

Classic NF 230-280

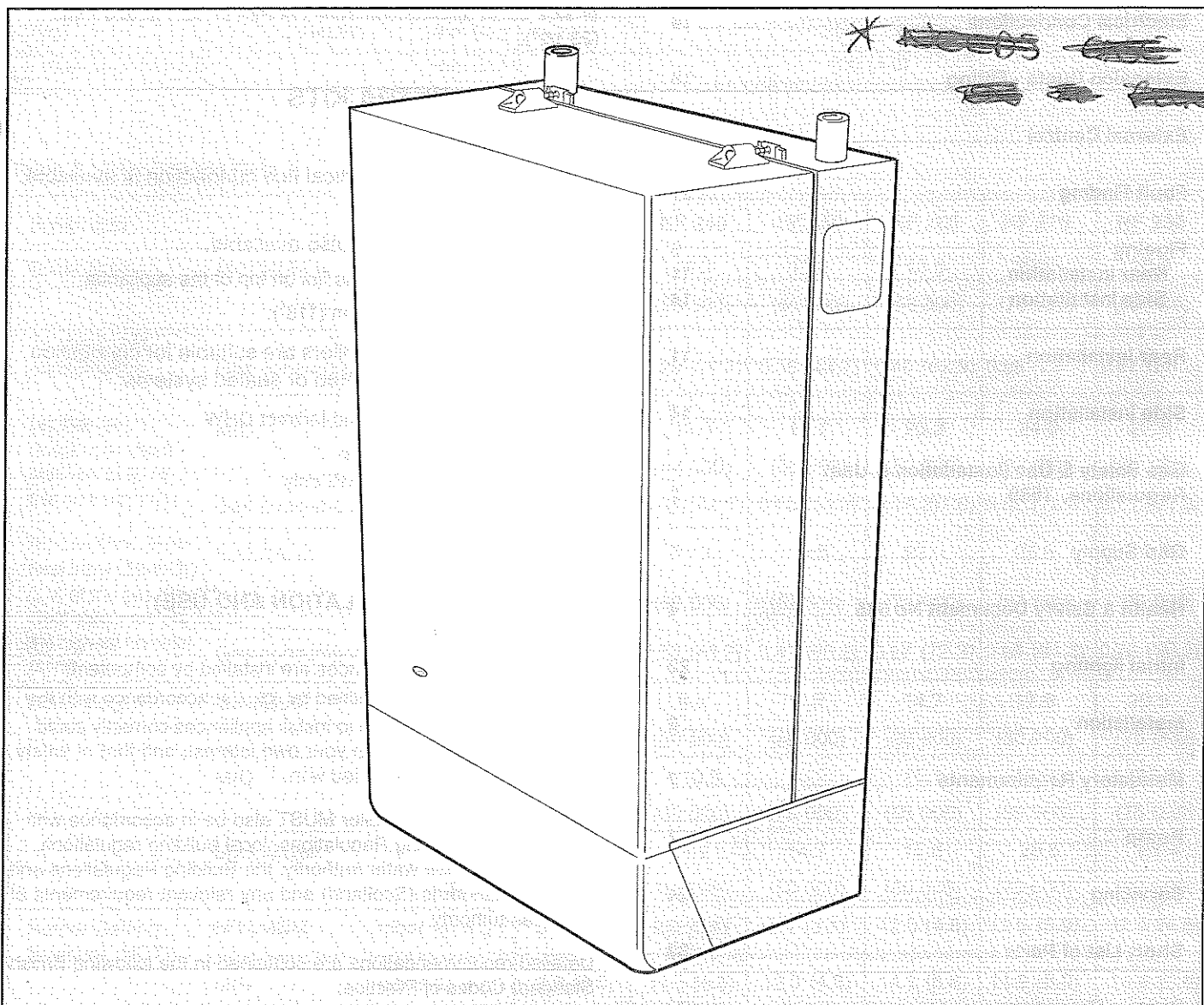
Installation & Servicing

Wall Mounted, Fanned, Balanced Flue Gas Boilers

Natural Gas Models Only

Ideal Classic	G.C. Appliance No.
NF 230	41 387 01
NF 240	41 387 02
NF 250	41 387 03

Ideal Classic	G.C. Appliance No.
NF 260	41 387 04
NF 270	41 387 05
NF 280	41 387 06



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

BOILERS
ideal

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INTRODUCTION

The new **Classic NF230-280** is a range of automatically fully controlled, wall mounted, balanced flue, fanned gas boilers.

The heat exchanger is cast iron. 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.

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

If gravity circulation is required the **Classic RS** range of boilers is suitable.

See Frame 1 for details of the correct boiler tappings to use.

The boilers are supplied with a standard flue kit suitable for rear or side outlet applications from 114 mm (4 1/2") to 600 mm (23 1/2").

OPTIONAL EXTRA KITS

A Programmer Kit

A **Vertex Flue Kit** for vertical flue connection is available.

Roof Flue Kit

A **90° Flue Elbow Kit** is also available.


Sealed System Unit. This fits on top of the appliance.

Extension ducts up to 3 m (118").

Turret Outlet Kit. The boilers are suitable for connection to the following open vented or sealed systems:

- Fully pumped CH and indirect DHW
- Pumped heating only.
- Pumped indirect DHW only.

GAS SAFETY (INSTALLATION AND USE) REGULATIONS, 1989.

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, local building regulations, bylaws of the local water authority, the Building Regulations and 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.5446 | Installation of gas hot water supplies for domestic purposes (2nd Family Gases).....continued on Page 4 |

Ideal Classic NF

Table 1 - General Data

Boiler Size			NF 230	NF 240	NF 250	NF 260	NF 270	NF 280
Gas supply connection (in. BSP)			Rc 1/2 (1/2) 1/2" (BSP Female)					
Flow connection			22mm copper				28mm copper (FEMALE)	
Return connection			22mm copper				28mm copper (FEMALE)	
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 Boiler power consumption; 50W					
Fuse rating			External; 3A Internal; F1A to BS.4265					
Water content litre (gal.)			2.7 (0.6)		3.65 (0.8)		4.65 (1.0)	
Dry Weight kg (lb)			40.9 (90.3)		46.6 (102.8)		52.6 (116.0)	
Maximum installation weight kg (lb)			31.4 (69.3)		37.4 (82.5)		43.1 (95)	
Boiler size	Height	mm (in.)	700 (27.5)					
	Width	mm (in.)	380 (15.0)					
	Depth	mm (in.)	300 (11.8)					
Flue duct diameter mm (in.)			100 (4.0)					

Table 2 - Performance Data

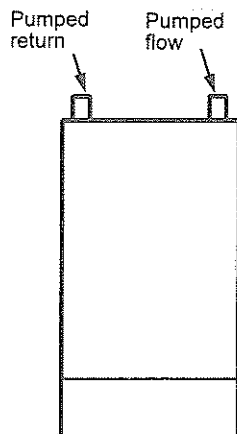
Boiler Size			NF 230	NF 240	NF 250	NF 260	NF 270	NF 280
Boiler input	MINIMUM	kW	5.6	11.3	15.0	18.5	22.5	26.3
		(Btu/h)	(19 100)	(38 500)	(51 200)	(63 300)	(76 900)	(89 700)
To obtain gas consumption	Gas consumption	l/s (ft ³ /h)	0.15 (19.4)	0.29 (37.1)	0.38 (48.7)	0.49 (62.9)	0.58 (73.1)	0.67 (86.3)
(a) For l/s: divide heat input (kW) by C.V. of the gas (MJ/m ³).	MID	kW	8.3	13.0	16.7	20.3	24.0	27.8
		(Btu/h)	(28 500)	(44 300)	(56 850)	(69 200)	(82 000)	(94 900)
(b) For ft ³ /h; divide heat input (Btu/h) by C.V. of the gas (Btu/ft ³). Heat inputs are pre-set to the highest nominal rating.	Gas consumption	l/s (ft ³ /h)	0.22 (28.1)	0.34 (42.7)	0.43 (54.5)	0.53 (67.6)	0.62 (78.8)	0.71 (91.3)
Boiler output	MAXIMUM	kW	11.0	14.7	18.3	22.0	25.6	29.3
		(Btu/h)	(37 500)	(50 000)	(62 500)	(75 000)	(87 500)	(100 000)
	Gas consumption	l/s (ft ³ /h)	0.28 (36.1)	0.38 (48.2)	0.47 (60.2)	0.57 (72.3)	0.66 (84.3)	0.76 (96.3)
Boiler output	MINIMUM	kW	4.4	8.8	11.7	14.7	17.6	20.5
		(Btu/h)	(15 000)	(30 000)	(40 000)	(50 000)	(60 000)	(70 000)
	MID	kW	6.6	10.3	13.2	16.1	19.0	22.0
		(Btu/h)	(22 500)	(35 000)	(45 000)	(55 000)	(65 000)	(75 000)
	MAXIMUM	kW	8.8	11.7	14.7	17.6	20.5	23.4
		(Btu/h)	(30 000)	(40 000)	(50 000)	(60 000)	(70 000)	(80 000)
Burner Setting pressure (HOT)	MINIMUM	mbar (in.w.g.)	3.7 (1.5)	9.0 (3.6)	9.1 (3.7)	12.0 (4.8)	12.5 (5.0)	12.1 (4.8)
	MID	mbar (in.w.g.)	8.8 (3.5)	11.5 (4.6)	12.0 (4.8)	14.1 (5.6)	14.9 (6.0)	13.9 (5.6)
	MAXIMUM (5.5)	mbar (in.w.g.)	14.0 (5.6)	15.4 (6.2)	14.5 (5.8)	16.5 (6.6)	16.5 (6.6)	16.0 (6.4)

GENERAL

1 BOILER WATER CONNECTIONS

1. This appliance is NOT suitable for use in a direct hot water system or for gravity circulation.

The NF 70 and NF 80 boiler ONLY must be fitted with the 22mm x 28mm copper sockets, provided in the Hardware Pack, (or equivalent 22mm x 28mm compression fittings) and the pumped flow and return pipes run in 28mm pipe.



2 BOILER CLEARANCES

The following minimum clearances must be maintained for operation and servicing

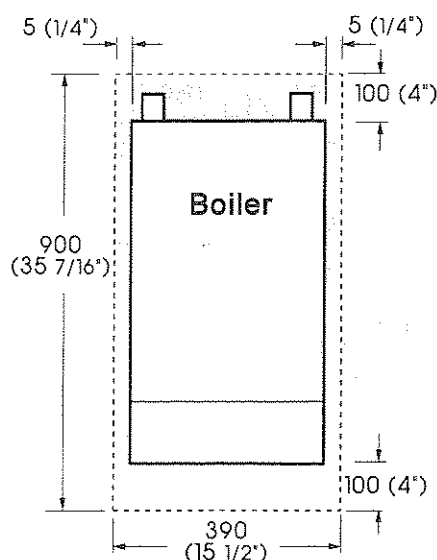
Additional space will be required for installation, depending upon site conditions.

Side and Rear Flue

- a Provided that the flue hole is cut accurately, e.g., with a core drill, the flue can be installed from inside the building.

Installation from inside ONLY

- b If a core boring tool is to be used inside the building; the space in which the boiler is to be installed must be at least wide enough to accommodate the tool.
- c If using the Complete Sealed System Unit then refer to the instructions packed with the unit for the necessary clearances.



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

HEALTH & SAFETY DOCUMENT NO 635

The Electricity at Work Regulations, 1989.

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

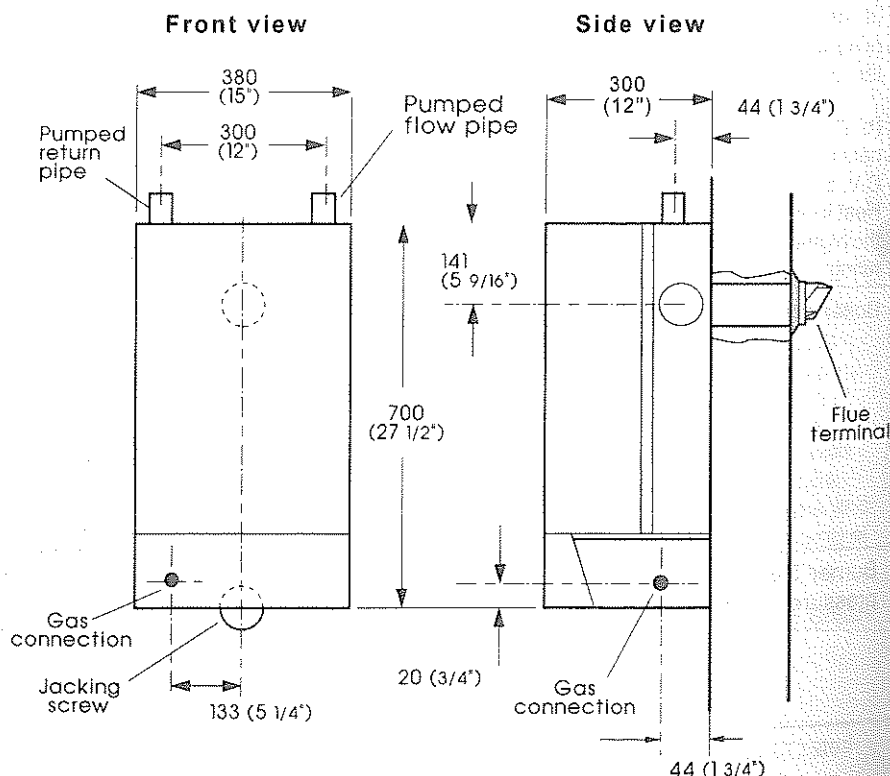
IMPORTANT. These appliances are certificated by the British Standards Institution for safety and performance. It is, therefore, important that no external control devices, e.g. flue dampers, economisers etc., are directly connected to these appliances - unless covered by these 'Installation and Servicing' 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 BSI 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 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 must not be fitted outside.**



Front clearance; 450mm (17 3/4 inches) from the front of the boiler casing. Minimum Front clearance when built-in to cupboard is 75 (3)

Timber Framed Buildings

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.

Bathrooms

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.

Compartment Installations

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 limitation MUST be observed:

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 diagram, Frame 2. In addition, sufficient space may be required to allow lifting access to the wall mounting plate.

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.

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. A MINIMUM pressure of 20mbar MUST be available at the boiler inlet with the boiler operating.

Installation pipes MUST be fitted in accordance with BS. 6891. Pipework from the meter to the boiler MUST be of an adequate size.

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.

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1. The boiler MUST be installed so that the terminal is exposed to external air.
2. It is important that the position of the terminal allows the free passage of air across it at all times.
3. Minimum acceptable spacing from the terminal to obstructions & ventilation openings are specified in Table 3.

Table 3 - Balanced flue terminal position

Terminal Position	Minimum Spacing
1. Directly below or alongside an openable window, air vent or other ventilation opening	300 mm. (12")
2. Below guttering, drain pipes or soil pipes	25 mm. (1")
3. Below eaves	25 mm. (1")
4. Below balconies or a car port roof	25 mm. (1")
5. From vertical drain pipes or soil pipes	25 mm. (1")
6. From internal or external corners	25 mm. (1")
7. Above adjacent ground, roof or balcony level	300 mm. (12")
8. From a surface facing the terminal	600 mm. (24")
9. From a terminal facing a terminal	1200 mm. (48")
10. From an opening in a car port (e.g. door or window) into dwelling	1200 mm (48")
11. Vertically from a terminal on the same wall	1500 mm (60")
12. Horizontally from a terminal on the wall	300 mm (12")

4. Where the lowest part of the terminal is fitted less than 2m (6'6") above a balcony, above ground or above a flat roof to which people have access then the terminal MUST be protected by a purpose designed guard. The minimum spacing in Table 3, Nos. 2,3, 5 and 6 would be 75mm in order to allow a terminal guard to be fitted.

Terminals guards are available from:

Quinnel, Barret & Quinnel Ltd.,
884 Old Kent Road, London, SE 15 (Model 2040)
Telephone No. 0171 639 1357.

and from

Tower Flue Components Ltd.,
Vale Rise, Tonbridge, Kent TN9 1TB (Model K1)
Telephone No. 01732 351 555

Ensure that the guard is fitted centrally.

5. Where the terminal is fitted within 850mm (34") of a plastic or painted gutter or 450mm (18") of painted eaves then an aluminium shield at least 750mm (30") long should be fitted to the underside of the gutter or painted surface.
6. The air inlet/products outlet duct and the terminal of the boiler MUST NOT be closer than 25mm (1") to combustible material. Detailed recommendations on the protection of combustible material are given in BS.5440: 1990.
7. Where it is essential that the terminal wall plate is fitted, i.e. wall thicknesses over 600mm (23.6") or with an inaccurately cut hole, the minimum spacing in Table 3 Nos. 2,3, 5 and 6 would be 60mm in order to allow the terminal wall plate to be fitted.

GENERAL

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 8 '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 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.

Table 4 - High and low vent areas

Boiler	Air from room/internal Space cm (in ²)	Air direct Outside cm (in ²)
NF30	102 (16)	51 (8)
NF40	135 (21)	68 (11)
NF50	170 (26)	83 (13)
NF60	198 (31)	102 (16)
NF70	231 (36)	116 (18)
NF80	264 (41)	132 (21)

WATER CIRCULATION SYSTEM

The boiler must NOT be used for direct hot water supply. For the types of system and correct piping procedure refer to 'Introduction' and Frame 1.

