



from **AGA**

Heatranger 480AG (CF)/480AL (CF)

Installation and Servicing Instructions

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CE FOR USE IN GB & IE

Consumer Protection

As responsible manufacturers we take care to make sure that our products are designed and constructed to meet the required safety standards when properly installed and used.

IMPORTANT NOTICE: PLEASE READ THE ACCOMPANYING WARRANTY. Any alteration that is not approved by AGA, could invalidate the approval of the appliance, the warranty and could also infringe the current issue of the statutory requirements.

All local regulations including those referring to national and European standards need to be complied with when installing this appliance.

Control of Substances - Health & Safety Important

This appliance may contain of the materials that are indicated below. It is the Users/Installers responsibility to ensure that the necessary personal protective clothing

is worn when handling, where applicable, the pertinent parts that contain any of the listed materials that could be interpreted as being injurious to health and safety, see below for information.

Firebricks, Fuel beds, Artificial Fuels- when handling use disposable gloves.

Fire Cement - when handling use disposable gloves.

Glues and Sealants - exercise caution - if these are still in liquid form use face mask and disposable gloves.

Glass Yarn, Mineral Wool, Insulation Pads, Ceramic Fibre, Kerosene Oil - may be harmful if inhaled, may be irritating to skin, eyes, nose and throat. When handling avoid inhaling and contact with skin or eyes. Use disposable gloves, face-masks and eye protection. After handling wash hands and other exposed parts. When disposing of the product, reduce dust with water spray, ensure that parts are securely wrapped.

Introduction

THIS APPLIANCE MUST BE INSTALLED IN ACCORDANCE WITH THE RULES IN FORCE AND USED ONLY IN A SUFFICIENT VENTILATION SPACE.

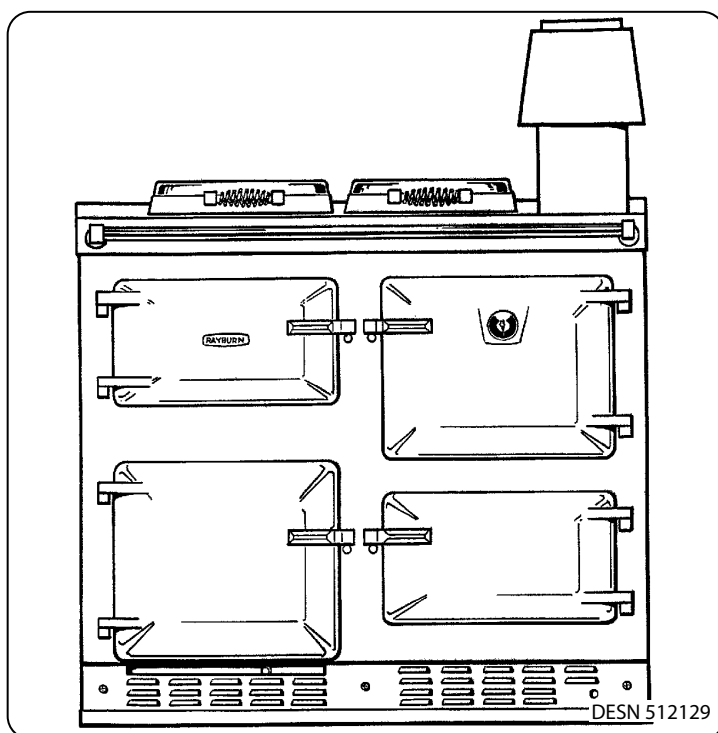
USE ONLY ON FULLY PUMPED SYSTEMS

This Rayburn Gas combination appliance is combined cooker and hot water boiler providing central heating and domestic hot water in addition to special cooking facilities. It is available in open flue form, operating on natural draught, the boiler being designed for use in fully pumped, open or sealed systems. Two separate independent controlled gas burners provide heat. One burner for central heating boiler section, providing heating and hot water, whilst the other burner provides heat to the cooker.

REMEMBER, when replacing a part on this appliance, use only spare parts that we require. Do not use reconditioned or copy parts that have not been clearly authorised by AGA.

Regulations

In the interests of safety all gas appliances should be installed by competent persons, in accordance with the regulations in force.

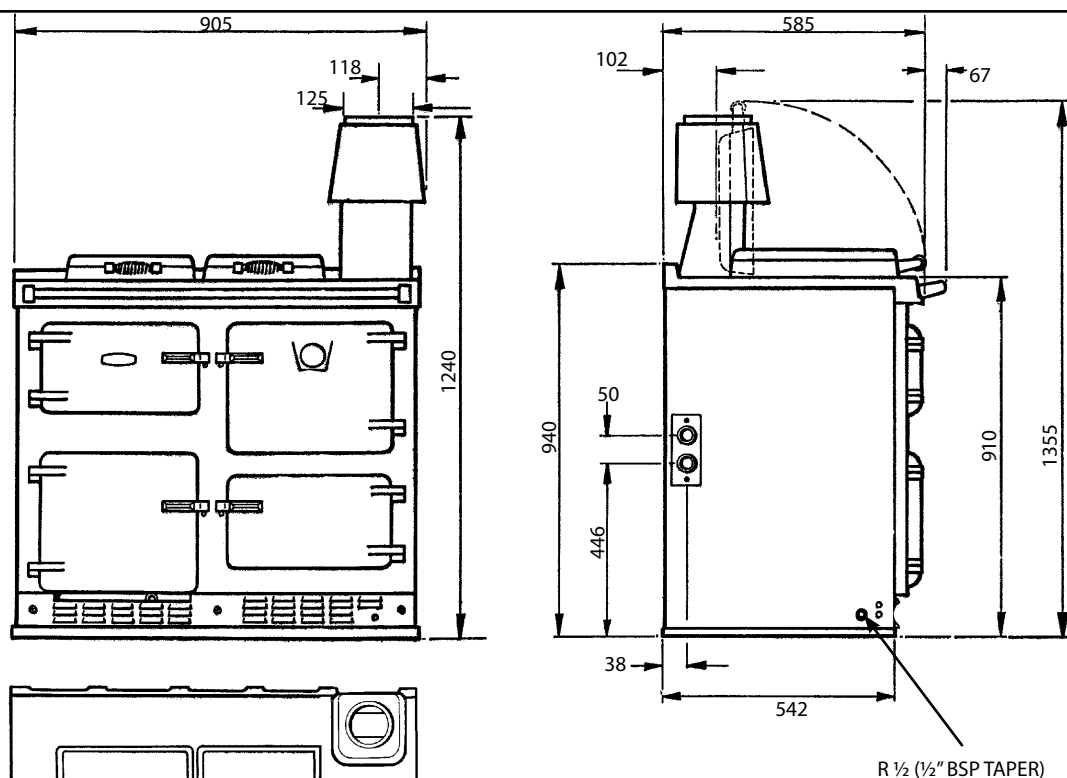


PLEASE READ THESE INSTRUCTIONS BEFORE INSTALLING THE APPLIANCE

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Specifications



NOTE: IT IS ADVISABLE TO CHECK THE ACTUAL SIZE/WIDTH OF YOUR CUPBOARDS BEFORE FINALLY FIXING ANY KITCHEN UNITS SINCE ENAMELLED CAST IRON CAN VARY IN SIZE.

DESN 512130

480AG NAT. GAS (G20)	TOTAL		BOILER		COOKER
	MIN.	MAX.	MIN.	MAX.	
Max. Heat Inputs - Gross	34kW	41.0kW	23.5kW	30.5kW	10.7 kW
Max. Heat Inputs - Net	30.5kW	37.0kW	21.0kW	27.5kW	9.6 kW
Inlet Pressure	20mbar		2.82m³/h		1.02m³/h
Marking - Injector Size	-		1.17mm x 15		BRAY CAT 28/600
Max. Boiler Output	23.4kW at 13mbar burner pressure				
Min. Boiler Output	17.6kW at 8mbar burner pressure				

480AL PROPANE (G31)	TOTAL		BOILER		COOKER
	MIN.	MAX.	MIN.	MAX.	
Max. Heat Inputs - Gross	35.8kW	40.7kW	25.6kW	30.5kW	10.2kW
Max. Heat Inputs - Net	33.0kW	37.4kW	23.5kW	28kW	9.4kW
Inlet Pressure	37mbar		1.09m³/h (2103g/h)		0.37m³/h (700g/h)
Marking - Injector Size	-		0.75mm x 15		4016
Max. Boiler Output	23.4kW at 32.5mb burner pressure				
Min. Boiler Output	17.6 kW at 20.5mbar burner pressure				

Gas Connection R $\frac{1}{2}$ (1/2" BSP TAPER)

Appliance weight: 330Kg

Electrical Supply 230V~50Hz 3 amp Fused

Boiler Connections: Flow 22mm O/D Copper Tube

Max. Working Pressure of Boiler:

Return 22mm O/D Copper Tube

Open Vent System 3 bar (30m)

Flue Outlet: 125mm

Sealed System 2.60 bar (26.0m)

Max. Water Temp. 82°C + 3°C

Water Capacity 0.6 litre

Site Requirements

Location

The appliance must be installed on a solid level floor or base of incombustible material which is capable of supporting the total weight.

The location chosen for the appliance must permit installation and the provision of a satisfactory flue and an adequate air supply. The location must also provide space for servicing and air circulation around the appliance.

Between wall and LH side of appliance	10mm
Between wall and RH side of appliance	10mm*

SHOULD THE WALL PROJECT BEYOND THE FRONT OF THE APPLIANCE, WHEN IT MUST BE INCREASED TO 50MM (SEE FIG. Fig. 1.1, Fig. 1.2).

Above the raised insulating cover handle 60mm

NOTE: GAS AND WATER CONNECTIONS ARE LOCATED ON THE LH SIDE OF THE APPLIANCE. INSTALLERS MUST MAKE PROVISION FOR ACCESS TO THESE CONNECTIONS DURING INSTALLATION.

In addition, adequate clearance must be available at the front of the appliance to enable it to be operated and serviced. Flue pipes and fittings must not be closer than 25mm to combustible materials and where passing through a combustible partition such as a ceiling or roof, must be enclosed in a non-combustible sleeve providing an air space of at least 25mm.

Spaces around flue pipes passing through walls or floors should be sealed against the passage of smoke and flame.

Where the cooker is to stand in a recess or against a wall which is to be tiled, **in no circumstances should the tiles overlap the cooker top plate.**

NOTE: SMOKE/SMELL EMITTED DURING INITIAL USAGE.

Some parts of the cooker have been coated with a light covering of protective oil. During initial operation of the cooker, this may cause smoke/smell to be emitted and is normal and not a fault with the appliance, it is therefore advisable to open doors and or windows to allow for ventilation. Lift the insulating lids to prevent staining the linings.

Gas supply

Pipework from the meter to the appliance must be of adequate size. It is recommended that ø22mm minimum diameter copper tubing is used. Do not use pipes of a smaller size than the appliance gas connection. The complete installation must be tested for soundness and purged in accordance with the regulations in force.

Electrical supply

External wiring must be correctly earthed, polarised and in accordance with current regulations. The main supply required is 230V, 50Hz fused at 3A.

NOTE: The method of connection to the electricity supply must facilitate complete electrical isolation of the appliance, preferably by the use of a fused three pin plug and unswitched shuttered outlet. Alternatively, connection may be made by a via a fused double-pole isolator with a contact separation of at least 3mm in all poles and serving the appliance and system control only.

