

IDEAL ELAN 2; RS. 40P, 50P, 60P & 75P

Wall Mounted, Balanced Flue, Gas Boilers

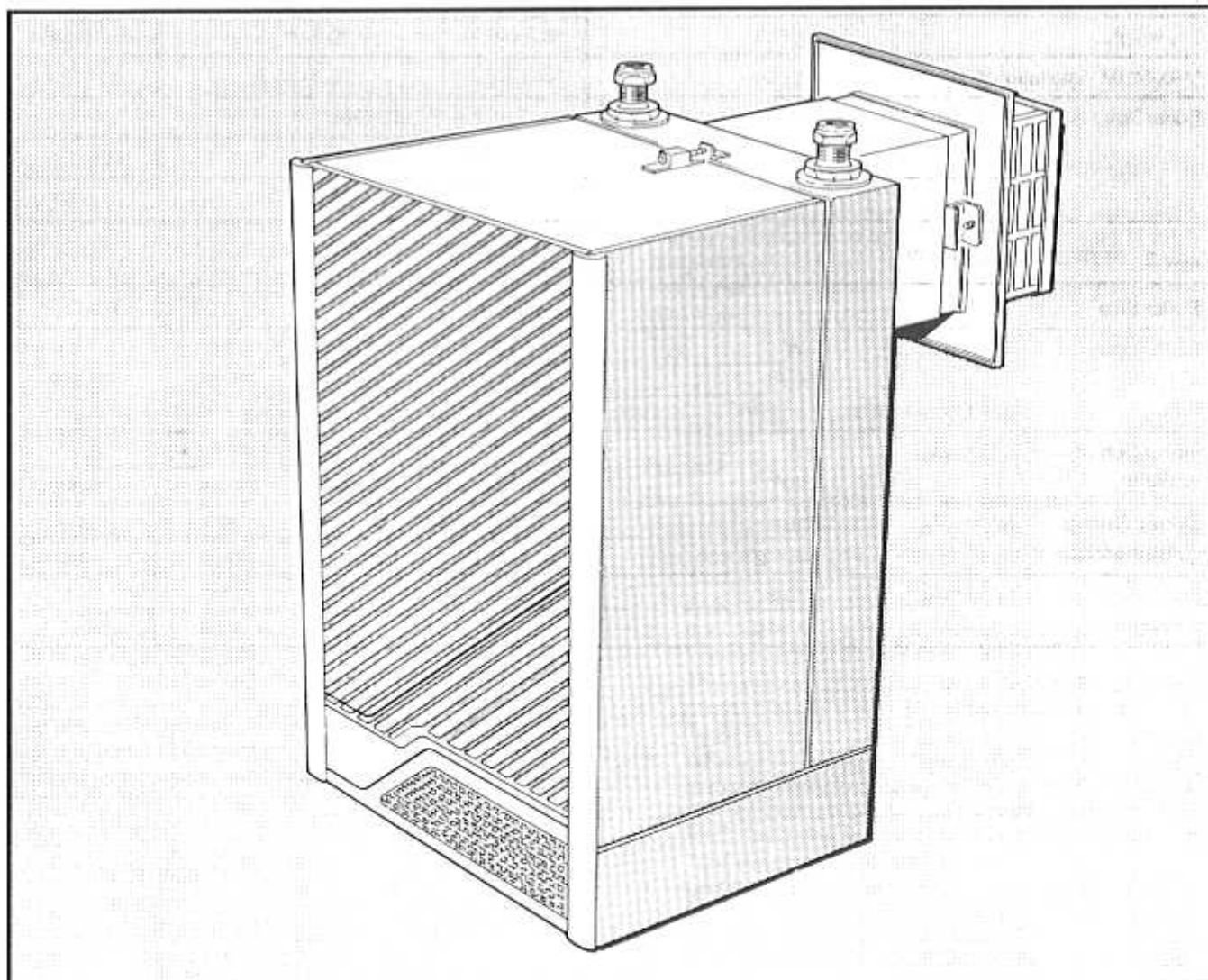
Installation & Servicing

CAUTION:

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

IMPORTANT: These appliances are for use with
PROPANE ONLY

Note: The appliances covered by this book are fitted with
"Honeywell" gas control valves



NOTE TO INSTALLER: LEAVE THESE INSTRUCTIONS ADJACENT TO THE APPLIANCE

**STELRAD
GROUP**

GENERAL

PERFORMANCE DATA

Table 1 - GENERAL DATA

Boiler Size			RS 40 P	RS 50 P	RS 60 P	RS 75 P
Main Burner			FURIGAS -Type 'R'			
			118 500 041	118 000 045	118 000 040	118 500 044
Gas Control Valve			1/2 BSP HONEYWELL V.4700E 1007-240V (regulator sealed)			
Burner Injector			Bray Cat.10-440	Bray Cat.10-520	Bray Cat.10-650	Bray Cat.10-850
Pilot Injector			HONEYWELL- 45 000 062/ 012			
Gas Supply Connection (in. BSP)			Rc 1/2 (1/2)			
Flow Connection			22 mm O.D. Copper			28 mm OD Copper
Return Connection			22 mm O.D. Copper			28 mm OD Copper
MAXIMUM Static Water Head		m	30.5			
		ft	100			
MINIMUM Static Water Head		m	0.45			
		ft	1.5			
Electrical Supply			240V, 50Hz ~			
External Fuse Rating			3 A			
Water Content		litre (gal)	1.0 (0.22)	1.2 (0.27)		1.5 (0.33)
Dry weight		kg (lb)	18.6 (40.9)	20.6 (45.3)		26.9 (59.3)
MAXIMUM Installation Weight		kg (lb)	13.3 (29.3)	15.3 (33.7)		19.1 (42.1)
Boiler Size	Height	mm (in)	600 (24)			
	Width	mm (in)	380 (15)			465 (18)
	Depth	mm (in)	300 (12)			

Table 2 - PERFORMANCE DATA

Boiler Size			RS 40 P	RS 50 P	RS 60 P	RS 75 P
Boiler Input	NOMINAL	kW	13.2	17.6	22.0	27.3
		Btu/h	45 000	60 000	75 000	93 300
	Gas Consumption	l/s (ft³/h)	0.139 (17.66)	0.186 (23.63)	0.228 (28.97)	0.228 (28.97)
Boiler Output to Water	NOMINAL	kW	10.5	14.1	17.6	22.6
		Btu/h	36 000	48 000	60 000	77 000
Burner Setting Pressure (Hot)	NOMINAL	mbar	36.3	35.7	36.5	34.9
		in. w.g.	14.5	14.3	14.6	14.0
Inlet Pressure	NOMINAL	mbar	37.0	37.0	37.0	37.0
		in. w.g.	14.8	14.8	14.8	14.8

Note:

- Gas consumption is calculated using a calorific value of 95 MJ/ m³ (2500 Btu/ ft³)
- The appliance is preset at the factory to give the nominal output at an inlet pressure of 37 mbar (14.8 in.w.g)

INTRODUCTION

The IDEAL ELAN 2 RS 40P, RS 50P, RS 60P & RS 75P are wall mounted lightweight, natural draught, balanced flue, gas boilers. They are range rated to provide central heating outputs of 10.5 kW (36 000 Btu/h) to 22.0 kW (75 000 Btu/h). The boiler casing is of white enamelled mild steel, with a satinised white glass fascia. The controls pod, also of white enamelled mild steel has fixed sides and removable bottom panel.

A programmer kit is available as an optional extra and separate fitting instructions are included with the kit.

The glass fascia slides upwards to reveal the boiler thermostat controls and gas valve and also the programmer, if fitted. With the fascia in the 'down' position the controls can be seen through an observation window.

The boilers are suitable for connection to fully pumped, open vented or sealed water systems.

Adequate arrangements for completely draining the system by provision of drain cocks MUST be provided in the installation pipework.

Gas Safety (Installation and Use) Regulations, 1984

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

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

The installation of the boiler MUST also be in accordance with the current I.E.E. Wiring Regulations, the Local Building Regulations, the bye laws of the Local Water Undertaking and any relevant requirements of the Local Authority. Detailed recommendations are contained in the following British Standard Codes of practice.

Codes of Practice

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

IMPORTANT It is important that no external control devices, (e.g. flue dampers, economisers, etc.), are directly connected to this appliance unless covered by these 'Installation & Servicing Instructions' or otherwise recommended by Stelrad Group Ltd., in writing.

If in doubt please enquire.

Any direct connection of a control device not recommended by Stelrad Group Ltd., could invalidate the normal appliance warranty. It could also infringe the Gas Safety Regulations and the above Regulations or other statutory requirements. Manufacturers notes must NOT be taken, in any way, as overriding statutory obligations.

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 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 Stelrad Group Ltd.

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

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

Where installation will be in an unusual location special procedures may be necessary and BS.5376.2 gives detailed guidance on this aspect.

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

Details of essential features of cupboard/compartment design, including airing cupboard installations, are given in BS.5376.2.

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

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

GAS SUPPLY

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

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

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

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

FLUING

The flue must be installed in accordance with the recommendations of BS5440:1.

The following notes are intended for general Guidance.

1. The boiler MUST be installed so that the terminal is exposed to the external air.
2. It is important that the position of the terminal allows the free passage of air across it at all times.
3. The minimum acceptable spacings from the terminal to obstructions and ventilation openings are specified in Table 3.
4. Where the lowest part of the terminal is fitted less than 2 m (6.6 ft) above a balcony, above ground, or above a flat roof to which people have access, the terminal MUST be protected by a purpose designed guard. Terminal guards are available from: Quinell, Barret & Quinell Ltd., 884 Old Kent Road, London, SE 15 and from Tower Flue Components Ltd., Vale Rise, Tonbridge, Kent TN9 1TB.
5. Where the terminal is fitted within 850 mm (34 in) of a plastic or painted gutter, or 450 mm (18 in) of painted eaves, an aluminium shield at least 750 mm (30 in) long should be fitted to the underside of the gutter or painted surface.
6. The air inlet/products outlet duct and the terminal of the boiler MUST be NOT closer than 25 mm (1 in) to combustible material.

Detailed recommendations on protection of combustible material are given in BS 5440:1 1978, sub-clause 20.1.

GENERAL GUIDANCE

IMPORTANT It is absolutely **ESSENTIAL** to ensure, in practice, that products of combustion, discharging from the terminal, cannot re-enter the building, or any other adjacent building, through ventilators, windows, doors, other sources of natural air infiltration, or forced ventilation/air conditioning. If this eventually should occur, the appliance **MUST** be turned **OFF** immediately and the local Propane Gas supplier called in to investigate.

Table 3

Terminal Position	Minimum Spacing
1. Directly below an openable window, air vent or any 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 the terminal	600 mm (24 in)
10. From an opening in the car port (e.g. door, 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 same wall	300 mm (12 in)

TERMINAL

the flue terminal assembly can be adapted to accommodate various wall thicknesses - Refer to 'Installation' Frames 11, 12 & 13.

AIR SUPPLY

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

1. It is **NOT** necessary to have a purpose provided air vent in the room or internal space in which the boiler is installed.
2. If the boiler is to be installed in a cupboard or compartment, permanent air vents are required (for cooling purposes) in the cupboard/compartment, at both high and low levels. The air vents must either communicate with a room/internal space, or be direct to outside air. The minimum effective areas of the permanent air vents, required in the cupboard/compartment, are specified below and are related to the maximum rated heat input of the boiler.

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

FLUING/ AIR SUPPLY

Table 4; RS 40 P

Position of air vent	Air from room/ internal space	Air direct from outside
HIGH LEVEL cm ² (in ²)	132 (21)	66 (11)
LOW LEVEL cm ² (in ²)	132 (21)	66 (11)

Table 5; RS 50 P

Position of air vent	Air from room/ internal space	Air direct from outside
HIGH LEVEL cm ² (in ²)	165 (26)	88 (13)
LOW LEVEL cm ² (in ²)	165 (26)	88 (13)

Table 6; RS 60 P

Position of air vent	Air from room/ internal space	Air direct from outside
HIGH LEVEL cm ² (in ²)	198 (31)	99 (16)
LOW LEVEL cm ² (in ²)	198 (31)	99 (16)

Table 7; RS 75 P

Position of air vent	Air from room/ internal space	Air direct from outside
HIGH LEVEL cm ² (in ²)	248 (39)	124 (20)
LOW LEVEL cm ² (in ²)	248 (39)	124 (20)

WATER CIRCULATION SYSTEM

The boiler must **NOT** be used for direct hot water supply.

The boiler is suitable for connection to fully pumped open vented or sealed water central heating systems or central heating combined with indirect domestic hot water systems. The central heating system should be in accordance with the relevant recommendations given in BS.5376:2 and, in addition, for Smallbore and Microbore system -BS.5449:1.

The domestic hot water system, if applicable, should be in accordance with the relevant recommendations of BS.5546:7.

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 be, preferably, manufactured of copper. Single feed indirect cylinders are not recommended, and **MUST NOT** be used on sealed systems.

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

Draining taps **MUST** be located in accessible positions, which permit the draining of the whole system, including the boiler and hot water storage vessel.

