IDEAL

STELRAD GROUP

Concord WCF 240A & 255A

Installation & Servicing

November, 198·
1980

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.

B.G.C. Appliance No's

Concord WCF. 240A	41. 409. 67
Concord WCF. 255A	41. 409. 69

NOTE: The appliances are for use on **NATURAL GAS ONLY** and **CANNOT** be used on any other gas.

Table 1 INSTALLATION DATA

Boiler Size		WCF 240A	WCF 255A
Gas Supply Connection	in.BSP	Rc½	
		½	
Flow Connections	in.BSP	Rc1	
		1	
Return Connections	in.BSP	Rc1	
		1	
		Rc¾	
	in.BSP	¾	
Maximum Static Water Head	metre	36.6	
	feet	120	
Total Weight (Dry)	Kg	67	
	lb	148	
Maximum Installation Weight	Kg	56.5	
	lb	125	
Electrical Supply		220/240 volt 50Hz	
External Fuse Rating		3 amp	
Water Content	litre	11.2	
	gal	2.46	

DESCRIPTION

The Concord, wall mounted, open-flued (WCF), natural draught boilers are suitable for use with open vented central heating, indirect domestic hot water (DHW), or with a combined system.

These appliances are designed for ease of installation. Site work is limited to:—

1. Fastening the boiler to the wall.
2. Making the water, gas and flue connections.
3. Plugging in the electrical supply and control leads.

A 220/240 volt 50Hz single phase electricity supply is required.

Programmer and pump kits are available as optional extras, which fit neatly within the boiler casing. Fitting instructions are included with these kits.

Clip-on casing side plates for pipe concealment are also available as optional extras.

IMPORTANT

In the interests of safety this appliance must be installed by a competent installer. The Confederation for the Registration of Gas Installers (CORGI, identified by ⚙), requires its members to work to recognised standards.

The installation of the boiler must be in accordance with the Gas Safety Regulations, Building Regulations, I.E.E. Regulations and the by-laws of the local Water Undertaking. It should also be in accordance with BS Codes of Practice CP.331:3, BS.5376:2, CP.342:1, (BS.5449:1 smallbore and microbore systems), BS.5440:1* and BS.5440:2, and any relevant requirements of the local Gas Region and Local Authority.

* In course of preparation as revision of CP.337.

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

The gas installation should be in accordance with CP.331:3.

The gas supply pipe and meter must be adequately sized to supply this appliance plus any existing appliances. The complete installation must be tested for soundness as described in the above code.

The boiler must not be connected to a direct hot water supply system.

Circulation to the indirect hot water cylinder may be by gravity or pumped.

Note:

A distributor tube, packed in the bag of fittings, is supplied with each boiler. On systems with pumped circuits this distributor tube MUST be fitted into the tapping selected for pumped return.

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

1. Heat exchanger
2. Heat exchanger flue
3. Flue clean-out cover
4. Flue outlet
5. Wall mounting plate
6. Back panel
7. Distributor tube
8. Bush
9. Boiler thermostat pocket
10. Boiler thermostat phial
11. Thermostat capillary
12. Pilot bracket
13. Earth bonding wire
14. Boiler thermostat
15. Thermocouple lead
16. Spark ignitor
17. Gas valve
18. Control box

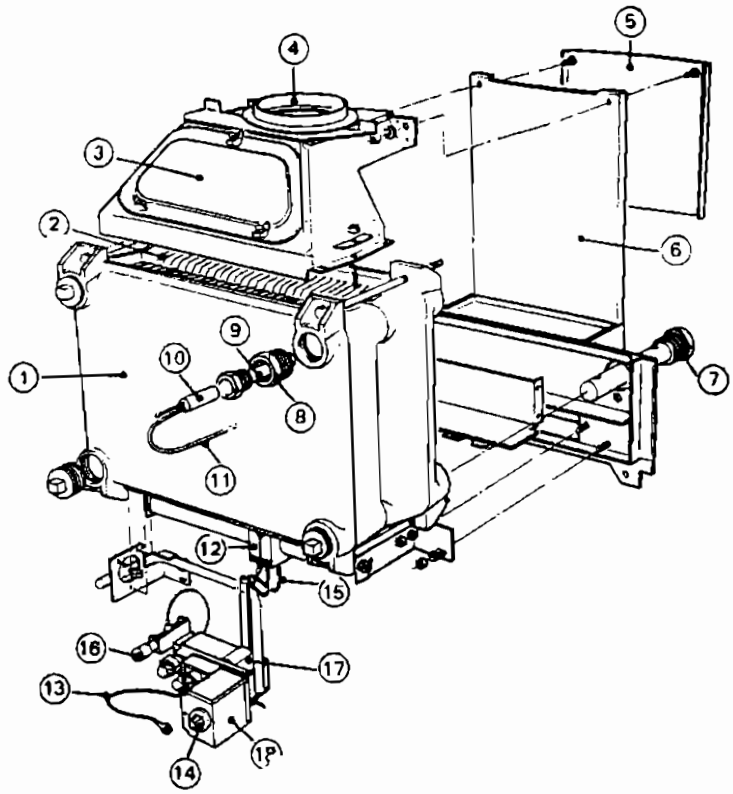


Fig.1 EXPLODED VIEW OF BOILER UNIT

PACKAGING

The delivery carton contains the boiler assembly, complete with casing, secured to a wooden cradle; a bag of fittings; the wall mounting plate; wall template and 'User's Instructions'. Keep the carton right way up in accordance with the markings on the outside.

CHOOSING A POSITION FOR THE BOILER

This appliance MUST NOT be installed in a bedroom or bathroom, or any room or internal space in which inflammable materials or vapours are likely to be present.

Where installation will be in an unusual position special procedures may be necessary and BS.5376:2 gives detailed guidance on this aspect. A cupboard or 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 the essential features of cupboard/compartment design including airing cupboard installations are given in BS.5376:2.

