

IDEAL W

CF 440, 450 & 460

Wall Mounted Conventional 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.

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

B.G.C. Appliance No's

IDEAL W.	CF.440	41.407.50
IDEAL W.	CF.450	41.407.51
IDEAL W.	CF.460	41.407.52

NOTE TO INSTALLER:

LEAVE THESE INSTRUCTIONS ADJACENT TO THE GAS METER

Table 1 GENERAL DATA

Boiler Size		CF.440	CF.450	CF.460
Main Burner Bar		Bray Mk. 9 AB.16638 LR	Bray Mk. 9 AB.16638	Aeromatic 19/123212
Gas Control		1/2 in. BSP Honeywell Compact V.4600 A 1023 240v		
Burner Injector		Bray Cat. 16 Size 1150	Bray Cat. 16 Size 1700	Bray Cat. 16 Size 1800
Pilot Injector		Honeywell 0.38/0.35 45003-508-001		
Gas Supply Connection		Rc 1/2		
	in.BSP	1/2		
Flow Connections		Rc1		
	in.BSP	1		
Return Connections		Rc1		
	in.BSP	1		
		Rc 3/4		
Maximum Static Water Head		36.6		
	ft	120		
Electric Supply		220/240 volt 50 Hz		
External Fuse Rating		3 amp		
Water Content	litre	10.9		
	gal	2.4		
Dry Weight	kg	67.0		
	lb	148.0		
Maximum Installation Weight	kg	56.5		
	lb	125.0		

Table 2 PERFORMANCE DATA

Boiler Size			CF.440	CF.450	CF.460
Boiler Input **	MINIMUM	kW	11.3	15.5	17.7
		Btu/h	38 400	52 800	60 500
	MAXIMUM	kW	15.0	19.3	23.2
		Btu/h	51 200	65 800	79 000
Boiler Output to Water	MINIMUM	kW	8.8	11.7	13.2
		Btu/h	30 000	40 000	45 000
	MAXIMUM	kW	11.7	14.7	17.6
		Btu/h	40 000	50 000	60 000
Burner Setting Pressure	MINIMUM	mbar (gauge)	8.2	7.1	7.5
		in.w.g.	3.3	2.8	3.0
	MAXIMUM	mbar (gauge)	14.4	10.6	12.4
		in.w.g.	5.8	4.2	5.0

Note: **

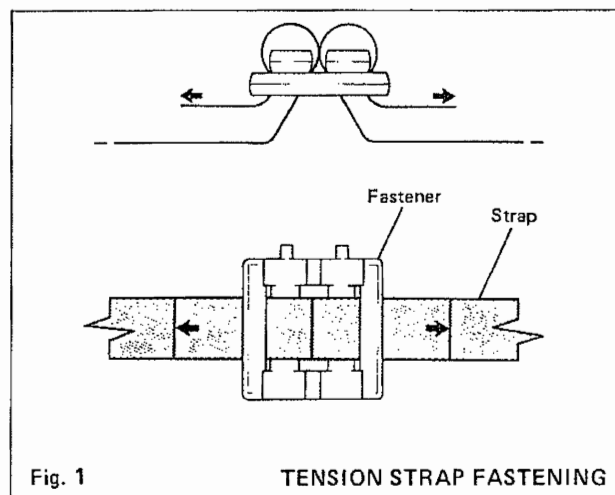
To obtain gas consumption:

- in l/s — divide heat input (kW) by C.V. of the gas (MJ/m³),
- in ft³/h — divide heat input (Btu/h) by C.V. of the gas (Btu/ft³).

INTRODUCTION

The IDEAL W, CF.440, 450 and 460 are wall mounted, open flued, natural draught gas boilers, range rated, having outputs of 8.8 kW to 11.7 kW (30 000 Btu/h to 40 000 Btu/h), 11.7 kW to 14.7 kW (40 000 Btu/h to 50 000 Btu/h) and 13.2 kW to 17.6 kW (45 000 Btu/h to 60 000 Btu/h) respectively.

The boiler is supplied with an insulating blanket of aluminium foil backed fibreglass, covering the front and sides of the boiler body, and held in place by a securing strap — refer Fig. 1.



The boiler casing, and controls access door, are of mild steel, white enamelled, with the controls pod sides, and push-on pipe concealment plates, coloured mid-brown.

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

Programmer and pump kits, which fit neatly within the casing, are available as OPTIONAL EXTRAS.

The pump kit is suitable for mounting on the right hand side flow or return tappings ONLY.

Separate fitting instructions are included with these kits.

The boilers are suitable for connection to open vented systems ONLY.

The systems may be pumped, or gravity circulating indirect domestic hot water only, pumped central heating only, or pumped central heating combined with either a pumped, or gravity circulating, indirect domestic hot water circuit.

Note: A distributor tube, packed in the bag of fittings, is supplied with each boiler.

On all systems with fully pumped circulation, only ONE boiler return tapping may be used, even if independent circuits for hot water and central heating are provided, each with its own pump.

The distributor tube MUST be fitted into the tapping used for the return from the pumped system, even if domestic hot water is by gravity circulation.

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

IMPORTANT:

This appliance range is approved by the British Gas Corporation for safety and performance. It is, therefore, important that no external control devices — e.g. flue dampers, economisers, etc., — be 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.G.C. approval and the normal appliance warranty and could also infringe the Gas Safety Regulations.

Gas Safety Regulations, 1972:

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 I.E.E. Regulations, the by-laws of the Local Water Undertaking, any relevant requirements of the Local Authority, and the relevant recommendations of the following British Standards:

Codes of Practice:

- CP. 331:3 Low pressure installation pipes.
- BS. 5376:2 Boilers of rated input not exceeding 60 kW.
- BS. 5449:1 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 wall MUST be flat and vertical, and of a suitable load bearing capacity.

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.

The location selected for the boiler MUST permit the provision of a satisfactory flue, and an adequate air supply.

The location MUST also provide adequate space for servicing, and air circulation around the boiler.

This appliance should NOT be installed in a bedroom, and must NOT be installed in a room containing a bath or shower.

Where the installation of the boiler 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, specifically for this purpose.

An existing cupboard, or compartment, may be used, provided that it is modified for the purpose.

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

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 is connected to the service 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 that the meter is adequate to deal with the rate of gas supply required.

Installation pipes should be fitted in accordance with CP.331:3. It would be wrong to assume that the gas supply pipe size provided will be suitable for all installations.

Pipework from the meter to the boiler MUST be of adequate size. Do NOT use pipes of a smaller size than the boiler gas connection.

The complete installation MUST be tested for soundness 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 cross-sectional area of the flue, serving the boiler, MUST be NOT less than the area of the flue outlet of the boiler.
If flue pipe is to be used, it MUST be NOT less than 102mm (4in) i.d.
2. Flue pipes, and fittings, should be constructed from one of the following materials :
(a) Aluminium, or Stainless Steel, or
(b) Cast Iron — coated on inside with acid-resistant vitreous enamel, or
(c) Other approved material.
3. If double walled flue pipe is used, it should be of a type acceptable to British Gas.
4. If a chimney is to be used, it should preferably be one that is composed of, or lined with, a non-porous, acid resistant material.

Note: Chimneys lined with salt glazed, earthenware pipes, are acceptable if the pipes comply with BS.65 and BS.5440:1.

A flue pipe, constructed from one of the materials in 2(a), 2(b) or 2(c) above, should form the initial connection to lined chimneys.

Where a chimney is to be used that is not composed of, or lined with, a non-porous, acid resistant material, it should be lined with a stainless steel flexible flue liner that is acceptable to British Gas. The internal diameter of the liner MUST be NOT less than 102mm (4in), and the number of joints MUST be kept to a minimum.

5. Before connecting the boiler to, or inserting a liner into, a flue that has been previously used, the flue MUST be thoroughly swept clean of any soot and loose material.

If a register plate, restrictor plate, damper, etc., is fitted in the flue, it MUST be removed before connecting the boiler to, or inserting a liner into, the flue.

6. The flue should terminate in accordance with the relevant recommendations given in BS.5440:1.
7. The flue MUST be fitted with a terminal.

The terminal shall be of a type which has been tested, and found satisfactory, by British Gas. This terminal must NOT be installed within 600mm (24in) of an openable window, air vent, or any other ventilation opening.

IMPORTANT

It is absolutely ESSENTIAL to ensure, in practice, the flue discharge is in a downdraught-free zone, and 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 system.

Products of combustion must NEVER be allowed to discharge from the diverter relief outlets — indicated on Fig. 4.

If this eventuality should occur, the appliance MUST be turned OFF immediately, and the Local Gas Region called in to investigate.

AIR SUPPLY

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

The room in which the boiler is installed MUST have, or be provided with, a permanent air vent.

This vent MUST be either direct to outside air, or to an adjacent room, or internal space, which MUST itself have, or be provided with, a permanent air vent, of at least the same size, direct to outside air.

The MINIMUM effective area of the permanent air vent(s) required is as follows:

Boiler Size		CF.440	CF.450	CF.460
Effective	cm ²	36	55	73
Area	in ²	6	9	11

The air vent(s) must NOT have provision for closing or adjustment, and should be sited to avoid risk of accidental damage or blockage.

If other methods of ventilation are envisaged, the Local Gas Region should be requested to advise before proceeding.

If the boiler is to be installed in a cupboard, or compartment, permanent air vents are required, for combustion, flue dilution and cooling purposes, in the cupboard, or compartment, at both high and low level, to ensure safe, and efficient, combustion and ventilation.

These air vents may communicate with a room/internal space, appropriately ventilated, or direct to outside air.

The MINIMUM effective areas of the permanent air vents, required in the cupboard/compartment, are as follows:

CF.440

Position of air vent	Air from room/ internal space	Air direct from outside
High Level	cm ² in ²	140 22
Low Level	cm ² in ²	280 44

CF.450

Position of air vent	Air from room/ internal space	Air direct from outside
High Level	cm ² in ²	180 30
Low Level	cm ² in ²	360 60

CF.460

Position of air vent	Air from room/ internal space	Air direct from outside
High Level	cm ² in ²	210 34
Low Level	cm ² in ²	420 68

Note:

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

Where cupboard/compartiment air vents are open to a room, or internal space, the room, or internal space, **MUST** itself be provided with a permanent air vent as previously specified.

EFFECT OF AN EXTRACTOR FAN

If there is any type of extract fan fitted in the premises, there is a possibility that, if adequate air inlet area from outside is not provided, spillage of the products from the boiler flue could occur when the fan is in operation.

Where such installations occur, a spillage test, as detailed in BS.5440:1, **MUST** be carried out, and any necessary action taken.

VENTILATORS IN SERIES

In installations requiring two ventilators to be fitted in series, e.g. across a cavity wall, **EACH** should be sized in accordance with the above data.

Where there are more than two ventilators in series, **EACH** should have an area of 50% in excess of the value quoted above.

WATER CIRCULATION SYSTEM

The appliance must **NOT** be used for direct hot water supply, or for sealed systems.

The appliance is suitable for connection to pumped, open-vent central heating systems; pumped central heating combined with pumped, or gravity, indirect domestic hot water systems; gravity, or pumped, indirect domestic hot water supply systems.

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

The resistance of the boiler is, at 17.6 kW (60 000 Btu/h) output, with an 11°C (20°F) temperature difference, approximately 51 mbar (20.5 in.w.g.) —refer Table 3.

Table 3**WATER FLOW RATE and PRESSURE LOSS**

Boiler Size		CF 440	CF 450	CF 460
Boiler Output	kW	11.7	14.7	17.6
	Btu/h	40 000	50 000	60 000
Water Flow Rate	l/min	15.2	19.0	22.7
	gal/h	200	250	300
Pressure Loss	mbar	27	39	51
	in.w.g.	10.8	15.6	20.5

AVOID flow rates in excess of the above values, as this may result in an excessive pressure drop across the boiler.

Note:

The above table is based on a temperature rise across the boiler of 11°C (20°F).

Hydraulic pressure losses quoted are for boilers fitted with a distributor tube.

The central heating system should be in accordance with the relevant recommendations given in BS.5376:2 and, in addition, for small bore and microbore systems — 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 water carrying pipework.

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

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.

The flow and return connections to a fully pumped system may be made either at one side of the boiler, or diagonally, to suit convenience.

In a combined pumped heating and gravity domestic hot water system, the gravity flow and return connections **MUST** be made to the same side of the boiler, and the pumped connections to the **OPPOSITE** side.

The distributor tube **MUST** be fitted into the tapping used for the return from **ALL** pumped systems — refer to further note under 'Preparing the Appliance' in the Installation section of this publication.

The boiler thermostat phial, and pocket, **MUST** be fitted in the front upper tapping, on the same side of the boiler as that selected for the pumped return.

When using the IDEAL W pump kit, the flow or return tapping chosen **MUST ALWAYS** be made to the right hand side of the boiler.

The boiler **MUST** be vented. If venting cannot be done via a flow connection, a separate vent **MUST** be fitted by the Installer.

This does **NOT** mean that more than one vent is required.

Other parts of the system, which may become unavoidably air locked, can be automatically vented.

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

Draining taps should be, at least, ½in. nominal size and be in accordance with BS.2879.

ELECTRICAL SUPPLY

External wiring **MUST** be in accordance with the I.E.E. Regulations, and any Local Regulations which apply. The boiler is supplied for 220/240 volt, 50 Hz, A.C., Single Phase. Fuse rating is 3—amp.

The method of connection to the mains electricity supply should facilitate complete electrical isolation of the boiler, preferably by the use of a fused three-pin plug — refer Fig. 9 — shuttered socket-outlet, both complying with the requirements of BS.1363.

Alternatively, a fused double-pole switch, or fused spur-box, serving the boiler only, may be used.

The point of connection to the mains should be readily accessible and adjacent to the boiler.

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, secured to a wooden cradle, a bag of fittings, the wall mounting plate, two push-on side plates, the wall template and the User's Instructions.

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

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

Width	—	540mm (22in)
Depth	—	350mm (14in)
Height	—	1040mm (41in)

This space includes the following minimum clearances for installation and servicing:

At the top of the boiler	—	150mm (6in)
At each side of the boiler	—	25mm (1in)
Underneath the boiler	—	150mm (6in)

In addition, a minimum clearance of 350mm (14in) **MUST** be available at the front of the boiler to enable the appliance to be serviced.

