

IDEAL EXCEL 30F, 40F, 50F & 60.F

Wall Mounted Fanned Room Sealed, Gas Boilers Installation and Servicing

CAUTION:

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

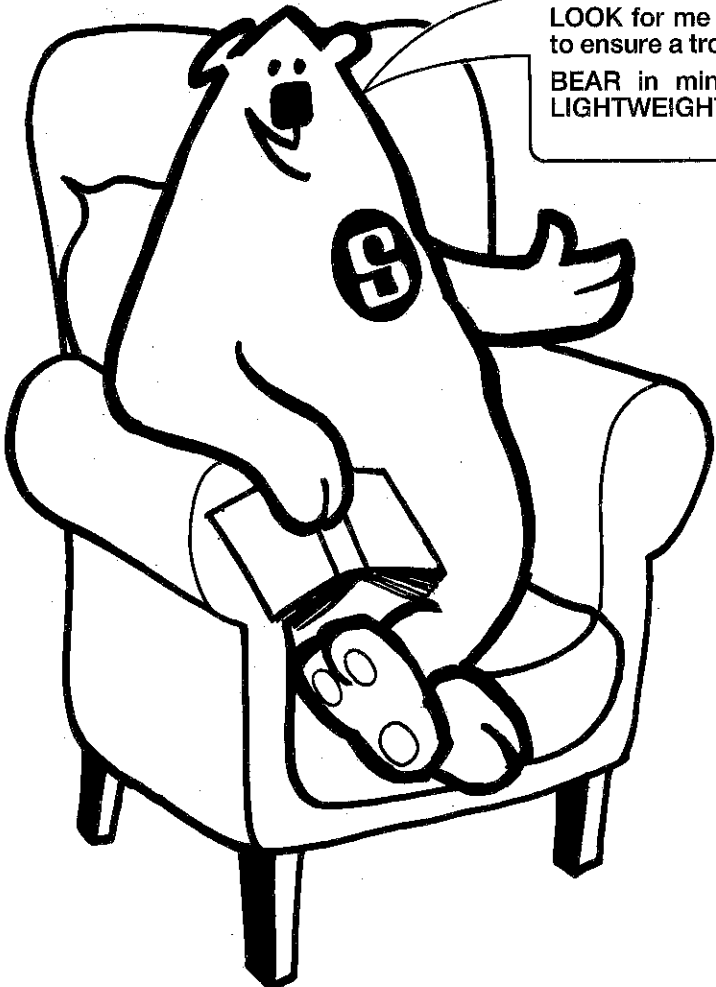
NOTE: The appliances are for use with **NATURAL GAS ONLY.**

G.C. No.'s

Ideal EXCEL 30F (With TEKNIGAS Gas Control)	41 415 33
Ideal EXCEL 40F (With TEKNIGAS Gas Control)	41 415 34
Ideal EXCEL 50F	41 415 35
Ideal EXCEL 60F	41 415 32

NB For boiler models fitted with electronic pump delay timer

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



LOOK for me in this book and carefully follow my advice to ensure a trouble free installation.

BEAR in mind that the Ideal Excel is a **CAST IRON LIGHTWEIGHT** boiler and particular attention must be given to the important points below.

1. A **PERMANENT LIVE** electrical supply as well as a switched live **MUST** be provided; see page 5 for details.
2. The pump **MUST** be wired directly to the boiler control box; see page 14 for details.
3. Systems featuring TWIN motorised valves, (e.g. 'S' TYPE PLAN) **MUST** be wired in accordance with the wiring diagram in this book; see page 18.
4. The temperature difference across the boiler **MUST NOT** exceed 15°C under any system conditions.
5. When using thermostatically controlled radiator valves the instructions on page 12 **MUST** be complied with.

Stelrad Ideal

Table 1 - GENERAL DATA

Boiler Size		30.F	40.F	50.F	60.F
Main Burner		AEROMATIC		AEROMATIC	
Gas Control		1/2 in BSP TEKNIGAS Series 25 No257411016		1/2 in. BSP HONEYWELL- V.4700E 1007 240V	
Burner Injector		BRAY CAT.10		BRAY CAT.10	
		Size 850	Size 1200	Size 1450	Size 1700
Pilot Injector		HONEYWELL 45003-508-001 0.38/0.36A			
Gas Supply Connection		Rc 1/2			
in. BSP		1/2			
Flow Connection		22mm Copper			
Return Connection		22mm Copper			
MAXIMUM Static Water Head	m	30.5			
	ft	100			
MINIMUM Static Water Head	m	0.61			
	ft	2			
Electrical Supply		220/240 Volt 50 Hz			
External Fuse Rating		3 A			
Water Content	litre	0.88		1.1	
	gal	0.2		0.24	
Dry Weight	kg	50		61	
	lb	110		134	
MAXIMUM Installation Weight	kg	30		36	
	lb	66		79	

Table 2 - PERFORMANCE DATA

Boiler Size			30F	40F	50F	60F		
To obtain gas consumption (a) in l/s;- divide heat input (kW) by C.V. of the gas (MJ/m ³). (b) in 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.	Boiler Input	MINIMUM	kW	7.5	11.2	15.0	16.9	
			Btu/h	25 500	38 300	51 250	57 700	
	Gas consumption	MID		l/s(ft ³ /h)	0.19(24.6)	0.29(36.8)	0.39(49.3)	0.44(55.6)
				kW	9.3	12.9	16.8	19.7
	Gas consumption	MAXIMUM		Btu/h	31 800	44 000	57 250	67 150
				l/s(ft ³ /h)	0.24(30.5)	0.33(42.4)	0.43(55.2)	0.51(64.7)
	Gas consumption	MAXIMUM		kW	11.1	14.7	18.5	22.3
				Btu/h	38 000	50 000	63 250	76 100
	Gas consumption	MAXIMUM		l/s(ft ³ /h)	0.29(36.5)	0.38(48.2)	0.48(60.8)	0.58(73.2)
			Boiler Output	MINIMUM	kW	5.8	8.8	11.7
		Btu/h			20 000	30 000	40 000	45 000
	MID.	MID.	kW	7.3	10.3	13.2	15.40	
			Btu/h	25 000	35 000	45 000	52 500	
MAXIMUM	MAXIMUM	kW	8.8	11.7	14.7	17.6		
			Btu/h	30 000	40 000	50 000	60 000	
Burner Setting Pressure (Hot)	MINIMUM	mbar	7.7	9.2	9.3	9.1		
		in.w.g.	3.1	3.7	3.7	3.6		
	MID.	mbar	12.0	11.4	11.7	12.5		
		in.w.g.	4.8	4.6	4.7	5.0		
	MAXIMUM	mbar	15.3	14.1	14.3	16.2		
		in.w.g.	6.1	5.6	5.7	6.5		

INTRODUCTION

The Ideal EXCEL 30, 40, and 60F are fully automatically controlled, wall-mounted, cast iron, fanned balanced flue, gas boilers, range rated, having heat outputs of 5.8 kW (20 000 Btu/h) to 17.6 kW (60 000 Btu/h).

The boilers are supplied with a standard flue kit suitable for rear flue applications from 115mm (4 1/2 in) to 620mm (24.4 in) and side flue applications for 30F, 40F boilers from 175mm (6.7 in) to 632mm (24.9 in) and side flue applications for 30F, 40F boilers from 175mm (6.7 in) to 620mm (24.4 in) both measured from the side of the boiler to the outside wall face.

An extension duct kit is available as an optional extra for side flue applications only, one kit giving the following range:

30F, 40F Boilers - 632mm (24.9 in) to 1332mm (52.4 in)

50F, 60F Boilers - 620mm (24.4 in) to 1320mm (52 in)

Two kits may be used to give the following range:

30F, 40F Boilers - 1332mm (52.4 in) to 2032mm (80 in)

50F, 60F Boilers - 1320mm (52 in) to 2020mm (79.5 in)

All measured from the boiler side to the outside face of the wall.

The boiler casing is of white enamelled mild steel, with a removable fascia of smoked brown glass.

The controls pod, also of white enamelled mild steel has fixed sides and a removable bottom panel. A smoked brown access door hinges downwards to reveal the boiler thermostat controls and gas valve, also the programmer if fitted.

When the door is closed, the controls can be seen through an observation window.

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

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

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

(A drain cock is provided on the heat exchanger).


IMPORTANT:

This appliance range is certified by the British Standards Institute for safety and performance.

It is therefore, important that no external control devices - e.g. flue dampers, economisers, etc., - are directly connected to this appliance unless covered by these 'Installation and Servicing' instructions or otherwise recommended by Stelrad Group Ltd., in writing. If in doubt please enquire.

Any direct connection of a control device not approved by Stelrad Group Ltd., could invalidate the B.S.I. certification and the normal appliance warranty and could also infringe the Gas Safety Regulations.

Gas safety (Installations 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 the law is complied with.

The installation of the boiler MUST also be in accordance with the latest I.E.E. Wiring 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 Codes of Practice:

CP. 331:3 Low pressure installation pipes.

BS.6798 Boilers of rated input not exceeding 60 kW.

(Rev Code 1987) { Forced circulation hot water systems, (Smallbore and Microbore Domestic Central Heating Systems).

BS. 5546 Installation of gas hot water supplies for domestic purposes (2nd Family Gases)

BS. 5440:1 Flues (for gas appliances of rated input not exceeding 60 kW).

BS. 5440:2 Air supply (for gas appliances of rated input not exceeding 60 kW).

Manufacturer's notes must NOT be taken, in any way, as over-riding statutory obligations.

LOCATION OF BOILER

The boiler MUST be installed on an external wall. The wall MUST be flat and vertical, and capable of adequately supporting the weight of the boiler and any ancillary equipment. The boiler may be fitted on a combustible wall, and insulation, other than that required by the Local Authority and Building Regulations, is NOT necessary.

IMPORTANT NOTICE

If the appliance is to be fitted in a timber framed building it should be fitted in accordance with the British Gas publication 'Guide for Gas with installation in Timber Framed Housing' reference DM2.

If in doubt advice must be sought from the local Gas

Region of British Gas.

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

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

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

A compartment used to enclose the boiler MUST be designed and constructed specially for this purpose. An existing cupboard, or compartment, may be used provided it is modified for this 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. The position MUST also permit the provision of a satisfactory balanced flue termination.

GAS SUPPLY

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

An existing service pipe must NOT be used without prior consultation with the Local Gas Region.

A gas meter can only be connected to the service pipe by the Local Gas Region, or by a Local Gas Region Contractor.

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

Installation pipes should be fitted in accordance with CP.331:3.

Pipework from the meter to the boiler MUST be of adequate size.

Do NOT use pipes of a smaller size than the boiler inlet gas connection.

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

FLUING

Detailed recommendations for fluing are given in BS.5440:1.

The following notes are intended for general guidance:

1. The boiler MUST be installed so that the terminal is exposed to the external air.
2. It is important that the position of the terminal allows the free passage of air across it at all times.
3. The minimum acceptable spacings from the terminal to obstructions and ventilation openings are specified below:

TERMINAL POSITION	Minimum Spacing Natural Draught
1. Directly below an openable window air vent or any other ventilation opening.	300mm (12in.)
2. Below guttering, drain-pipes or soil pipes	75mm (3in.)
3. Below balconies and eaves	200mm (8in.)
4. Above adjacent ground or balcony level	300mm (12in.)
5. From vertical drain pipes or soil pipes.	75mm (3in.)
6. From internal or external corners	300mm (12in.)
7. From a surface facing the terminal	600mm (24in.)
8. From a terminal facing the terminal	1200mm (48in.)

4. Where the lowest part of the terminal is fitted less than 2m (6.6ft) 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.

The dimensions of the guard shall be such that, when fitted in accordance with the Manufacturer's instructions, it shall be, at least 50mm (2in.) from any part of the terminal -NOT including the wall plate.

The guard shall NOT have any sharp edges likely to cause injury, nor shall ANY opening permit the entry of a ball of 16mm (5/8in) diameter under a force of 5N.

The material finish and mechanical strength of the guard shall be such as to ensure a reasonable life in normal working conditions.

The guard shall NOT affect the performance of the appliance.

Terminal guards are available from:

Quinnel, Barret & Quinnel 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 850mm (30in.) of a plastic or painted gutter, or 450mm (18in.) of painted eaves, an aluminium shield of at least 750mm (30in.) 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 25mm (1in.) to combustible material.

Detailed recommendations on protection of combustible material are given in BS.544:1:1978, sub-clause 20:1.

IMPORTANT:

It is absolutely ESSENTIAL to ensure, in practice, 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 eventuality should occur, the appliance MUST be turned off immediately and the Local Gas Region called in to investigate.

BOILER TERMINAL

The terminal box of the balanced flue can be adapted to accommodate various wall thicknesses - refer 'Packaging'.

AIR SUPPLY

Detailed recommendations for air supply are given in BS.5440:2.

The following notes are intended for general guidance:

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

30F

Position of air vent	Air from room/ internal space	Air direct from outside
HIGH LEVEL cm ² , (in ² .)	100, (16)	50, (8)
LOW LEVEL cm ² , (in ² .)	100, (16)	50, (8)

40F

Position of air vent	Air from room/ internal space	Air direct from outside
HIGH LEVEL cm ² , (in ² .)	130, (20)	65, (10)
LOW LEVEL cm ² , (in ² .)	130, (20)	65, (10)

50F

Position of air vent	Air from room/ internal space	Air direct from outside
HIGH LEVEL cm ² , (in ² .)	165, (26)	86, (13)
LOW LEVEL cm ² , (in ² .)	165, (26)	86, (13)

60F

Position of air vent	Air from room/ internal space	Air direct from outside
HIGH LEVEL cm ² , (in ² .)	198, (30)	99, (15)
LOW LEVEL cm ² , (in ² .)	198, (30)	99, (15)

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

WATER CIRCULATION SYSTEM

If it is intended that any chemical additive be used within the heating system served by the boiler then Stelrad Group Ltd Applications department should be contacted in order to ensure compatibility

The appliance must NOT be used for direct hot water supply.

The appliance is suitable for connection to fully pumped open vented 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, BS.5449:1.

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 hot 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.

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

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

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

The hydraulic resistances of the boilers, at MAXIMUM OUTPUT, with an 11°C (20°F) and 8°C (14.5°F) temperature differential are shown in Table 3.

Pump sizing must take into account the system hydraulic resistance in addition to the boiler's hydraulic resistance in order to ensure that water flow rates are as shown in Table 3.

Isolating valves should be positioned as close to the pump as is practically possible.

Table 3 -BOILER WATER FLOW RATE &HYDRAULIC RESISTANCE.

Boiler Size		30F	40F	50F	60F
Boiler output (MAX)	kW	8.8	11.7	14.7	17.6
	Btu/h	30 000	40 000	50 000	60 000
Water flow rate at 11°C (20°F)	l/m	11.4	15.2	19	22.8
	gal/h	150	200	250	300
Pressure loss at 11°C (20°F)	mbar	23	32	65	92
	in.w.g.	9	13	26	37
Water flow rate at 8°C (14.5°F)	l/m	15.8	21	26.3	31.5
	gal/h	208	276	346	414
Pressure loss at 8°C (14.5°F)	mbar	35	64	123	172
	in.w.g.	14	25.6	49.2	68.9

ELECTRICAL SUPPLY

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

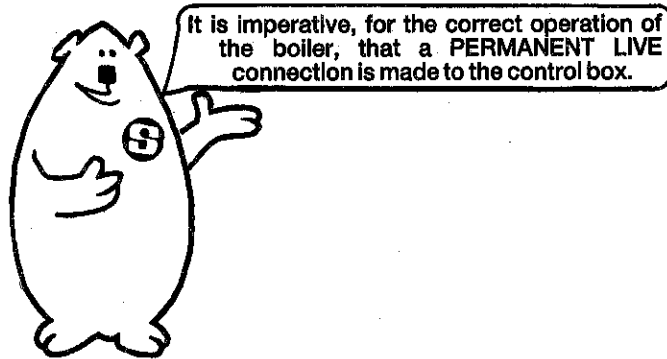
The boiler is supplied for 240 Volt, 50 Hz, ~ Single Phase.

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 3mm 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.



INSTALLATION

ALLOW ADEQUATE SPACE IN FRONT OF THE BOILER FOR SERVICING PURPOSES.

PACKAGING

The boiler is supplied fully assembled and despatched in one carton containing the boiler body assembly, mounted on a wooden cradle, a bag of fittings, the wall mounting plate, standard flue and terminal, suitable for wall thickness from 115mm (4 1/2 in) to 620mm (24.4 in) for SIDE applications, 175mm (6.9 in) to 632mm (24.9 in) for 30F, 40F boilers and 165mm (6 1/2 in) to 620mm (24.4) 50F, 60F boilers.

The flue pack also contains the wall template and the Users Instructions.

Keep the carton the right way up, in accordance with the markings on the outside.

Extension duct pack(s) containing the various flue kits for non-standard side flues up to 2032mm (80 in) for 30F, 40F boilers and up to 2020mm (79.5 in) for 50F, 60F boilers are supplied if requested.

It is **MOST IMPORTANT** that this appliance be installed in a **VERTICAL POSITION**, with the flue/air duct passing through the wall in a **HORIZONTAL PLANE**.

A jacking screw is located at the bottom rear of the back panel, this is provided to facilitate boiler alignment.

Refer Fig. 1.

The boiler is to be hung on a wall, and the space in which it is fitted **MUST** have the following minimum dimensions:
Refer Fig. 8.

MINIMUM INSTALLATION SIZES

Boiler Size	Width	Depth	Height
30F & 40F Rear Outlet Flue	mm 360 in 14.1	620 24	977 38.5
30F & 40F Side Outlet Flue	mm 405 in 16	620 24	977 38.5
50F & 60F Rear Outlet Flue	mm 460 in 18.2	620 24	977 38.5
50F & 60F Side Outlet Flue	mm 505 in 19.8	620 24	977 38.5

After installation the boiler can be built into the following clearances required for servicing.