All dimensions in millimetres (inches)

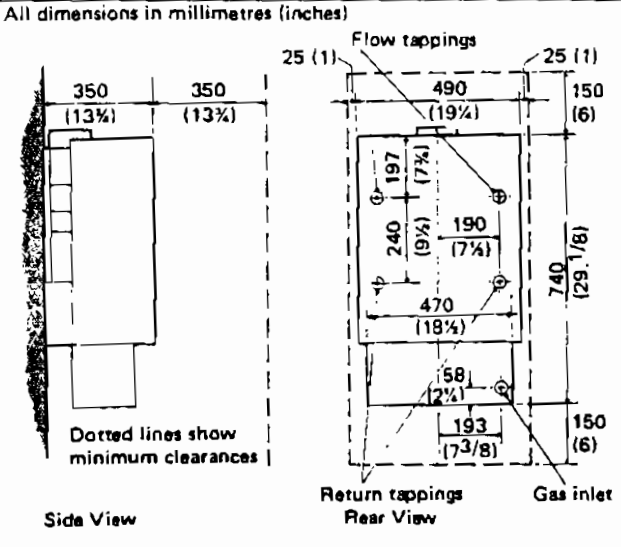


Fig.2 DIMENSIONS AND CLEARANCES

FLUING

Detailed recommendations for fluing are given in BS.5440:1. The following notes are intended for general guidance.

1. The flue pipe used must be not less than 100mm (4in) internal diameter.
2. Flue pipes and fittings should be constructed from one of the following materials:
   (a) aluminised or stainless steel.
   (b) cast iron – acid resistant vitreous enamel lined.
3. If double walled flue pipe is used it should preferably be of a type acceptable to British Gas.
4. The flue should terminate in accordance with the relevant recommendations given in BS.5440:1.
5. The flue must be fitted with a terminal, preferably one which has been tested and found satisfactory by British Gas. This terminal must not be installed within 600mm (2ft) of an openable window, air vent or any other ventilation opening.

AIR SUPPLY

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

The room or internal space in which the boiler is installed must be provided with a permanent air vent. This vent should be either direct to outside air or to an adjacent room or internal space which itself has 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:–

WCF 240A	WCF 255A
40cm^2 (6in^2)	66cm^2 (10in^2)

The air grilles 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 asked to advise before proceeding.

If the boiler is to be installed in a cupboard or compartment permanent air vents are required in the cupboard/compartment at high and low level which may communicate with a room/internal space or direct to outside air.

The minimum effective areas of the permanent air vents required in the cupboard/compartment are as follows –

WCF 240A

Position of air vent	Air from room/ internal space	Air direct from outside
High Level	142cm^2 (22in^2)	71cm^2 (11in^2)
Low Level	284cm^2 (44in^2)	142cm^2 (22in^2)

Note:

Both air vents must communicate with the same room or internal space or must both be on the same wall to outside air.

WCF 255A

Position of air vent	Air from room/ internal space	Air direct from outside
High Level	194cm^2 (30in^2)	97cm^2 (15in^2)
Low Level	388cm^2 (60in^2)	194cm^2 (30in^2)

Note:

Both air vents must communicate with the same room or internal space or must both be on the same wall to outside air.

Where compartment 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 EXTRACT FAN

If there is any type of extract fan fitted in the dwelling, there is a remote 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.

WATER CIRCULATING SYSTEM

This 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 central heating system should be in accordance with the relevant recommendations given in BS.5376.2 and in addition for smallbore and microbore systems BS.5449:1.

The domestic hot water system (if applicable) should be in accordance with the relevant recommendations of CP.342:1.

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.

Note:

When using the Stelrad Group pump kit, the return connection must always be made to the right hand side of the boiler.

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 used with the pumped return (See further note under 'Preparing the Appliance').

The boiler thermostat pocket and phial must be fitted in the front upper tapping on the same side of the boiler as that chosen for the pumped return. The boiler must be vented. If venting cannot be done via a flow connection, a separate vent must be fitted by the installer.

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

Boiler output	Water flow rate		Pressure loss	
Btu/h	Gals/h	Litres/m	in.w.g.	mbar
30 000	150	11.4	6.0	15
35 000	175	13.3	8.4	21
40 000	200	15.2	10.8	27
45 000	225	17.0	13.2	33
50 000	250	19.0	15.6	39
55 000	275	21.0	18.0	45

N.B. The above hydraulic pressure losses are for boiler fitted with distributor tube.

Fig.3

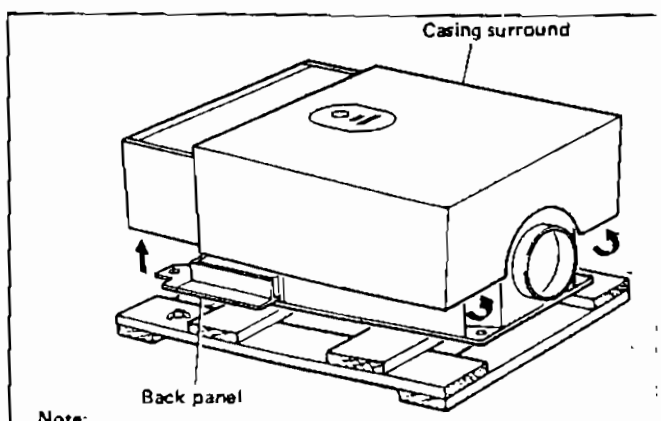
UNPACKING

Remove the cardboard carton and place on one side. Put the 'User's Instructions' and wall mounting template in a safe place.

Remove the controls casing access door by moving it upward and inwards to disengage from the hinge pins. Disconnect the green/yellow earth bonding wire from the bottom left hand side of the cabinet.

Remove the casing from the boiler body. Remove the two wing nuts at the bottom corners of the rear face (see Fig.4) and keep safe. Pull the bottom of the casing forward sufficiently to disengage the fixing studs. Lift the casing to disengage the top return edge from the jacket retaining lugs. The casing can now be lifted clear of the boiler body and should be put in a safe place to avoid any possibility of being damaged.

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



Note:
Arrows indicate removal
reverse direction for fitting

Fig.4 **CASING ARRANGEMENT**

INSTALLATION

PREPARING THE WALL (See 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 way of a mortar course etc. Drill the three holes with a No.20 (10mm – 3/8in) masonry drill and insert the three TP3 plastic plugs provided.

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

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 lower end of the boiler body sufficiently to allow the distributor tube to be entered into the selected return tapping.