To facilitate installation, and the removal of the boiler from

the wooden cradle, the casing **MUST** be removed — refer Fig. 2.

Remove the controls pod by pulling it upwards.

Disconnect the green/yellow earth bonding wire from the stud located on the underside of the boiler casing.

Remove the two wing nuts, securing the bottom of the boiler casing to the backplate, and lift the bottom of the casing to disengage the fixing studs.

Lift the casing to disengage the top return edge from the retaining lugs, and lift the casing off the boiler.

The casing should be safely placed aside to avoid possible damage.

Remove the wall mounting plate and bag of fittings, packed on the floor of the cradle.

PREPARING THE WALL — Refer Fig. 5

Tape the template to the wall in the selected position.

Mark out the position of the three mounting plate screws, choosing one from each group of three.

Ensure the chosen positions are satisfactory, i.e. not in the way of a mortar course, etc.

Drill the three holes with a No.20 (10mm — 3/8in) masonry drill and insert the three TP 3 plastic plugs provided.

If an optional pump kit is to be used, drill the two appropriate holes with a No.20 (10mm — 3/8in) masonry drill and insert the two TP3 plastic plugs.

Secure the mounting plate to the wall with the three 8mm x 50mm (5/16in x 2in) coach screws provided.

Note: Arrows indicate removal.
Reverse direction for fitting.

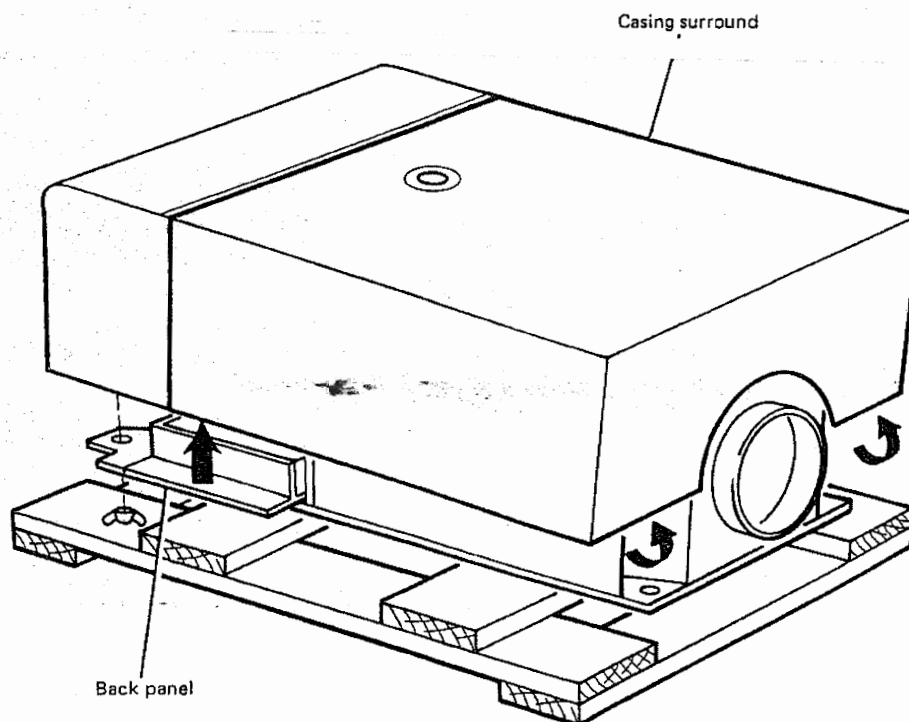
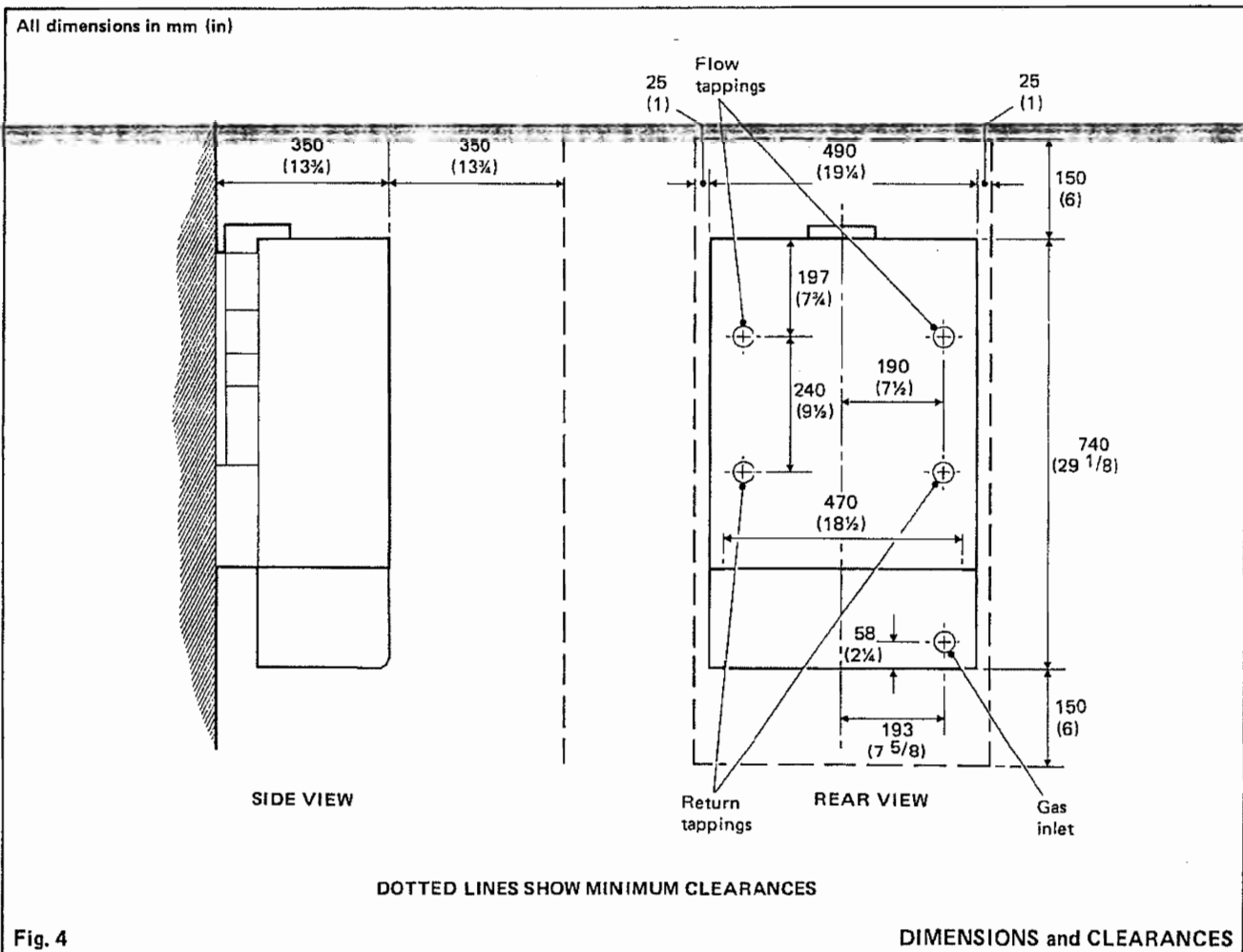
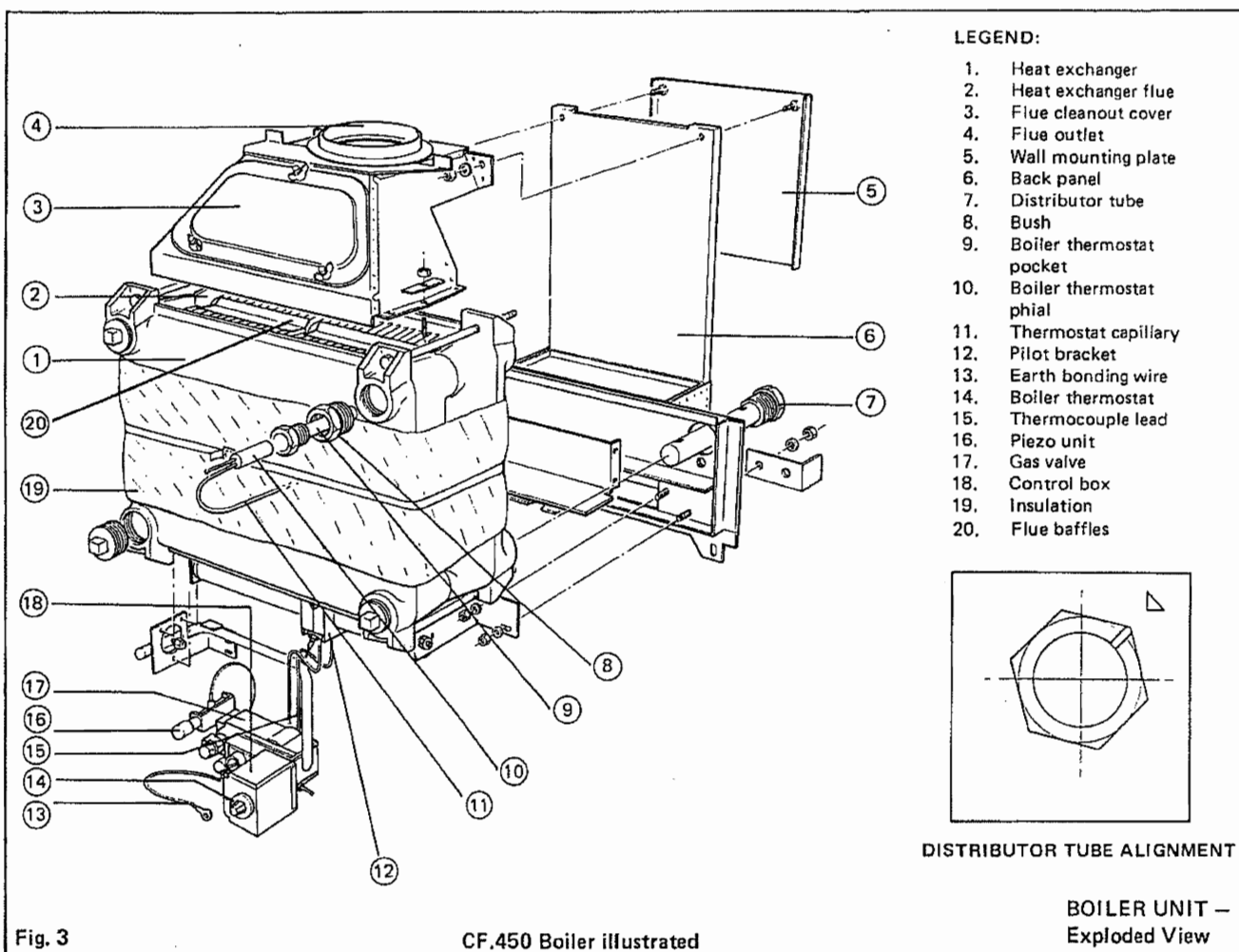


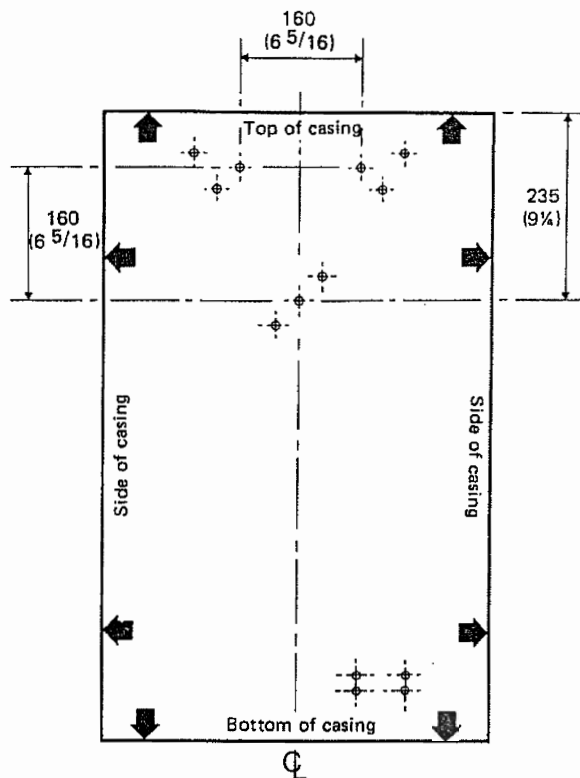
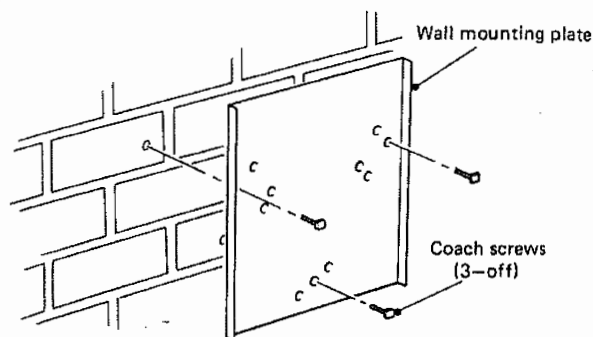
Fig. 2

CASING ARRANGEMENT



All Dimensions in mm (in)

WALL MOUNTING DIMENSIONS



TEMPLATE and
WALL MOUNTING PLATE

Fig. 5

Note:

This type of fastening is suitable for use with conventional brick, or breeze block, walls. Where unconventional materials are used, the installer should use fasteners compatible with the material involved.

PREPARING THE APPLIANCE

Remove the two screws securing the boiler body to the cradle.

Raise the side of the boiler body sufficiently to allow the distributor tube to be entered into the selected return tapping, using approved jointing compound.

Note:

Lift the boiler by the heat exchanger ONLY, to avoid damaging the sheet metal parts.

Lower the boiler back on to the cradle.