Fig. 1.1

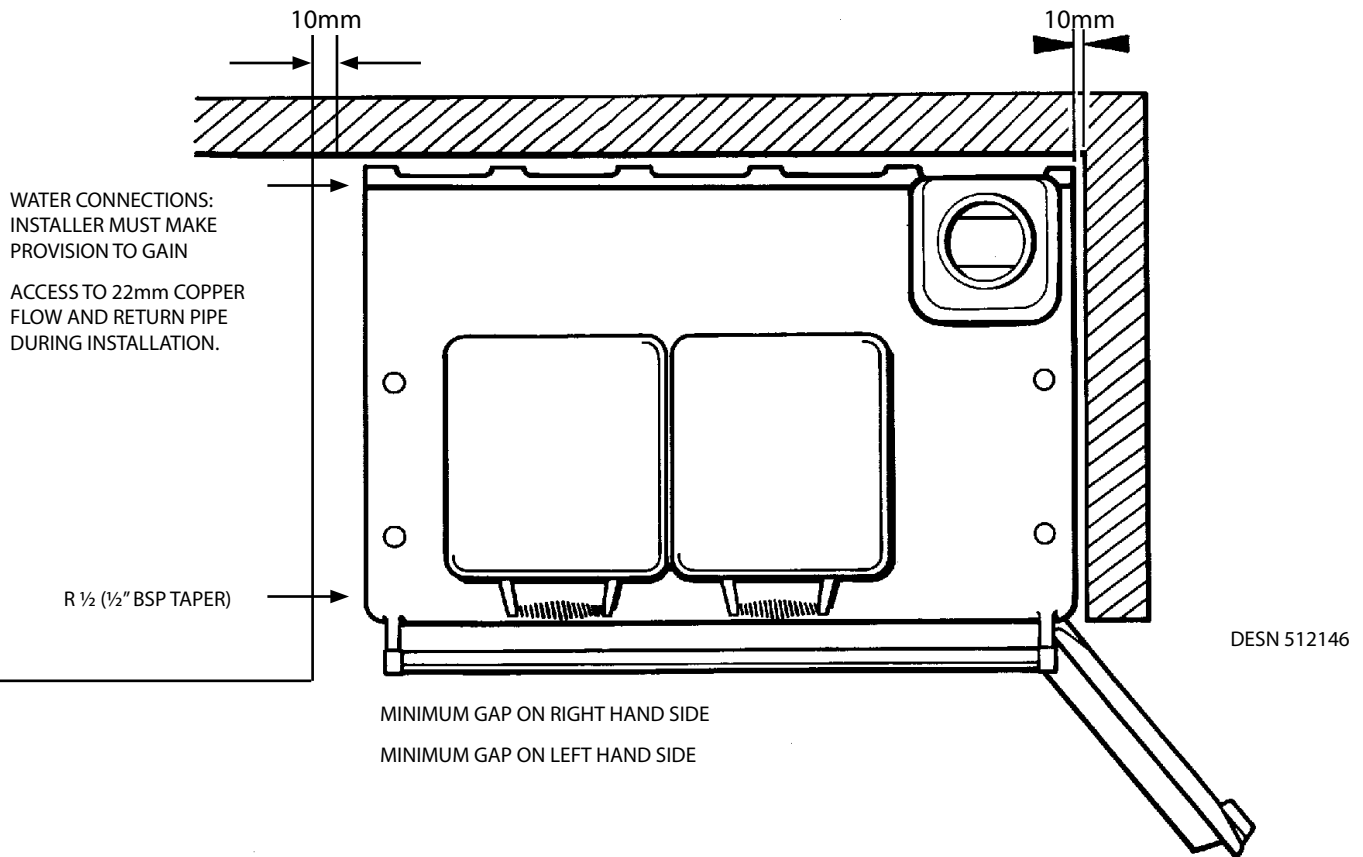
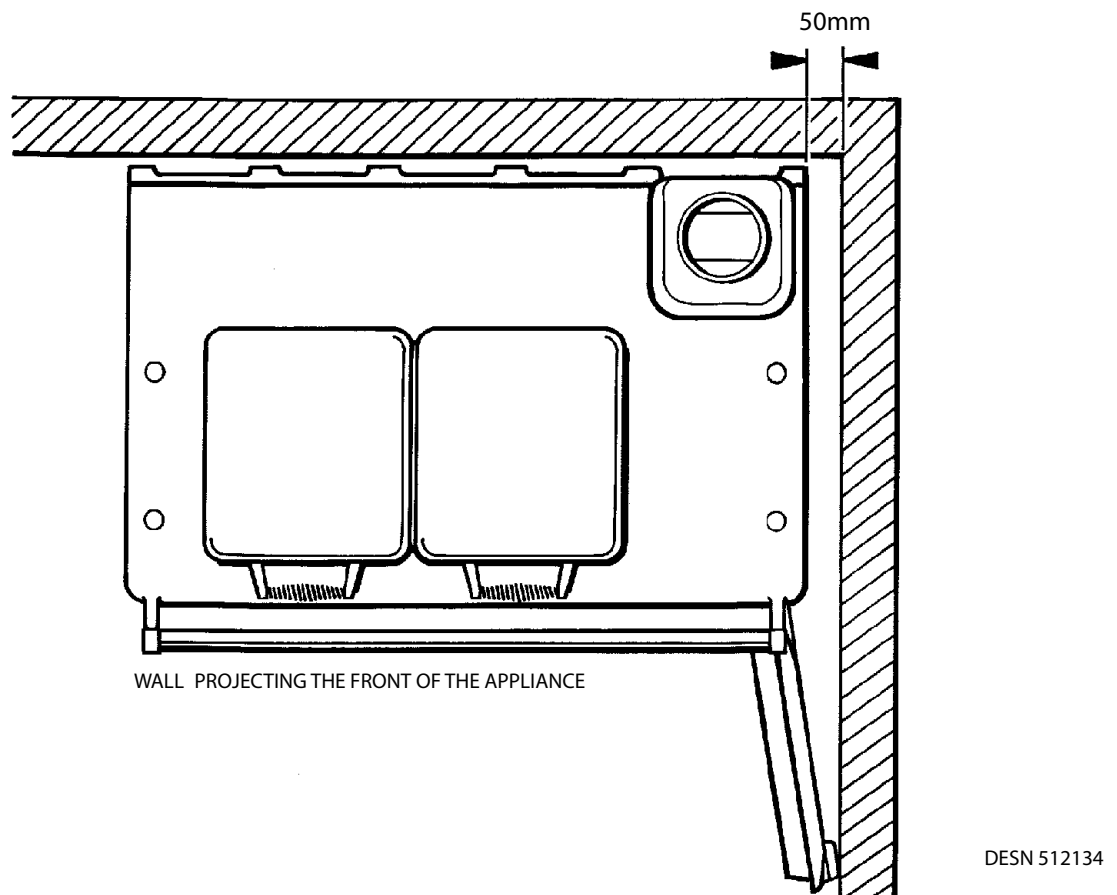


Fig. 1.2



Controls

Independent temperature controls with time switch control are recommended for providing temperature comfort from radiators.

Typical controls can be motorised valves operated by room thermostat and cylinder thermostat.

Thermostatic radiator valves may be fitted if required and consideration should be given to fitting a frost thermostat which should set to operate at a temperature of approximately 4°C.

The boiler should be controlled so that it operates on demand only.

Operation of the system under control of the boiler thermostat only, does not produce the best efficiency.

Refer to the control equipment manufacturer's literature for information e.g wiring.

The internal boiler/cooker wiring diagram is shown in **Fig. 1.12 on page 12.**

Flue system

Open Flue

The following notes are intended to give general guidance. The cross sectional area of the flue serving the cooker must not be less than the area of the flue outlet of the cooker (12,273mm²). If flue pipe is to be used it must not be less than 125mm internal diameter.

A straight vertical section of the flue pipe of a length not less than 600mm must be utilised immediately above the draught diverter before any bends are used. Bends not less than 135° must not be used. The equivalent height of the flue must be a minimum of 3m in length.

Flue pipes and fittings should be constructed from one of the following materials:-

- a. Cement
- b. Aluminium or stainless steel
- c. Cast iron or mild steel acid resistant vitreous enamel lined.

If a chimney is to be used, it should be one that is composed, of or lined with, a non-porous acid resistant material.

A flue pipe constructed in (a) to (c) above, should form the initial connection to lined chimneys.

Where a chimney is to be used, which is not composed of or lined with a non-porous acid resistant material, it should be lined with a stainless steel flexible flue liner, in accordance with relevant standards.

Before connecting the appliance 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 materials. If a baffle plate, etc is fitted in the flue it must be removed before connecting the appliance to, or inserting a liner into the flue.

The flue should terminate in accordance with relevant recommendations.

Flue Terminal

The total free area of the openings in the flue terminal must be a minimum of 24,546mm² = (cross sectional area of 125mm dia flue x 2) in the UK GC1 and GC2 terminals meet this requirement.

Air requirements

The following notes are intended to give general guidance:-

Kitchen or Internal Space Air Supply

Wherever an open flue appliance is to be installed it must have a permanent air vent. This vent must be either direct to outside air or to an adjacent room or internal space which itself must have a permanent air vent of at least the same size direct to outside air.

The minimum effective area of the permanent air vent in the outside wall must be 147cm².

Effect of an Extract Fan

It may be necessary to increase air vent by 50% or consult fan manufacturers. If there is any type of extract fan fitted in the same room as an open flue appliance there is a possibility that if adequate air inlet from outside is not provided, spillage of the products from the appliance flue could occur when the extract fan is in operation. Where such installations occur, a spillage test must be carried out and any necessary remedial action taken.

Water circulation system

In a combined central heating and domestic hot water system, the hot water storage vessel must be of the indirect cylinder type. The hot water storage vessel should be insulated with not less than 75mm thick mineral fibre or its equivalent.

Cisterns and pipework should not be situated in areas which may be exposed by freezing conditions and should be insulated.

Draining taps must be located in accessible positions which permit the draining of the whole system, including the heat storage vessel.

The appliance boiler section should be connected to cistern water supply, subject to a maximum head of 3 bar (30m), minimum of .1 bar (1m).

The heating system must be designed (and adjusted if necessary) to give temperature differential across the boiler at full output of 10-14°C. When horizontal runs are used the pipes should rise upwards in the direction away from the appliance.

Circulating Pump

It is recommended that the selected pump be sized to suit the boiler pressure loss (see **Fig. 1.3**) and therefore adequate to give the required temperature differential between the flow and return.

The pump should be able to meet the requirements of the system design and fitted in a readily accessible position.

Isolating Valves

Isolating valves (preferably of the keyless type) must be fitted to the inlet and outlet of the circulating pump to facilitate service and replacement of pump without draining the system.

Inhibitor

A corrosion inhibitor **MUST** be added to the heating system to protect the heat exchanger and pipework. Inhibitor must also be replaced if the system is drained after installation. As a precaution the heating system **MUST** also be flushed out prior to the addition of the inhibitor to ensure any flux, debris is removed.

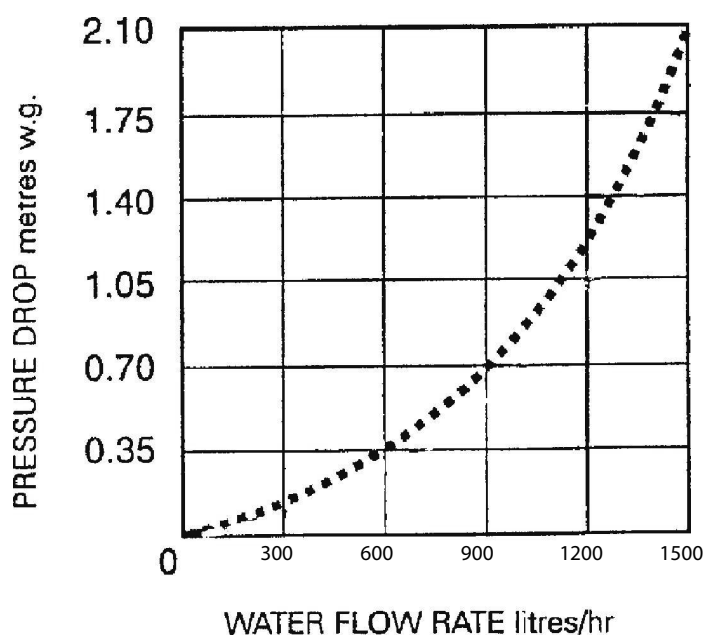


Fig. 1.3 Pressure Loss Curve

Sealed System Requirements See **on page 24 and on page 25**

Installation Instructions

Clearances

The appliance is floor mounted. The space in which the appliance is to be fitted must have the following minimum dimensions:-

Between wall and LH side of appliance - 10mm
Between wall and RH side of appliance - 10mm*

***SHOULD THE WALL PROJECT BEYOND THE FRONT OF THE APPLIANCE, WHEN IT MUST BE INCREASED TO 50MM (SEE FIG. Fig. 1.1, Fig. 1.2).**