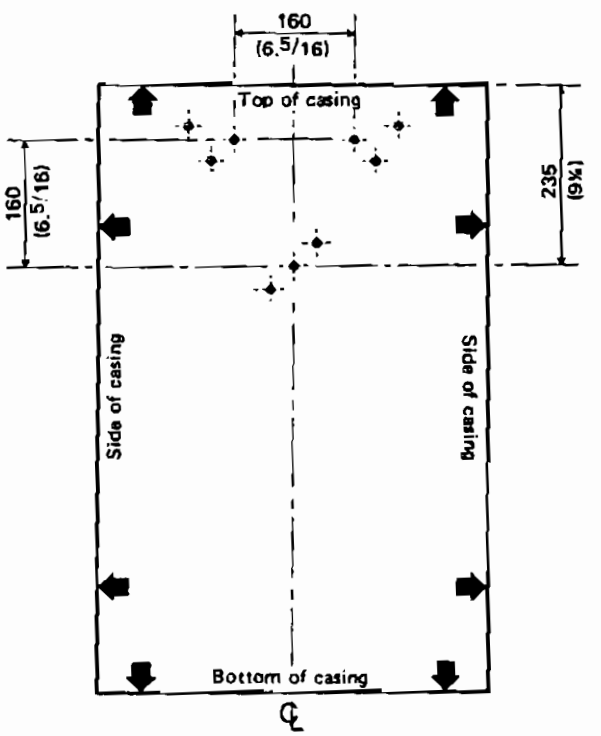
Note:

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

Lower the boiler back onto the cradle and screw the distributor tube home with the arrow on the boiler back plate in alignment with the index mark on the distributor tube bushing.

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 into the front upper tapping on the side selected for the pumped return connection, using approved jointing compound. Insert the 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 as shown in Fig.6.

All dimensions in millimetres (inches)



Wall Mounting Dimensions

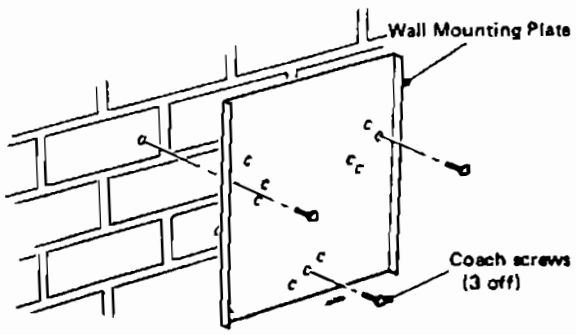
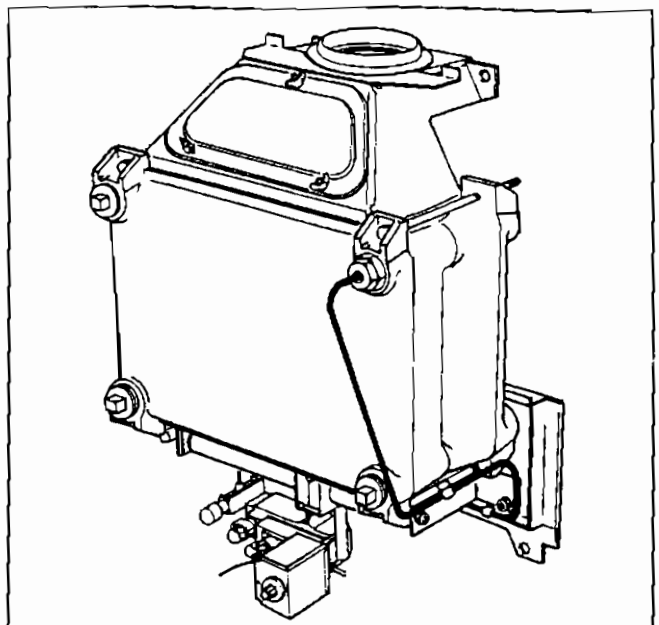


Fig.5 TEMPLATE AND WALL MOUNTING PLATE



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.

Fig.6 BOILER THERMOSTAT CAPILLARY ROUTE

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

If clip-on casing side plates are being used, the gas and water connections must run vertically within the space enclosed. Any required change to the horizontal must be made outside such enclosure. Instructions for fitting the plates are packed with each kit.

Gravity domestic hot water piping and fittings **MUST** be 28mm (1in); smaller pipe and fittings MUST NOT be used. Pumped central heating piping and fittings may be 22mm (¾in). Take care not to rotate the distributor tube when screwing the fitting into the pumped return tapping.

Tightly plug any tappings not used.

DOMESTIC HOT WATER GRAVITY CIRCULATION CIRCUITS

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

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

The use of a cylinder thermostat is recommended. It will prevent excessive domestic hot water temperatures (e.g. when the central heating is not in use) and thus cut down the gas consumption. 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

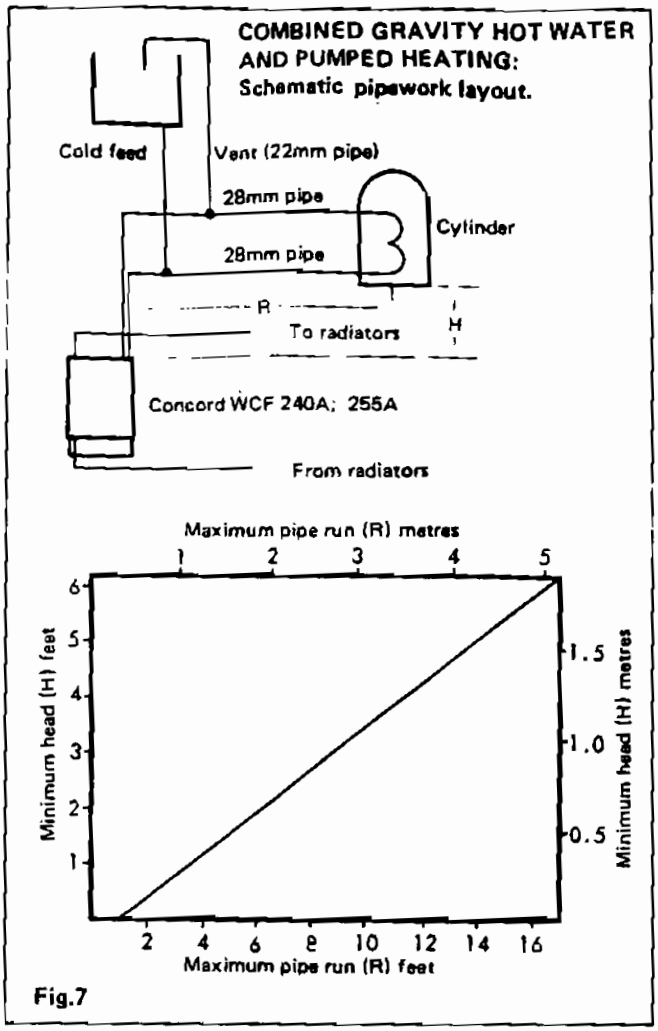


Fig.7

elbow in excess of eight (R) must be reduced by 300mm (12in) or (H) increased by 100mm (4in).

