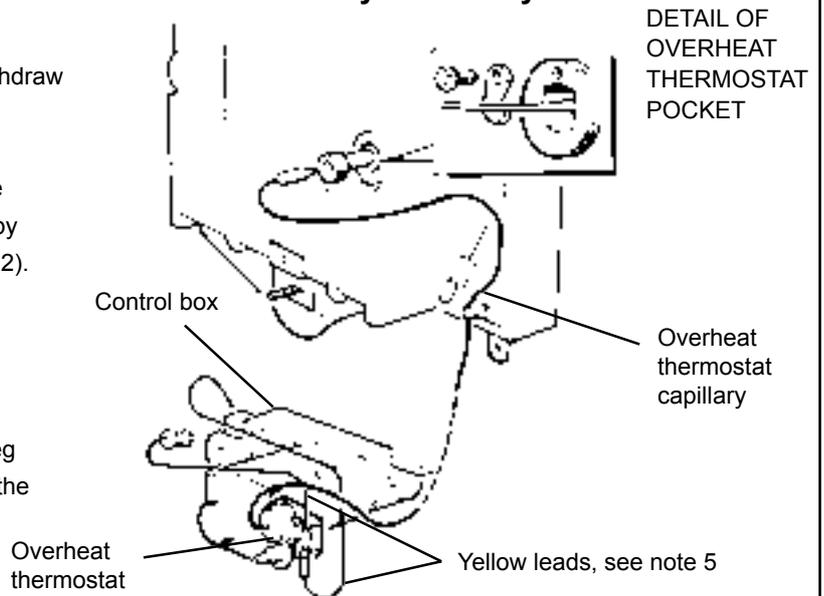


4. Pull off the thermostat knob. Remove the control box cover retaining screw and remove the cover, complete with thermostat.
5. Remove the two screws securing the thermostat.
6. Pull off the two electrical connections from the thermostat head and the thermostat earth lead.
7. Fit the new thermostat and refit in reverse order. Ensure that the phial is correctly replaced in the pocket and the capillary routed as previously.
8. Replace the boiler casing. Refer to Frame 6.
9. Check the operation of the new thermostat. Refer to Frame 25 'Installation.'



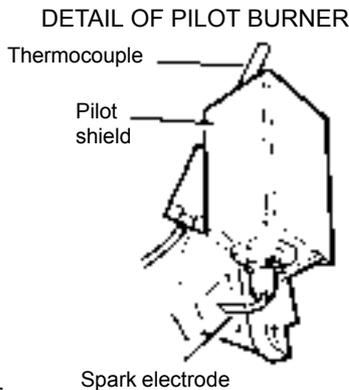
**14 OVERHEAT THERMOSTAT REPLACEMENT Fitted for sealed systems only**

1. Refer to Frame 8.
2. Slacken the screw at the thermostat pocket and withdraw the phial from pocket.
3. Unclip the capillary from back panel.
4. In order to gain access to the back-nut retaining the overheat thermostat remove the control box cover by undoing the cover retaining screw (refer to Frame 12). Remove the back-nut.
5. Remove thermostat from control box and pull off the two yellow leads.
6. Re-assemble the new thermostat in reverse order (polarity immaterial), ensuring that the alignment peg on the thermostat sits in the small hole adjacent to the main fixing hole.
7. Replace the control box cover.
8. Replace the boiler casing. Refer to Frame 6



**15 SPARK ELECTRODE AND LEAD REPLACEMENT**

1. Refer to Frame 8.
2. Remove burner and air box assembly Refer Frame 3,
3. Remove the electrode retaining nut.
4. Remove the pilot shield.
5. Remove the spark electrode and integral lead.
6. Fit the new electrode and lead in reverse order, taking care to replace the pilot shield.
7. Check the spark gap. Refer to Frame 7.
8. Refit the burner.
9. Replace the boiler casing. Refer to Frame 6.
10. Check the pilot ignition.