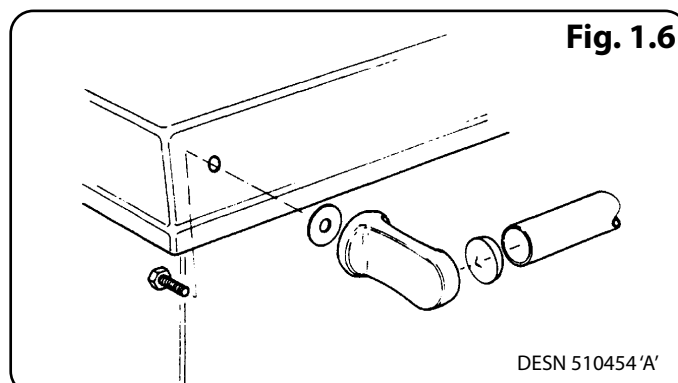
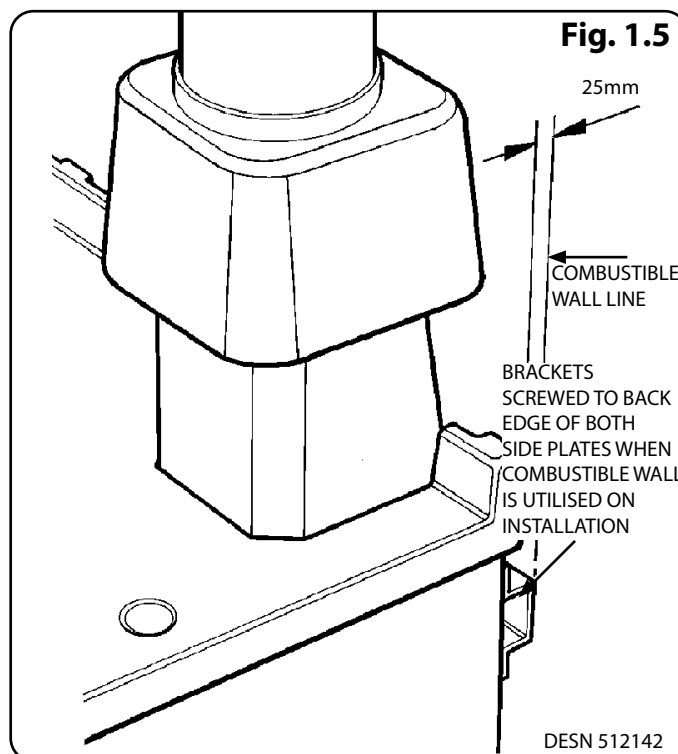
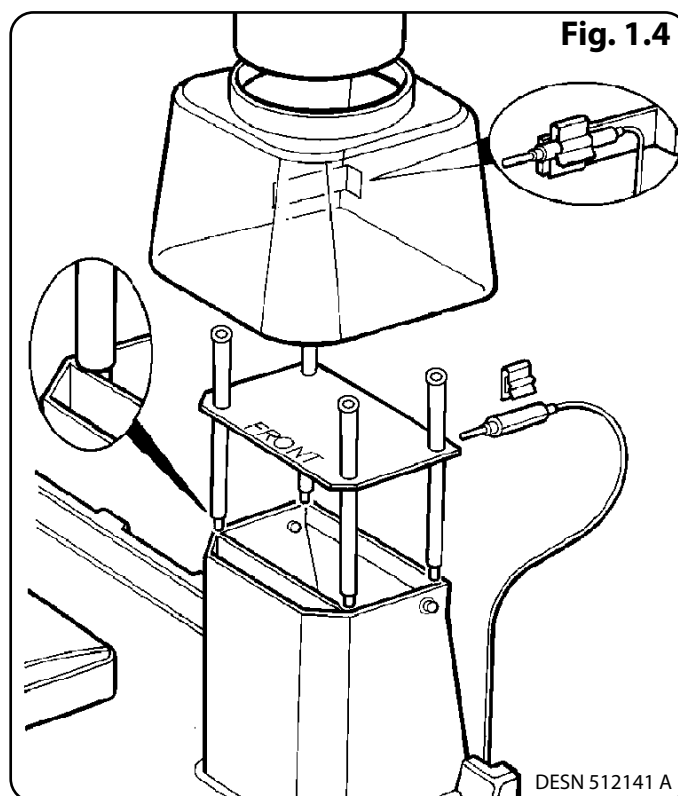
Above the raised insulating cover handle - 60mm

In addition, adequate clearance must be available at the front of the appliance to enable it to be operated and serviced

Preliminary installation

The appliance is delivered assembled with the exception of the following items which are supplied separately packed and require assembly.

1. **Draught Diverter Assembly** See **Fig. 1.4**.
2. **Appliance Rear Distance Bracket:** (for use when appliance is installed (25mm) away from a rear wall of combustible material). See **Fig. 1.5**.
3. **Hand Rail:** The handrail brackets are held on the front ends of the cooker top-plate casting. Remove the travel nuts and replace with the handrail brackets ensuring the fibre protecting washers are in position. Insert the handrail with fitted endcaps in to the brackets, positioning them correctly, and tighten the locating bolts (**Fig. 1.6**).



Site Location

1. Remove the appliance assembly from the transit wooden pallet by the temporary location of a sloping ramp board between the pallet and the floor. With the appliance on the floor, lift the front of the appliance (manually or crowbar) and insert a 32mm x 1m long tube between the front of the appliance base plate and the floor.

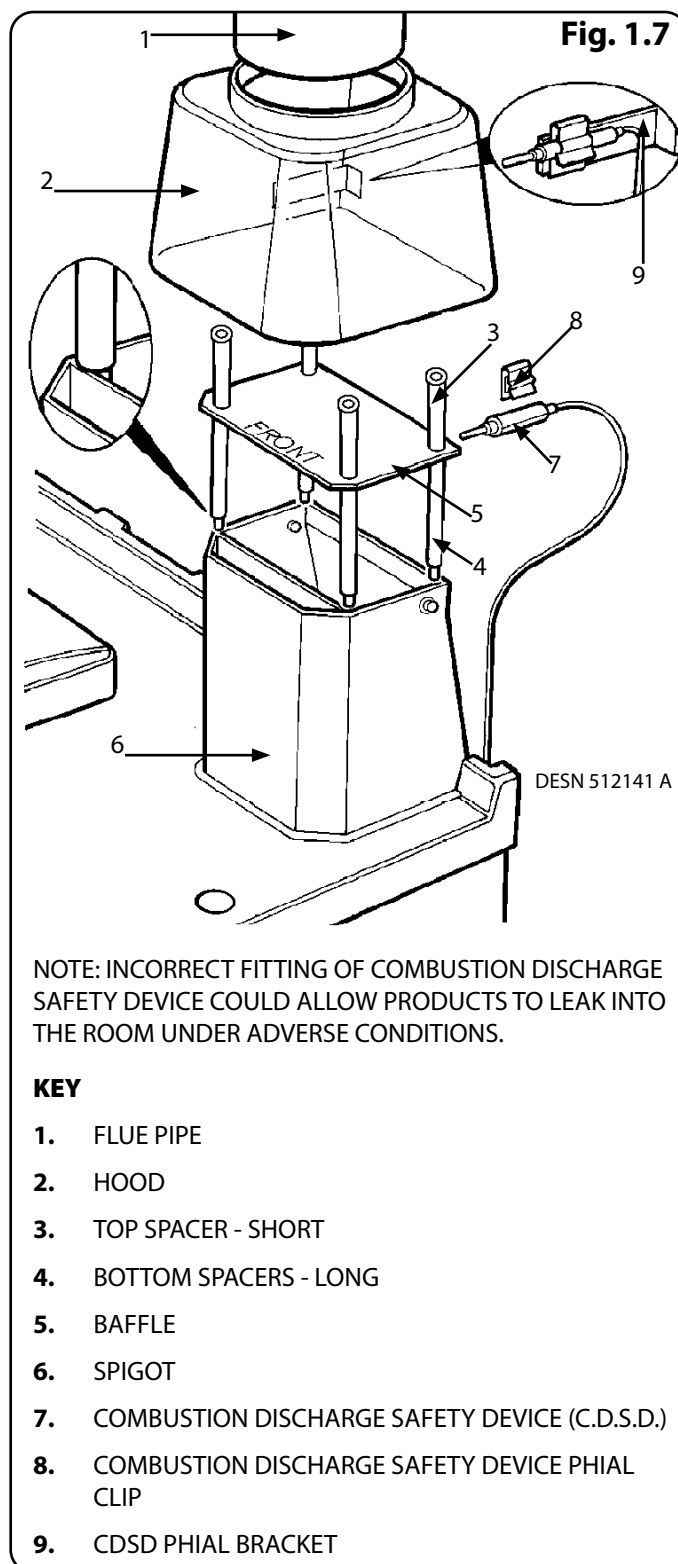
Draw the tube balanced appliance forward until the tube is at the rear of the appliance and then insert a second similar tube at the front of the appliance, between the base plate and the floor. The tube supported appliance can now slowly be "rolled" across the floor and positioned with its back against the wall, and in its intended location for flue connection.

Using a crowbar at the rear of the appliance base plate, take the weight of the appliance on the crowbar and remove the rear rolled tube, followed by similar action on the front tube.

2. Assemble and locate the flue draught diverter assembly on flue spigot as follows (See **Fig. 1.7**):-
 - a. Ensure baffle plate is located with 'front' stamping towards front of cooker.
 - b. Ensure C.D.S.D. is correctly located in C.D.S.D. in phial clip.

NOTE: IT IS RECOMMENDED THAT A "SLIP" OR "SPLIT" ADAPTOR IS FITTED BETWEEN THE DIVERTER FLUE SOCKET AND FLUE PIPE TO FACILITATE POSSIBLE FLUE DISCONNECTION AFTER COMMISSION.

Connect the flue system in accordance with standard practice.



Gas connection

1. Connect the gas supply to the ½" BSP tapered thread on the left hand side of the appliance (See "Specifications" page 3).
2. Test the whole of the gas installation including the meter and purge in accordance with the relevant recommendations.

Water connections

1. The two flow and return (22mm O/D Copper Tube) connections are located towards the rear edge of the appliance left hand side panel.

System suitability

THIS BOILER IS SUITABLE FOR FULLY PUMPED SYSTEMS ONLY.

For optimum operating conditions the heating system into which the boiler is installed, should include a control system.

Such a system will include a time switch and a room thermostat and/or cylinder thermostat.

The boiler should be controlled so that it is operated on demand only.

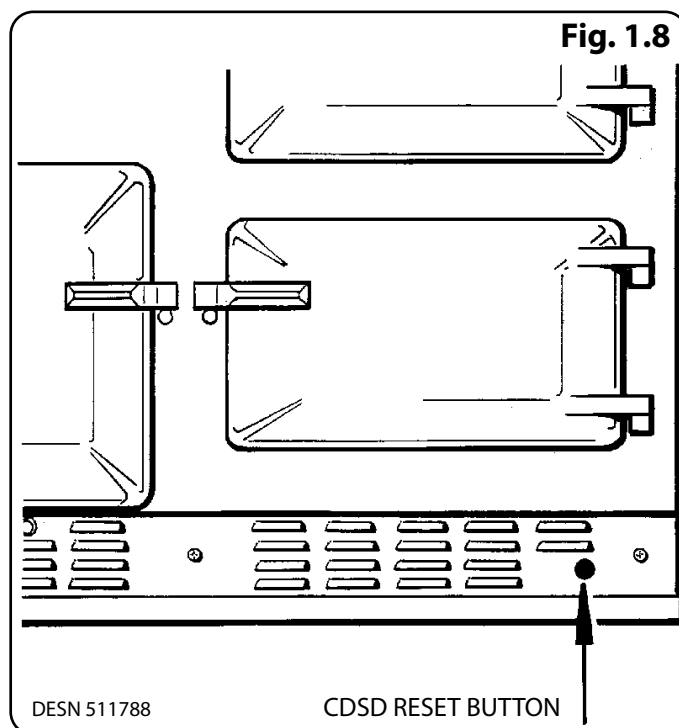
Operation of the system under control of the boiler thermostat only does not produce the best efficiency. Refer to the control equipment manufacturer's literature for information e.g. wiring.

The internal boiler/cooker wiring is shown in **Fig. 1.12**.

Combustion discharge safety device

For safety purposes a combustion discharge safety device is fitted. This will only operate under adverse flue conditions. If the switch has operated, it should be pushed in to reset (**Fig. 1.8**). If this problem persists contact your local engineer to determine and rectify the cause. It is important not to reset more than once as this may indicate a flue blockage.

⚠ WARNING: The combustion discharge safety device must not be interfered with or rendered inoperative, as this could interfere with the safe operation of the appliance and invalidate the appliance warranty.



Electrical connections

Supply cable:

PVC insulated three core 85°C rated 300/500V .75mm².

To connect the electrical wiring to the appliance.

Make electrical connections to terminal strip as wiring diagram.

Remove the plinth cover at the bottom of the appliance (See **Fig. 1.9**).

Fit supply and pump cables to the terminals as shown in **Fig. 1.11**. Ensure that the appropriate cable clamp is used.

The permanent live **MUST** be connected to the terminal marked **L**.

If a time switch is fitted to the boiler then the system live **MUST** be connected to the terminal marked **BSL**.

NOTE: The link between terminals **L1** and **BSL** **MUST** be removed to ensure correct operation of the time switch. If the time switch is fitted to the cooker then the switched live **MUST** be connected to the terminal marked **CSL**.

NOTE: The link terminals **L1** and **CSL** **MUST** be removed to ensure correct operation of the time switch.

Refit the terminal cover plate.

⚠ WARNING! THIS APPLIANCE MUST BE EARTHED, EXTERNAL CONTROLS AND THE APPLIANCE MUST BE SUPPLIED VIA THE SAME PLUG AND SOCKET OR ISOLATOR.

Electrical checks

Check to ensure electrical safety should be carried out by a qualified engineer.