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, nor are they suitable for the provision of gravity domestic hot water.

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

The boiler must be vented (not on sealed system).

IMPORTANT

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

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 resistances of the boilers, at **MAXIMUM OUTPUT** with an 11°C (20°F) temperature differential, are shown in Table 5.

Table 5 - Water flow rate and pressure loss

Boiler Size		NF 230	NF 240	NF 250	NF 260	NF 270	NF 280
Boiler	kW	8.8	11.7	14.6	17.6	20.5	23.4
Output	Btu/h	30 000	40 000	50 000	60 000	70 000	80 000
Water Flow	l/min	11.4	15.2	19.0	22.8	26.5	30.3
Rate	gal/h	150	200	250	300	350	400
Pressure	mbar	22.0	20.4	31.5	41.7	54.8	77.0
Loss	in wg	8.9	8.3	12.6	16.7	22.0	30.9

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 a 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 or two port valves without end switches (S Plan) then a bypass must be fitted to ensure a flow of water should all valves be in the closed position.

ELECTRICAL SUPPLY

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

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. See Frame 38 for details.

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3 OPEN VENT SYSTEM REQUIREMENTS - FULLY PUMPED.

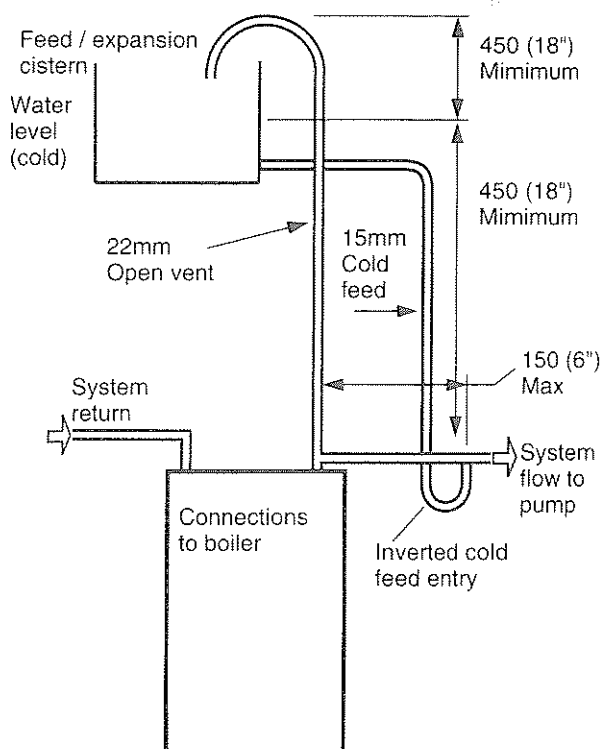
The system should be vented directly off the boiler flow pipe, as close to the boiler as possible. The cold feed entry should be inverted and **MUST** be positioned between the pump and the vent, and not more than 150mm (6") away from the vent connection.

There should be a minimum height - 450mm (18") 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 450mm (18").

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 manufacturers 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 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.



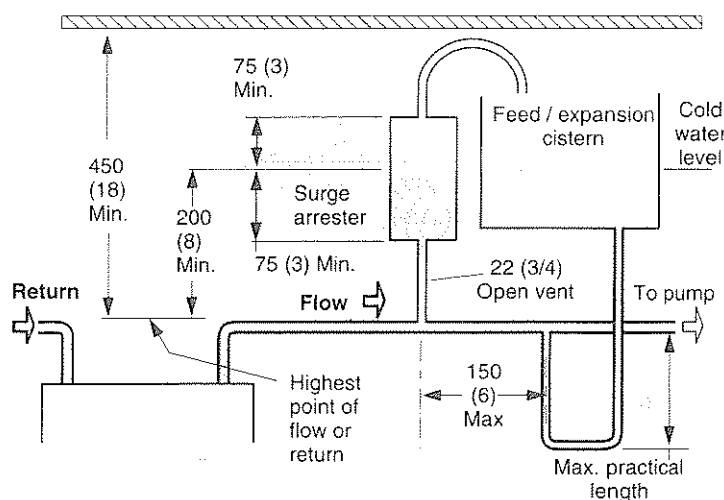
4 LOW HEAD INSTALLATIONS

Minimum Requirements

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



Note: The pump manufacturers minimum requirements must be complied with

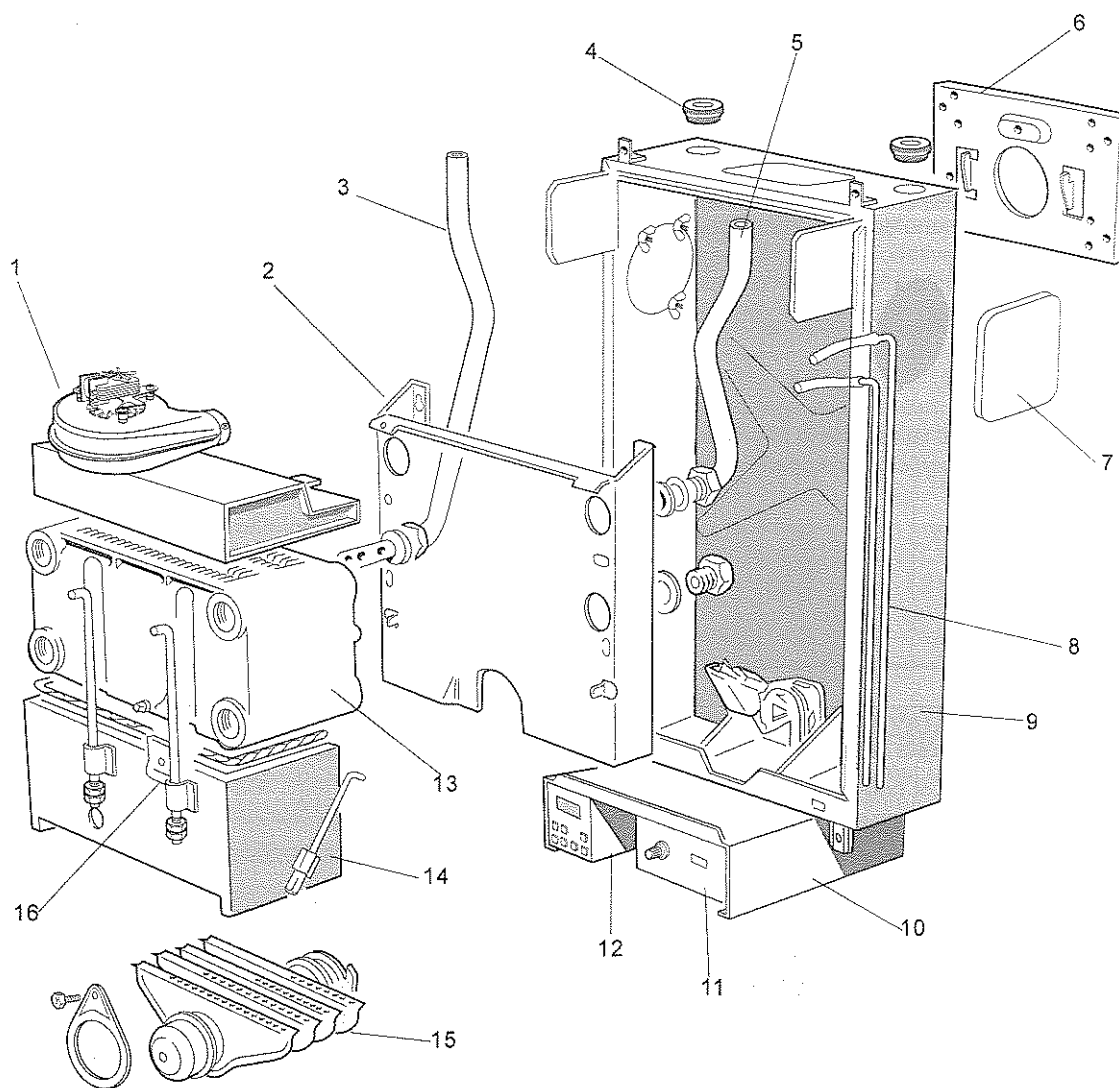
NB: Imperial dimensions are approximate

All dimensions in mm (in.)

INSTALLATION

5 BOILER ASSEMBLY - Exploded view

Ideal Classic NF 30 shown



LEGEND

- | | | |
|----------------------------------|----------------------------|---------------------------|
| 1. Fan /collector hood assembly. | 6. Wall mounting plate. | 12. Programmer (optional) |
| 2. Inter-panel. | 7. Sealing plates, 2 off | 13. Combustion chamber. |
| 3. Pumped return pipe. | 8. Pressure sensing pipes. | 14. Heat exchanger. |
| 4. Rubber sealing grommets. | 9. Back panel. | 15. Main burner. |
| 5. Pumped flow pipe. | 10. Controls support. | 16. Boiler drain point. |
| | 11. Control box . | |

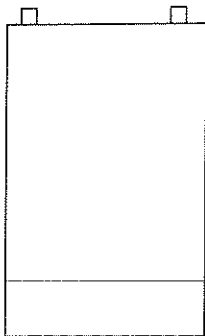
6 UNPACKING

The boiler is supplied fully assembled in on Pack A, together with a standard flue assembly for lengths up to 600mm (23 1/2"), rear or side flue outlet, in Pack B.

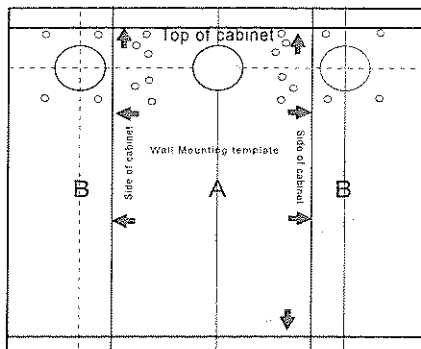
Optional extras, if ordered (Programmer Kit, complete Sealed System Unit, Extension Duct Kit D, Vertex Flue Kit G, Roof Flue Kit H and 90° Flue Elbow Kit F) are available in separate boxes. Unpack and check the contents.

Hardware Pack

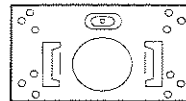
- 50mm x No. 14 wood screw, 4 off.
- 50mm x No. 10 wood screw, 9 off.
- Wall plug (TP2B brown), 13 off.
- Data plate indicator arrow, 1 off.
- M8 x 12 lg. screw, 1 off.
- M8 washer, 1 off.
- Aluminium foil (450 lg.), 1 off.
- 22mm x 28mm copper reducing socket (NF 70' and NF 80 ONLY), 2 off.
- Sealing plate, 1 off.
- M6 x 10 Pozi screw, 1 off.
- M8 Spacing pillar, 1 off.
- M8 x 12 Hx. Hd. screw, 1 off.
- 12mm x 10mm tape 910 lg., 1 off.
- Downward pipe routing bracket, 2 off.
- Jack screw ext. bracket, 1 off.



Complete boiler



Wall mounting template



Wall mounting plate

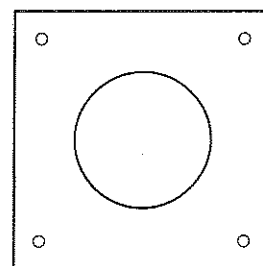
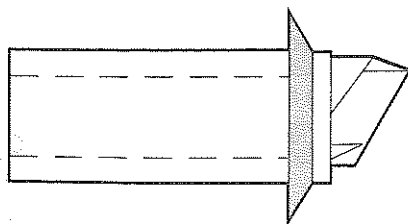


Side outlet terminal mounting plate

Pack A Contents Also contained in Pack 'A', the Hardware Pack (listed opposite), these Installation & Servicing instructions and the User's instructions.

Pack B contents.

- No. 8 x 6mm self tapping screws, 9 off.
- Duct cutting support rings, 2 off (cardboard - retain for later use)
- Terminal wall plate. 1 off.
- Terminal grille assy., 1 off.
- Flue extension tube, 1 off.
- Polyurethane foam seal 400 lg. 1 off.
- M5 wing nut, 3 off.
- No. 8 x 8 lg. Pozi pan screw hd. screws, 3 off.
- Boiler sealing plate, 1 off.

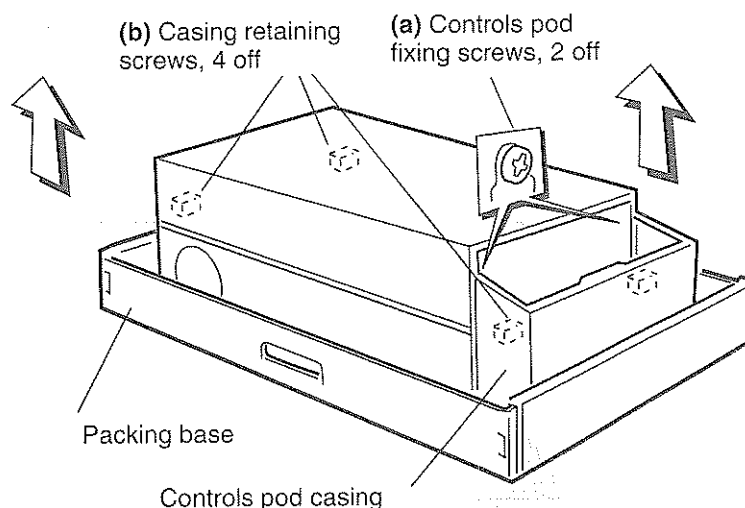


Terminal wall plate

INSTALLATION

7 PACKAGING AND CASING REMOVAL

1. Unpack the boiler.
2. Remove the casing as follows and place to one side to avoid damage.
 - a. Release 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 four screws (b) retaining the casing to the back panel.
 - c. Remove the casing in the direction of the arrows.
3. Remove the boiler from its packaging base. The boiler may now be stood upright on its controls support protection frame to ease handling and installation.
4. Unpack the boiler terminal box and, if applicable, the extension flue box(es)



8 DETERMINING THE FLUE LENGTH

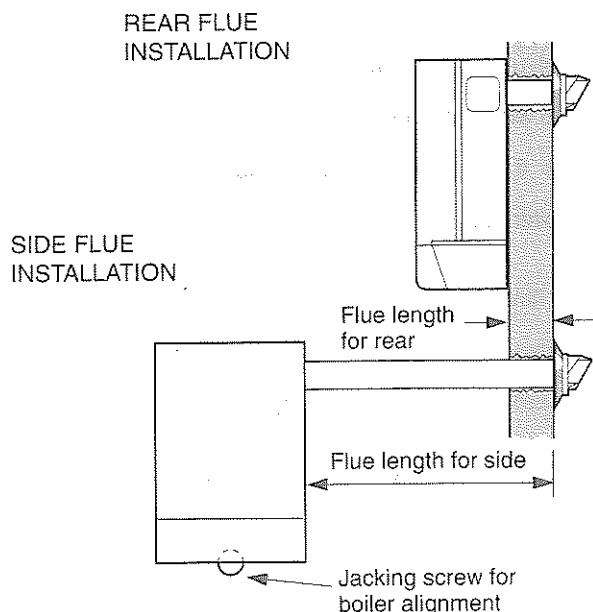
It is MOST important that the boiler is installed in a vertical position.

Flue kits

Pack B: supplied as standard.

Pack D: optional extension kit for side flue or rear flue outlet. Refer to 'Flue Extension Ducts'

1. A maximum of two extension ducts (plus the standard flue duct) may be used together.
2. Flue extensions of greater than 1m (39") should be supported with the bracket provided. If the stand off brackets have been used, it is necessary, in order to keep the flue aligned, to use the spacer bracket with the support bracket.