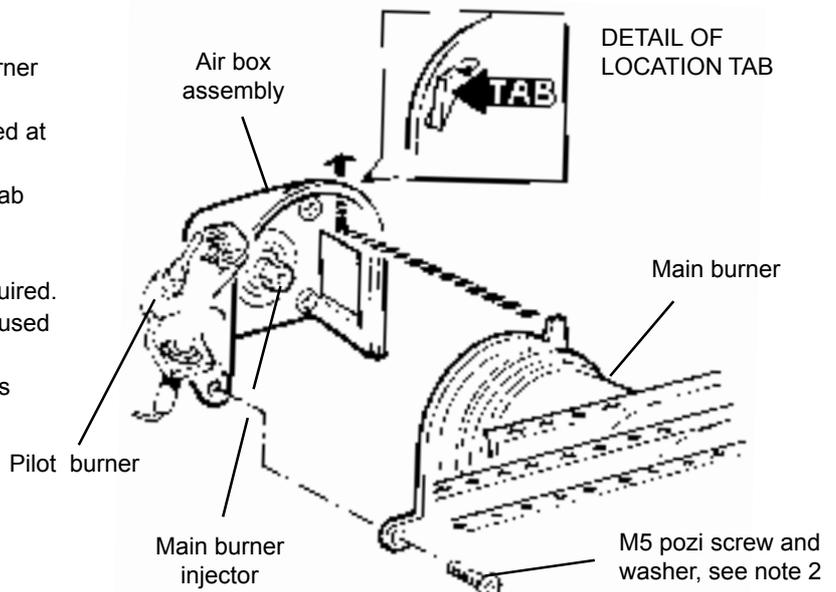


**16 THERMOCOUPLE REPLACEMENT**

1. Refer to Frame 8.
2. Remove the burner and air box assembly. Refer to Frame 3.
3. Remove the electrode retaining nut. Refer to Frame 11.
4. Remove the pilot shield and electrode
5. Unscrew the central pilot fixing screw. Lift the pilot clear of the thermocouple and pilot injector. Refer to Frame 11.
6. Withdraw the thermocouple and fit the replacement. Re-assemble in reverse order, ensuring that no sharp bends are used on the thermocouple and the pilot shield is refitted.
7. Replace the boiler casing. Refer to Frame 6.
8. Check the operation of the thermocouple.

**17 MAIN BURNER AND MAIN BURNER INJECTOR REPLACEMENT**

1. Refer to Frame 8.
2. Remove the screw retaining the front of the burner support bracket to the combustion chamber.
3. Remove the M5 pozi screw and washer, situated at the left hand bottom rear of the burner. Pull the burner downwards to disengage the retention tab and remove the burner.
4. At this stage the main burner injector can be removed, checked, cleaned or replaced as required. Ensure that an approved jointing compound is used sparingly.
5. Fit new burner, ensuring that the retention tab is correctly located in the air box slot.
6. Refit the M5 retaining screw and washer.
7. Refit the front burner support bracket.
8. Refit boiler casing. Refer to Frame 6.
9. Check the burner for cross-lighting and flame stability.

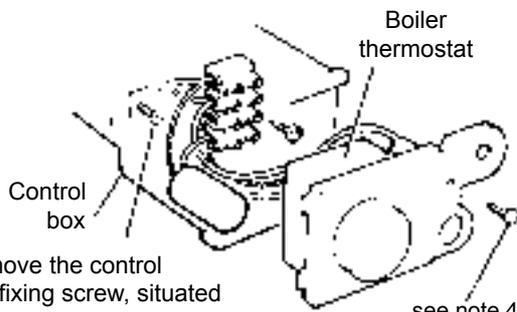


## SERVICING

## REPLACEMENT OF PARTS

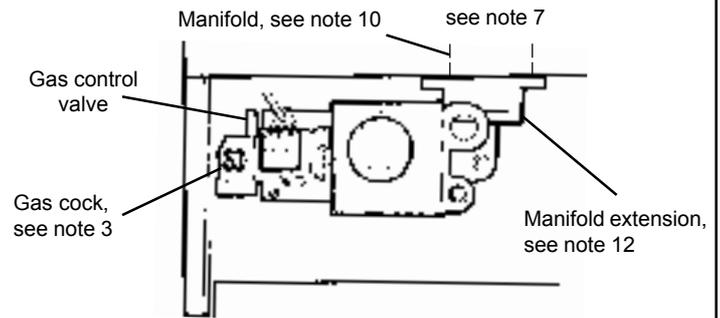
### 18 GAS CONTROL VALVE REPLACEMENT

1. Refer to Frame 8.
2. Remove the burner and air box assembly. Refer to Frame 3.
3. Turn off the gas supply at the service cock.
4. Remove the control box cover fixing screw and remove the cover.
5. Pull off the two electrical connections and the earth connection at the boiler thermostat.



6. Remove the control box fixing screw, situated behind the suppressor.
7. Withdraw and suspend the control box. Pull off the gas valve solenoid connections and disconnect the earth connection at the solenoid. Pull off the 2 connections at the piezo generator.
8. Withdraw the thermostat phial from its pocket (refer to Frame 13).
9. Remove the four M4 extended screws retaining the gas service cock to the gas control.