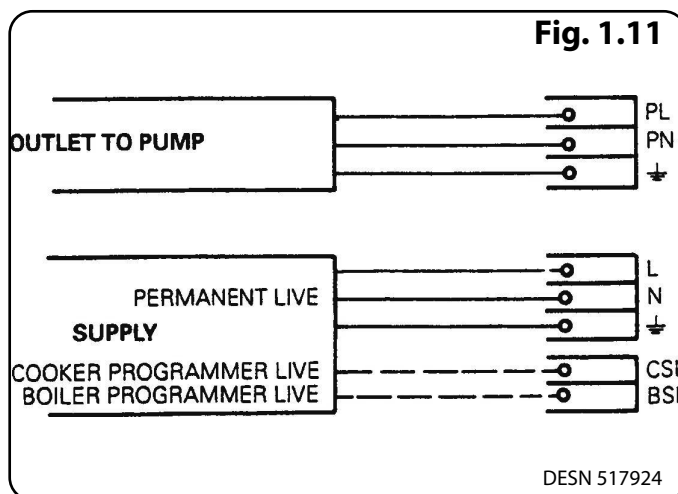
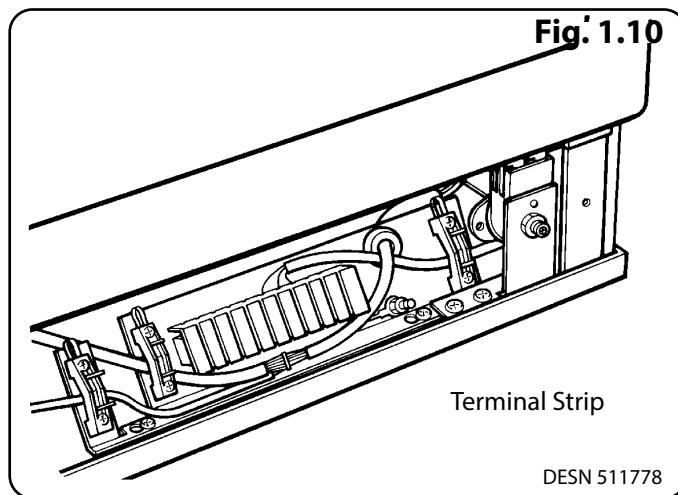
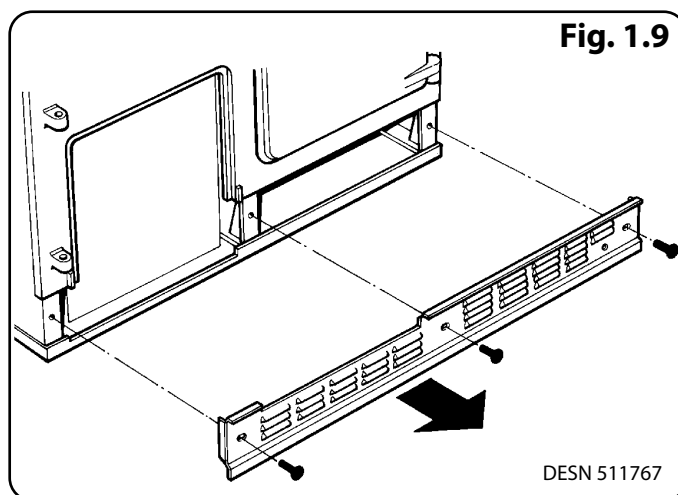
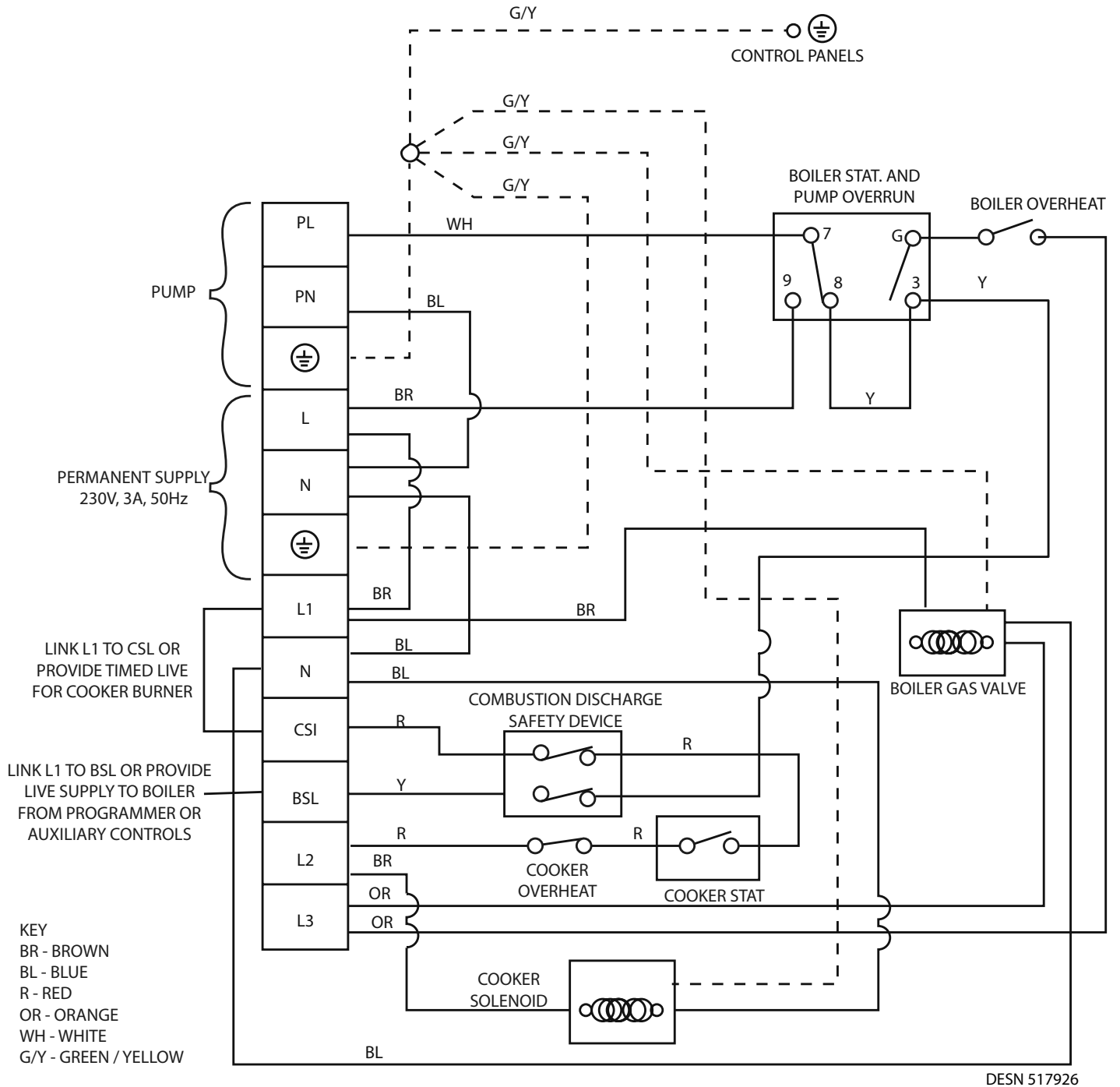


Fig. 1.12



THIS APPLIANCE IS NOT CALLING FOR HEAT.
I.E. THE USER THERMOSTATS ARE IN THE OFF POSITION SAFETY
STATS SHOWING NORMAL CONDITIONS

Commissioning

Electrical installation

Checks to ensure electrical safety should be carried out by a competent person, ie. earth continuity, polarity and resistance to earth.

Water circulation 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.

Vent all heat emitters and check for water soundness.

Commissioning the cooker and boiler

Isolate electricity at the wall socket. Turn the cooker and boiler control knob to off.

After ensuring gas is available to the appliance, loosen joint and purge any air from the supply pipe.

WARNING: NO SMOKING OR NAKED LIGHTS.

Tighten joint and check gas service cocks are in the ON position. Check for gas soundness up to the gas valves. (See Fig. 1.14)

Instruct the user

1. Advise the User of the precautions necessary to prevent damage to the heating system and to the building in the event of the heating system being inoperative during frost conditions.
2. Advise the User for continued efficient and safe operation of the appliance, it is important that adequate servicing is carried out at regular 12 monthly intervals.
3. Hand the Operating Instructions to the User and demonstrate the correct operation of the appliance and system controls.
4. Leave the Installation, Servicing and Operating Instructions with the User.
5. Gas Safety - Show the user the procedure for isolating the appliance from the gas and electric supply. As referred to in the Operating Instructions - Ref Gas Leak or Appliance Fault.

Lighting the pilot

Boiler (see Fig. 1.14)

This appliance is fitted with an automatic ignition unit that will light the main burner on demand. Should button **K** (see Fig. 1.14) be illuminated press button, this will allow the burner ignition to continue, should the button illuminate again this will indicate a fault on the boiler burner. Contact your local Gas Safe Registered engineer to correct the fault.

Cooker (see Fig. 1.14).

Press in and hold the cooker flame failure override button **C** allowing a few seconds for the gas to reach the cooker pilot. Press the piezo ignitor button **D** and the pilot burner will light.

Continue to hold the button in for 15 seconds after the pilot has been lit so that when the button is released, the pilot should remain alight.

If it does not, **WAIT 3 MINUTES** then repeat the procedure.

Boiler output setting

480AG & 480AL REFER TO PAGE 3 'SPECIFICATIONS'

The boiler side of the appliance is preset to give a maximum heat output of 23.4 kW.

The multifunctional burner control valve can be reset to decrease this output to 17.6kW.

To decrease the boiler output to 17.6kW connect the pressure gauge to the burner test nipple **J** and turn on the boiler burner.

Remove cap screw to expose pressure regulator adjustment screw **H**.

Slowly turn adjustment screw with a small screwdriver until the burner pressure required is recorded on the pressure gauge. Turn adjustment screw counter-clockwise to decrease or clockwise to increase gas pressure to the burner. See heat output table below.

Replace pressure regulator cap screw

Boiler burner burner setting must be indicated by ticking correct box at top of lighting instruction plate, on the inside of the burner door.

	MAX.	MIN.
HEAT OUTPUT	23.4 kW	17.6 kW
NAT. GAS	13mb	8mb
PROPANE	32.5mb	20.5mb

Commissioning

Main burner lighting see Fig. 1.14

This appliance is fitted with a combustion discharge safety device which will switch off both main burners in adverse flue conditions. Before turning on main burners ensure that the manual reset button, which is located on the right hand side of the plinth is depressed (**Fig. 1.8**).

Ensure the electricity supply is turned ON and set any external controls to the ON position.

Turn the boiler thermostat knob to MAX., and the boiler will ignite.

Turn the cooker thermostat to H, and the cooker burner will go to full rate.

Check for gas soundness of all leaks with leak detection fluid.

Turn off both burners.

Turn the thermostat knob to the required setting.

The boiler and pump should be run until the system is hot. Check for water leaks, then flush the system with all manual/automatic valves open. Upon refilling check the system for leaks. When all the air has been removed from the water circuit, the pump and radiators should be balanced to achieve the correct temperature to drop across the system.

Set any timer room temperature, etc to suit the customer's requirements.

Spillage test

With cooker and boiler burners full on.

A spillage test must be carried out after 5 minutes, as follows:

Light a smoke match and position into the draught diverter as shown in **Fig. 1.13**. If smoke does not spill back into the room then the installation is satisfactory. If smoke is drawn back into the room leave burners on for further 10 minutes and check again.

⚠ WARNING: IF THE SMOKE SPILLS BACK INTO THE ROOM, DISCONNECT THE APPLIANCE AND SEEK EXPERT ADVICE.

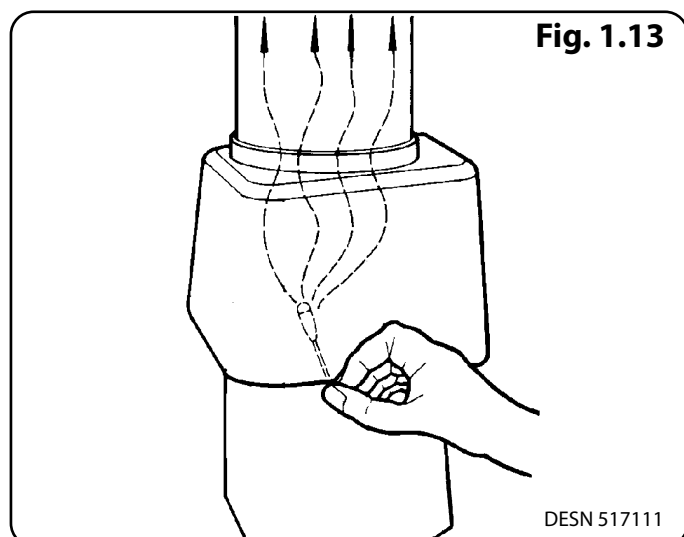
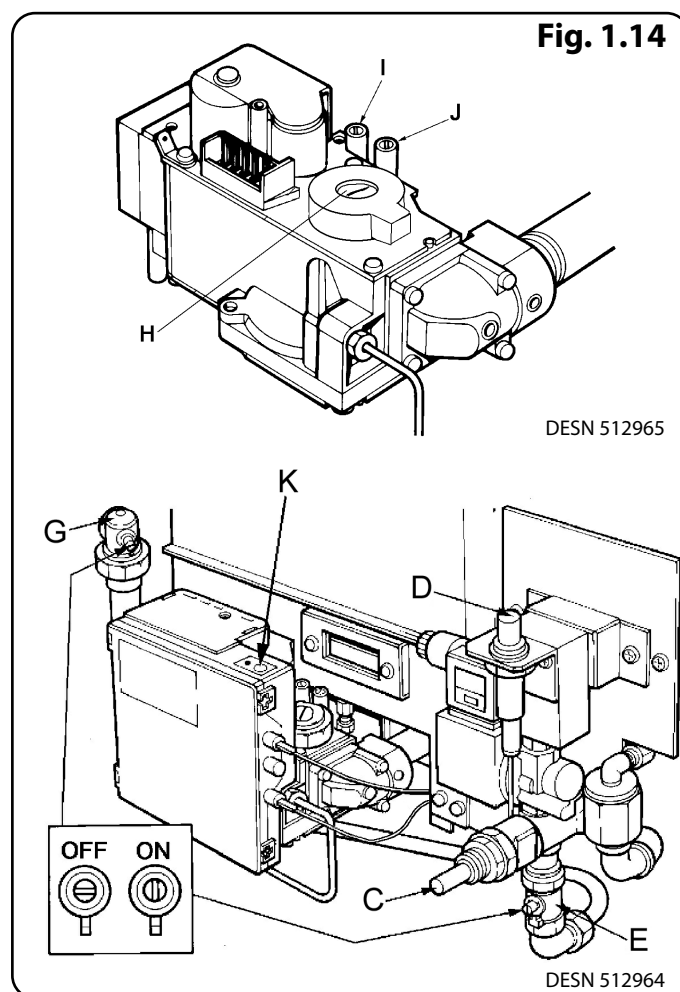


Fig. 1.14



KEY

C - COOKER FLAME FAILURE OVERRIDE BUTTON

D - PIEZO IGNITION BUTTON - COOKER

E - GAS COCK - COOKER

G - GAS COCK - BOILER

H - BOILER BURNER PRESSURE REGULATOR ADJUSTMENT SCREW

I - PRESSURE TEST NIPPLE INLET

J - PRESSURE TEST NIPPLE - BOILER BURNER

K - BOILER BURNER RESET

Servicing

Annual servicing

It is important for the correct operation of the appliance that servicing be carried out annually by a competent person in accordance with gas safety regulations.