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

The hydraulic resistances of the boilers, at MAXIMUM OUTPUT, with an 11°C (20°F) temperature differential, are shown in Table 9

GENERAL GUIDANCE

Table 9: WATER FLOW RATE AND PRESSURE LOSS

Boiler size		RS 40 P	RS 50 P	RS 60 P	RS 75 P
Boiler Output	kW	10.5	14.1	17.6	22.6
	Btu/h	36 000	48 000	60 000	77 000
Water Flow Rate	l/min	15.2	19.0	22.8	28.5
	gal/h	200	250	300	375
Pressure loss	mbar	45	70	102	80
	in. w.g	18	28	41	32

ELECTRICAL SUPPLY- BOILER ASSEMBLY

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

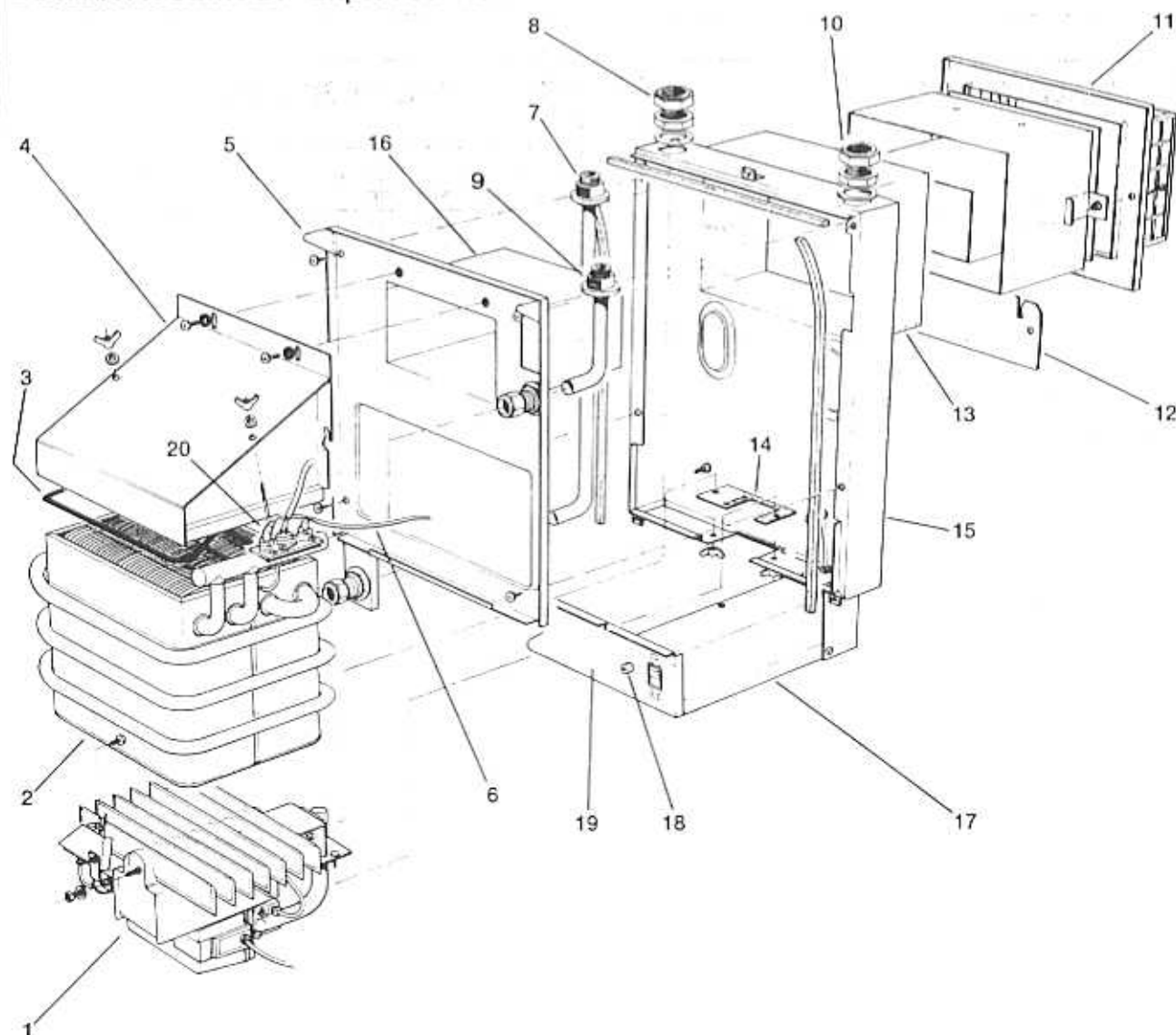
The method of connection to the mains electricity supply MUST facilitate complete electrical isolation of the boiler, preferably by the use of a fused three-pin plug and shuttered socket outlet, both complying with the requirements of BS 1363.

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

The point of connection to the mains should be readily accessible and adjacent to the boiler, except that for bathroom installations, the point of connection to the mains MUST be situated outside the bathroom.

If the boiler is installed in a bathroom it MUST NOT be possible to reach the ON/OFF switch from within the bath or shower.

BOILER ASSEMBLY- Exploded View



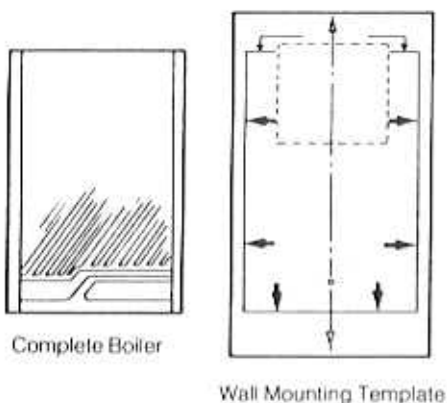
LEGEND:

- | | | |
|-------------------------------------|------------------------------|---|
| 1. Burner & Controls Assembly | 8. Return connection | 15. Back panel |
| 2. Heat exchanger | 9. Flow pipe | 16. Flue duct |
| 3. Collector hood gasket | 10. Flow connection | 17. Control box |
| 4. Collector hood (includes item 3) | 11. Terminal grille assembly | 18. Piezo ignition button |
| 5. Inter-panel | 12. Wall mounting plate | 19. Controls fascia |
| 6. Thermostat leads | 13. Air duct | 20. Overheat thermostat / Control thermostats |
| 7. Return pipe | 14. Burner mounting gasket | |

1 UNPACKING

The boiler is supplied fully assembled in one pack 'A' together with one of 3 packs B, B1 and C, containing the flue terminal appropriate to wall thickness.

Pack 'A' Contents

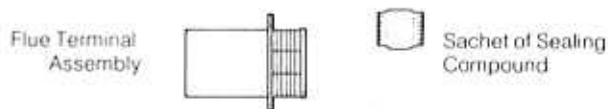


Unpack and check the contents

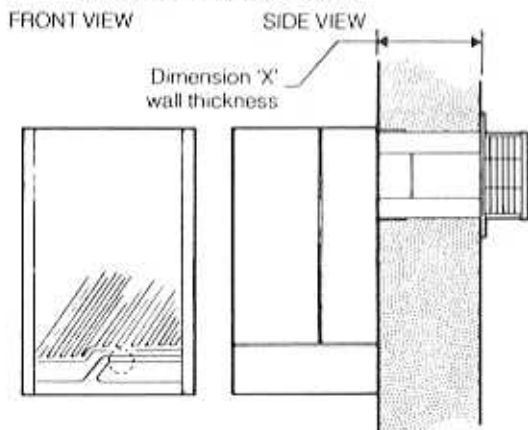
Pack 'A' Hardware Pack Contents



Pack B, B1 and C Contents



2 WALL MOUNTING



1. It is most important that the boiler is installed in a vertical position.
2. The flue duct should be horizontal, but a slight downward slope away from boiler is acceptable.
3. The wall must be of suitable load bearing capacity.
4. Use the jacking screw to align the boiler.

3 WALL THICKNESS

WALL THICKNESS - Dim. X shown in Frame 2	Flue Pack Required
114 - 191 mm	C
4 1/2 - 7 1/2 in	
229 - 305 mm	B
9 - 12 in	
318 - 394 mm	B1
12 1/2 - 15 1/2 in	

4 BOILER CLEARANCES

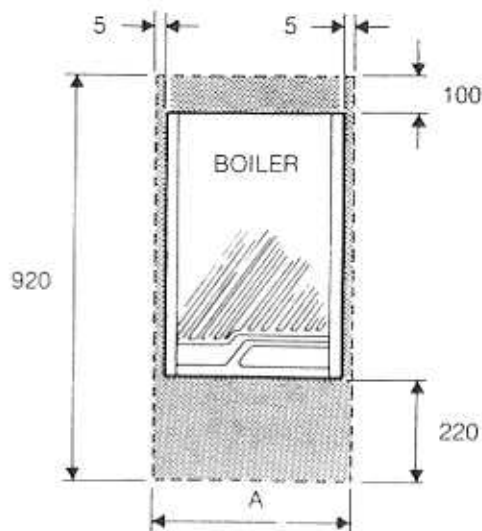
The following minimum clearances must be maintained for operation and servicing. Additional space will be required for installation depending upon site conditions.

Note: Bottom clearance may be reduced to 100 mm (4 in) but under this condition access to the boiler control box will be limited without removal of the boiler casing.

Boiler Size	Width Dim. A	Depth	Height
RS 40P, 50P & 60 P	mm in	390 16	300 12
RS 75P	mm in	475 19	300 12

In addition a minimum of 300 mm (12in) MUST be available at the front of the boiler for servicing

5 BOILER CLEARANCES -Continued

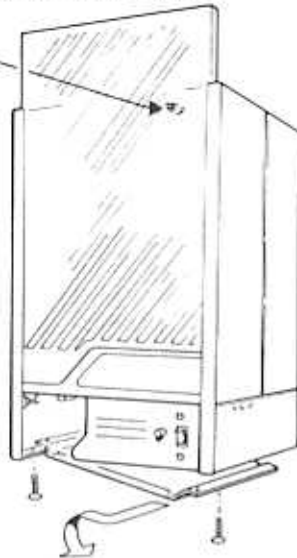


INSTALLATION

6 BOILER CASING REMOVAL

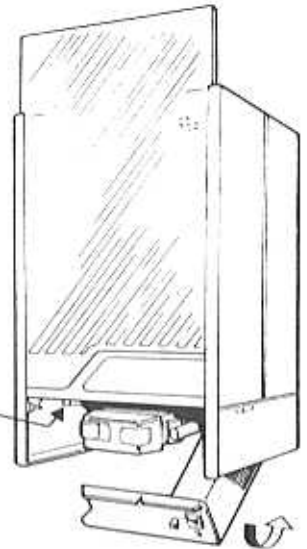
To install the boiler, the casing **MUST** be removed.

1. Release the top captive screw
2. Slide the glass fascia upwards until it locates in the retaining catch.
3. Remove the two securing screws, slide the bottom panel forward slightly, and then sideways to remove from the casing



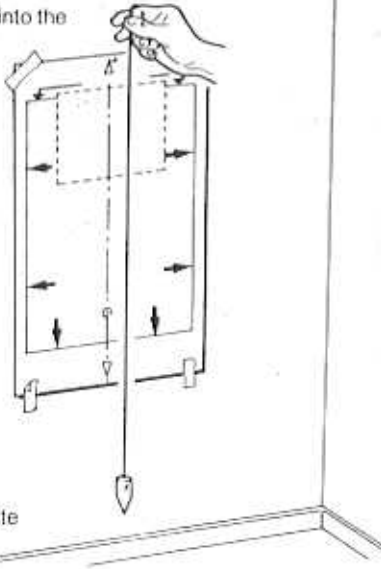
7 BOILER CASING REMOVAL - Continued

4. Remove the control box securing screw.
5. Lift the back of the control box slightly and swing it down, pivoting from the back.
6. Release the 2 bottom captive screws and lift the casing off the boiler. **Place the casing safely to one side, taking care not to damage the glass fascia panel.**



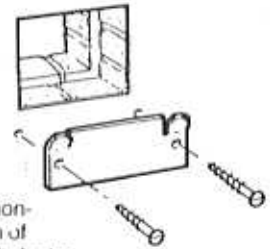
8 WALL MOUNTING TEMPLATE

1. Tape the template into the selected position.
2. Ensure squareness by hanging plumbline as shown.
3. Mark onto the wall the two mounting plate screw positions, and the lower fixing screw position.
4. Mark onto the wall the position of the flue duct
5. Remove the template from the wall.



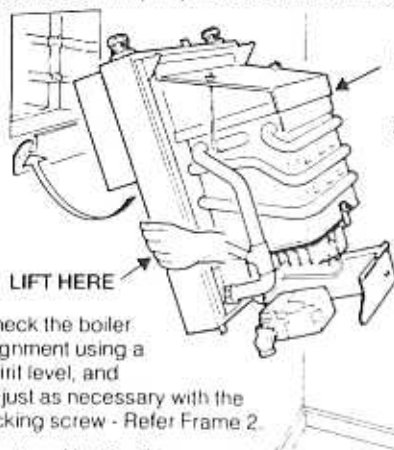
9 PREPARING THE WALL

1. Drill the three fixing holes with an 8 mm ($\frac{5}{16}$ in) masonry drill and inset the plastic plugs provided.
2. 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 non-standard construction of timber framework and plaster board etc.
3. Fix the mounting plate to the wall with two No. 10 x 2 in lg screws provided.



10 MOUNTING THE BOILER

1. Remove the compression nuts and olives. If side access is less than 25 mm (1 in) fit stub connections to flow and return.

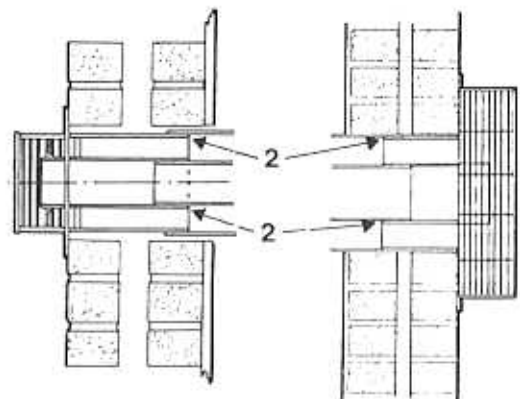


2. Lift the boiler into position, entering the projecting air duct into the wall opening and engaging the back panel on the wall mounting plate lugs.
3. Check the boiler alignment using a spirit level, and adjust as necessary with the jacking screw - Refer Frame 2.
4. Locate a No 10 x 2 in screw in the boiler lower fixing hole & secure to the wall.
5. Make good the brickwork around the wall opening

11 FITTING THE FLUE ASSEMBLY

Elan 2, RS 40 P- RS 60 P

Elan 2, RS 75 P Only

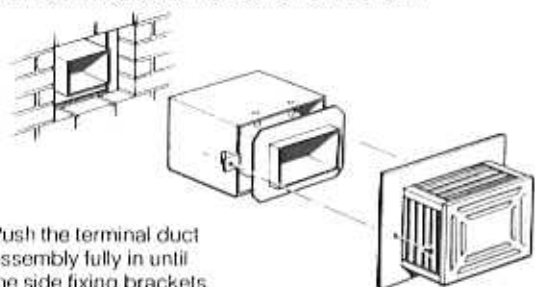


1. Separate the terminal grille from the terminal duct assembly.
2. Apply a 25 mm (1 in) wide coating of sealing compound to the ends of the ducts as shown.

12 FITTING THE FLUE ASSEMBLY

Elan 2, RS 40 P- 60 P

- From OUTSIDE the building pass the duct assembly through the wall opening and slide it into the boiler outlet, ensuring that the ducts locate into each other as shown.

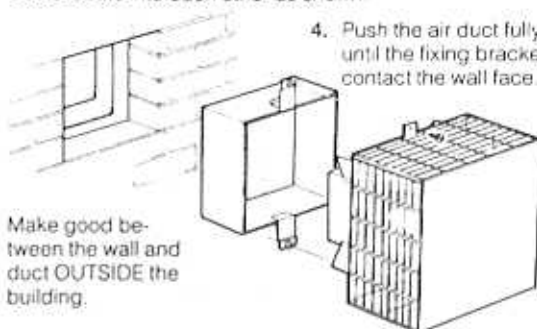


- Push the terminal duct assembly fully in until the side fixing brackets contact the wall face.
- Make good between the wall and duct, OUTSIDE the building.
- Fasten the terminal grille to the duct assembly.

13 FITTING THE FLUE ASSEMBLY

Elan 2, RS 75 P Only

- From OUTSIDE the building pass the air duct through the wall opening and slide it into the boiler outlet, ensuring that the ducts locate into each other as shown.



- Push the air duct fully in until the fixing brackets contact the wall face.
- Make good between the wall and duct OUTSIDE the building.
- Pass the flue outlet duct of the terminal grille assembly through the wall opening and slide it into the boiler flue duct ensuring that the ducts locate into each other as shown.
- Push the assembly fully in and secure with the two screws.

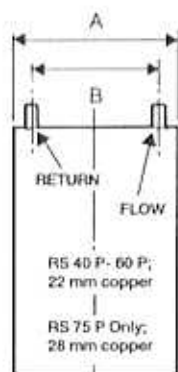
14 GAS CONNECTION

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

Extend a gas supply pipe NOT LESS THAN 15 mm OD to the boiler and connect to the gas service cock situated at the bottom LHS of the boiler. Connection MUST be made from BELOW and from the REAR of the boiler.

Ensure that the gas supply pipe does not foul the boiler casing when fitted.

