

WARNING

This information is a copy of an original archive, therefore Aga cannot be held responsible for its continued accuracy.

The Rayburn Oil Nouvelle cooker has gone through several changes and modifications during its long history, particularly with regard to the boiler burner.

The actual product featured here, is the MK1 model shown in its earliest form, with amended images where applicable.

Some early cookers may be encountered that were subsequently changed to have thermocouple flame proving, using separate timer relays. Please refer to the final pages for details of these modifications or use the information given separately for the Mk2 models.



THE RAYBURN OIL NOUVELLE

Consumer Protection Act 1987

As manufacturers and suppliers of cooking and heating products, in compliance with Section 10 of the Consumer Protection Act 1987, we take every care to ensure, as far as is reasonably practicable, that these products are so designed and constructed as to meet the general safety requirement when properly used and installed. To this end, our products are thoroughly tested and examined before despatch.

The cooking performance features of the popular and proven solid fuel Rayburn Cookers have been preserved and integrated into the Rayburn Oil Nouvelle Cooker, burning 28 Seconds Kerosene to BS. 2869:1983 Class 'C'

Summer Use

The cooker side provides domestic hot water and cooking facilities which consist of a large hotplate, main oven and warming oven. The independent oil burner is controlled by an electric cooker thermostat operated by the control knob. The cooker burner should always be continuously burning at a low fire rate when not required for cooking. When cooking is required, the burner operates at a high fire rate under the control of the main oven thermostat control knob and its setting.

Winter Use

An independent boiler oil burner controlled by an electric thermostat heats a hot water boiler to provide central heating for the heating of radiators in addition to the same cooker facilities provided in the summer. The boiler can be electrically controlled by a time switch or programmer to give selected heating use.

Electricity Supply:

WARNING – THIS APPLIANCE MUST BE EARTHED.

A 240V ~ 50 Hz electrical supply is required near to the appliance. The appliance is supplied with an 0.75mm² – 3

core P.V.C. x 3 metres long replaceable power supply cable having a label attached to the end of the cable giving details of the cable core colour coding and their function which should be adhered to. The appliance must be protected by a 5 amp fuse if a 13 amp (BS. 1363) plug is used, or if any other type of plug is used, by a 5 amp fuse in the circuit.

To Connect a Plug

As the colour of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:-

1. The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter **E** or by the earth symbol $\equiv$ or coloured green or green-and-yellow.
2. The wire which is coloured blue must be connected to the terminal which is marked with the letter **N** or coloured black.
3. The wire which is coloured brown must be connected to the terminal which is marked with the letter **L** or coloured red.

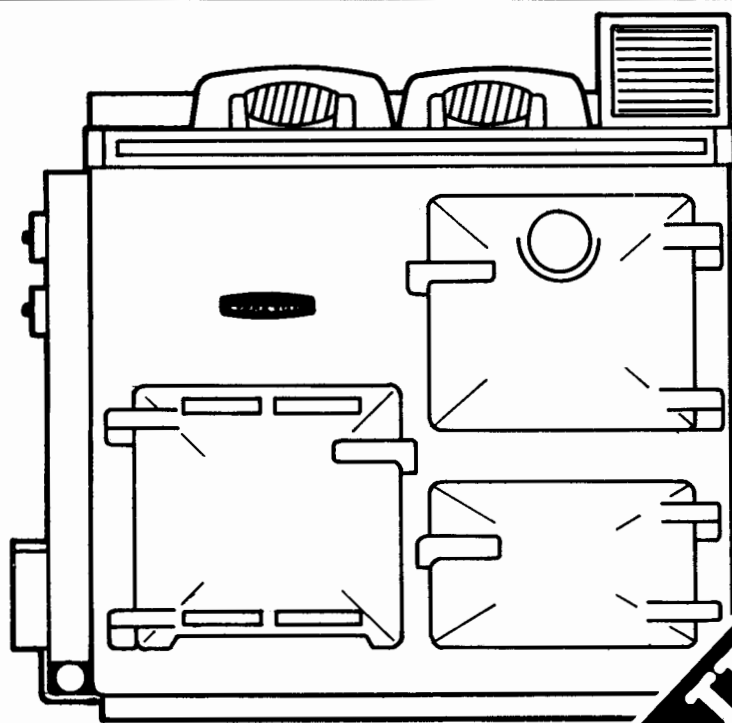
WARNING

COOKER BURNER: NEVER ATTEMPT TO RELIGHT A HOT BURNER – DO NOT TURN OIL ON UNTIL BURNER IS COOL.

BOILER BURNER: WAIT 3 MINUTES BEFORE RE-SETTING LOCK-OUT BUTTON AFTER LOCK-OUT LAMP ILLUMINATES DURING CYCLING.

Cooking and Domestic Hot Water – Summer Use

1. Depress the trip lever **D** – see Fig. 1 on the front of the oil control valve **P** and turn the cooker oil control valve knob **C** to No. 6 setting.
2. Switch power **ON** and set cooker thermostat knob **A** to No. 6 setting. Allow 15 minutes for oil to enter and settle in cooker burner base.



IMPORTANT
The cooker burner is intended to run in a continuously alight condition at all times, at low fire rate when idling. Turning the cooker burner **OFF** is **NOT** recommended unless servicing is required.

- Open outer burner door **E** adjacent to the bottom warming oven door, remove/lift out inner cooker burner door **F**.
- Slide lighting cover **G** on the front of the burner shells, sideways to the left hand and expose the three lighting ports.
- Insert a lighted taper through the three lighting ports and light the front wicks, then close the lighting cover **G**.
- Replace inner cooker burner door **F** and close outer burner door **E**.

NOTE: ENSURE INNER COOKER BURNER DOOR F IS CORRECTLY LOCATED AND SEALED.

- Return thermostat knob **A** to its No. 1 setting for about 20 minutes, until the burner is hot, then re-set to No. 6 for cooking.
- The cooker burner will gradually increase its oil rate, and raise the temperature of the oven, taking about 2½ hours from cold to attain an oven temperature of 200°C (400°F), leaving the cooker thermostat knob **A** at its No. 6 setting.
Re-set the cooker thermostat knob **A** to the desired setting and the oven temperature will continue to be thermostatically controlled.

NOTE: SEE COOK BOOK FOR RECIPES.

- Set the cooker thermostat knob **A** to **LOW** which is the minimum setting when cooking is not required and idling rate is needed.
- Ensure both hotplate insulating covers are closed down to conserve heat in hotplate.

Oven Thermostat Settings

The cooker thermostat control knob **A** is marked **LOW**, then 1 to 6, which provides various main oven temperatures with setting 6 being the highest temperature – see chart below.

Thermostat Setting	Main Oven Temperature
LOW	125°C (257°F)
1	125°C (257°F)
2	165°C (330°F)
3	190°C (375°F)
4	230°C (445°F)
5	250°C (482°F)
6	270°C (518°F)

Failure of Electrical Power

Should the failure of electrical power occur, it will not be possible to obtain thermostatic control over the cooking oven.

However cooking can be continued by manual control as follows:

- High Fire rate can be obtained by engaging the actuating lever **B** on the top of the oil control valve **P** then push it to the left to engage in the notch of the cover.
Manual control can then be made by adjusting the cooker oil control valve knob **C** between the numbers 1 to 6 and re-setting the knob to suit the temperature indicator on the oven door corresponding with chart below.
- Low Fire rate can be obtained by setting the cooker oil control valve knob **C** to No. 1 setting where the oven temperature will be maintained at about 125°C (257°F).
With the restoration of electrical power, remember to reset the actuating lever **B** by disengaging it from the cover notch and setting the cooker oil control valve knob **C** to No. 6 setting.
The thermostat will then control the oil rate.

To Turn Off Cooker Burner

- With boiler burner not in use:
Lift the trip lever **D** on the front of the oil control valve **P** to shut off the oil supply to the burner.

Cooker Oil Control Valve Knob Setting	Oven Temperature
1	125°C (257°F)
2	205°C (400°F)
3	230°C (445°F)
4	250°C (482°F)
5	275°C (527°F)
6	300°C (572°F)

- With boiler burner in use:
Turn the cooker oil control valve knob **C** anti-clockwise from No. 6 setting to **OFF**.

WARNING – NEVER ATTEMPT TO RELIGHT A HOT BURNER. DO NOT TURN OIL ON UNTIL BURNER IS COLD.

To Heat the Top Main Oven and Increase Hotplate Temperature

Turn the cooker thermostat knob **A** to the required setting which will take up to 90 minutes to attain after initial warm up from cold.

When the top main oven temperature is reached, the required temperature will be maintained by the cooker thermostat.

HINT: THE COLD SOLID PLAIN SHELF CAN BE USED AS A HEAT DEFLECTOR, (AS WELL AS A BAKING SHEET), SLIDE ONTO THE RUNNERS TOWARDS THE TOP OF THE OVEN SO REDUCING TOP HEAT.

The Hotplate

When the main oven is in use the hotplate will be hot enough for normal needs. The hotplate area above the main oven is used for simmering with the opposite end being the hottest.

At other times, increase the setting of the cooker thermostat knob **A** to increase the temperature of the hotplate.

Pans and kettles must have flat machined bases. Use a wire brush to keep the hotplate clean.

Warming Oven

This is at a low temperature suitable for warming serving plates and dishes. Although not intended as a cooking oven, its temperature does vary with temperature of the main oven. As a guide, it is around a third the temperature of the main oven.

Domestic Hot Water Only (DHW)

The supply of domestic hot water to the cylinder is automatic and is at its maximum when the cooker thermostat knob **A** is on No. 6, reducing as the cooker thermostat knob setting is reduced. The amount of hot water is increased if a considerable amount of cooking is performed. If more hot water is required overnight, set the cooker thermostat knob **A** to a higher setting than **LOW**, which is normally sufficient.

NOTE: IN THE CASE OF EXCEPTIONALLY HIGH DOMESTIC HOT WATER DEMANDS, IT IS RECOMMENDED THAT THE BOILER BURNER IS LIT WITH THE ROOM THERMOSTAT SET TO A LOW SETTING. THIS WILL PROVIDE A DOMESTIC HOT WATER PRIORITY SERVICE. (REFER TO INSTRUCTIONS "LIGHTING THE BOILER BURNER").

When the Cooker is Not in Use

During periods of the day when the cooker is not required, the cooker thermostat knob **A** should be set at **LOW** to give the lowest burning rate which will in most cases give sufficient heat to the hotplate and hot water. Use the setting that meets your needs.

Overnight

Turn the cooker thermostat knob **A** to **LOW** which gives the lowest burning rate and will maintain an oven temperature of about 125°C (257°F). At a higher setting, the oil consumption will be higher, but the main oven, hotplate and domestic hot water will all be hotter. Turn the cooker thermostat knob **A** to No. 6 setting in the morning to increase the hotplate temperature and minimise the time to boil a kettle of water. The recommendations for the best use of the appliance are guidelines only and the respective settings of boiler and cooker thermostat knobs which best suit your requirements will be apparent with experience.

Cooking and Central Heating – Winter Use

Cooker Burner – Use as previously described.

Lighting the Boiler Burner

If a programmer or clock control is fitted to the installation, read the control instructions before lighting the boiler.

1. Ensure all oil valves are open and oil is in the oil control valve **P**.
2. Depress the trip lever **D** on the front of the oil control valve **P** and turn the boiler oil control valve knob **J** to No. 6 setting.
3. Turn any time clock or programmer to **ON** and move any room thermostat pointer to a higher setting.
4. Switch **ON** the power supply and set the boiler thermostat knob **H** to a thermostat setting of 80°C (180°F) in cold weather and 60°C (140°F) in mild weather.

The lock-out light **K** will illuminate and the airfan become operative. Wait 30 seconds then depress the lock-out button **L** and the lighting sequence will commence.