Note:

Flow and return pipes should rise vertically on leaving the boiler. Horizontal pipe runs should be above ceiling level and have the maximum possible inclination. If the above requirements cannot be met, pumped primaries should be used.

FITTING TO THE WALL

Offer up the boiler assembly 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 M8 washers and nuts (packed in the bag of fittings) and secure the boiler in position.

WATER CONNECTION

The water connections can now be completed.

FLUE CONNECTION

Connect the flue pipe to the flue outlet of the appliance. Flue pipe spigot and socket connections should be sealed with fibre glass, or similar, and a suitable fireclay cement.

GAS CONNECTION

The service pipe to the building, the gas meter and the pipe between the appliance and the meter must be of a size to ensure an adequate supply of gas when the appliance is operating at rated output. If in doubt, consult the local Gas Region.

Connect the gas supply pipe to the main gas inlet cock on the gas valve and tighten the unions.

ELECTRICAL CONNECTIONS

WARNING: THE APPLIANCE MUST BE SAFELY EARTHED.

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

All external controls fitted to the system **MUST** be suitable for mains voltage.

A mains supply of 220/240 volts 50Hz fused at 3amps is required. A socket outlet should be provided adjacent to th appliance. The use of an unswitched socket with removable plug is advised. If a switched socket is used, the switch MUS be of the double pole type; it should be noted that these are not generally available.

A single pole switch MUST NOT be used. The supply and control wiring should not be less than 16/0.20 metric.

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

The control box wiring is shown in Fig.8.

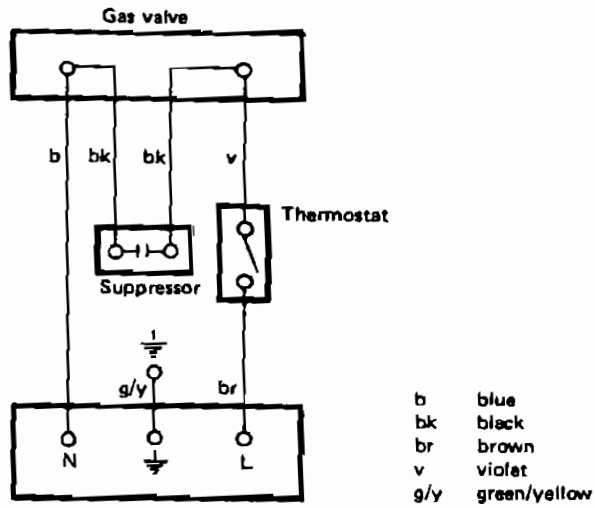


Fig.8 **CONTROL BOX WIRING SCHEMATIC**

The wiring diagrams in Fig.9 to 15 cover the systems most likely to be fitted to this appliance. We cannot illustrate all possible combinations of external controls. Difficulty in wiring up should not arise provided 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-stat) must be wired into the mains live lead in parallel with the control(s) to be over-ridden.(See Fig.10).
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.

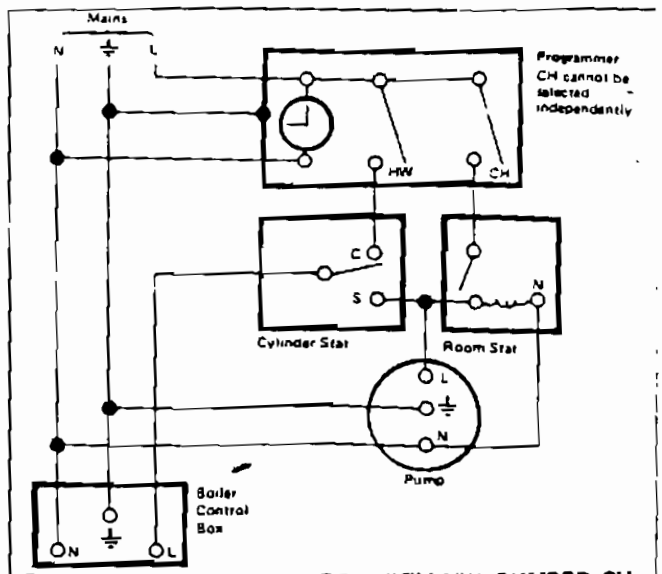
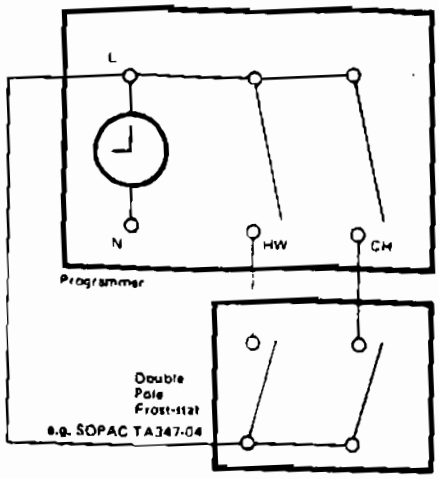