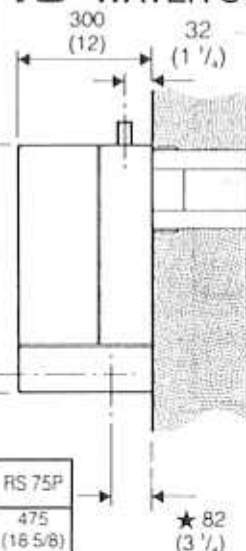
Test the gas installation for soundness and purge in accordance with CP 331:3 - Refer to Frame 30.



★ Gas inlet 1/2 in. BSP

Dimn	RS 40P	RS 50P & 60P	RS 75P
'A'	390 (15 3/8)	390 (15 3/8)	475 (18 5/8)
'B'	234 (9 1/4)	310 (12 1/4)	394 (15 1/2)

15 WATER CONNECTIONS



- Connect the system flow and return pipework to the two water connections at the TOP of the boiler.

Note: When the required output exceeds 14.4 kW (49000 Btu/h) 28 mm (1 in) flow and return pipes should be used.

- Thoroughly flush the system with cold water WITHOUT the pump in position.

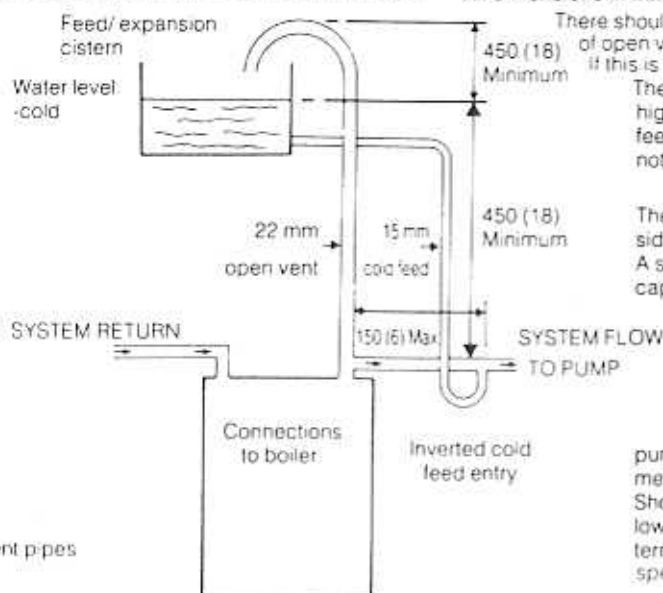
- Refit the pump, ensure that all valves are open, fill and vent the system and check for water soundness.

Note: This appliance is NOT suitable for use with a direct hot water cylinder.

All dimensions in mm. (in.)

16 OPEN VENT SYSTEM REQUIREMENTS

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



All dimensions in mm. (imperial dimensions approx.)

There should be a minimum height- 450 mm (18 in.) of open vent above cistern water level. If this is impossible refer to frame 17.

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 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 Stelrad Group Ltd.

Note: Combined feed and vent pipes may also be fitted

17 LOW HEAD INSTALLATIONS-OPEN VENT

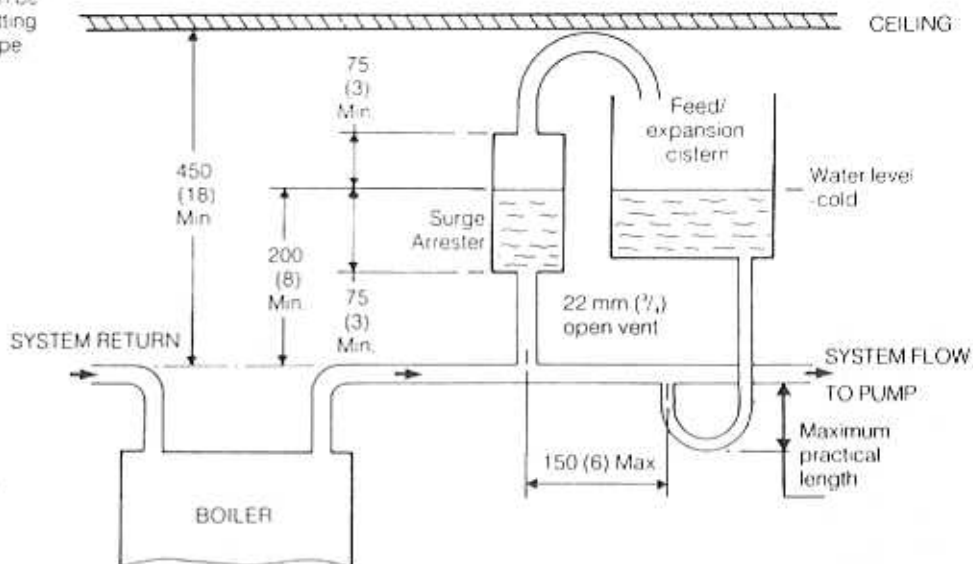
All dimensions in mm. (imperial dimensions approx.)

The ideal Eian 2 range of boilers can be installed in low head situations by fitting a surge arrester in the expansion pipe.

The following conditions **MUST** be observed:

1. The surge arrester must be at least 42 mm diameter x 150 mm long
2. The cistern water level must be at least 200 mm above the highest point of the system
3. The height of water in the surge arrester must be at least 75 mm
4. The vent connection must **NOT** be made directly off the top of the boiler.

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

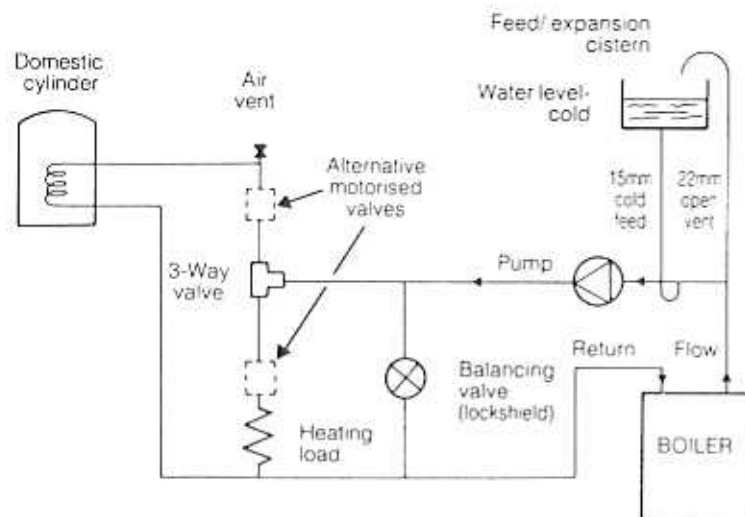


18 SCHEMATIC PIPEWORK AND BYPASS ADJUSTMENT- OPEN VENT

WATER FLOW RATE AND PRESSURE LOSS

Boiler size		RS 40 P	RS 50 P	RS 60 P	RS 75 P
kW		10.5	14.1	17.6	22.6
Boiler Output					
Btu/h		36 000	48 000	60 000	77 000
l/min		15.2	19.0	22.8	28.5
Water Flow Rate					
gal/h		200	250	300	375
mbar		45	70	192	80
Pressure loss					
in. w.g		18	28	41	32

The flow through the boiler **MUST NOT** fall below the values shown in the above table. A bypass **MUST** be fitted consisting of 15 mm (1/2 in) pipe, positioned as far from the boiler as possible and incorporating a balancing valve which **CANNOT** be adjusted by the house holder.



BY-PASS ADJUSTMENT

1. With the boiler firing & all the circuits OPEN & the by-pass CLOSED- adjust the pump to give 11°C (20°F) temperature differential across the BOILER & SYSTEM
2. With one small radiator, ONLY OPEN, open the bypass to give 11°C (20°F) temperature differential across the boiler.
3. With ALL circuits OPEN re-adjust the pump to give 11°C (20°F) temperature differential across the SYSTEM.

If in doubt contact Stelrad Group Ltd.,

Note: Thermostatic Radiator Valves

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

Such an arrangement will provide for a potentially more efficient control of the environment and will also avoid the continuous running of the circulation pump during programmed heating 'On' periods, thus saving electrical energy.

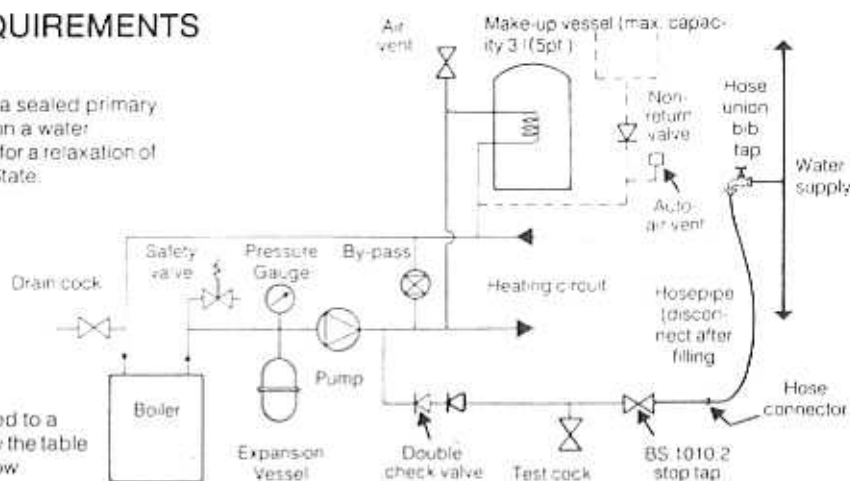
It is recommended strongly therefore that, when thermostatic radiator valves are used, that space heating temperature control over living/dining area or hallway having a heating requirement of at least 2 kW (7000 Btu/h) be achieved using a room thermostat whilst other rooms are individually controlled by thermostatic radiator valves.

If a room thermostat is not fitted as described above, it is recommended that the system includes one uncontrolled radiator having a minimum heat loss of 1.5kW (5000 Btu/h) under design conditions.

19 SEALED SYSTEM REQUIREMENTS

Notes:

- Any connection for filling or replenishing of a sealed primary circuit from a supply pipe is conditional upon a water undertaker seeking and obtaining consent for a relaxation of its Byelaws 3 & B (1) from the Secretary of State.
- The method of filling, re-filling, topping up or flushing sealed primary hot water circuits from the mains via a temporary hose connection is only allowed if acceptable to the Local Water Authority.



Sizing procedure for expansion vessels

The volume of the expansion vessel in litres fitted to a sealed system shall not be less than that given by the table below, multiplied by a factor of 0.8 (for boiler flow temperatures of less than 88°C).

Safety valve setting (bar)		3.0							
Vessel charge pressure (bar)		0.5				1.0		1.5	
Initial system pressure (bar)		0.5	1.0	1.5	2.0	1.0	1.5	2.0	2.0
Total water content of system		Expansion Vessel Volume (litres)							
Litres		25	50	75	100	125	150	175	200
	2.1	3.5	6.5	13.7	2.7	4.7	10.3	3.9	8.3
	4.2	7.0	12.9	27.5	5.4	9.5	20.6	7.8	16.5
	6.3	10.5	19.4	41.3	8.2	14.2	30.9	11.7	24.8
	8.3	14.0	25.9	55.1	10.9	19.0	41.2	15.6	33.1
	10.4	17.5	32.4	68.9	13.6	23.7	51.5	19.5	41.3
	12.5	21.0	38.8	82.6	16.3	28.5	61.8	23.4	49.6
	14.6	24.5	45.3	96.4	19.1	33.2	72.1	27.3	57.9
	16.7	28.0	51.8	110.2	21.8	38.0	82.4	31.2	66.2
	20.8	35.0	64.7	137.7	27.2	47.5	103.0	39.0	82.7
	25.0	42.0	77.7	165.3	32.7	57.0	123.6	46.8	99.3
	29.1	49.0	90.6	192.8	38.1	66.5	144.2	54.6	115.8
	33.3	56.0	103.6	220.4	43.6	76.0	164.8	62.4	132.4
	37.5	63.0	116.5	247.9	49.0	85.8	185.4	70.2	148.9
	41.6	70.0	125.9	275.5	54.5	95.0	206.0	78.0	165.5
Systems volumes other than those given - multiply system volume by the factor across		0.0833	0.140	0.259	0.551	0.109	0.190	0.412	0.331

1. General

- The installation must comply with the requirements of BS.5376.2 and BS.5449.1
- The installation should be designed to work with flow temperatures of up to 82°C.
- All components of the system, including the heat exchanger of the indirect cylinder, must be suitable for a working pressure of 3 bar (45 lbf/in²) & temperature of 110°C. Care should be taken in making all connections so that the risk of leakage is minimised.

2. Safety Valve

A spring loaded safety valve complying with the relevant requirements of BS.759 must be fitted in the flow pipe as close to the boiler as possible and with no intervening valve or restriction. The valve should have the following features:-

- A non-adjustable pre-set lift pressure not exceeding 3 bar (45 lbf/in²).
- A manual testing device.
- Provision for connection of a discharge pipe. The valve or discharge pipe should be so positioned such that discharge of water or steam cannot create a hazard to the occupants of the premises, or cause damage to electrical components and wiring.

3. Pressure Gauge

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

4. Expansion vessel

- A diaphragm type expansion vessel must be connected at a point close to the inlet side of the pump; the connecting pipe being not less than 15 mm (1/2 in nominal) size & not incorporating valves of any sort (see above for recommended system layout).

- The vessel capacity must be adequate to accept the expansion of the system water when heated to 110°C (230°F).

- The charge pressure must not be less than the static water head above the vessel. The pressure attained in the system when heated to 110°C (230°F) should be at least 0.35 bar (5 lbf/in²) less than the lift pressure of the safety valve. For guidance on vessel sizing refer to the above table. For further details refer to BS.5449.1, and British Gas Corporation publication - 'Material and Installation Specifications for Domestic Central Heating and Hot Water.'

5. Cylinder

The cylinder MUST be either of the indirect coil type or a direct cylinder fitted with an immersion calorifier, which is suitable for operating at a gauge pressure of 0.3 bar (5 lbf/in²) in excess of the safety valve setting. Single-feed indirect cylinders are not suitable for sealed systems.

6. Make-up Water

Provision must be made for replacing water lost from the system either:

- From a manually filled make-up vessel with a readily visible water level. The vessel should be mounted at least 150 mm (6 in) above the highest point of the system, & be connected through a non-return valve to the system, fitted at least 300 mm (12 in) below the make-up vessel on the return side of the domestic hot water cylinder or radiators.
- Where access to a make-up vessel would be difficult by pre-pressurisation of the system (refer to Frame 20 - Filling).

7. Mains Connection

There must be no direct connection to the mains water supply or to the water storage tank supplying domestic water even through a non-return valve, without the approval of the Local Water Authority.

20 SEALED SYSTEM REQUIREMENTS- Continued

8 Filling

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

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

supplied from a service pipe under mains pressure. Where the mains pressure is excessive, a pressure reducing valve shall be used to facilitate filling.

The following fittings shall form a permanent part of the system and shall be fitted in the order stated.
A stop valve complying with the requirements of BS.1010 Part 2 (the hose from the 'draw off' tap shall be connected to this fitting)

A test cock.