5. Lighting Sequence

- (i) After depressing the lock-out button **L**, the lock-out light **K** extinguishes and the fan stops.
- (ii) Within 2½ minutes an ignited oil flame will be visible through the glass viewing window **M**.
- (iii) Some 4½ minutes from **START** the flame sensor confirms the established fire and passes control to the boiler thermostat knob **H** until satisfied.
- (iv) The satisfied boiler thermostat will then shut-off the oil supply but the fan remains energised on an overrun period of time of 8-9 minutes and is then ready for the next cycle call.

Boiler Lock-out

Should this occur the boiler will cease to function and a lock-out red light **K** will illuminate.

WAIT 3 MINUTES, THEN DEPRESS THE LOCK-OUT BUTTON L.

The lock-out light **K** will extinguish and the start-up cycle re-commence. Continued lock-out indicates a malfunction that requires qualified attention.

6. Set any programmer or room thermostat to the required setting and the boiler burner will come **ON** and **OFF** automatically upon heat demand.

To Turn the Boiler Off

Turn **OFF** boiler thermostat knob **H**.

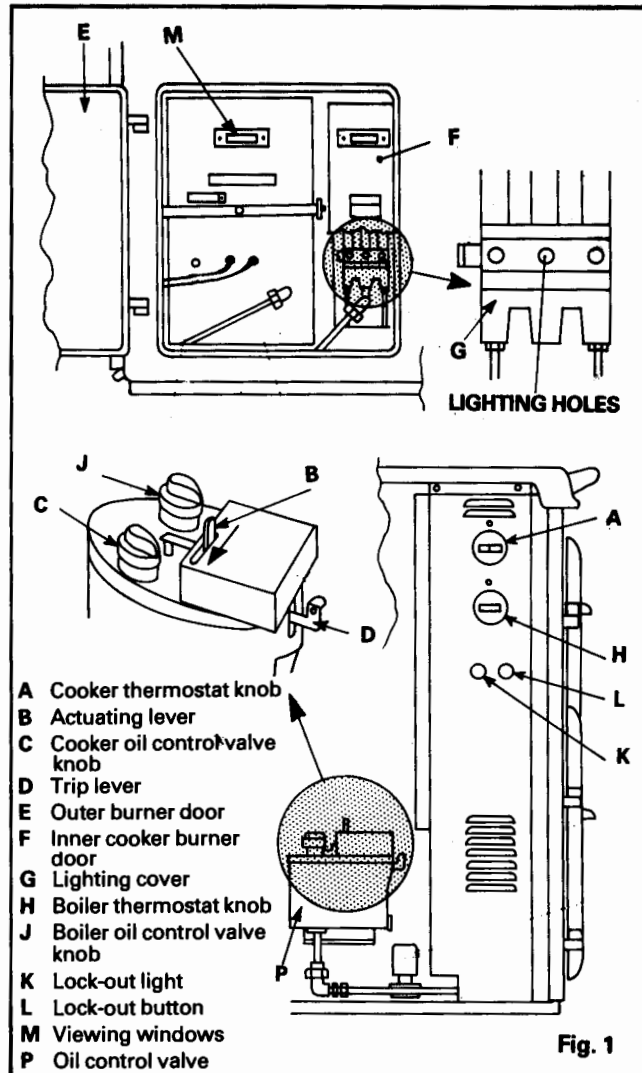
To relight, turn the boiler thermostat knob **H** to the required setting.

Frost Precautions

In the event of the boiler being switched **OFF** for long periods during very cold weather, the advice of your Installer should be obtained.

Bi-annual Servicing

With normal use a boiler/cooker annual flueway clean and burner maintenance should be carried out immediately



before and after the end of the heating season. An additional flueway clean half-way through the heating season may be necessary in some cases – see Servicing Instructions.

Both cooker **A** and boiler thermostat knobs **H** should be turned **OFF** by the User the night preceeding the day of servicing so that the appliance will have cooled down by the following morning. A hot appliance cannot be serviced.

Cleaning

REMEMBER TO BE CAREFUL OF THE HOT APPLIANCE

To keep the vitreous enamelled surface bright and clean, wipe over daily with a soapy damp cloth, followed by a clean dry duster.

If milk, fruit juice or anything containing acid is spilt on the top plate, or down the cooker, be sure to wipe it immediately or the vitreous enamel may be permanently discoloured.

The lining of both insulating covers should be raised and allowed to cool before cleaning with a soapy damp cloth.

DO NOT USE ABRASIVE PADS OR OVEN CLEANERS.

NOTE: TAKE CARE WHEN CLOSING THE DOOR TO LIFT THEM ONTO THE CATCH. IT IS NOT ADVISABLE TO PUT VERY WET CLOTHES ON THE HAND RAIL, AS THIS MAY CRAZE THE ENAMEL.

IMPORTANT – USE 28 SECONDS KEROSENE FUEL ONLY.

Installation Instructions Rayburn Oil Nouvelle Cooker

MK1
ORIGINAL

Consumer Protection Act 1987

As manufacturers and suppliers of cooking and heating products, in compliance with Section 10 of the Consumer Protection Act 1974, we take every care to ensure, as far as is reasonably practicable, that these products are so designed and constructed as to meet the general safety requirement when properly used and installed. To this end, our products are thoroughly tested and examined before despatch.

WARNING: THIS APPLIANCE MUST BE INSTALLED BY A COMPETENT ENGINEER, EXPERIENCED WITH OIL FIRED APPLIANCES.

Introduction

The Rayburn Oil Combination appliance is a combined cooker and hot water boiler providing central heating, domestic hot water and cooking facilities. It is available with a vertical flue outlet, the cooker burner operating on natural draught, the boiler burner being fan assisted, in conjunction with a fully sequential control box. The boiler is designed for use in an open vented water system only, operating with gravity D.H.W. primaries and pump heating circulation, or fully pumped systems, if desired.

Hot Water output with boiler burner ON and cooker burner at minimum setting.	18.4kW	(62,900 Btu/h)
Hot Water output with boiler burner ON and cooker burner at maximum setting	20.0kW	(68,530 Btu/h)

The boiler burner will provide 34.8m² (375ft²) of heat to radiator surface and pipes exclusive of domestic hot water requirements.

The recommended heating surface area is based on an average heat emission of 0.5kW/m² (160 Btu/ft²h). These appliances must only be used with 28 seconds Commercial Kerosene.

Two independently controlled oil burners, one providing heat to the central heating boiler section, whilst the other provides heat to the cooker and domestic hot water only.

Installation Requirements

The installation of the appliance must be in accordance with the relevant requirements of the current Building Regulations, current I.E.E. Wiring Regulations and the byelaws of the local Water Undertaking. It should be in accordance also with any relevant requirements of the Local Authority and the relevant recommendations of the following current British Codes of Practice:

BS. 5410 Installation of oil fired space heating and hot water supply purposes. Part 1. Boilers of rated output not exceeding 44kW.

BS. 5449 Central heating for domestic premises. Part 1. Forced circulation hot water systems.

Building Regulations

J/1/2/3 Provision for introduction of air supply and discharge of products of combustion for appliances. Section 1 – Parts A and B.

BS. 4543 Specification for chimney for oil fired appliances. Part 3.

Building Regulations

J/1/2/3 Provision for protection against fire and heat. Section 1 – Part C.

Appliance

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

Location

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 adequate space for servicing and air circulation around the appliance. See "Installation of Appliance."

		Cooker Only LOW	Cooker Only HIGH	Cooker/LOW Boiler ON	Cooker HIGH Boiler ON
Heat Input	kw Btu/h	2.9 9,870	8.2 28,000	26.6 90,900	31.97 110,100
Heat Output Water	kw Btu/h	0.85 2,900	2.5 8,530	18.4 62,900	20.0 68,530
Oil Input Rate	cc/minute	4.75	13.5	43.75	52.5
Weekly oil consumption by cooker only in Summer – 63.5 litres (14.0 gallons)					

Boiler Water Connections

Flow (one) Rp 1 (1in BSP Int)
Return (one) Rp 1 (1in BSP Int)
 Both connections are located towards the rear edge of the appliance L.H. side panel.
Oil Valve Inlet RP 1/4 (1/4in BSP Int)
Flue Outlet Dia. 127mm (5in Int)
Electrical Supply 240V ~ 50 Hz 5 amp Fused.

Water Capacity of Boiler 12.5 litres (2.75 galls)

Weight of Appliance 348kg (766lb)

Appliance Overall Dimensions Height: 975mm (38 3/8in)
 Width: 997mm (39 1/4in)
 Depth: 647mm (25 1/2in)

FUEL – COMMERCIAL KEROSENE
 28 Seconds to BS. 2869:1983 Class 'C'.

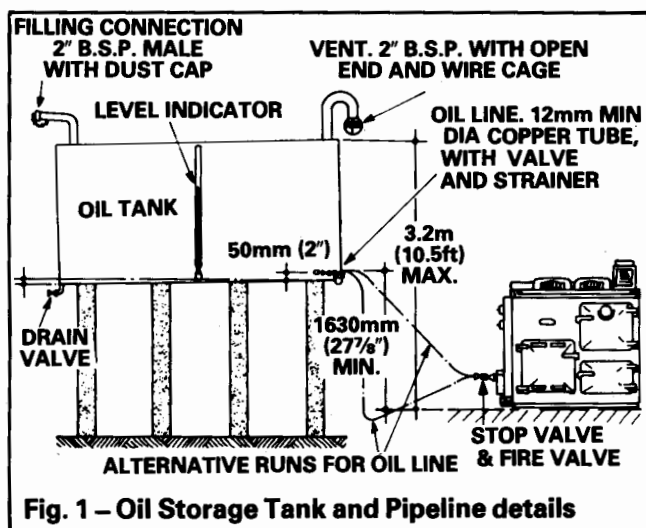
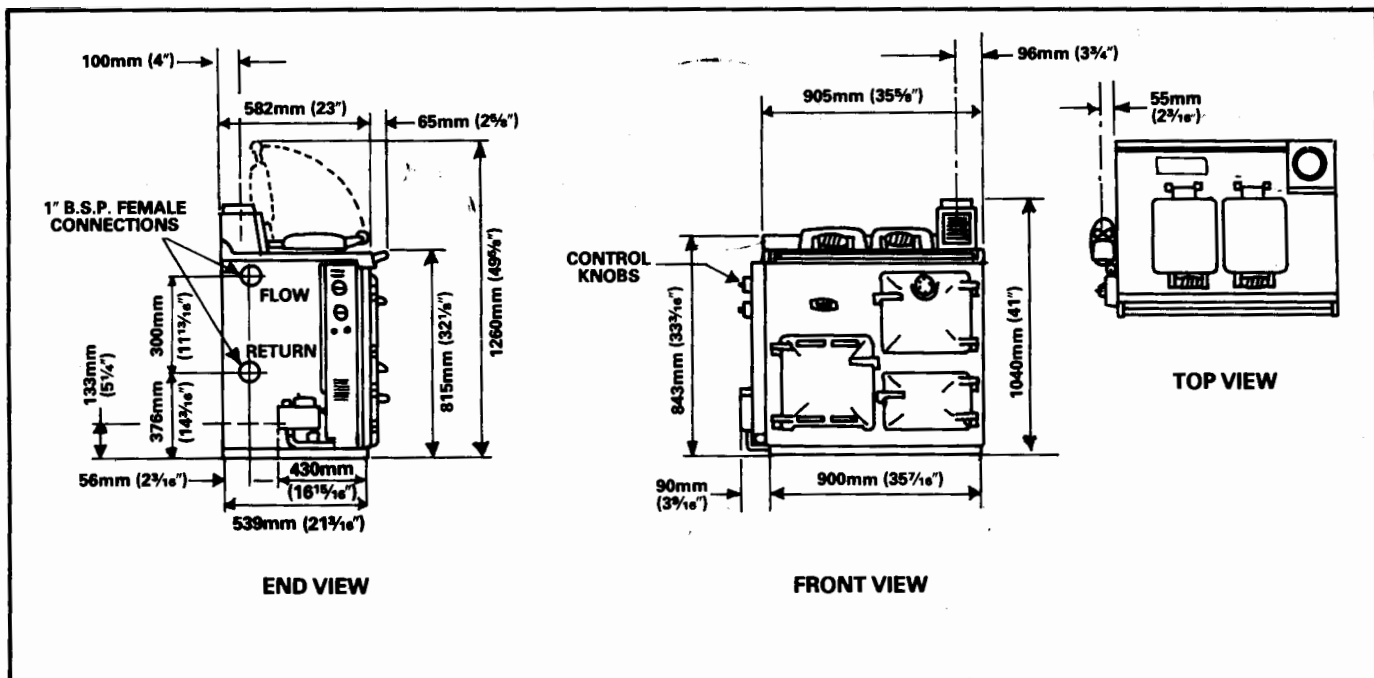


Fig. 1 – Oil Storage Tank and Pipeline details

Oil Storage – See Fig. 1

The recommended oil tank size is 1400 litres (300 gallons) minimum, and the Codes of Practice governing its installation are covered by BS. 5410.