Above the boiler	50mm (2 in)
(Rear Flue) At the left and right hand side	5mm (1/2 in)
(Side Flue) Flued side of the boiler	50mm (2 in)
(Side Flue) Other side	5mm (1/2 in)
Underneath the boiler	125 mm (5 in)
At the front of the boiler	450 mm (17 3/4 in)
At front and sides of air duct	25mm (1 in)

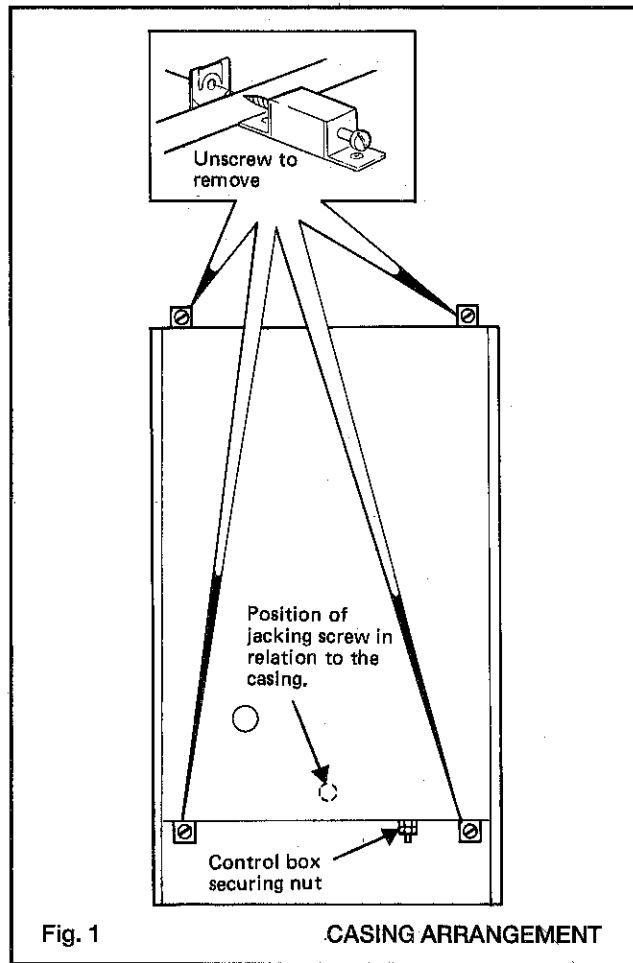
To facilitate installation, the casing **MUST** be removed.

1. Remove the glass door by undoing the screws retaining the bottom panel and flexing one side panel.

2. Slide out the controls pod bottom panel.
3. Undo the nut securing the control box to the bottom of the boiler casing.
4. Lift the back of the control box slightly and swing the box downwards (complete with programmer if fitted) - pivoting from the back.
5. Remove the boiler casing by releasing the four captive screws.
6. Remove the wall mounting plate and the hardware pack from the packaging.

PREPARING THE WALL & FITTING TO THE WALL

Reference should now be made to the appropriate instructions dependent on the intended flue system, Side flue or Rear flue.



SIDE FLUE - refer to Fig. 2

The flue may be assembled for left or right hand termination giving a maximum or minimum 'runs' as stipulated in the table given with Fig. 3

1. Tape the boiler template to the wall in the selected position, having detached the corner wall side template.
2. Mark out the position of the mounting plate screws.
3. Using a spirit level as shown (Fig. 4), mark a horizontal line to the relevant adjoining wall.
Thus, using the marked line as a datum, carefully position the appropriate side template and tape into place.
Mark out the hole to be cut for the flue.
4. **(Installations utilising extension ducts - ONLY)**
Choose equidistant point(s) for siting the bracket(s) along the wall.
One bracket is supplied with each extension duct pack (to a maximum of two packs).
Refer to Fig. 4 and the previously marked horizontal line.
Offer the bracket(s) to the wall and mark the drill centres at the centre of the bracket slots.

Drill the holes with a No. 10 (5.5mm $\frac{7}{32}$ in) masonry drill and mount the brackets to the wall using the plastic plugs and screws supplied (2 off each per bracket).
5. Drill the holes for the mounting plate with a No. 20 (10mm - $\frac{3}{8}$ in) masonry drill and insert the plastic plugs provided.
6. Fit the mounting plate with the screws provided.
7. Cut the appropriate hole in the wall for the flue duct.
See Boiler Mounting Template for size (dependent on type of wall).
8. Remove the three screws, cover plate and gasket from the side of the boiler at which the flue is required and refit these to the back outlet hole.
9. If the side clearance is less than 100mm then re-pipe the flow and return connections to a suitable position above or below the boiler.
10. Fit the two gaskets onto the two flanged ends of the flue/air connection box.
Ensuring that the 3 holes align correctly and that the foil backing is facing outwards.
11. Measure dimension 'Y' from outer surface of the wall to the centre line of the boiler as marked on the template.

12. Cut the air and flue ducts to the required lengths as shown in Fig. 3.
Care should be taken to cut off the correct ends of the ducts.
13. Offer the flue/air connection box to the boiler so that the shortest stub (approx. 5mm) projects through its fitted gasket and into the boiler flue aperture, (lowest aperture on the boiler flue/air connection box).
It can now be secured with the three M5 x pozi headed screws provided.

Note:

- IF EXTENSION DUCTS ARE BEING USED REFER TO THE SECTION ON 'EXTENSION DUCTS' BEFORE CONTINUING FURTHER.
14. Lift the boiler onto the wall mounting plate, making sure that the two set screws have engaged into the slots.
 15. Using the Jacking screw (Fig. 1) located at the bottom rear of the boiler, adjust until the boiler is vertical.
Tighten the two M8 wing nuts, supplied, onto the studs and, so, secure the boiler to the wall mounting plate.
 16. Fit the stainless steel socket over one end of the flue duct and push it fully home.
 17. Place the flue duct inside the air duct such that the flange of the air duct and the socket of the flue duct are at the same end.
 18. Pass the flue ducts through the wall, with the flange facing the boiler.
 19. Fit the flue socket over the stub on the boiler and slide the air duct onto the two M5 studs, ensuring that the gasket is in place.
Secure with M5 nuts provided.
 20. Make good, the wall, around the air duct.
 21. Fit the flue terminal to the outside wall surface with the two screws and wall plugs supplied.
Ensuring that the flue ducts are correctly located.
In the case of a combustible or timber framed wall construction it will be necessary to fit the extended terminal wall plate (supplied in the hardware pack) as follows:
 - (a) Secure the extended wall plate to the terminal with the stainless steel screws and nuts provided.
 - (b) Locate the terminal onto the flue and air duct and mark the position of the four fixing holes.
 - (c) Remove the terminal and drill the four holes with a No. 10 (5.5- $\frac{7}{32}$ in.) masonry drill.

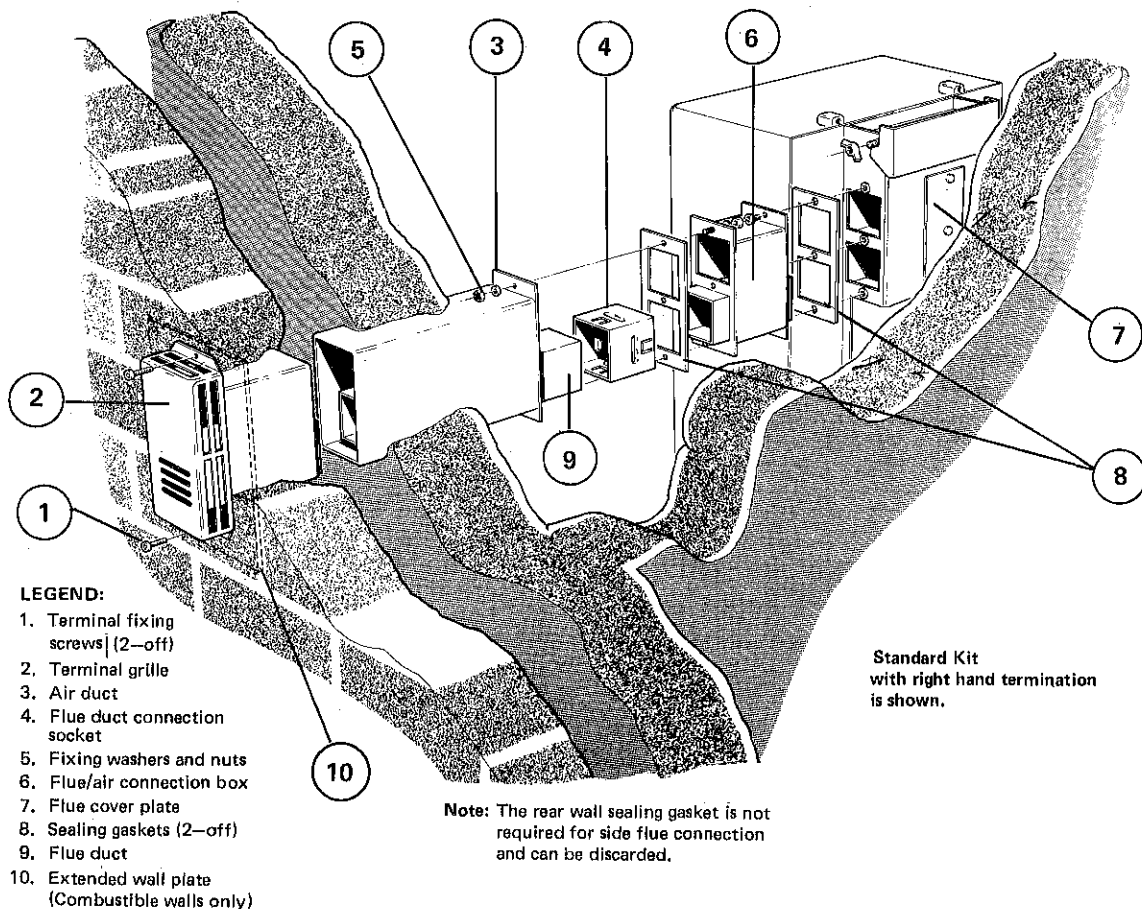


Fig. 2.

SIDE FLUE - EXPLODED VIEW

- (d) Fit the 4 plastic wall plugs provided.
- (e) Refit the terminal ensuring that the flue and air ducts are correctly located and secure with the four screws provided.

EXTENSION DUCTS (Side Flue ONLY) Refer Fig. 5

Extension duct kits are available in order to enable flue lengths of over 620mm to a maximum of 2032mm for 30F, 40F boilers and to a maximum of 2020mm for 50F, 60F boilers to the side of the boiler.

Each kit allows an added extension of 70mm to a MAXIMUM of two kits - allowing an extension of 1.4m.

Each kit contains:

Air duct extension (1 off), Flue duct extension (1 off), Flue duct connection socket (1 off), Support bracket (1 off), M5 screws and wall plugs (2 off each).

Aluminium, self adhesive, sealing tape.

Note:

The flue system maybe assembled in situ or on the floor and lifted into place, depending upon the installation circumstances.

The following instructions will apply in both cases.

1. There is one support bracket (complete with fixings) supplied with each kit. Mount the bracket(s) to the wall as detailed in instruction No. 4, under 'Side Flue' fitting instructions.
2. Cut the flue and air ducts to size as given in Fig. 3.
3. Push a stainless steel socket onto the end of each aluminium flue duct.
4. Place the flue ducts inside their respective air ducts, such that the socket of the flue ducts are at the same end as the flange/reduced end of the air ducts.
5. Assemble the ducts together starting from one end. Pushing the flue ducts together and then the outer air ducts. Seal all flue and air duct joints with the aluminium tape provided.
6. When complete, position the flue on the wall such that it will not interfere with the positioning of the boiler.
7. Carry out the remaining steps detailed under 'Side Flue' fitting instructions.

IDEAL EXCEL 30 & 40F			IDEAL EXCEL 50 & 60F		
Dimension 'Y' mm (ins)	Flue Ducts required	Cut Standard Duct to mm (ins)	Dimension 'Y' mm (ins)	Flue Ducts required	Cut Standard Duct to mm (ins)
350 (13.8) to 807 (31.8)	STANDARD DUCT ONLY	Air Duct 'A' 'Y' less 187 (7.4)	390 (15.3) to 847 (33.3)	STANDARD DUCT ONLY	Air Duct 'A' 'Y' less 227 (8.9)
		Flue Duct 'B' 'Y' less 214 (8.4)			Flue Duct 'B' 'Y' less 254 (10)
807 (31.8) to 980 (38.6)	STANDARD DUCT + ONE EXTENSION DUCT KIT	Air Duct 'A' * 'Y' less 360 (14.2)	847 (33.3) to 1020 (40.2)	STANDARD DUCT + ONE EXTENSION DUCT KIT	Air Duct 'A' * 'Y' less 400 (15.7)
		Flue Duct 'B' * 'Y' less 380 (15)		Flue Duct 'B' * 'Y' less 420 (16.5)	
980 (38.6) to 1507 (59.3)	STANDARD DUCT + ONE EXTENSION DUCT KIT	Air Duct 'A' 'Y' less 887 (34.9)	1020 (40.2) to 1547 (60.9)	STANDARD DUCT + ONE EXTENSION DUCT KIT	Air Duct 'A' 'Y' less 927 (36.5)
		Flue Duct 'B' 'Y' less 920 (36.2)		Flue Duct 'B' 'Y' less 960 (37.8)	
1507 (59.3) to 1680 (66.1)	STANDARD DUCT + TWO EXTENSION DUCT KITS	Air Duct 'A' * 'Y' less 1060 (41.7)	1547 (60.9) to 1720 (67.7)	STANDARD DUCT + TWO EXTENSION DUCT KITS	Air Duct 'A' * 'Y' less 1100 (43.3)
		Flue Duct 'B' * 'Y' less 1085 (42.7)		Flue Duct 'B' * 'Y' less 1125 (44.3)	
1680 (66.1) to 2207 (86.9)	STANDARD DUCT + TWO EXTENSION DUCT KITS	Air Duct 'A' 'Y' less 1587 (62.5)	1720 (67.7) to 2247 (88.5)	STANDARD DUCT + TWO EXTENSION DUCT KITS	Air Duct 'A' 'Y' less 1627 (64)
		Flue Duct 'B' 'Y' less 1625 (64)		Flue Duct 'B' 'Y' less 1665 (65.6)	

* Within these two ranges it will be necessary to cut one extension duct also, to the following-
AIR DUCT 230mm(9)
FLUE DUCT 160mm(6.3)

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AIR DUCT 230mm(9)
FLUE DUCT 160mm(6.3)

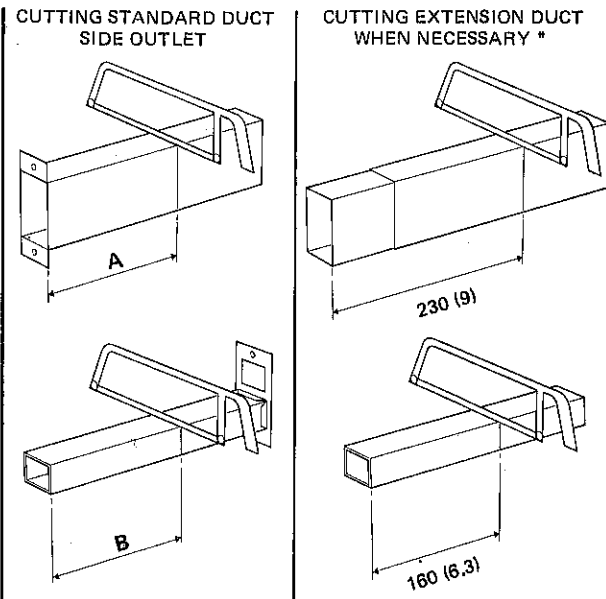
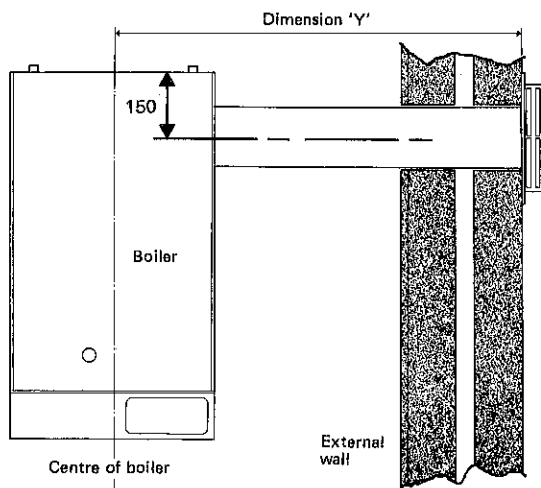


Fig. 3

SIDE FLUE FITTING DIMENSIONS

R. H. SIDE OUTLET SHOWN

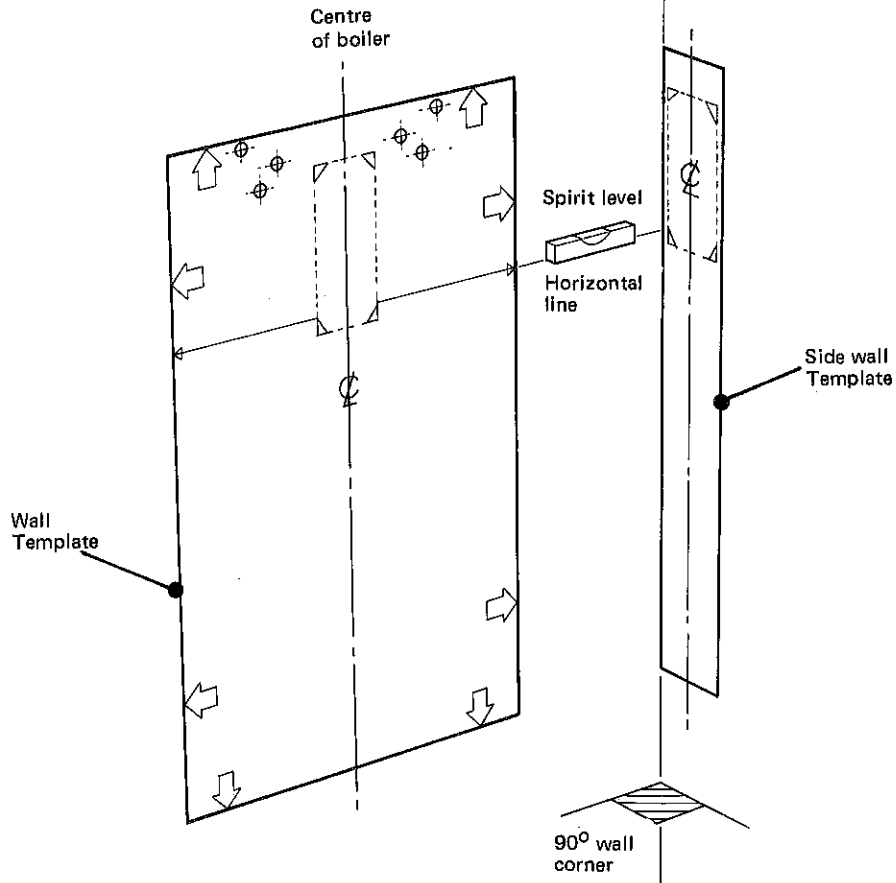
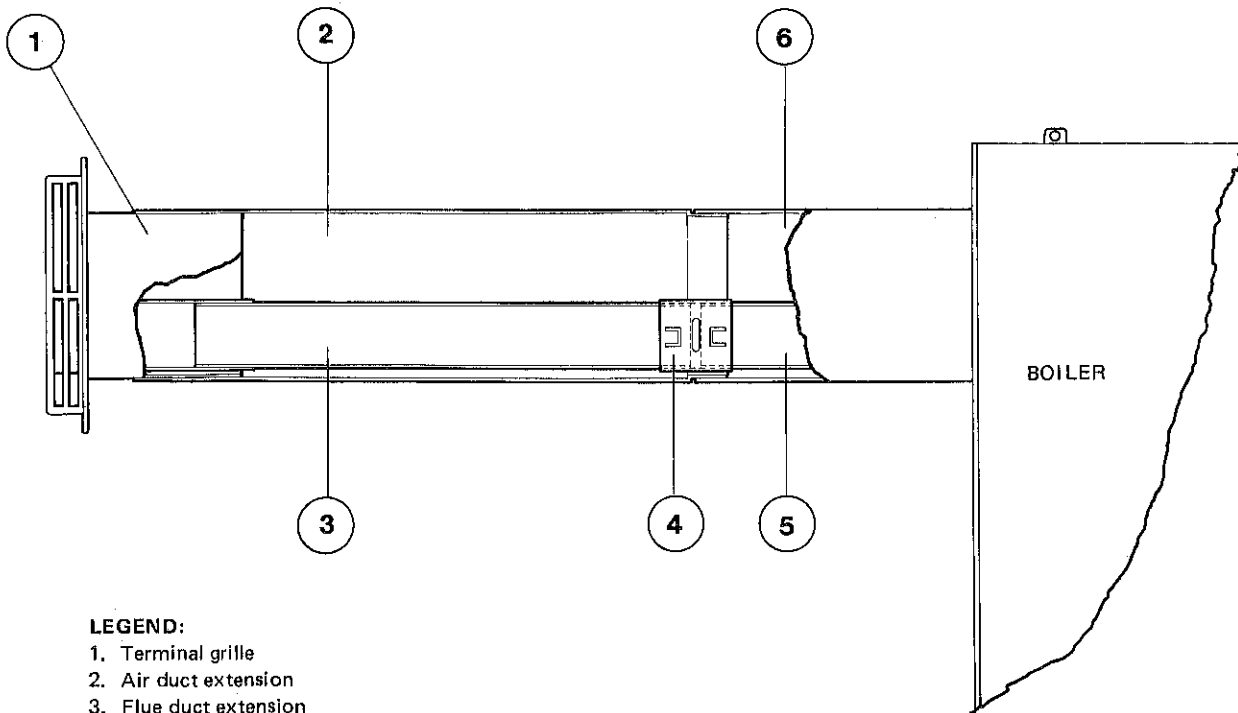


Fig. 4

WALL MOUNTING AND FLUE CUTTING TEMPLATES



LEGEND:

- 1. Terminal grille
- 2. Air duct extension
- 3. Flue duct extension
- 4. Flue duct connection socket
- 5. Boiler flue duct
- 6. Boiler air duct

Fig. 5

EXTENSION DUCTS

REAR FLUE - Refer to Fig. 6

The rear flue option may only be used with the standard flue pack.
Maximum and minimum wall thickness are stipulated in the Table given with Fig. 7.