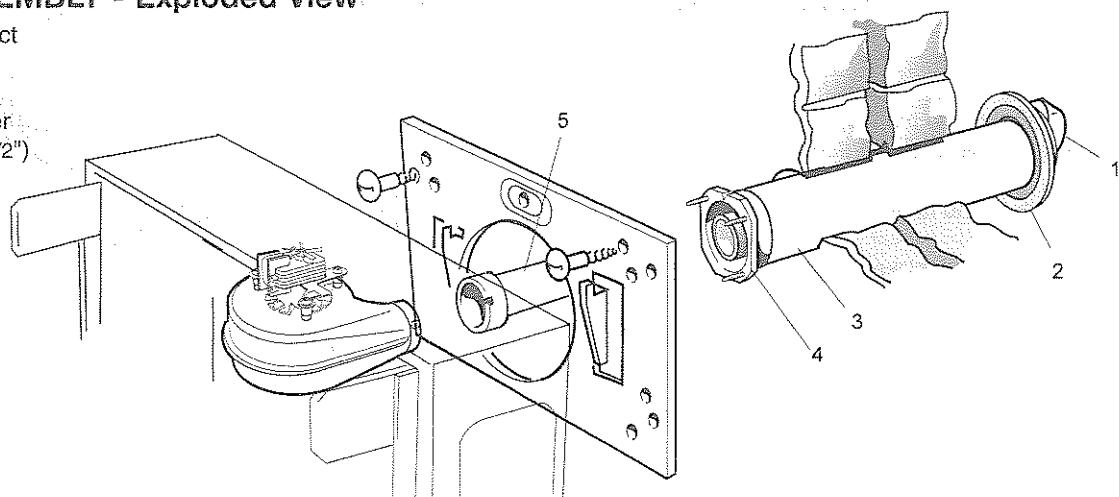


Flue length	Accessories	Product no.
Up to 600	B pack 1 off	111 492
600 to 1800	B pack 1 off + D pack 1 off	111 492 + 111 493
1800 to 3000	B pack 1 off + D pack 2 off	111 492 + 111 493, 2 off

9 FLUE ASSEMBLY - Exploded View

1. An optional flue duct extension kit is required for wall thicknesses greater than 600mm (23 1/2"). Refer to Frame 8.

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



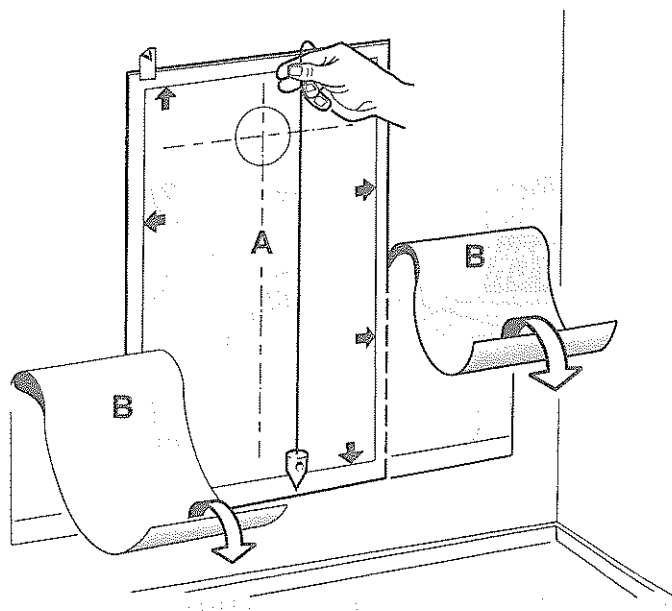
LEGEND

- | | |
|------------------|--------------------------|
| 1. Terminal. | 3. Flue assembly. |
| 2. Weather seal. | 4. Boiler sealing plate. |
| | 5. Flue extension tube. |

10 WALL MOUNTING TEMPLATE

Note: The template shows the positions for the fixing holes and the flue hole centres for standard installation. Care must be taken to ensure the correct holes are drilled.

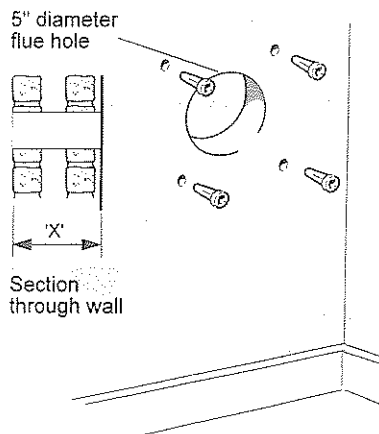
1. Separate the templates.
2. Tape the templates into the selected position.
3. Ensure squareness by hanging a plumb line as shown.
4. Mark onto the wall (if required) the following:
 - a. The wall mounting plate screw positions (choose one from each group). **Note:** Mark the centre of the flue hole as well as the circumference.
 - b. The position of the flue duct hole.
 - c. Downward pipe routing bracket screw positions
5. Remove the templates from the wall.



11 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 flue hole preferably with a 125mm (5") core boring tool ensuring that the hole is square to the wall. If the hole has been quite accurately cut with a drill, then making good the wall faces is not essential as seals are provided at both ends of the flue. However, both wall faces immediately around the cut hole should be flat; make good if necessary. For less accurate holes make good to approximately 125mm (5") diameter at the two wall faces.
2. Drill 4 holes for the wall mounting plate with an 8mm (5/16") masonry drill. If the stand-off brackets are used ensure the correct holes are chosen.
3. Insert the plastic plugs provided.



Note: Check all of the hole positions **BEFORE** drilling

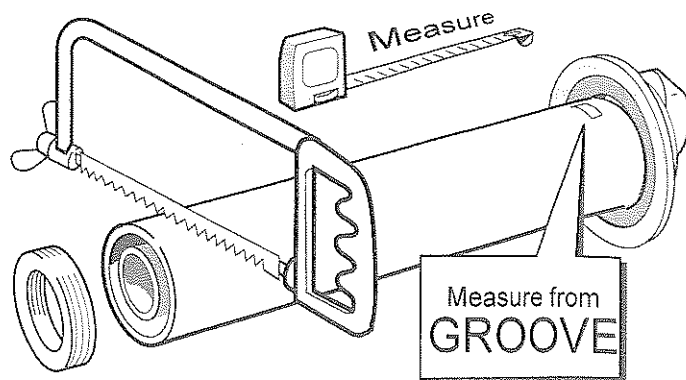
Note: If the terminal is to be sited within 25-40mm of a corner or vertical pipe (refer to Table 3) then the hole **MUST** be accurately cut and the rubber weather seal trimmed around the groove provided. The terminal wall plate need not be fitted.

INSTALLATION

12 CUTTING THE FLUE - wall thicknesses of 114 to 600mm .

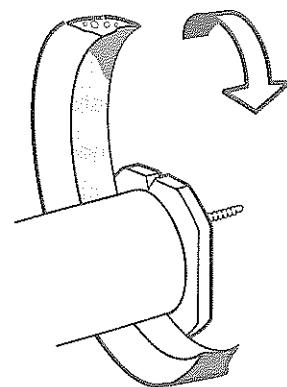
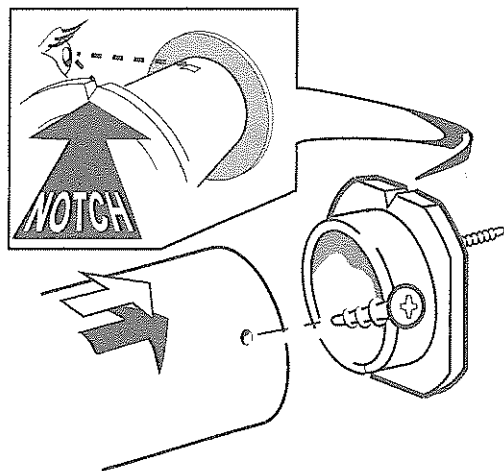
Note: If the stand-off brackets are used it is essential that 30mm is added to the measured wall thickness when marking the flue, (to allow for the thickness of the brackets).

1. Measure and note the wall thickness 'X'.
2. Mark the wall thickness onto the flue .
3. To ensure the tube is cut square, mark the flue all the way round.
4. Cut to length 'X' , using the card board ring for support.
5. Remove cardboard ring and remove any burrs.



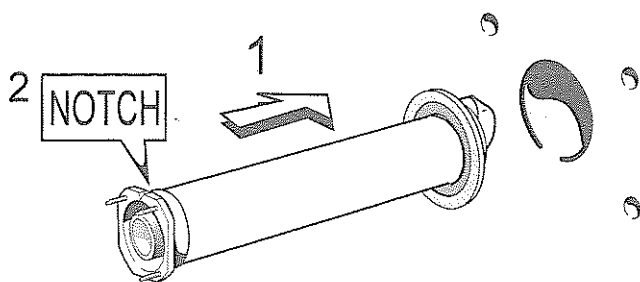
13 FITTING BOILER SEALING RING TO THE FLUE

1. Fit the boiler sealing ring inside the outer flue duct. Ensure boiler sealing ring is fully engaged. Ensure the notch aligns with the groove on the outer flue duct. This ensures correct alignment of the flue terminal.
2. Drill 3 holes 3.2mm (1/8") dia. through the outer flue duct and boiler sealing ring. **Do NOT drill the inner flue duct.**
3. Insert the self tapping screws, provided, in order to fix the boiler sealing ring in position.
4. Stick the self adhesive foam strip, provided in the hardware pack, onto the flue immediately behind the boiler sealing ring.



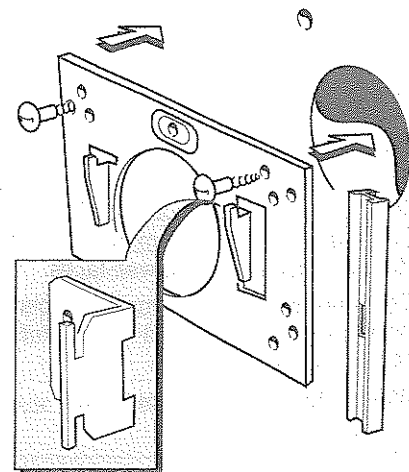
14 FITTING THE FLUE ASSEMBLY

1. Insert the flue extension tube into the flue assembly.
2. Insert the flue assembly through the hole sufficiently far enough to allow the rubber seal to unfold completely and form an adequate seal on the outside wall.
3. Ensure the notch is at the top. This will aid the location of the studs into the boiler back panel.



15 WALL MOUNTING PLATE

1. Fix the mounting plate to the wall with the No.14 x 50mm wood screws.
2. If the down ward routing of pipes is required, then the downward routing pipe brackets and M8 spacer should be fitted to the wall mounting plate now.
3. Check with a spirit level that the plate is vertical.



16 MOUNTING THE BOILER

Note: Have ready to hand the M8 screw, washer and rectangular plate supplied in the hardware pack. For downward routing of pipes the jack screw extension bracket should now be fitted to the back of the boiler.

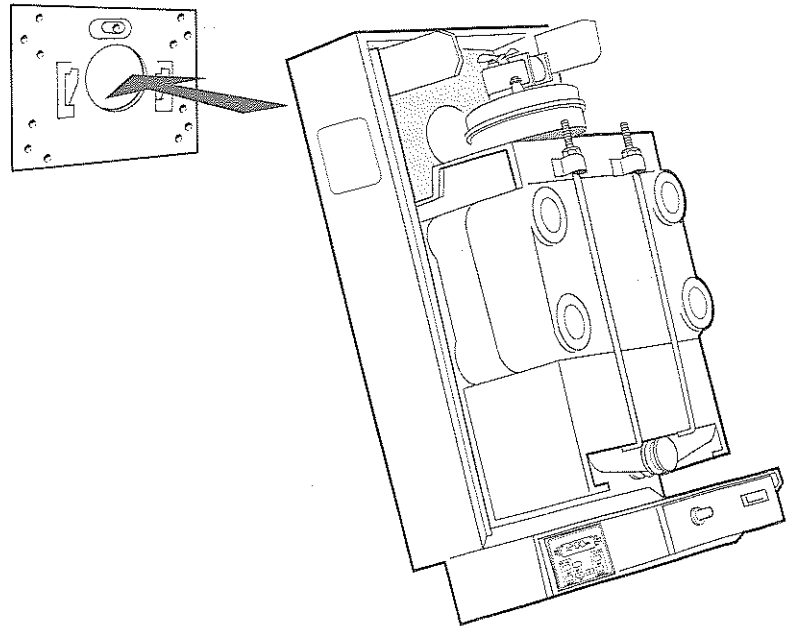
1. Lift the boiler onto the wall mounting plate hooks as shown.

Do not use the burner / controls for lifting

2. Fit the M8 screw washer and rectangular plate to retain the boiler.

Note:

Before fully tightening the M8 screw check, the boiler alignment using a spirit level and adjust as necessary with the jacking screw, refer to Frame 2.

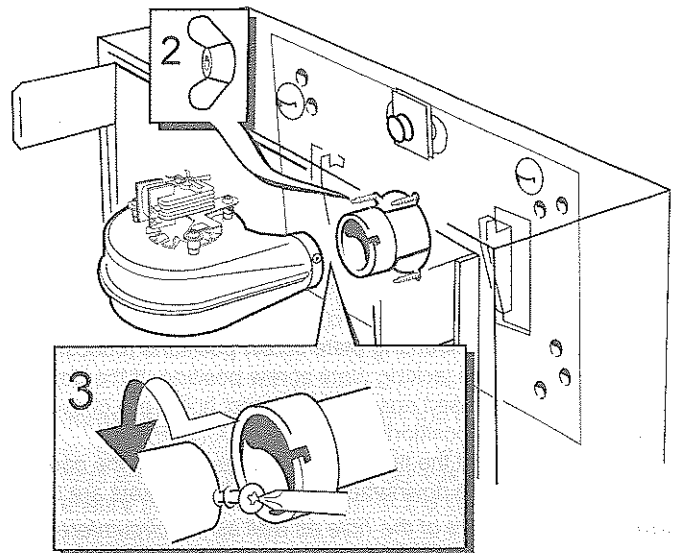


17 CONNECTING THE FLUE TO THE BOILER

1. Pull the flue through the wall mounting plate and locate the three studs in the holes in the back panel.
2. Secure the flue to the boiler using the 3-M5 wing nuts provided.
3. Pull the flue extension tube and engage onto fan, locate and secure with the M4 screw attached to the fan.

Note:

The sealing plate studs will only locate in the back panel one way only. This will ensure that the terminal grille is correctly aligned.

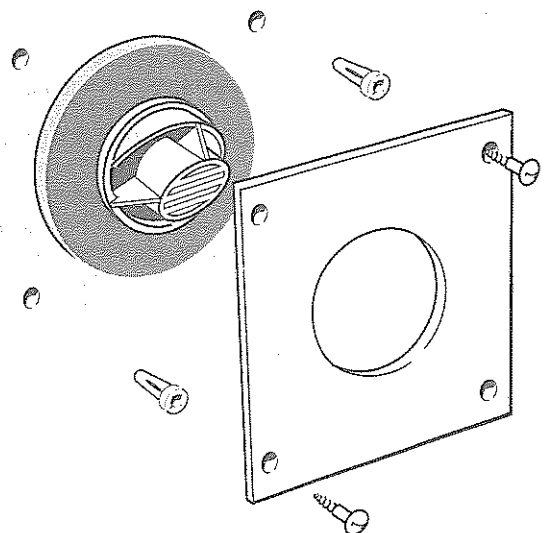


18 TERMINAL WALL PLATE

This plate allows neat concealment and full compression of the rubber seal. Its use is not essential if the flue hole and flue ducts have been accurately cut and the outside wall face is flat.

1. Position the terminal wall plate over the terminal.
2. Mark and 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". screws provided.

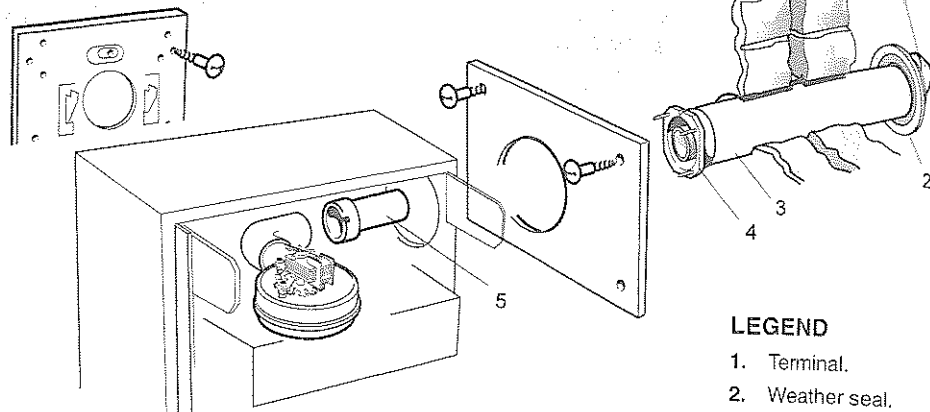
Note: If the terminal is less than 2m (6' 6") above ground level, an approved terminal guard should be fitted. Refer to the contents list on Page 2.



19 FLUE ASSEMBLY - Exploded view

For wall thickness 114mm to 600mm

1. An optional flue duct extension kit is required for lengths (distance from the outside wall to the relevant side of the boiler casing) greater than 600mm (23 1/2"). Refer to Frame 8.
2. When cutting the ducts always use the cardboard support rings provided.



LEGEND

1. Terminal.
2. Weather seal.
3. Flue assembly.
4. Boiler sealing plate.
5. Flue extension tube.

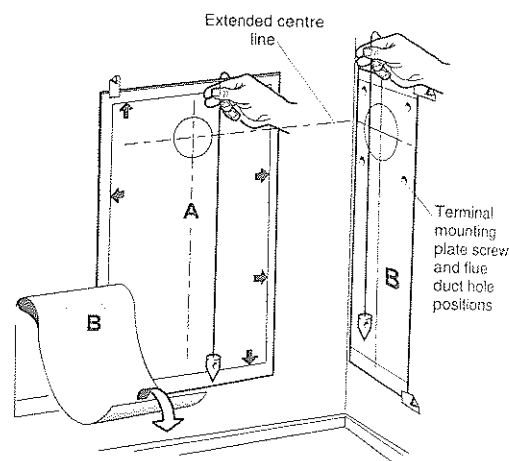
20 WALL MOUNTING TEMPLATE

Note: The template shows the positions for the fixing holes and the flue hole centres for standard installation.

If the flow and return pipes are to be routed down behind the boiler, the downward routing pipe brackets, supplied with the boiler, must be used. These brackets are secured to the wall mounting plate and it is essential to use only those holes as shown on the wall mounting template.

Care **MUST** be taken to ensure the correct holes are drilled.