The requirements for mild steel tanks should be to BS. 799:Part 5 and advice should be sought from the manufacturers for the installation of Plastic Oil Tanks as an alternative consideration.

The oil storage tank must be positioned with the bottom of the tank not less than 630mm (24 7/8in), and the top not more than 3.2m (10.5ft) above the base of the cooker.

Oil Pipe Line

The oil line from the storage tank to the appliance should be fitted with a remote acting fire valve (such as a Teddington KBB-66°C) located outside the building, or where the supply enters the wall on the inside of the building and with the heat sensing phial of the fire valve, located as near as practicable on the L.H. side of the cooker.

A 5-10 micron oil filter should also be fitted in the oil line, and the minimum size of the copper oil pipe line should not be less than 12mm diameter.

A stop valve must be fitted near the appliance, in an accessible position.

Flue System – See Fig. 2

Detailed recommendations for fluing are given in the current Building Regulations J/1/2/3 – Section 2, Part 'B'. The following notes are intended to give general guidance:-

The cross sectional area of the flue serving the appliance must be not less than the area of the flue outlet of the appliance.

The flue pipe to be used must be not less than 125mm (5in) internal diameter. Flue pipes and fittings should be constructed from one of the following materials:-

- Mild Steel with a wall thickness of 3mm minimum.
- Stainless Steel to BS. 1449 Part 2.
- Cast Iron to BS. 41.
- Mild Steel, acid resistant vitreous enamel lined to BS. 1344 Part 2.

Chimneys

Chimneys should be built of masonry or be assembled from factory-made insulated components.

Masonry chimneys may be built of any masonry material, with a lining, or if flue blocks, without a lining.

The chimney lining should be 150mm (6in) minimum diameter and be formed of moisture and acid resistant liners to BS. 1181 with rebated or socketed joints uppermost.

Alternatively, linings may be imperforate clay flue pipes as described in BS. 65 or flue blocks to BS. 1289 and installed to BS. 6461 Part 1.

A 150mm (6in) minimum diameter factory-made insulated chimney, complying to BS. 4543 may be fitted and installed to BS. 6461 Part 2.

Chimney Terminations

All chimneys should terminate above the roof level in accordance with current Building Regulations and statutory requirements as outlined in BS. 6461:1984 Parts 1 and 2.

However well designed, constructed and positioned, the satisfactory performance of a flue can be adversely affected by the down-draught caused by adjacent tall buildings and trees or even nearby hills. These deflect the wind creating a zone of high pressure over the terminal causing it to blow directly down the chimney flue. A suitable anti-downdraught terminal such as the Marcone will usually effectively combat low pressure down-blow but no known cowl is likely to prevent down-draught due to a high pressure zone.

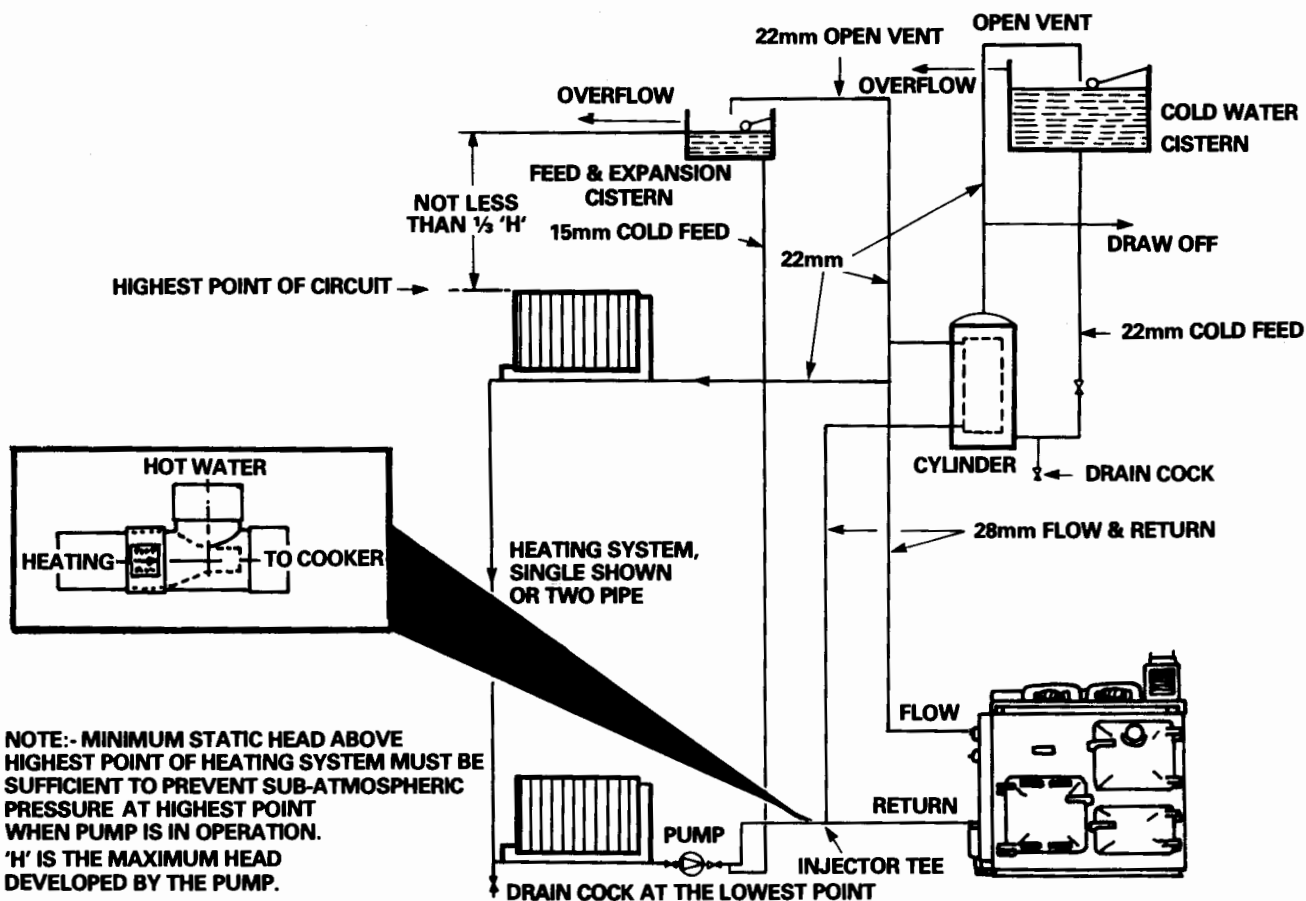


Fig. 3a – Typical DHW Gravity System

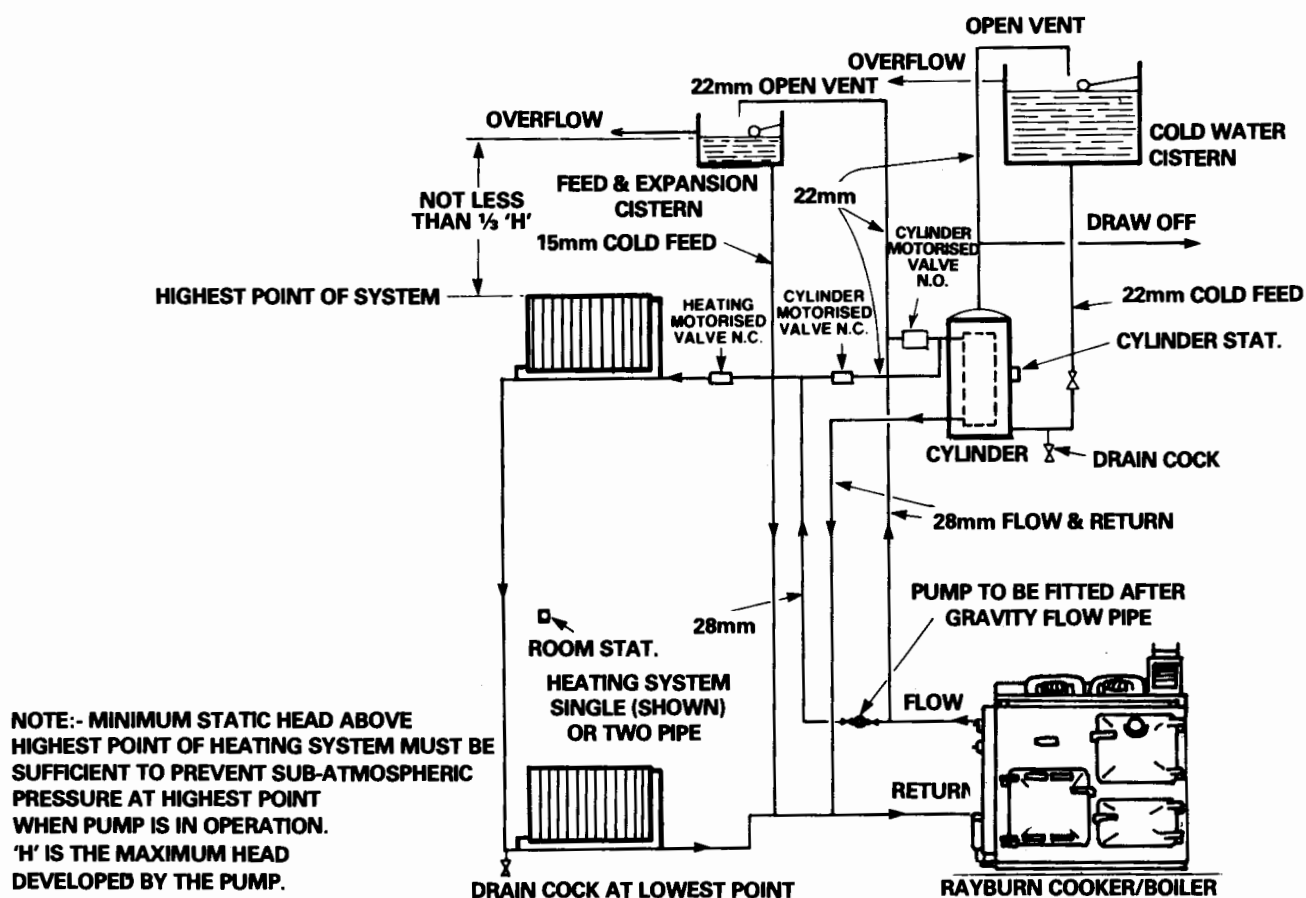


Fig. 3b – Typical Fully Pumped System

Air Supply

Detailed recommendations for air supply are given in the current Building Regulations J/1/2/3 – Section 1 – Part A. The following notes are intended to give general guidance:-

Kitchen or Internal Space Air Supply

Wherever a flued 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 must itself 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 260cm^2 (40in^2).