A double check valve of an accepted type

- Thoroughly flush out the whole of the system with cold water without the pump in position
- With the pump fitted, fill & vent the system until the pressure gauge registers 1.5 bar (21.5 lbf/in²) and examine for leaks.
- Check the operation of the safety valve by manually raising the water pressure until the valve lifts. This should occur within ± 0.3 bar (± 4.3 lbf/in²) of the pre-set lift pressure.
- Release water from the system until the initial system design pressure is reached.
- Light the boiler and heat the system to the maximum working temperature. Examine for leaks.
- Turn off the boiler and drain the system while still hot.
- Refill and vent the system, and adjust the initial pressure to the required value.

21 ELECTRICAL CONNECTIONS

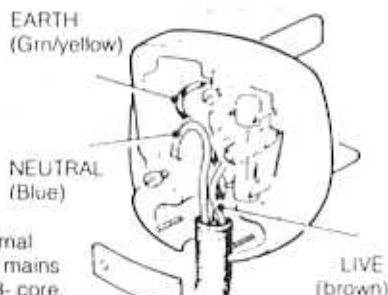
WARNING: This appliance **MUST** be efficiently earthed.

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

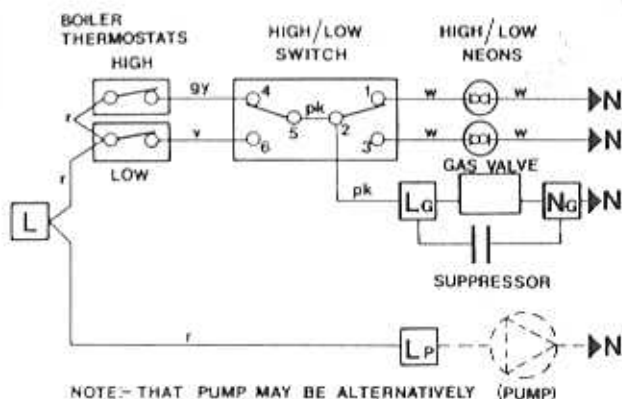
All external controls & external wiring **MUST** be suitable for mains voltage. Wiring should be 3-core, PVC insulated cable, NOT LESS than 24/0.2 mm (0.75 mm²) to BS 6500, table 16.

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

The supply connection may be made via a removable plug to a shuttered socket/outlet and should such a plug be used for connection to the mains, it **MUST** be of 3-pin type, wired as shown, fused at 3 A, & comply with the requirements of BS.1363. Alternatively a fused, double pole switch, having a 3 mm ($\frac{1}{8}$ in) contact separation in both poles and serving only the boiler may be used.



FLOW WIRING DIAGRAM



NOTE - THAT PUMP MAY BE ALTERNATIVELY CONNECTED REMOTE FROM BOILER.

Legend
gy - grey
r - red
v - violet
w - white

22 INTERNAL WIRING

Flow and Pictorial wiring diagrams are shown in frames 21 & 25. A schematic wiring diagram is included on the Lighting Instruction Label.

- Remove the screw securing the control box cover and lift off the cover.



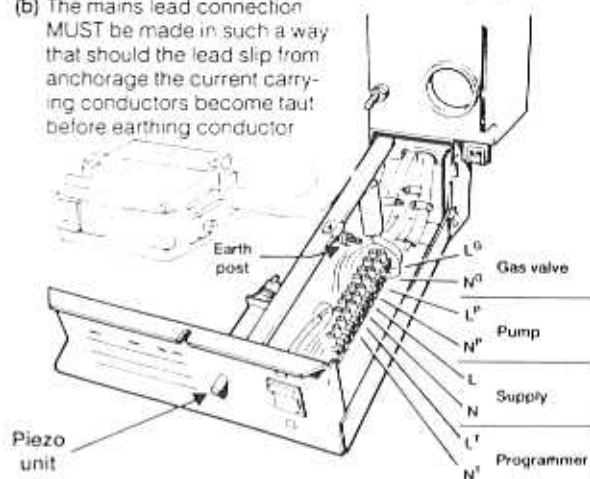
23 INTERNAL WIRING

- Route the electrical leads into the box, via the grommetted hole at the rear and connect as shown.

Notes:

- Secure each lead with one of the cable clamps provided.

- The mains lead connection **MUST** be made in such a way that should the lead slip from anchorage the current carrying conductors become taut before earthing conductor



24 EXTERNAL WIRING

EXTERNAL CONTROLS

External wiring MUST be in accordance with the current I.E.E. Wiring Regulations.

The wiring diagrams illustrated in Frames 25 - 28 cover the systems most likely to be used with this appliance.

For wiring external controls to the IDEAL ELAN 2 boiler, reference should be made to the system wiring diagram supplied by the relevant Manufacturer in conjunction with the wiring diagrams shown in Frames 21 and 25.

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 ON/OFF controls, 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 29.
3. If a proprietary system is used, follow the instructions supplied by the Manufacturers.
4. SYSTEM DESIGNS FEATURING CONTROLS OR WIRING ARRANGEMENTS WHICH ALLOW THE BOILER TO FIRE WHEN THERE IS NO PUMPED CIRCULATION TAKING PLACE MUST NOT BE FITTED.

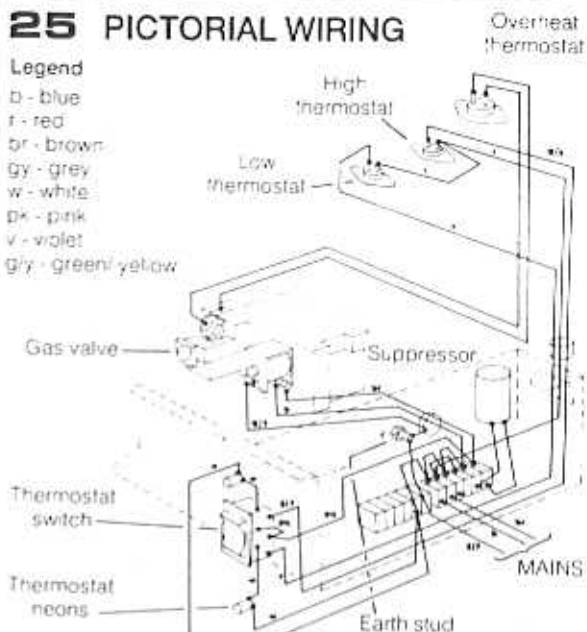
Notes:

- (a) If there are no external controls, the circulating pump MUST also be wired into the control box.
- (b) When the OPTIONAL programmer kit is fitted the incoming mains lead MUST be wired into the boiler control box terminals marked L, N and $\overline{\text{E}}$ - Refer to the Programmer Kit Installation Instructions.

25 PICTORIAL WIRING

Legend

b - blue
r - red
br - brown
gy - grey
w - white
pk - pink
v - violet
g/y - green/yellow



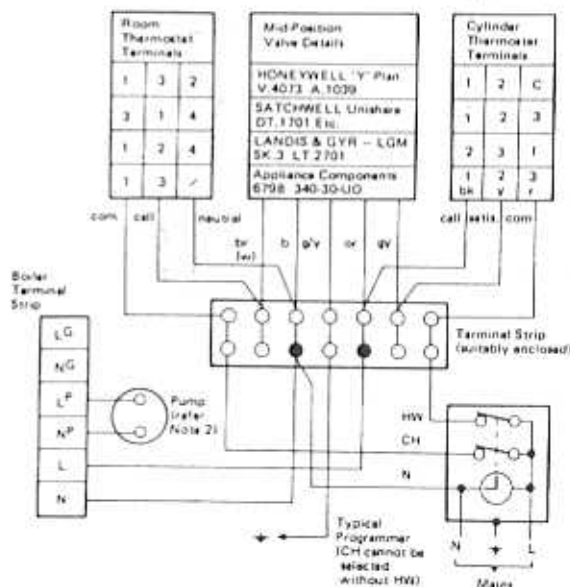
26 MID POSITION VALVE, (NO RELAY)- PUMPED ONLY

Notes:

1. SOME EARTH WIRES ARE OMITTED FOR CLARITY. ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
2. Black dots denote alternative pump connections.
3. This is a fully controlled system - set the boiler thermostat to HIGH.
4. Numbering of thermostat terminals applies ONLY to the Manufacturer mentioned.

LEGEND:

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



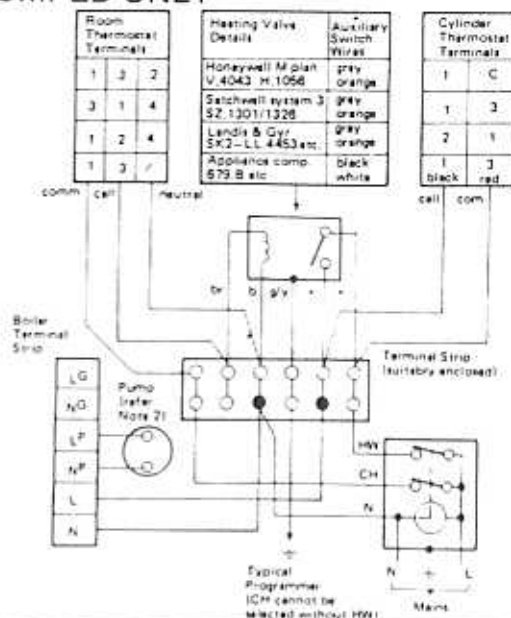
27 ONE VALVE IN HEATING CIRCUIT- PUMPED ONLY

Notes:

1. SOME EARTHED WIRES ARE OMITTED FOR CLARITY. ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
2. Black dots denote alternative pump connections.
3. Numbering of thermostat terminals applies ONLY to the Manufacturer mentioned.

LEGEND:

b - blue
bk - black
br - brown
r - red
g/y - green/yellow



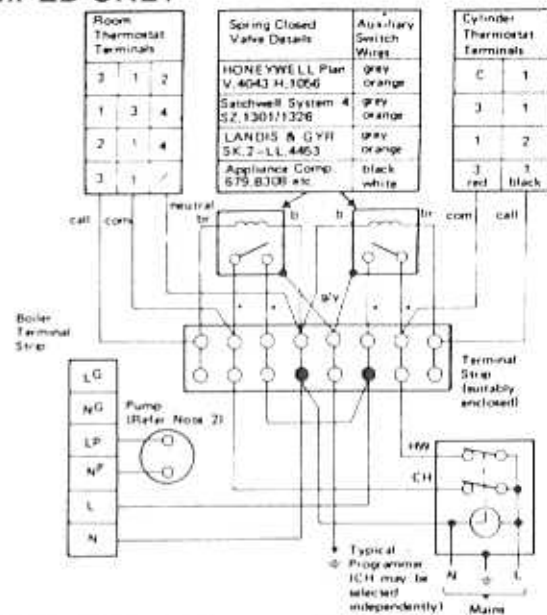
28 TWO SPRING CLOSED VALVES- PUMPED ONLY

Notes:

1. SOME EARTH WIRES ARE OMITTED FOR CLARITY. ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
2. Black dots denote alternative pump connections.
3. This is a fully controlled system - set the boiler thermostat to HIGH.
4. Numbering of thermostat terminals applies ONLY to Manufacturer mentioned.

LEGEND:

b - blue
br - brown
g - green
g/y - green/yellow
r - red
y - yellow

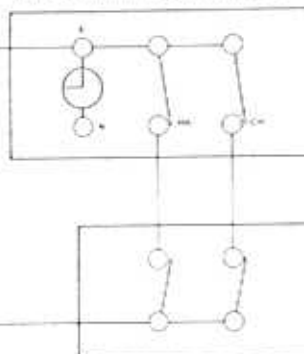


29 FROST PROTECTION

Notes:

1. The frost thermostat should be wired to the programmer as shown, without disturbing the appliance internal wiring.
2. The frost thermostat should be sited in a cool place in the house, but where it can sense heat from the system.
3. The occupier should be advised that, during frosty weather, the system should be turned OFF at the programmer slide switches ONLY - all other controls should be left in the normal running position.

TYPICAL PROGRAMMER



DOUBLE POLE FROST THERMOSTAT

30 COMMISSIONING & TESTING

(a) Electrical Installation

1. Checks to ensure electrical safety should be carried out by a competent person.
2. ALWAYS carry out the preliminary electrical system checks as detailed on the Instructions for the British Gas Multimeter or similar test meter.
3. Refit the control box cover.

(b) Gas Installation

1. The whole of the gas installation should be inspected, tested for soundness and purged in accordance with the recommendations of CP.331.3
2. Purging air from the gas installation may be expedited by loosening the union on the gas service cock and purging until gas is smelled.
3. Retighten the union and check for gas soundness.

WARNING:

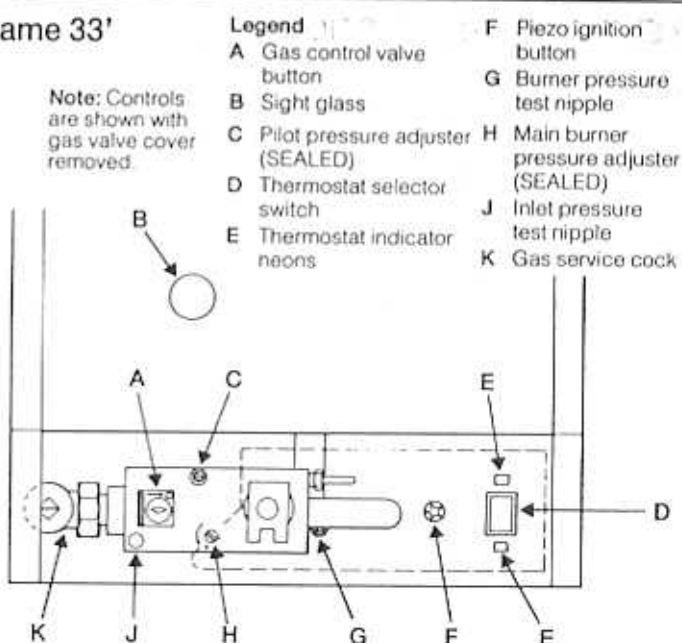
Whilst effecting the required gas soundness test and purging air from the gas installation, open all windows and doors, extinguish naked lights and DO NOT SMOKE

31 INITIAL LIGHTING- Continued in 'Frame 33'

1. Check that the gas service cock (K) is ON, and the boiler thermostat selector switch (D) is OFF.
 2. Remove the screw in the burner pressure test nipple (G) and connect a gas pressure gauge via a flexible tube.
 3. Slide the gas control button (A) to the RIGHT until resistance is felt and then release it.
 4. Push in & retain fully depressed the gas control button (A), press & release the piezo ignition button (F) repeatedly until the pilot lights.
 5. Hold the gas control button (A) depressed for 15 seconds after the pilot burner has ignited.
 6. 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 (A).
 7. Check the appearance of the pilot flame to ensure that it envelopes the tip of the thermocouple and is approximately 25 mm (1 in) long - Refer to Frame 9 (Servicing)
- The adjuster is factory set and sealed.

8. Test the pilot supply connection at the pilot burner for gas soundness using leak detection fluid.
9. Fit the boiler casing - Refer to Frame 32.

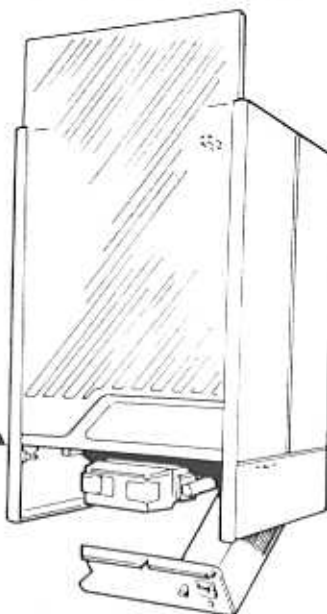
Note: Controls are shown with gas valve cover removed.