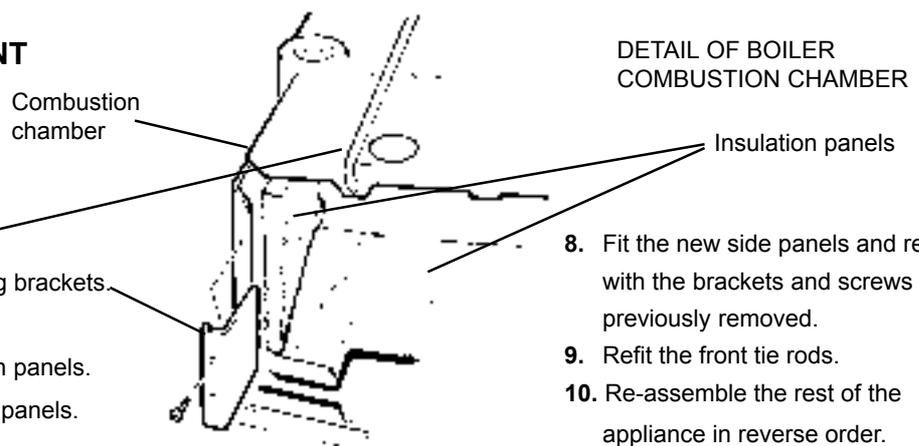
**Note:** Refer also to Frame 25 'Exploded Views' for illustration of the procedure detailed below.



10. Whilst supporting the gas control valve, remove the two screws retaining the manifold to the back panel.
11. Remove the gas control / manifold assembly.
12. Remove the four screws retaining the manifold extension to the gas control and fit new gas control, ensuring that:
  - (a) The new gas control is fitted the correct way round; an arrow is engraved on the back, indicating the direction of gas flow.
  - (b) The sealing gasket is correctly fitted.
13. Re-assemble in reverse order. **Note:** Do NOT overtighten the four gas cock retaining screws.
14. Replace the burner / air box assembly.
15. Replace the boiler casing. Refer to Frame 6.
16. Check the gas valve operation.

### 19 COMBUSTION CHAMBER INSULATION REPLACEMENT

1. Refer to Frame 8.
2. Remove the burner and air box assembly. Refer to Frame 3.
3. Remove the two front tie rods.
4. Remove the two side panel retaining brackets.
5. Remove the side insulation panels.
6. Remove the front and rear insulation panels.
7. Fit the new front and rear insulation panels.



8. Fit the new side panels and retain with the brackets and screws previously removed.
9. Refit the front tie rods.
10. Re-assemble the rest of the appliance in reverse order.

### 20 HEAT EXCHANGER REPLACEMENT

**Note:** Refer to Frame 24 of 'Exploded Views' for illustration of the procedure detailed below.

1. Refer to Frame 8.
2. Remove the burner and air box assembly. Refer to Frame 3.
3. Drain the system.
4. Disconnect the water flow and return connections. If compression fittings are used, cut the pipes both above and below the fittings in order to allow the heat exchanger assembly to be removed. Remove the heat exchanger drain plug and drain the residual water into a suitable receptacle.
5. Remove the collector hood. Refer to Frame 4.
6. Remove the 4 screws retaining the flue duct and remove the duct.
7. Remove the combustion chamber by unscrewing the nuts retaining the side tie rods.
8. Remove the four extended nuts retaining the gas service cock to the gas control valve.
9. Remove the control box cover and control box. Refer to

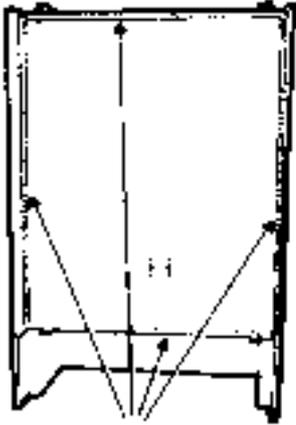
- Frame 18. Unclip the thermostat capillary and remove the phial from the pocket. Refer to Frame 13.
10. Remove the Programmer Kit (if fitted).
11. Remove the two screws retaining the manifold / gas control valve assembly to the back panel and remove the assembly.
12. Slacken 3 turns only the four screws retaining the heat exchanger / inter-panel assembly.
13. Lift the heat exchanger / inter-panel assembly upwards and forwards to disengage the keyhole fixings. Pull the assembly downwards to clear the water pipes from the back panel.
14. Remove the four rubber grommets from the top of the back panel, to facilitate the fitting of the new heat exchanger.
15. Fit the new heat exchanger assembly, complete with its 4 pipe connections and hang it on the 4 keyhole slots and screws. Retighten the 4 screws.
16. Replace the 4 rubber grommets in order to seal the gap between the water pipes and the back panel.
17. Re-assemble in reverse order. **Note:** Do NOT overtighten the four gas cock retaining screws.
18. Remake all water connections, ensuring that the compression fittings (if used) are correctly refitted.
19. Fully test all functions, including water and gas soundness.