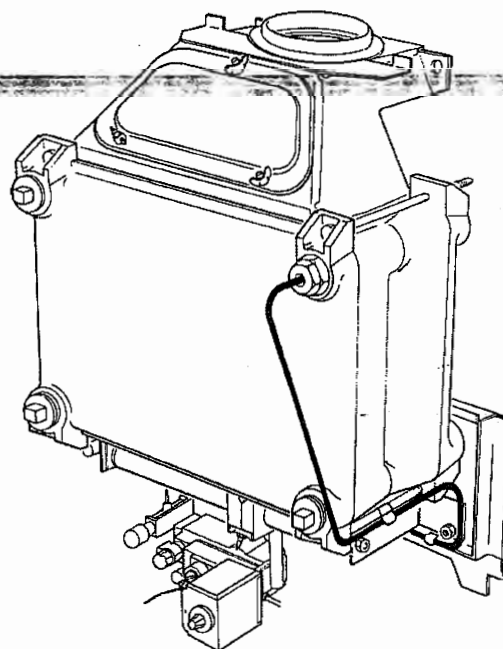
Screw the distributor tube home, with the arrow on the boiler backplate in alignment with the index mark on the distributor tube bushing — refer Fig. 3.

Note:

To facilitate the fitting of the distributor tube, the side plate bracket, located on the lower tie rod, may be temporarily removed.

If an optional pump kit is to be used, it must be fitted at this stage, — refer to the separate fitting instructions included with the kit.

Screw the boiler thermostat pocket and bush, supplied in the bag of fittings, into the front upper tapping on the side selected for the pumped return connection, using approved jointing compound.



Note: Right hand installation of thermostat shown. For left hand installation route capillary on left hand and move clips to left hand side of back panel.

BOILER THERMOSTAT —
CAPILLARY ROUTE

Fig. 6

Insert the thermostat phial into the pocket, and fasten it in position with the split pin provided.

Route the capillary tube and secure it with the spring clips and strap, as shown in Fig. 6.

Stub connections may now be made to the flow and return tappings — made with copper pipe and approved compression fittings, and terminating with unions projecting clear of the boiler casing.

Take care NOT to rotate the distributor tube when screwing the fitting into the pumped return tapping.

Tightly plug any tappings not used, with the plugs provided in the bag of fittings, using approved jointing compound.

To fit the push-on side plates, the gas and water connections MUST run within the space enclosed.

Gravity domestic hot water piping, and fittings, MUST be 28mm (1in), smaller pipe and fittings MUST NOT be used.

Whilst 22mm ($\frac{3}{4}$ in) piping, and fittings, may be used for the central heating flow and return pipes, to and from the boiler, the boiler FLOW tappings SHOULD NOT be bushed down directly when fitting either a separate 22mm ($\frac{3}{4}$ in) open vent, or a common 22mm ($\frac{3}{4}$ in) flow pipe to a fully pumped system, otherwise inadequate air venting from the boiler may result.

When pumped system load exceeds 13kW (44 000 Btu/h), 28mm (1in) pipework should be used to and from the boiler.

This will mean bushing down from 28mm (1in) to 22mm ($\frac{3}{4}$ in), JUST BEFORE entry into the distributor tube fitted into the boiler return tapping.

FITTING TO THE WALL

Lift the boiler on to the wall mounting plate, hanging it from the two studs at the top of the plate.

Do NOT remove the nuts fitted to the studs.

Fit the M.6 washers and nuts, provided in the bag of fittings, and secure the boiler in position.

WATER CONNECTIONS — Refer Fig. 7

The water connections can now be completed, the system filled and vented, connections checked for leaks and, if necessary, made good.

This operation should be effected before making good any flue connections, as a leak at the boiler tappings may require temporary removal of the boiler from the wall.

This appliance is NOT suitable for use in either a sealed system, or a direct system.

Pipework connections to all systems may use flow and return connections on the same side, or opposite sides, of the boiler. That is:

Fully Pumped System —

Either a L.H. or a R.H. flow connection, together with a L.H. or R.H. return connection, may be used.

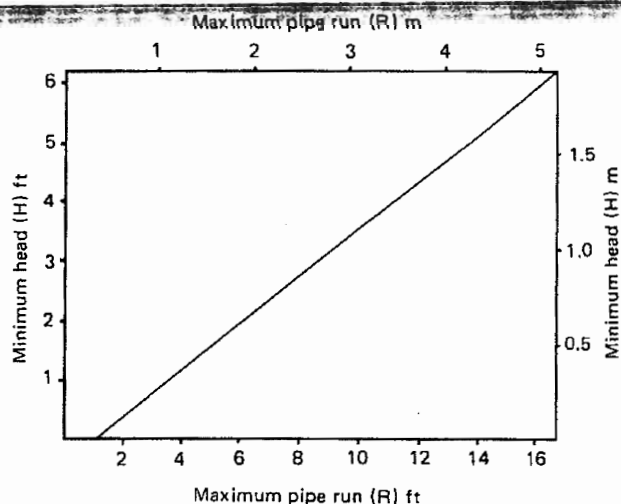
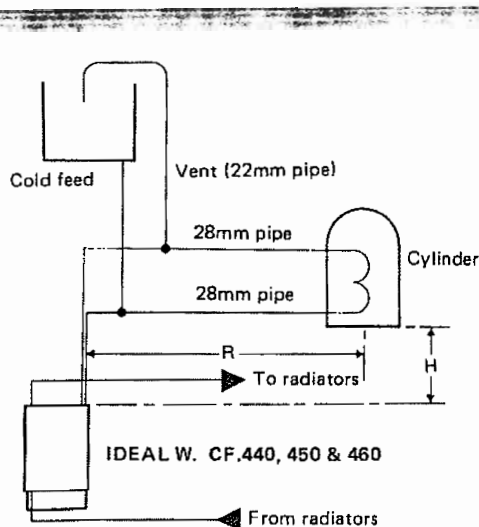
This does NOT apply when using the IDEAL W pump kit which is suitable for mounting on the right hand side flow or return tappings ONLY.

Gravity Domestic Hot Water and Pumped Central Heating —

Separate flow and return connections are used for each service.

The gravity connections MUST be made to one side of the boiler, and the pumped connections to the opposite side.

During Summer operation, when the central heating is OFF, the use of a cylinder thermostat is recommended.



SCHEMATIC PIPEWORK LAYOUT —
Combined Gravity Hot Water and
Pumped Heating

Fig. 7

This will prevent excessive domestic hot water temperatures and thus reduce gas consumption.

The pipe runs for gravity circulation should be planned with reference to the diagram and graph illustrated in Fig. 7.

The graph has been calculated on the assumption that NOT more than eight elbows are used in the gravity loop, including entry to the boiler.

For each extra elbow in excess of eight, (R) MUST be reduced by 300mm (12in), or (H) increased by 100mm (4in).

Whatever value is selected for (R), i.e. the horizontal distance between the centre line of the cylinder and the boiler tappings used, measured along the pipe run, the value of (H), i.e. the vertical distance between the top of the boiler and the base of the cylinder, MUST be, at least, that indicated by the graph.

Note:

Flow and return pipes should rise vertically on leaving the boiler.

Horizontal pipes should be ABOVE ceiling level and as SHORT as possible.

A MINIMUM inclination of 25mm per 3m run (1in per 10ft), is required to avoid air locks.

If the above conditions cannot be met, pumped primaries should be used.

GUIDE TO MINIMUM REQUIREMENTS – FEED/EXPANSION TANK HEIGHT FOR FULLY PUMPED SYSTEMS – Fig. 8

With reference to Fig. 8, the following assumptions and conditions apply:

1. Open vent and cold feed connections are made to the boiler flow/return tappings as shown.
2. The boiler is assumed to be the highest point of the circulating system.
3. The circulating pump is positioned on the FLOW, and the vertical distance, between the pump and the feed/expansion tank, complies with the Pump Manufacturer's minimum requirements – to avoid cavitation. Should these conditions not apply, either lower the pump position, or raise the feed/expansion tank above the minimum requirements of Stelrad Group.
4. The water velocity through the boiler flow/return pipes is assumed to be below 1 m/s (3ft/s), whilst the pump flow rate is set to provide a temperature difference of 11°C (20°F) across the boiler flow/return, at design input.
5. This information is intended as a GUIDE ONLY and cannot take into account instantaneous changes in head caused by the operation of motorised valves, pump, etc. Due allowance MUST be made if surging is liable to occur.

If in any doubt, contact Stelrad Group.

FLUE CONNECTIONS

Connect the flue pipe to the flue outlet of the appliance. Flue pipe spigot, and socket, connections should be sealed with fibreglass rope, or similar, and a suitable fireclay cement. Remove the flue cleanout cover and ensure that the two flueway baffles are correctly fitted. Refer Fig. 3.

GAS CONNECTIONS

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

The main gas cock is on the left hand side of the control valve, below the boiler, and connection to the gas supply MUST be from the REAR of the boiler.

ELECTRICAL CONNECTIONS

WARNING: The appliance MUST be efficiently earthed.

A mains supply of 220/240 volt, 50 Hz, A.C., Single Phase, is required.

All external controls, and associated wiring, MUST be suitable for mains voltage.

Wiring should be in three-core, PVC insulated cable, NOT less than 16/0.2mm.

Wiring external to the boiler MUST be in accordance with the I.E.E. 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. 9, fused at 3-amp, and complying with the requirements of BS.1363.

INTERNAL WIRING

The internal wiring of the control box is shown in Figs.10 and 11.

A wiring diagram is also contained in the lighting instruction plate inside the control pod door.

A plug and socket connector is provided on the boiler control box for the mains supply.

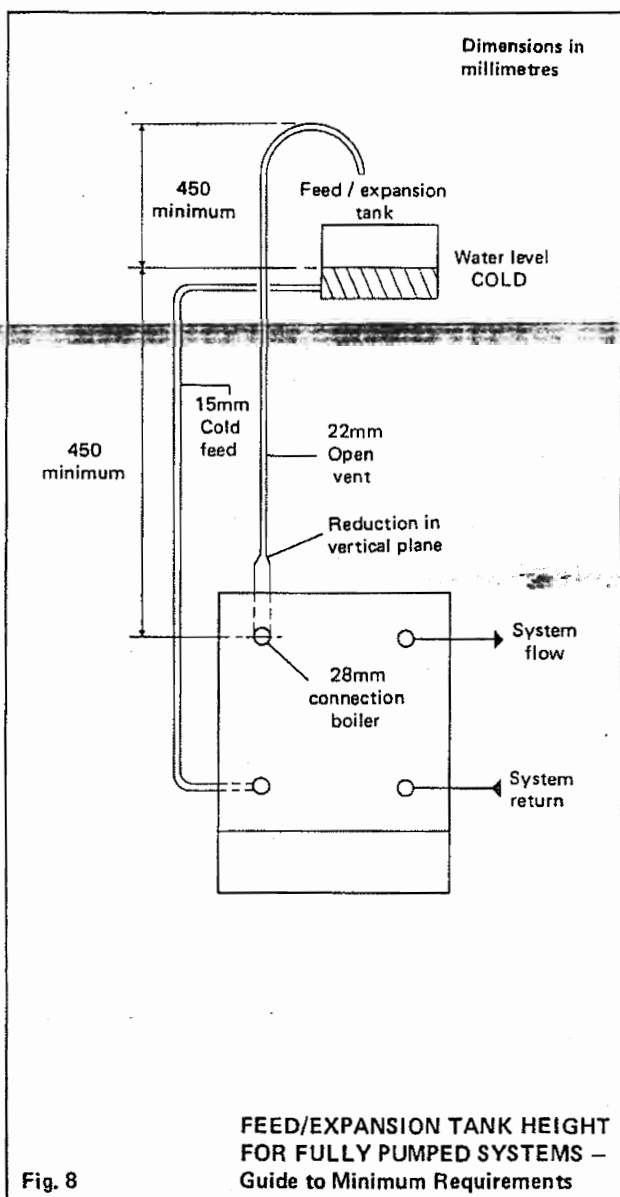
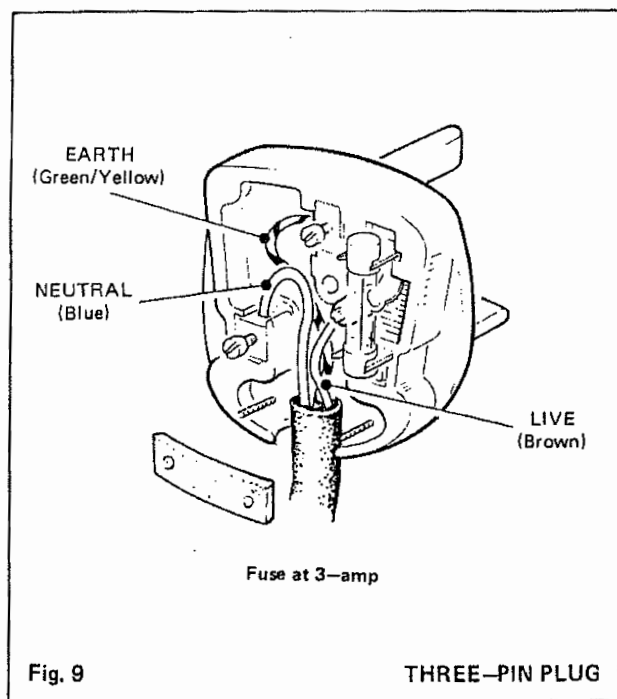