Fig.9 **GRAVITY HW, PUMPED CH**

FROST PROTECTION



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

Fig.10 **DOUBLE POLE FROST STAT WIRED TO PROGRAMMER**

TWIN MOTORISED VALVES

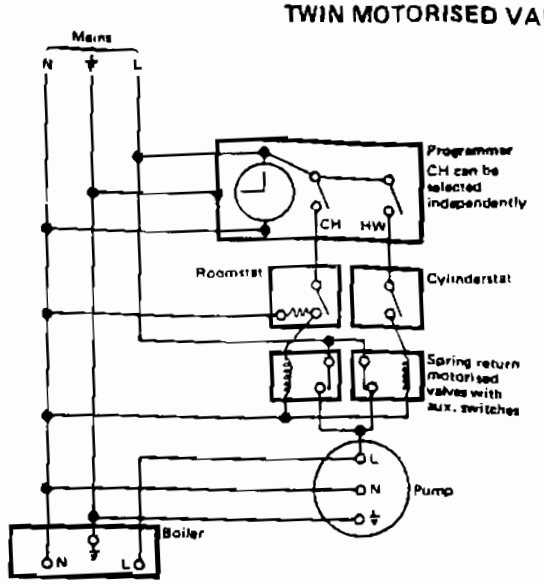
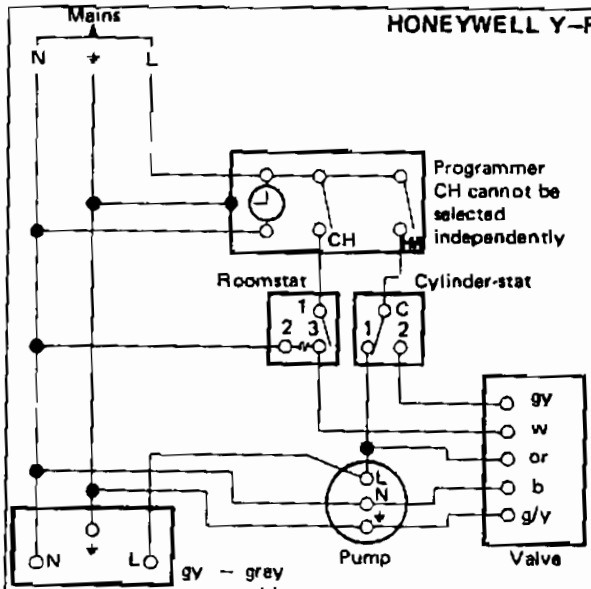


Fig.13 **PUMPED ONLY SYSTEM**

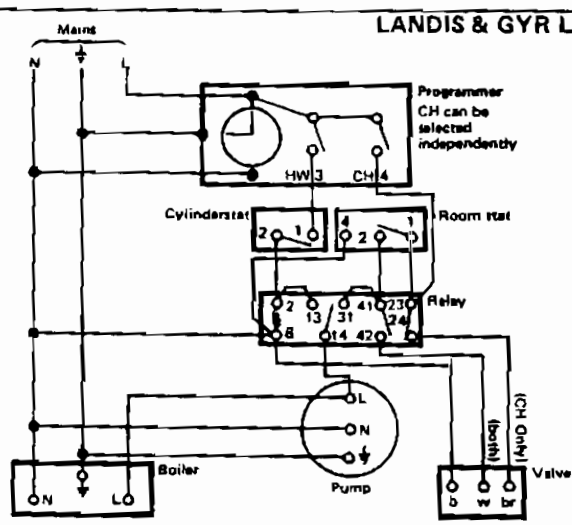
HONEYWELL Y–PLAN



gy – grey
w – white
or – orange
b – blue
g/y – green/yellow

Fig.11 **PUMPED ONLY SYSTEM**

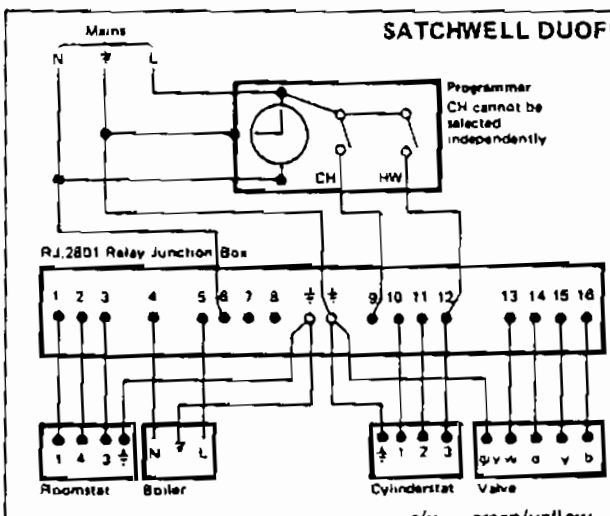
LANDIS & GYR LGM



b blue
w white
br brown

Fig.14 **PUMPED ONLY SYSTEM**

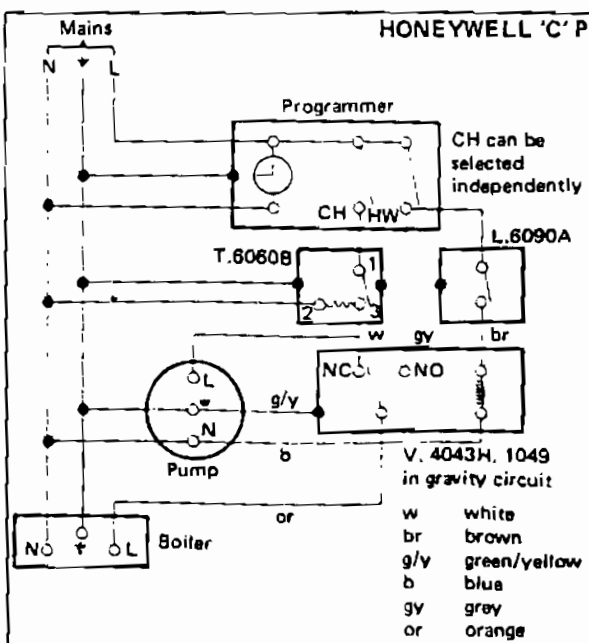
SATCHWELL DUOFLO



g/y green/yellow
w white
o orange
y yellow
b blue

Fig.12 **PUMPED ONLY SYSTEM**

HONEYWELL 'C' PLAN



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

Fig.15 **GRAVITY HW PUMPED CH SYSTEM**

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

Wire the mains connector (supplied in the bag of fittings) as follows:–

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

The connector may now be plugged into the control box.

FITTING THE CASING

WARNING: THE BOILER MUST NOT BE OPERATED WITH THE CASING REMOVED.

Lift the 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.

Fasten the earth bonding wire to the stud at the left hand side of the control compartment. Secure the terminal beneath the washer and nut. THIS CONNECTION IS IMPORTANT AND MUST **NEVER** BE OMITTED.

Replace the controls access door.

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.

WARNING: Open all windows and doors, extinguish naked lights. Do not smoke.

Water Circulating System

The whole of the system should be filled and 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.