1. Tape the boiler template to the wall in the selected position.
2. Mark out the position of the mounting screws and the hole for the flue duct.
3. Drill the holes with a No. 20 (10mm - $\frac{3}{8}$ in) masonry drill and insert the plastic plugs provided.
4. Fit the wall plate with the screws provided.
5. Cut the appropriate hole in the wall for the flue duct. See Boiler Mounting Template for size (dependent on type of wall).
6. Measure the wall thickness 'X', outside wall surface to inside wall surface. (See Fig. 7).
7. Cut the air and flue ducts to the required lengths as given in Fig. 7, care should be taken to ensure that the correct end of the ducts are cut and that it is a clean and square cut.
8. If the side clearance is less than 100mm then pre-pipe the flow and return connection to a suitable position above or below the boiler.
Take care with pre-piped joints.
9. Lay the boiler on its left hand side and insert the aluminium flue, flange first, into the boiler flue outlet, (lowest aperture on the boiler air/flue box).
Ensure that the gaskets provided are sandwiched between the flue duct flange and boiler flue/air connection box.
Using one of the three M5 x pozi headed screws, provided, secure the tube via the middle fixing hole on the flange.

10. Slide the air duct over the flue tube and secure to the boiler flue/air connection box by means of the two remaining M5 x pozi headed screws.
11. Slide the sealing gasket over the air duct ensuring the long section is at the bottom.
12. Lift the boiler onto the wall mounting plate - allowing the projecting duct work to enter the pre-cut opening in the wall.
Ensure that both studs are engaged within the slots in the wall mounting plate before releasing the boiler.
Using the jacking screw located at the bottom rear of the air duct, adjust as necessary until the boiler is vertical.
Tighten the two M8 wing nuts, supplied, onto the studs and, so, secure the boiler to the wall mounting plate.
13. Make good externally around the air duct.
14. Fit the flue terminal to the outside wall surface with the two screws and wall plugs supplied.
In the case of a combustible or timber framed wall construction it will be necessary to fit the extended terminal wall plate (supplied in the hardware pack) as follows:
 - (a) Secure the extended wall plate to the terminal with the stainless steel screws and nuts provided.
 - (b) Locate the terminal onto the flue and air duct and mark the position of the four fixing holes.
 - (c) Remove the terminal and drill the four holes with a No. 10 (5.5 - $\frac{7}{32}$ in) masonry drill.
 - (d) Fit the 4 plastic wall plugs provided.
 - (e) Refit the terminal ensuring that the flue and air ducts are correctly located and secure with the four screws provided.

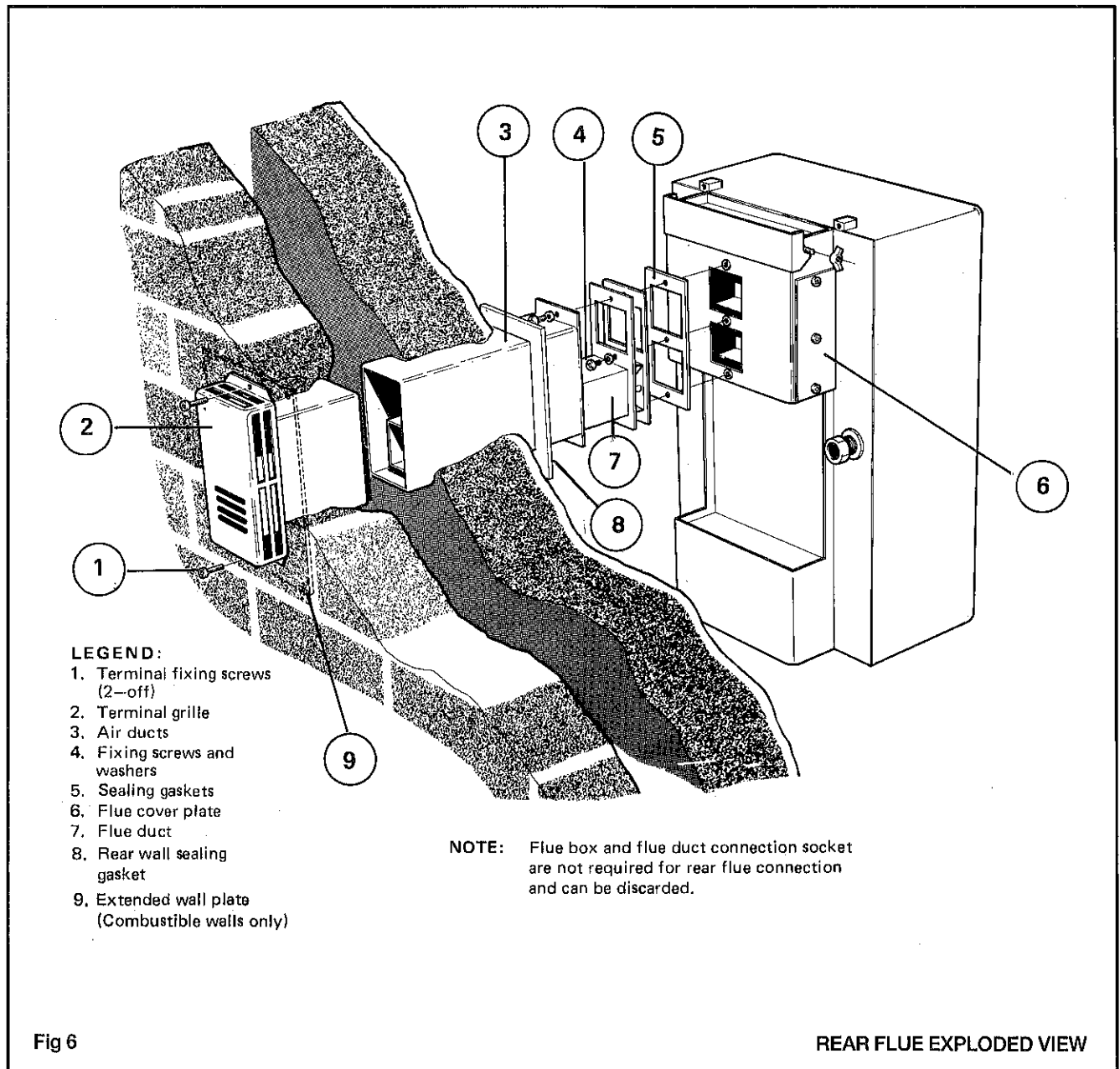
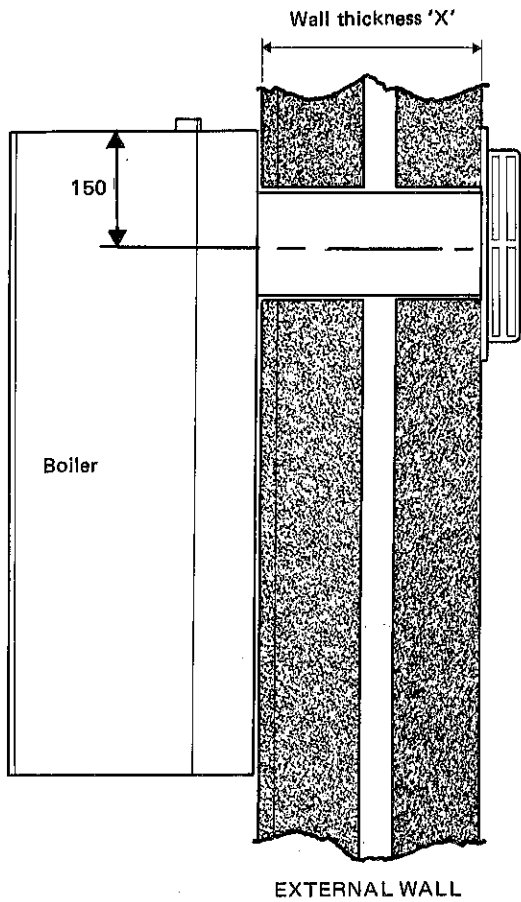


Fig 6

REAR FLUE EXPLODED VIEW



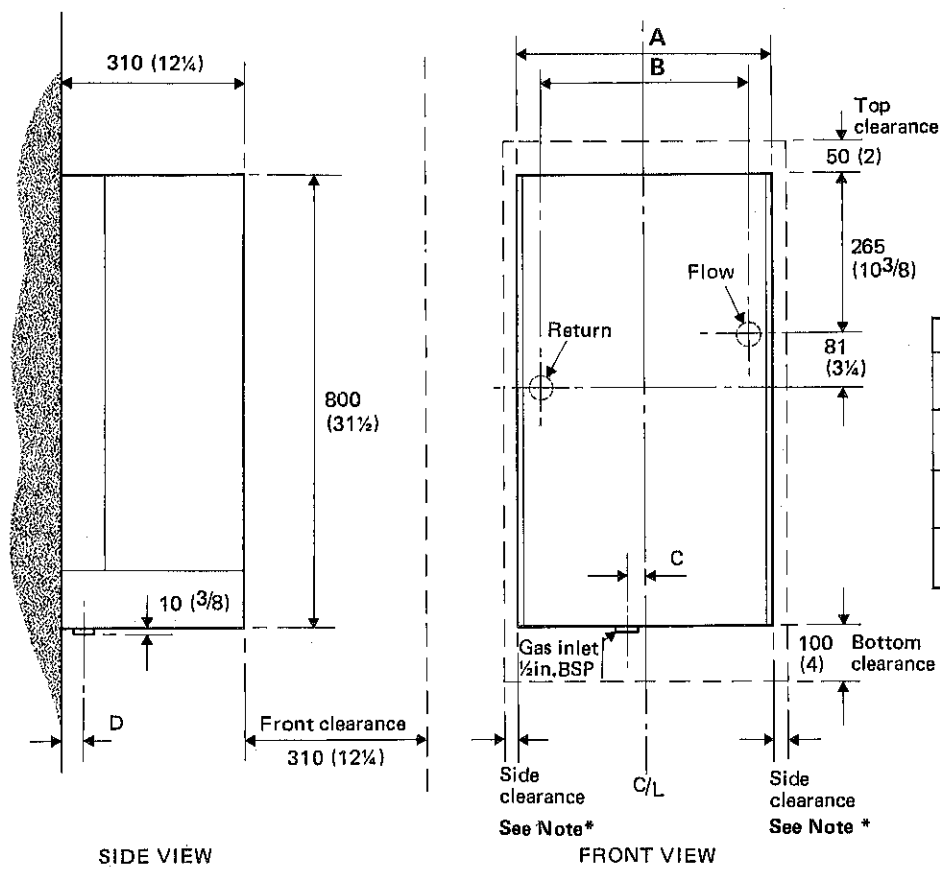
IDEAL EXCEL 30 to 60 F	STANDARD KIT ONLY Min. 'X': 115 mm (4.5in) Max. 'X': 615 mm (24.2in)
Cut length of AIR DUCT 'A'	'X' plus 5 mm
Cut length of FLUE DUCT 'B'	'X' plus 5mm

**CUTTING STANDARD DUCT
REAR OUTLET**

Fig 7

REAR FLUE- FITTING DIMENSIONS

All dimensions in mm (in)
N.B. Imperial dimensions approximate

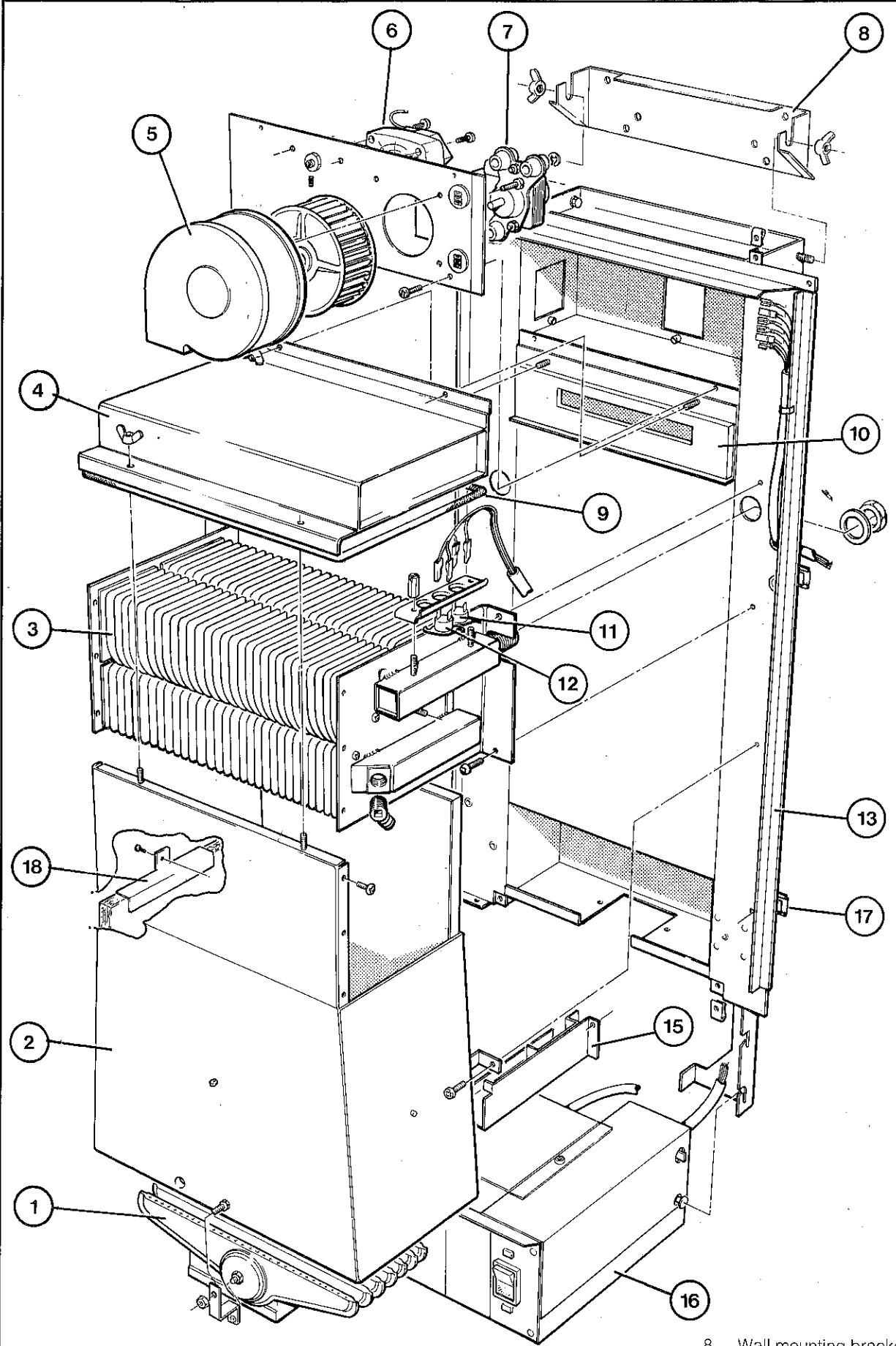


	30F, 40F	50F, 60F
A	350	450
DIM	(13 3/4)	(17 3/4)
B	280	360
DIM	(11)	(14 1/4)
C	105	75
DIM	(4 1/4)	(3)
D	45	30
DIM	(1 3/4)	(1 1/4)

Note*: For rear flue installations 5mm each side for side flue installations. 50mm at flued side of boiler and 5mm at the opposite side.

Fig 8

DIMENSIONS



LEGEND-

- 1. Burner controls assy
- 2. Combustion chamber
- 3. Heat exchanger assy
- 4. Collector hood
- 5. Fan scroll
- 6. Pressure switch
- 7. Fan motor

- 8. Wall mounting bracket
- 9. Sealing rope
- 10. Sealing gasket
- 11. Boiler thermostat HIGH
- 12. Boiler thermostat LOW
- 13. Back panel assy
- 15. Air guide
- 16. Control box
- 17. Casing side panel clips
- 18. Insulation retention clip

Fig 9 50F and 60F Boiler shown

BOILER UNIT- EXPLODED VIEW

WATER CONNECTIONS - Refer Fig. 10

The two water connections can now be made to the boiler, the system filled and vented, and connections checked for water soundness. Combined feed and vent pipes **MUST NOT** be used.

This appliance is **NOT** suitable for use in direct systems.

GUIDE TO SYSTEM REQUIREMENTS - Figs. 10,11,12&13

1. The pump **MUST** be fitted on the flow side of the boiler and must **ALWAYS** be wired to the boiler control box terminal strip- to ensure the correct operation of the pump delay timer.

NO switches or other controls can be wired into the leads between the terminal strip and the pump.

A suitable pump is a domestic circulator providing an 8°C (14.5°F) to 11°C (20°F) differential across the boiler, (e.g. Grundfos UPS Series' or equivalent).

It is **IMPORTANT** to ensure that the differential across the boiler does **NOT** exceed 15°C (27°F).