Effect of Extractor Fan

Avoid if possible the installation of an extractor fan in the same room as the appliance or the room where the permanent vent is located. Compensating extra air inlets must be introduced equivalent to the capacity of the fan when fitted.

Water Circulation System

Detailed recommendations for the water circulation system are given in BS. 5449:1 (for smallbore and microbore central heating systems) and CP. 342.

The following notes are of particular importance:-

In a combined central heating and domestic hot water system the hot water storage vessel must be of the indirect cylinder or calorifier type.

The hot water storage vessel should be insulated, preferably, with not less than 75mm (3in) thick mineral fibre, or its equivalent.

Pipework not forming part of the useful heating surface should be insulated to help prevent heat loss and possible freezing, particularly where pipes are run through roof spaces and ventilated under floor spaces. Cisterns situated in areas which may be exposed to freezing conditions should also be insulated.

Draining taps must be located in accessible positions which permit the draining of the whole system, including the appliance and hot water storage vessel. Draining taps should be at least $\frac{1}{2}$ in BSP nominal size and be in accordance with BS. 2879.

The appliance boiler section should be connected to a cistern water supply, subject to a maximum head of 18.25m (60ft).

Central heating, smallbore or microbore systems should comply with the recommendations of BS. 5449, Part 1

and water carrying copper tubes should be to BS. 2871, Part 1.

The hot water storage vessel should be insulated, preferably, with not less than 75mm (3in) thick mineral fibre, or its equivalent.

The heating system must be designed (and adjusted if necessary) to give a temperature differential across the boiler at full output of 10°C - 14°C (18°F - 25°F).

The use of horizontal pipe runs should be avoided wherever possible in order to prevent the collection of air in the system. If horizontal runs are unavoidable, the pipes should rise upwards in the direction away from the appliance.

Hot water systems should be in accordance with the relevant recommendations given in CP. 342 – Part 1.

Controls

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

Typical controls can be two or three port 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 be set to operate at a temperature of approximately 4°C (39°F).

Circulating Pump

It is recommended that the selected pump be of a proprietary type and manufacture, and be 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 be fitted in a readily accessible position, see Figs. 3a and 3b.

It may be positioned either on the boiler section flow or the return depending on the system design.

The boiler section pressure loss curve, see Fig. 4 indicates the loss of head across the boiler section and should be considered when selecting the correct pump size.

Typical recommended selection is as follows:-

Grundfos UPS 15-50 or equivalent.

Boiler Output	17.5kW (60,000 Btu/h)
Temperature differential across the boiler	10°C - 14°C (18°F - 25°F)
Water Flow Rate	1091-1515 litres/h (240-333 galls/h)

Refer to boiler section pressure loss curve – Fig. 4.

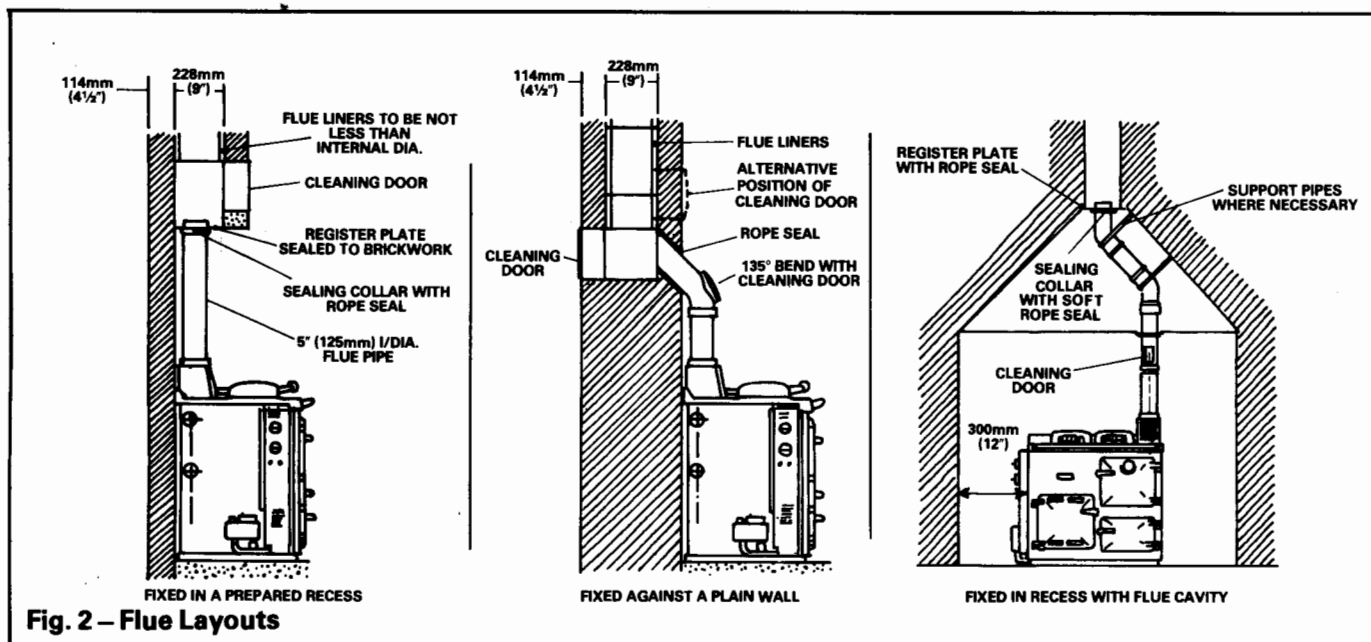


Fig. 2 – Flue Layouts

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.

Hot Water Storage Vessel

It is recommended that an indirect 190 litre (40 gallon) hot water storage cylinder of the double feed type complying with the BS. 1566 Part 1:DF Type 10, should be lagged and fixed vertically as near as possible to the appliance when radiators are fitted.

In combined systems, the water draw-off pipes to the taps must be dead leg connection from the vent expansion pipe.

A drain tap must be fitted at the lowest point of the system.

Electrical Supply

Wiring external to the appliance must be installed in accordance with the current I.E.E. Wiring Regulations and any local regulations which apply. The boiler is supplied for 240 volt, 50 Hz and fuse rating of 5 amps. Electrical mains supply that fluctuate below 220 volts, are not suitable for connection to this appliance, and verification should be made before installation.

Supply voltages of 220V. 50 Hz, must have a 220 volt ignition element fitted – Special Orders only.

The method of connection to the mains electricity supply should facilitate complete electrical isolation of the

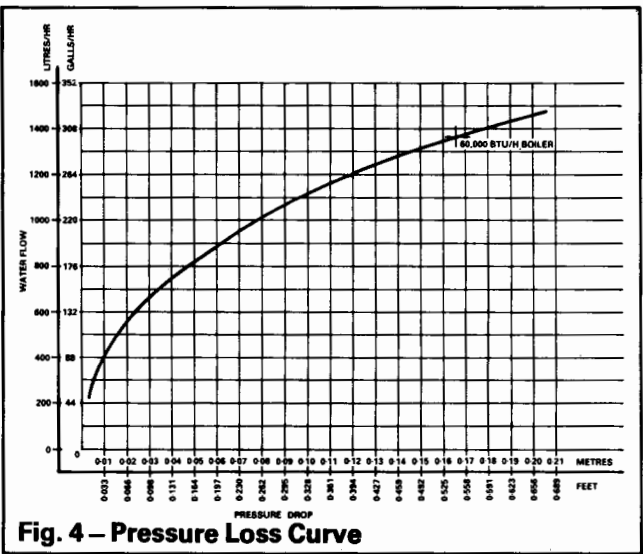


Fig. 4 – Pressure Loss Curve

appliance, preferably by the use of an unswitched shuttered socket-outlet in conjunction with a fused three-pin plug both complying with the requirements of BS. 1363.

Alternatively, a fused double-pole switch having a contact separation of at least 3mm serving only the appliance may be used.

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

For wiring instructions, see Fig. 5.

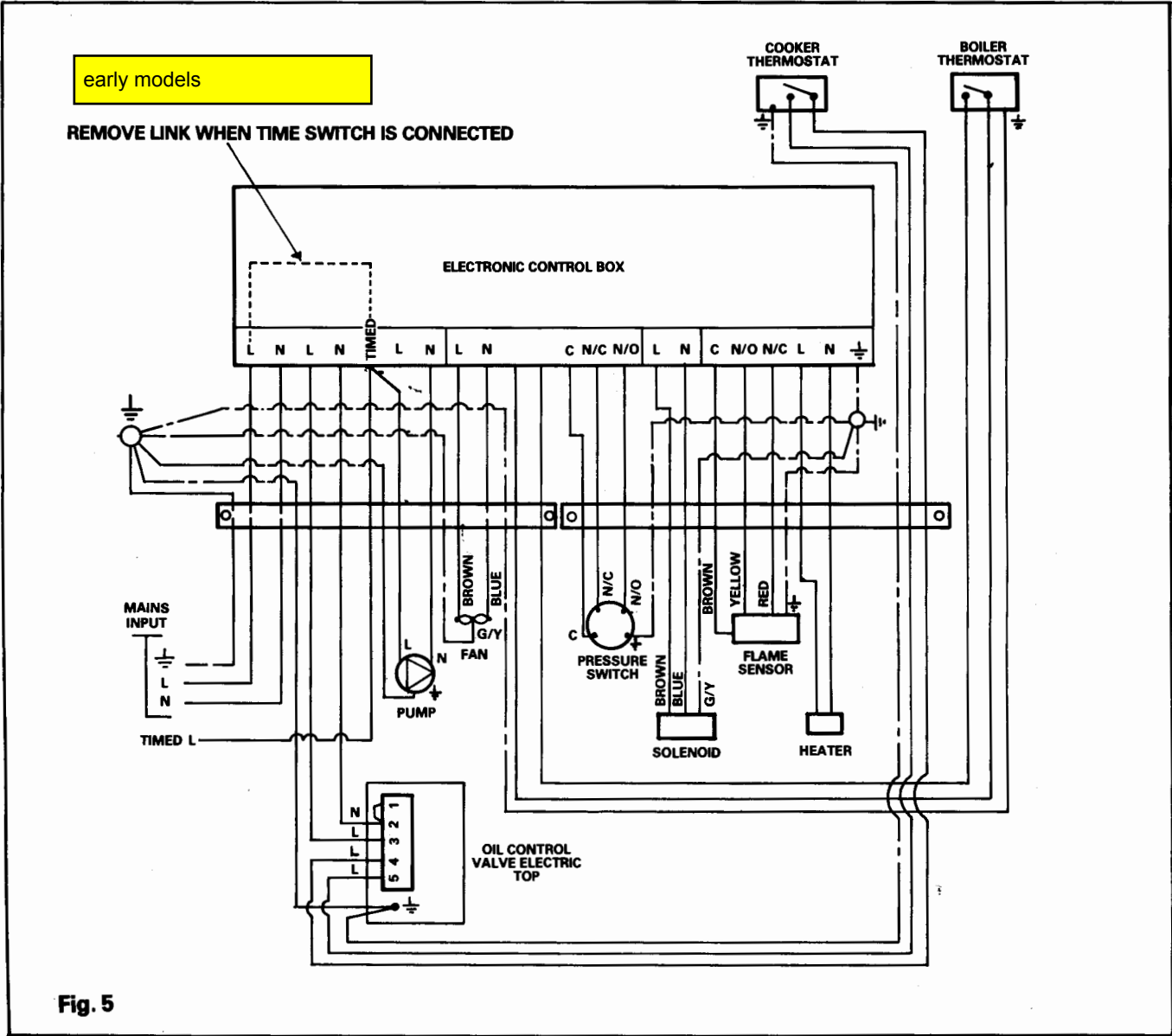


Fig. 5

Installation of Appliance

General

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

Width: 1220mm (48in)

Depth: 580mm (22¹/₄in)

Height: 1320mm (52in).