32 FITTING THE CASING

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

1. Lift the boiler casing, with the glass fascia in the down position, up to the boiler assembly and secure with the top captive screw
2. Slide the fascia up until it locates in the retaining catch
3. Secure the bottom 2 captive screws
The casing **MUST** seat correctly and compress the sealing strip to make an airtight joint. If side clearance is limited, this may be checked by ensuring that the top and bottom edges of the casing are correctly located
4. Swing the control box into its working position and secure it to the bottom of the casing



33 INITIAL LIGHTING- Continued

Refer also to Frame 31

1. Switch the electricity supply ON and check that all external controls are calling for heat.
2. Set the boiler thermostat selector switch (D) to HIGH and check that the burner cross-lights smoothly. The HIGH indicator neon will glow when the boiler is alight.
3. Test for gas soundness around the boiler gas components using leak detection fluid.
4. Operate the boiler for ten minutes to stabilise the burner temperature. The boiler is pre-set at the factory to its nominal rating.
5. Check the burner pressure against the values quoted in Table 2.
6. Set the boiler thermostat selector switch to 'OFF'.
7. Remove the pressure gauge and tube and replace the pressure test nipple screw. Check that the screw is gas tight.
8. Swing the control box back into its working position. Re-fit the controls pod bottom panel.

34 GENERAL CHECKS

Make the following checks for correct operation:

1. Turn the boiler thermostat selector switch from OFF to HIGH and from OFF to LOW and check that the main burner and indicator neons light and extinguish in response.
2. Check that the programmer, if fitted, and all other system controls function correctly. Operate each control separately and check that the main burner or circulating pump, as the case may be, responds.
3. **Flame Failure Device**
Check the operation of the flame failure device in the gas control valve as follows:
 - (a) Extinguish the pilot flame by closing the gas service cock (K) 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 60 seconds.
 - (b) Open the gas service cock and re-light the pilot.
 - (c) Set the boiler thermostat selector switch (D) to HIGH and the burner should light.
 - (d) Slide the gas control knob (A) to the RIGHT until resistance is felt and then release it. The main burner and pilot flame should shut down immediately.

Note: A latch in the gas control valve provides a safety delay period of approximately 30 seconds before the boiler can be re-lit.

4. Check that the casing is sealed correctly and compressing the sealing strip all around the casing.
5. **Water Circulation 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) Re-fill and vent the system, clear all air locks and again check for water soundness.
 - (d) Balance the system and set the bypass.

Finally

Set the controls to the Users requirements and slide the glass fascia down into the closed position.

Notes:

1. If an optional Programmer Kit is fitted refer to the Programmer Kit Installation and User's Instructions.
2. The temperatures quoted below are approximate and vary between installations:

Thermostat Setting	Flow temperature	
	°C	°F
HIGH	82	180
LOW	60	140

Note: The 'HIGH' or 'LOW' indicator neons will glow whenever the boiler thermostat is calling for heat.

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

35 HANDING OVER

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

1. Hand the User's Instructions to the Householder and explain his/her responsibilities under the Gas Safety (Installation and Use) Regulations 1984.
2. Draw attention to the Lighting Instruction label affixed to the casing front and visible through the observation window in the glass fascia when in the raised position.
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 frost conditions.
5. Explain the function and the use of the boiler thermostat and external controls.
6. Explain the function of the boiler over-heat thermostat and emphasise that if cut-out persists the boiler should be turned off and the local Heating Installer consulted.
7. Explain and demonstrate the function of time and temperature controls/ radiator valves, etc, for the economic use of the system.
8. If an optional Programmer Kit is fitted, then draw attention to the Programmer Kit User's Instructions and hand them to the Householder.
9. Explain and demonstrate the cylinder changing procedure - see User's Instructions.
10. Stress the importance of regular servicing by the Local Gas Region or by qualified a Heating Engineer.
11. Draw attention to the User's instructions Emergency Action Notice.

1 SCHEDULE

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

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

THE SERVICING PROCEDURES ARE COVERED MORE FULLY IN FRAMES 2 TO 9 AND MUST BE CARRIED OUT IN SEQUENCE

WARNING: Always turn OFF the gas supply at the gas service cock and switch OFF and DISCONNECT the electricity supply to the appliance BEFORE SERVICING

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

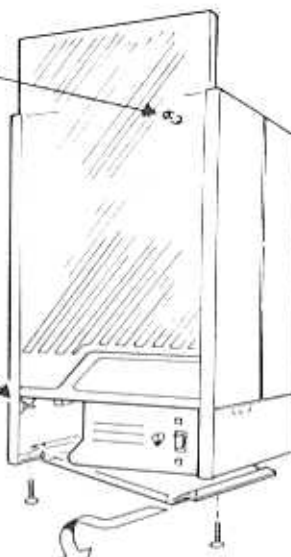
Note: In order to carry out either servicing or replacement of components the boiler casing must be removed - Refer to Frame 2

IMPORTANT: When work is complete the casing MUST be correctly re-fitted- ensuring that a good seal is made.

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

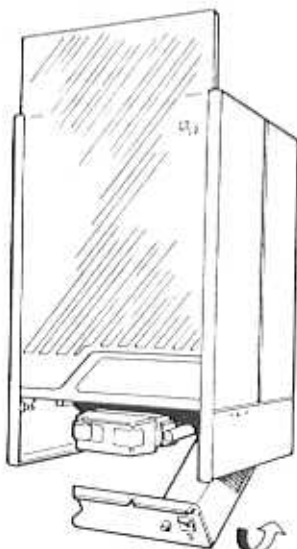
2 BOILER CASING REMOVAL

- Release the top captive screw
- Slide the glass fascia upwards until it locates in the retaining catch.
- Remove the two securing screws, slide the bottom panel forward slightly, and then sideways to remove from the casing



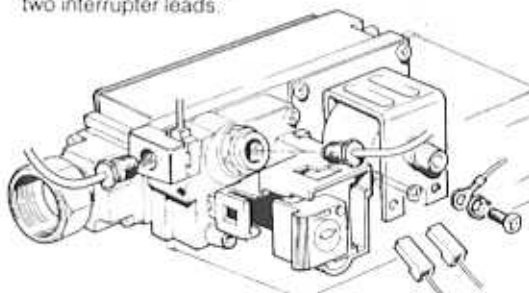
3 BOILER CASING REMOVAL

- Remove the control box securing screw.
- Lift the back of the control box slightly and swing it down, pivoting from the back.
- Release the 2 bottom captive screws and lift the casing off the boiler. Place the casing safely to one side, taking care not to damage the glass fascia panel.



4 BURNER ASSEMBLY REMOVAL

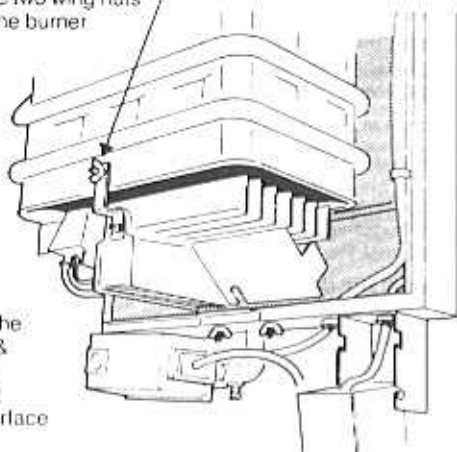
- Release the securing screw & remove the valve cover.
- Disconnect the thermocouple and the two interrupter leads.
- Undo the gas service cock union nut.
- Disconnect the electrical leads from the solenoid.



Gas valve shown with cover removed.

5 BURNER ASSEMBLY REMOVAL

- Disconnect the the spark lead from the piezo unit
- Remove the wing nut
- Support the burner & remove the two wing nuts securing the burner manifold
- Withdraw the assembly & place on a convenient working surface

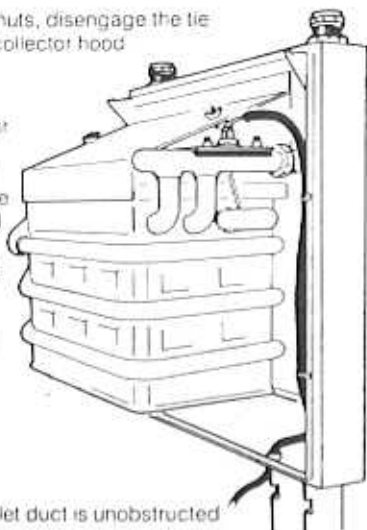


6 CLEANING-BURNER ASSEMBLY

- Brush off any deposits that may have fallen onto the burner head, ensuring that the flame ports are unobstructed. Remove any debris that may have collected on the assembly components.
Note: Brushes with metallic bristles **MUST NOT** be used
 - Remove the main burner injector, ensure that there is no blockage or damage. Clean or renew as necessary.
 - Refit the injector using an approved jointing compound sparingly.
 - Inspect the pilot burner, thermocouple and spark electrode; ensure that they are clean and in good condition. In particular check that:
 - The pilot burner injector is not blocked or damaged.
 - The pilot burner is clean and unobstructed.
 - The spark electrode is clean and unobstructed.
 - The spark lead is in good condition & securely connected.
 - The spark gap is correct - Refer to Frame 15
 - The thermocouple tip is not burned or cracked.
 - The position of the thermocouple relative to the pilot burner and main burner is correct.
 - The thermocouple terminal at the gas valve is clean
- Clean or renew components as necessary.

7 CLEANING THE FLUEWAYS

1. Remove the two securing screws and washers from the collector hood flange.
2. Slacken the two wing nuts, disengage the tie rods and remove the collector hood.
3. Place a plastic sheet or similar beneath the boiler, and remove all loose deposits from the heat exchanger finned block brushing from above and below, and also from the copper skirt, using a suitable brush and/or clearing rod.
4. Check that the flue outlet duct is unobstructed.

**8 RE-ASSEMBLY**

Re-assemble the boiler in the following order:-

1. Refit the flue collector hood- renewing any damaged or deteriorating sealing gasket.
2. Refit the burner and controls assembly.
3. Reconnect the gas service cock and electrical wiring.
4. Check the sightglass in the boiler casing. Clean or renew as necessary.
5. Refit the boiler casing.

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.

9 GAS PRESSURE ADJUSTMENT**(a) Pilot**

Light the boiler and check that the pilot flame is 25 mm (1 in) long. The pilot adjuster screw is factory set to maximum and no further adjustment should be necessary. However if the pilot flame length is incorrect proceed as follows -Refer to 'Initial Lighting' Frame 31 (Installation).

- (a) Slide the gas control button (A) to the RIGHT until resistance is felt and then release it.
- (b) Remove the gas valve cover.
- (c) Turn the pilot pressure adjuster screw (C) CLOCKWISE until fully CLOSED.
- (d) Turn the pilot pressure adjuster screw ANTI-CLOCKWISE four full turns to give maximum setting.

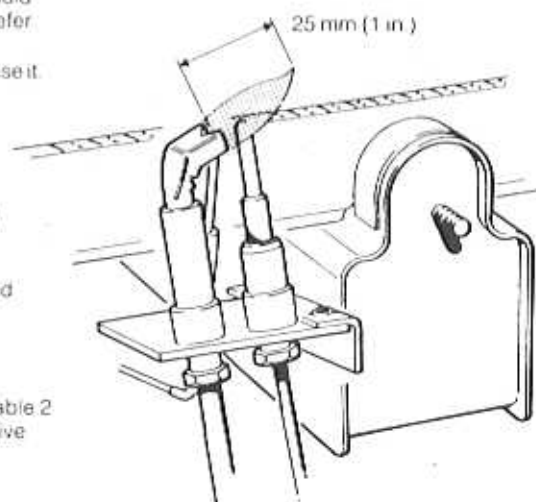


- (e) Refit the gas valve cover.
- (f) Relight the pilot in accordance with the Lighting Instructions -Refer to Frame 31 (Installation).

Note:- The pilot adjusting screw is sealed against User Interference and must be re-sealed if disturbed during servicing.

(b) Main Burner

After any servicing, reference should be made to Table 2 which gives details of the rated output with the relative burner setting pressure and the heat input.

**COMPONENT REPLACEMENT**

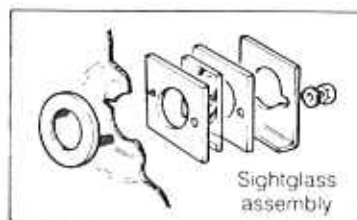
Note: To replace the components in Frames 10 to 23 it is necessary to remove the boiler casing - Refer to Frame 2.

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.

10 SIGHTGLASS REPLACEMENT

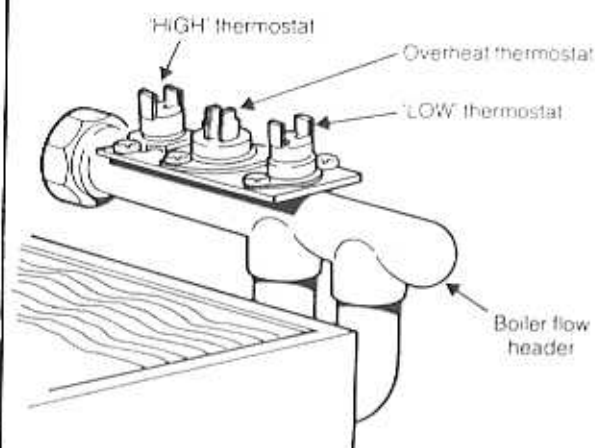
1. Remove the fascia panel from the casing.



2. Unfasten the two nuts and washers and remove the assembly.
3. Fit the new sightglass and reassemble as shown.
4. Retighten the two nuts to ensure an airtight seal but **DO NOT** overtighten.
5. Refit the fascia panel.

11 CONTROL THERMOSTAT REPLACEMENT

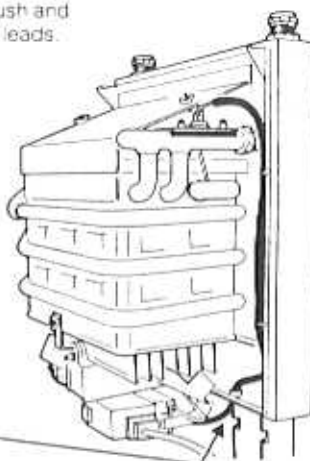
1. Remove the two screws securing the faulty thermostat
2. Disconnect the two electrical leads from the thermostat
3. Fit the new thermostat and re-assemble in reverse order



12 OVERHEAT THERMOSTAT REPLACEMENT

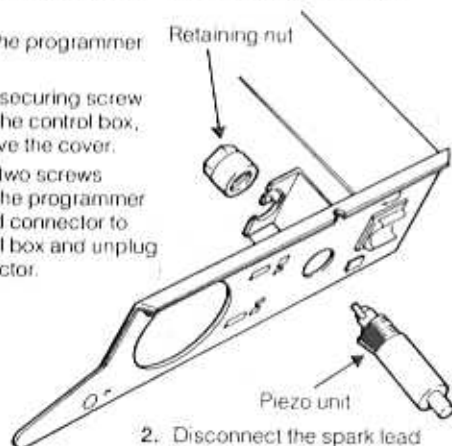
Refer also to Frame 11

1. Remove the burner & controls assembly - Refer to Frames 4 & 5
2. Release the strain relief bush and withdraw the interrupter leads.
3. Unclip the leads from the back panel.
4. Remove the two screws & withdraw the thermostat
5. Fit the new thermostat & re-assemble in reverse order- ensuring that the strain relief bush is correctly fitted



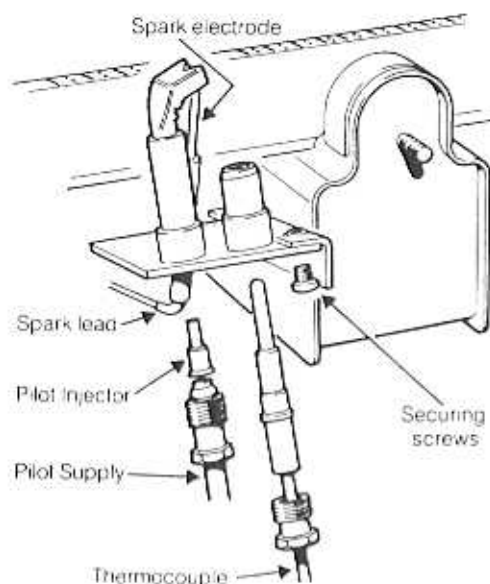
13 PIEZO UNIT REPLACEMENT

1. Remove the programmer if fitted:-
 - (a) Undo the securing screw on top of the control box, and remove the cover.
 - (b) Undo the two screws securing the programmer flying-lead connector to the control box and unplug the connector.