Fit a higher duty pump and/or a By-pass if necessary; -to ensure that flow rates through the boiler are in compliance with Table 3.

2. The vertical distance between the highest point of th system and the feed/expansion cistern water level **MUST** not be less than 610mm (24in).

3. There should be a minimum height of 450mm (18in) of open vent above the cistern water level. If this is not possible then contact Stelrad Group Ltd. for advice on Low Head installations.

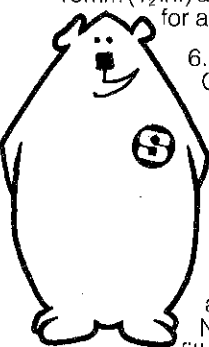
4. The vertical distance between the pump and feed/expansion cistern **MUST** comply with the pump manufacturers minimum requirements to avoid cavitation.

Should these conditions not apply, either lower the pump position or raise the cistern above the minimum requirement of Stelrad Group Ltd., (Fig. 10).

5. The system should be vented directly off the boiler FLOW pipe, as close to the boiler as possible;--where location prevents this, the pipework between the boiler and the vent should be adequately routed to avoid air-locks.

In order to minimise the amount of hot system water likely to expand into the cold feed pipe/extension cistern the cold feed pipe should be inverted as shown in Fig. 10. This inversion should be as long as is practically possible and **MUST** be positioned between the pump and the vent, and not more than 150mm (6in) away from the vent connection.

Where a By-pass has to be fitted, it should be piped in 15mm (1/2 in.) and **MUST** incorporate a balancing valve for adjustment.



6. BY-PASS ADJUSTMENT

Carry out the routine balancing of the radiators and zones. With the boiler firing, all circuits open and the By-pass approximately half a turn open check that the water flow rate through the boiler complies with Table 3-under all normal operating conditions.

If the flow rate is insufficient then open the By-pass by no more than 1/8 of a turn at a time before rechecking the flow rate.

Note; if thermostatic radiator valves are fitted then refer to pages 12 & 14.

If in doubt contact Stelrad Group Ltd. for advice.

To this end fully pumped systems which may be closed off completely by users manually operated valves should be avoided.

Only electrically operated controls as recommended in this literature, should be used. If in doubt contact Stelrad Group for advice.

If motorised valves are used to control both central heating and domestic hot water then they must be either independent, two port SPRING CLOSURE motorised valves having auxiliary switch contacts see (a), or a three port valve which allows a continuous path for water to flow through the boiler and a domestic hot water or heating circuit or both at all times, see (b).



(a)

Systems fitted with 2 port SPRING CLOSURE valves: suitable valves, are those featured in Fig.19 which also shows the electrical wiring details which **MUST** be adhered to. See also the schematic pipework layout Fig.11 for further information.

When this type of system is to be fitted any residual heat contained within the boiler heat exchanger will not be wasted but passed into the domestic hot water storage cylinder when the controls are satisfied and the boiler turns off automatically.

It is recommended therefore that the setting of the cylinder thermostat is reduced by upto 5°C below that normally used during summer time.

During periods when heating is required also, as explained above, residual heat will provide a further boost to the temperature of the stored water and the user will be able, in nearly all circumstances to reduce the cylinder thermostat setting to an even lower value.

However, as individual user requirements vary the amount by which the usual cylinder thermostat setting may be reduced will depend on personal preferences.

As a general guide it is recommended that at the outset a cylinder thermostat setting of (50-55°C) be used during summertime and (45-50°C) be used when heating and hot water are required during Autumn and Winter.

- (b) Systems utilising three port valves.

Note: Valves which do not allow water to flow through the boiler and one or both outlet ports at all times during normal operation **MUST** not be used.

Suitable valves for example are those featured in the Honeywell 'Y' plan and Drayton Flowshare 2 controls packages -refer Fig. 18.

If in doubt these points should be checked with the appropriate controls manufacturer.

For schematic pipework layout refer Fig. 12.

When this type of system is to be fitted any residual heat will be passed into the domestic hot water storage cylinder during summertime when no heating is required, residual heat will be passed into either the domestic hot water or heating circuits depending on the particular cycling characteristics of the system at the time when the boiler is switched 'Off' by the controls.

A cylinder thermostat setting of between 55°C and 60°C is recommended for both Summer and Winter operation, although users individual requirements will vary.

General Note:

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 a radiator(s) 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 circulating pump during programmed heating 'on' periods, thus saving electrical energy.

It is recommended strongly therefore, when thermostatic radiator valves are used, that space heating temperature control over a living/dining area or hallway having a heating requirement of at least 2 kW (7 000 Btu/h) be achieved using a room thermostat, whilst other rooms are individually controlled by the thermostatic radiator valves refer Fig 13 and Page 12..

IF A ROOM THERMOSTAT IS NOT TO BE FITTED WHEN FULL CONTROL OF SPACE HEATING IS TO BE ACHIEVED USING THERMOSTATIC RADIATOR VALVES THE FOLLOWING REQUIREMENTS MUST BE COMPLIED WITH

The heating system **MUST** include one un-controlled radiator having a minimum heat loss of 0.9 kW (3 000 Btu/h) under design conditions.

The radiator **MUST** be fitted with two lockshield valves both of which **MUST** be at least partly open at all times.

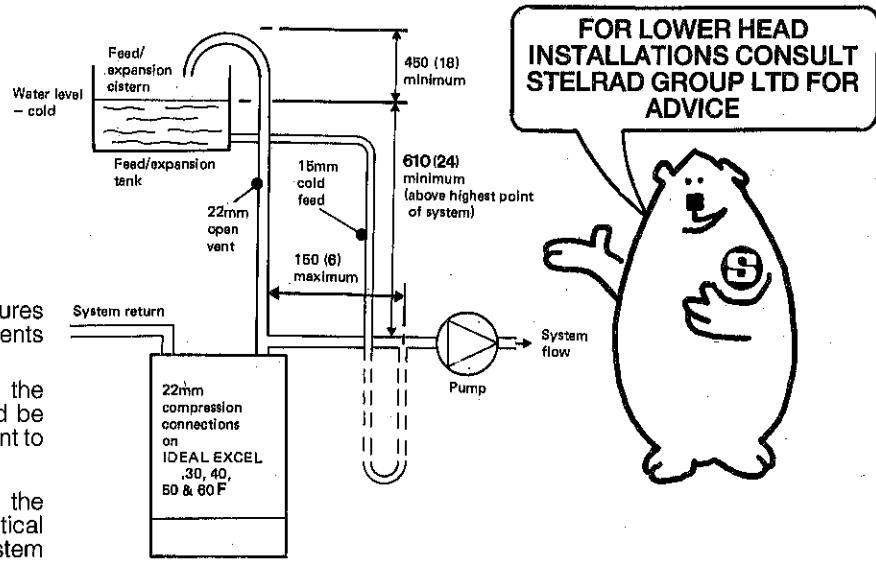
A by-pass **MUST** be fitted to ensure the minimum required flow rate, equivalent to a maximum temperature difference of 15°C (0.28 l/s - 3.7 gpm), through the boiler at all times.

The by-pass setting procedure explained on page 12 must be followed for all systems fitted with the r-mostatic radiator valves. In addition set the system controls so that the water circulates through the un-controlled radiator and by-pass **ONLY**. Fire the boiler on HIGH thermostat setting. When the system reaches temperature ensure adequate water flow through the boiler(refer Table 3), and satisfactory heat dissipation.

THERMOSTATIC RADIATOR VALVES



All dimensions in mm (in)
 N.B. Imperial dimensions approximate



- Note 1.** The pump manufactures minimum head requirements MUST be complied with.
- Note 2.** Any pipework rising above the open vent connection should be fitted with an automatic air vent to avoid air locks.
- Note 3.** Extend the inverted part of the loop to the maximum practical length(refer 'Guide to System Requirements' Page

Fig. 10

GUIDE TO MINIMUM REQUIREMENTS CLOSE COUPLED FEED AND VENT

For advice on the application of thermostat radiator valves refer to Page 12

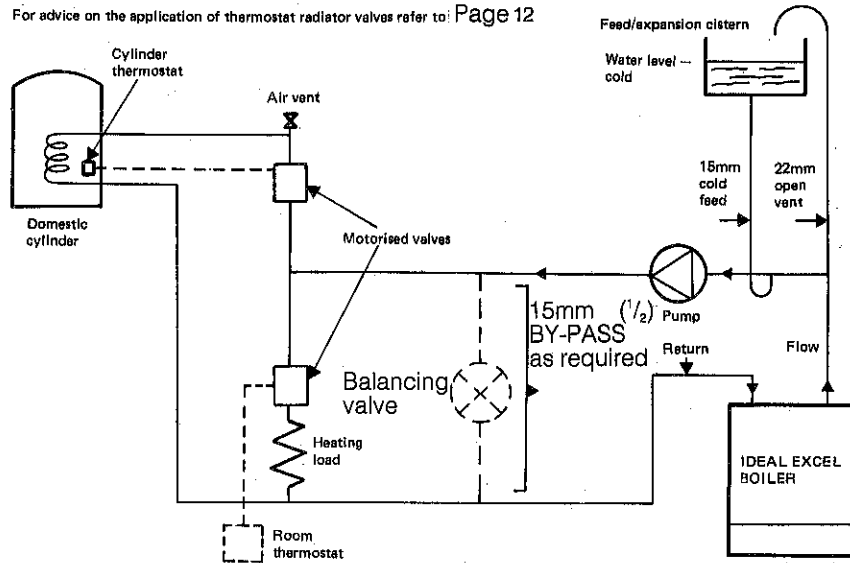


Fig. 11

TWO MOTORISED VALVES SCHEMATIC PIPEWORK LAYOUT

For advice on the application of thermostatic radiator valves refer Page 12

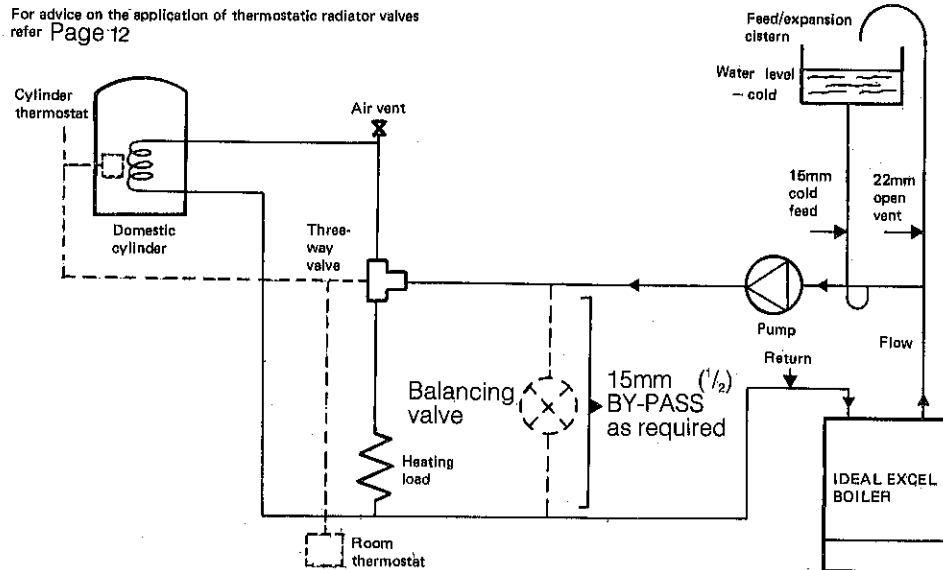


Fig. 12

THREE-WAY VALVE SCHEMATIC PIPEWORK LAYOUT

Note-Domestic hot water circuit and zone valves not shown.

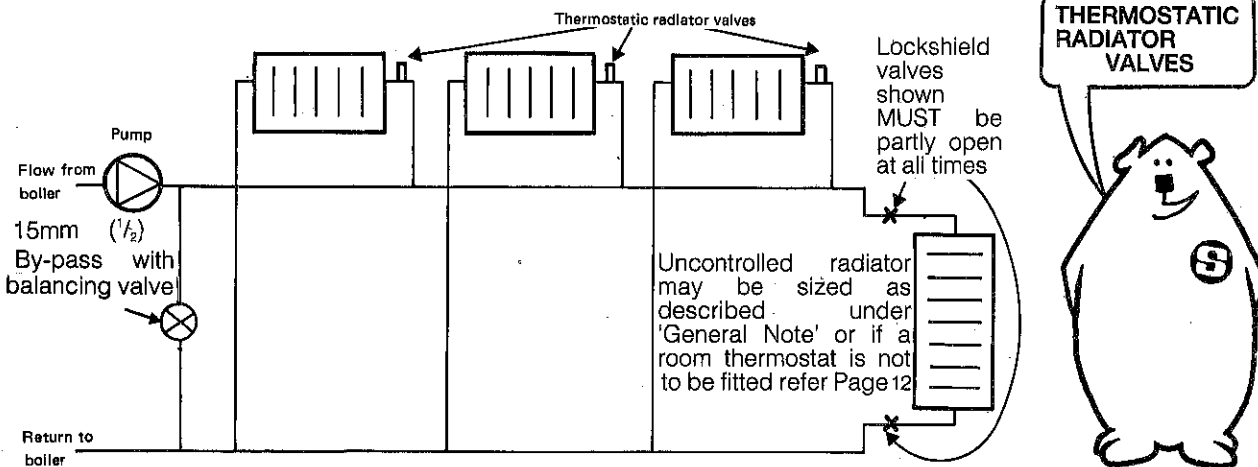


Fig 13 SCHEMATIC LAYOUT SHOWING APPLICATION OF UNCONTROLLED RADIATOR

GAS CONNECTIONS

A MINIMUM gas pressure of 20 mbar (8in.w.g.) MUST be available at the boiler inlet.

The gas service cock is at the rear of the boiler with the inlet facing downwards

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

ELECTRICAL CONNECTIONS

WARNING: The appliance MUST be efficiently earthed:

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

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

Wiring should be in three-core, PVC insulated cable, NOT LESS than 24/0.2mm. BS 6500 Table 16.0.75mm².

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

The supply connection may be made via a removable plug to a shuttered socket-outlet and should, such a plug be used for connection to the mains, it MUST be of 3-pin type, wired as shown in Fig. 14, fused at 3 A, and complying with the requirements of BS.1363.

INTERNAL WIRING

The internal wiring of the control box is shown in Figs. 15 and 16.

A wiring diagram is also contained in the lighting instruction plate on the bottom of the controls pod.

1. Undo the securing screw on top of the box and remove the cover.
2. Route the mains lead (taking care not to come into contact with hot surfaces or water pipes) in the box via the grommetted hole at the rear and wire into the SUPPLY terminals marked L, N and $\frac{\text{N}}{\text{E}}$ and secure with the cable clamp. (Refer Fig 15 or 15A)

Note: The mains lead connection must be made such that the current carrying conductors become taught before the earthing conductor if the lead slips out of the cord anchorage.

3. The pump MUST be wired into the terminals marked LP, NP and the ancillary supply earth stud (Refer Fig 15 or 15A).

4. Refit the control box cover.

EXTERNAL CONTROLS

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

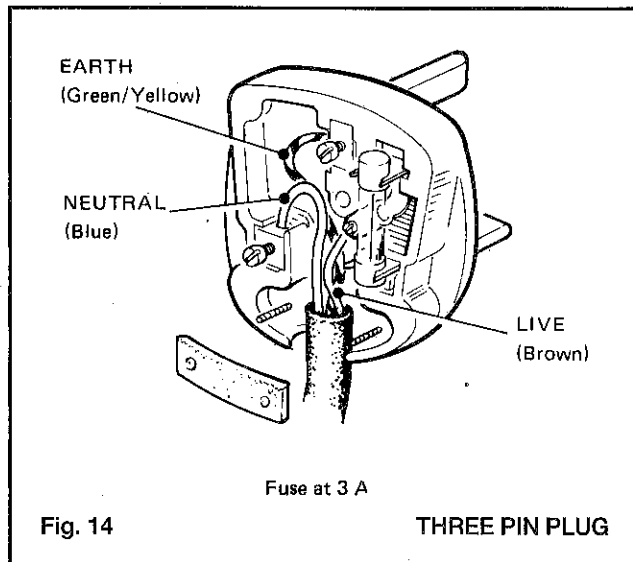


Fig. 14 THREE PIN PLUG

The wiring diagrams illustrated in Figs. 17 - 19 cover the systems most likely to be used with this appliance and are included for guidance only.

For wiring external controls to the IDEAL EXCEL boiler, reference should be made to the system wiring diagram supplied by the relevant manufacturer, in conjunction with the wiring diagrams shown in Figs. 15 and 16.

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

The mains supply must be connected to terminals N, $\frac{\text{N}}{\text{E}}$, L at the boiler control box the system controls must be wired between L^o (live out) and L^B (switched live in). Remove the red link supplied.

The pump must always be wired to the designated boiler terminals, to enable correct operation of the overrun circuit

The pump earth lead MUST be connected to the ancillary supply earth stud (Refer Fig 15 or 15A).

If the boiler is installed to a bottom clearance of between 100mm (4in) and 200mm (8in), unhinge the control box from its bracket, turn it to the left to facilitate access to the terminal connections ensuring the box is supported on the surface without strain on existing wiring.

After fitting external wiring carefully place the control box hinges back onto the support bracket.