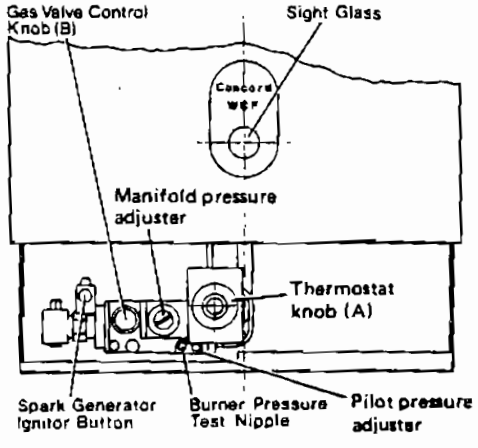


Fig.16 BOILER CONTROLS

INITIAL LIGHTING (Refer Fig.16)

Remove the controls access door and check that:–

1. The electricity supply to the boiler is 'OFF'.
2. The gas inlet tap is 'OFF'.
3. The boiler thermostat is 'OFF'.
4. Turn the gas control knob (B) clockwise until resistance is felt and then release it.

Ensure that all water control and stop valves are open. Check that time controls are 'ON' and that temperature controls are set to maximum with the exception of the boiler thermostat which remains at 'OFF'.

Slacken the screw in the burner pressure test nipple and connect to a pressure gauge with flexible tubing. Check that the inlet gas cock is 'ON'. Push in the gas control knob (B) and hold it depressed. Push in and release the igniter button repeatedly until the pilot flame is seen through the sight glass. Continue to press in the gas control knob (B) for at least 20 seconds before releasing it. After the gas control knob (B) is released, the pilot should continue to burn. If it does not, turn the gas control knob clockwise and release it. Wait for three minutes and then repeat the instructions above but wait for longer than 20 seconds before releasing the gas control knob (B).

It is imperative that the pilot flame is correctly adjusted, as too small a flame will cause unreliable operation and pilot outage. Too large a flame may cause flame 'lift-off' and pilot outage, and could result in accelerated deterioration of the thermocouple.

When the pilot is burning properly, check that approximately 13mm (½in) of the thermocouple tip is immersed in the pilot flame. An adjuster screw is provided on the gas control next to the burner gas pressure test nipple. Turn the screw anti-clockwise to increase the flame length and clockwise to decrease it.

Switch on the electricity supply and turn the thermostat knob (A) to maximum. The boiler will then light.

Test for gas soundness around the boiler components using sense of smell and leak detection fluid.

PRESSURE ADJUSTMENT

After lighting, allow the boiler to operate for ten minutes to stabilise the burner temperature.

Check the manifold pressure shown by the gas pressure gauge and adjust to the pressure shown in Table 2 for the required output. A screwdriver with a 10mm bit should always be used for adjustment to avoid damaging the plastic head on the screw.

The pressure adjuster is located beneath a screwed dust cap located in the centre of the gas control valve. Turn the adjustment screw clockwise to increase or anti-clockwise to decrease the gas pressure.

Replace the dust cap after making the adjustment.

Switch 'OFF' the boiler thermostat and then remove the gas pressure gauge connection. Screw the sealing screw fully home.

Check the appearance of the pilot flame and, if necessary, make a further adjustment.

Check that there is no spillage of combustion products from the boiler draught diverter by carrying out a spillage test as detailed in BS.5440:1. Turn the boiler thermostat 'ON' and 'OFF' and check that the main burner is re-lit and extinguished in response. Check the operation of the flame failure device in the gas control. To do so, with the boiler lit, turn off the gas at the inlet tap. A 'click', indicating that the device has operated should be heard within 60 seconds after turning off the gas.

The correct operation of external system controls should be proved. Turn each in turn 'OFF' and 'ON' and check that the main burner or circulating pump, as the case may be, responds.

With the system hot, examine all water connections for soundness. Then turn off the gas, electricity and water and drain down whilst still hot. Refill and vent the system. Check for water soundness.

USER'S INSTRUCTIONS

A 'User's Instructions' is provided with the boiler and a Lighting Instruction Plate is fixed inside the controls access door. 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 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. It should also be explained to the householder that regular skilled servicing of the system is important to ensure reliable, trouble-free operation and a long working life. It is recommended that the owner take out a contract for regular servicing with you, his installer, the Gas Region or a firm of heating engineers.

Table 1 GAS DATA

Model			WCF 240A	WCF 255A
Heat Output	MINIMUM	kW	8.8	13.2
		Btu/h x 1000	30	45
	MAXIMUM	kW	11.7	16.1
		Btu/h x 1000	40	55
Heat Input	MINIMUM	kW	11.7	17.44
		Btu/h x 1000	40	59.5
	MAXIMUM	kW	15.7	21.25
		Btu/h x 1000	53.5	72.5
Manifold Pressure	MINIMUM	mbar (gauge)	8.0	10.0
		in.w.g.	3.2	4.0
	MAXIMUM	mbar (gauge)	14.0	13.5
		in.w.g.	5.6	5.4

SERVICING

Routine servicing will normally be confined to:—

1. Cleaning the burner.
2. Cleaning the heat exchanger flue.
3. Checking the gas controls.

Part 1 gives instructions for the above operations.

Part 2 covers the replacement of faulty components. A list of spare parts is included on page 11.

WARNING:
ALWAYS TURN OFF THE GAS SUPPLY AND SWITCH OFF THE ELECTRICITY SUPPLY BEFORE WORKING ON THE APPLIANCE.

PART 1 — ROUTINE MAINTENANCE

Remove the controls access door and disconnect the earth bonding wire from the bottom left hand side of the cabinet. If the boiler is fitted with clip-on casing side plates, remove these by pulling at the top to disengage from the casing. If a programmer is fitted, remove the two M4 screws securing the programmer to the controls casing. Lift out the programmer assembly and remove the two screws which lock the plug connector to the programmer body. Pull out the plug connector and tuck the wiring into the space between the casing and the wall. Put programmer unit in a safe place to avoid damage.

Remove the casing from the boiler body assembly.

Disconnect the mains connector plug located at the left hand side of the control box. Ensure that the gas inlet cock is turned off. Undo the union.

Remove the thermostat phial from the pocket and unclip the capillary from the back panel.

Support the burner and control assembly and remove by unfastening the four nuts and washers securing the burner to the back panel. Remove to a convenient working surface for attention.

Remove the right hand burner bracket. Remove the two split pins securing the burner end cap. This cap, together with the circular gauze, can now be withdrawn. 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.

Wipe the pilot burner and thermocouple with a lint free cloth to remove any deposit. If the thermocouple tip appears burnt or cracked, replace the thermocouple.

Clean the tip of the electrode. If this appears damaged, replace the electrode and lead. (For details see Part 2).