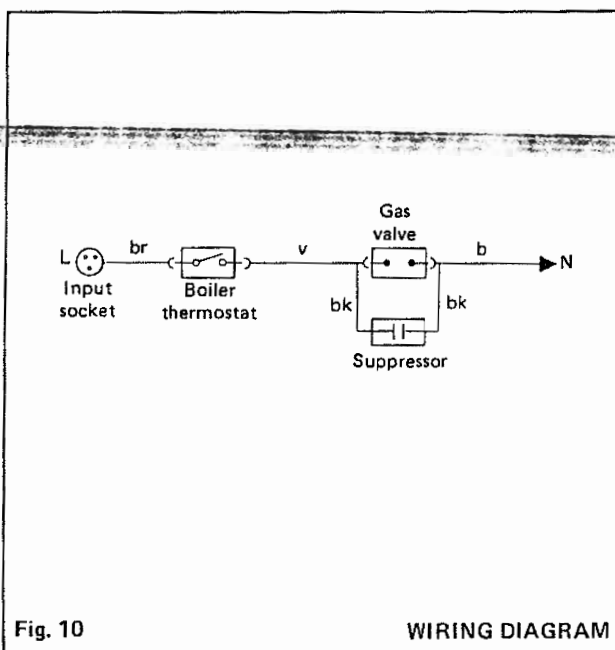
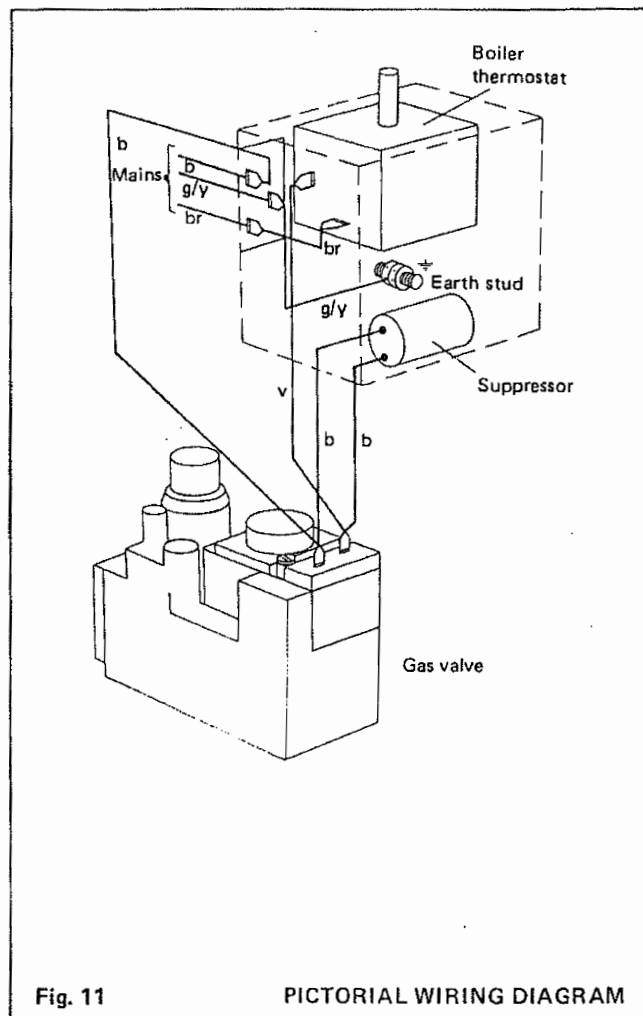
Fig. 8



EXTERNAL CONTROLS

The wiring diagrams illustrated in Figs. 12–19 cover the systems most likely to be fitted to this appliance.

For wiring external controls to the IDEAL W. CF boiler, reference should be made to the system wiring diagrams supplied by the relevant Manufacturer, in conjunction with the wiring diagram shown in Figs. 10 and 11.



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

1. Controls that switch the system ON and OFF, e.g. a time switch, **MUST** be wired, in series, in the live mains lead to the boiler.
2. Controls that over-ride an ON/OFF control, e.g. a frost thermostat, **MUST** be wired into the mains lead, in parallel, with the control(s) to be over-ridden – refer Fig. 13.
3. Controls that switch the circulating pump only ON and OFF, e.g. a room thermostat, **MUST** be wired, in series,

with the pump in the live pump lead.

4. If a proprietary system is used, follow the instructions supplied by the Manufacturers.

5. SYSTEM DESIGNS FEATURING CONTROLS OR WIRING ARRANGEMENTS WHICH ALLOW THE BOILER TO FIRE WHEN THERE IS NO PUMPED OR GRAVITY CIRCULATION TAKING PLACE, **SHOULD NOT** BE FITTED.

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

Note:

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

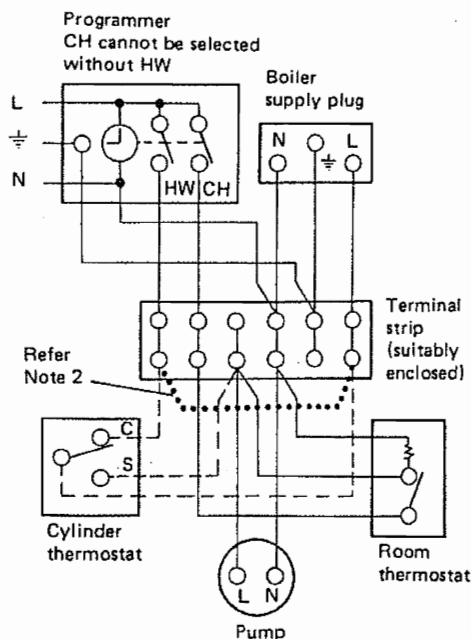
Wire the mains connector, supplied strapped to the control box, as follows:

Live (Brown)	to	L
Neutral (Blue)	to	N
Earth (Green/Yellow)	to	⏏

The connector may now be plugged into the control box.

Note:

When the optional programmer kit is fitted, the incoming mains lead should be connected to the programmer input terminals, and the boiler control box three-pin plug wired in accordance with the system diagrams shown in Figs. 2–9 inclusive – Programmer Installation Instructions.



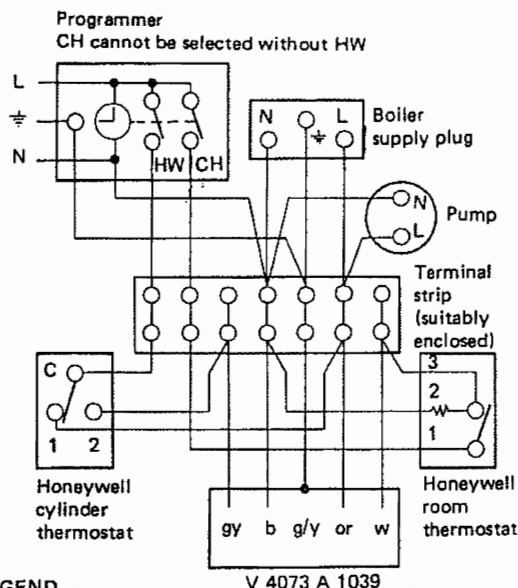
NOTES:

1. SOME EARTH WIRES ARE OMITTED FOR CLARITY.
2. If cylinder thermostat be not used, delete all dashed wiring to it, but add dotted link as shown.

WIRING DIAGRAM
Gravity HW, Pumped CH
WITH Cylinder Thermostat

Fig. 12

HONEYWELL 'Y' PLAN



LEGEND

gy	—	gray	or	—	orange
b	—	blue	w	—	white
g/y	—	green/yellow			

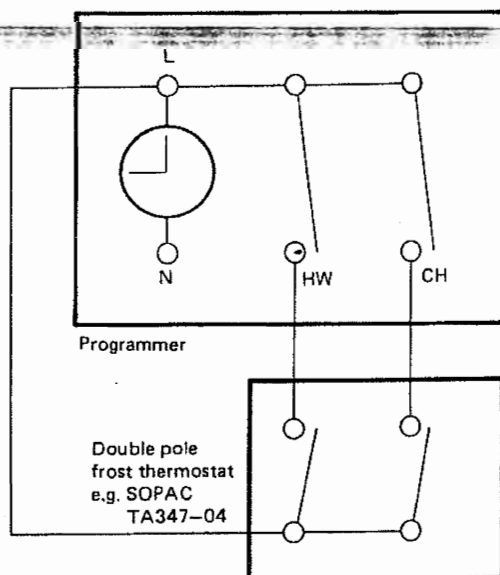
NOTES:

1. SOME EARTH WIRES ARE OMITTED FOR CLARITY. ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
2. Numbering of terminals on thermostats applies only to the Manufacturer mentioned.
3. This is a fully controlled system — set the boiler thermostat to maximum.

WIRING DIAGRAM —
Pumped Only System

Fig. 14

FROST PROTECTION

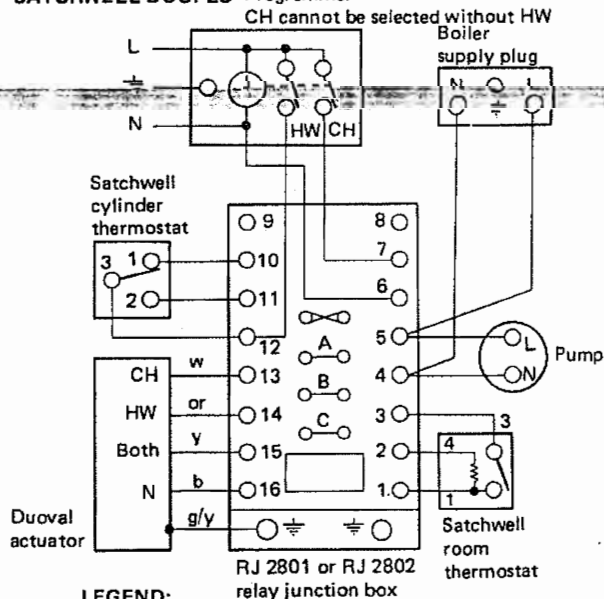


The frost thermostat should be wired to the programmer as shown, without disturbing other wiring.

WIRING DIAGRAM
Double Pole Frost Thermostat
— Wired to Programmer

Fig. 13

SATCHWELL DUOFLO Programmer



LEGEND:

w	—	white	b	—	blue
or	—	orange	g/y	—	green/yellow
y	—	yellow			

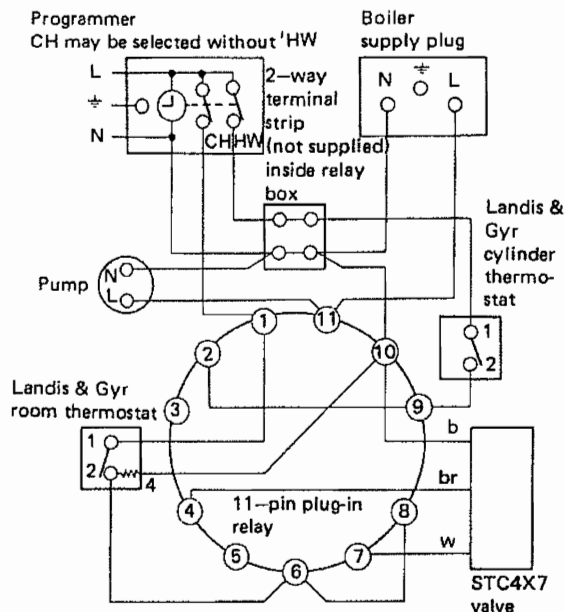
NOTES:

1. SOME EARTH WIRES ARE OMITTED FOR CLARITY. ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
2. Numbering of terminals on thermostats applies only to the Manufacturer mentioned.
3. This is a fully controlled system — set the boiler thermostat to maximum.

WIRING DIAGRAM
Pumped Only System

Fig. 15

LANDIS & GYR LGM



NOTES:

LEGEND:

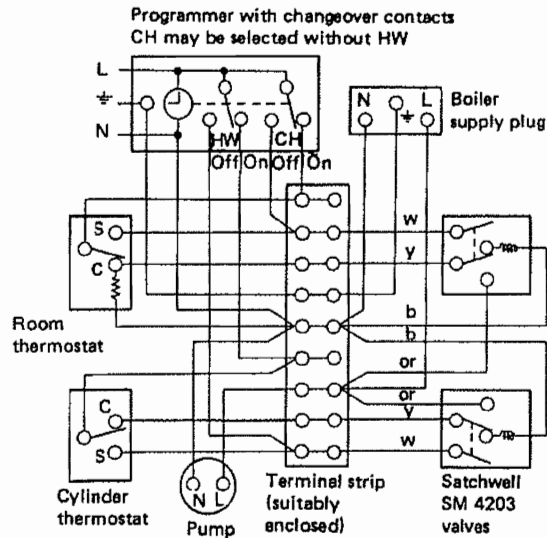
b — blue
br — brown
w — white

1. SOME EARTH WIRES ARE OMITTED FOR CLARITY. ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
2. Numbering of terminals on thermostats applies only to the Manufacturer mentioned.
3. This is a fully controlled system — set the boiler thermostat to maximum.

WIRING DIAGRAM — Pumped Only System

Fig. 16

TWIN MOTORISED VALVES



NOTES:

LEGEND:

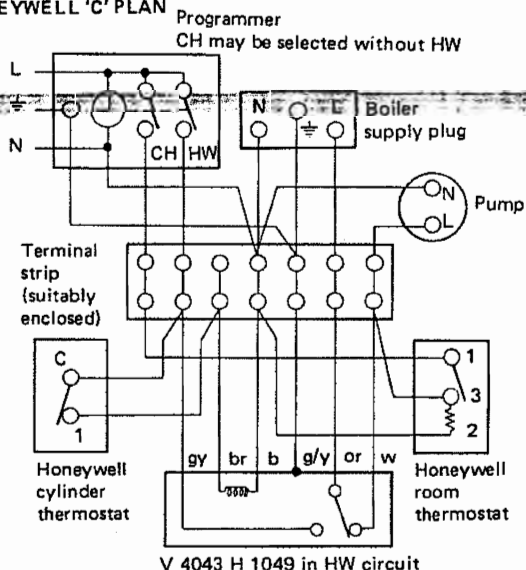
w — white
y — yellow
b — blue
or — orange

1. SOME EARTH WIRES ARE OMITTED FOR CLARITY. ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
2. This is a fully controlled system — set the boiler thermostat to maximum.
3. Satchwell SM,4203 valves illustrated. Other makes may require auxiliary contacts to be separately energised.
4. Programmers with neons fitted — neons may light in error under certain circumstances with this system.