LEGEND

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

A PERMANENT, live supply MUST be provided for the correct operation of the electronic pump delay timer

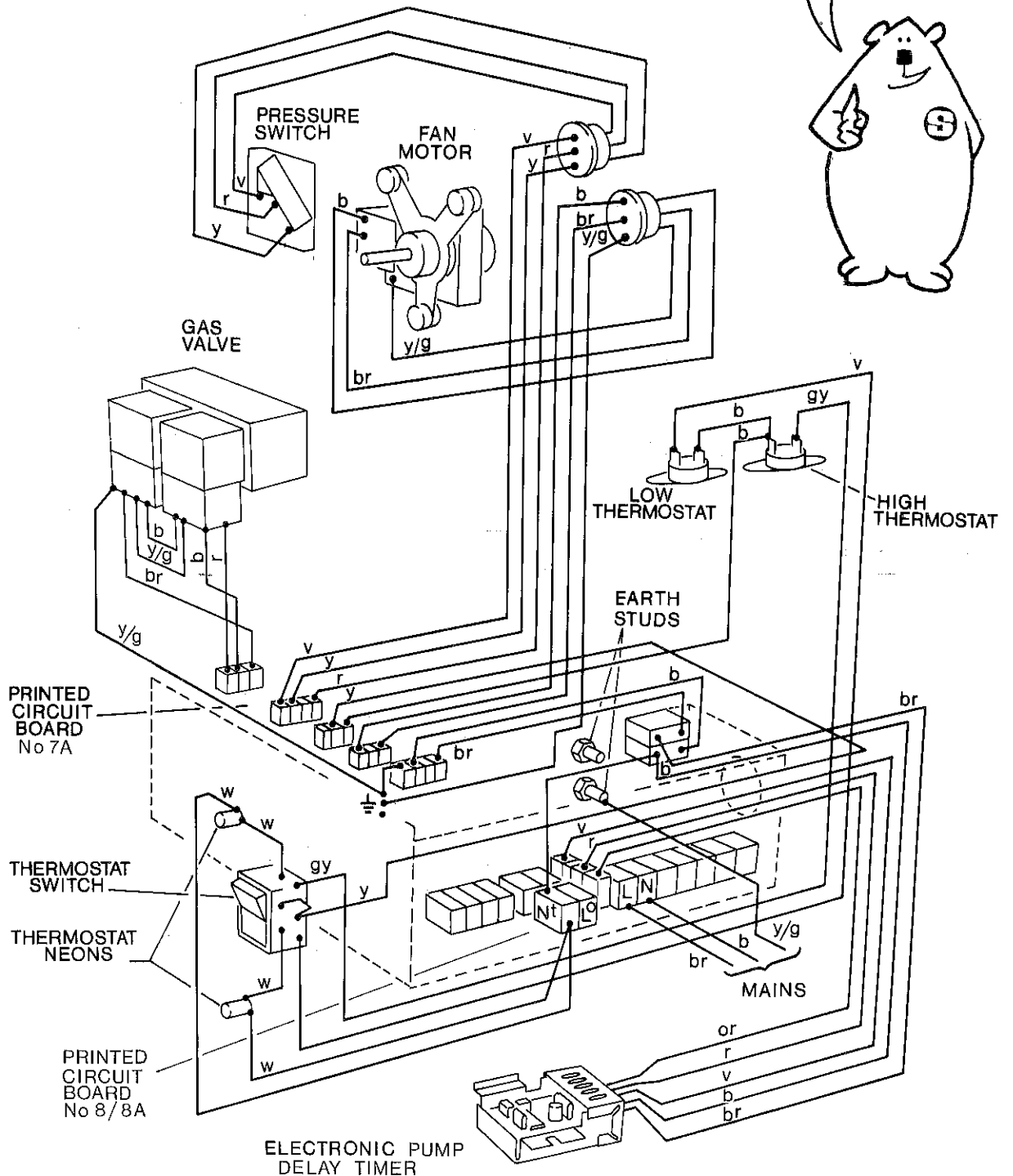
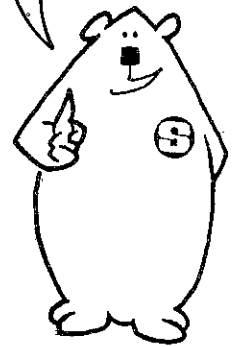


Fig 15

PICTORIAL WIRING DIAGRAM-30F&40F

LEGEND

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

A PERMANENT, live supply MUST be provided for the correct operation of the electronic pump delay timer

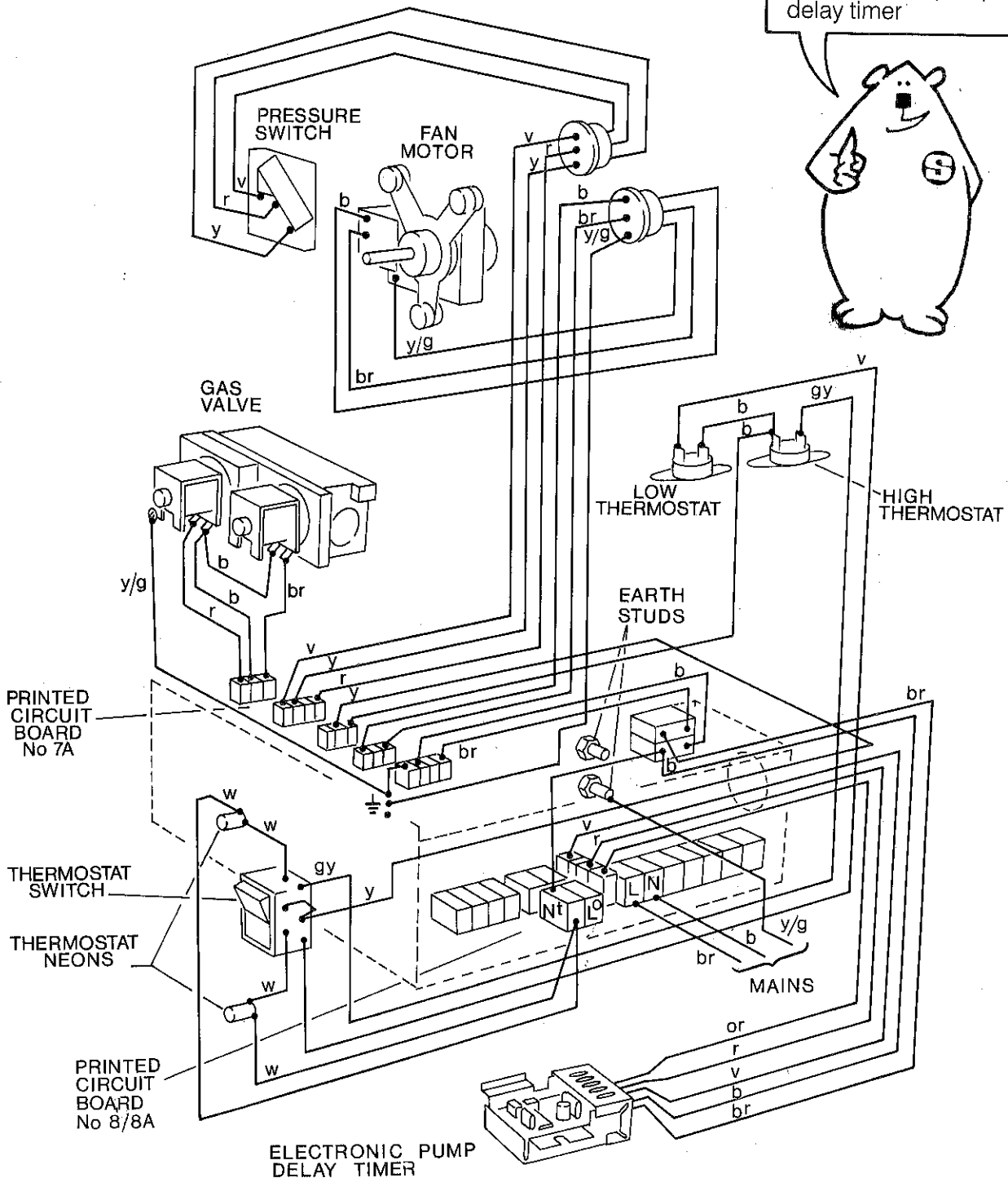
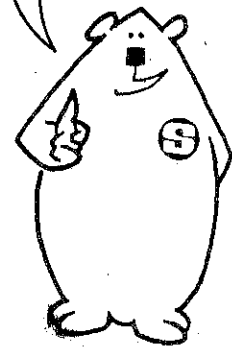


Fig 15A

PICTORIAL WIRING DIAGRAM-50F&60F

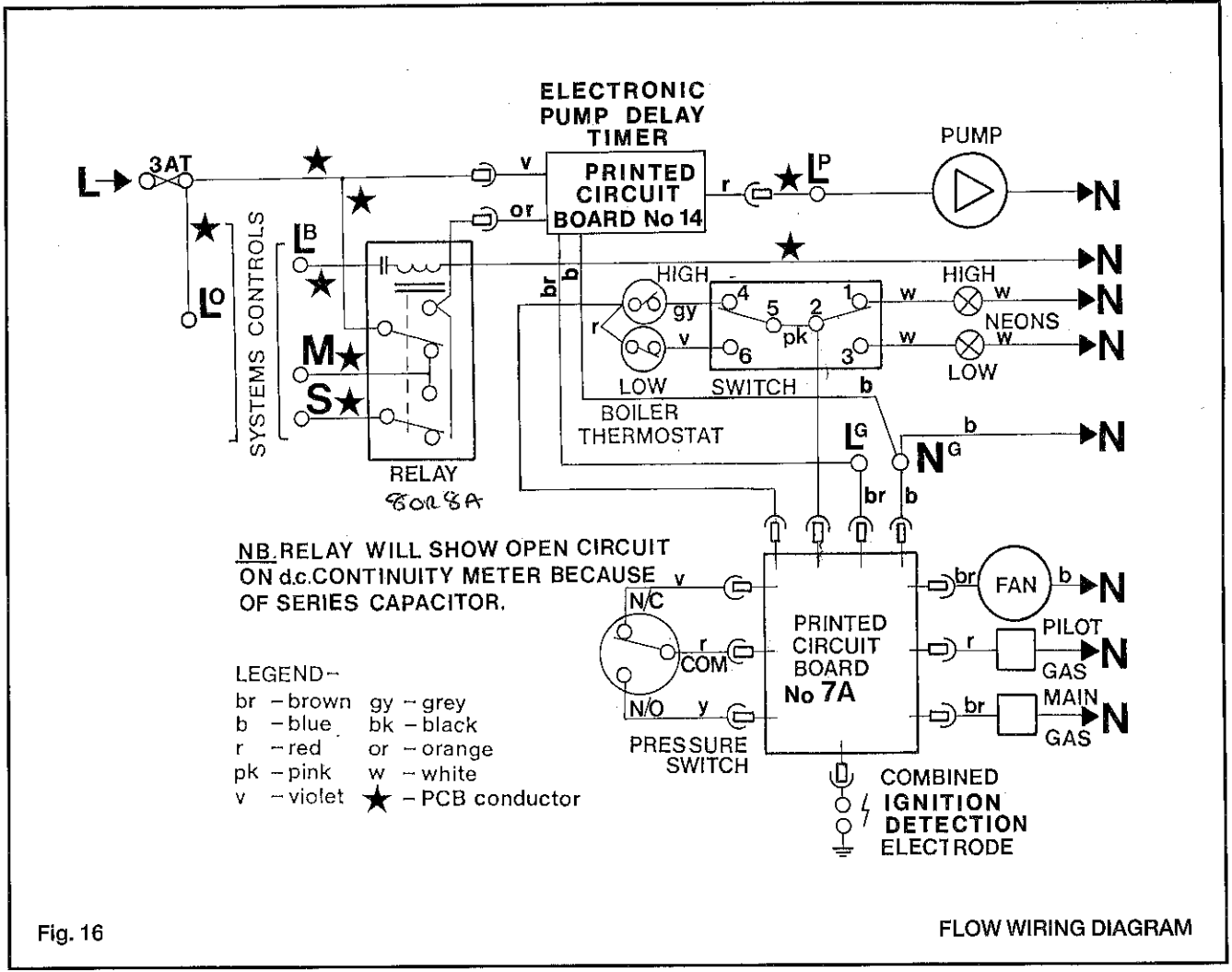


Fig. 16

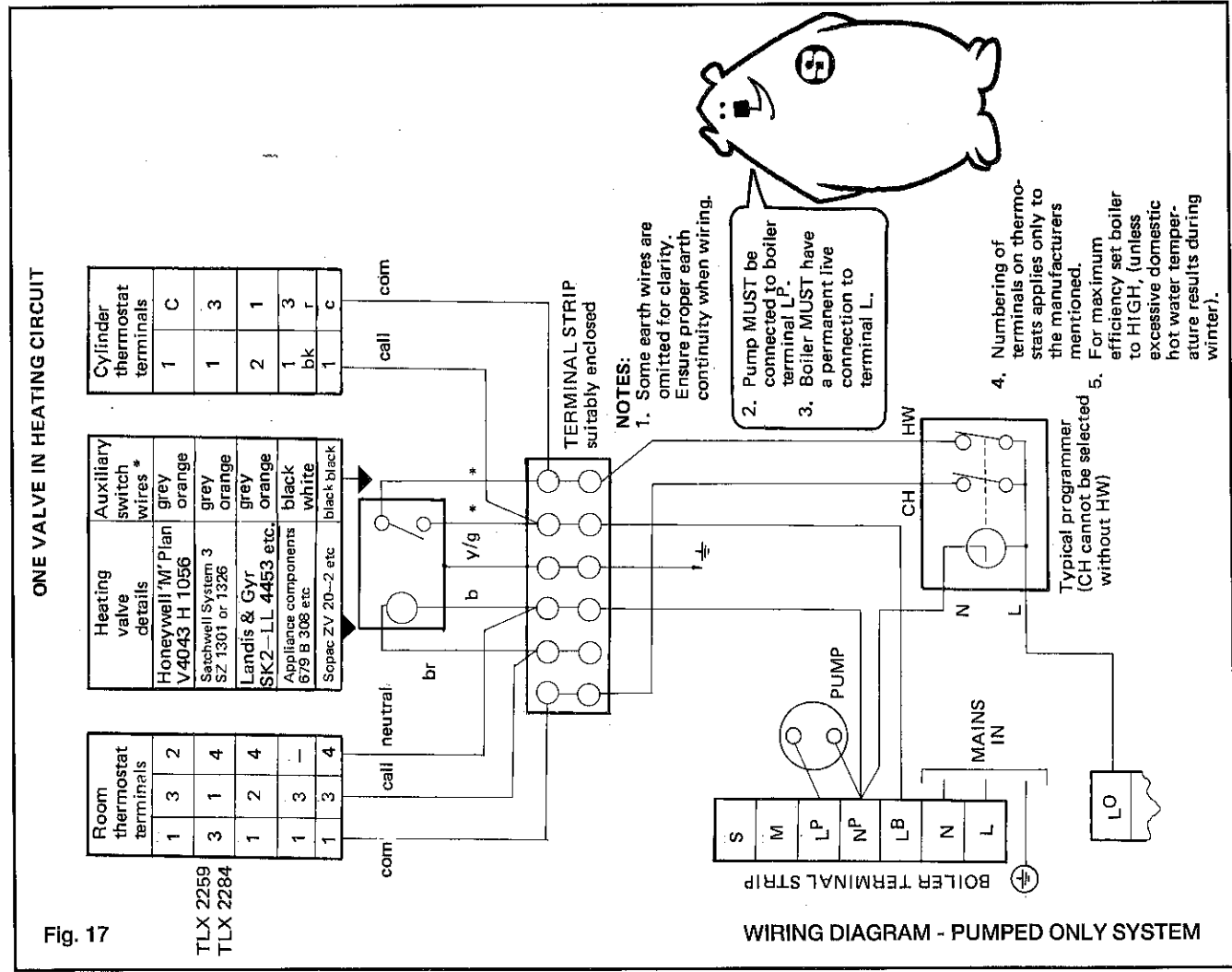
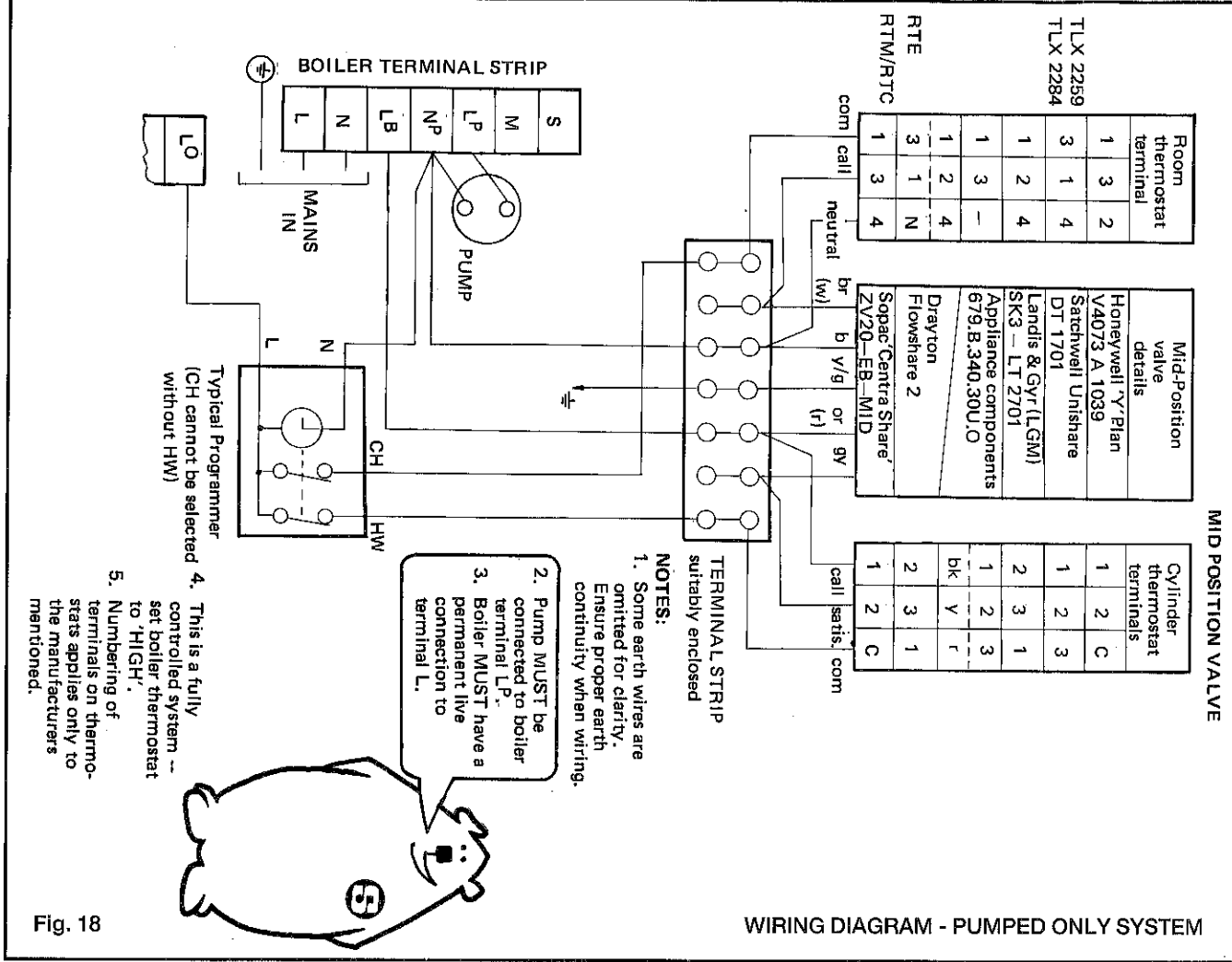
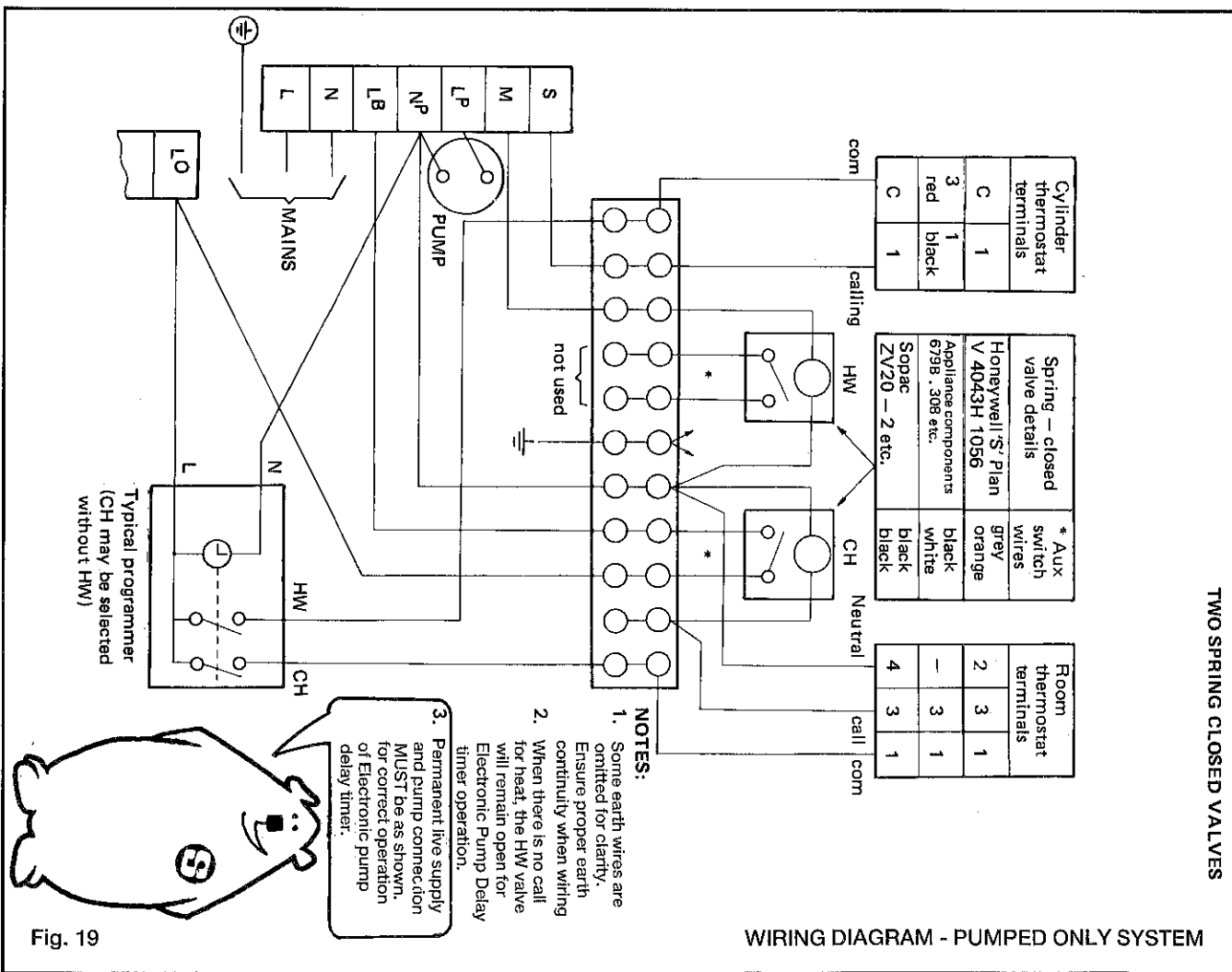