1. Separate the templates.
2. Tape both templates into the selected position locating template B through an extended centre line as shown.
3. Ensure squareness by hanging a plumb line as shown.
4. Mark onto the wall (if required) the following:
 - a. The four wall mounting plate screw positions (choose one from each group) and the jacking plate screw position. If the downward routing pipe brackets are used ensure the correct holes are chosen.
 - b. The 4 screw positions for the Side Outlet Plate.
 - c. The position of the flue duct hole (ensure that the correct centre is marked depending on whether the downward routing pipe brackets are used or not)



Note: Mark the centre of the hole as well as the circumference.

- d. The side of the casing nearest the flue outlet.

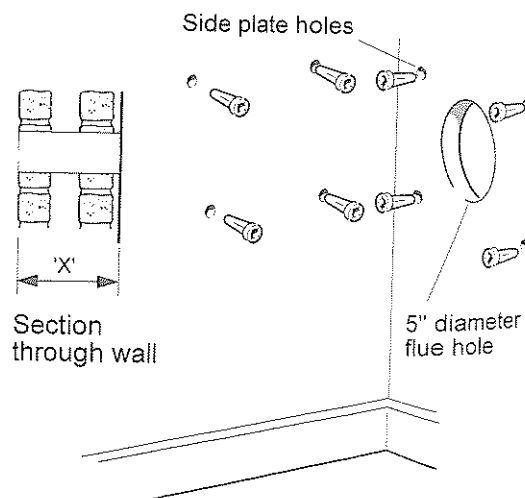
5. Remove both templates from the wall.

21 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 flue hole preferably with a 125mm (5") core boring tool ensuring that the hole is square to the wall. If the hole has been accurately cut with a drill, then making good the wall faces is not essential - as seals are provided at both ends of the flue. However, both wall faces immediately around the cut hole should be flat; make good if necessary. For less accurate holes make good to approximately 125mm (5") diameter at the two wall faces.
2. Drill 8 holes with an 8mm (5/16") masonry drill and insert the plastic plugs provided, for the side mounting plate and the wall mounting plate.

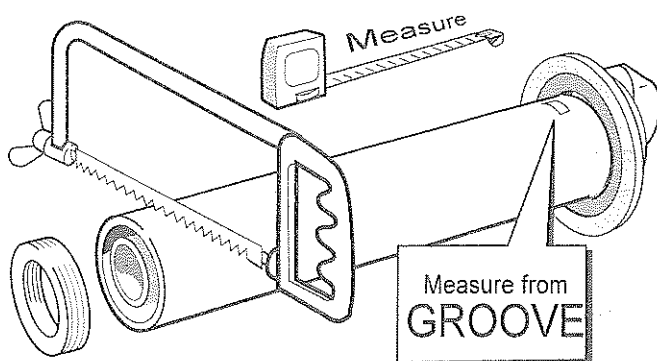
Note: If the terminal is to be sited within 25-40mm of a corner or vertical pipe (refer to Table 3) then the hole **MUST** be accurately cut and the rubber weather seal trimmed around the groove provided. The terminal wall plate need not be fitted.



22 CUTTING THE FLUE

For flue lengths 114 to 600mm ONLY

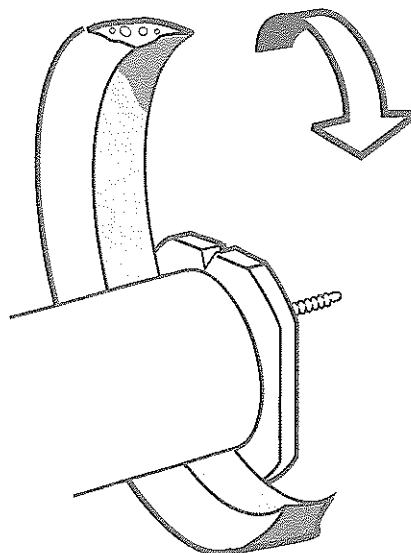
1. Measure the flue length required (i.e. the distance from the side of the boiler to the outside face of the wall) - Refer to Frame 9.
2. Mark the flue length required onto the flue, measuring from the groove near the terminal.
3. To ensure the tube is cut square, mark the flue all the way round.
4. Insert the cardboard duct ring for support, and cut to length.
5. Remove cardboard duct ring and remove any burrs.



For flue lengths greater than 600mm, refer to Frames 32 & 33 - Flue extension ducts.

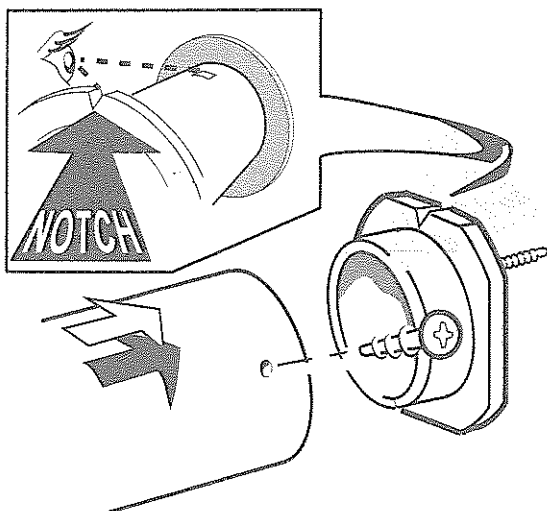
23 FITTING THE FOAM SEAL

1. To determine the position for the foam seal measure the wall thickness and mark it onto the flue, measuring from the groove near the terminal.
2. Wrap the self adhesive foam strip round the flue, ensuring that the foam is on the terminal side of the line. This seals the gap between the flue and the wall.



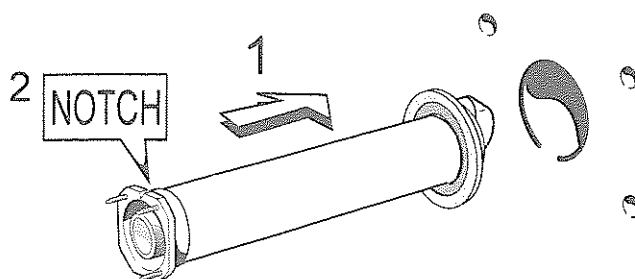
24 FITTING BOILER SEALING RING TO THE FLUE

1. Fit the boiler sealing ring inside the outer flue duct. Ensure boiler sealing ring is fully engaged. Ensure the notch aligns with the groove on the outer flue duct. This ensures correct alignment of the flue terminal.
2. Drill 3 holes 3.2mm (1/8") dia. through the outer flue duct and boiler sealing ring. *Do not drill the inner flue duct.*
3. Insert the self tapping screws, provided, in order to fix the boiler sealing ring in position.



25 FITTING THE FLUE ASSEMBLY

1. Insert the flue assembly through the hole sufficiently far enough to allow the rubber seal to unfold completely and form an adequate seal on the outside wall. This will also ensure the correct alignment of the flue terminal.
2. Ensure the notch is at the top. This will aid the location of the studs into the boiler back panel.



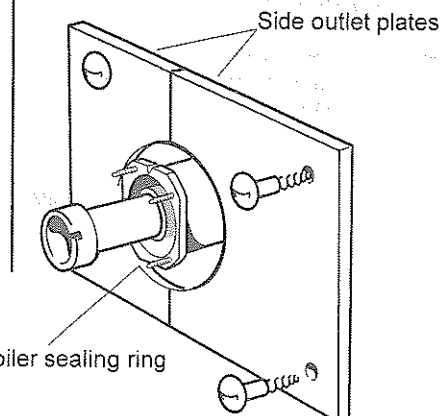
Flue assembly

INSTALLATION

26 FITTING THE SIDE OUTLET PLATES

Note: If the boiler is fitted closer than 25mm to the side wall the side outlet plate must be fitted now.

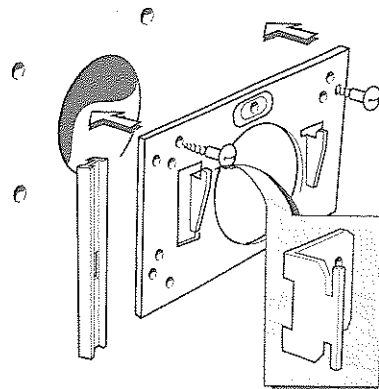
1. Split the side outlet plate into two down the split line.
2. Fit the two halves of the side outlet plate to the wall, ensuring they are behind the boiler sealing ring.



27 WALL MOUNTING PLATE

1. Fix the mounting plate to the wall with the No. 14 x 50mm wood screws.
2. If the down ward routing of pipes is required, then the downward routing pipe brackets and M8 spacer should be fitted to the wall mounting plate now.

The jacket screw extension bracket is require to facilitate the above procedure and should be fitted to the back of the boiler now.



3. Fit the bottom two screws to secure the bracket(s) to the wall, through the wall mounting plate.
4. Check with a spirit level that the plate is vertical.

28 MOUNTING THE BOILER

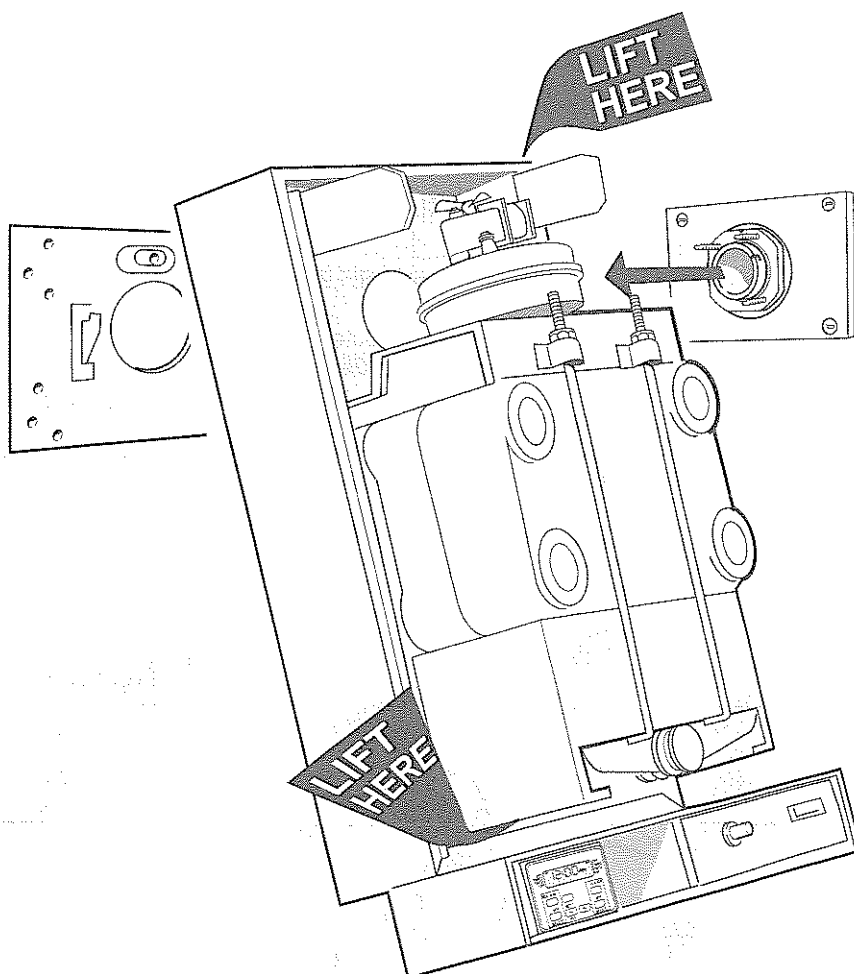
- Notes**
1. Have ready to hand the M8 screw, washer and rectangular plate supplied in the hardware pack.
 2. For downward routing of pipes the jack screw extension bracket should now be fitted to the back of the boiler.

1. The boiler is supplied for rear outlet installation. Remove the blanking plate from the direction required and use this to blank off the rear outlet.
2. Lift the boiler onto the wall mounting plate hooks as shown.

Do not use the burner/controls for lifting.

3. Fit the M8 screw, washer and rectangular plate to retain the boiler.

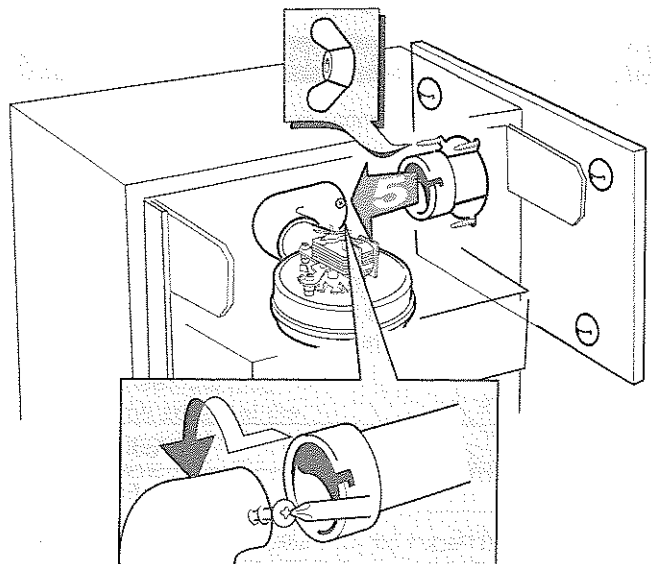
Note: Before fully tightening the M8 screw check the boiler alignment using a spirit level and adjust as necessary with the jacking screw.



29 CONNECTING THE FLUE TO THE BOILER

1. Pull the flue through the side outlet plate and locate the three studs in the hole in the side of the boiler.
2. Secure the flue to the boiler using the 3 x M5 nuts, provided.
3. Insert the flue extension tube into the flue.
4. Fit the 90° flue elbow, supplied with the boiler, onto the fan in the direction required, after first removing the underside screw which is not required. Secure in position with the screw attached to the fan.
5. Pull the flue extension tube and engage onto the fan elbow and secure with the screw attached to the fan.

Note: The sealing plate studs will only locate in the back panel one way only. This will ensure that the terminal grille is correctly aligned.

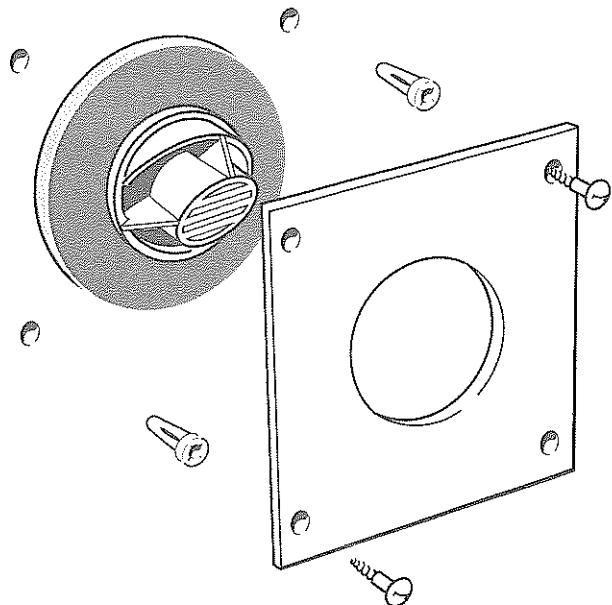


30 TERMINAL WALL PLATE

This plate allows neat concealment and full compression of the rubber seal. Its use is not essential if the flue hole and flue ducts have been accurately cut and the outside wall face is flat.

1. Position the terminal wall plate over the terminal.
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" screws provided.

Note: If the terminal is less than 2m (6' 6") above ground level, an approved terminal guard should be fitted. Refer to the contents list on Page 2.



31 FLUE EXTENSION DUCTS - For flue lengths greater than 600mm

PACK D Flue extension duct kit contents.

Extension duct
1.2m (42") long

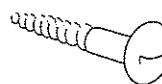
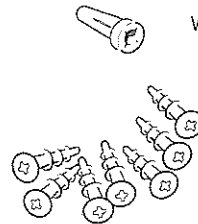
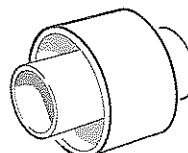
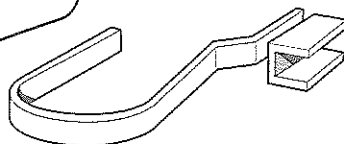
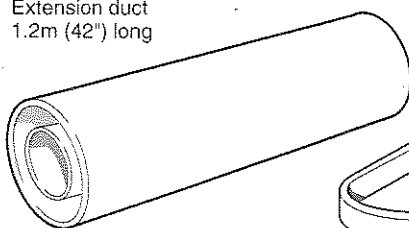
Flue connector

Support bracket

Wall plug

No. 8 x 1/4" self
tapping screws - 7 off

No. 10 x 3" wood screw - 1off



INSTALLATION

32 FLUE EXTENSION DUCTS - continued

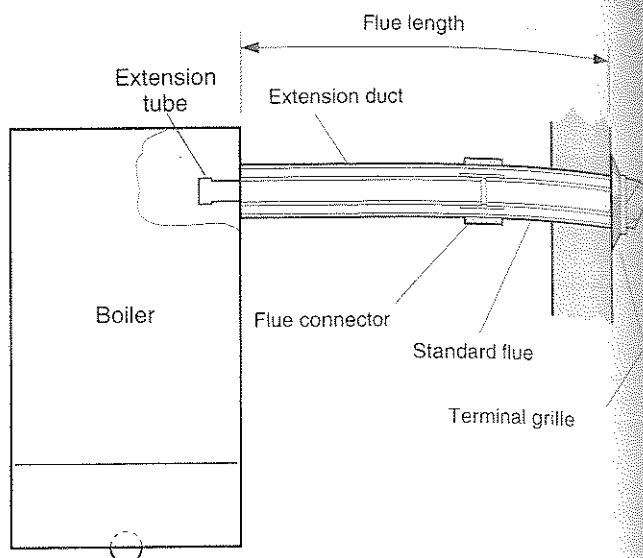
Use a maximum of two extension ducts only

General arrangement

Note: side flue shown.