WIRING DIAGRAM — Pumped Only System

Fig. 18

HONEYWELL 'C' PLAN



LEGEND:

gy — grey g/y — green/yellow
br — brown or — orange
b — blue w — white

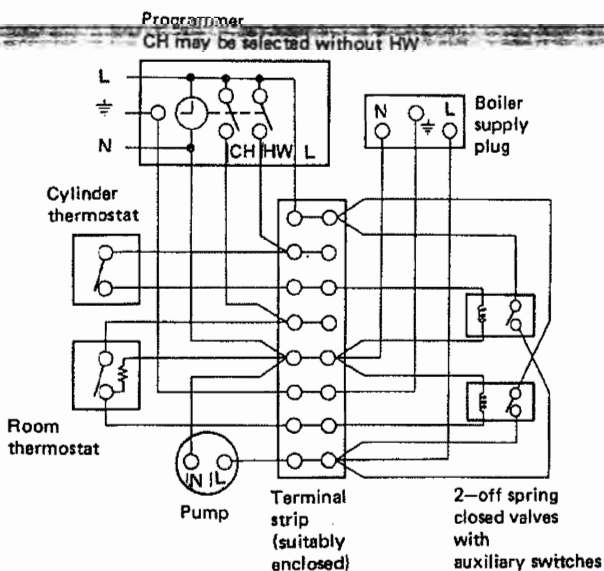
NOTES:

1. SOME EARTH WIRES ARE OMITTED FOR CLARITY. ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
2. Numbering of terminals on thermostats applies only to the Manufacturer mentioned.
3. This is a fully controlled system — set the boiler thermostat to maximum.

WIRING DIAGRAM Gravity HW, Pumped CH System

Fig. 17

TWO SPRING CLOSED VALVES



NOTES:

1. SOME EARTH WIRES ARE OMITTED FOR CLARITY. ENSURE PROPER EARTH CONTINUITY WHEN WIRING.
2. This is a fully controlled system — set the boiler thermostat to maximum.

WIRING DIAGRAM — Pumped Only System

Fig. 19

FITTING THE CASING

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

Lift the boiler casing up to the boiler assembly.

Hook the top return edge of the casing over the retaining lugs at each side of the boiler flue outlet.

Push the bottom of the casing inwards, and locate the fixing studs into the holes at the bottom corners of the rear face.

Secure with the two wing nuts provided.

Reconnect the earth bonding wire to the stud on the underside of the boiler casing.

Secure the terminal beneath the washer and nut.

This connection is IMPORTANT and MUST NEVER be omitted.

Locate the top of the control pod in the runners on the underside of the boiler casing and slide the pod into position.

FITTING THE SIDE PLATES

Refer Fig. 20

Screw on the M8 nut, supplied in the bag of fittings, on to the top right hand tie rod of the boiler, until the nut is in line with the lower back panel — use a side plate as a straight-edge to check the position.

Fit the angle bracket on to the tie rod, with the return angle flush with the casing side, and secure with a second nut.

Repeat on left hand side.

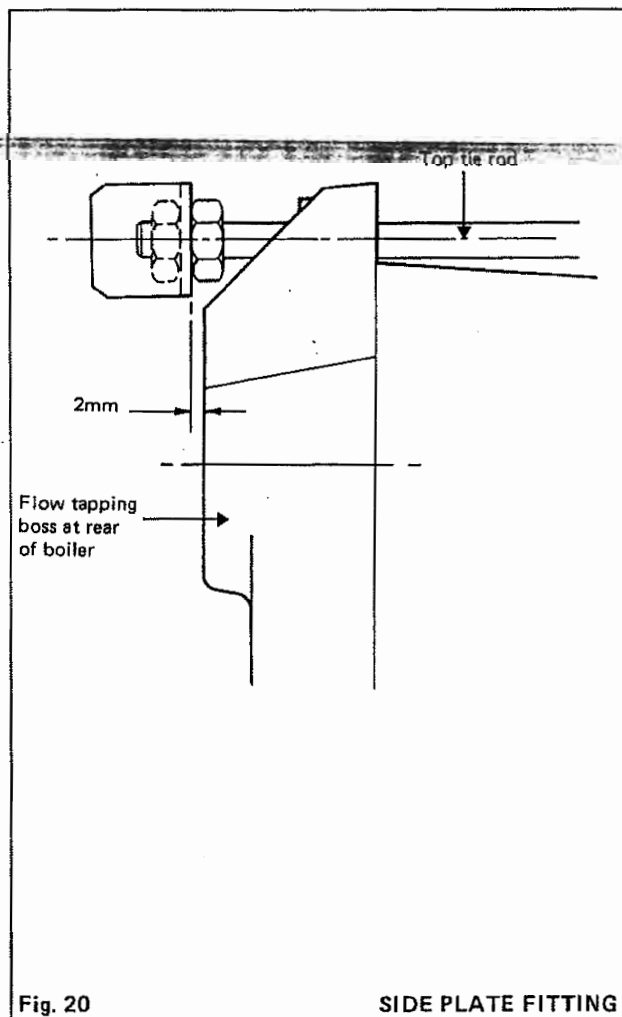


Fig. 20

SIDE PLATE FITTING

Note:

The bottom brackets are already fitted.

Align the two slots in the side plate with the brackets behind the edge of the backplate and engage by pulling the plate forwards.

Note:

The side plates are right and left handed.

COMMISSIONING AND TESTING

Electrical Installation

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

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, or sliding forward, the controls pod, loosening the union on the inlet gas 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 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 that all valves are open.

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

Check for water soundness.

INITIAL LIGHTING INSTRUCTIONS —

Refer Fig.21

Remove the controls pod.

The inlet gas cock **MUST** have been OFF for at least three minutes before initiating the lighting sequence.

Check that all drain cocks are closed, and that stop valves in the flow and return lines are open.

Check that the inlet gas cock (H) is ON, and that the boiler thermostat control knob is at OFF.

Loosen the screw in the burner pressure test nipple (F) and connect a gas pressure gauge via a flexible tube.

Turn the gas control knob (A) **CLOCKWISE** until resistance is felt, and then release it.

Wait for three minutes.

Push in the gas control knob (A), press, and release, the piezo unit button (G) repeatedly, until the pilot is seen to light through the sight glass.

Hold the gas control knob depressed for 20 seconds after the pilot burner has ignited.

Should the pilot light go out, at this, or any other stage, turn the gas control knob (A) **CLOCKWISE** and release it.

Wait for three minutes and then repeat the procedure detailed above, but wait longer than 20 seconds before releasing the gas control knob (A).

The pilot flame is factory set and no adjustment should be

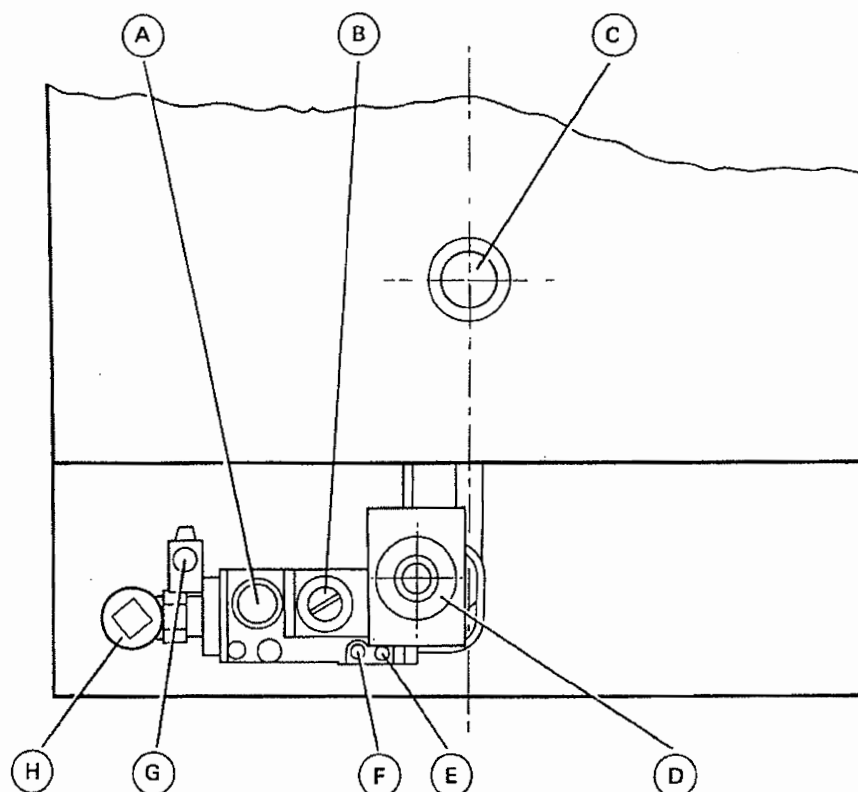


Fig. 21

BOILER CONTROLS

necessary.

Check that the electricity supply, and all external controls, are ON.

Turn the boiler thermostat knob (D) to position 6, – the boiler will then light.

Operate the boiler for ten minutes to stabilise the burner temperature.

Test for gas leaks around the boiler gas components, using leak detection fluid.

Check the burner setting pressure against the values quoted in Table 2.

If the burner setting pressure requires adjustment, remove the protective cap and turn the pressure adjusting screw CLOCKWISE to INCREASE the pressure, and ANTI-CLOCKWISE to DECREASE it.

A suitable screwdriver should ALWAYS be used for adjustment, to avoid damaging the plastic head on the screw.

Replace the protective cap.

Turn the boiler thermostat knob to OFF.

Remove the gas pressure gauge and tube, and retighten the sealing screw in the pressure test nipple.

Turn the boiler thermostat knob to position 6.

Check for gas leaks around the test nipple.

Replace the controls pod.

GENERAL CHECKS

Make the following checks for correct operation:

1. Turn the boiler thermostat OFF and ON, and check that

the main burner is extinguished and relit in response.

2. Check the appearance of the pilot flame to ensure it envelops 13mm (½in) of the thermocouple tip. Refer Pilot Burner Servicing.

3. Check the operation of the flame failure device in the gas control.

The flame failure device must cut off the gas to the burner within 60 seconds.

With the burner alight again, turn the gas control knob CLOCKWISE until resistance is felt, and then release it.

The burner and pilot flames should shut down immediately.

NOTE:

A latch in the gas control provides a safe delay period before the boiler can be relit.

4. The correct operation of the programmer, and all other controls, should be proved.

Operate each control separately, and check that the main burner, or circulating pump, as the case may be, responds.

5. With the system HOT, examine all water connections for soundness. Then turn OFF the gas, electricity and water supplies to the appliance, and drain down whilst the system is still hot, in order to complete the flushing process.

Refill, and vent, the system, and again check for water soundness.

6. Finally, set the controls to the User's requirements.

The temperatures quoted below are approximate and may vary between installations:

Knob Setting	Flow Temperature	
	°C	°F
1	54	130
2	60	140
3	66	150
4	71	160
5	77	170
6	82	180

HANDING OVER

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

1. Hand the User's Instructions publication to the Householder, and explain his/her responsibilities under the Gas Safety Regulations, 1972.
2. Draw attention to the Lighting Instruction Plate affixed

to the inside of the control pod door.

3. Explain, and demonstrate, the lighting and shutting down procedures.
4. The operation of the boiler and the use, and adjustment, of ALL system controls, should be fully explained to the Householder, to ensure the greatest possible fuel economy, consistent with household requirements of both heating and hot water consumption. Advise the User of the precautions necessary to prevent damage to the system, and to the building, in the event of the system remaining inoperative during frost conditions.
5. Explain the function, and the use, of the boiler thermostat and external controls.
6. Explain, and demonstrate, the function of time and temperature controls, radiator valves, etc., in the economic use of the system.
7. Stress the importance of regular servicing by the Local Gas Region, or by a qualified Heating Engineer.

SERVICING

WARNING:

ALWAYS turn OFF the gas supply at the gas cock, and switch OFF and DISCONNECT the electricity supply to the appliance BEFORE SERVICING.

A COMPREHENSIVE SERVICE SHOULD BE CARRIED OUT AT LEAST ONCE A YEAR.

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

BURNER ASSEMBLY

Refer Figs. 22 & 23

Open the controls pod door, disconnect the earth bonding wire from the left hand side of the compartment, and disconnect the mains connector plug, located at the left hand side of the control box.

If a programmer is fitted, slide the control pod forward sufficiently to remove the two screws securing the plug connector to the left hand side of the programmer, and pull out the plug connector.

Remove the controls pod, complete with programmer, by sliding it forwards.

If the boiler is fitted with push-on side plates, remove these by pushing back to disengage from the retaining brackets.

Remove the two wing nuts, securing the bottom of the boiler casing to the backplate, and pull the bottom of the casing forwards to disengage the fixing studs.

Lift the casing to disengage the return edge from the retaining lugs, and lift the casing off the boiler.

Unclip the boiler thermostat capillary from the backplate.

Remove the split pin securing the thermostat phial and withdraw the phial from its pocket.

Undo the union nut on the gas inlet cock.

Support the burner and control assembly, and remove by unfastening the four nuts securing the burner to the backplate.

Remove to a convenient working surface for attention.

CF.440 & 450 MODELS ONLY

Refer Fig.22

Remove the right hand burner bracket.

Remove the two split pins securing the burner end cap, and remove the cap.

Withdraw the circular gauze (3) from the burner.

Clean the gauze to remove any deposits of lint, fluff, etc., and brush off any deposits that may have fallen on the burner head.

Ensure the flame ports are unobstructed, and remove any debris that may have collected in the burner body.

Re-assemble in reverse order.

CF.460 MODEL ONLY

Refer Fig.23

Unfasten the four nuts securing the burner end plate and gasket.

Remove plate and gasket, and withdraw the circular gauze.

After withdrawal of the gauze, the servicing procedure should be continued as outlined above for the Concord CF.440 and 450 boilers.

Re-assemble in reverse order.