# SERVICING

## 21 CASING SEAL REPLACEMENT

1. Refer to Frame 8.

INNER VIEW OF BOILER CASING



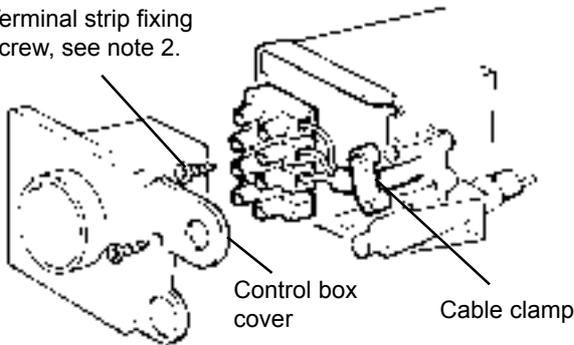
2. Remove the old seal from the casing surround.
3. Thoroughly clean the casing surfaces and fit the adhesive seals.
4. Replace the boiler casing. Refer to Frame 6.

## 23 PROGRAMMER REPLACEMENT (if fitted)

1. Refer to Frame 8.
2. Remove the boiler control box cover and release the terminal strip fixing screw. Disconnect the 'L', 'N' and  $\frac{1}{2}$  connections from the terminal strip and release the cable clamp.

DETAIL OF BOILER CONTROL BOX

Terminal strip fixing screw, see note 2.



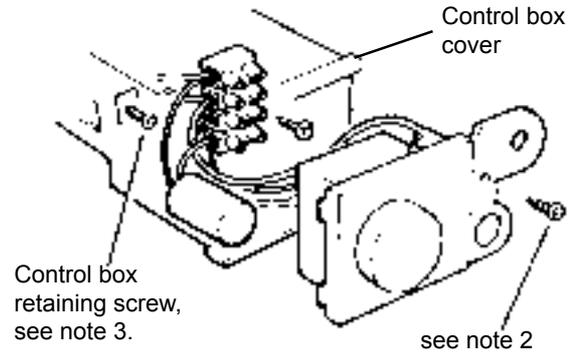
3. Remove the 2 screws retaining the programmer mounting bracket to the back panel mounting bracket.
4. Pull the programmer mounting bracket downward and forward in order to disengage the terminal strip connection.
5. Remove the 2 screws fastening the stainless steel lid to the programmer mounting bracket and remove the lid.
6. Slide the programmer upwards in order to clear the mounting bracket.
7. Remove the strain relief bush retaining the control box feed cable and remove the earth lead from the earth post.
8. Remove the 3 screws retaining the terminal strip to the programmer mounting bracket.
9. Remove the programmer, complete with its terminal strip and wiring harness.
10. Fit the new programmer, terminal strip and wiring harness in reverse order.
11. Set the programmer to the desired programme and test its functions.

# REPLACEMENT OF PARTS

## 22 GAS VALVE SOLENOID REPLACEMENT

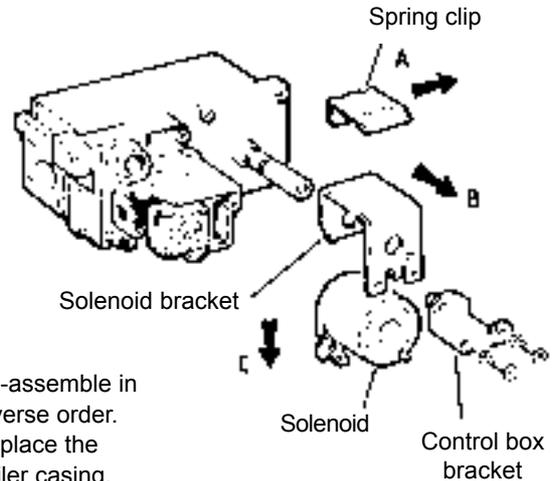
1. Refer to Frame 8.
2. Remove the fixing screw retaining the control box cover and remove the cover.