1. A maximum of two extension ducts (plus the standard flue duct) may be used together.
2. Flue extensions of greater length than 1m (39") should be supported with the bracket provided. If the stand-off brackets have been used it is necessary, in order to keep the flue aligned, to use the spacer bracket with the support bracket.

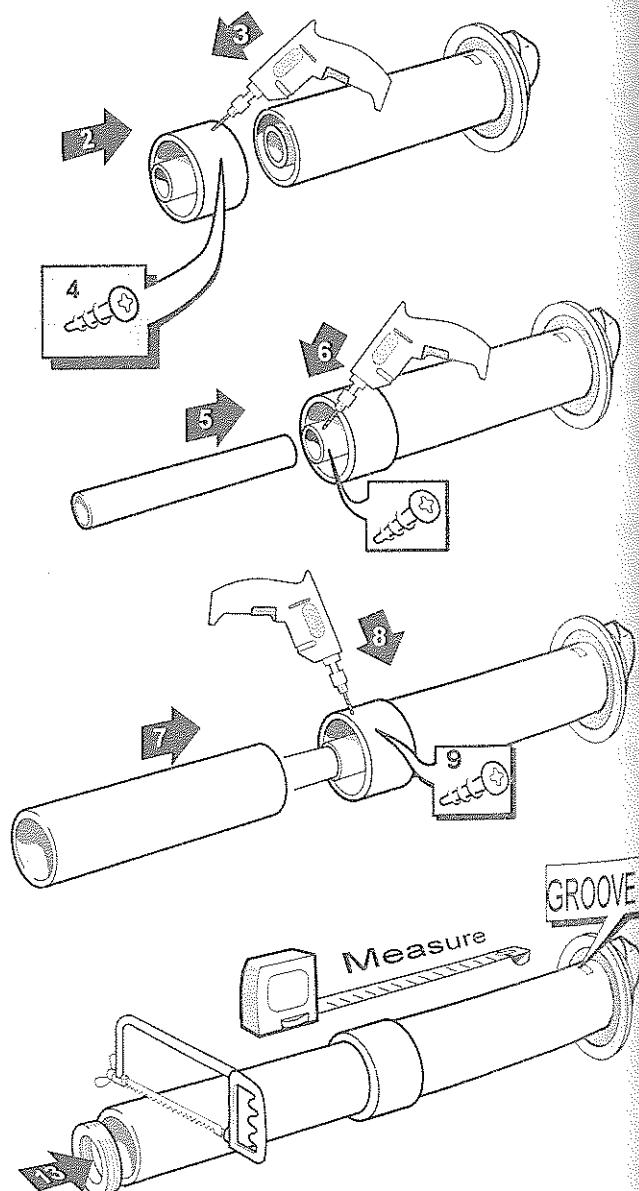
Flue length	Accessories	Product No.
Up to 600	B Pack 1 off	see Frame 8
600 to 1800	B Pack 1 off + D Pack, 1 off	see Frame 8
1800 to 3000	B Pack 1 off + D Pack, 2 off	see Frame 8



33 FITTING THE KIT

Note: Remove the cardboard duct ring from the end of the standard flue duct (Pack B).

1. Remove the flue extension tube from the flue and place safely to one side.
2. Fit the flue connector onto the standard flue duct.
3. Drill three 3.2mm (1/8") dia. equally spaced holes through the flue connector and the outer flue duct. **Do NOT drill the inner flue duct.**
4. Insert the self tapping screws, provided, in order to fix the connector in position.
5. Fit the inner flue duct into the connector.
6. Drill one 3.2mm (1/8") hole through the flue connector and inner flue duct, and secure in position with a self tapping screw.
7. Fit the outer flue duct into the connector.
8. Drill three 3.2mm (1/8") dia equally spaced holes through the flue connector and the outer flue duct. **Do NOT drill the inner flue.**
9. Insert the self tapping screws, provided, in order to fix the connector in position.
10. Repeat steps 5 - 9 if a second flue extension duct is required.
11. Measure and mark the flue length required onto the flue, measuring from the groove near the terminal.
12. To ensure the tube is cut square, mark the flue all the way round.
13. Using the cardboard ring for support, cut to length.
14. Remove cardboard ring and remove any burrs.
15. For rear outlet flue follow procedure from Frame 13, for side outlet flue follow procedure from Frame 23.



34 GAS CONNECTION

Refer to Gas supply (page 5), for gas inlet service dimensions (Frame 2).

A minimum pressure of 20mbar MUST be available at the boiler inlet with the boiler operating. The main gas cock is on the left hand side of the gas control valve, as shown. To facilitate connection the gas cock may be removed from the gas control valve.

35 WATER CONNECTIONS

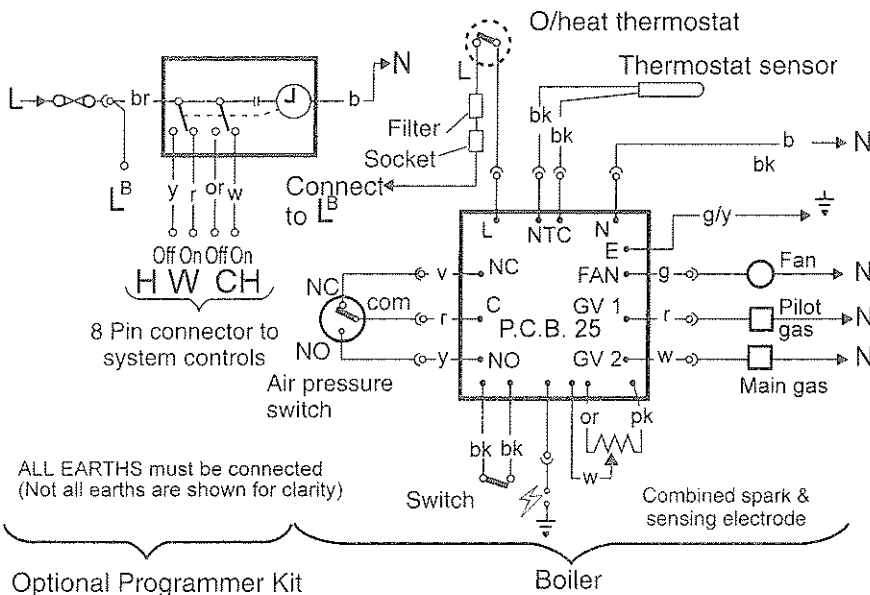
1. Remove the plastic plugs from the flow and return pipes.
2. Make all water connections and check for water soundness.

36 ELECTRICAL CONNECTIONS

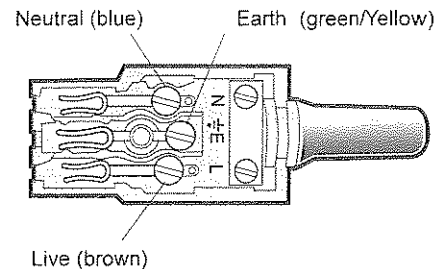
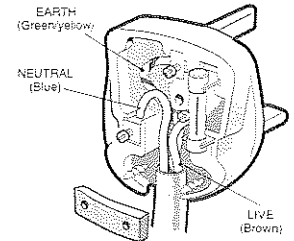
Warning: The appliance must be efficiently earthed.

A mains supply of 240 v ~ 50Hz 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 0.75mm² (24 x 0.2mm) to BS. 6500 Table 16 - Wiring Regulations and Local Regulations. The supply connection may be made via a removable plug to an unswitched 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 3mm contact separation in both poles, serving only the boiler and its external controls, may be used.



1. Connect mains cable to the supplied I.E.C. plug.
2. Insert the plug into the socket at the back of the control box.



LEGEND

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

Note: If the optional Programmer Kit is to be fitted, refer to the instructions provided with the kit and Frame 37.

37 EXTERNAL CONTROLS

The wiring diagrams illustrated in Frames 39-41 cover the systems most likely to be fitted to this appliance.

For wiring external controls to the **Ideal Classic NF** boiler, reference should be made to the system wiring diagrams supplied by the relevant manufacturer, in conjunction with the wiring diagrams shown in Frames 39-41.

Difficulty in wiring should not arise, providing the following directions are observed:

1. Controls that switch the system on or off, e.g. a time switch, must be wired, in series, in the live mains lead to the boiler.
2. Controls that override an on/off control e.g. frost thermostat, must be wired into the mains lead, in parallel, with the control(s) to be overridden - refer to Frame 41.

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 pump circulation taking place should not be fitted.

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

Notes:

1. Connection 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.

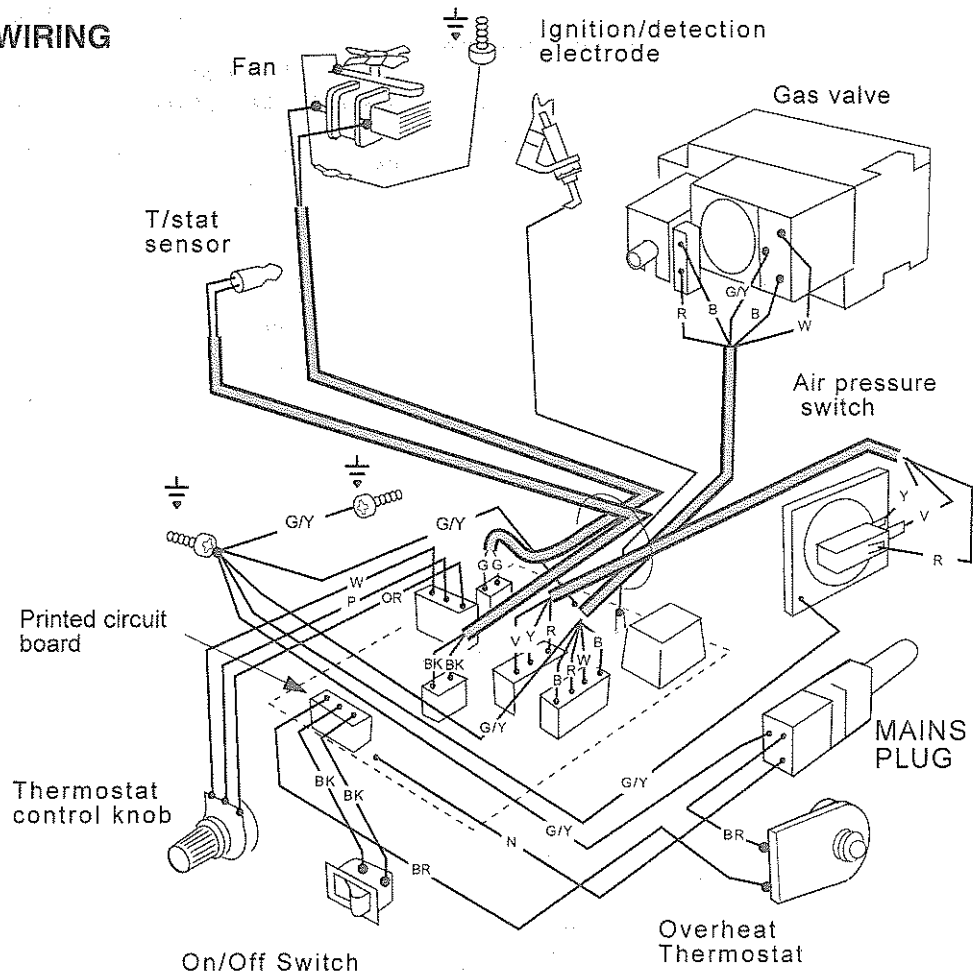
INSTALLATION

38 PICTORIAL WIRING

38 PICTORIAL WIRING

LEGEND

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



39 MID POSITION VALVE

Pumped only

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.
3. This is 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.

TLX 2259
or 2284

RTE
RTM/RTC

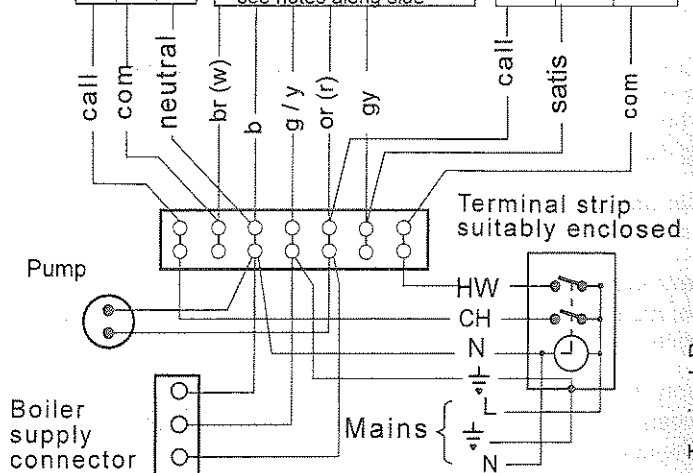
Room Thermostat Terminals		
1	3	2
3	1	4
1	2	4
1	3	-
1	2	4
3	1	N
1	3	4
2	1	4

Mid Position valve details		
HONEYWELL Y PLAN	V4073H	1039
PEGLAR 'Unishare'	DT 1701	etc.
LANSIS & GYR 'LGM'	SK3 - LT2701	
A. C. L.	679. H.	340.30.UO
DRAYTON Flowshare 2		
SOPAC Centra Share	ZV20 - EB	MID
DANFOSS DMV - 3M		
SWITCHMASTER	see notes along side	

Cylinder Thermostat Terminals		
1	2	c
1	2	3
2	3	1
1	2	3
bk	y	r
2	3	1
1	2	c
n. c.	n. o.	com.

LEGEND

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



Typical Programmer
CH Can not be selected
without HW

40 TWO SPRING CLOSED VALVE

Pumped only

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.
3. This is 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.

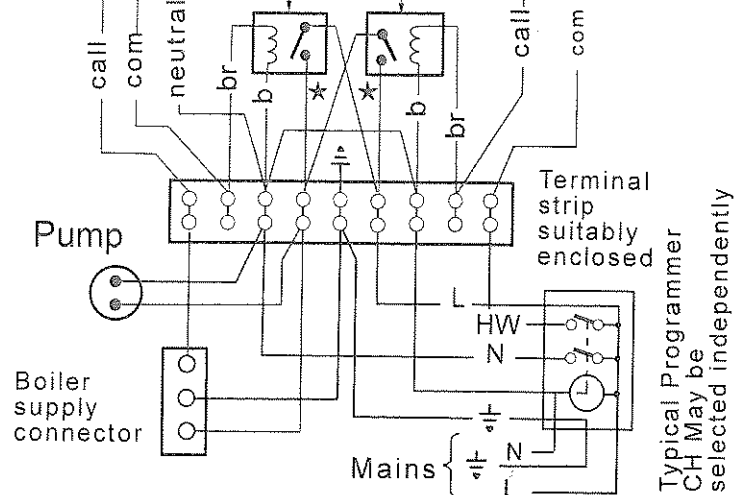
TLX 2259
or 2284

RTE
RTM/RTC

Room Thermostat Terminals			Spring - shut valve details		Aux ★ switch wires	Cylinder Thermostat Terminals	
1	3	2	HONEYWELL S PLAN V4043H 1056		gy or	1	c
3	1	4	PEGLAR system 4 SZ 1301 or 1326		gy or	1	3
1	2	4	LANSIS & GYR SK2 - LL4453 etc.		gy or	1	3
1	3	-	A. C. L. 679. H. 308		gy or	1	3
1	2	4	DRAYTON ZV22 or ZV28		gy or	2	1
3	1	N	SOPAC ZV20 - 2 EB etc.		gy bk	1	c
1	3	4	DANFOSS DMV - 2		gy or	n. c.	com.
2	1	4	SWITCHMASTER Auto Zone VM4		See NOTES	2	1
1	3	-					

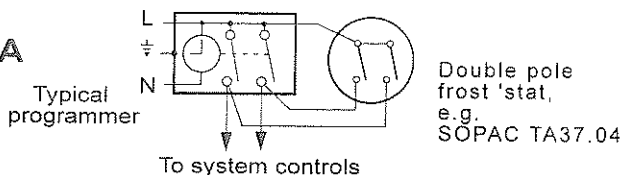
LEGEND

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

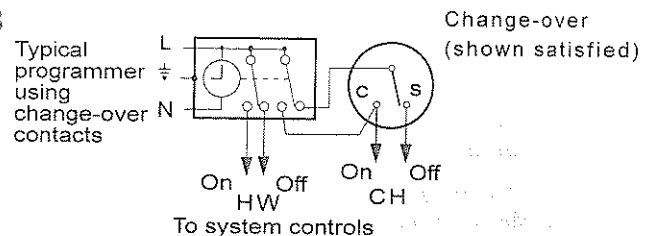


41 FROST PROTECTION

A



B



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.