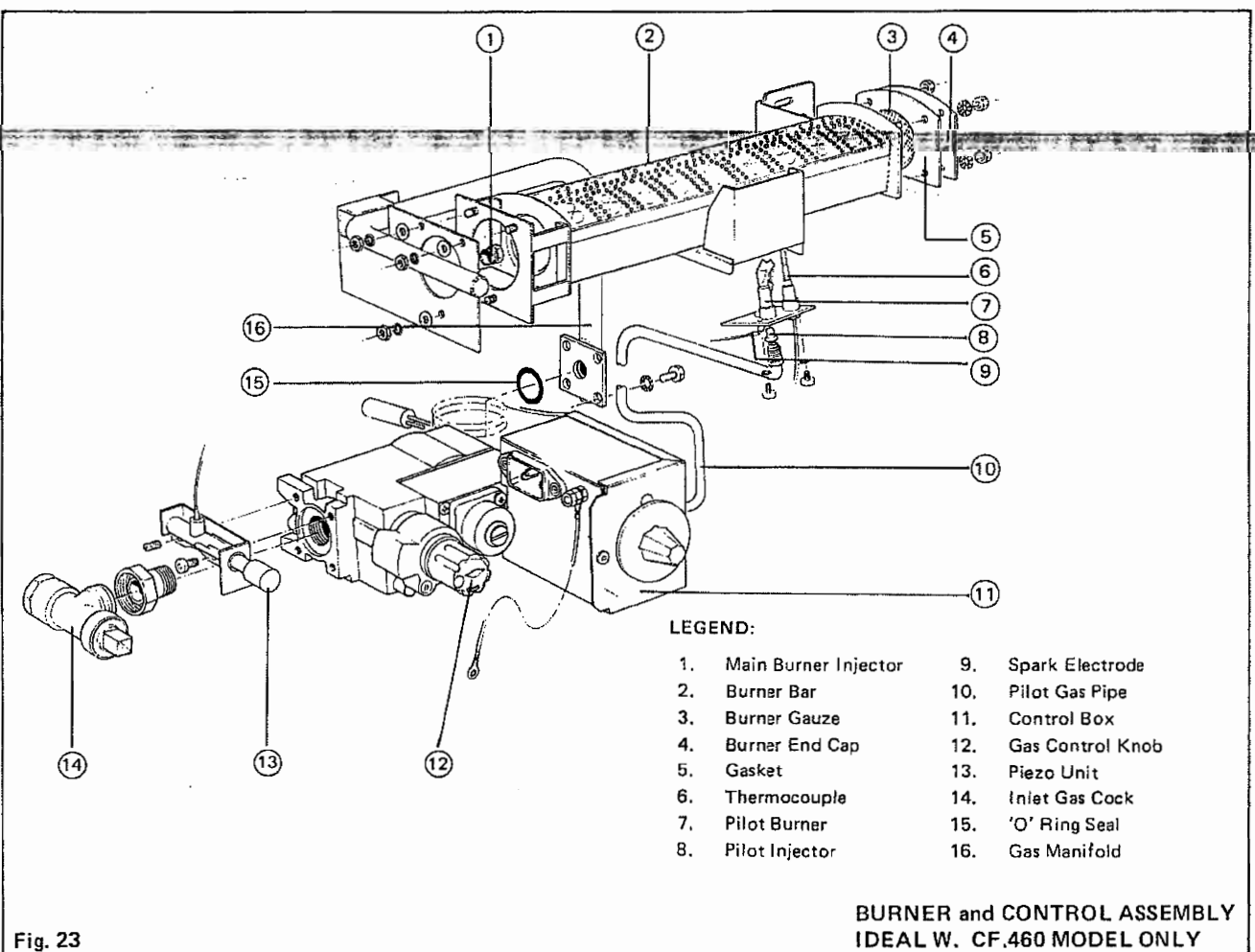
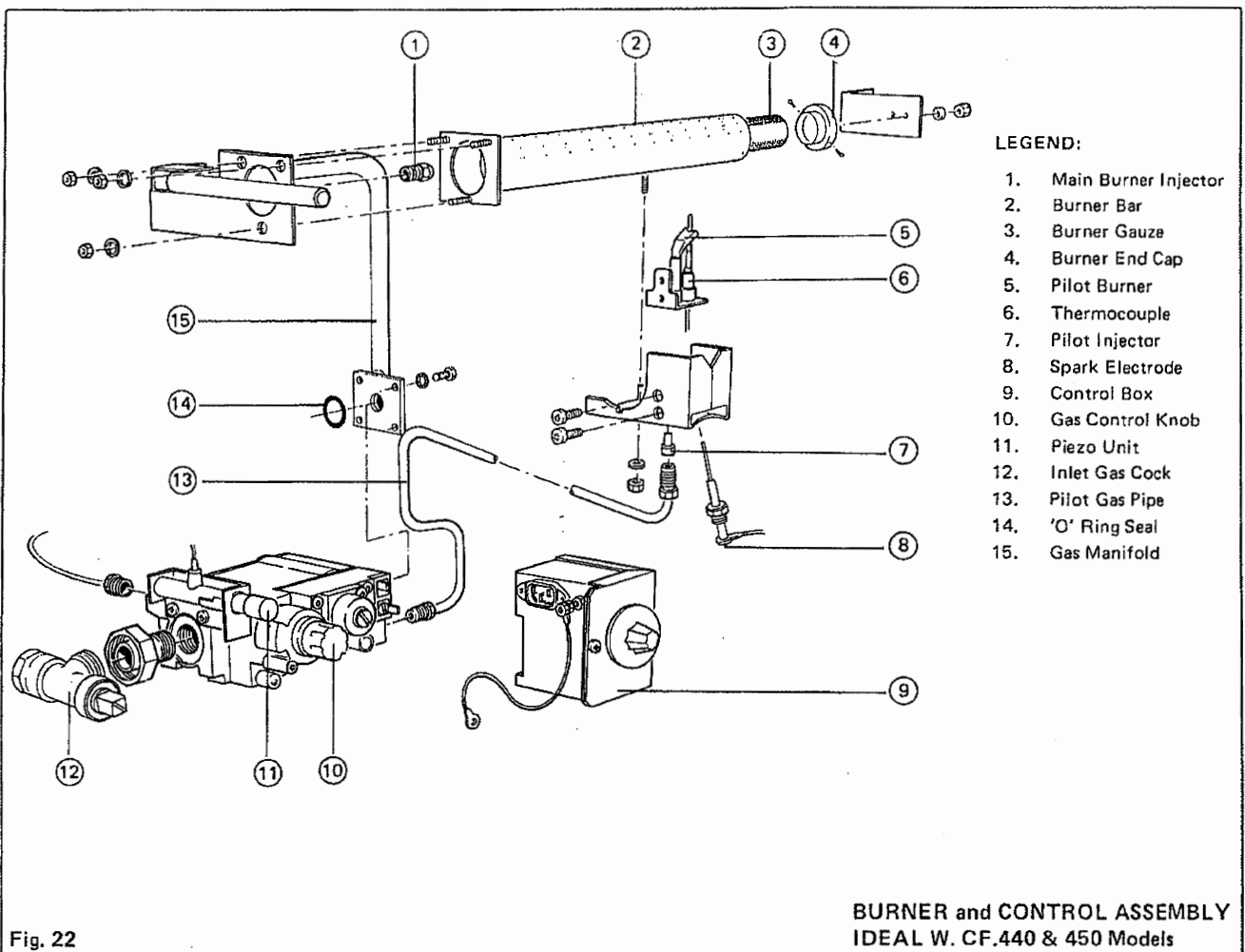
Note:

Brushes with metallic bristles must NOT be used.

Inspect the pilot burner, thermocouple and ignition electrode; ensure that they are clean and in good condition.

In particular, check that :

1. The pilot burner is firmly secured.
2. The pilot shield is clean and unobstructed.
3. The ignition electrode and lead are clean, undamaged and secure.
4. The thermocouple tip is not burned or cracked.
5. The thermocouple terminal, at the gas valve, is clean and secure.



FLUEWAYS

Remove the complete burner assembly as previously described, and also the cleanout cover at the top of the boiler.

Remove the two flueway baffles.

Remove all loose deposits from the heat exchanger, particularly from the flueways formed between the fins, using a suitable brush — available from Local Gas Regions, Ref. No. 4798 A, C and K.

Refit the two flueway baffles.

Refit the cleanout cover, replacing any damaged, or deteriorating, sealing gasket.

Refit the burner assembly in reverse order of removal, and complete gas and electrical connections.

Check that the sight glass in the boiler casing is clean and undamaged.

Refit the boiler casing, controls pod and push-on side plates, if fitted, in reverse order of removal.

Note:

Do NOT forget to reconnect the earth bonding wire to the earthing stud.

PILOT BURNER

Light the boiler and check that:

1. The pilot flame impinges on the thermocouple head, and that the position of the thermocouple, relative to the pilot burner and the main burner, is as shown in Figs. 24 or 25.
2. The pilot flame covers 13mm (½in) of the thermocouple tip.

The pilot adjuster screw is factory set to maximum and no further adjustment should be necessary.

However, if the pilot flame appears small, check the adjustment of the pilot pressure adjuster screw (E), Fig. 21, as follows:

- (a) Turn the gas control knob (A), Fig. 21, CLOCKWISE until resistance is felt, and then release it.
- (b) Turn the pilot pressure adjuster screw CLOCKWISE until fully closed.
- (c) Turn the pilot pressure adjuster screw ANTI-CLOCKWISE four full turns to give maximum setting.
- (d) Relight the pilot in accordance with the lighting instructions.

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 (B) — Fig. 21.

REPLACEMENT OF COMPONENTS

WARNING:

ALWAYS turn OFF the gas supply at the inlet gas 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 controls pod and the boiler casing, as previously described in the Servicing section of this publication.

Sight Glass

Unfasten the two nuts holding the sight glass assembly to the casing front panel.

When fitting the replacement assembly, make certain the parts are in correct order, i.e. gasket, glass, gasket and frame.

Note:

The frame **MUST** have the return edge at the bottom.

Retighten the two nuts to ensure an airtight seal.

DO NOT OVERTIGHTEN.

Boiler Thermostat

Remove the electrical plug connection at the side of the control box.

Unclip the capillary from the backplate.

Remove the split pin and withdraw the phial from the pocket. Remove the screw on the front of the control box, and pull away the cover.

Pull off the two electrical connections from the thermostat head. Pull off the thermostat knob.

Remove the thermostat capillary clip from the control box cover. Undo the two screws holding the thermostat to the control box.

Fit the replacement thermostat and re-assemble in reverse order, ensuring that the electrical connections are at the bottom of the box — refer Fig. 26.

Piezo Unit

Unplug the igniter lead from the piezo unit body, remove the screw and shakeproof washer, securing the body to the gas valve.

Fit new unit and reconnect the lead.

Igniter Lead

Unplug the igniter lead from the piezo unit body, and from the base of the electrode.

Remove the purse clip, securing the lead to the pilot supply pipe, and remove the lead.

Fit the new lead and re-assemble in reverse order.

Thermocouple

Undo the thermocouple connections at the pilot burner and gas valve.

Remove the purse clip from the pilot supply pipe.

Fit the new thermocouple.

Avoid sharp bends in the thermocouple lead, ensuring this follows the same route as previously.

Re-assemble in reverse order.

Pilot Burner

Remove the purse clip from the pilot supply pipe.

Undo the thermocouple and pilot pipe connections at the gas valve and at the pilot burner.

Do NOT lose the pilot injector, which is a push fit in the pilot pipe connection to the pilot burner.

Pull off the igniter lead from the base of the electrode.

Undo the nut(s), securing the pilot-bracket shield to the main burner, and remove the shield and pilot burner complete.

Undo the two screws securing the pilot burner to the pilot burner bracket.

The pilot burner can now be withdrawn.