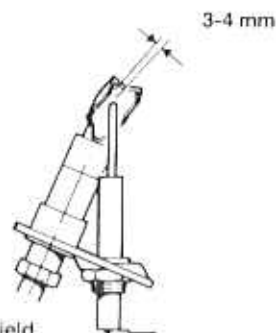


2. Disconnect the spark lead from the piezo unit body.
3. Remove the piezo unit retaining nut and withdraw the unit as shown.
4. Fit the new unit and re-assemble in reverse order.

15 PILOT BURNER REPLACEMENT



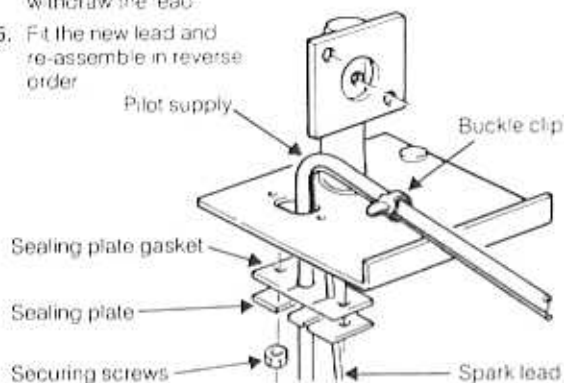
1. Undo the pilot supply connection and ease clear of the pilot burner. Do NOT lose the pilot injector which is a push fit in the pilot burner housing.
2. Undo the thermocouple connection and pull the thermocouple clear.
3. Disconnect the spark lead
4. Remove the two securing screws and withdraw the pilot assembly and shield.
5. Transfer the spark electrode and pilot shield to the new pilot burner
6. Fit the new pilot burner assembly and re-assemble in reverse order ensuring that
 - (a) The injector is in position when relighting the pilot supply
 - (b) A gas tight joint is made- refer to Frame 31 (Installation)
 - (c) The spark gap is correct



View without pilot shield

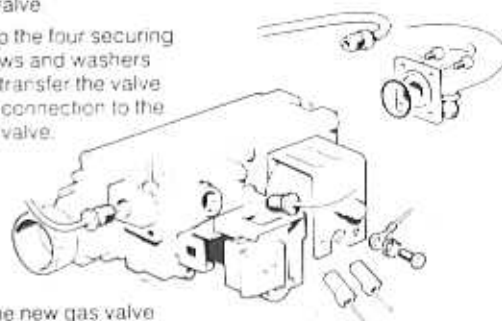
16 SPARK LEAD REPLACEMENT

1. Remove the burner and control assembly - Refer to Frames 4 and 5.
2. Remove the buckle clip.
3. Undo the two securing screws and washers and remove the sealing plate.
4. Disconnect the spark lead from the base of the electrode and withdraw the lead.
5. Fit the new lead and re-assemble in reverse order.



17 GAS VALVE REPLACEMENT

1. Remove burner & controls assembly - Refer to Frames 4 & 5.
2. Undo the pilot supply connection.
3. Undo the four securing screws and washers and withdraw the valve.
4. Undo the four securing screws and washers and transfer the valve inlet connection to the new valve.

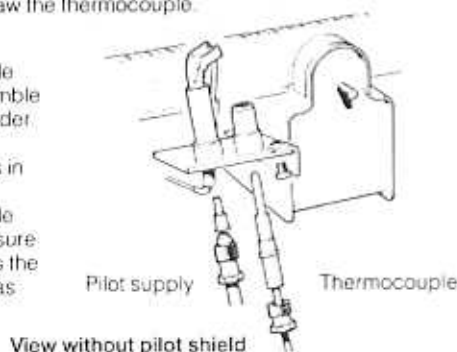


5. Fit the new gas valve ensuring that:
 - (a) The valve is fitted the right way round: an arrow engraved on the valve indicates the direction of flow.
 - (b) The sealing 'O' rings, supplied with the valve, are correctly fitted at the inlet and outlet flanges.
6. Reassemble in reverse order.

18 THERMOCOUPLE REPLACEMENT

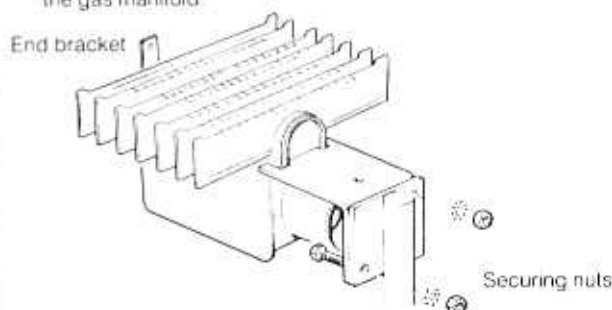
1. Remove the burner and controls assembly - Refer to Frames 4 and 5.
2. Remove the buckle clip.
3. Undo the thermocouple connection and pull the thermocouple clear.
4. Remove the burner manifold sealing gasket - Refer Frame 16 - and withdraw the thermocouple.
5. Fit the new thermocouple and re-assemble in reverse order.

Note: Avoid sharp bends in the thermocouple lead and ensure that it follows the same route as previously.



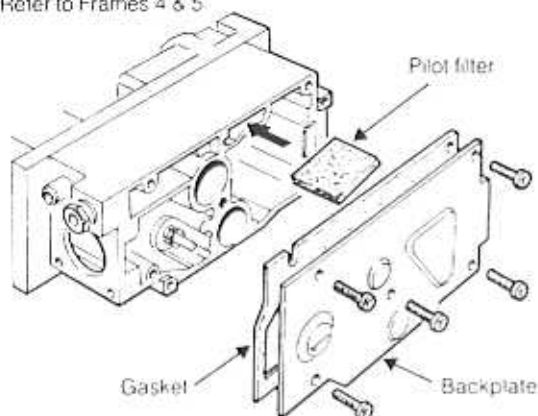
19 MAIN BURNER REPLACEMENT

1. Remove the burner and controls assembly - Refer to Frames 4 and 5.
2. Remove the pilot burner assembly - Refer to Frame 15.
3. Remove the two nuts and washers securing the burner to the manifold and withdraw the burner.
4. Transfer the burner end bracket to the new burner.
5. Fit the new burner and re-assemble in reverse order, taking care not to damage the burner injector which is screwed into the gas manifold.



20 PILOT FILTER REPLACEMENT

1. Remove the burner & controls assembly - Refer to Frames 4 & 5.
2. Remove the backplate from the valve.

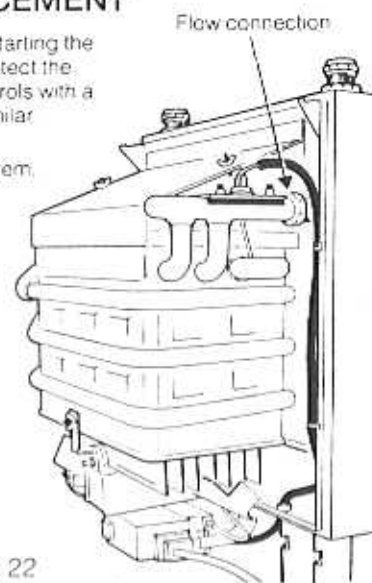


3. Withdraw the pilot filter.
4. Fit the new filter and re-assemble in reverse order.

21 HEAT EXCHANGER REPLACEMENT

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

1. Drain down the system.
2. Remove the burner and controls assembly - Refer to Frames 4 and 5.
3. Remove the flue collector hood - Refer to Frame 7.
4. Support the heat exchanger and undo flow and return pipe connections.



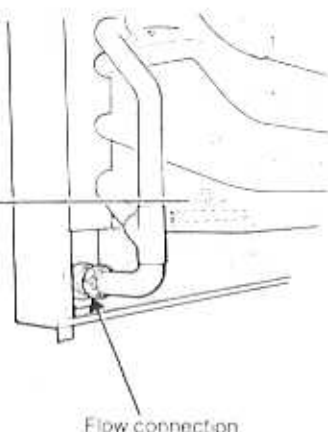
Continue to Frame 22

22 HEAT EXCHANGER REPLACEMENT

Continued from Frame 21

- Support the heat exchanger and undo the flow and return pipe connections.

- Disengage the skirt from the interpanel and ease the heat exchanger forward to drain the water from the return connection.

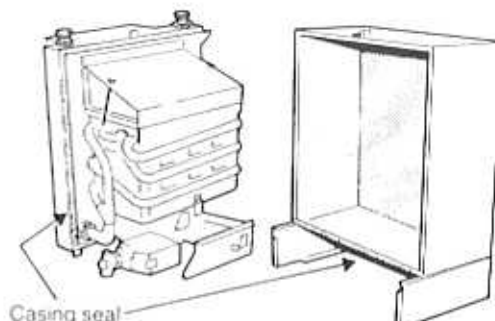


- Withdraw the heat exchanger from the inter panel.
- Fit the new heat exchanger in reverse order.

Note: To replace the components in Frames 24- 26, if the clearance beneath the boiler is 220 mm (9 in) or greater, it is only necessary to remove the casing bottom panel and hinge the control box down - Refer to Frame 2.

23 CASING SEAL REPLACEMENT

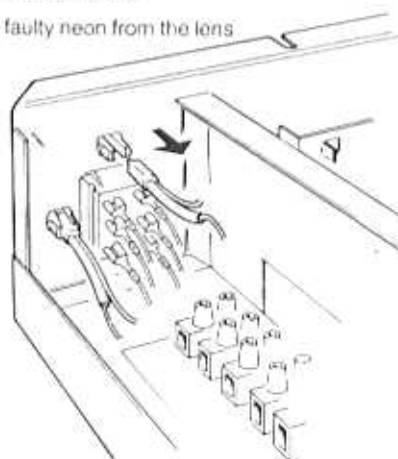
- Remove the old seals and scrape off any traces of old adhesive.
 - Peel the backing tape off the new sealing strip and apply as shown. Avoid stretching the strip and ensure a good bond by pressing down firmly.
 - Re-assemble in reverse order.
- Note:** Ensure that the casing is correctly seated- compressing the sealing strip to make an airtight joint. If side clearances are limited then this can be checked by ensuring that top and bottom edges of the casing are correctly located.



24 NEON REPLACEMENT

- Remove the control box cover.
- Disengage the faulty neon from the lens.

- Disconnect the leads from the terminals and the back of the selector switch.

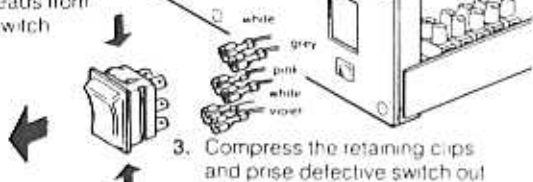


- Fit the new neon and re-assemble in reverse order. Ensure that all the electrical connections are correctly remade.

25 THERMOSTAT SWITCH REPLACEMENT

- Remove the control box cover.

- Disconnect leads from switch.

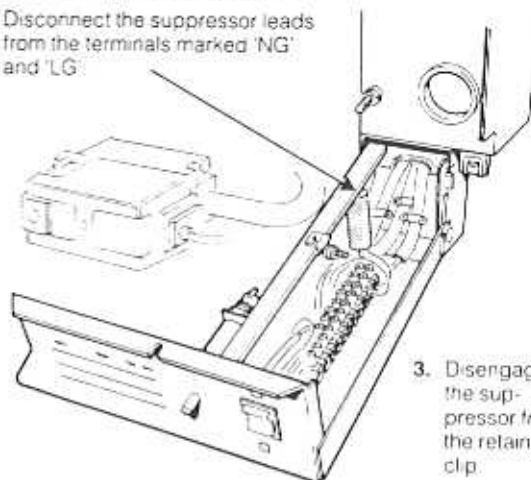


- Compress the retaining clips and prise defective switch out.

- Fit the new switch and re-assemble in reverse order. Ensure that -
 - The switch is the correct way up.
 - All electrical connections are correctly re-made.
 - The indicator neons have not been displaced during the switch replacements.

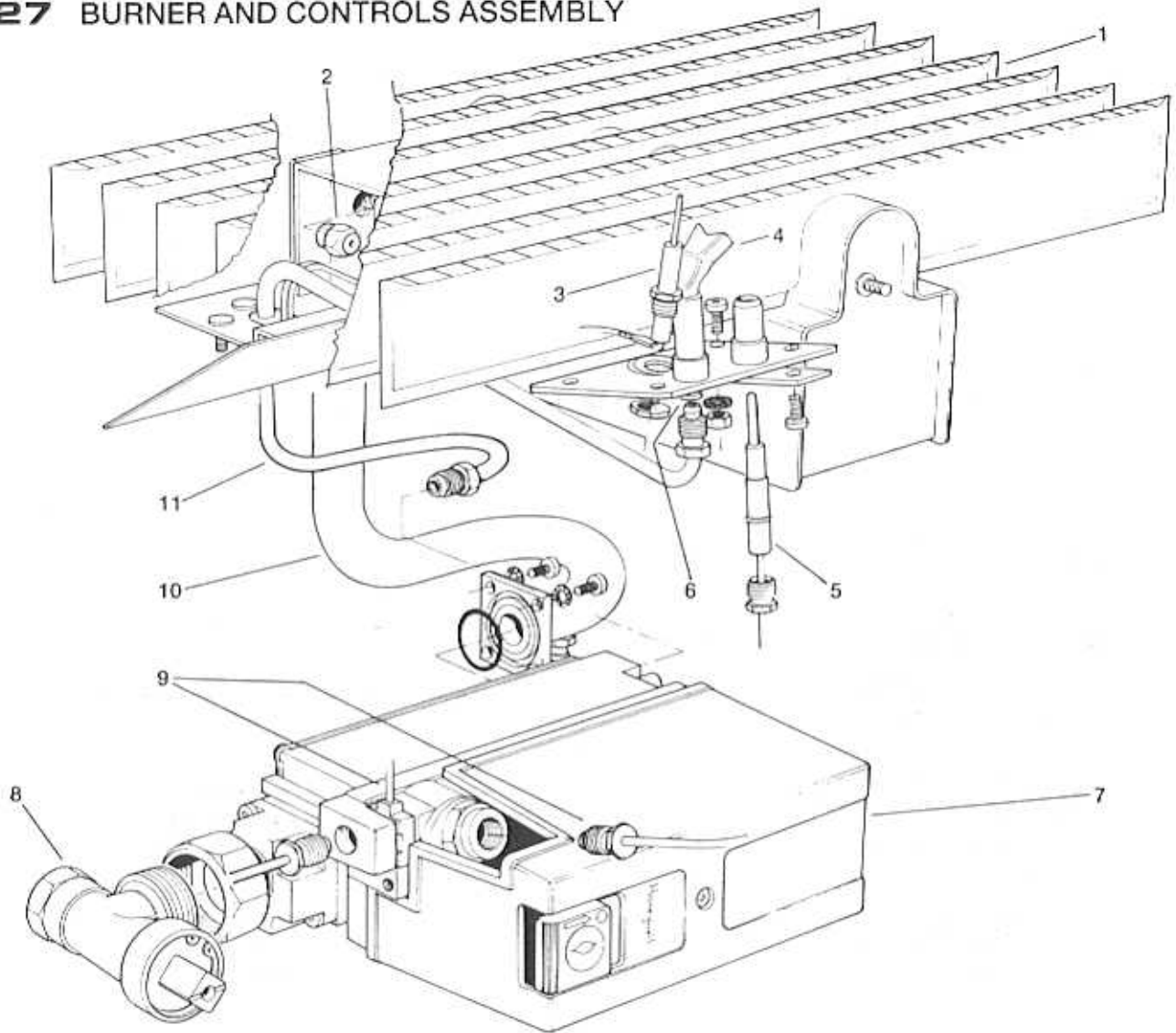
26 SUPPRESSOR REPLACEMENT

- Remove the control box cover.
- Disconnect the suppressor leads from the terminals marked 'NG' and 'LG'.