DETAIL OF CONTROL BOX



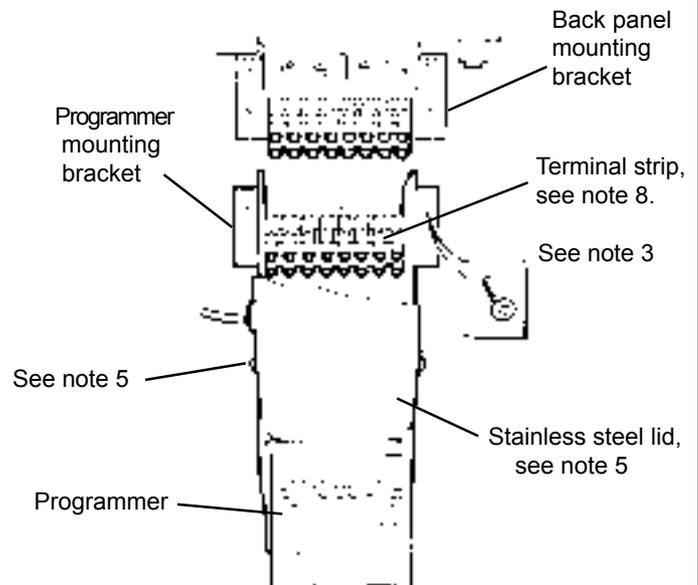
3. Unscrew the control box retaining screw and remove the box from the gas control valve.
4. Pull off the electrical connections at the solenoid and remove the earth wire connection at the solenoid bracket.
5. Remove and replace the solenoid coil as shown below.

DETAIL OF GAS CONTROL VALVE



6. Re-assemble in reverse order.
7. Replace the boiler casing. Refer to Frame 6.
8. Check the function of the gas control valve

DETAIL OF PROGRAMMER





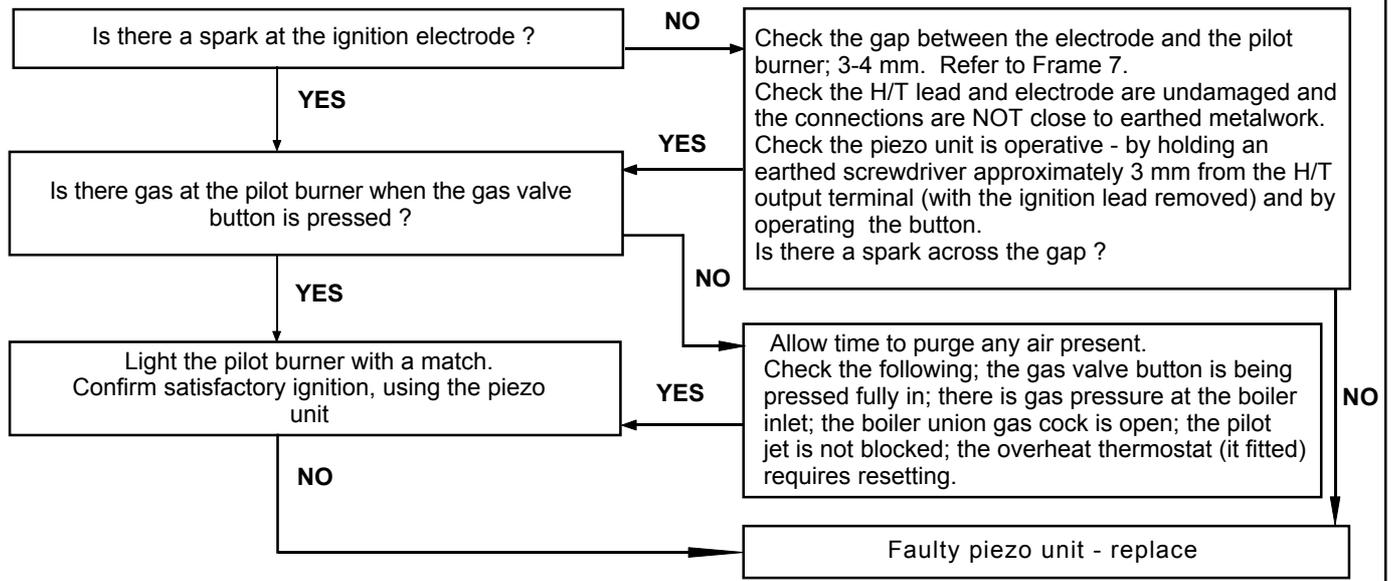
# SERVICING

Before attempting any electrical fault finding ALWAYS carry out the preliminary electrical system checks as detailed in the Instructions for the British Gas Multimeter, or similar test meter.