With normal use, a boiler/cooker service should be carried out immediately after the end of the heating season. The householder should be advised to turn off both boiler and cooker control knobs the night preceding the day of the service, so that the appliance will be cooled down by the following morning, in readiness for servicing.

Before commencing any service, isolate the electricity supply then turn OFF the gas supply at the gas service cocks.

Service schedule

1. Carry out a pre-service check noting any operational faults.
2. Clean the hotplate.
3. Clean the burners.
4. Clean the burner and pilot injectors.
5. Clean the heat exchanger.
6. Check the condition of the boiler combustion chamber insulation.
7. Check that the flueway is unobstructed and that the draught diverter unit is correctly assembled.
8. Oven Door Fit - Both doors must be checked and adjusted if necessary to ensure the alignment with the door catch is correct, the keep is secure and the oven is sealed when the door is closed.

Pre-service check

Operate the appliance and system, noting any faults which may need to be corrected during service.

⚠ WARNING: ISOLATE UNIT FROM ELECTRICITY SUPPLY AND TURN OFF GAS AT SERVICE COCKS BEFORE SERVICING. AFTER COMPLETING SERVICE ALWAYS CHECK FOR GAS SOUNDNESS AND CHECK THIS FUNCTION OF CONTROLS.

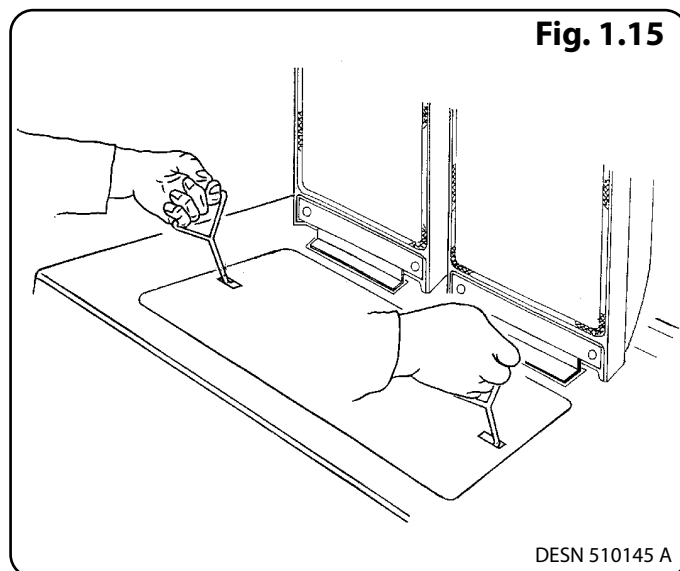
Hotplate cleaning see Fig. 1.15

Lift out the hotplate using lifting tools provided. Brush the fins with a wire brush to remove any deposits.

Burner access

SEE Fig. 1.9

1. Open up the bottom burner access door.
2. Remove the 3 plinth securing screws and remove plinth.



Burner cleaning

Boiler (See **Fig. 1.16** and **Fig. 1.17**)

Ensure isolation of electricity and gas supply. Remove plinth 3 screws (See **Fig. 1.9**).

Disconnect ignitor lead **C** and flame detector lead **D** from the electronic ignition unit.

Lift up electronic ignition unit **J** to release unit from gas valve.

Undo union nut **K**. Undo four screws **L**.

Allow burner assembly to drop down and slide forwards on rails, then lift and remove burner assembly from unit.

See **Fig. 1.18**

Brush the boiler burner top and check the flame ports are clear. Any deposits may be removed with a non-metallic brush.

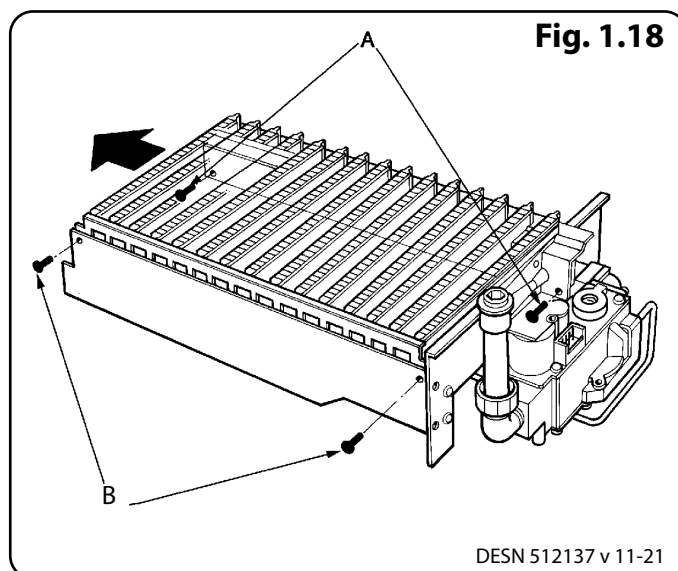
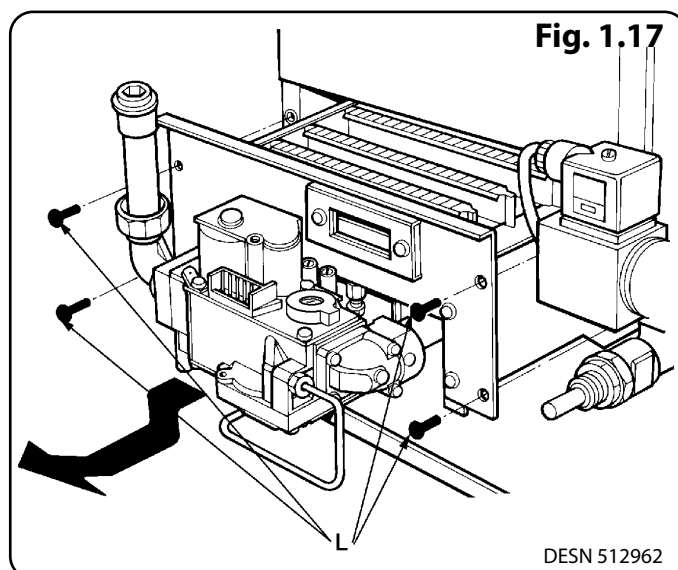
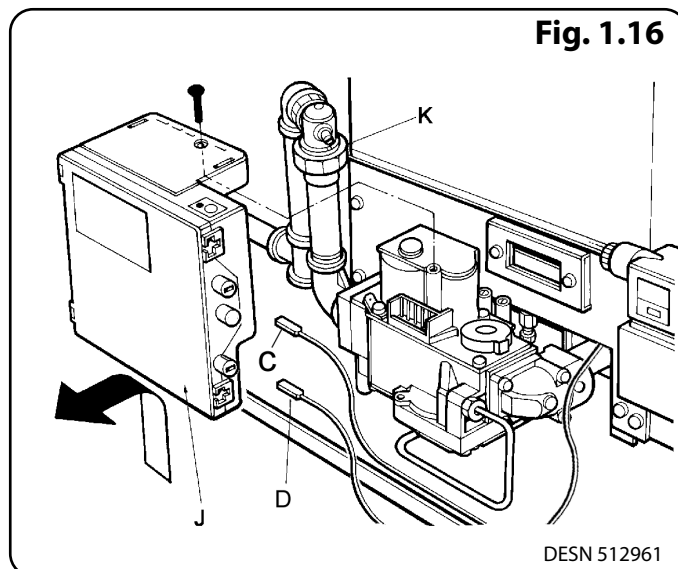
Remove three screws securing burner assembly to manifold **A**.

Remove two screws securing burner left handside support **B**.

Slide out burner element assembly.

Check the burner injectors, check the orifices and remove any deposits from the injectors and burner venturi using a suitable non-metallic brush.

Remove pilot injector. Clean any deposits by rinsing in warm water or use a suitable brush. **DO NOT** attempt to push a wire through the orifice.



Cooker (see **Fig. 1.19** and **Fig. 1.20**)

Remove solenoid connector plug **M**.

Undo union nut **N**.

Undo two screws **P**.

Remove the burner, complete with controls, from the unit
(See **Fig. 1.20**).

Brush the cooker burner top and check flame ports are clear.

(See **Fig. 1.21**)

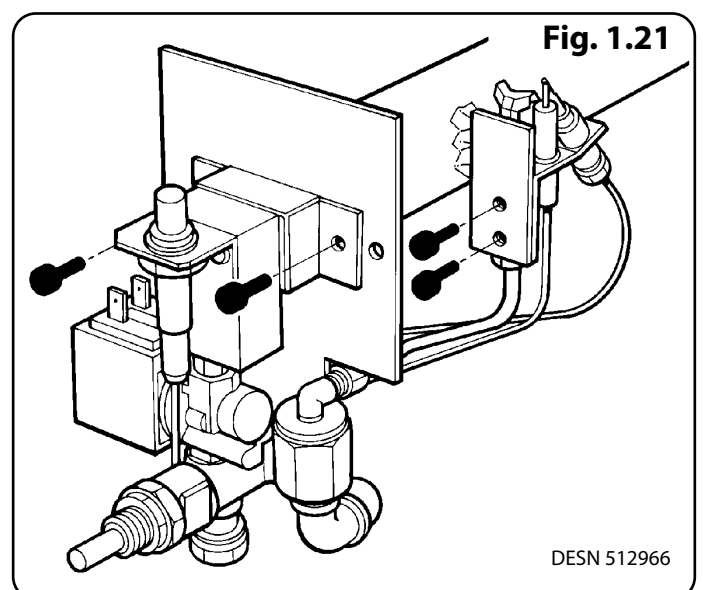
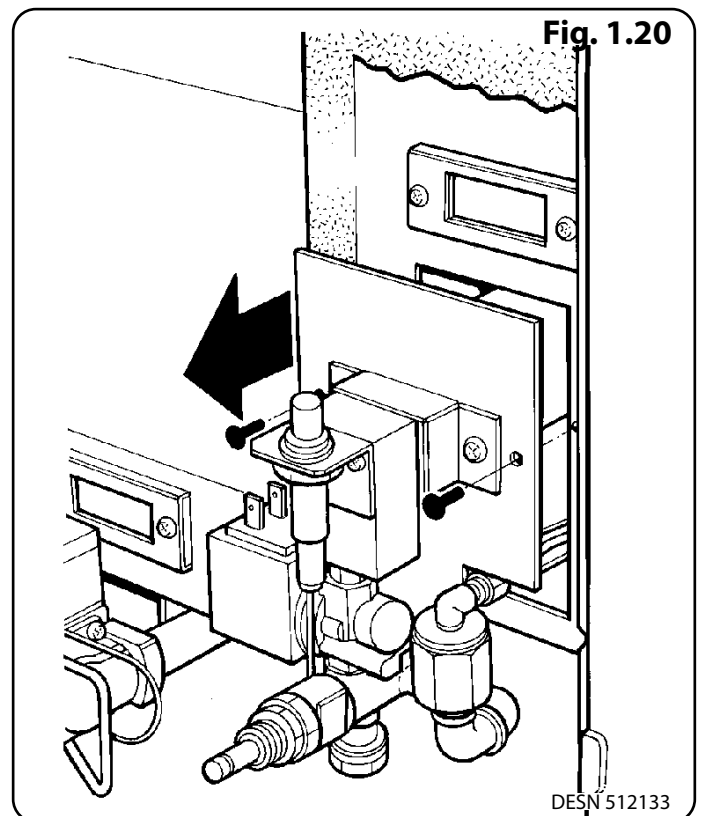
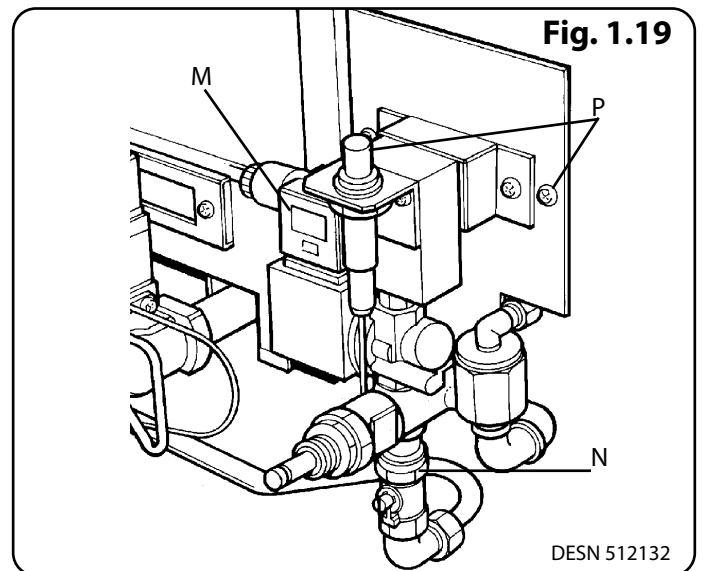
Remove two screws from pilot bracket.