This space includes the following minimum clearances for servicing:-

Between wall and L.H. side of appliance

300mm (12in)

Between wall and R.H. side of appliance

Zero (Zero)

Above the raised insulating cover handle

60mm (2³/₈in).

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 (1in) to combustible materials and where passing through a combustible partition such as a ceiling or roof, must be enclosed in non-combustible sleeve providing an air space of at least 25mm (1in).

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

Preliminary Installation

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

1. Special Injector Tee – For use with hot water gravity primaries only.
2. Oil Control Valve/Bracket Assembly – See Fig. 6.
3. Appliance rear distance bracket – For use when the appliance is installed near a rear wall of combustible material – See Fig. 9.

Wherever possible, it is recommended that skirting board is removed for the width of the appliance to enable the rear edge of the appliance top plate to make contact with the vertical wall, and avoid a rear air gap. (Combustible walls excepted).

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.

Site Location

1. Check that the hearth is level, then move the appliance from its transit wooden pallet, and position it with its back against the wall and in its intended position for flue connection.

NOTE: IF THE REAR WALL IS OF COMBUSTIBLE MATERIAL, THERE MUST BE AN AIR GAP OF 25mm (1in) BETWEEN THE WALL AND REAR OF APPLIANCE. FIT REAR DISTANCE BRACKET AS SHOWN IN FIG. 9.

2. Remove flue chamber cover from flue chamber and confirm setting of exposed flue damper stabiliser is set at 'LO' position. See Fig. 9
3. Locate and fit flue pipe into socket of flue chamber top, sealing joint with fire cement.
4. Connect and terminate the flue system in accordance with standard practice.
5. Lift up the insulating covers and remove the hotplate. This removal will expose a boiler cover baffle (Fig. 10) which should be removed and the firebricks checked for non-displacement. Replace boiler cover baffle correctly (Fig. 10) and hotplate ensuring it seals around its edge.

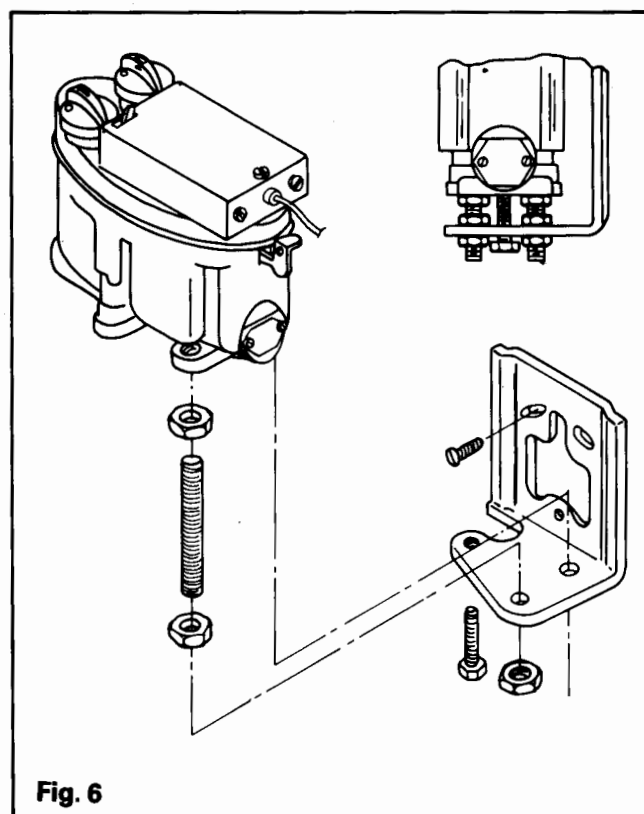


Fig. 6

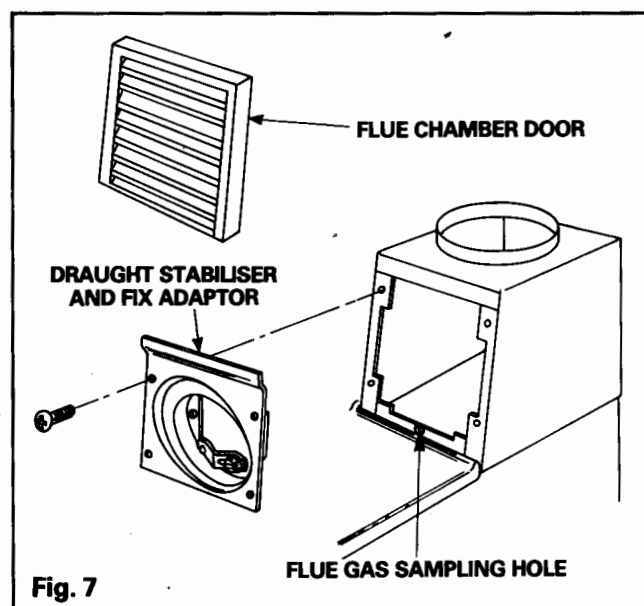


Fig. 7

6. Open the outer burner door E and remove/lift out, the cooker burner door F. Remove electrical cover panel on Left Hand side plate. See Figs. 11 & 15.
7. Carefully prise, lift off and remove 6-way electrical mini-plug connection of Flame Sensor and Ignition Element, at terminal block of Sequence Controller, then break oil pipe connection at the elbow below the boiler burner front tie bar – See Fig. 11.

AVOID DETACHING INDIVIDUAL ELECTRICAL CONNECTIONS HELD BY MINI-PLUG PINCH SCREWS, OR AT FLAME SENSOR TERMINATIONS.

8. Slacken off boiler burner retaining tie bar bolt, remove tie bar, and holding the strap handle, horizontally withdraw the boiler burner forward gently, until clear of appliance. See Fig. 11.
9. Remove two bolts securing boiler burner top baffle and detached baffle. Remove two baffles within boiler burner, check air gap between ignition element underside and bottom of burner is 30mm, and confirm lighting wick is located on element, making contact

Later models

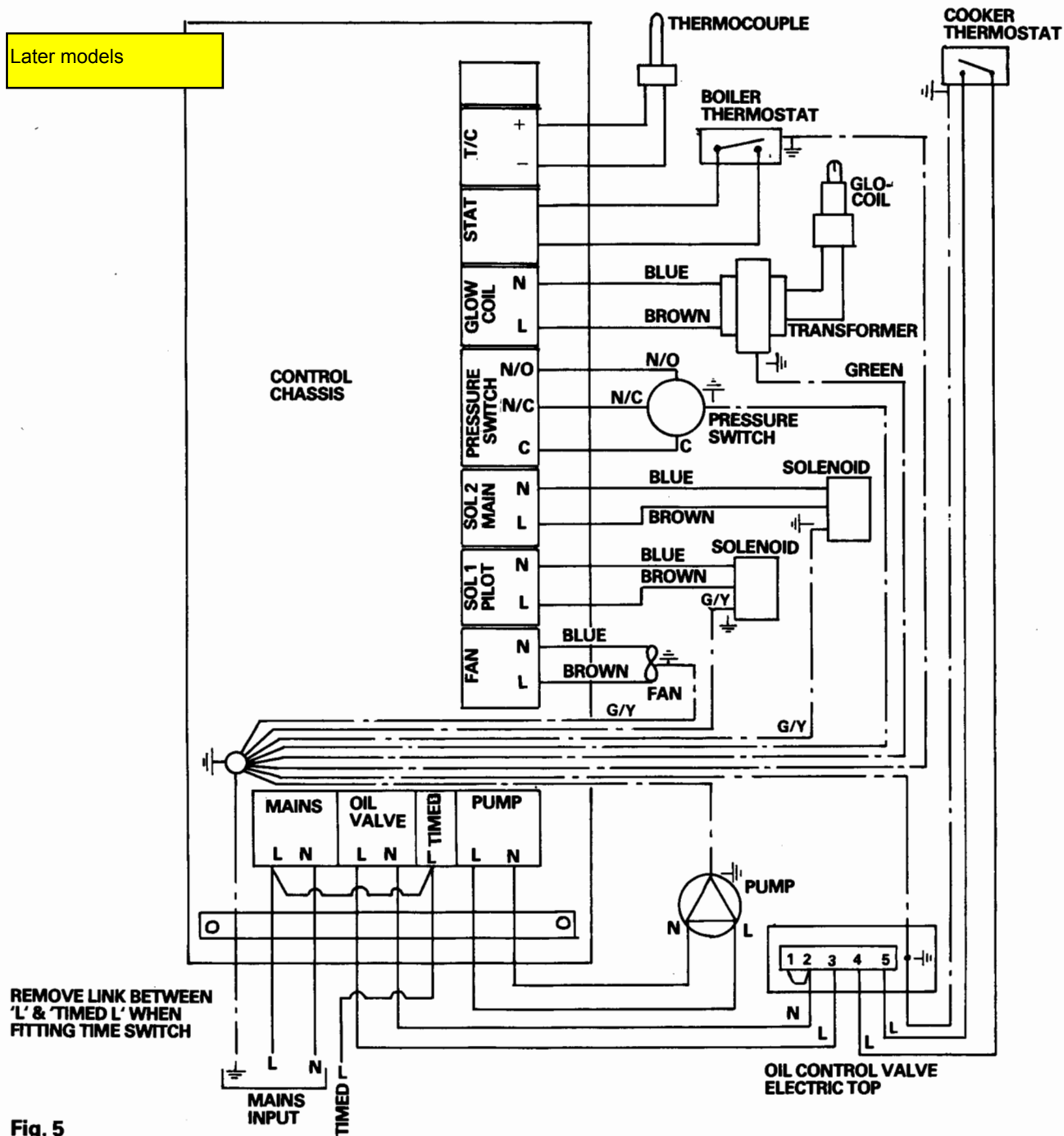


Fig. 5

with bottom of burner. See Fig. 13. Replace two internal baffles ensuring correct location, and re-securing top baffle.

Oil Control Valve Installation

1. Fit and lightly secure oil control valve support bracket to cooker L.H. side panel. See Fig. 6.
Using a spirit level, check that the horizontal face of the support bracket is level in all directions, then tighten and secure bracket fixing screws.
2. Mount oil control valve on support bracket and adjust its height (via lock nuts) so that the "OIL LINE" mark on the L.H. side of the oil control valve body, measures a vertical height of 177mm ($6\frac{31}{32}$ in) from the valve body "mark" to the base plate level.

NOTE: IF THE APPLIANCE IS MOUNTED ON PLINTH, THE DIMENSION FROM THE VALVE BODY 'MARK' TO THE APPLIANCE BASE PLATE SHOULD BE MAINTAINED.

Burner Installation

Both cooker and boiler burners are adjusted and factory set to their correct levels and height with respect to each other, but specific confirmation checks will be necessary on site installation. The boiler burner should not require any adjustment on site, but the cooker burner **must** be checked for level in both directions.

Cooker Burner

1. Open outer burner door and lift/remove R.H. cooker inner burner door.
2. Remove screws securing cooker burner base front transit clamp to combustion chamber base and dispose of clamp – See Fig. 12.
3. Using a cross spirit level, confirm the burner base is level in all directions with the three levelling screws in location recesses of combustion chamber.

WARNING: THE BURNER BASE MUST BE LEVEL.

4. Remove the cooker burner base and check that the wicks fit, and the burner vapour chamber sealing plate provides an airtight bridge to seal the burner shells on. Remove the perforated burner shell assembly from separate packaging and check the shell sides are not restricted by the cross pin locations and are free to lift and fall on the burner base. Ensure the assembly seats closely to the burner box machined face grooves (lighting ports at the burner front). Check that the burner heat baffle above, fits into the top of the perforated burner shell, then dismantle back to the burner base.
5. Replace the cooker burner base into its location within the combustion chamber and connect the oil feed pipe.
6. Connect the oil feed pipe from the boiler and cooker burners to the respective outlet fittings on the underside of the oil control valve – See Fig. 14.