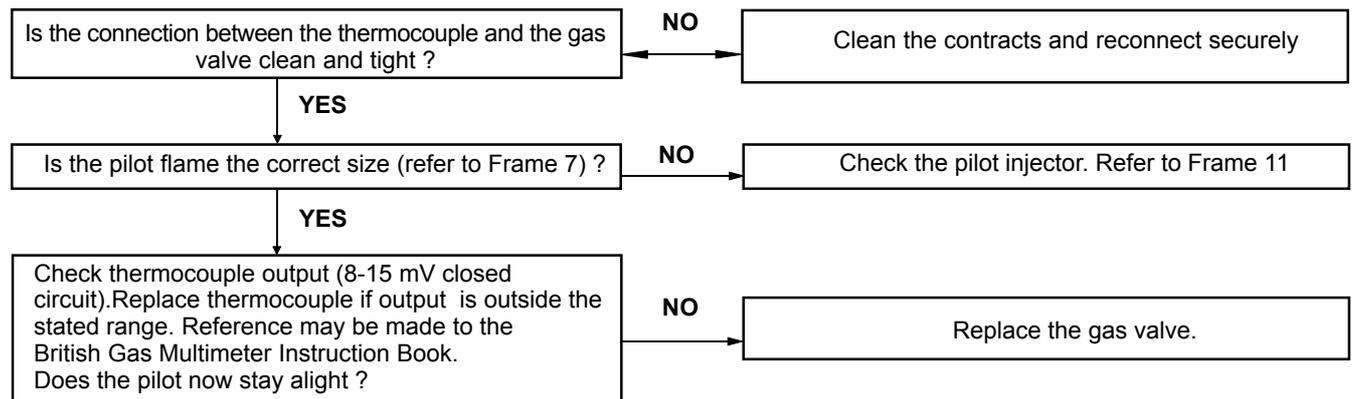
# FAULT FINDING

Detailed instructions on the cleaning and adjustment or placement of faulty components are contained in the 'Servicing' section, of this publication.