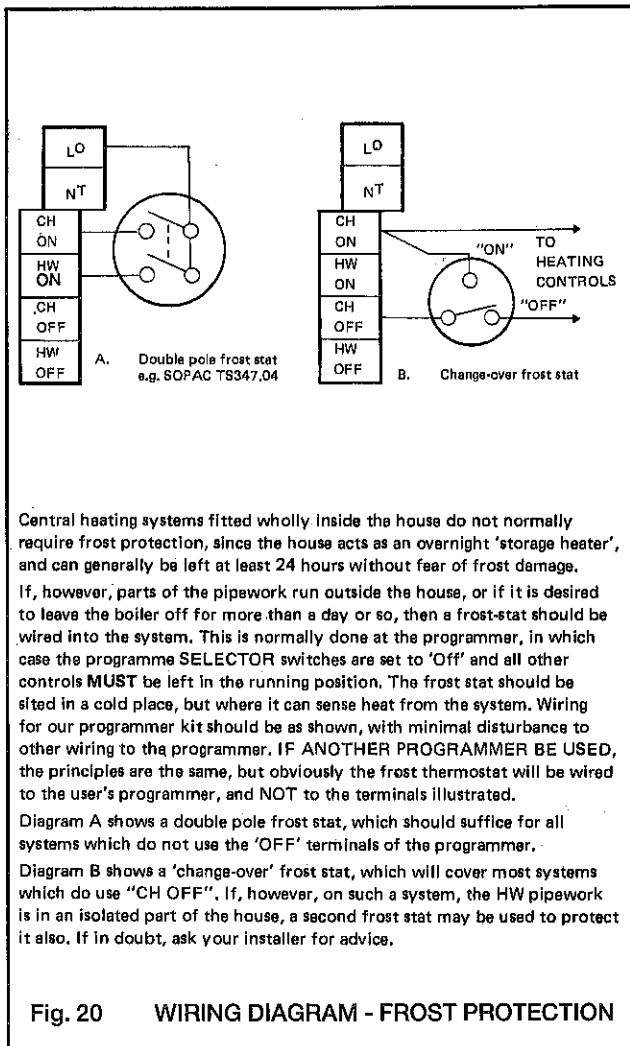
Fig. 17



WIRING DIAGRAM - PUMPED ONLY SYSTEM



WIRING DIAGRAM - PUMPED ONLY SYSTEM



PILOT SUPPLY GAS SOUNDNESS CHECKS

Before fitting the casing the following pilot supply gas soundness check must be made.

1. Check that the gas service cock is ON and the boiler thermostat switch is OFF.
 2. **30F & 40F**
Remove the plug from the gas control RH main solenoid by undoing the retaining screw.
 2. **50F & 60F**
(a) Remove the cover from the gas control valve.
(b) Screw the main gas adjuster (F) FULLY CLOCKWISE, counting the number of turns required.
 3. Disconnect the BROWN fan lead and the YELLOW pressure switch lead from the fan mounting plate, and link the two together with the connector provided.
 4. Set the boiler thermostat switch (C) to HIGH, the pilot solenoid should open, and the intermittent spark commence—continuing until the pilot is established. Check the appearance of the pilot flame:- Refer Servicing section - Pilot Burner.
- NOTE:** The pilot flame is factory pre-set and no adjusting should be necessary.
5. Test the complete pilot gas supply for gas soundness using leak detection fluid.
 6. Set the boiler thermostat switch to OFF and SWITCH OFF THE ELECTRICITY SUPPLY TO THE BOILER.
 7. **30F & 40F**
Reconnect the fan, pressure switch and MAIN solenoid leads.
 7. **50F & 60F**
Reconnect the fan and pressure switch leads and return the main gas adjuster screw to its original setting.

FITTING THE CASING

WARNING:

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

1. Lift the boiler casing up to the boiler assembly and secure with the four fixing screws. Extreme care **MUST** be taken to avoid fouling the internal wiring at the top right hand side. The casing **MUST** seat correctly and compress the sealing strip to make an airtight joint.
2. Secure the control box to the bottom of the boiler casing.

3. Slide the controls pod bottom panel into position.
4. Re-locate the controls access door.
5. Replace the bottom panel securing screws.
6. Affix the two casing side panels, if required, to each side of the boiler by means of the edge clips attached to the boiler back panel (Refer Fig. 9 - item No. 17). If a side flue has been used it will be necessary to remove one of the knock out pieces from the appropriate side of the casing side panel.

IMPORTANT:

THIS APPLIANCE **MUST NOT** BE OPERATED WITHOUT THE CASING BEING CORRECTLY FITTED AND FORMING AN ADEQUATE SEAL.

ELECTRICAL INSTALLATION:

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

ALWAYS carry out the preliminary electrical system checks as detailed on pages 6 - 9 of the Instructions for the British Gas Multimeter.

GAS INSTALLATION:

The whole of the gas installation, including the meter, should be inspected and tested for soundness, and purged in accordance with the recommendations of CP.331:3.

Purging air from the gas installation may be expedited by the removal of the controls pod door and bottom panel, loosening the union on the gas service cock and purging until gas is smelled.

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 all naked lights and **DO NOT SMOKE**.

WATER CIRCULATING SYSTEM:

The whole of the system should be thoroughly flushed out with cold water - **WITHOUT** the pump in position. Ensure all valves are open.

With the pump fitted, the system should be filled and airlocks cleared.

Check for water soundness.

Check all drain cocks are **CLOSED**, and stop valves in the flow and return lines are **OPEN**.

INITIAL LIGHTING INSTRUCTIONS-Refer Fig. 21 or 21A.

1. Remove the glass door by undoing the screws retaining the bottom panel and flexing one side panel.
2. Slide out the controls pod bottom panel.
3. Undo the nut securing the control box to the bottom of the boiler casing.
4. Lift the back of the control box slightly and swing the box downwards (complete with programmer if fitted) - pivoting from the back.
5. Check the gas service cock is ON and the boiler thermostat switch is OFF.
6. Remove the screw in the burner pressure test nipple and connect a gas pressure gauge via a flexible tube.
7. Check the electricity supply and all external controls are ON.
8. Set the boiler thermostat switch to HIGH- the boiler will then light and the HIGH indicator neon will glow. After the fan has run for a few seconds the pilot solenoid should open and the intermittent spark commence, this will continue until the pilot is established. Once the pilot is established the main gas burner will come on. Test for gas soundness around the boiler gas components using leak detection fluid.
9. Operate the boiler for ten minutes to stabilise the burner temperature.
10. Check the burner setting pressure against the values quoted in Table 2.
11. If the burner setting pressure requires adjustment **30F & 40F** remove the pressure adjusting screw cover (J) situated on the centre of the right hand gas control solenoid. Adjust as necessary (clockwise to decrease the pressure). Replace the cover after adjustments are made.
- 50F & 60F
Remove the gas valve cover
Turn the pressure adjusting screw (F) to decrease the pressure. Replace the valve cover after adjustments are made.
12. Set the thermostat switch to off. Remove pressure gauge connection and replace the test point screw ensuring a gas tight seal is made.
13. Swing the control box back into its working position and secure with the retaining nut.

- Refit the controls pod bottom panel and access door in reverse order of removal.

GENERAL CHECKS

Make the following checks for correct operation:

- Turn the boiler thermostat switch from OFF to HIGH and from OFF to LOW. Check that the main burner and appropriate indicator neons light and extinguish in response.
- Check the appearance of the pilot flame - refer 'Pilot Burner Servicing', page 22.
- Check that the casing is seated correctly and compressing the sealing strip all round the casing.
- The correct operation of the programmer, if fitted, and all other systems control should be provided. Operate each control separately and check the main burner responds.
- With the system HOT, examine all water connections for soundness. Then turn OFF the gas, electricity and water supplies to the appliance and drain down whilst the system is still hot, in order to complete the flushing process. Refill and vent the system and set the by-pass, when fitted.
- Finally, set the controls to the User's requirements.

Note:

The HIGH or LOW indicator neons will glow whenever that thermostat is 'Calling for Heat'.

HANDING OVER

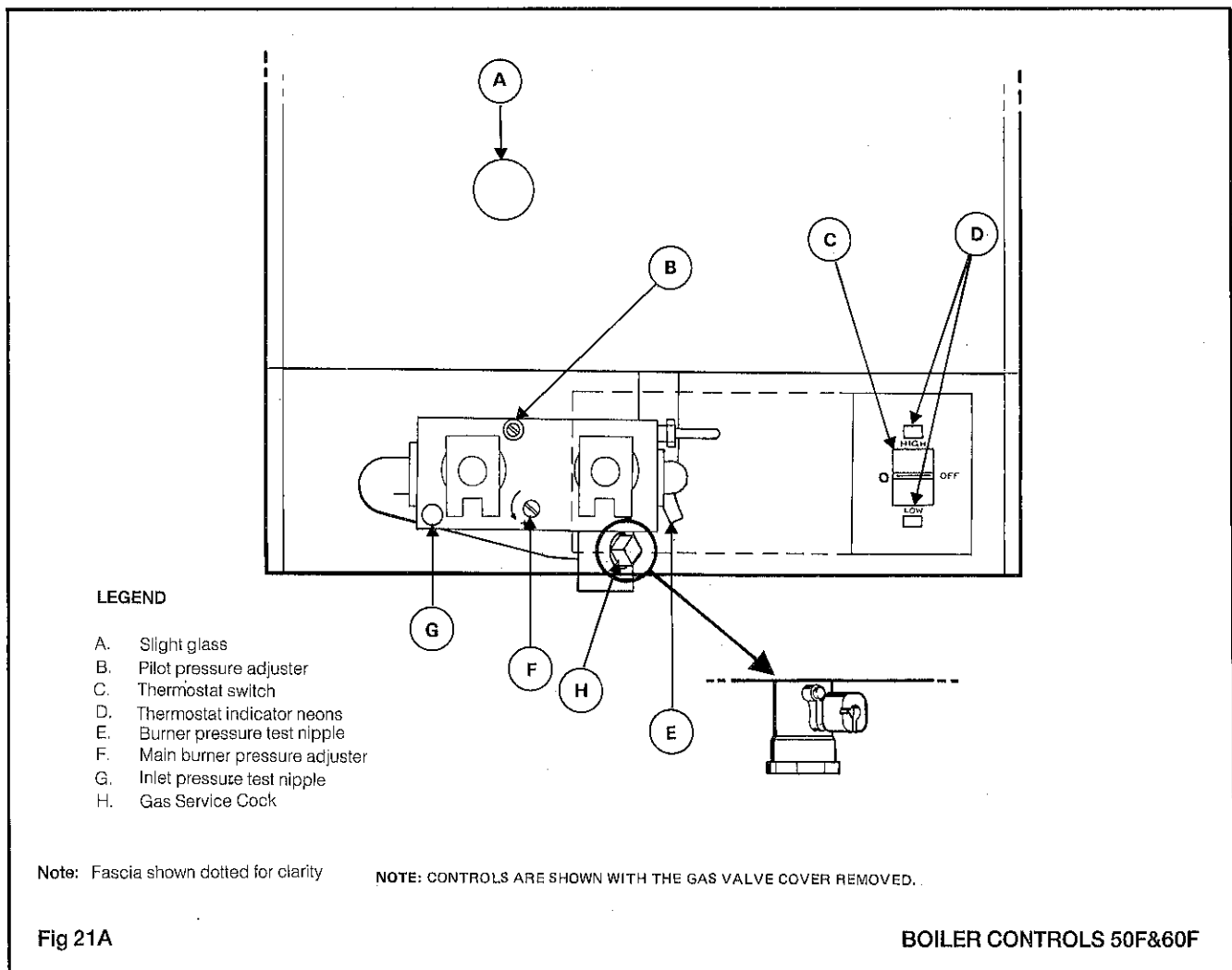
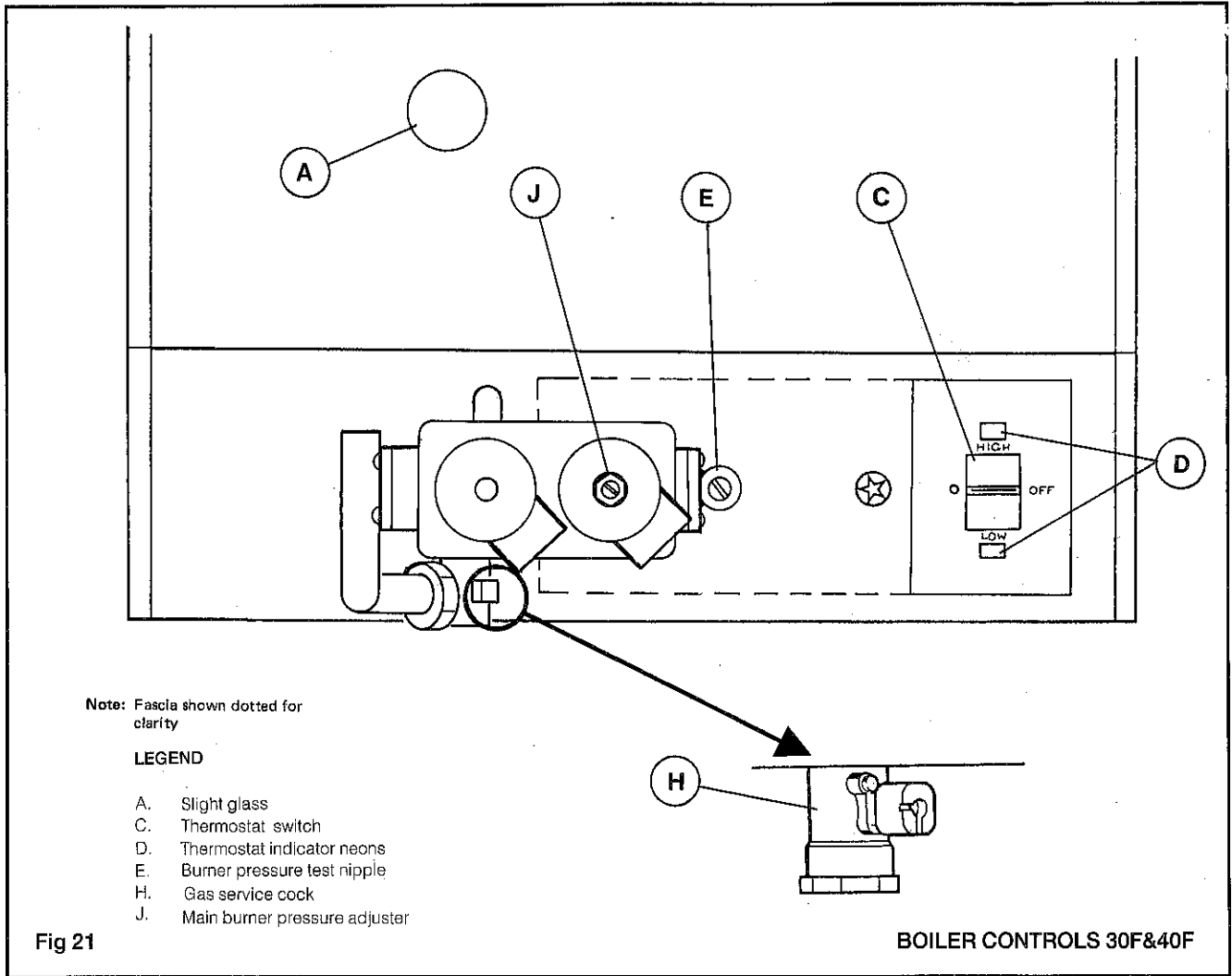
After completion of installation and commissioning the system, the Installer should hand over to the Householder by the following actions:

- Hand the User's Instructions publication to the Householder and explain his/her responsibilities under the Gas Safety (Installation and Use) Regulations:1984.
- Draw attention to the lighting Instruction label affixed to the inside of the controls access door.
- Explain and demonstrate the lighting and shutting down procedures
- 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 the 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 even of the system remaining in-operative during frost conditions.
- Explain the function and use of the boiler thermostat and external controls.
- Explain and demonstrate the function of time and temperature controls, radiator valves, etc, in the economic use of the system.
- Stress the importance of regular servicing by the Local Gas Region, or by a qualified Heating Engineer.

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



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SERVICING

Before removing the casing or attempting to undertake any work on the appliance-set the boiler thermostat switch to OFF and wait for two minutes.

WARNING:

TURN OFF the gas supply at the gas service cock and switch OFF and DISCONNECT the electricity supply to the appliance BEFORE SERVICING.