NOTE: THE COOKER OIL CONTROL VALVE OUTLET IS FURTHEST AWAY FROM THE APPLIANCE, THE OTHER BEING THE BOILER OIL CONTROL VALVE OUTLET.

7. Connect the oil line supply to the inlet connection of the oil control valve.

Checking the Cooker Burner Oil Level – Fig. 15

1. Open all oil valves to allow oil into the oil control valve. It may be necessary to purge the oil line to prevent air locking.
2. Depress the trip lever **D** on the front of the oil control valve **P** and turn cooker oil control knob **C** to No. 6 setting.
Oil should enter the cooker burner base in due course, and after about 15-20 minutes, the depth of the oil should have settled to a static depth of 10mm ($\frac{13}{32}$ in). If the depth of oil is less, gradually raise the level of the

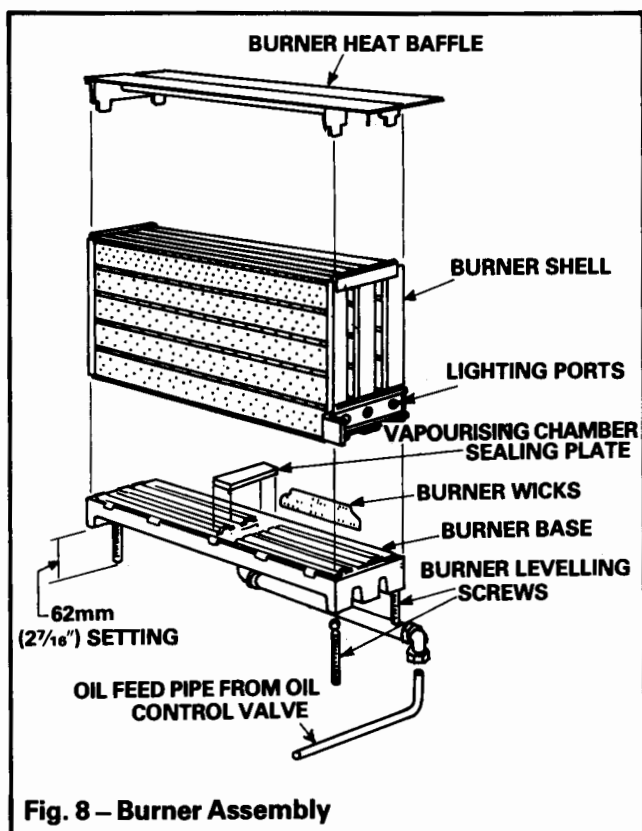


Fig. 8 – Burner Assembly

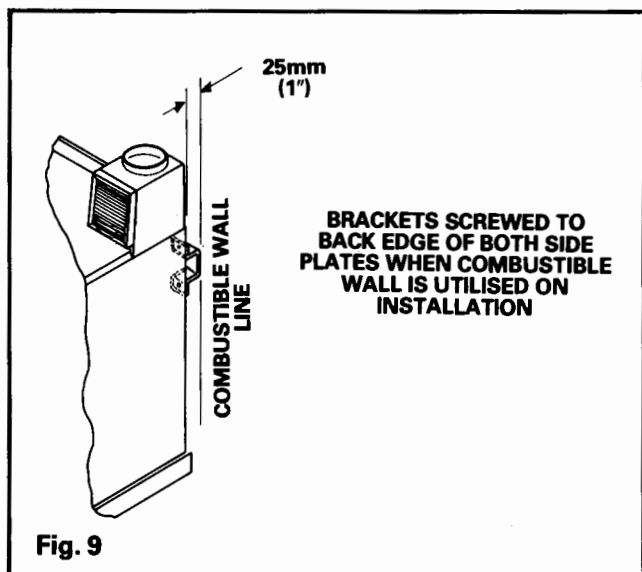


Fig. 9

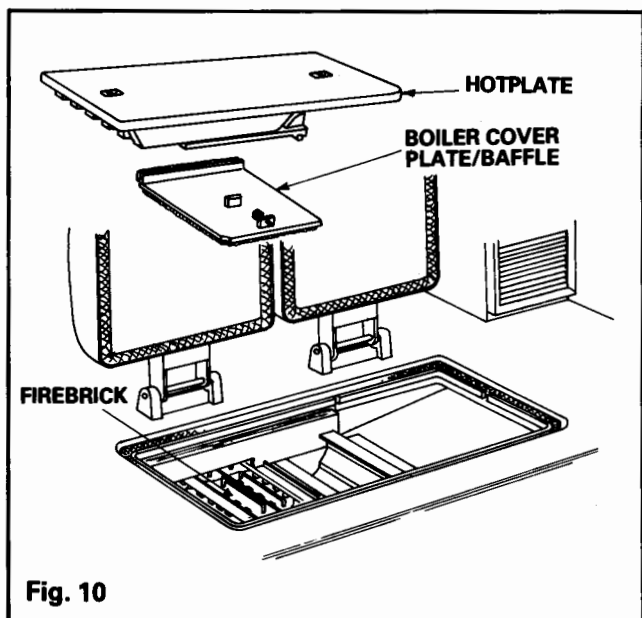


Fig. 10

oil control valve via the supporting adjustment studs and lock. Re-check the oil valve is level in all directions.

- With a constant oil depth of 10mm, tighten the locknuts on the oil control valve levelling screws.

IMPORTANT: THE COOKER OIL BURNER BASE MUST BE LEVEL IN ALL DIRECTIONS AND THE OIL DEPTH STABLE AT 10mm DEEP.

Boiler Burner

- Re-insert the boiler burner within the combustion chamber, ensuring it is fully engaged, refit the tie bar and secure with tie bar bolt.
- Re-connect electrical connections to the boiler burner flame sensor and ignition element. Re-connect boiler oil pipe connection only.
- The boiler burner is factory set to ensure an oil depth in the boiler burner of 16-18mm when the cooker has a constant oil depth of 10mm.

General

- Turn cooker control knob **C** to **OFF**, disconnect the copper pipe connection at the burner base and withdraw. Draw off the oil in the cooker burner base. See Fig. 15. Alternatively, the oil can be sucked out using an aspirator.
- Fit the burner wicks, sealing plate and perforated shell assembly with top baffle, checking that the shell assembly seats airtightly on the burner base.
- Replace the cooker burner and reconnect oil pipe.
- Ensure burner shell assembly location is seated airtight by carefully holding the assembly and slide it in a restricted forward/backward manner.

Electrical Connections

A 240V ~ 50 Hz electrical supply is required near to the appliance. The appliance is supplied with a 0.75mm² – 3 core P.V.C. x 3 metres long replaceable cable which must be connected as described under 'Electrical Supply'. A label attached to the end of the flexible cable gives details of the cable core colouring coding and their function which should be adhered to.

When connecting to a 3 pin plug, observe the following recommendations:-

- The wire which is coloured green and yellow must be connected to the terminal in the plug which is marked with the letter **E** or by the earth symbol ⏏ or coloured green or green and yellow.
- The wire which is coloured blue must be connected to the terminal which is marked with the letter **N** or coloured black.
- The wire which is coloured brown must be connected to the terminal which is marked with the letter **L** or coloured red.

WARNING: THIS APPLIANCE MUST BE EARTHED.

It is recommended that electrical connections are made to a system junction box for the wiring of an external control system. The supplied 3 metre cable is factory connected to the 8-way terminal block and is intended to provide a continuous power supply. Connections on the terminal block provide for the connection of a time switch/programmer together with cylinders and room thermostat connections which are fed through empty grommetted holes adjacent to the cable cord and clamped accordingly.

Water Connections

The two Rp1 (1in BSP int) flow and return connections are located towards the rear edge of the appliance left hand side panel, and pipe connections should be made with Rp1 (1in BSP ext) x 28mm dia. copper compression fittings.