- Disengage the suppressor from the retaining clip.
- Fit the new suppressor in reverse order, ensuring that all electrical connections are correctly re-made.

27 BURNER AND CONTROLS ASSEMBLY



Legend

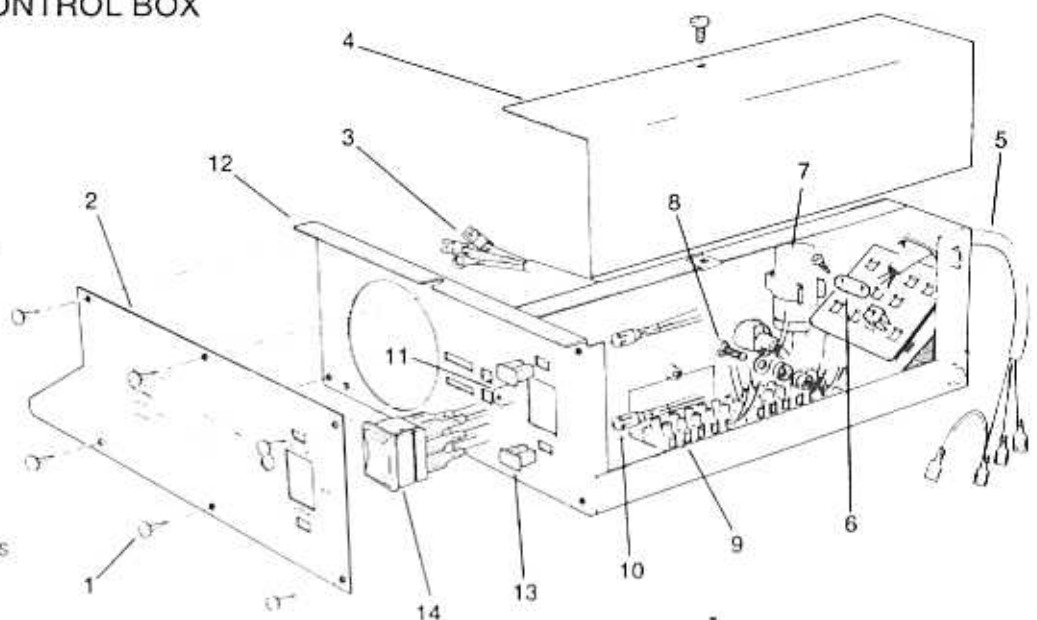
- | | | |
|-------------------------|---------------------|---|
| 1. Main burner | 5. Thermocouple | 9. Thermocouple interrupter connections |
| 2. Main burner injector | 6. Pilot injector | 10. Gas manifold |
| 3. Spark electrode | 7. Main gas valve | 11. Pilot pipe |
| 4. Pilot burner | 8. Gas service cock | |

Note: Pilot shield not shown for clarity

28 BOILER CONTROL BOX

Legend

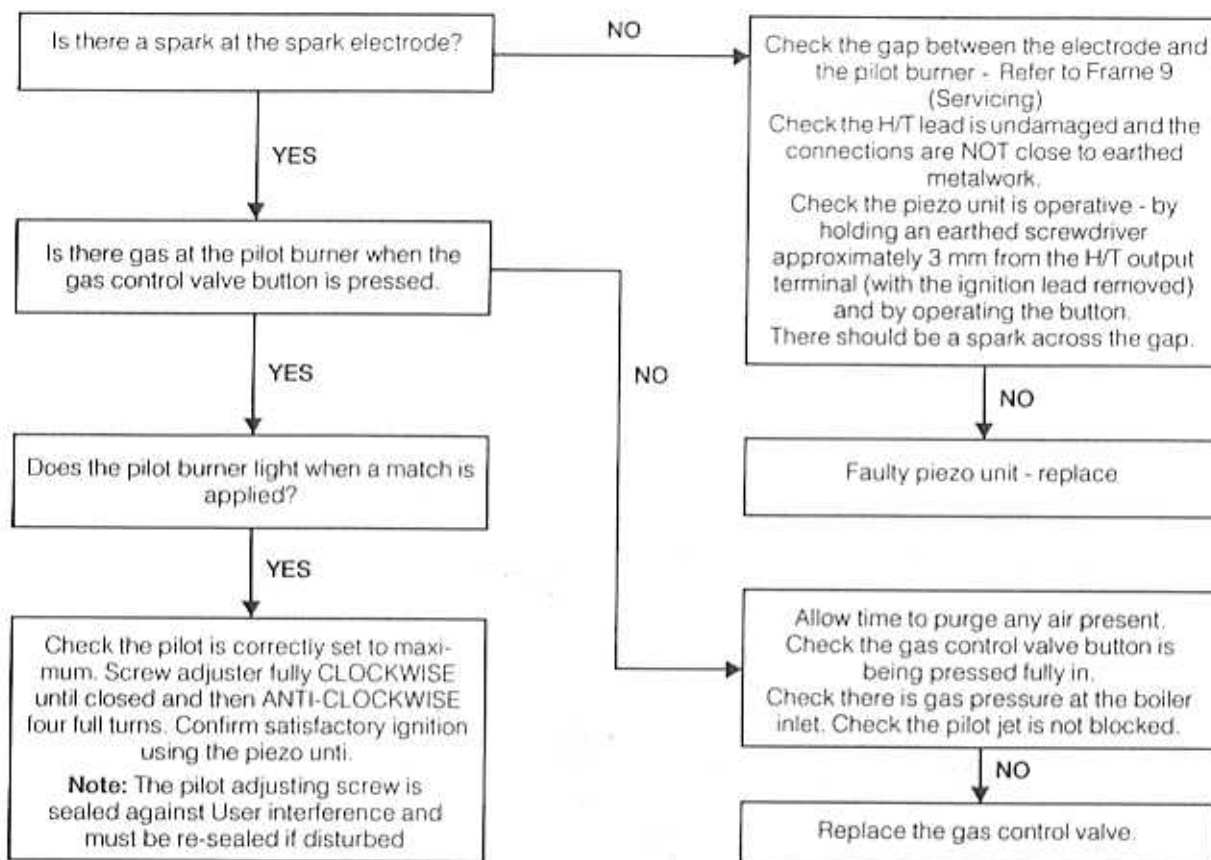
1. Fascia pins
2. Fascia
3. Gas valve lead
4. Control box cover
5. Thermostat harness
6. Cable clamp
7. Suppressor
8. Earth stud
9. Terminal strips
10. Neon indicators
11. Piezo unit
12. Control box
13. Neon indicator lenses
14. Thermostat switch



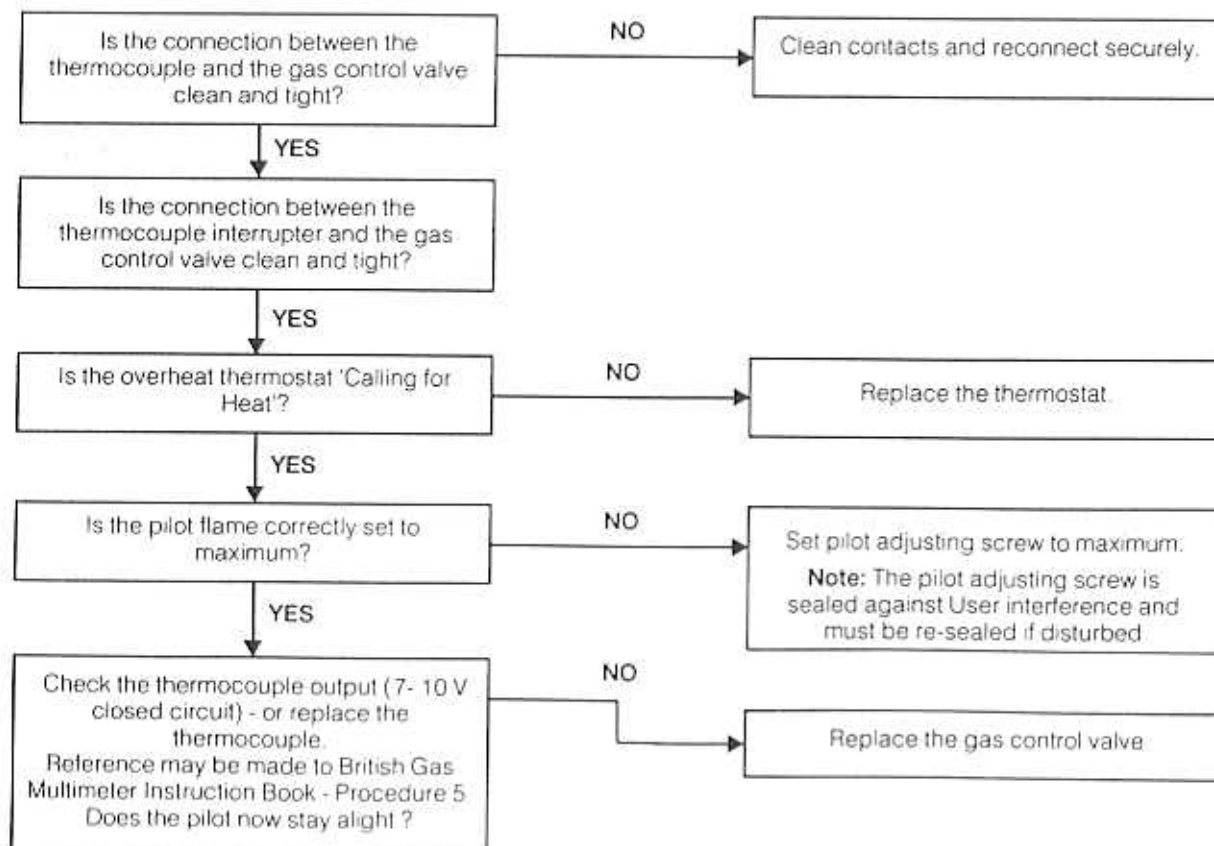
Before attempting any electrical fault finding, ALWAYS carry out the preliminary electrical system checks as detailed on pages 6-9 of the Instructions for the British Gas Multimeter, or similar test meter.

Detailed instructions on the replacement of faulty components are contained in the 'Servicing' section of this publication.