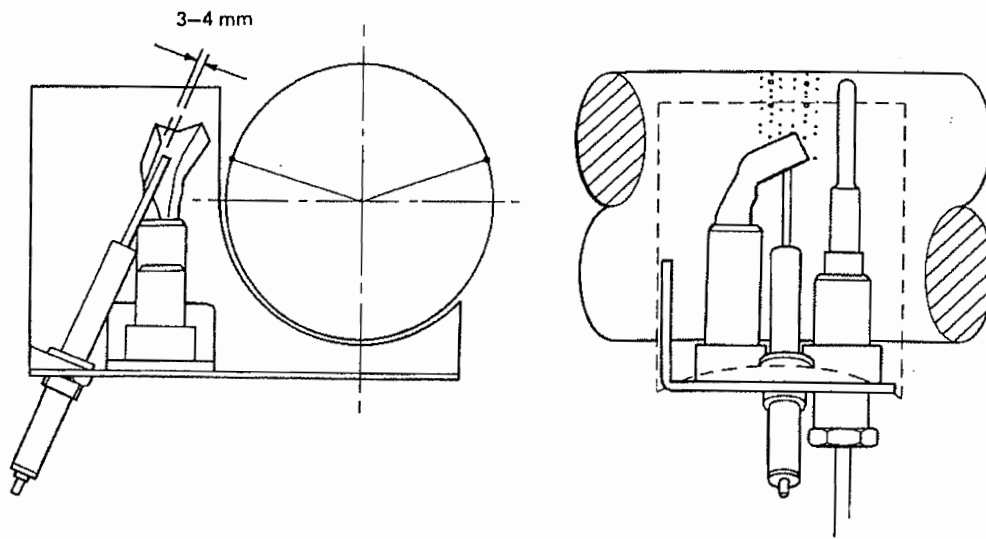


Fig. 24

PILOT AND ELECTRODE POSITION
IDEAL W. CF.440 & 450 Models

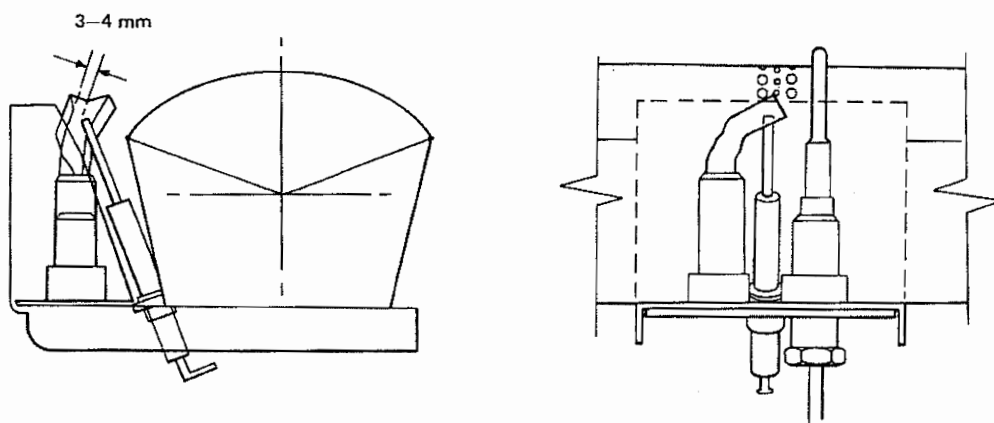
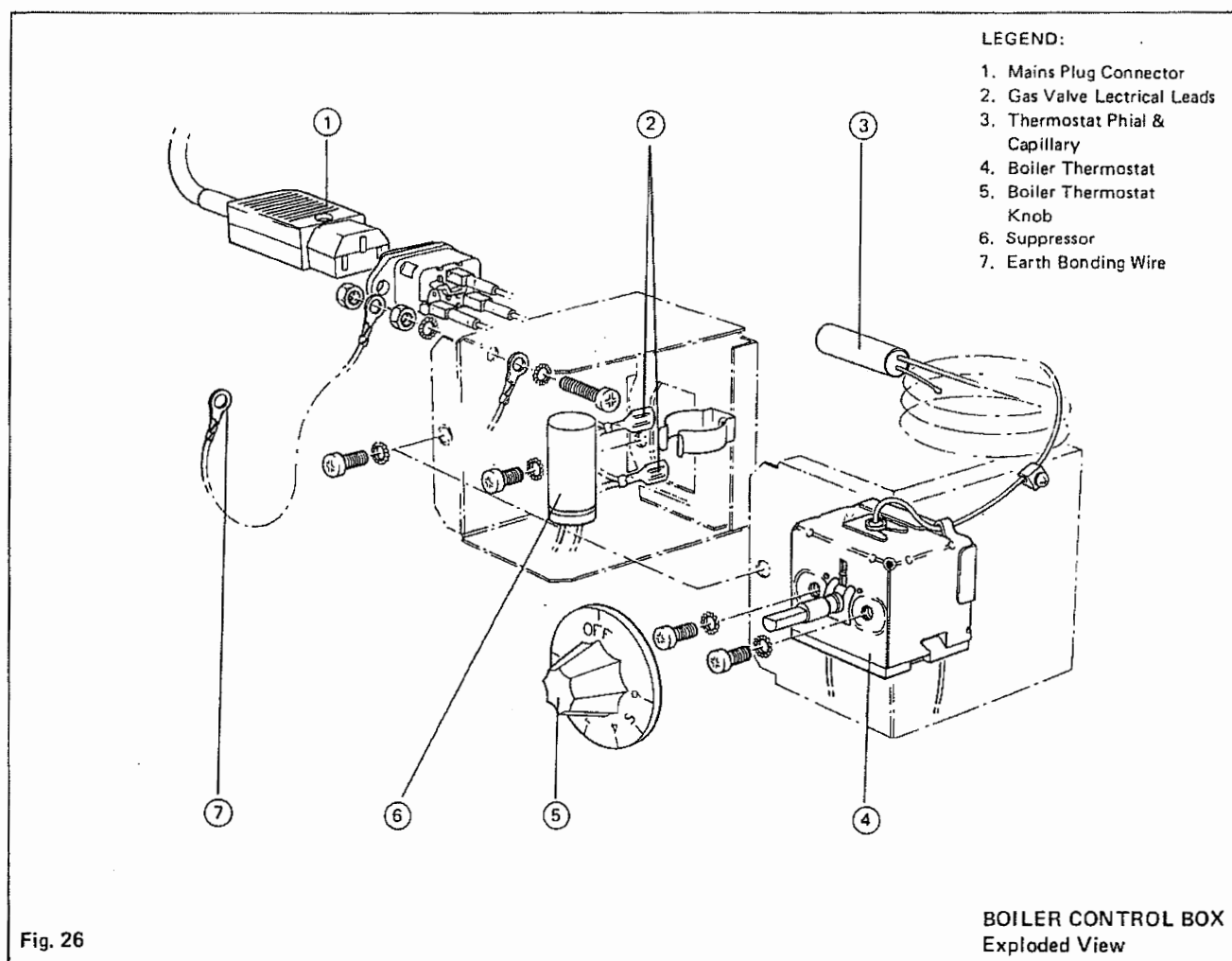


Fig. 25

PILOT AND ELECTRODE POSITION
IDEAL W. CF.460 Model ONLY



Transfer the electrode to the new pilot burner — CF.460 model ONLY.

Fit the new pilot burner, ensuring that the pilot injector is in position when refitting the pilot pipe.

Re-assemble in reverse order.

Electrode

Remove the pilot burner assembly as described previously — CF.460 model ONLY.

Disconnect the igniter lead from the electrode.

Unfasten the backnut, retaining the electrode, and withdraw from the pilot bracket.

Fit the new electrode.

Re-assemble in reverse order.

CONTROL BOX

Refer Fig. 26

Disconnect the electrical plug connection, and earth connection, located at the left hand side of the control box.

Unclip the thermostat capillary from the backplate.

Remove the split pin and withdraw the phial from the thermostat pocket.

Undo the screw on the front of the control box, and withdraw the control box cover.

Disconnect the leads from the gas valve.

Undo the screw securing the control box body to the gas valve and withdraw the box.

Fit the new control box, re-assembling in reverse order.

MAIN BURNER and GAS VALVE

Refer Figs. 22 & 23

Remove the burner and controls assembly as previously described in Servicing Instructions.

Main Burner

Undo the nut(s) securing the pilot bracket to the main burner, and pull the bracket clear of the burner.

Undo the three nuts securing the left hand end of the burner to the gas manifold.

The burner can now be pulled clear.

Undo the nut at the right end of the burner, securing the burner bracket, and remove the bracket — CF.440 and 450 models ONLY.

Fit the new burner in reverse order, being careful not to damage the main burner injector which is screwed into the gas manifold.

Gas Valve

Remove the control box as previously described.

Remove the piezo unit, and transfer the locating grub screw from the old gas valve to the new valve.

Undo the pilot pipe and thermocouple connections at the gas valve.

Unscrew the gas cock union at the left hand side of the gas valve.

Unfasten the four screws securing the gas valve outlet pipe.

The sealing 'O' ring should be discarded and a new one fitted.

Re-assemble in reverse order, ensuring that :

- (a) the new gas valve is fitted the right way round — an arrow, engraved on the valve, indicates the direction of flow; and
- (b) the sealing 'O' ring is fitted correctly between the flanges on the end of the gas pipe and the gas valve.

Refit the burner assembly in reverse order of removal, complete gas and electrical connections, refit the casing and test for gas soundness.

IMPORTANT:

Use an approved jointing compound when replacing the main burner injector or service cock.

IMPORTANT

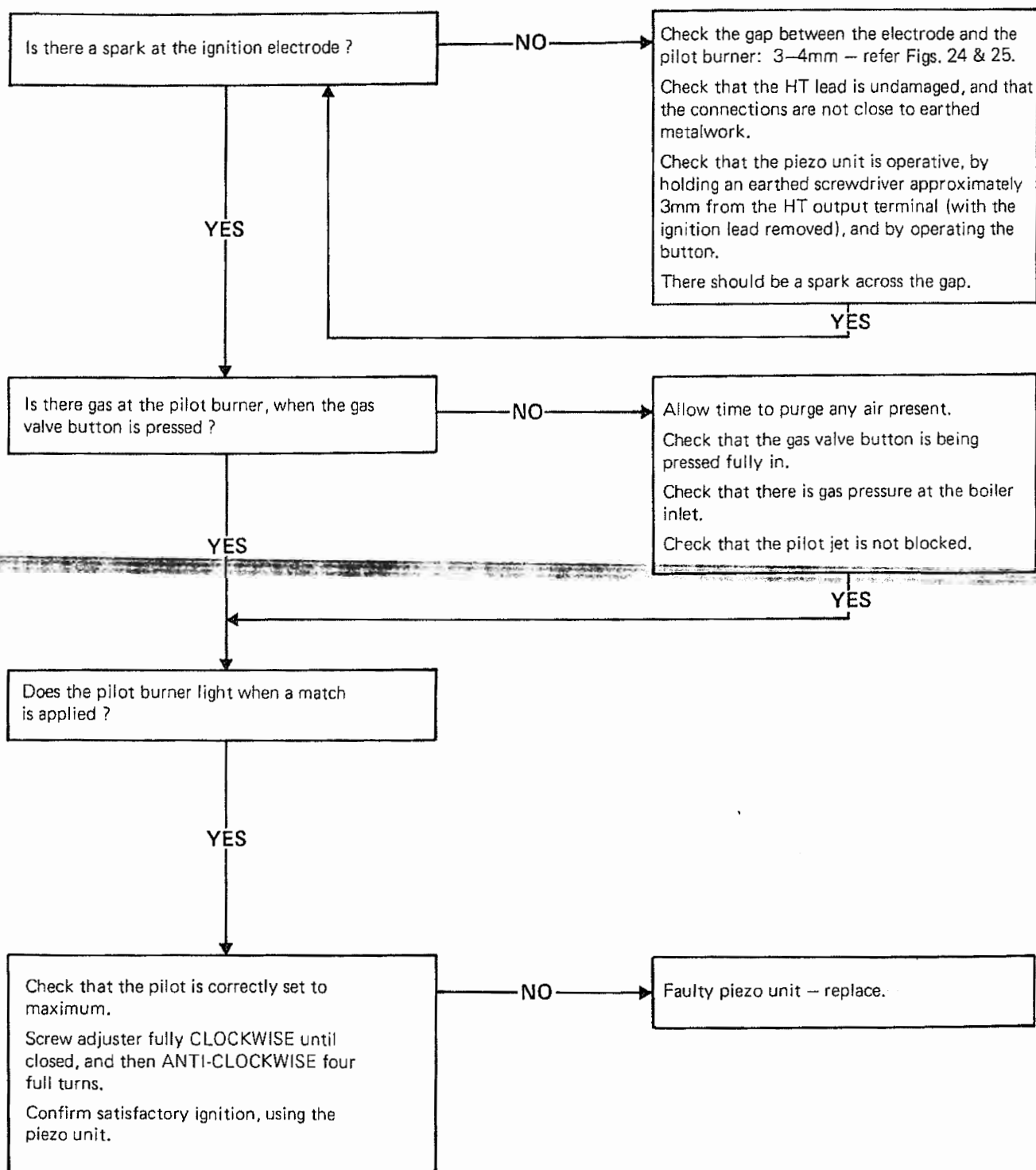
After working on the appliance, NEVER FORGET to reconnect the earth bonding wire to the earthing stud on the boiler casing.

FAULT FINDING

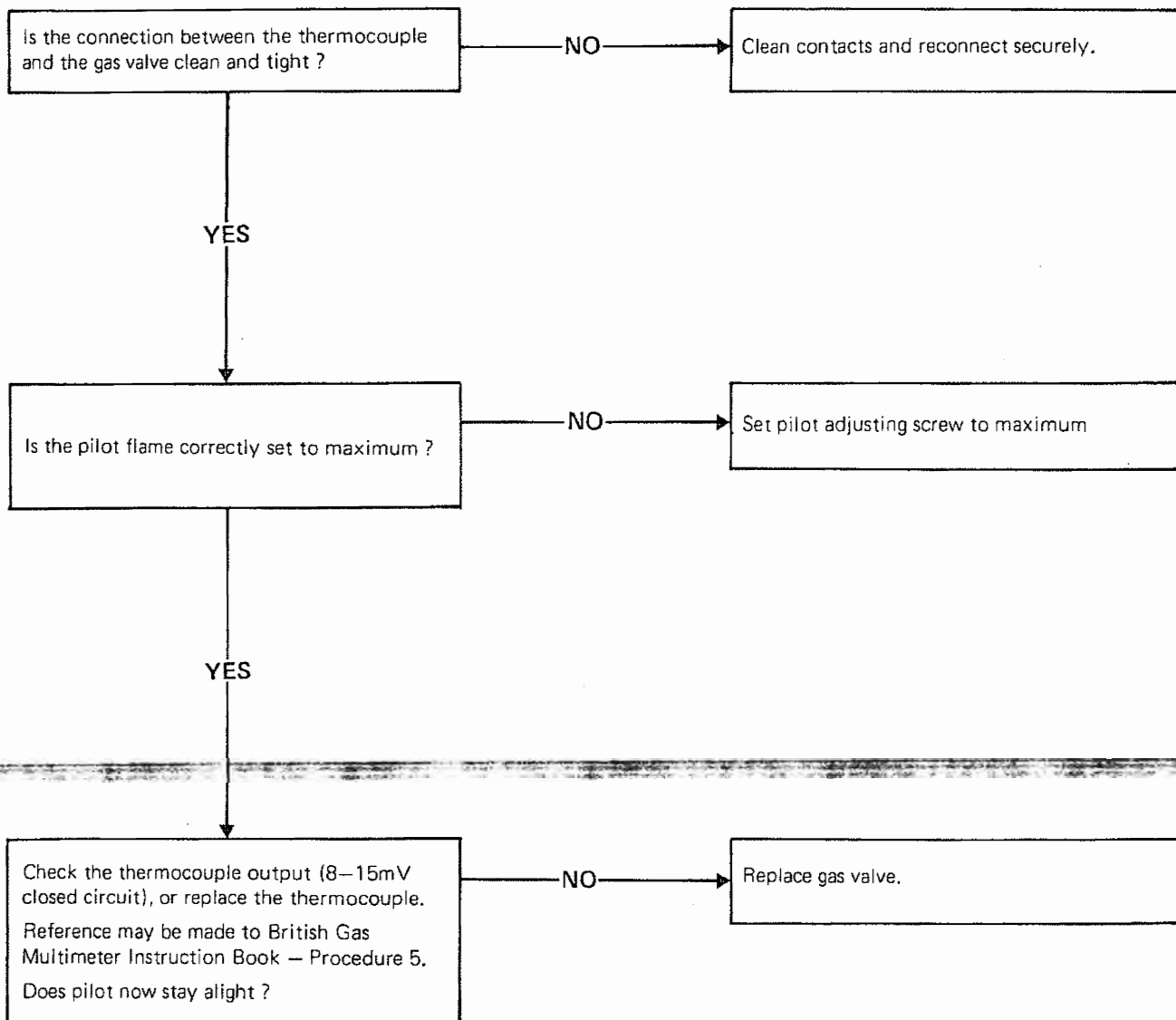
Before attempting any electrical fault finding; ALWAYS carry out the preliminary electrical system checks as detailed on pages 6–9 of the Instructions for the British Gas Multimeter.