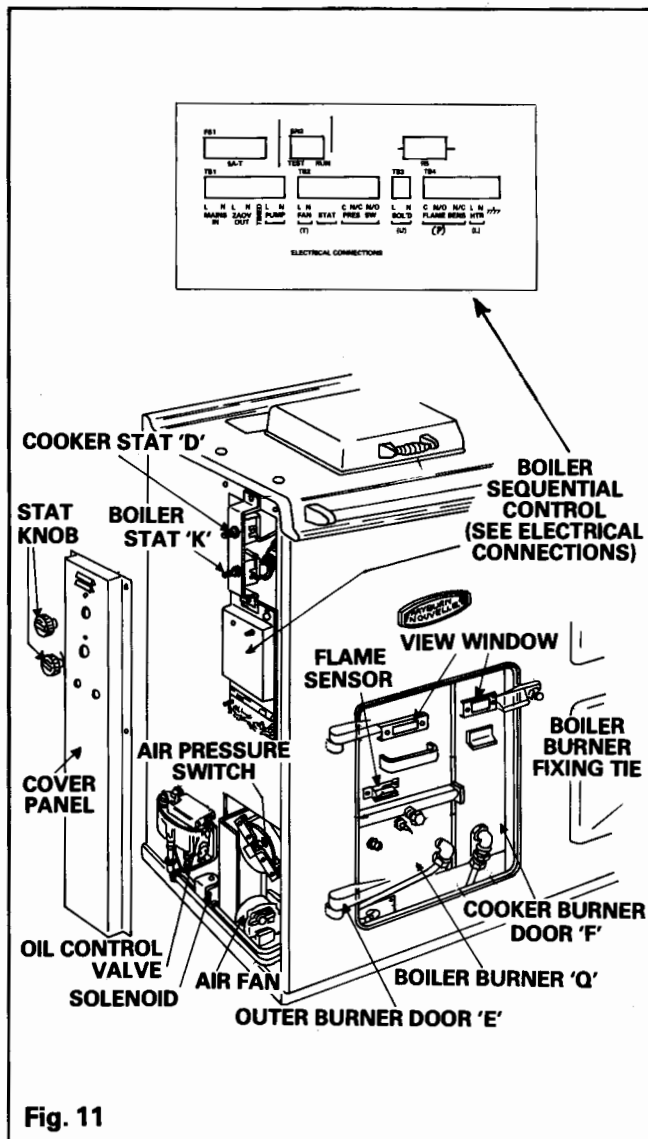


Fig. 11

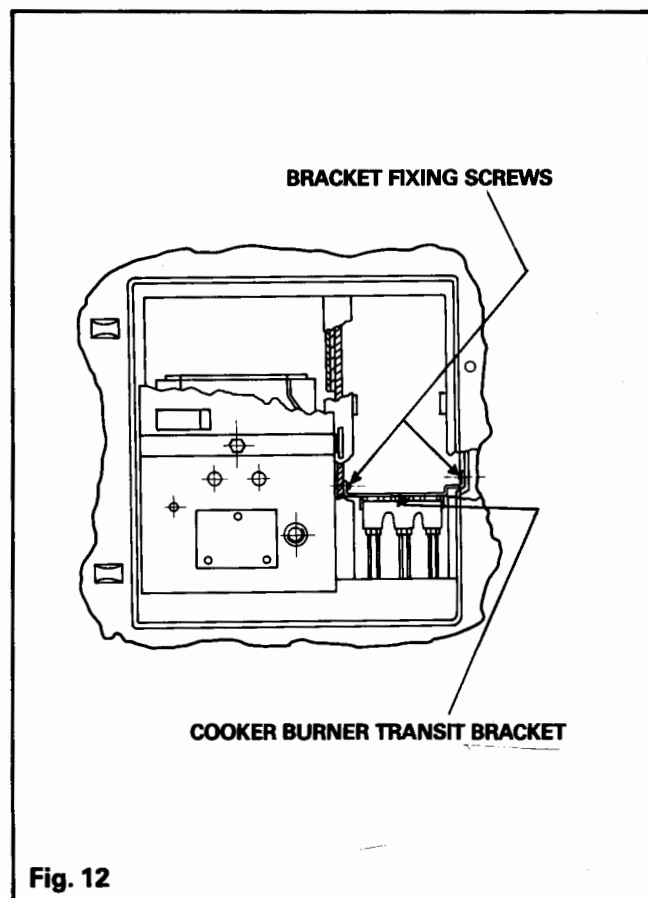


Fig. 12

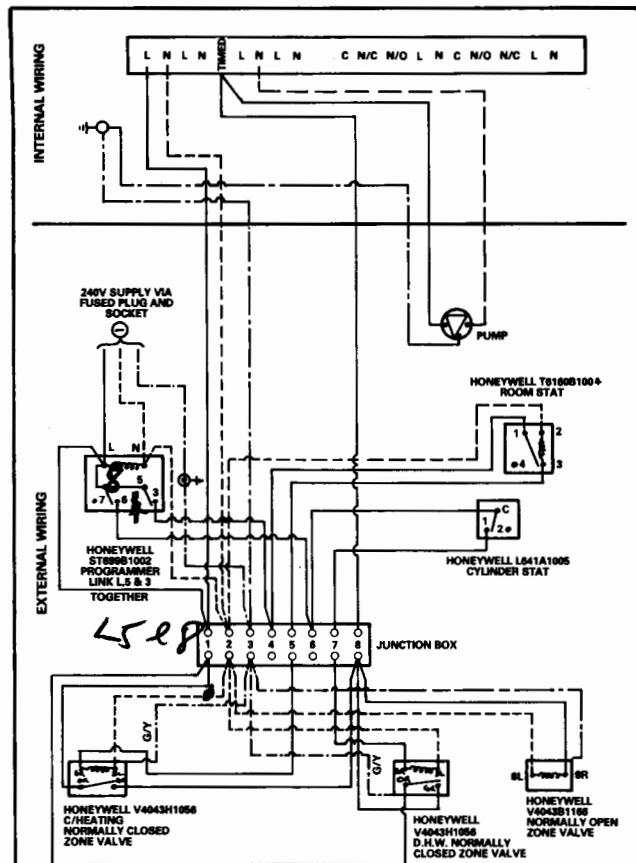
Gravity Domestic Hot Water and Pumped Heating

The 28mm O.D. primary flow pipe must rise continuously from the boiler section to the cylinder to ensure good gravity circulation and extended to provide an open vent. The 28mm O.D. primary flow and return pipes must not exceed 10m (30ft) in length. Pipe runs in excess of 5m (15ft) must be lagged.

To obtain continued Domestic Hot Water gravity circulation with the circulating pump operative, the special injector tee (supplied with appliance) must be connected to the heating/cylinder return pipes with the outlet of the tee connected to the boiler section return tapping. See Fig. 3a.

Fully Pumped System

The domestic hot water flow pipes may be pumped provided that domestic hot water gravity circulation can take place in the event of pump failure or loss of electrical power. See Fig. 3b for system schematic. The boiler section is suitable for use with most types of central heating control systems but it is recommended that controls are selected that isolate the boiler section electrically at times of no demand.



Typical Wiring Diagram early models

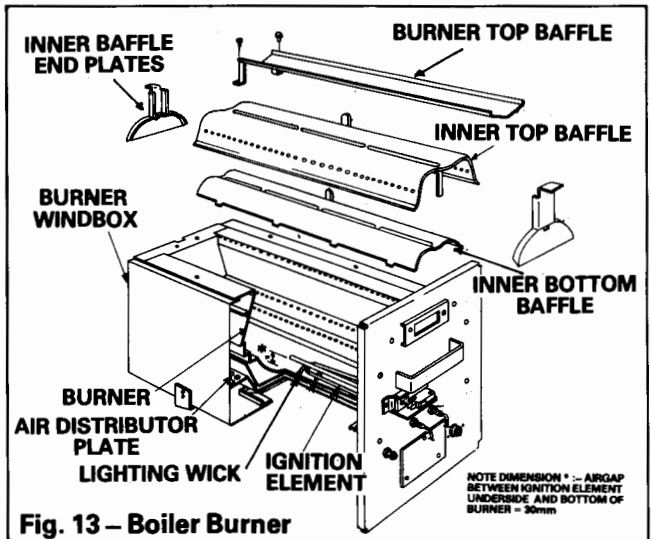


Fig. 13 - Boiler Burner

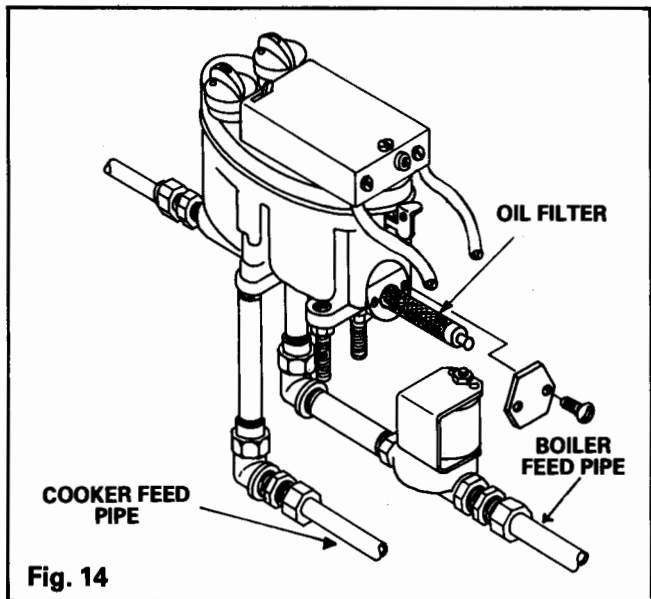


Fig. 14

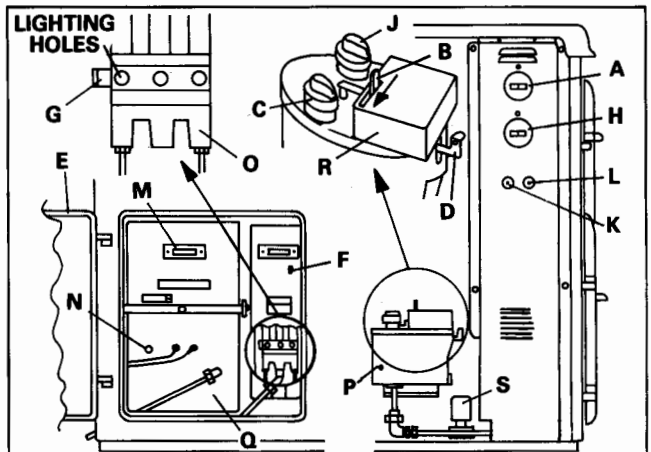


Fig. 15

Commissioning and testing

Electrical Installation

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

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 and air locks cleared. Vent all heat emitters and check for water soundness.

Commissioning and Lighting the Cooker and Boiler

Lighting the Boiler Burner – See Fig. 15

Remove oil filter within oil control valve (See Fig. 14) and connect oil flow gauge assembly.

1. Ensure all oil valves are open and oil is in the oil control valve.
2. Depress the trip lever **D** on the front of the oil control valve and turn the boiler oil control valve knob **J** to No. 6 setting.
3. Slide solenoid switch (SN2) (adjacent to R.H. side of fuse above terminal block on Sequence Controller) from position '**RUN**' to position '**TEST**'. This will allow the solenoid only to become energised, without lighting the boiler.

NOTE: DO NOT FORGET TO SLIDE THE SWITCH BACK TO 'RUN' AFTER ONE OIL DEPOSIT.

4. Connect the 3 pin plugged end of the appliance cable into a power supply and switch **ON**.
Oil will now flow from the control valve, through the energised solenoid, and up the burner oil feed pipe, taking almost 30 seconds.

NOTE: IT MAY BE NECESSARY TO PURGE THE OIL FEED PIPE OF AIR AND THIS CAN BE DONE BY MOMENTARILY BREAKING THE ELBOW JOINT UNTIL OIL ENSUES.

5. Switch **ON** the power supply and set the boiler thermostat knob **H** to a thermostat setting of 80°C (180°F).
The lock-out lamp **K** will illuminate and the airfan become operative. Connect manometer tube to nipple **N** and confirm air pressure at between 3.9-4.1mm w.g. (0.15-0.16in w.g.). Disconnect manometer tube and re-plug nipple. Depress the lock-out button and the lighting sequence will commence.

NOTE: LOW PRESSURE INDICATES A LEAKING GASKET SEAL BELOW THE WINDBOX OR AROUND ITS DOOR.

6. Lighting Sequence

- (i) After depressing the lock-out button, the lock-out light extinguishes and the fan stops.
- (ii) Power is immediately passed to the ignition element only which attains its maximum surface temperature within 2 minutes and stays energised.
- (iii) After 2 minutes from **START**, the sequential controller, powers the solenoid and airfan to provide oil and air simultaneously. Within 20 seconds of oil admission, ignited oil will be visible within the burner, through the viewing glass.
- (iv) Some 4½ minutes from **START**, the flame sensor confirms the fire by radiation temperature, and causes the flame sensor switch to changeover, the ignition element switches **OFF** and the switch changeover maintained until the satisfied boiler thermostat switches **OFF**.

- (v) The activated boiler thermostat, isolates power from the oil solenoid, to interrupt the oil supply but the fan remains energised on an overrun period of time of 8-9 minutes. This enables all the oil in the burner to be burned, and also the cooling of the flame sensor rod, which then reverses the changeover switch contacts ready for the next cycle.
With the call for hot water, the boiler thermostat re-activates, and the complete cycle starts again.
- (vi) Allow the boiler burner to operate for 2 to 3 cycles, then during a boiler **ON** period, sample the flue products within the Boiler Flue Chamber for a Smoke Test, where the reading should show a Baccarach Smoke Number 0-1.

NOTE: REMOVE BOILER INSPECTION COVER PLATE BEHIND L.H. INSULATING COVER, REMOVE SEALING SCREW IN EXPOSED COVER SEALING PLATE AND SAMPLE GASSES BELOW. REPLACE SCREW AND COVER AFTERWARDS.

- (vii) Using oil flow gauge, measure oil flow rate of boiler only which should indicate 37 to 39cc per minute.
Post servicing checks under Servicing Instructions advise a procedural application.

Boiler Lockout

Fail-safe protection has been built into the Sequential Control so that in the event of any deviation from the timing programme, or component malfunction, a lock-out condition occurs, with the display of the red lamp, interruption of the Sequential Control power, with the exception of the continuous running fan.

WAIT 3 MINUTES BEFORE DEPRESSING THE LOCK-OUT BUTTON.

Continued lock-out indicates a malfunction that requires qualified inspection – See Fault Finding Chart.

Lighting the Cooker Burner – See Fig. 15

1. Depress the trip lever **D** on the front of the oil control valve and turn the cooker oil control knob **C** to No. 6 setting.

NOTE: THE ACTUATING LEVER B ON THE ELECTRIC TOP MOUNTED ON THE OIL CONTROL VALVE TOP, PERMITS MANUAL CONTROL TO OBTAIN MAXIMUM OIL FLOW RATES IN THE EVENT OF POWER FAILURE AND DEPRIVATION OF THERMOSTAT USE. ENGAGE THE ACTUATING LEVER B BY PUSHING TO THE LEFT AND ENGAGING IN THE NOTCH OF THE COVER. THIS ALLOWS THE ACTUATING PLUNGER BUTTON TO EXTEND UPWARD AND GIVE HIGH FIRE OIL RATE.

USE ACTUATING LEVER WITH POWER FAILURE ONLY.