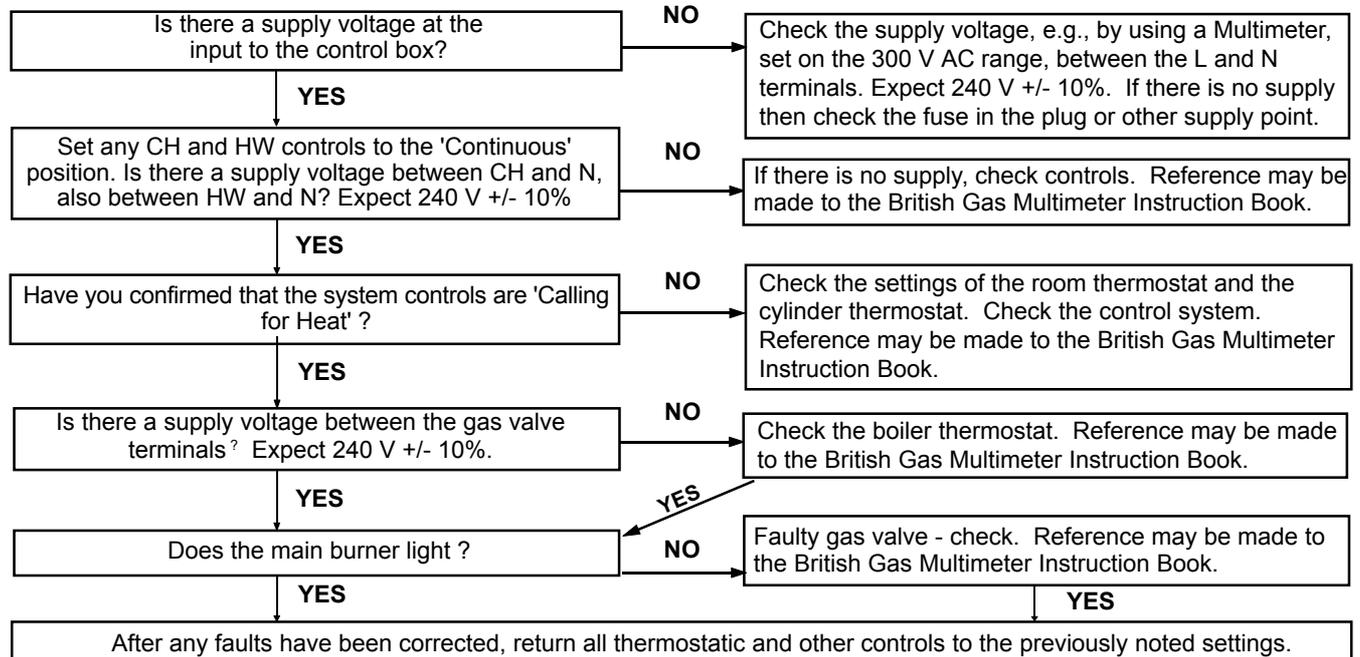
## 26 PILOT WILL NOT LIGHT



## 27 PILOT WILL NOT STAY LIT WHEN THE GAS VALVE BUTTON IS RELEASED



## 28 PILOT LIT BUT NO MAINS GAS



# SERVICING

# 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, **Caradon Ideal** distributors and merchants.

**Ideal Classic RS 30, RS 40, RS 50 and RS 60 Gas boilers**

When ordering spares please quote:-

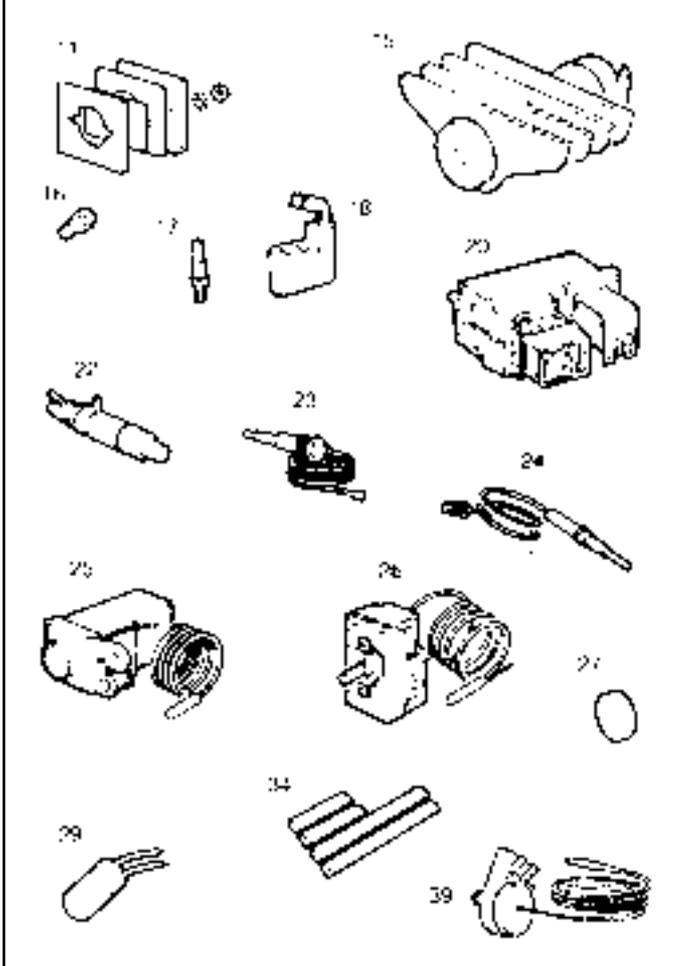
1. Boiler model
2. Appliance G.C. number
3. Description
4. Maker's part no.
5. Quantity

Key No.	G.C. Part No.	Description	No. Off	Maker's Part No.
11	319 493	Sightglass assembly kit	1	160 079 333
15		Main burner		
	386 138	AEROMATIC No. AC 19/123 263; RS 30	1	199 614 084
	386 137	AEROMATIC No. AC 19/123 262; RS 40 & RS 50	1	199 624 084
	386 136	AEROMATIC No. AC 19/123 261; RS 60	1	199 644 084
16		Main burner injector		
	398 042	BRAY Cat. 10 - size 750; RS 30	1	199 616 060
	398 048	BRAY Cat. 10 - size 1050; RS 40	1	199 626 060
	398 054	BRAY Cat. 10 - size 1350; RS 50	1	199 636 060
	398 058	BRAY Cat. 10 - size 1600; RS 60	1	199 046 061
17	386 131	Pilot burner injector HONEYWELL 45900421 - 001 (Stamped 38/36A)	1	589 624 084
18	308 347	Pilot burner HONEYWELL Q 359 A 1124	1	589 614 085
20	308 348	Gas control valve HONEYWELL V 4700 E 1072, 240 V	1	586 611 900
22	395 705	Piezo unit, VERNITRON 60080	1	589 830 086
23	308 317	Ignition electrode. VERNITRON No. 1414	1	589 614 088
24	390 131	Thermocouple, HONEYWELL Q 309 A 2846, 18 in. lg.	1	586 811 720
25	308 319	Control box, including thermostat, thermostat knob and suppressor assembly	1	589 610 065
26	386 139	Thermostat, RANCO K 36 - L 1016 with 48 in. capillary	1	589 610 051
27	308 012	Thermostat knob	1	589 070 052
29	384 689	Suppressor assembly	1	589 040 030
30	308 322	Boiler casing assembly - white stove enamel, with sightglass and foil insulation	1	199 614 030
31	308 323	Controls casing door - white plastic, with Lighting Instructions	1	199 610 089
34	308 329	Boiler sealing pack	1	199 610 094
39	386 140	Overheat thermostat, RANCO LM 7 - P 9054 (sealed systems only)	1	589 610 074