Do **not** refit the burner assembly until the flueway has been cleaned thus:—

Remove the flue cleanout cover at the top of the appliance. Brush the finned surface of the heat exchanger with a wire brush. After brushing ensure that the flueways are completely clear. Remove any loose debris from the top of the heat exchanger before replacing the cleanout cover.

Re-assemble the appliance in reverse order.

DO NOT FORGET TO RECONNECT THE EARTH BONDING WIRE TO THE EARTHING STUD.

Restore the gas and electricity supplies.

Connect a gas pressure gauge to the pressure test nipple.

Light the boiler, following the instructions given on the Lighting Instruction Plate inside the controls access door.

Check all gas connections with soap solution.

Allow the boiler to warm up thoroughly. Check the manifold gas pressure and adjust as necessary to that given in the table for the required output. (See paragraph headed 'Pressure Adjustment').

Check and adjust the pilot burner pressure if necessary. (See paragraph headed 'Pressure Adjustment').

Check the operation of the flame failure device in the gas control. To do so, with the boiler lit, turn off the gas at the service tap. A 'click', indicating that the device has operated, should be heard within 60 seconds after turning off the gas.

Remove the pressure gauge from the test nipple and screw the sealing screw fully home. Turn the boiler thermostat knob (A) to 'OFF' and restore the gas supply.

Wait for three minutes and then relight the pilot. Turn the thermostat knob (A) to the desired setting and replace the controls access door.

Restore any system controls and clocks to their correct setting.

PART 2 — REPLACEMENT OF COMPONENTS

WARNING:
ALWAYS TURN OFF THE GAS SUPPLY AND SWITCH OFF THE ELECTRICITY SUPPLY BEFORE WORKING ON THE APPLIANCE.

Note:

To replace the following components it will be necessary to remove the controls access door and the main casing. (See under Part 1 – Routine Maintenance).

Sight Glass

Remove the two nuts and washers holding the assembly to the front plate. When replacing the assembly make certain the parts are in correct order, i.e. gasket, glass, gasket and frame.

Re-tighten the fixing nuts and washers to ensure an airtight joint but DO NOT OVERTIGHTEN.

Boiler Thermostat

Remove the electrical plug connection at the left hand side of the control box. Remove the thermostat phial from the pocket and unclip the capillary from the back panel. Remove the control box cover by unfastening the screw securing it to the control box body. Pull off the thermostat knob. Disconnect the two electrical connections to the thermostat head, and unclip the thermostat capillary. Remove the two screws and shakeproof washers securing the thermostat to the control box cover.

The replacement thermostat should now be fitted in reverse order.

Piezo Igniter

Unplug the igniter lead from the igniter body, remove the two screws and shakeproof washers securing the body to the gas valve. Fit new unit and reconnect the lead.

Thermocouple

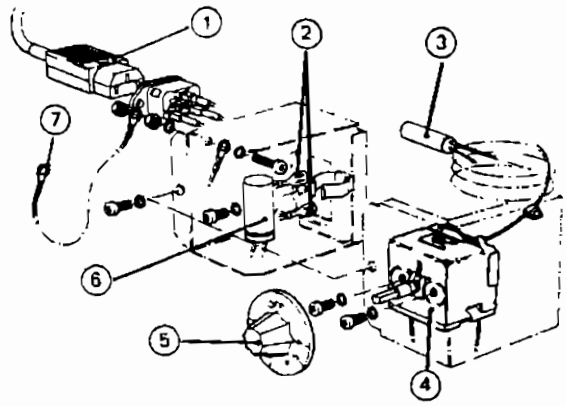
Undo the thermocouple terminal nut at the gas valve and the connection at the pilot burner. Fit the new thermocouple, avoiding any sharp bends in the thermocouple lead, ensuring this follows the same route as previously.

Pilot Burner

Unscrew the thermocouple and pilot pipe connections at the gas valve and pilot burner. Pull off the igniter lead from the base of the spark electrode. Remove the pilot bracket shield from the main burner and the pilot burner from the bracket. Fit the new pilot burner and ensure that the pilot injector is in position when re-fitting the pilot pipe.

Control Box

Disconnect the electrical plug connection and the earth connection, both located at the left hand side of the control box. Remove the thermostat phial from the pocket and unclip the capillary from the back panel. Remove the contro



1. Mains plug connector
2. Gas valve electrical leads
3. Thermostat phial and capillary
4. Boiler thermostat
5. Boiler thermostat knob
6. Suppressor
7. Earth bonding wire

Fig.17 EXPLODED VIEW OF BOILER CONTROL BOX

1. Main Burner Injector
2. Burner Bar
3. Burner Gauze
4. Burner End Cap
5. Pilot Burner
6. Thermocouple
7. Pilot Injector
8. Spark Electrode
9. Control Box
10. Gas Control Knob
11. Spark Ignitor
12. Gas Inlet Tap
13. Pilot Gas Pipe
14. Gas Manifold
15. 'O' ring seal

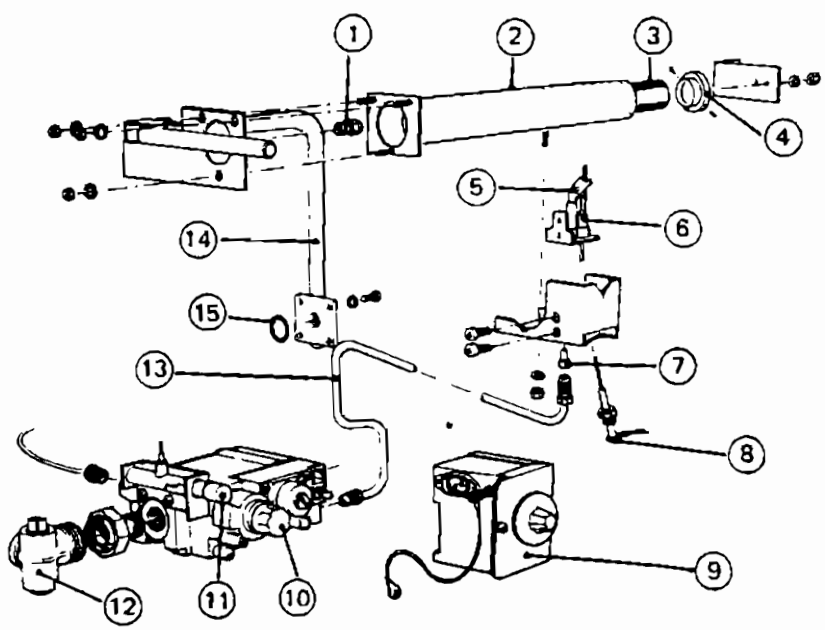


Fig.18 BURNER AND CONTROL ASSEMBLY

box cover by unfastening the screw securing it to the control box body. Pull off the thermostat knob. Disconnect the two electrical connections to the thermostat head and pull off the electrical connections to the gas valve. Unfasten the screw and washer securing the control box body to the gas valve. Fit the new control box, re-assembling in reverse order.