42 COMMISSIONING AND TESTING

(a) Electrical Installation

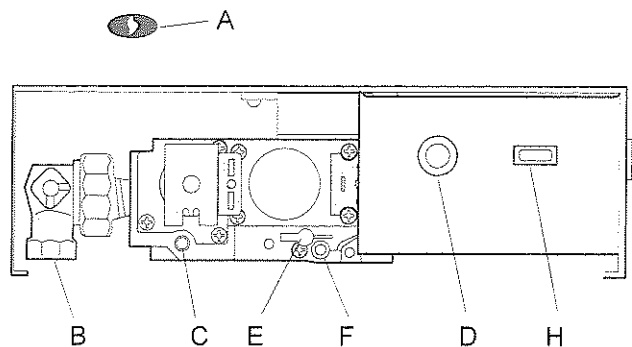
1. Checks to ensure electrical safety should be carried out by a competent person.
2. ALWAYS carry out preliminary electrical system checks, i.e. earth continuity, polarity, resistance to earth and short circuit using a suitable test meter.

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**.

(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 union on the gas service cock on the boiler and purging until gas is detected.
3. Retighten the union and check for gas soundness.

43 INITIAL LIGHTING



LEGEND

- | | |
|-------------------------------|----------------------------------|
| A Sightglass. | E Main burner pressure adjuster. |
| B Gas service cock. | F Burner pressure test nipple. |
| C Inlet pressure test nipple. | H Boiler mains ON / OFF switch. |
| D Thermostat knob | |

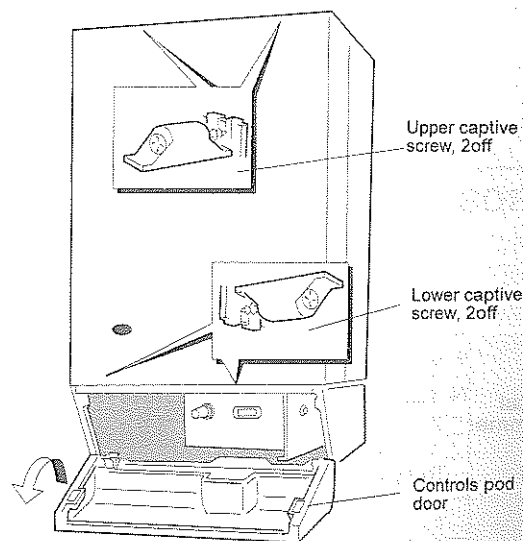
TO LIGHT THE BOILER

1. Check that all the drain cocks are closed, and any valves in the flow and return are open.
2. Check that the gas service cock (B) is OPEN and the boiler Mains ON / OFF switch is OFF.
3. If the boiler output is to be set to minimum or mid, affix the appropriate indicator label supplied in the hardware pack to the data plate, located on the controls protection frame.
4. Fit the boiler casing but do not fit the controls pod.
5. Slacken the screw in the burner pressure test point (F) and connect a gas pressure gauge via a flexible tube.
6. Switch the electricity supply ON and check that all external controls are calling for heat.
7. Set the boiler thermostat knob (D) to position '6' and the boiler Mains ON / OFF switch to ON the fan will start. After the fan has run for a few seconds the pilot solenoid valve should open and the intermittent spark commence, continuing until the pilot is established. The main burner will then cross light smoothly. If this sequence does not occur, refer to Fault Finding section.
8. Test for gas soundness around ALL boiler gas components using leak detection fluid.

FITTING THE BOILER CASING

- Lift the boiler casing up to the boiler assembly and secure with 4 captive screws.
- The casing must seat correctly and compress the sealing strip to make an airtight joint. Visually check the side seals, but if side clearances are limited then check that the top and bottom edges of the casing are correctly located.

Note: If the Sealed System Unit is fitted, remove the unit casing in order to inspect the top casing seal.



9. Operate the boiler for 10 minutes to stabilise the burner temperature.
10. The boiler is pre-set at the factory to its highest nominal rating but can be range rated to suit the system design requirements. Refer to Table 2 (p.3). Turn the adjusting screw in either direction until the required burner pressure is achieved.
11. Set the boiler Mains ON / OFF switch it OFF.
12. Remove the pressure gauge and tube. Retighten the sealing screw in the pressure test point.
13. Turn ON and check for gas soundness at the pressure test point.
14. Refit the controls pod and tighten the two front fixing screws.
15. Close the pod door.

44 GENERAL CHECKS

Make the following checks for correct operation:

1. Set the boiler thermostat knob to position '6' and operate the Mains ON /OFF switch. Check that the main burner lights and extinguishes in response.
2. 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.
3. Check that the casing is sealed correctly and compressing the sealing strip all around the casing.
4. **Water Circulating System**
 - a. With the system HOT, examine all water connections for soundness.
 - b. With the system still hot, turn off the gas, water and electricity supplies to the boiler and drain down in order to complete the flushing process.

- c. Refill and vent the system, clear all air locks and again check for water soundness.
- d. Balance the system.

5. 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	54	130
2	60	140
3	66	150
4	71	160
5	77	170
6	82	180

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

45 HANDING OVER

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

1. Hand the User's Instructions to the Householder and explain his or her responsibilities under the Gas Safety (Installation and Use) Regulations 1990.
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 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

46 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.

- Light the boiler and, using the flue sampling point (provided on the top RH side of the back panel) carry out a pre-service check, noting any operational faults.
- Clean the main burner.
- Clean the heat exchanger.
- Clean the main and pilot injectors.
- Remove any debris from inside the base of the casing.
- Check that the flue terminal is unobstructed and that the flue system is sealed correctly.
- 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 47 to 51 and must be carried out in sequence.

WARNING: Disconnect the electrical supply and turn off gas supply.

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

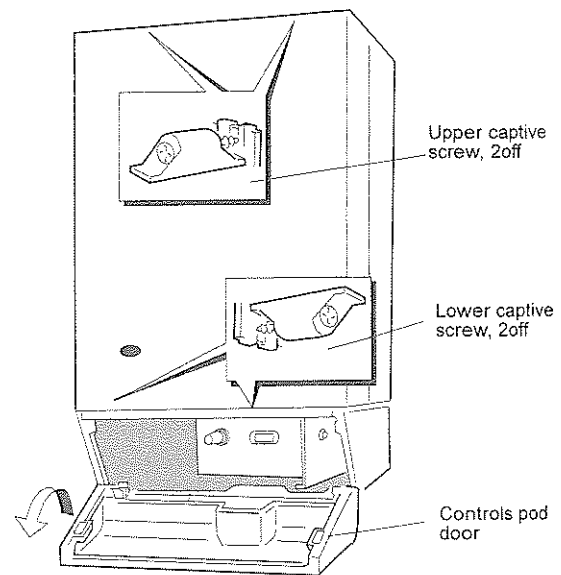
When work is complete the casing **MUST** be correctly refitted, ensuring that a good seal is made.

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

Note: In order to carry out either servicing or replacement of components, the boiler casing must be removed (Frame 47).

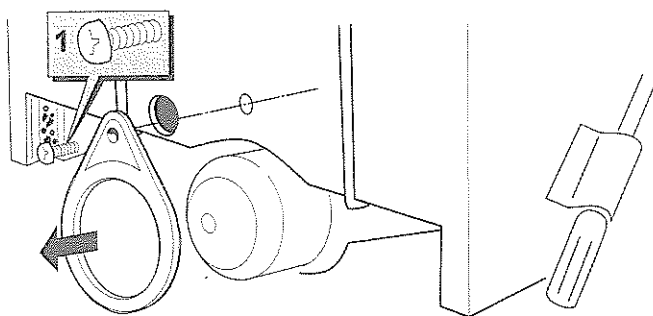
47 BOILER CASING REMOVAL

- If the **Ideal Classic Sealed System Unit** is fitted lift off the casing to expose the boiler casing top fixing screws.
- Open the controls pod door.
- Release the 4 captive screws at the top and bottom of the casing. Lift the casing off the boiler and retain in a safe place.
- Isolate the gas supply at the service cock fitted to the boiler.

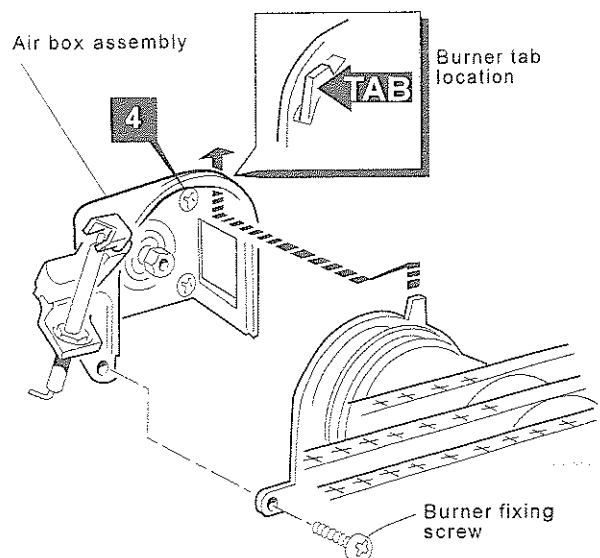


48 BURNER AND AIR BOX REMOVAL

- Remove the screw retaining the front burner support bracket to the combustion chamber. Remove the M5 pozi situated at the LH bottom rear of the burner and pull the burner downwards to disengage the retention tab. Remove burner to a safe place for inspection and cleaning.

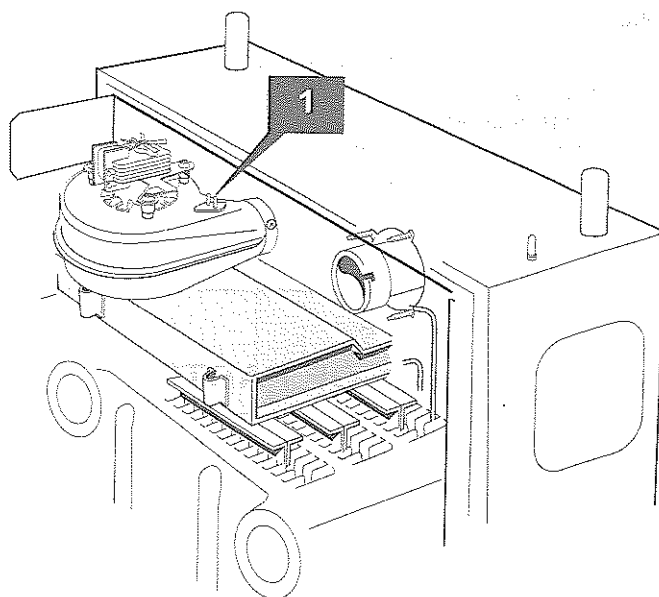


- Remove the control box fixing screw. Pull the box forward and downward to disengage.
- Pull the HT lead connection off the printed circuit board and pull the lead upwards through the bottom panel grommet.
- Remove the four screws retaining the air box /pilot assembly to the vertical manifold and carefully remove the assembly



49 CLEANING THE FAN ASSEMBLY / THE FLUEWAYS

1. Remove the two silicon rubber tubes from the fan sensing points.
2. Disconnect the fan leads and the fan earth connection.
- 3a. **Rear flue**
Slacken the M4 screw securing the flue connector to the fan. Disconnect the connector from the fan and slide into the flue.
- 3b. **Side or top flue**
Slacken off 2 x M4 screws securing the flue elbow and flue connector. Disconnect the flue connector from the elbow and slide into the flue. Remove the flue elbow.
4. Disconnect the silicon rubber tube from the rear of the collector hood.
5. Slacken the two M5 nuts on the front tie rods, releasing the tie rods from the combustion chamber.
6. Remove the M5 central fixing screw at the rear of the collector and remove collector hood/fan assembly.
7. Check that the fan impeller runs freely. Remove any debris from the impeller with a soft brush.
8. Remove the flue baffle clips and remove the flue baffles.



9. Remove all loose deposits from the heat exchanger, particularly between the fins, using a suitable brush.
10. Reassemble in reverse order ensuring the fan leads, fan earth connection and three sensing tubes are reconnected.

50 CLEANING THE BURNER AND PILOT ASSEMBLY

1. Brush off any deposits that may have fallen on to 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 there is no blockage or damage. Clean or renew as necessary.
3. Refit the injector using an approved jointing compound sparingly.
4. Inspect the pilot burner & ignition / detection electrode. Ensure that they are clean and in good condition. Check that:

- a. The pilot burner injector is not blocked or damaged. Refer to Frame 57 for removal details.
- b. The pilot burner is clean and unobstructed.
- c. The ignition / detection electrode is clean and undamaged.
The ignition / detection lead is in good condition.
- e. The spark gap is correct (Frame 57). Clean or renew as necessary.

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

51 REASSEMBLY

Reassemble the boiler in the following order.

1. Refit the flue baffles.
2. Inspect the collector hood rope gasket and replace if necessary ensuring that the self adhesive rope is fitted centrally onto the lip of the collector hood /fan assembly. The boiler efficiency will be adversely affected if incorrectly fitted. Refit the collector hood and retain with the two front tie rods and the rear central fixing screws. Tighten the nuts and screw. Ensure that the sealing gasket is compressed. Refit the pressure pipe.
3. Refit the positive pressure tubes on the top of the fan housing. Reconnect the electrical leads.
4. Refit the air box assembly and burner. Ensure that the burner front fixing is refitted.
5. Refit the control box.
6. Reconnect the gas supply and the electrical wiring. Refer to Frames 34 & 36.
7. Check the sightglass in the boiler casing. Clean or renew as necessary. Refer Frame 55.
8. Check for gas soundness. Check the gas service cock, and pressure test point.
9. Refit the boiler casing and tighten the four captive screws.
IMPORTANT: When work is complete the casing must be correctly refitted. Ensure that a good seal is made.
10. Close the controls pod door.

52 GAS PRESSURE ADJUSTMENT

PILOT

The pilot is factory set to maximum and no further adjustment is possible. If after removing and checking the injector (as detailed in Frame 57) and ensuring that there is an inlet pressure of 20 mbar available, the pilot does not light then contact **Caradon Ideal Ltd.**

Relight in accordance with 'Initial Lighting' - refer Frame 43.

MAIN BURNER

After any 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 adjustments should be made by using the pressure adjustment screw.

Refer to 'Initial Lighting' - refer Frame 43.

REPLACEMENT OF PARTS

53 GENERAL

When replacing any component:

1. Isolate the electricity supply.
2. Turn OFF the gas supply.
3. Remove the boiler casing - refer to Frame 46.

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

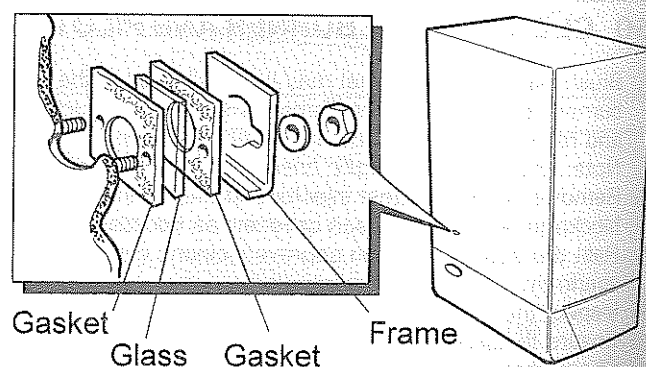
Note: In order to assist fault finding the control box printed circuit board is fitted with 4 indicator lights which represent the following boiler conditions:

- Neon 11.** Air pressure switch made.
Neon 12. Boiler thermostat calling for heat.
Neon 13. Mains electricity ON.
Neon SG1. Flashes to indicate spark operation (stops after detection).

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

54 SIGHTGLASS REPLACEMENT

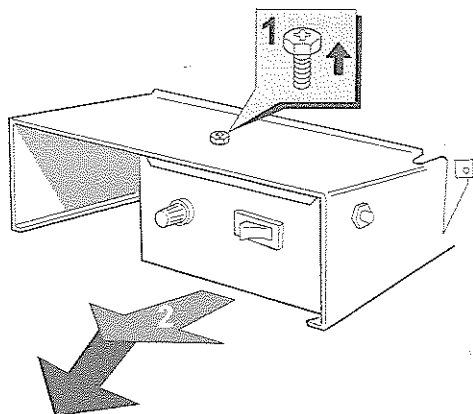
1. Refer to Frame 53.
2. Unfasten the two nuts and washers holding the sightglass assembly to the casing front panel.
3. When fixing the new assembly, ensure that the parts are in the correct order. The frame must have the return edge at the bottom.
4. Retighten the 2 nuts to ensure an airtight seal. Do NOT overtighten.
6. Replace the boiler casing. Refer to Frame 51.



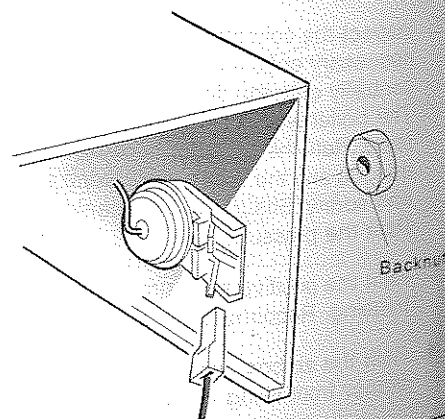
55 OVERHEAT THERMOSTAT REPLACEMENT

Refer to Frames 37, 53 & 69.