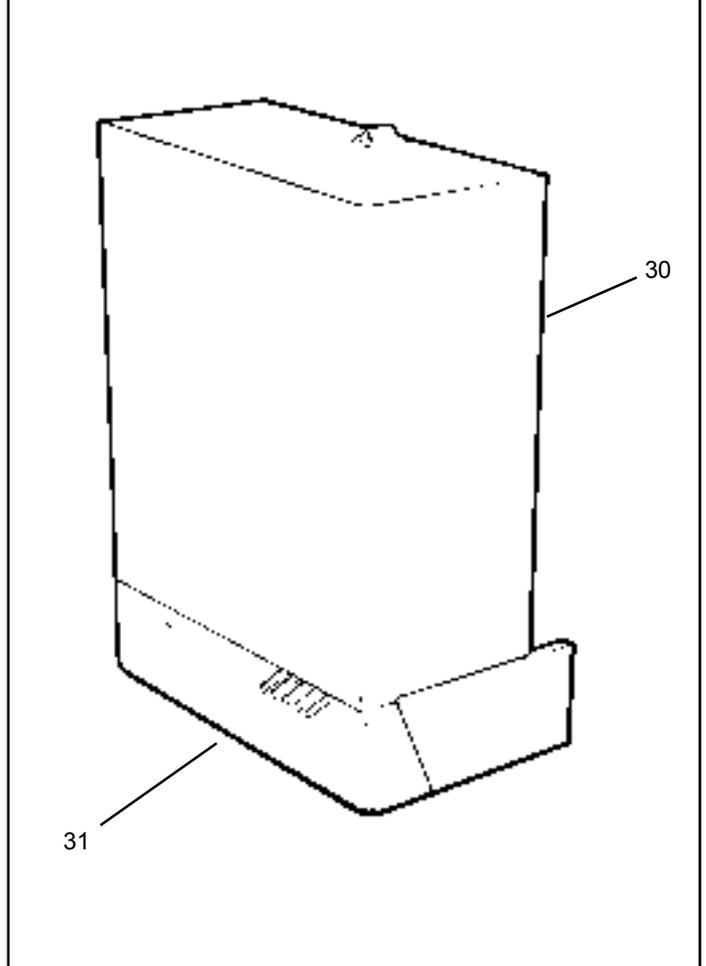
# SERVICING

# SHORT LIST OF PARTS - COMPONENT DIAGRAMS

## 29 SHORT PARTS



## 30 BOILER CASING ASSEMBLY



**THIS SYMBOL IS YOUR ASSURANCE OF QUALITY**

These appliances are designed for use with Natural Gas only. They have been tested and conform with the provisions of BS. 6332 & BS. 5258.

Products bearing this kitemark are made to a safety and performance standard under a stringent scheme of supervision and control monitored by the British Standards Institute.

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

**CARADON IDEAL Ltd,**  
 P.O. Box 103, National Avenue,  
 Kingston upon Hull,  
 North Humberside. HU5 4JN.  
 Telephone: 01482 492 251 Fax: 01482 448 858.  
 Registration No. London 322 137.  
 Registered Office; National Avenue, Kingston upon Hull,  
 North Humberside, HU5 4JN.  
 A subsidiary of Caradon p.l.c

### Customer Care & Technical Support

Please use the following numbers for speedy assistance.

**Spares** ..... Tel: 01482 498 643

**Customer Care & Technical Support** ..... Tel: 01482 498 610

..... Fax: 01482 498 666

**Publications/Literature** ..... Tel: 01482 498 467

August 1994 116 771 A06