Remove two screws from burner door, securing injector
bracket and remove controls away from burner door.

Brush burner venturi and remove any deposits from inside
the burner venturi and tip downwards to discharge debris.

Remove the burner injector, check the orifice and remove
any deposits from the injector using, a suitable non-metallic
brush.

Remove pilot injector. Clean any deposits by rinsing in warm
water or use a suitable non-metallic brush. **DO NOT** attempt
to push a wire through the orifice.



Heat exchanger Fig. 1.22 & Fig. 1.23

BEFORE REMOVING SERVICE ACCESS COVERS ENSURE THAT ALL ELECTRICAL ACCESS TO THE APPLIANCE HAS BEEN SWITCHED OFF (SWITCH OFF AND REMOVE PLUG).

SEE Fig. 1.22 & Fig. 1.23

1. Remove the controls door and place in a safe position.
2. Remove both thermostat controls knobs.
3. Remove the 2 cover panel fixing screws.
4. Remove 4 screws securing control box.
5. With bracket on rear of control box, hang the controls box on the bottom edge of control aperture.
6. Remove 4 wingnuts securing access plate. (See Fig. 1.24).

Remove access plate **R**.

Using a suitable brush, clean the heat exchanger from above and below.

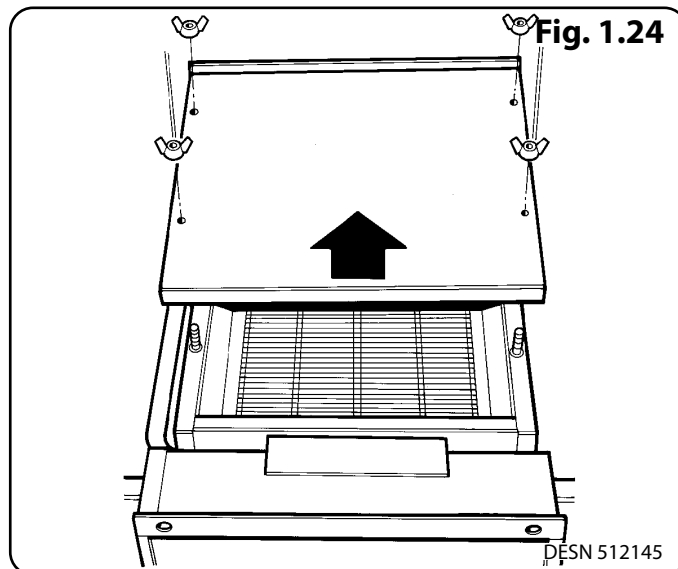
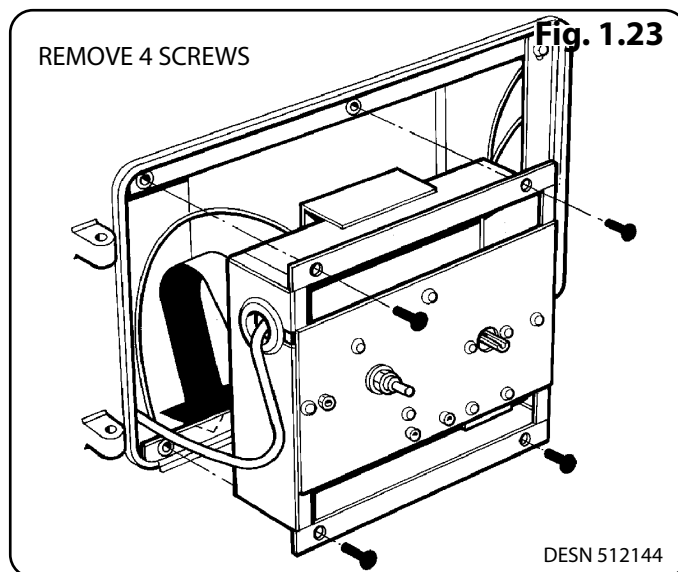
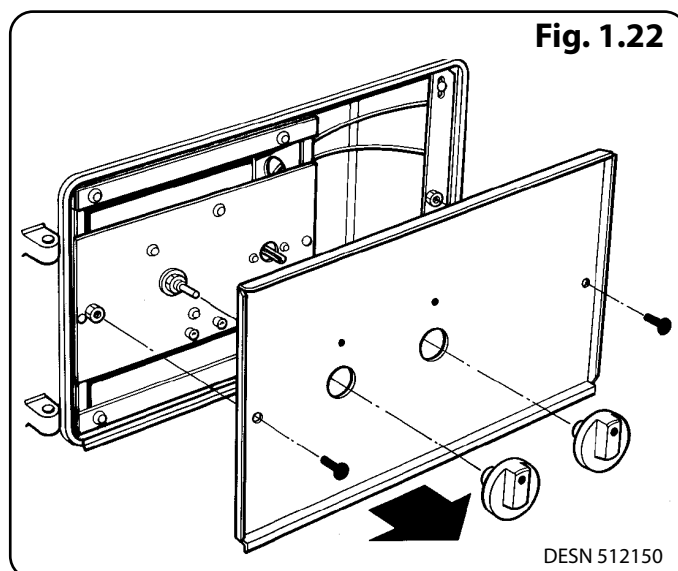
NOTE: The insulation used on the inside surface of the combustion chamber is delicate. Great care must be taken when cleaning the heat exchanger not to abrade it. No attempt should be made to clean the insulation.

Combustion chamber insulation

Remove boiler burner assembly as previously described. Check insulation for any signs of deterioration or physical damage and replace if necessary.

Flue cleaning

Brush out cooker and boiler flueways with a suitable brush. Check the assembly of the draught diverter.



Re-assemble the appliance

Re-assemble the appliance in reverse order. Refit boiler and cooker burner assemblies.

Re-connect solenoid electrical supply to cooker burner assembly.

Re-connect electronic ignition unit to the boiler gas valve.
Re-connect ignitor lead to ignition unit.

Replace hotplate.

Test fully for gas soundness.

Test the Appliance and Installation

Ensure that gas is turned on at both of the service cocks and electrical supply is ON.

Following the sequence in **COMMISSIONING INSTRUCTIONS**.

Replacement of Parts - Cooker

To fit new burner

Follow instructions in section Burner Cleaning of Servicing Instructions and remove the cooker burner assembly.

1. Remove two pilot assembly screws.
2. Remove two screws securing injector bracket. a
3. Remove burner and transfer all ancillary items.
4. Fit new burner.
5. Re-assemble in reverse order.

To fit new burner injector

Follow instructions in section Burner Cleaning of Servicing Instructions and remove the cooker burner assembly.

1. Refer to the above and remove the burner.
2. Unscrew injector.
3. Fit replacement.
4. Re-assemble in reverse order.

Electrical component access

BEFORE REMOVING SERVICE ACCESS COVERS ENSURE THAT ALL ELECTRICAL ACCESS TO THE APPLIANCE HAS BEEN SWITCHED OFF (SWITCH OFF AND REMOVE PLUG).

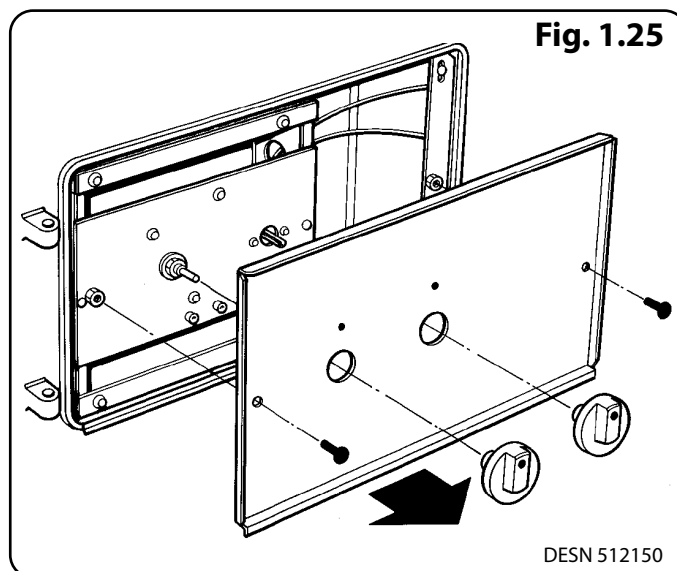
SEE **Fig. 1.25**

1. Remove the controls door and place in a safe position.
2. Remove both thermostat control knobs.
3. Remove the 2 cover panel fixing screws.
4. Remove cover panel.

SEE **Fig. 1.26**

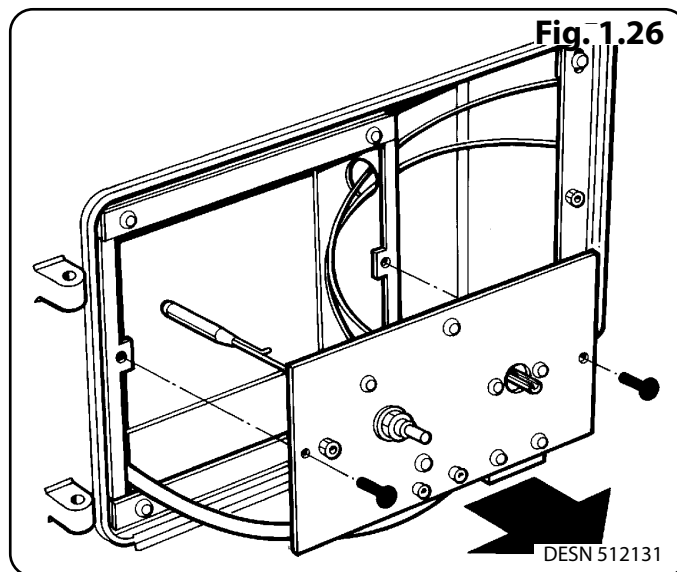
5. Remove the two control panel fixing screws.
6. Tilt the chassis from the top and lift out taking care not to damage thermostat capillaries.
7. Re-assemble in reverse order.

Fig. 1.25



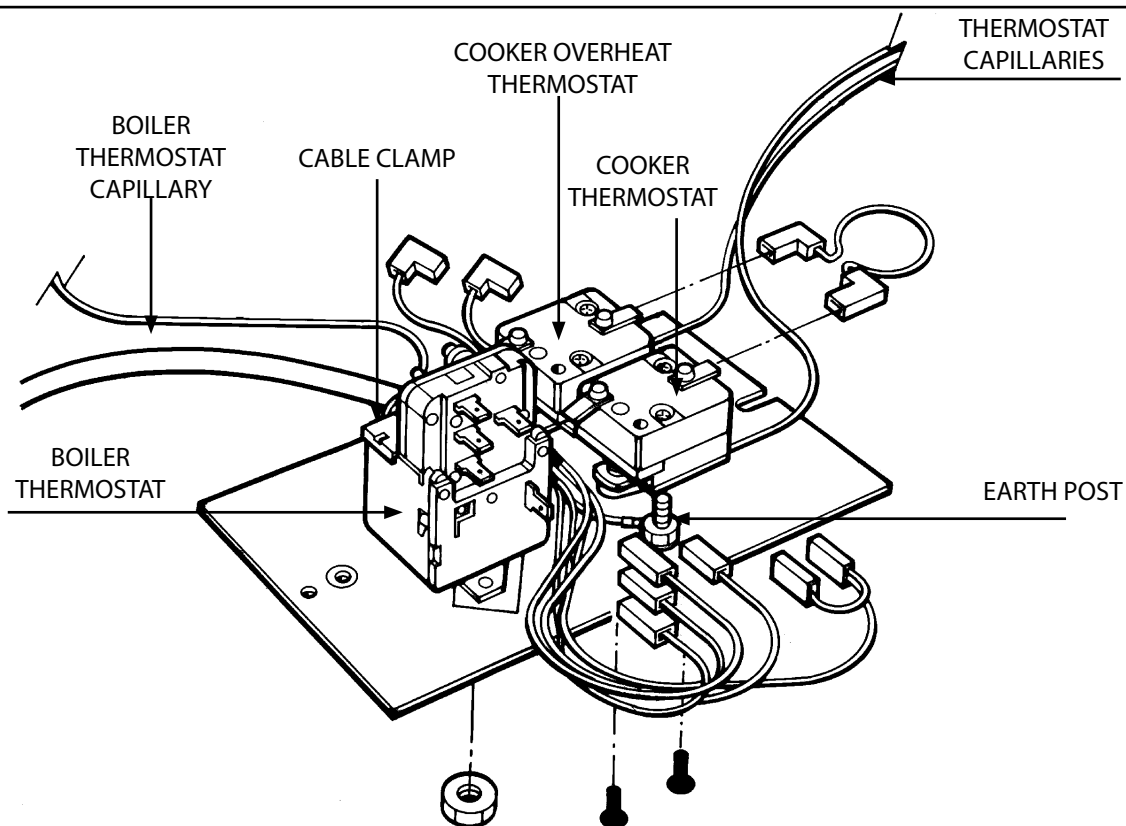
DESN 512150

Fig. 1.26



DESN 512131

Fig. 1.27



To fit new oven control thermostat

SEE **Fig. 1.27** AND **Fig. 1.28**

Follow instructions in section **ELECTRICAL COMPONENT ACCESS**, Steps 1 to 6.