A COMPREHENSIVE SERVICE SHOULD BE CARRIED OUT ONCE A YEAR.

After completing any servicing or exchange of components always carry out functional checks and test for gas soundness where appropriate.

THE USER IS ADVISED TO MAKE A CONTRACT WITH THE LOCAL GAS REGION OR A QUALIFIED HEATING ENGINEER.

BURNER ASSEMBLY Refer Fig. 22&22A

1. Remove the glass door by undoing the screws retaining the bottom panel and flexing one side panel.
2. Slide out the controls pod bottom panel.
3. Undo the nut securing the control box to the bottom of the boiler casing.
4. Lift the back of the control box slightly and swing the box downwards (complete with programmer if fitted) - pivoting from the back.
5. Remove the boiler casing by releasing the four captive screws.

30F & 40F, ONLY

Undo the two screws securing the gas valve solenoid plugs.

Remove the plugs from the gas valve.
On re-assemble ensure the plug with the black lead is fitted to the solenoid marked PILOT.
(L.H. solenoid as viewed from the front).

50F & 60F, ONLY

Undo the screw securing the plastic cover of the gas valve and remove the cover.

Disconnect the electrical leads from the gas valve solenoids, noting their position (refer Fig. 15).

7. Remove the control box covers and disconnect the ignition/detection lead from the Printed Circuit board, pass the lead through the grommeted hole
8. Undo the union nut on the gas service cock.
9. Undo the screw securing the left hand air guide plate, repeat with the right hand air guide plate.
10. Undo the nut securing the burner front support bracket to the heat exchanger skirt.
11. Support the burner assembly while undoing the two wing nuts securing the burner sealing plate and controls assembly to the bottom of the boiler.
12. Remove the complete assembly.
13. Remove to a convenient working surface for attention.
14. Brush off any deposits which may have fallen on to the burner head, ensuring the flame ports are unobstructed, and remove any debris which may have collected.
15. Remove the two screws retaining the light-back shield.
16. Remove the main burner injector; ensure there is no blockage or damage.
17. Replace the injector, using an approved jointing compound.
18. Replace the light back shield.
19. Inspect the pilot burner and ignition/detection electrode; ensure they are clean and in good condition. In particular check:
 - (a) The pilot burner is firmly secured.
 - (b) The ignition/detection electrode and lead are clean, undamaged and secure.

FLUEWAYS

With the main burner and controls assembly removed as previously described:

1. Cover the Control box with a suitable cloth
2. Remove the four wing nuts retaining the flue collector hood and remove the hood.
3. Remove all loose deposits from the heat exchanger finned assembly, brushing from above and below as necessary using a suitable brush available from the Pinnacle Brush Company, Fishponds, Bristol.
4. Refit the flue collector hood in reverse order of removal, replacing any damaged or deteriorating sealing gaskets.
5. Refit the burner and controls assembly and the air guide plates in reverse order of removal ensuring the sealing gasket is in good condition and correctly positioned.
6. Complete gas and electrical connections, including the ignition/detection electrode lead.

7. Ensure the sightglass in the boiler casing is clean and undamaged.
8. Refit the control box covers
9. Refit the boiler casing.
10. Swing the control box back into its working position and secure with the retaining nut.
11. Refit the controls pod bottom panel and access door in reverse order of removal.

PILOT BURNER, 30F & 40F ONLY

Light the boiler and check:

1. The pilot flame is 25mm (1in) long as shown in Fig. 23. The pilot is factory set to a maximum and no further adjustment should be necessary.

PILOT BURNER, 50F & 60F ONLY

Light the boiler and check:

1. The pilot flame is 25mm (1in) long as shown in Fig. 23. The pilot adjuster screw is factory set to maximum and no further adjustment is necessary. However, if the pilot flame appears small, check the adjustment of the pilot pressure adjuster screw - (B), Fig. 21 - as follows:
 - (a) Switch the thermostat switch to 'OFF'.
 - (b) Remove the gas valve cover.
 - (c) Turn the pilot pressure adjuster screw 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.

FAN IMPELLER

1. Remove the four screws securing the fan assembly to the back panel.
2. Disconnect the six wires connecting the fan and pressure switch to the two electrical connector blocks.
3. Check the fan is running freely and that the impeller blades are clean. Service as necessary. Re-assemble in reverse order.

ADJUSTMENT OF GAS PRESSURE

After each occasion of servicing, reference should be made to Table 2, which quotes details of the rated output, with the related burner setting pressure and the heat input. Any required adjustments should be made by using the pressure adjustment screw, (F), Fig. 21 or (F) Fig. 21A.

REPLACEMENT OF COMPONENTS

WARNING:

ALWAYS turn OFF the gas supply at the gas service cock and switch OFF and DISCONNECT the electricity supply BEFORE WORKING ON THE APPLIANCE.

Note:

To replace the following components, it will be necessary to remove the boiler casing, as described in the Servicing Section of this publication.

In all cases ensure that the boiler casing is correctly refitted (see page 19).

Sight Glass

1. Unfasten the two nuts holding the sight glass assembly to the boiler casing.
2. When fitting the replacement assembly, make certain the parts are in the correct order, i.e. gasket, glass, gasket and frame.

Note:

The frame must have the return edge at the bottom.

3. Retighten the two nuts to ensure an airtight seal. Do NOT overtighten.

Boiler Control Thermostats (Fig. 9)

1. Undo the two extended nuts securing the thermostat retaining plate and remove the plate along with the two thermostats, remove the collector hood if necessary. **The HIGH thermostat is positioned nearest the back panel with the LOW thermostat in the middle.**
2. Pull off the two electrical connections from the thermostat.
3. Fit the replacement thermostat and re-assemble in reverse order, refer Fig. 15.

Electronic Pump Delay Timer (Fig 15 & 15A)

1. Unhinge the control box & remove the covers.
2. Turn control box over & undo extended nut and remove the timer.
3. Trace the harness to board No.8A. Disconnect the plugs and wires - noting their positions, i.e. brown to Lg, blue to Ng.
4. Fit the replacement timer's harness plug and wires - as noted in 3, above.
5. Re-assemble in reverse order.

LEGEND-

1. Main burner injector
2. Pilot pipe
3. Pilot burner injector
4. Pilot burner
5. ignition/detection electrode
6. Main burner
7. Gas service cock
8. Main gas valve
9. 'O' ring seal
10. Gas inlet manifold
11. Pressure test nipple

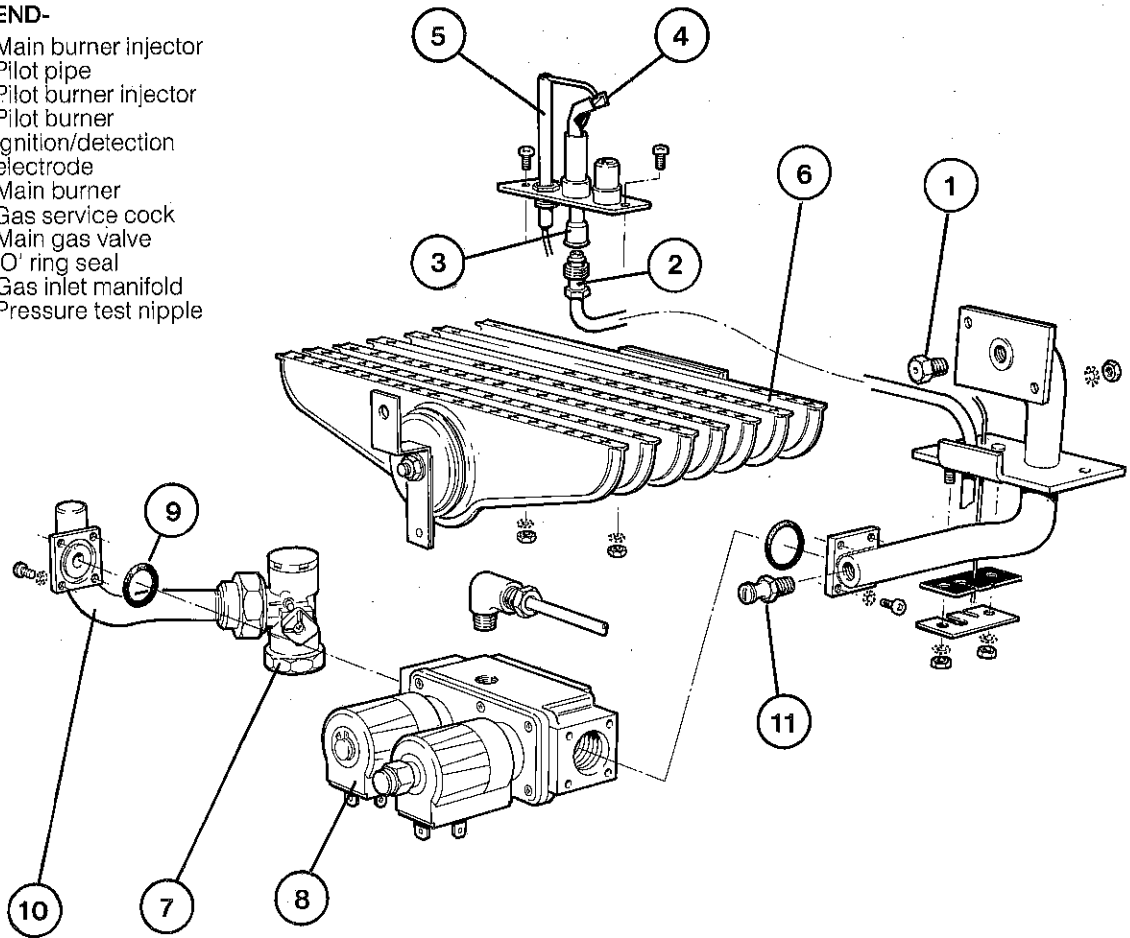
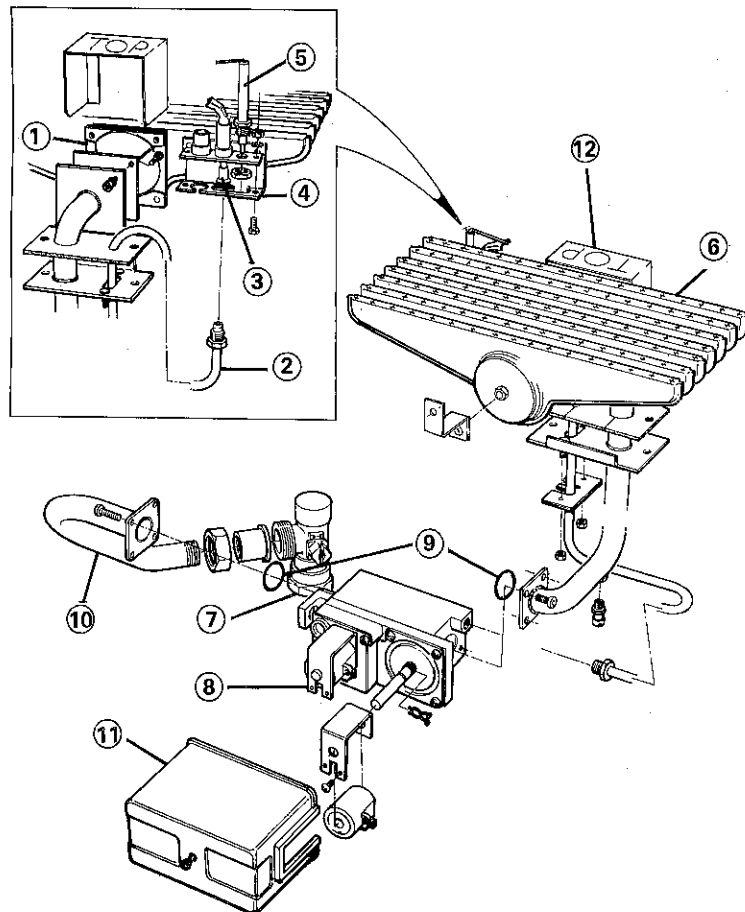


Fig 22

BURNER AND CONTROL ASSEMBLY · 30F&40F



LEGEND-

1. Main burner injector
2. Pilot pipe
3. Pilot burner injector
4. Pilot burner
5. ignition/detection electrode
6. Main burner
7. Gas service cock
8. Main gas valve
9. 'O' ring seal
10. Gas inlet manifold
11. Gas valve cover
12. Burner light back baffle

Fig 22A

BURNER AND CONTROL ASSEMBLY · 50F&60F

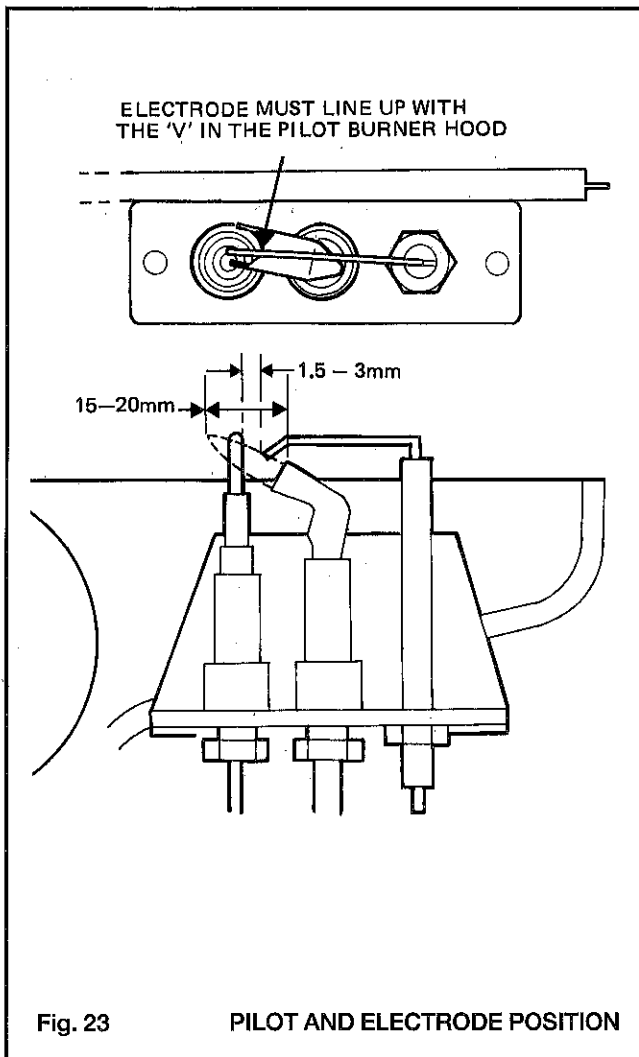


Fig. 23 PILOT AND ELECTRODE POSITION

Electrode and Integral Ignition/Detection Lead

1. Remove the burner assembly as previously described in Servicing Section.
2. Remove the clip securing the ignition/detection lead to the pilot supply pipe.
3. Undo the two nuts securing the pilot pipe sealing plate to the underside of the burner manifold, remove the plate and gasket.
4. Remove the control box cover and disconnect the ignition/detection lead from the printed circuit board.
5. Remove the pilot burner by undoing the fixing screw and nut nearest the electrode.
6. Unfasten the backnut retaining the electrode and withdraw from the pilot bracket.
Ensure that the electrode tip is in the correct position.

Pilot Burner

1. Remove the burner assembly as previously described. Remove the ignition/detection electrode as previously described.
2. Undo the pilot pipe at the pilot burner.
3. Undo the remaining nut and screw securing the pilot burner to the main burner and remove, leaving the pilot pipe in position.
Do NOT lose the pilot injector, which is a loose fit in the pilot pipe connection to the pilot burner.
4. Transfer the electrode to the new pilot burner.
Fit the new pilot burner over the pilot pipe ensuring the pilot injector is in position.
Re-assemble in reverse order.

Main Burner, 30F and 40F ONLY

1. Remove the pilot burner as previously described.
2. Remove the two nuts which fasten the burner to the gas manifold and withdraw burner.
3. Fit the new burner in reverse order.

Gas Valve, 30F & 40F ONLY

1. Remove the burner assembly- as previously described.
2. Undo the pilot pipe connection at the gas valve.
3. Remove the gas valve by undoing the four screws retaining it to the burner manifold.
4. Transpose the gas inlet pipe to the new valve ensuring the 'O' ring supplied is correctly fitted and the gas valve is the correct way round (an arrow is cast into the valve- indicating the direction of gas flow).

Refer Fig.22. for positional detail of gas inlet pipe.

5. Fit the new gas valve arrangement- ensuring that the 'O' ring seal is correctly fitted at the outlet flange.
6. Refit the plug leads ensuring the plug marked 'PILOT' (Black lead) is fitted to the solenoid marked 'PILOT' (L.H. solenoid as viewed from the front).
7. Refit the burner and controls assembly in reverse order of removal and complete gas and electrical connections.
8. Refit the casing and test for soundness.

Gas Valve, 50F & 60F ONLY

1. Undo the pilot pipe connection at the gas valve.
2. Remove the cover.
Disconnect the electrical connections - noting the positions (refer Fig. 15).
3. Undo the four screws securing the gas valve inlet pipe.
4. Undo the four screws securing the gas valve outlet pipe. The sealing 'O' rings should be discarded and the new ones fitted.
5. Re-assemble in reverse order, ensuring:
 - (a) The new gas valve is fitted the right way round; an arrow engraved on the valve, indicates the direction of flow.
 - (b) The sealing 'O' rings are fitted correctly at the gas valve inlet and outlet flanges.
6. Refit the burner and controls assembly in reverse order of removal and complete gas and electrical connections.
Refit the casing and test for gas soundness.

Complete Fan Unit

1. Remove the four screws securing the fan assembly to the back panel.
2. Disconnect the six wires connecting the fan and pressure switch to the two electrical connector blocks. Noting their position (refer Fig. 15).
3. Remove the screw retaining the fan pressure switch wiring harness - 50F and 60F ONLY.
4. Remove and retain the nut securing the brass pressure sensing fitting to the fan plate.
5. Remove and retain the screws holding the fan pressure switch.
6. Remove the two plastic electrical connector blocks from the fan plate.
7. Refit the pressure switch, brass pressure sensing fitting, electrical connector blocks and pressure switch wiring harness to the new fan unit, refit all electrical connections - refer Figs. 15 and 16, re-assemble the completed fan unit to the boiler back panel using the four screws previously removed.

Pressure Switch

Follow the instructions for replacing the complete fan unit but replace the pressure switch instead of the fan unit.
Ensure that the plastic pipe from the brass pressure sensing fitting is attached to the pressure switch connection -marked '+' and that the shorter plastic pipe, holding the restrictor, is attached to the pressure switch connection -marked '-'.

Relay P.C. board No 8/8A refer fig 25

1. Hinge down the control box.
2. Undo the screw and remove the control box covers
3. Note carefully the position of all wires to the terminal strip, as these will be specific for every installation.
4. Remove all the wires along with the connector leading to the boiler thermostats, and the programmer connector fixing screw.
Also remove the connector plug, if fitted.
5. Starting at the back, underside of the control box, squeeze the barbs of the printed circuit board support pillars together so that each may be pushed through into the control box.
6. When all the pillars are free, ease out the P.C.B., and transfer the pillars onto the new P.C.B.
7. Fit the new P.C.B. into the control box, reconnect wires as noted in (2) above.
8. Re-assemble in reverse order, and refit the casing.