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

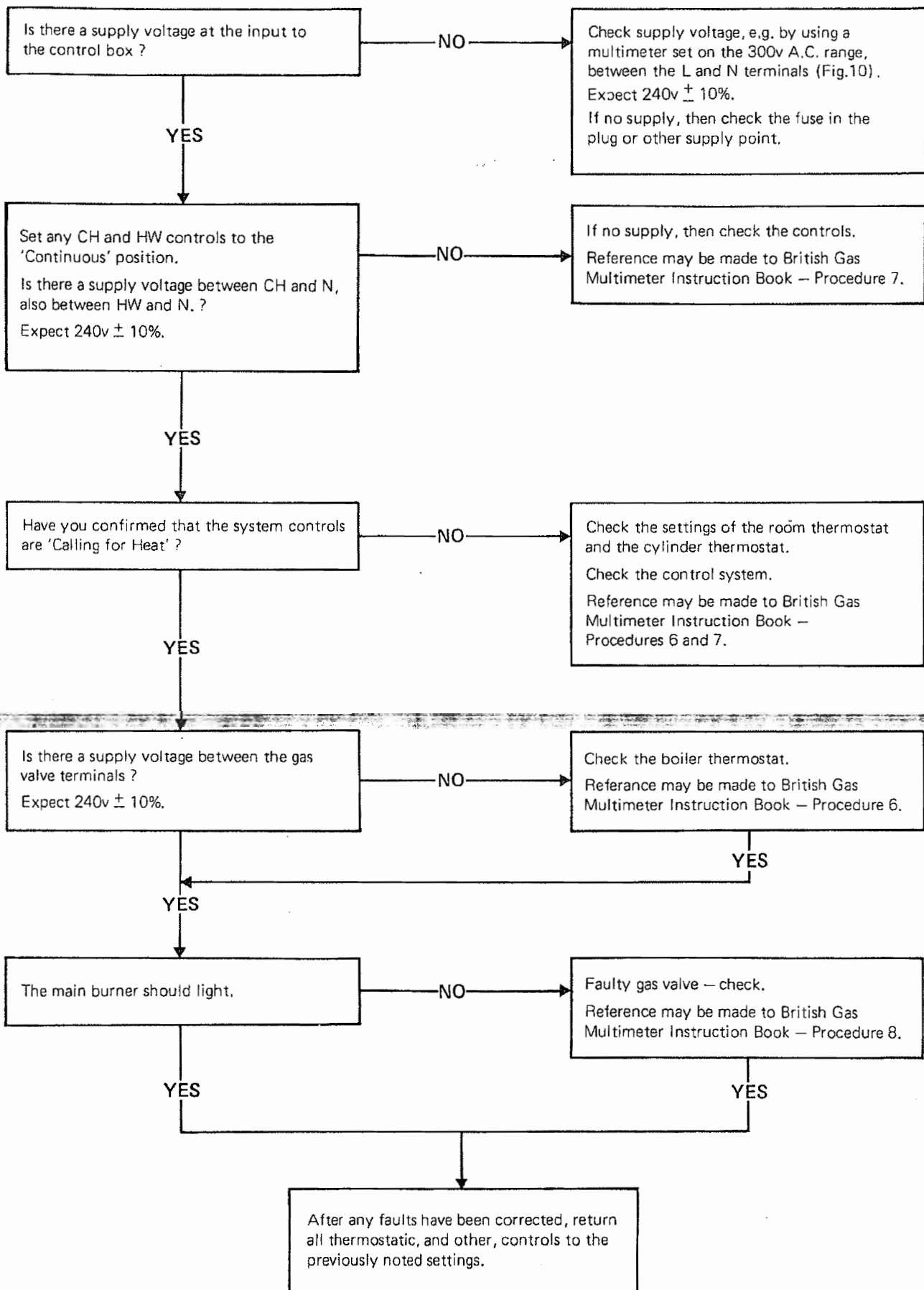
PILOT WILL NOT LIGHT



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



PILOT LIT, BUT NO MAINS GAS



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.

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

IDEAL W. CF.440 & 450 GAS BOILERS

When ordering spares, please quote:

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

Key No.	B.G.C. Part No.	Description	No. Off	Maker's Part No.
8	341 277	Sight glass assembly, comprising: sight glass and frame, 2—sight glass gaskets, 2 x M4 Hex nuts and 2 x M4 shakeproof washers	1	189648175
11	398 284	Main burner — BRAY Mk.9 AB 16638 LR	1	189344084
12	354 986	Lint arresting gauze	1	189330083
13	398 263	Main burner injector — BRAY Cat.16 Size 1150 — CF.440	1	189446061
		Main burner injector — BRAY Cat.16 Size 1700 — CF.450	1	189456061
14	382 536	Pilot burner injector — HONEYWELL. 38/36mm No.45003—508001	1	589040083
15	391 667	Pilot burner — HONEYWELL Q359 1017, with injector Key No. 14	1	589040084
17	393 659	½in.BSP HONEYWELL Compact gas control V4600A 1023—240v	1	586121900
20	388 047	Piezo unit — VERNITRON 60038 with RH outlet	1	589040086
21	393 630	Ignition electrode and H/T lead assembly	1	589030089
22	390 039	Thermocouple — HONEYWELL Q309 A2739 — 24in. lg.	1	576890051
24	354 991	Control box, including Key No's 25, 26 & 28	1	589040065
25		Thermostat — RANCO CL6 P0105, with 48in. capillary	1	589040051
26	382 327	Thermostat knob — RANCO 83151—31	1	589020051
29	354 776	Mains connector — ASHLEY or BULGIN to CEE 22, Sheet 5 and BS.4491	1	589030015
30	341 283	Boiler casing assembly — White Stove Enamel, with sight glass trim, dimple foil insulation, earthing point and 2 x M5 wing nuts — includes Key No. 8	1	189644030
31	341 284	Controls casing (less door), Mid Brown with 2—plastic hinges and door clips	1	189640088
32	341 285	Controls casing door, White Stove Enamel, with name badge, 2—plastic hinges and Lighting Instructions	1	189640089
33	341 286	RH push-on side plate	1	189646058
34	341 287	LH push-on side plate	1	189646059

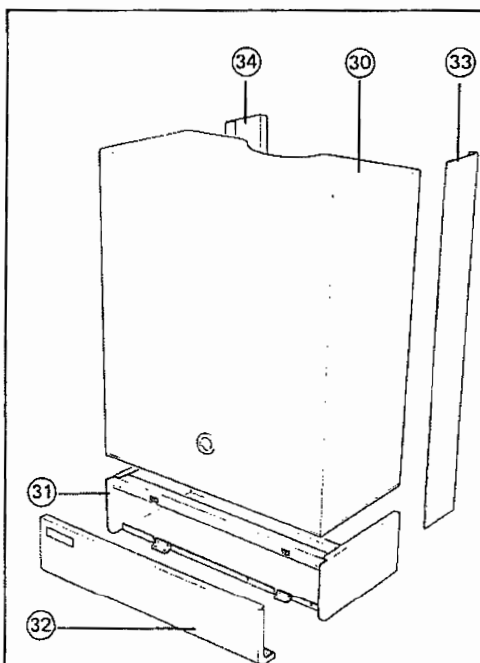


Fig. 27

CASING —
Exploded View

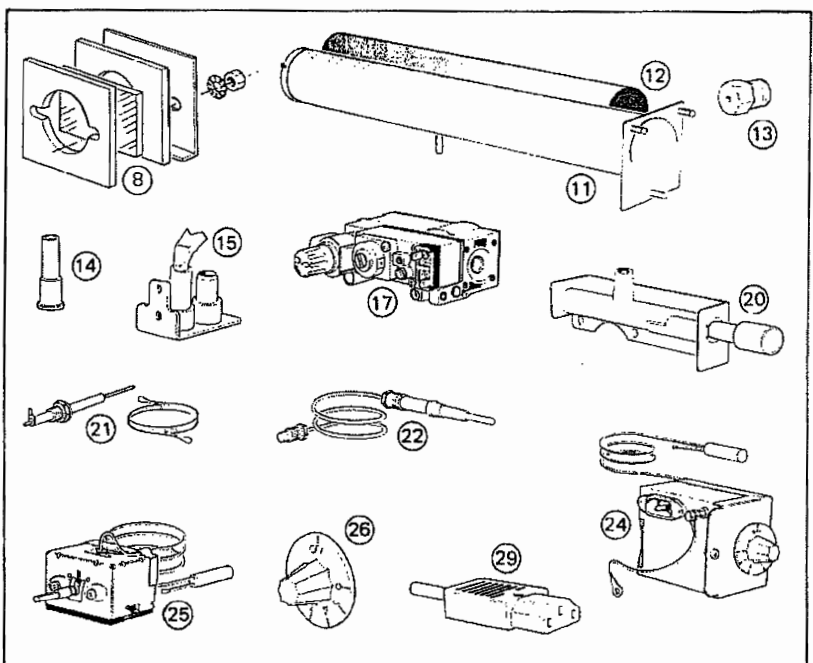


Fig. 28

SMALL PARTS

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.

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

IDEAL W. CF.460 GAS BOILER

When ordering spares, please quote:

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

Key No.	B.G.C. Part No.	Description	No. Off	Maker's Part No.
8	341 277	Sight glass assembly, comprising: sight glass and frame, 2—sight glass gaskets, 2 x M4 hex. nuts and 2 x M4 shakeproof washers	1	189648175
11	383 517	Main burner — AEROMATIC 19/123212	1	189664084
12	341 279	Lint arresting gauze	1	189664083
13	341 280	Burner end cap and gasket, with 4 x M5 hex. hd. nuts and 4 x M5 shakeproof washers	1	189664079
15	398 333	Main burner injector — BRAY Cat.16 Size 1800	1	189666067
16		Pilot burner injector — HONEYWELL .38/.36mm No.45003—508001	1	589040083
17		Pilot burner — HONEYWELL Q359A 1041 with injector Key No.16	1	589040085
18	393 659	½in.BSP HONEYWELL Compact gas control V4600 A1023—240v	1	586121900
20	388 047	Piezo unit — VERNITRON 60038, with RH outlet	1	589040086
21	388 003	Ignition electrode — KIGASS, and H/T lead assembly	1	589030088
22	390 039	Thermocouple — HONEYWELL Q309A 2739 — 24in.lg.	1	576890051
24	354 991	Control box, including Key No's 25, 26 & 28	1	589040065
25		Thermostat — RANCO CL6 P0105, with 48in. capillary	1	589040051
26	382 327	Thermostat knob — RANCO 83151—31	1	589020051
29	354 776	Mains connector — ASHLEY or BULGIN, to CEE 22 Sheet 5, BS.4491	1	589030015
30	341 283	Boiler casing assembly, White Stove Enamel, with sight glass trim, dimple foil insulation, earthing point and 2 x M5 wing nuts — includes Key No. 8	1	189644030
31	341 284	Control casing (less door), Mid Brown, with 2—plastic hinges and door clips	1	189640088
32	341 285	Controls casing door, White Stove Enamel, with name badge, 2—plastic hinges and Lighting Instructions	1	189640089
33	341 286	RH push-on side plate	1	189646058
34	341 287	LH push-on side plate	1	189646059

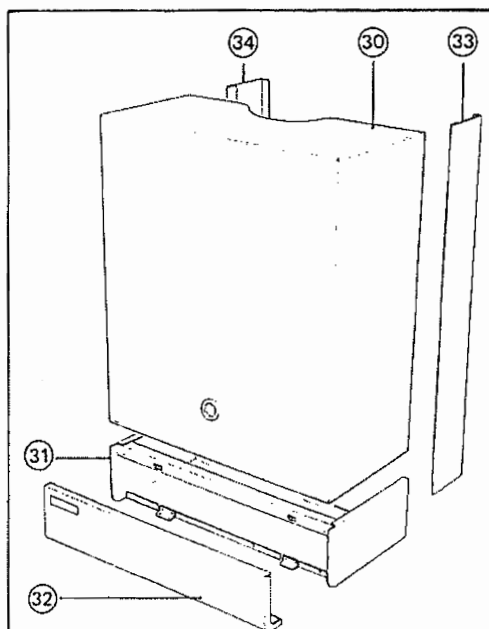


Fig. 29

CASING —
Exploded View

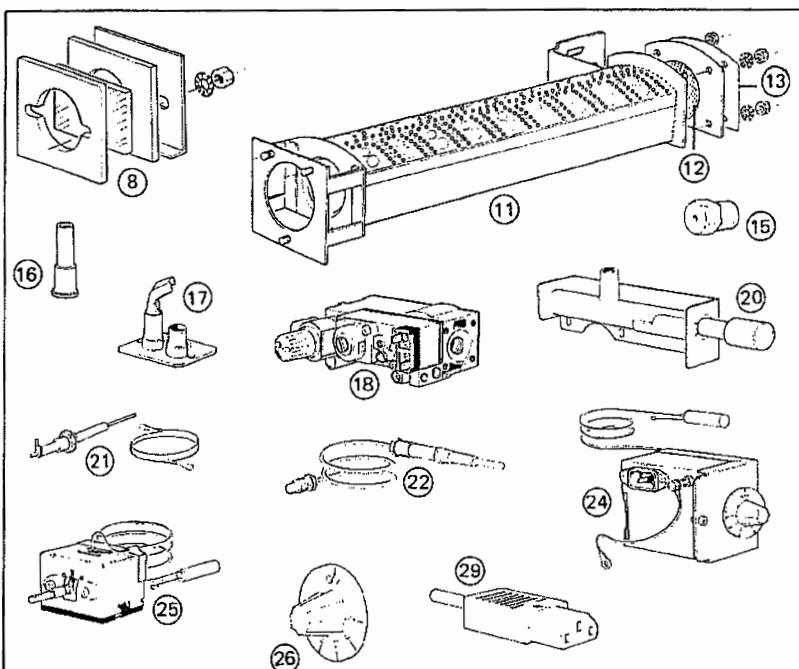


Fig. 30

SMALL PARTS

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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A SUBSIDIARY OF METAL BOX p.l.c.

H.0277 (3) 11/83

Printed in England.

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