1. Undo the two screws on the front of the chassis which holds the thermostat in place.
2. Remove the two push on connectors from back of thermostat.
3. Open main oven door to access the thermostat phial and capillary which pass into the oven at the top, left hand corner.
4. Remove LH side plate. Slacken screw in front phial mounting bracket and rotate.
5. Replace thermostat. The thermostat should be mounted with tag P at the right hand side. **NOTE: ENSURE THERMOSTAT PHIALS ARE LOCATED AWAY FROM THE OVEN SIDES.**

Reposition the phial in same position as removed.

6. Re-connect push on connector. The RED wire to 1 and loose RED wire to P.
7. Re-assemble in reverse order.
8. Tilt the chassis from the top and lift out taking care not to damage thermostat capillaries.
9. Re-assemble in reverse order.

To fit new cooker overheat

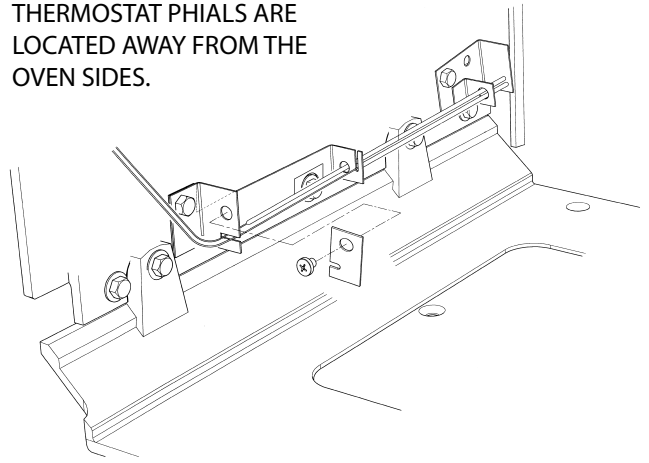
See **Fig. 1.27** AND **Fig. 1.28**

Follow instructions in **ELECTRICAL COMPONENT ACCESS**, Steps 1 to 6.

1. Undo the two screws on the front of the chassis which holds the thermostat in place.
2. Remove the two push on connectors from back of thermostat.
3. Open main oven door to access the thermostat phial and capillary which pass into the oven at the top, left hand corner.
4. Remove LH side plate. Slacken screw front phial, mounting bracket and rotate. **Note:** Both the oven control thermostat phial and the cooker overheat thermostat phial are mounted in the same position. (Remove the appropriate phial).
5. Replace thermostat. The thermostat should be mounted with tag P at the right hand side. **NOTE: ENSURE THERMOSTAT PHIALS ARE LOCATED AWAY FROM THE OVEN SIDES.** Reposition the phial in the same position as removed.
6. Re-connect push on connector. The RED wire to 1 and loose RED wire to P.
7. Re-assemble in reverse order.

NOTE: ENSURE THERMOSTAT PHIALS ARE LOCATED AWAY FROM THE OVEN SIDES.

Fig. 1.28



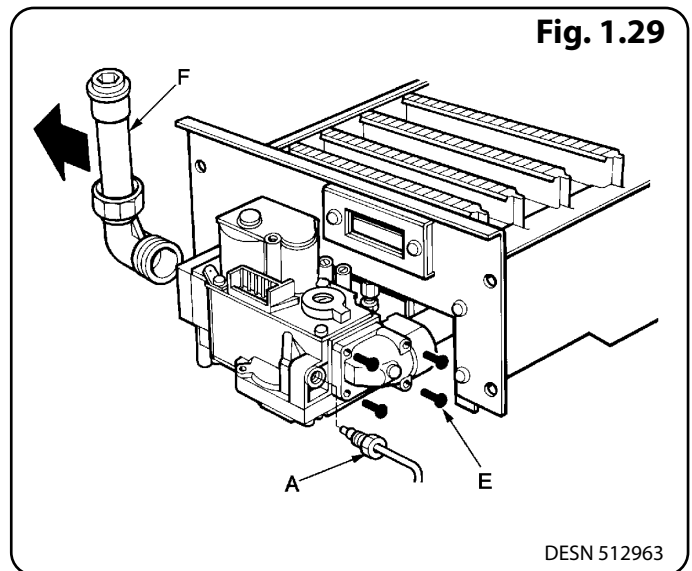
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Replacement of Parts Boiler

To fit new gas valve Fig. 1.29

Follow instructions in section Burner Cleaning of the Servicing Instructions and remove the boiler burner assembly.

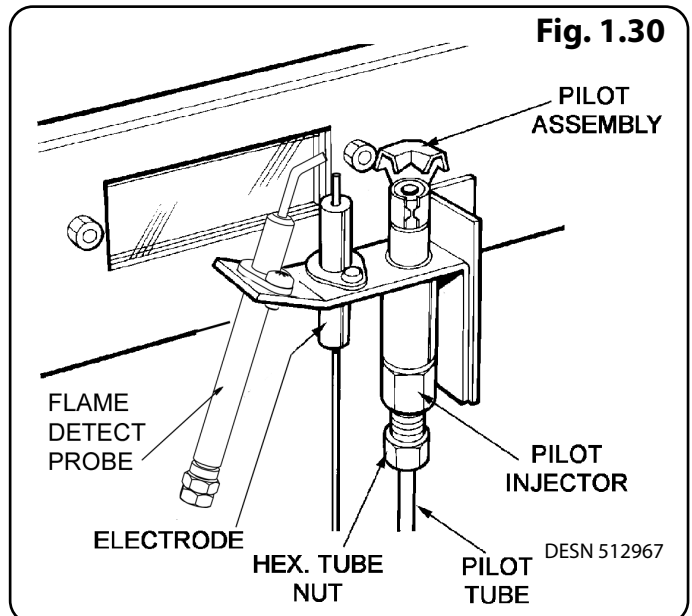
1. Unscrew the pilot nut **A** on the gas valve and release.
2. Unscrew the four pan head screws **E** on the outlet side of the gas valve. Remove gas valve and unscrew inlet pipe assembly **F**.
3. Transfer pipe assembly to new gas valve, ensuring correct positioning.
4. Refit gas valve to elbow flange ensuring correct positioning.
5. Check for gas soundness and set burner pressure



To fit new pilot injector Fig. 1.30

Follow instructions in section Burner Cleaning of Servicing Instructions and remove the boiler burner assembly.

1. Release both ends of the pilot supply pipe.
2. Remove injector.
3. Fit replacement.
4. Re-assemble in reverse order.
5. Check for gas soundness.



To fit new burner

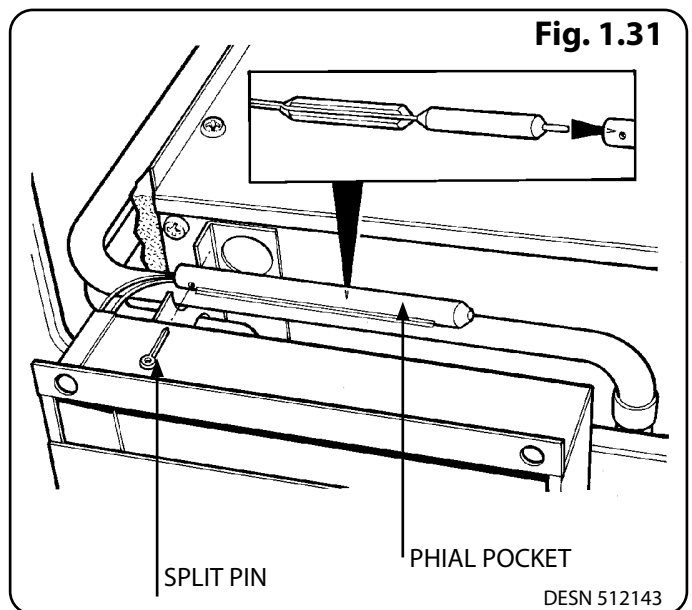
Follow instructions in section **Burner cleaning** Instructions and remove the boiler burner assembly.

1. Remove four screws from burner mounting plate.
2. Remove four screws from flange elbow connecting gas valve to burner and separate assembly.
3. Remove flange elbow from burner.
4. Re-assemble in reverse order. **N.B. Use new 'O' ring in flange elbow.**
5. Check for gas soundness.

To fit new burner injector

Follow instructions in section **Burner cleaning** Instructions and remove the boiler burner assembly.

1. Remove three screws securing burner assembly to manifold.
2. Remove two screws securing burner left handside support.
3. Slide out burner element assembly.
4. Replace injectors.
5. Re-assemble following instructions as above.



To fit new boiler thermostat Fig. 1.27 &

Fig. 1.31

Follow instructions in section **Electrical component access**

1. Remove four screws securing control box.
2. Remove split pin securing thermostat phials in location.
3. Remove phials from heat exchanger phial pocket.
4. Remove electrical leads from thermostat noting positions.
5. Remove spindle locknut, from control chassis and extract thermostat.
6. Fit replacement.
7. Re-assemble in reverse order.

To fit new boiler overhear thermostat

SEE Fig. 1.31 & Fig. 1.32

1. Follow instructions - **TO FIT NEW BOILER THERMOSTAT.**
2. Remove phials from heat exchanger phial pocket.
3. Unscrew retaining screw I, release cover plate, removing electrical leads from thermostat.
4. Remove spindle locknut and extract overhear thermostat.
5. Fit replacement thermostat.
6. Re-assemble in reverse order.

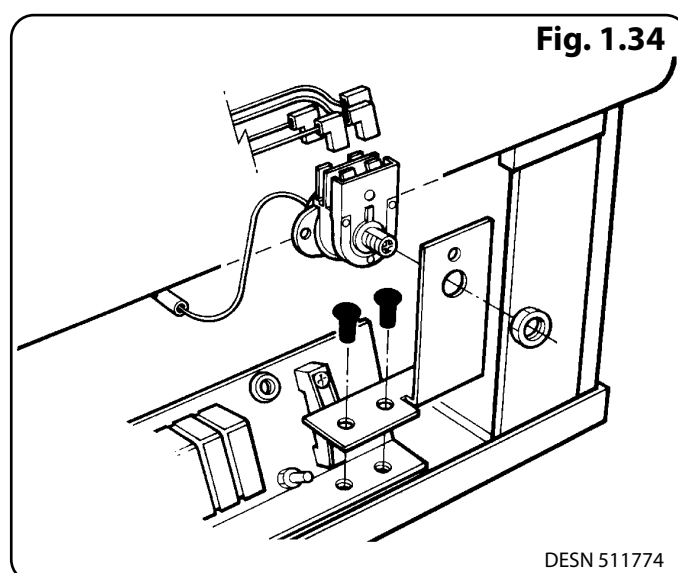
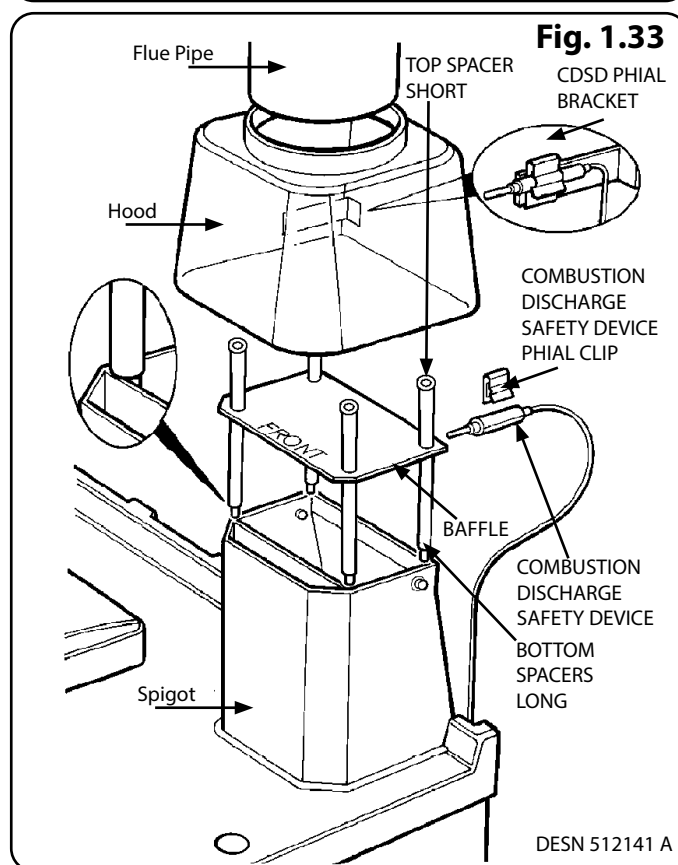
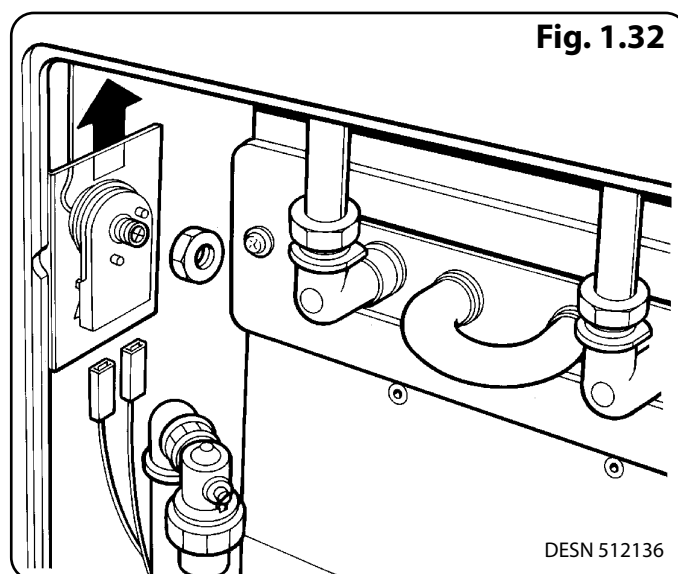
To fit combustion discharge safety device