1. Remove the control box fixing screw.



2. Pull the box forward and downward to disengage.
3. To remove the overheat thermostat pull off the electrical connections at the thermostat. Remove the backnut retaining the thermostat to the bracket. Remove the thermostat from the heat exchanger pocket.
4. Reassemble in reverse order.

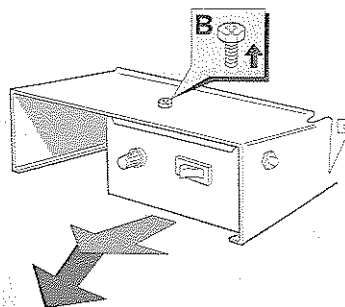


56 THERMOSTAT CONTROL, THERMISTOR SENSOR LEAD and ON/OFF SWITCH REPLACEMENT

Refer also to Frame 69.

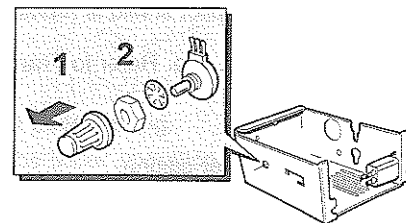
A Refer to Frame 53.

B Remove the control box fixing screw. Pull the box forward and downward to disengage.



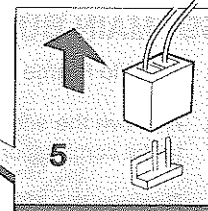
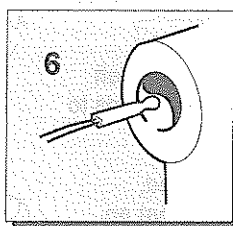
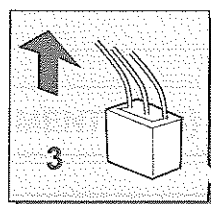
Thermostat control

1. Pull the knob off the shaft.
2. Remove the backnut securing the thermostat control to the control box.
3. Pull off the Molex connector from printed circuit board.
4. Replace and reassemble in reverse order.



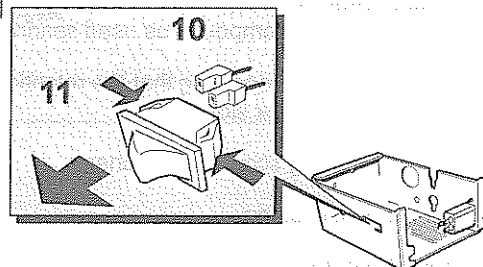
Thermistor sensor lead

5. Pull the sensor lead connector off the printed circuit board.
6. Remove the sensor from the heat exchanger pocket and unclip from the back panel.
7. Remove the strain relief bush from the back panel base.
8. Remove the sensor lead through the grommet in the control box.
9. Replace and reassemble in reverse order.

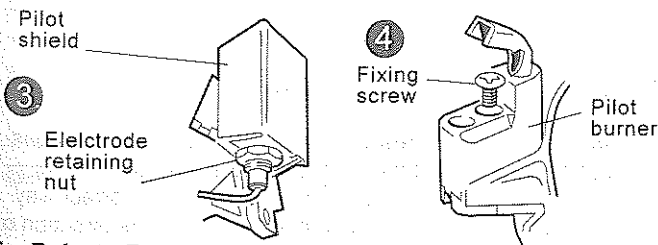


On/off switch

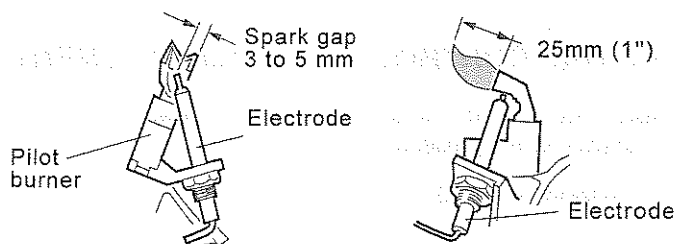
10. Disconnect the electrical connectors from the rear of the switch.
11. Press in the 2 side retaining clips and remove the switch.
12. Reassemble in reverse order.



57 PILOT BURNER REPLACEMENT



1. Refer to Frame 53.
2. Remove the burner and air box assembly. Refer to Frame 48.
3. Remove the electrode retaining nut and remove the pilot shield and electrode.
4. Unscrew the central pilot fixing screw and lift the pilot clear of the pilot injector. The pilot injector may now be unscrewed if required.
5. Replace the pilot burner (injector if necessary) and retain with the M4 screw previously removed. Ensure that the



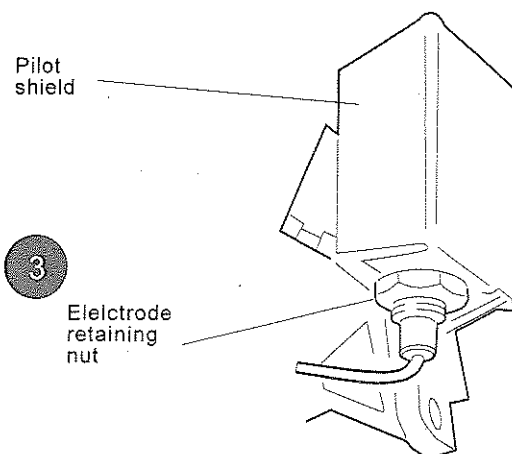
copper sealing washer is replaced when refitting the pilot injector.

6. Replace the electrode and pilot shield, retaining both with the electrode nut. Check the spark gap.
7. Replace the box assembly.
8. Replace the burner.
9. Replace the boiler casing.
10. The pilot is factory set to maximum and no further adjustment is possible. Ensure that there is an inlet pressure of 20 mbar available. Also check burner ignition and cross-lighting.

SERVICING

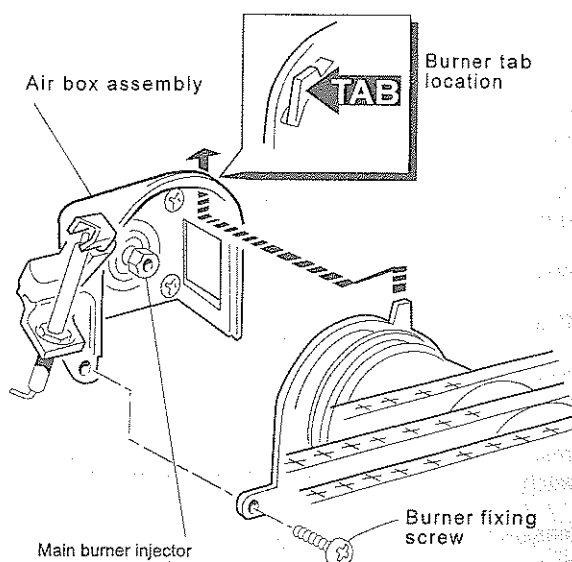
58 SPARK ELECTRODE AND LEAD REPLACEMENT

1. Refer to Frame 53.
2. Remove the burner and air box assembly. Refer to Frame 48.
3. Remove the electrode retaining nut.
4. Remove the pilot shield.
5. Remove the spark electrode and integral lead.
6. Refit the new electrode and lead in reverse order. Ensure that the pilot shield is replaced.
7. Check the spark gap. Refer to Frame 57.
8. Refit the burner.
9. Replace the boiler casing.
10. Check the pilot ignition.



59 MAIN BURNER & MAIN BURNER INJECTOR REPLACEMENT

1. Refer to Frame 53.
2. Remove the screw retaining the front 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 the new burner, ensuring that the retention tab is correctly located in the air box slot.
6. Refit M5 retaining screw and washer.
7. Refit the boiler casing.
8. Check the burner for cross-lighting and flame stability.



60 GAS CONTROL VALVE REPLACEMENT

Note: Also refer to Frame 68 of 'Exploded Views' for illustration of the procedure detailed below.

1. Refer to Frame 53.
2. Remove the burner support bracket, burner and air box assembly. Refer to Frame 48.
3. Remove the control box fixing screw. Pull the box forward and downward to disengage.
4. Remove the gas control valve electrical connection.
5. Disconnect and remove the gas union from the gas control valve.
6. Whilst supporting the gas control valve, remove the two screws retaining the manifold to the back panel.

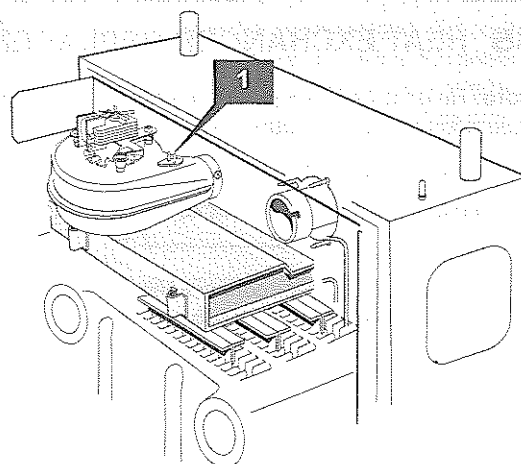
7. Remove the gas control / manifold assembly.
8. Remove the four screws retaining the manifold to the gas control valve, and fit the manifold to the new gas control valve. Ensure that the new control is fitted the correct way round (an arrow engraved on back indicates the direction of flow).

Note: Remove the gas cock stub and refit into the new gas control valve. Use an approved jointing compound on the pipe stub.

9. Reassemble in reverse order.
10. Replace the boiler casing.
11. Check the gas valve operation.

61 FAN REPLACEMENT

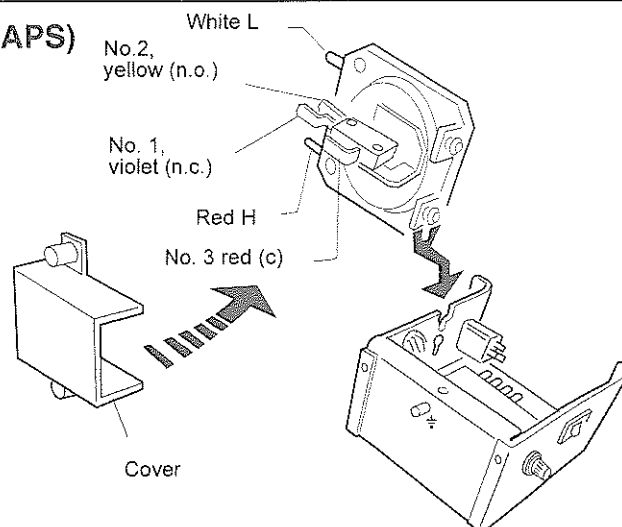
1. Remove the two silicon rubber tubes from the fan sensing points.
2. Disconnect the fan leads and the fan earth connection.
- 3a. **Rear flue** Slacken the M4 screw securing the flue connector to the fan. Disconnect the connector from the fan and slide into the flue.
- 3b. **Side or top flue** Slacken off 2 x M4 screws securing the flue elbow and flue connector. Disconnect the flue connector from the elbow and slide into the flue. Remove the flue elbow.
4. Disconnect the silicon rubber tube from the rear of the collector hood.
5. Slacken the two M5 nuts on the front tie rods, releasing the tie rods from the combustion chamber.
6. Remove the M5 central fixing screw at the rear of the collector and remove collector hood/fan assembly.
7. Remove the three M4 screws retaining the fan to the collector hood.
8. Reassemble in reverse order, ensuring the fan leads, fan earth connection and three sensing tubes are reconnected.



9. Refit the boiler casing.
10. Check the boiler operation.

62 AIR PRESSURE SWITCH REPLACEMENT (APS)

1. Refer to 53.
2. Remove the control box fixing screw. Pull the box forward and downward to disengage.
3. Pull off both sensing tubes from the APS.
4. Remove the APS from the controls box.
5. Remove the strain relief bush from the electrical cover of the APS and remove the cover.
6. Remove the 3 electrical connections and earth lead from the APS.
7. Connect the new APS in reverse order.
8. Refit the control box.
9. Refit the boiler casing.
10. Check the boiler operation.



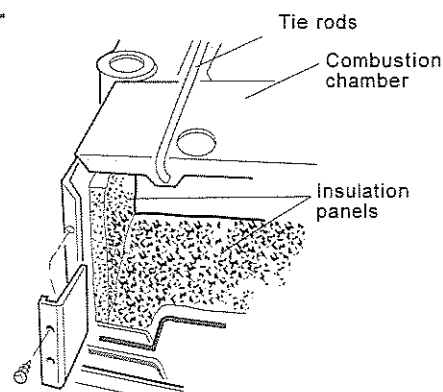
63 PRINTED CIRCUIT BOARD (PCB) REPLACEMENT

Note: Refer to Frames 68 & 69 of 'Exploded Views' for illustration of the procedure detailed below.

1. Refer to Frame 53.
2. Remove the control box fixing screw. Pull the box forward and downward to disengage.
3. Remove the H.T. lead from the PCB
4. Remove the 6 'push-in' connectors from the PCB
5. Remove the neutral wire on the PCB from its connection to the back of the socket inside the control box.
6. Remove the earth wire on the PCB from its connection to the earth stud inside the control box.
7. Compress the barbs on the PCB stand-offs to release the PCB from the box
8. Fit the new PCB and reassemble in reverse order.
9. Refit the boiler jacket.
10. Check the operation of the boiler.

64 COMBUSTION CHAMBER INSULATION REPLACEMENT

1. Refer to Frame 53.
2. Remove the burner and air box assembly. Refer to Frame 48.
3. Remove the 4 tie rods.
4. Remove the combustion chamber.
5. Remove the two side panel retaining brackets.
6. Remove the side insulation panels.
7. Remove the front and rear insulation panels.
8. Fit the new front and rear insulation panels.
9. Fit the new side panels and retain with the brackets and screws previously removed.
10. Reassemble in reverse order.



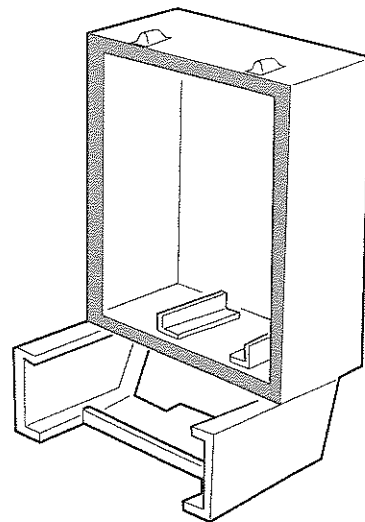
65 HEAT EXCHANGER REPLACEMENT

Note: Refer to Frame 5 (Boiler assembly - Exploded view) for illustration of the procedure detailed below.

1. Refer to Frame 53.
2. Remove the burner /air box assembly. Refer to Frame 48.
3. Drain the system.
4. Disconnect the water connections. If compression fittings are used then cut the pipes both above and below the fittings in order to allow the heat exchange assembly to be removed. Remove the heat exchanger drain plug and drain the residual water into a suitable receptacle.
5. Remove the fan/collector hood assembly. Refer to Frame 49.
6. Remove the combustion chamber by unscrewing the four tie rods.
7. Remove the thermostat sensors from the pockets on the heat exchanger by removing the M3 screws and plates.
8. Slacken 3 turns only the four heat exchanger / inter-panel retaining screws.
9. Lift the heat exchanger / inter-panel assembly upwards and forwards to disengage key hole fixings. Pull the assembly downwards to clear the water pipes from the back panel.
10. Remove the two rubber sealing grommets from the top of the back panel to facilitate fitting the new assembly.
11. Fit the new heat exchanger assembly, complete with water pipes, and hang it on the key hole slots and screws. Retighten the screws.
12. Replace the two rubber sealing grommets.
13. Reassembly in reverse order.
14. Remake all water connections, ensuring that the compression fittings (if used) are correctly refitted.
15. Fully test all functions, including water and gas soundness.