GAS VALVE AND MAIN BURNER

Refer to Part 1 for removal of burner and control assembly.

Main Burner

Remove the nut and washer securing the pilot bracket shield to the main burner. Unscrew the nut and washer securing the burner end bracket at the right hand end. Unscrew the three nuts and washers from the left hand end of the main burner. The burner can now be pulled clear.

The new burner can now be fitted in reverse order.

Gas Valve

Refer to Part 1 for removal of burner and control assembly.

Remove the control box. Remove the piezo igniter and lead. Transfer the locating grub screw from the old to the new gas valve.

Unfasten the pilot pipe and thermocouple connections at the gas valve and pilot burner. (Do not lose the pilot injector which is a push fit in the pilot pipe connection to the pilot burner). Unfasten the four screws securing the gas valve outlet pipe. The sealing 'O' ring should be discarded and a new 'O' ring fitted. Unscrew the union spigot from the inlet side of the gas valve.

The new gas valve can now be fitted, ensuring that it is fitted the right way round with the burner gas supply pipe fitted to the outlet side of the valve. (An arrow engraved on the gas valve indicates the direction of flow). Ensure that the sealing 'O' ring is fitted correctly between the flanges on the end of the gas pipe and the gas valve. Use an approved jointing compound on the threaded joints and check the complete assembly for soundness. Re-assemble in reverse order.

IMPORTANT

AFTER WORKING ON THE APPLIANCE NEVER FORGET TO RECONNECT THE EARTH BONDING WIRE TO THE EARTHING STUD ON THE CABINET SURROUND.

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.

When ordering spare parts please quote: –

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

Key No.	B.G.C. Pt. No.	Description	No. Off	Maker's Pt. No.
5	190 293	Sight glass assembly comprising sight glass and frame with 2 sight glass gaskets, 2 x M5 Hex. nuts, 2 x M5 shakeproof washers	1	119898175
8	398 254	Main burner Bray Mk.9 No. AB.16638 LR	1	189344084
8A	354 986	Lint arresting gauze	1	189330083
9	398 263	Main burner injector Bray Cat. 16 size 1150 (240A)	1	189446061
	398 332	size 1700 (255A)	1	189456061
10	391 665	Pilot burner injector Honeywell 0.30 No. 45000062–010	1	589040081
11	391 667	Pilot burner Honeywell Q.359A1017 with injector Key No.10	1	589040082
12	393 659	½in. BSP Honeywell Compact gas control V4600 A.1023 240v	1	586121900
12A	341 243	'O' ring	1	586341900
13	388 047	Spark generator Vernitron 60038 with RH outlet	1	589040086
14	393 630	Ignition electrode and HT lead assembly (HT lead 460mm lg.)	1	589030089
15	390 131	Thermocouple Honeywell Q.309 A2721 18in. lg.	1	586811720
17	354 991	Control box including Key Nos. 18, 19 and 21	1	589040065
18	382 355	Thermostat Ranco C26 P0615 with 48in. capillary	1	589040051
19	382 327	Thermostat knob Ranco 83151–31	1	589020051
22	354 776	Mains connector Ashley or Bulgin to Cee 22 sheet V and BS.4491	1	589030015
23	354 765	Jacket assembly white stove enamel complete with nameplate, sight glass, insulation, 2 x M5 shoulder screws, 2 x M5 hex. nuts, 2 x M5 external shakeproof washers and including Key No.5	1	189454030
24	354 954	Controls casing door plain brown stove enamel including handle and users instruction plate (240A)	1	189440089
	354 951	(255A)	1	189450089

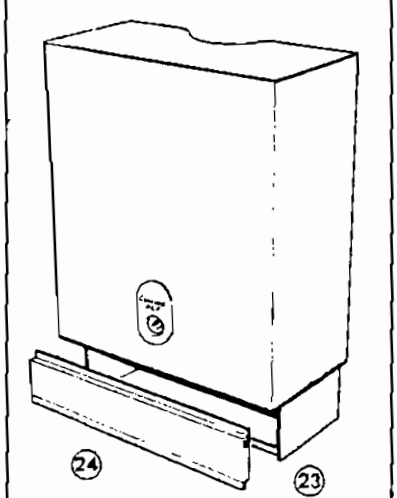


Fig.19 JACKET

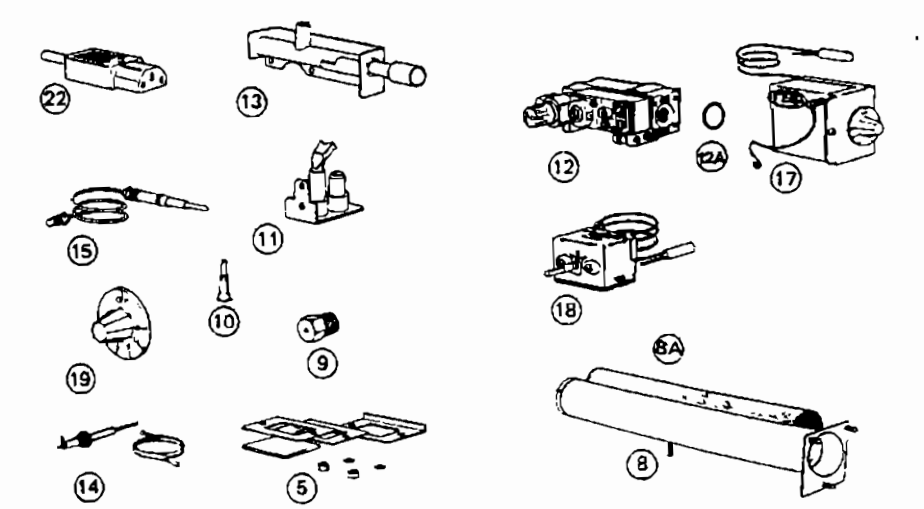


Fig.20 SMALL PARTS

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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