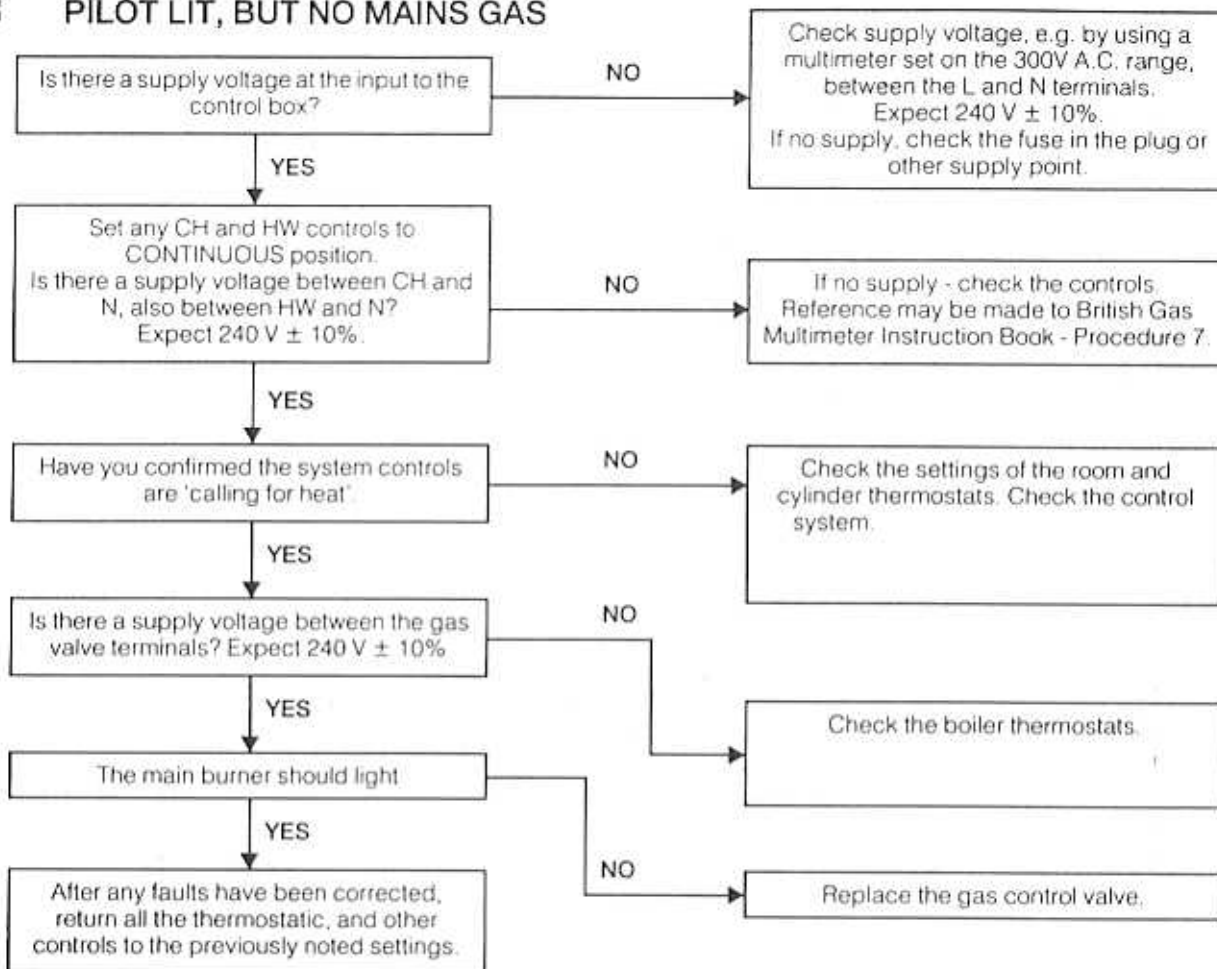
1 PILOT WILL NOT LIGHT



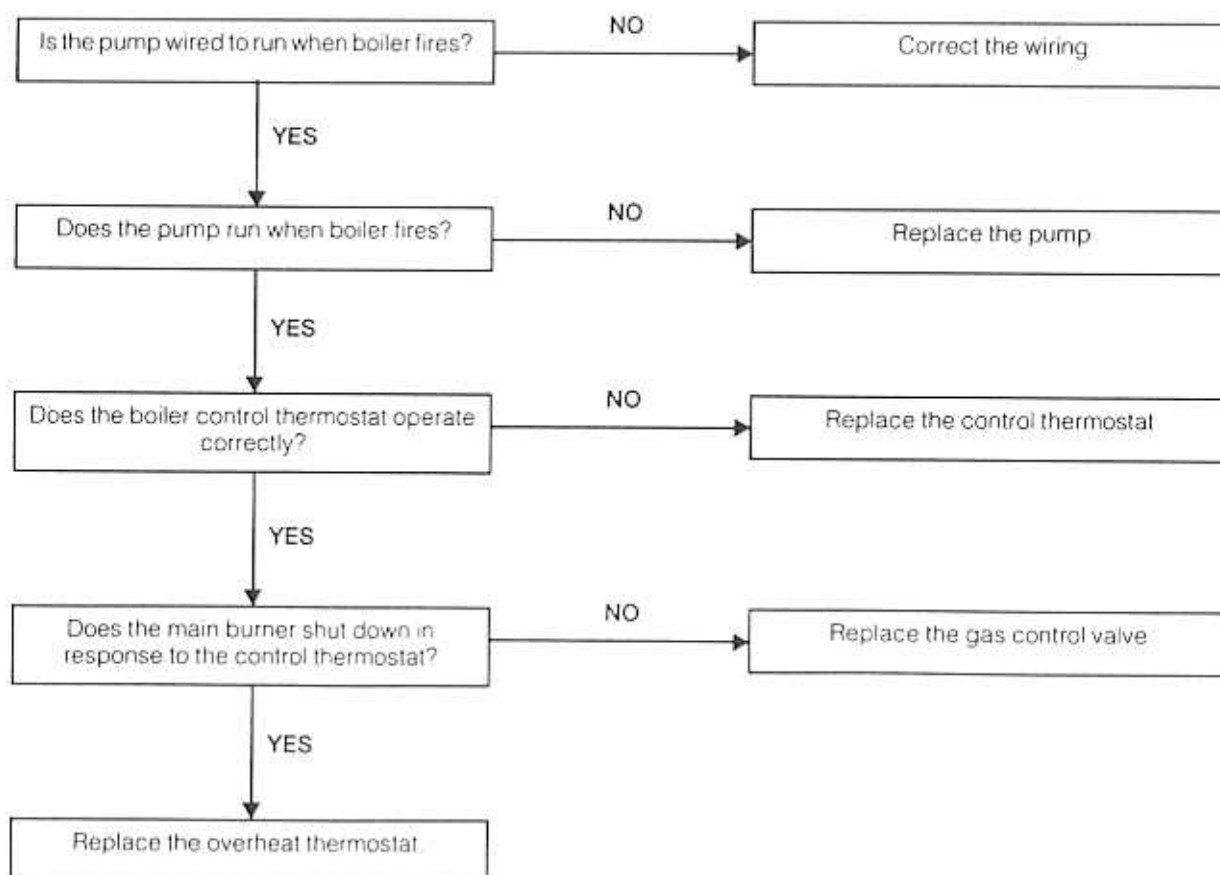
2 PILOT WILL NOT STAY LIT WHEN THE GAS CONTROL VALVE BUTTON IS RELEASED



3 PILOT LIT, BUT NO MAINS GAS



4 MAIN BURNER IS SHUT DOWN BY THE OVER-HEAT THERMOSTAT



SPARES

SHORT LIST OF PARTS

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

This List is extracted from the B.G.C. List of Parts, which contains all available spare parts.

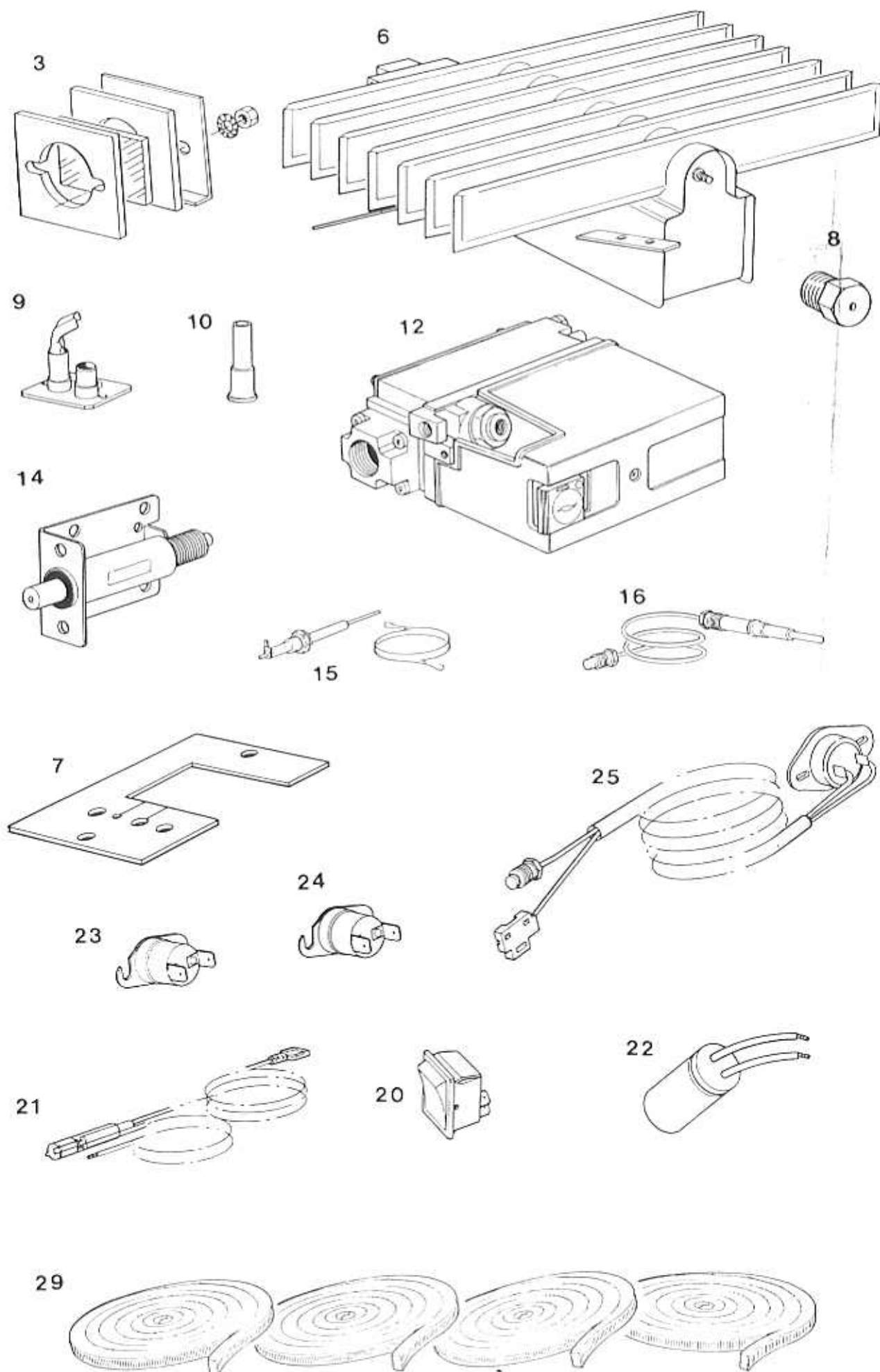
IDEAL ELAN 2, RS 40P, 50P, 60P & 75P GAS BOILERS

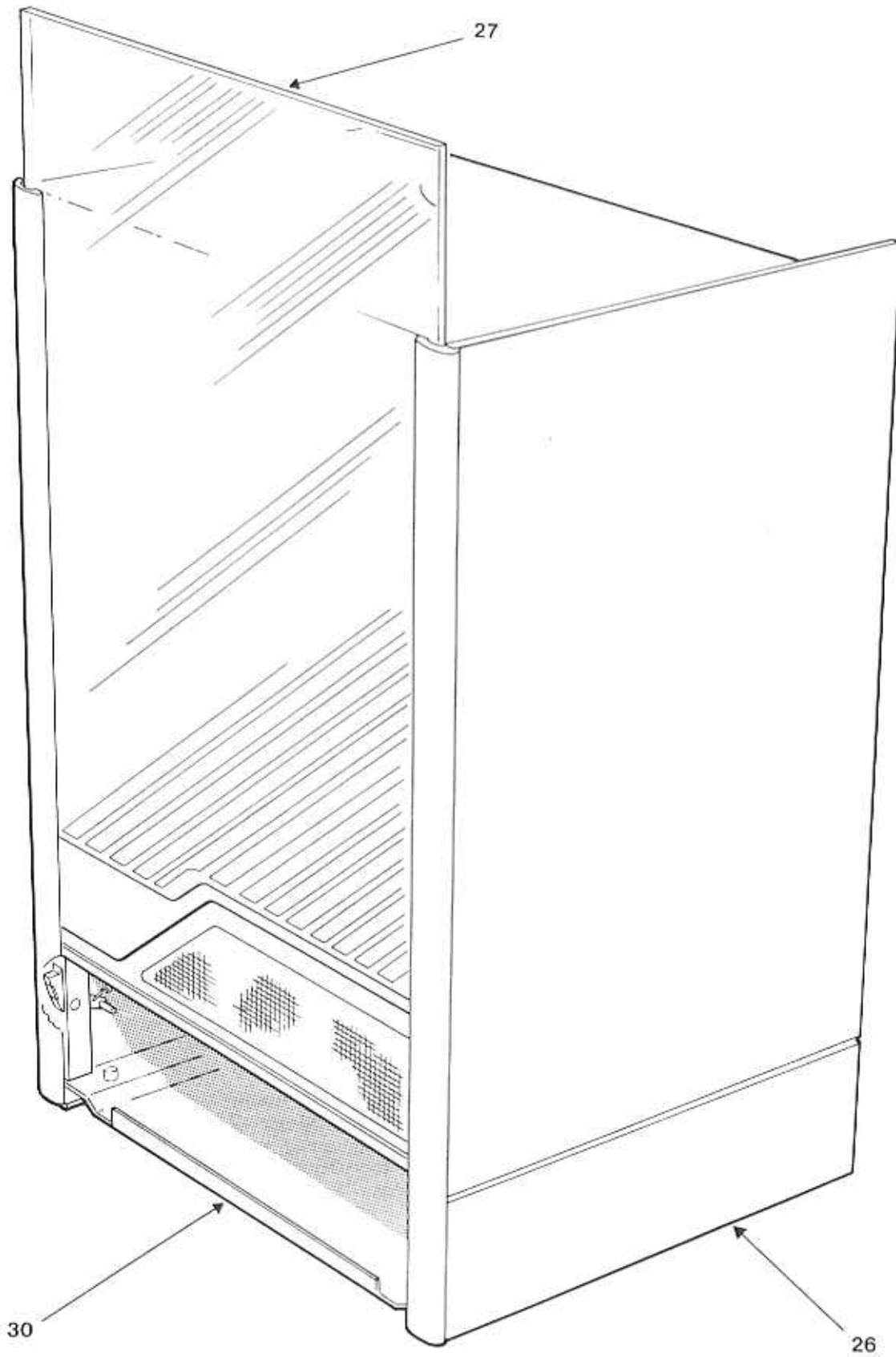
When ordering spares, please quote:

- 1 Boiler Model
- 2 Description
- 3 Maker's Part Number
- 4 Quantity

Key No.	G.C. Part No.	Description	No. off	Maker's Part No.
3	341 446	Sight glass assembly, comprising, sight glass and frame, two sight glass gaskets, two M4 Hex nuts and two M4 shakeproof washers	1	189736045
6		Main burner FURIGAS Type 'R' - No. 118 500 041 - Elan 2 RS 40P ONLY	1	
		No. 118 500 045 - Elan 2 RS 50P ONLY	1	
	341 450	No. 118 500 040 - Elan 2 RS 60P ONLY	1	189756064
	341 451	No. 118 500 044 - Elan 2 RS 75P ONLY	1	189766064
8		Main burner injector BRAY Cat. 10 - Size 440 - Elan 2 RS 40P ONLY	1	
		BRAY Cat. 10 - Size 520 - Elan 2 RS 50P ONLY	1	
		BRAY Cat. 10 - Size 650 - Elan 2 RS 60P ONLY	1	
		BRAY Cat. 10 - Size 850 - Elan 2 RS 75P ONLY	1	
7	341 452	Burner mounting gasket	1	189736074
9		Pilot burner- HONEYWELL No. Q359A 1041	1	
10		Pilot burner injector- HONEYWELL No. 450 00062/012	1	189460083
12	395 685	1/2 in BSP Gas Control- HONEYWELL V4700E. 1007- 240 V	1	586731900
14	395 705	Piezo Unit- VERNITRON No. 60080	1	589730086
15	395 700	Spark electrode & H.T. lead assembly VERNITRON No. 60843 with 600 mm lg. lead	1	589030088
16	390 039	Thermocouple- HONEYWELL No. Q309A.2739- 24 in. lg	1	576890051
20	393 451	Thermostat selector switch- ARCOLECTRIC No. C470	1	589030104
21	341 461	Neon indicator- READILEADS Ltd	2	589730067
22	384 689	Suppressor- ITT. No. TS.121 A - 'CAN' Type (85 mm lds)	1	589040030
23		Thermostat HIGH setting- ELMWOOD 2455R 8124	1	
24		LOW setting- ELMWOOD 2455R 8213	1	
25		OVERHEAT- THERMODISC with ECO leads and Honeywell Interrupter	1	
26		Boiler casing assembly - white stove enamel, with glass fascia, sight glass assembly, bottom sealing strip, foil insulation, lighting instructions plate and three fixing screws with retaining washers - Elan 2 RS 30P, 40P, 50P, & 60P	1	
		Elan 2 RS 75P	1	
27		Glass fascia - Elan 2 RS 30P, 40P, 50P & 60P	1	
		Elan 2 RS 75P	1	
29		Sealing Pack - comprising, four sealing strips - Elan 2 RS 30P, 40P, 50P & 60P	1	
		Elan 2 RS 75P	1	
30		Controls casing bottom panel with Lighting Instruction Plate and two fixing screws - Elan 2 RS 30P, 40P, 50P & 60P	1	
		Elan 2 RS 75P	1	

1 SMALL PARTS



2 BOILER CASING- Exploded View



STELRAD GROUP pursues a policy of continuing improvement in design and performance of its products. The right is, therefore, reserved to vary specification without notice.

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