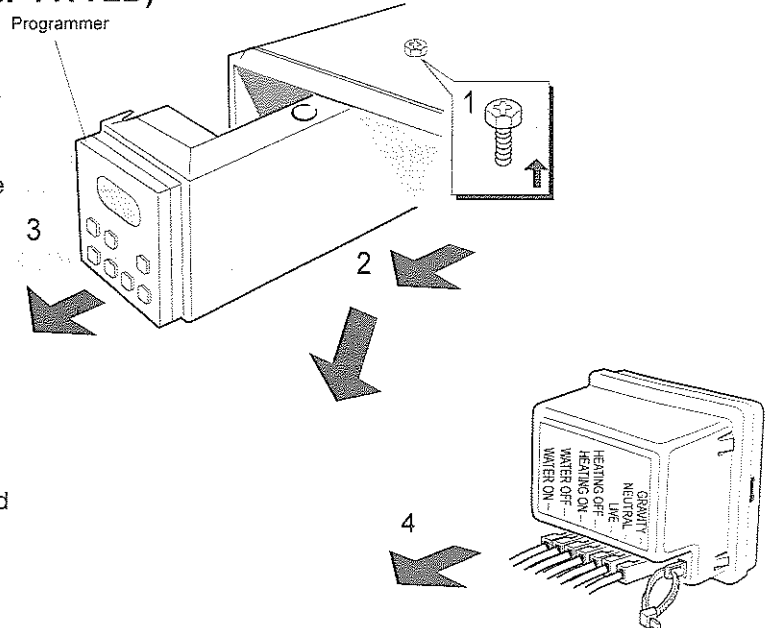
66 CASING SEAL REPLACEMENT

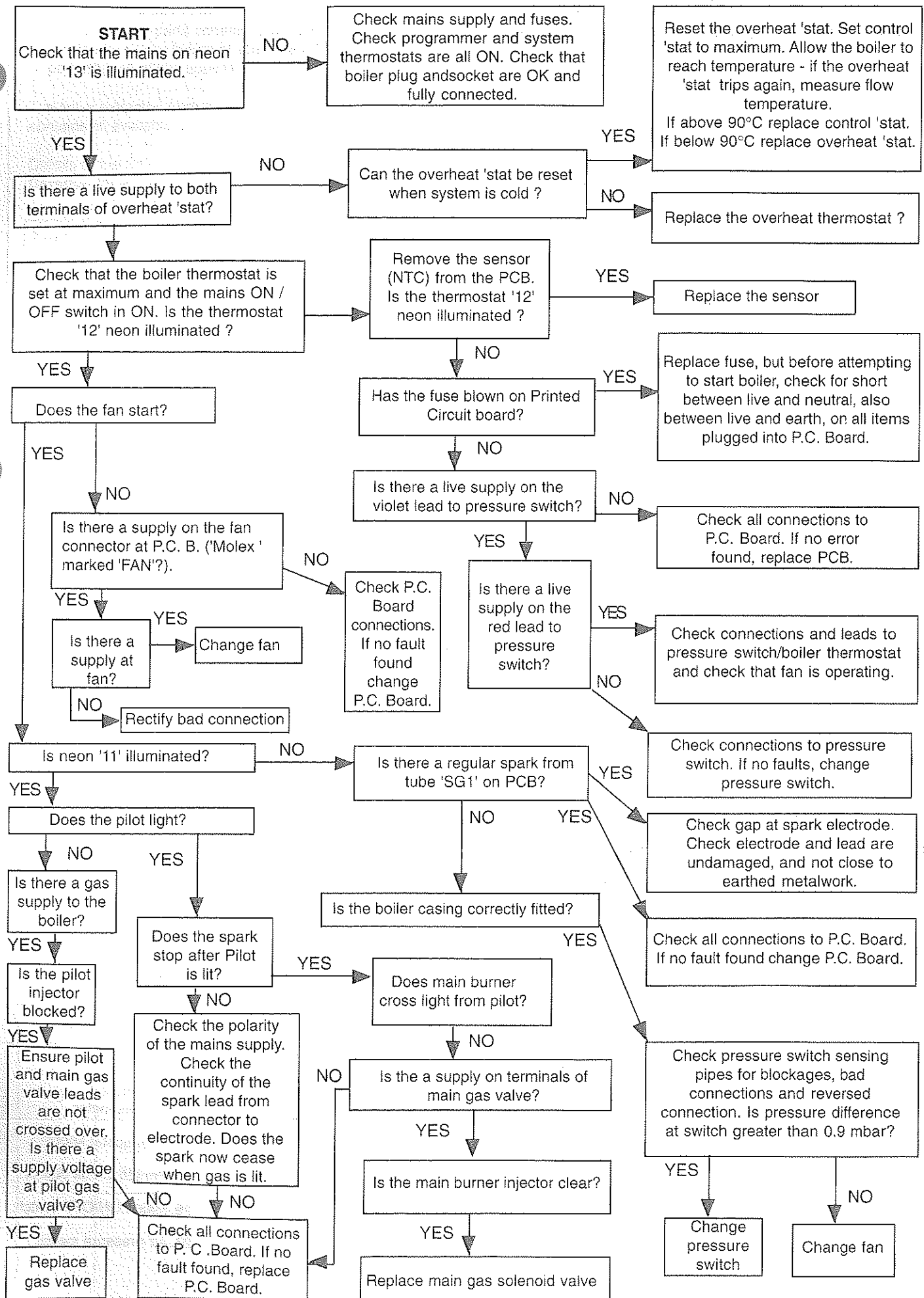
1. Refer to Frame 53
2. Remove the old seal from the casing surround and thoroughly clean the casing surfaces.
3. Fit the new self adhesive seals.
4. Replace the boiler casing.



67 PROGRAMMER REPLACEMENT (IF FITTED)

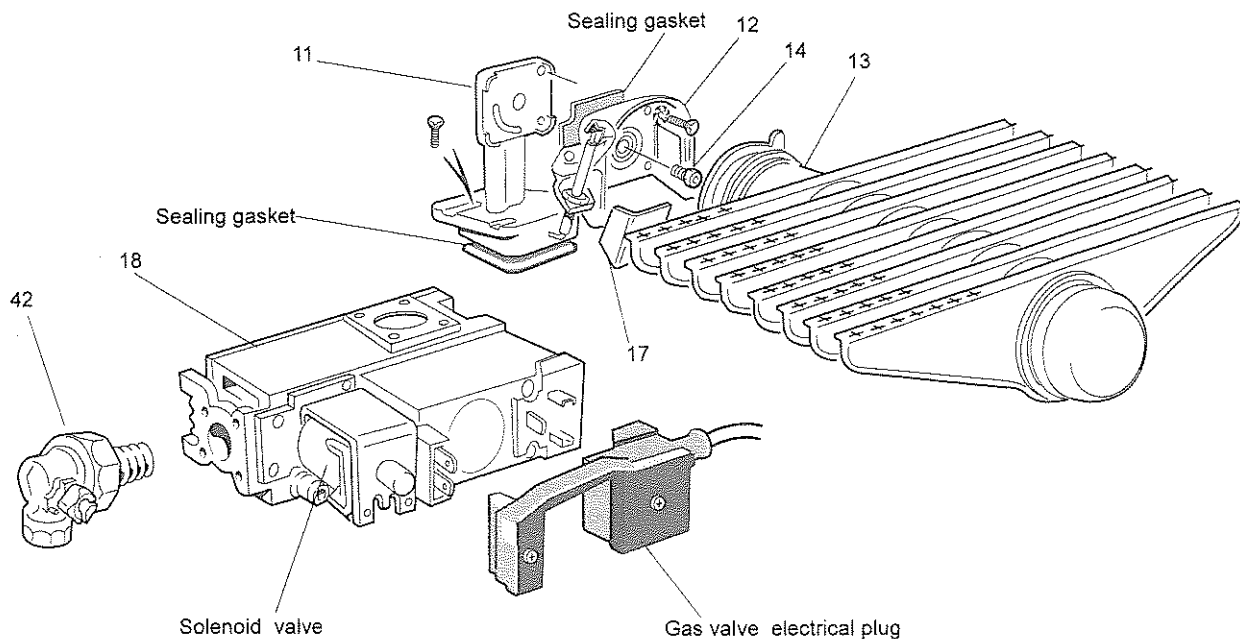
1. Refer to Frame 53
2. Remove the programmer box fixing screw. Pull the box forward and downward to disengage.
3. Pull the programmer forward out of its box.
4. Pull off terminal connections from back of programmer.
5. Fit the new programmer in reverse order.
6. Refit the boiler jacket.
7. Set the programmer to the desired programme and check the operation of the boiler.





SHORT LIST OF PARTS

68 BURNER ASSEMBLY - Exploded View



LEGEND

(Numbers up to 51 relate the B.G. spares list)

11. Burner manifold

12. Air box & pilot assembly.

13. Main burner.

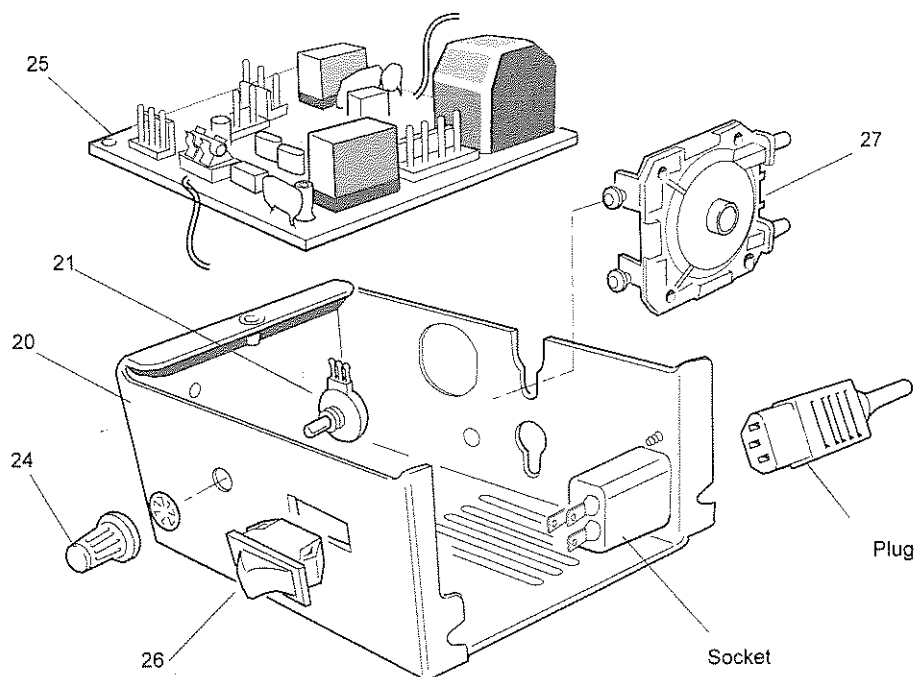
14. Main burner injector.

17. Pilot shield.

18. Gas control valve.

42. Gas service cock.

69 CONTROL BOX - Exploded view



LEGEND

(Numbers up to 51 relate the B.G. spares list)

20. Control box.

21. Thermostat potentiometer.

24. Thermostat knob.

25. Printed circuit board.

26. Mains ON/OFF switch.

27. Air pressure switch.

SHORT LIST OF PARTS

The following are parts commonly required due to damage or expendability. Their failure or absence is likely to affect safety or performance of this appliance.

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
NF 230, NF 240, NF 250, NF 260, NF 270, and NF 280
Gas Boilers,

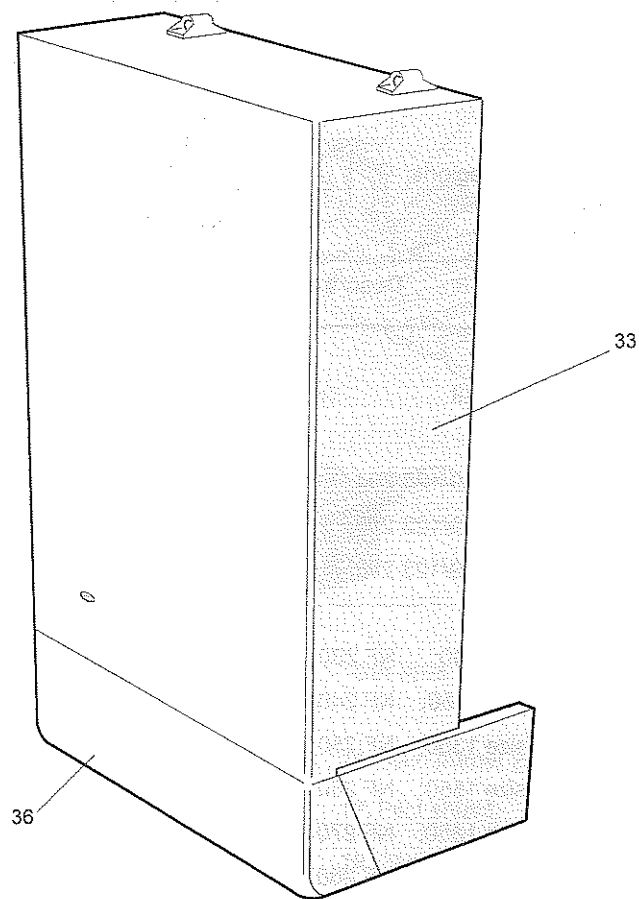
When ordering spares please quote:

1. Boiler Model
2. Appliance G.C. Number
3. Description
4. Quantity
5. Product Number

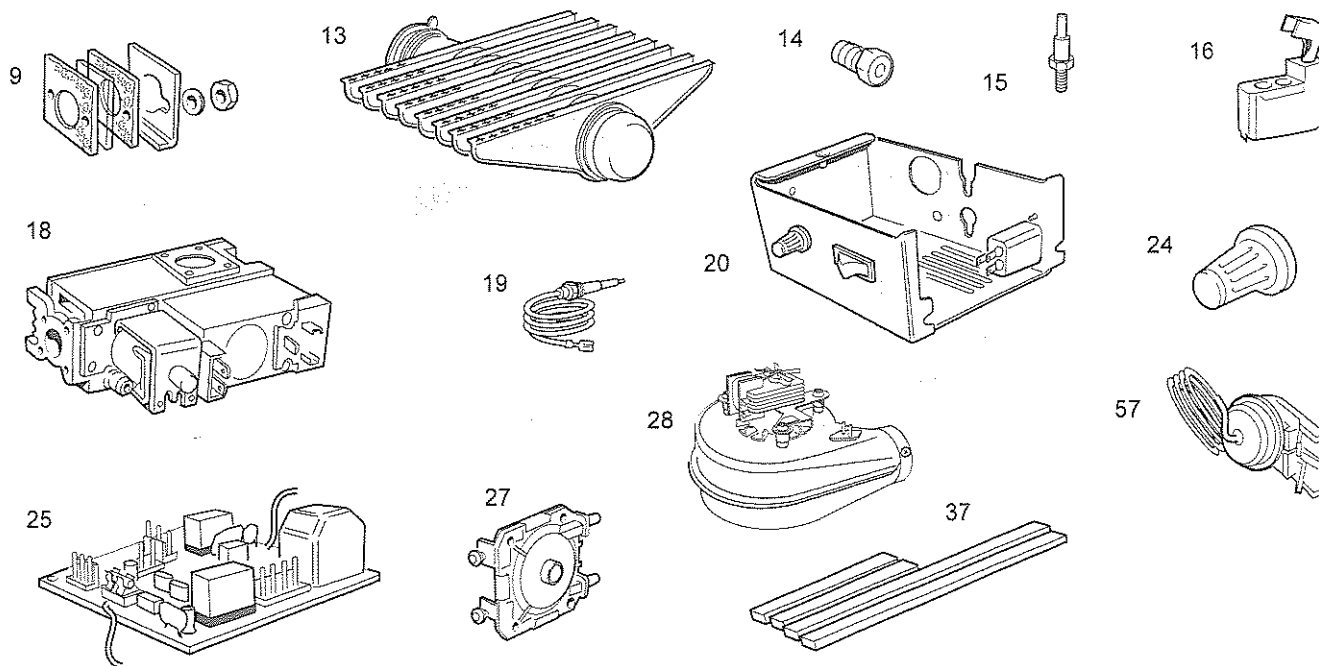
Key No.	GC Part No.	Description	No. Off	Product No.
9	308 365	Sightglass assembly kit	1	079602
13	-	Main burner		
-	-	AEROMATIC No.AC 19/123 294; NF 230 & NF 240	1	111707
-	-	AEROMATIC No.AC 19/123 293; NF 250 & NF 260	1	111708
-	-	AEROMATIC No.AC 19/123 292; NF 270 & NF 280	1	111709
14		Main burner injector		
-	--	BRAY Cat. 10 - size 800; NF 230	1	111988
-	393 048	BRAY Cat. 10 - size 1150; NF 240	1	004368
-	398 054	BRAY Cat. 10 - size 1350; NF 250		004980
-	-	BRAY Cat. 10 - size 1550; NF 260	1	111989
-	-	BRAY Cat. 10 - size 1850; NF 270	1	111990
-	-	BRAY Cat. 10 - size 2300; NF 280	1	004760
15	386 150	Pilot burner injector		
-	-	HONEYWELL 499 00421/002. Stamped 56/42 A.	1	004 982
16	308 358	Pilot burner		
-	-	HONEYWELL Q359 A 1124	1	079 599
18	-	Gas control valve		
		HONEYWELL VR 4601 EA, 240 V	1	111074
19	-	Ignition electrode. MORGAN MATROC - 410mm long.	1	113172
20	-	Control box, including control thermostat potentiometer, control thermostat, sensor lead, control thermostat knob and mains ON/OFF switch	1	111973
24	308 283	Control thermostat knob	1	079601
25	-	Automatic ignition printed circuit board PACTROL PCB No. 25 B	1	079716
27	-	Pressure switch, Honeywell Yamatake C 6065 A 1010	1	112328
28	386 220	Fan assembly. SIFAN No. FFB 0221 - 0227	1	111947
33	-	Boiler casing assembly - white stove enamel, with sightglass and foil insulation	1	111982
36	-	Controls casing door - white plastic, with Lighting Instructions	1	-
37	308 331	Boiler sealing pack	1	079605
51	386 144	Overheat thermostat, RANCO LM7 - P8508	1	113 200

SHORT LIST OF PARTS

70 BOILER CASING ASSEMBLY



71 SHORT PARTS LIST





**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 and BS. 5258.



CERTIFIED PRODUCT
Manufactured under a BS 5750 Quality
System accepted by BSI

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.

Customer Care & Technical Support

Please use the following numbers for speedy assistance.

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..... Fax: 01482 498 489

**Customer Care &
Technical Support.** Tel: 01482 498 610
..... Fax: 01482 498 666

Publications/literature. Tel: 01482 498 467

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Registered Office; National Avenue, Kingston upon Hull,

North Humberside, HU5 4JN.

A subsidiary of Caradon p.l.c.

December 1994 111 497 A01

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Printed in England