Automatic Ignition P.C. Board No 7A. Refer Fig 25

1. Hinge down the control box.
2. Undo the screw and remove the control box covers
3. Unplug the four plugs and the ignition/detection lead from the panel
4. Remove the printed circuit board by nipping the barbs of the three support pillars and lifting the board free.
5. Using the new printed circuit board re-assemble in reverse order.

Combustion Chamber Insulation (Refer Fig.9.)

1. Remove the burner assembly - as previously described.
2. Undo the screws retaining the combustion chamber surround to the heat exchanger assembly.
3. Undo the two screws securing the combustion chamber front to the back panel.
4. Remove the collector hood by removing the four retaining wing nuts.
5. Withdraw the combustion chamber by pulling downwards and then forwards.
6. Remove the top insulation retaining brackets by removing the fixing screws.
7. Remove the split pins and washers.

8. Fit the new insulation panels and retain with the new split pins and washers.
9. Refit the top insulation retaining brackets.
10. Refit the combustion chamber in reverse order.

Pilot Filter/Inlet Screen (refer Fig.24)

1. Remove the gas valve (complete with inlet and burner gas manifolds) as previously described under Servicing.
2. Undo the five screws retaining the gas valve bottom plate and remove it.
3. The pilot filter and inlet screen can then be inspected and replaced as necessary.
4. Re-assemble in reverse order.

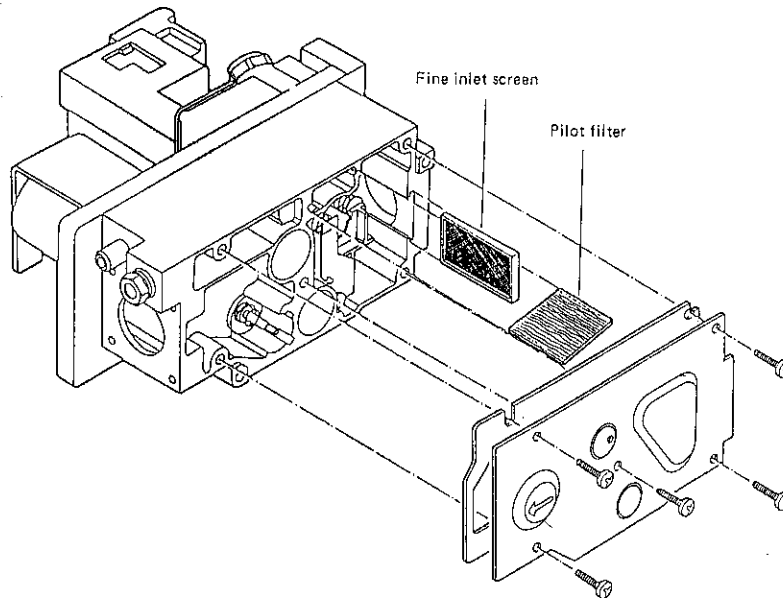


Fig. 24

ACCESSING THE INLET SCREEN AND PILOT FILTER

LEGEND:

1. Control box covers
2. Control box screw
3. Cable clamp
4. Earth studs
5. Relay P.C. board No 8/8A
6. HIGH and LOW neons
7. Boiler thermostat switch
8. Control box fascia
9. Automatic ignition P.C. Board No7A
10. Printed circuit board supports
11. Fuse (3 A)
12. Electronic pump delay timer

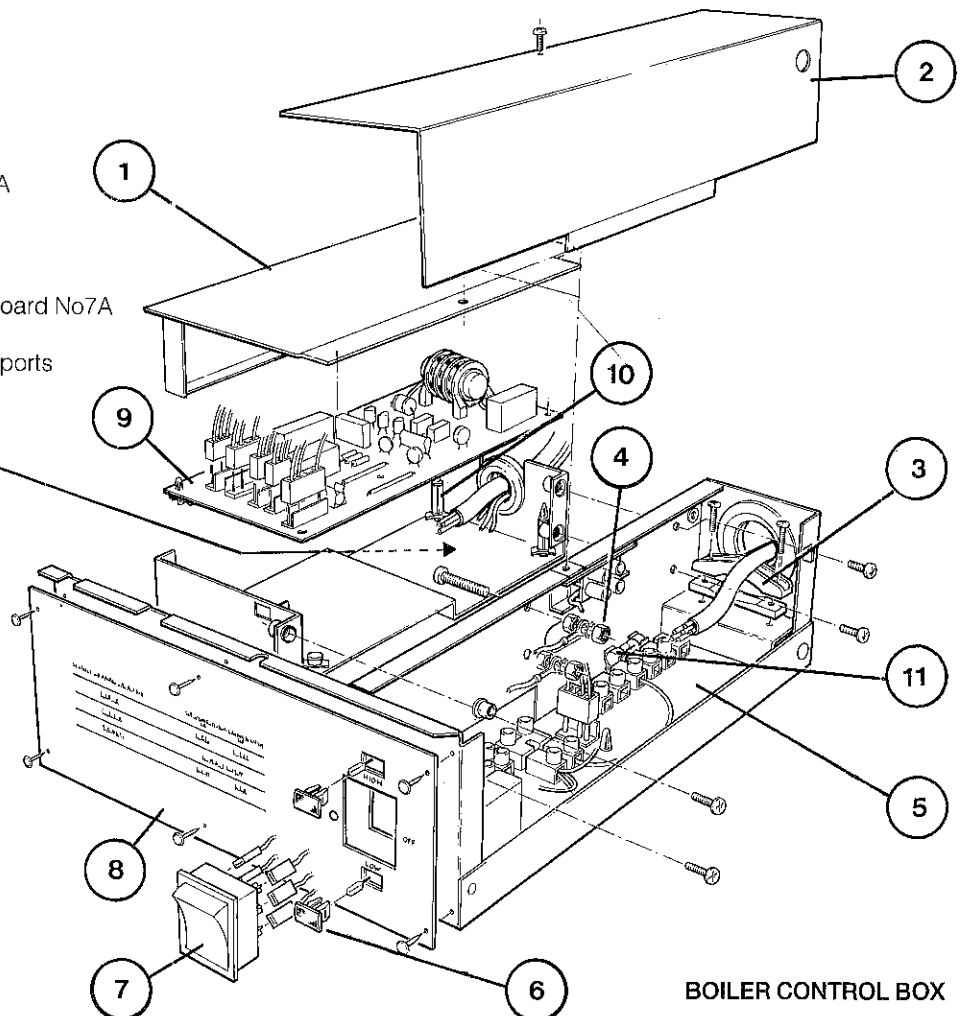


Fig. 25

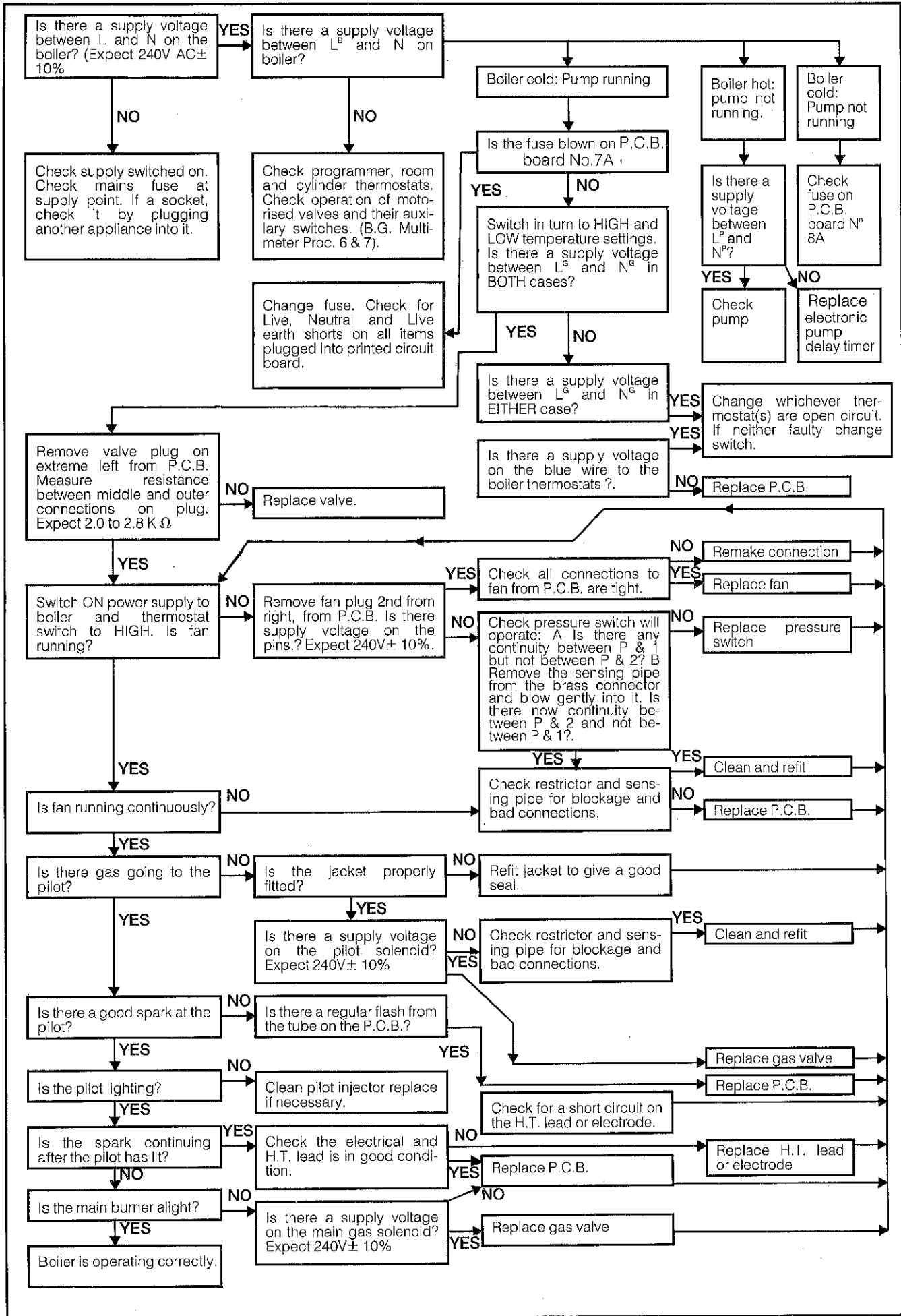
BOILER CONTROL BOX

FAULT FINDING

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

IMPORTANT:

THIS APPLIANCE MUST NOT BE OPERATED WITHOUT THE CASING BEING CORRECTLY FITTED AND FORMING AN ADEQUATE SEAL.



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 G.C. List of Parts, which contains all available spare parts.

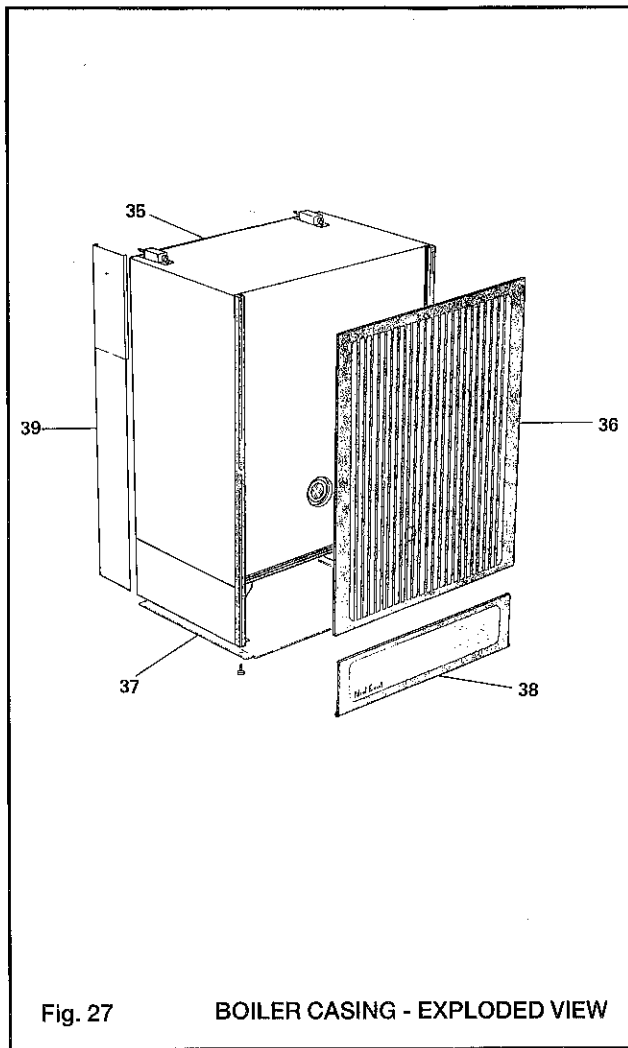
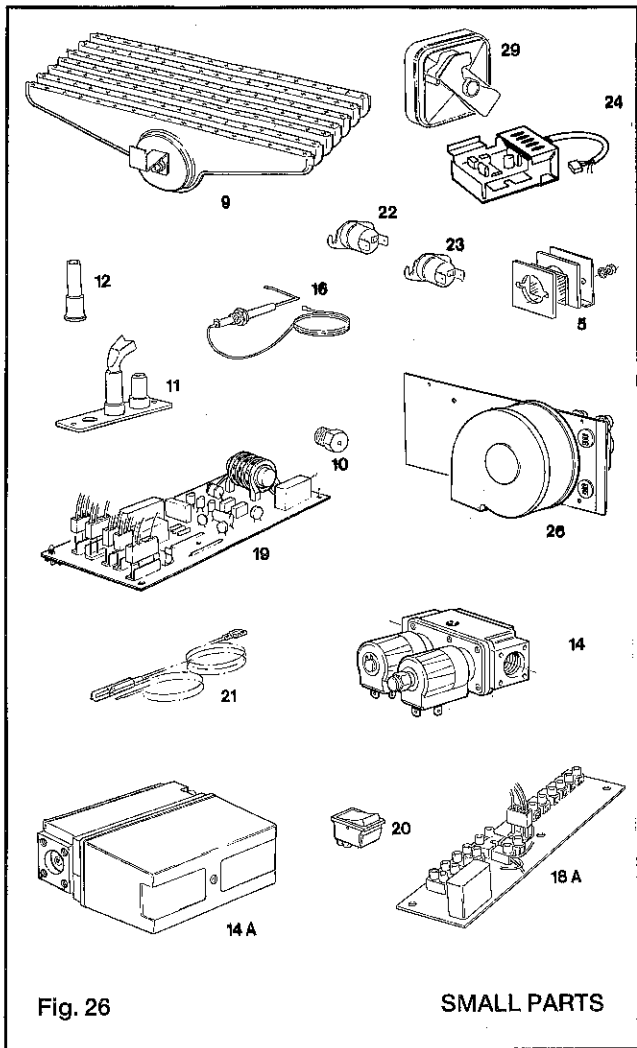
Copies of the G.C. Lists are held by Gas Regions, STELRAD Distributors and by Merchants.

IDEAL EXCEL 30F, 40F, 50F & 60F GAS BOILERS

When ordering spares, please quote:

1. Boiler Model
2. Appliance G.C. Number
3. Description
4. Maker's Part Number
5. Quantity

Key No.	G.C. Part No.	Description	No. Off	Maker's Part No.
5	341 769	Sight glass assembly, comprising: sight glass, frame, 2 gaskets, 2 -M4 Hex. nuts and 2 - M4 shakeproof washers	1	199016045
9	392 901	Main burner - AEROMATIC AC 19/123 230 30F/40F	1	199016064
	392 902	Main burner - AEROMATIC AC 19/123 229 50F/60F	1	199036064
10	398 044	Main burner injector, Bray Cat. 10 size 850 30F	1	189336060
	398 051	Main burner injector, Bray Cat. 10 size 1200 40F	1	189026060
	398 056	Main burner injector, Bray Cat. 10 size 1450 50F	1	199136060
11	384 267	Pilot burner HONEYWELL Q359A 1090 with injector HONEYWELL 45003 508 001 (0.38/0.35)	1	589010080
12	382 586	Pilot burner injector - HONEYWELL 45003 508 001 (0.38/0.35)	1	589040083
14A	395 496	1/2in. BSP HONEYWELL gas control VR 4700 with 2 - 'O' rings 240V 50F/60F	1	586131900
14		1/2in BSP. TEKNIGAS Gas control Series 25 N° 2574110 16 with two 'O' rings	1	586111902
16	394 176	Ignition/detection electrode - VERNITRON 60955 with integral ignition-/detection lead.	1	589010089
18A	341 784	Relay P.C. Board No 8/8A - PACTROL	1	589110067
19	341 827	Automatic ignition P.C. Board No 7A - PACTROL	1	589110068
20	394 152	Thermostat switch - ARCO ELECTRIC C1470 double pole rocker switch, three position change-over	1	589010073
21	341 461	Neon indicator - READILEADS	2	589730067
22	394 276	Thermostat - High setting ELMWOOD 2455R - 821 - 5	1	589010051
23	329 329	Thermostat - Low setting ELMWOOD 2455R - 821 - 3	1	589730057
24	319 098	Electronic pump delay timer (assembly includes box and P.C.B. No.14)	1	589110058
26	341 829	Fan Assembly complete 30F/40F	1	589115011
	341 830	Fan Assembly complete 50F/60F	1	589135011
29	392 933	Pressure switch - DUNGS LGW 3A1 50F/60F	1	589135025
	395 802	Pressure switch - DUNGS LGW 3A1 30F/40F	1	589115025
35	341 841	Boiler casing assy. - white stove enamel, (less brown glass fascia) with removable bottom panel, lighting instructions, sealing rope and fixings. 30F/40F	1	199114030
	341 842	Boiler casing assy. - white stove enamel, (less brown glass fascia) with removable bottom panel, lighting instructions, sealing rope and fixings. 50F/60F	1	199134030
36	341 843	Brown glass fascia panel 30F/40F	1	199110088
	341 844	Brown glass fascia panel 50F/60F	1	199130088
37	341 845	Controls casing bottom panel assembly, with fixings and lighting instructions 30F/40F	1	199110086
	341 846	Controls casing bottom panel assembly, with fixings and lighting instructions 50F/60F	1	199130086
38	341 847	Controls casing door - smoked brown glass with name badge 30F/40F	1	199110089
38	341 848	Controls casing door - smoked brown glass with name badge 50F/60F	1	199130089
39	341 848	Jacket side panels	2	199116058



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STELRAD GROUP Limited
 Sales and Marketing
 P.O. Box 103, National Avenue
 Kingston upon Hull.
 North Humberside. HU5 4JN
 Telephone: 0482 492251 Telex: 527032

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

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These appliances are designed for use with Natural Gas only and have been tested and conform with the provisions of BS. 6332 and BS. 5258. Products bearing this kitemark are made to a safety and performance standard under a stringent scheme of supervision and control monitored by the British Standards Institute.