SEE Fig. 1.33 & Fig. 1.34

1. Remove CDSD phial from spring clip.
2. Remove 3 plinth securing screws and remove plinth.
3. Remove 2 screws from CDSD retaining bracket (Fig. 1.34) and remove bracket.
4. Feed CDSD phial and capillary down tubing.
5. Remove spindle lockout and electrical leads from CDSD, extract CDSD (Fig. 1.34).
6. Fit replacement and reassemble in reverse order.

NOTE: INCORRECT FITTING OF COMBUSTION DISCHARGE DEVICE COULD LEAD TO COMBUSTION PRODUCTS LEAKING INTO THE ROOM.

ONLY PARTS SUPPLIED BY RAYBURN MUST BE USED.



Sealed System

Sealed system requirements

See Fig. 1.35

- A. The installation must comply with the regulations in force. Maximum water 82°C temperature.
- B. An approved safety valve set to operate at 3 bar (44 lbf/in²) shall be fitted in the flow pipe close to the boiler. There must not be any valve between the safety valve and the boiler. The valve should be positioned on a discharge pipe fitted to prevent any discharge or creating a hazard to occupants or cause damage to electrical components and wiring.
- C. An approved pressure gauge covering at least the range 0 to 4 bar (0 to 60 lbf/in²) shall be fitted in the system, in a visible position.
- D. An approved diaphragm type expansion vessel, shall be connected at a point in the flow pipe close to the boiler. The vessel must be chosen to suit the volume of the water in the cistern and the system charge must not be less than the static head at the point of connection.

Safety Valve Setting	3.0 bar	
Vessel charge and initial system pressure	0.5 bar	1.0 bar
Multiplying Factor	0.09	0.16
Expansion Vessel volume (litres) = System volume Vs x factor	L Vs x 0.0833	L Vs x 0.109

Vs = System Volume Litres

- E. The hot water cylinder shall be either the direct coil type or a cylinder fitted with a calorifer which is suitable for the system pressure.
- F. **The Make-Up Vessel** Provision shall be made for replacing the lost water from the system by either of the following methods:
 - a. From a make-up vessel or tank, and connected through a non-return valve to the system on the return side of the hot water cylinder or return side of all heat emitters or radiators.
 - b. Where access to a make-up vessel would be difficult, by a remote automatic pressurisation and make-up unit.
 - c. **Mains Connection** There shall be no connection to mains water supply or to the water storage cistern supplying domestic hot water, even though a non-return valve may be fitted, without the approval of the local water authority.
 - d. **The Filling Point** The system shall be fitted with a filling point at a low level, and be used in accordance with the local water authority requirement.
 - e. **Commissioning - General** The system shall be filled by water by a method acceptable to the Local Water Authority.

Check the operation of the safety valve manually. After flushing and refilling the system either:-

- (a) If a make-up vessel is filled release water from the safety valve until the level in the make-up bottle falls visibly, then top up the make-up bottle.
- (b) If there is no make-up vessel either release or introduce water until the designed cold water pressure level is reached.

Commissioning

Follow the commissioning instructions as for open vented systems. See section Commissioning Instructions with the following additions:-

Fill the system until the pressure gauge registers 1.5 bar (22lbf/in²). Clear any airlocks and check for water soundness.

Check the operation of the safety valve, by allowing the water pressure to rise until the valve opens. The valve should open within ± 0.3 bar (± 4.35 lbf/in²) of the pre-set pressure, if this is not possible conduct a manual check and test.

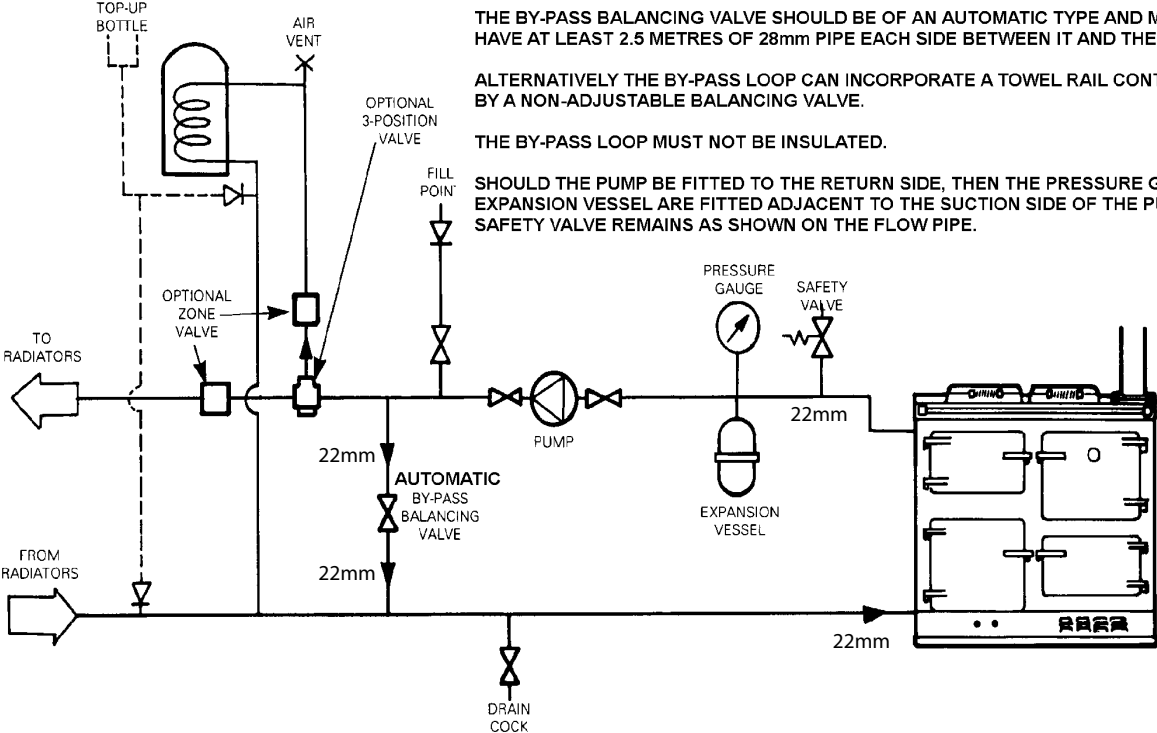
Release water from the system until the minimum system design pressure is reached 1.0 bar if the system is to be pre-pressurised.

Any set pointer gauge should be set to coincide with the recommended filling pressure.

Sealed system dimensions

Fig. 1.35

Typical Sealed System



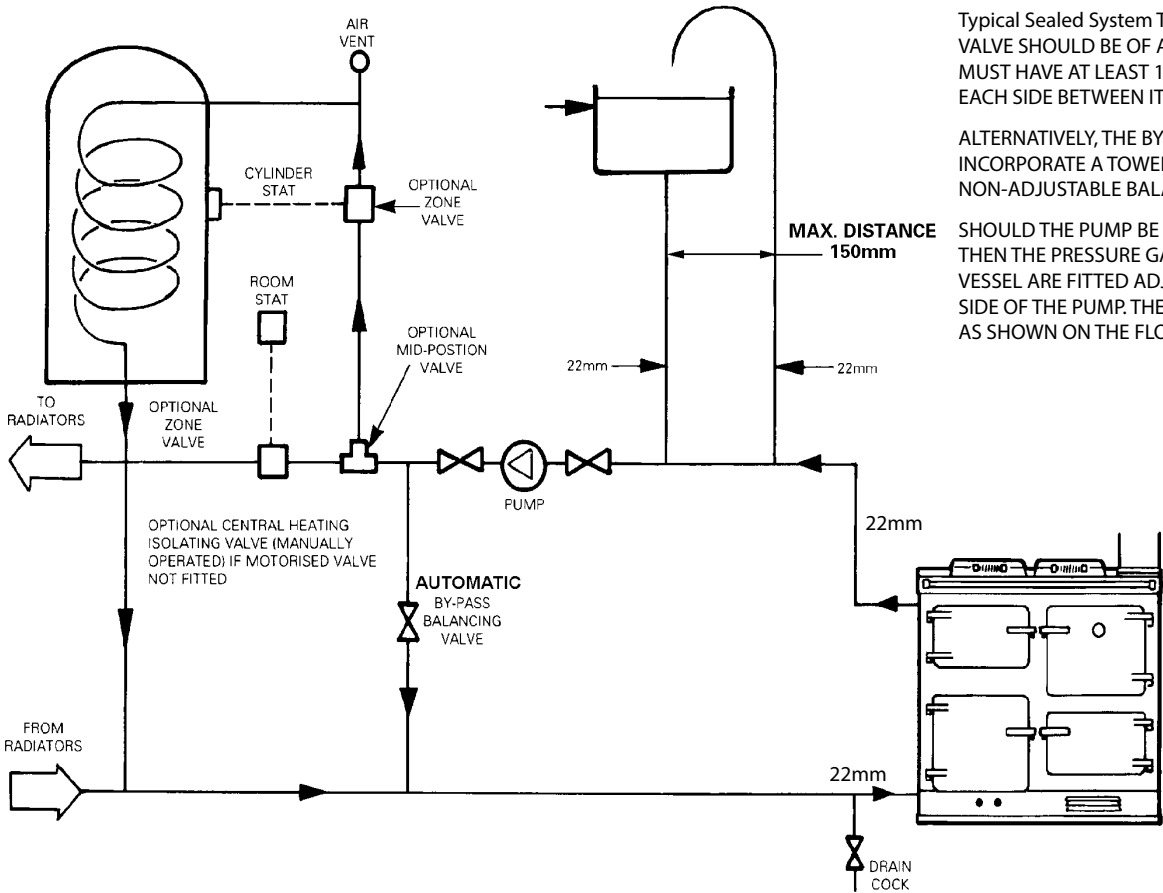
THE BY-PASS BALANCING VALVE SHOULD BE OF AN AUTOMATIC TYPE AND MUST HAVE AT LEAST 2.5 METRES OF 28mm PIPE EACH SIDE BETWEEN IT AND THE COOKER.

ALTERNATIVELY THE BY-PASS LOOP CAN INCORPORATE A TOWEL RAIL CONTROLLED BY A NON-ADJUSTABLE BALANCING VALVE.

THE BY-PASS LOOP MUST NOT BE INSULATED.

SHOULD THE PUMP BE FITTED TO THE RETURN SIDE, THEN THE PRESSURE GAUGE AND EXPANSION VESSEL ARE FITTED ADJACENT TO THE SUCTION SIDE OF THE PUMP. THE SAFETY VALVE REMAINS AS SHOWN ON THE FLOW PIPE.

Typical Open Vented System



Typical Sealed System THIS BY-PASS BALANCING VALVE SHOULD BE OF AN AUTOMATIC TYPE AND MUST HAVE AT LEAST 1.5 METRES OF 22mm PIPE EACH SIDE BETWEEN IT AND THE COOKER.

ALTERNATIVELY, THE BYPASS LOOP CAN INCORPORATE A TOWEL RAIL CONTROLLED BY A NON-ADJUSTABLE BALANCING VALVE.

SHOULD THE PUMP BE FITTED TO THE RETURN, THEN THE PRESSURE GAUGE AND EXPANSION VESSEL ARE FITTED ADJACENT TO THE SUCTION SIDE OF THE PUMP. THE SAFETY VALVE REMAINS AS SHOWN ON THE FLOW PIPE.

DESN 512546

**For further advice or information contact
your local Rayburn Specialist.**

With AGA Rangemaster's policy of continuous product improvement, the Company reserves the right to change specifications and make modifications to the appliances described and illustrated at any time.



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