2. Switch power **ON** and set oven thermostat knob **A** to maximum.
3. With the outer door **E** open, remove/lift out the cooker burner door **F**.
4. After allowing 15 minutes for oil to settle in the cooker burner base, slide lighting cover **G** on front of burner shells to the left to expose two lighting ports.
5. Light the two front wicks through the lighting ports and close the horizontal lighting cover.
Replace cooker burner door **F** and outer door **E**.
6. The cooker oil burner will gradually increase its oil rate, yet under the control of the oven thermostat, taking 2½ hours to attain 200°C (400°F) from cold.

7. With cooker burner only at high fire rate after 30 minutes, remove the louvred front from the flue chamber and identify a sampling hole below the bottom edge of the flue stabiliser on the front of the flue chamber. Sample the flue products through this hole for a Smoke Test, where the reading should show a Baccarach Smoke Number 0-1.
8. Using the oil flow gauge, measure high fire oil flow rate of cooker burner only which should indicate up to 13.5cc per minute.
Set the thermostat to **LOW** and check oil rate to be 4.7cc per minute and Smoke Number 0-1.
Post servicing checks under Servicing Instructions advise on procedural application.
9. Remove oil flow gauge and replace with filter and blanking plate.
10. Remove the cooker burner door **F** and make final inspection to ensure burner shell assembly has remained sealed to burner base.

NOTE: A LIGHT-BACK CONDITION WITH FLAMES SHOWING BELOW THE BURNER BASE INDICATES AN AIR GAP BETWEEN THE SHELL ASSEMBLY AND BURNER BASE.

Boiler Control

Check that:-

- a. The boiler system is full of water and all valves are fully open.
- b. Any room thermostat is **ON**.
- c. Any programmer or time switch is set at continuous heating.
- d. Ensure the electricity supply is **ON**, that the pump is running and the boiler thermostat set at 80°C (180°F).
- e. Allow the heating system to warm up then set the pump adjuster to maintain a boiler "flow and return" temperature differential of 10°-14°C (18°-25°F). Checks must be made by the installer to see that this differential is obtained after the boiler "Flow" temperature is stabilised.
The system should be balanced by regulating the water flow rate through individual heat emitters to ensure a satisfactory water temperature at each emitter. A system balance must also be made, so that the minimum flow required through the boiler is achieved when supplying D.H.W. only.
- f. When the water system reaches working temperature, check that the boiler thermostat operates satisfactorily. Check that any room temperature controls and programmer or time switch are fully operative.
- g. Examine the system for water soundness. The system should then be turned off and rapidly drained while still hot.
The water system should again be filled and cleared of all air locks.

Instruct User

- a. 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 remaining inoperative during frost conditions.
- b. Advise the User that, for continued efficient and safe operation of the appliance, it is important that adequate servicing is carried out at regular 6 monthly intervals.
- c. Hand the User Instructions to the User and demonstrate the correct operation of the appliance and system controls.
See notes under heating "**METHOD OF APPLIANCE CONTROL**".

METHOD OF APPLIANCE CONTROL

There are two independently controlled oil burners, the cooker burner providing heat to the two ovens, hotplate and domestic hot water whilst the boiler burner provides heat for central heating and is normally switched **OFF** in the summer.

Appliance controls are incorporated at the L.H. side of the cooker.

Cooker Burner – See Fig. 15

The cooker burner **O** must be lit manually with a lighted taper and allowed to establish itself at low fire rate, i.e. with the cooker thermostat knob set to **LOW** position. Oil flow (heat input) is increased by electrically activating the oil control valve top mechanism **R**, which is then controlled by the cooker thermostat **A** set at selected settings to suit.

LOW is the minimum (and idling) rate and settings up to No. 6 will provide a maximum thermostatically controlled oil rate, and an oven temperature of 270°C (518°F).

When the temperature is obtained, the oil rate modulates downward until temperature recall.

See Users Instructions for thermostat cooking setting.

When not in use, reset the knob **A** to **LOW**.

NOTE: THE COOKER BURNER IS INTENDED TO RUN IN A CONTINUOUSLY ALIGHT POSITION AT ALL TIMES – AT A LOW POSITION WHEN NOT USED FOR COOKING, THEN TURNING TO THE APPROPRIATE NUMBER WHEN REQUIRED. TURNING OFF THE COOKER IS NOT RECOMMENDED, UNLESS SERVICING IS REQUIRED.

Boiler Burner – See Fig. 15

The boiler burner **Q** is operated by an electrical sequential control box (Fig. 11) and controlled by a boiler thermostat **H**. With electrical power connected and boiler thermostat **H** set at its maximum setting, the airfan will become energised and the lock-out lamp **K** illuminate.

Wait 30 seconds, then depress the lock-out button **L** whereupon the fan will stop and the lighting sequence, proceed as follows:-

From a **START** position – the ignition element will energise to provide a hot surface temperature to ignite the oil.

After 2 minutes of ignition element heating, the oil solenoid valve (Fig. 11) and airfan (Fig. 11) will energise, and within a further 20 seconds, oil will be ignited and be visible through the viewing window **M**.

Within 4½ minutes from **START**, the electrical flame sensor (Fig. 11) will confirm the oil burner established, and via the flame sensor changeover switch, permit a continuous cycle of heating.

With boiler temperature attainment, the boiler thermostat **H** switches power to interrupt the oil supply through the oil solenoid (Fig. 11). The fan (Fig. 11) continues to give an overrun, to burn any excess oil in the burner and also to cool down the flame sensor (Fig. 11) which may take up to 9 minutes, depending on the length of boiler burner cycle. With temperature reduction on the flame sensor, the changeover switch reverses and the sequence control is ready for use upon call by the boiler thermostat.

NOTE: LEAVE THESE INSTRUCTIONS WITH THE USER.

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NOTE: LEAVE THESE INSTRUCTIONS WITH THE USER.

Servicing Instructions

Twice Yearly Servicing

It is important that service cleaning is carried out at least twice yearly by a competent service engineer, and it is recommended that a contract be made with a registered heating installer. With normal use, a boiler/cooker half yearly flueway clean and burner service should be carried out immediately at the commencement and end of the heating season. An additional flueway clean half-way through the heating season may be necessary in some cases.

The householder should be advised to turn **OFF** both cooker and boiler control knobs **A** and **B** (Fig. 1a) the night preceding the day of service, so that the appliance will have cooled down by the following morning, in readiness for servicing.

Before commencing any servicing, isolate the electricity supply (switch **OFF** and remove plug) then turn **OFF** the oil supply at the isolating valve near to the appliance.

Standard Half Yearly Service Schedule

- Service clean of complete boiler heat exchanger over flueways, oven and hotplate flueways together with boiler firebricks – Section 4.
- Service clean of complete cooker and boiler oil burner – Sections 2, 3a and 3b.

Standard Yearly Service Schedule

- Service maintenance check of cooker and boiler thermostats – Sections 5 and 6.
- Service maintenance check of boiler combustion fan unit, air pressure switch and oil solenoid – Sections 8, 9 and 10.
- Service maintenance check of boiler flame sensor, oil valve and its electric top – Section 11.
- Check on cooker and boiler oil flow rates – Section "Post Servicing Checks".

1. To Obtain Servicing Access

To obtain servicing access to boiler heat exchanger, oven and hotplate flueways, boiler firebricks and both oil burners, proceed as follows:

- Lift out the hotplate via the lifting tools – See Fig. 2.
- Lift out boiler combustion separator baffle and remove boiler flueway firebricks – See Fig. 3.
- Open outer burner door **C** – See Fig. 1a.
- Lift off cooker combustion chamber door **D** – See Fig. 1a.

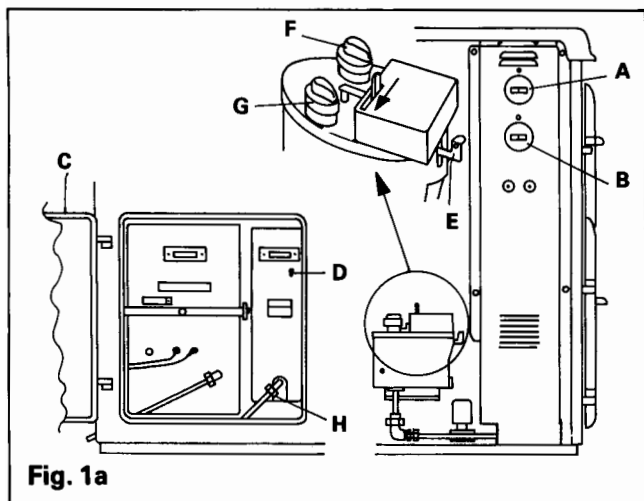


Fig. 1a

2. To Remove Cooker and Boiler Burners – See Fig. 1a

- Ensure isolation of the electrical supply (switch **OFF** or remove plug).
- Ensure that the oil line isolating valve, near to the appliance is turned **OFF** and the trip lever on the appliance **E** is lifted up.
- Set boiler and cooker oil control valve knobs **F** and **G** from Position 6 to **OFF**.
- To Remove Cooker Burner
 - Break the cooker oil feed pipe at inlet joint **H** taking care to collect Kerosene residue from burner oil pipe when inlet joint is separated.
 - Carefully lift complete oil burner assembly (See Fig. 4) out of combustion chamber, and stand on servicing surface.
- To Remove Boiler Burner – See Fig. 1b
 - Slacken off boiler strap retaining bolt **J** and remove boiler strap **K**.
 - Carefully prise, lift off and remove 6-way electrical mini-plug connection of combined Flame Sensor and Ignition Element at terminal connections **L** and **P** on Sequential Controller.
 - Break the boiler oil feed pipe at inlet joint **Q** taking care to collect Kerosene residue from boiler burner oil pipe when inlet joint is separated.
 - Place hand on boiler burner handle **R** and carefully but forcefully, draw burner assembly away from cooker, and lift out on to servicing area.

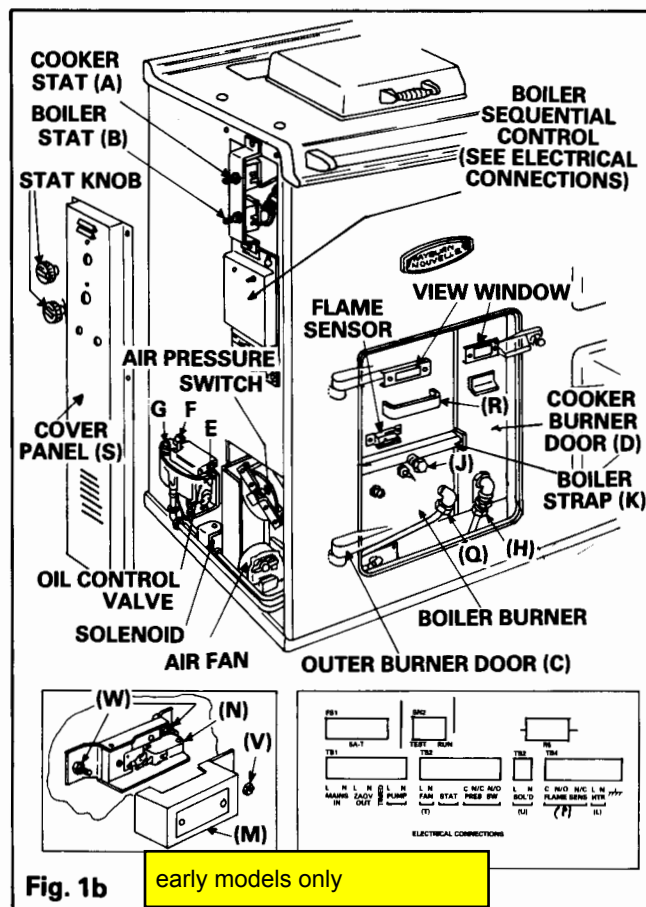


Fig. 1b

early models only

3. a. To Clean Cooker Burner – See Fig. 4

- (i) Remove and brush clean, the top heat baffle **A** free of soot, etc. on both surfaces.
- (ii) Remove burner shell assembly **B** and check that any heat deformation is minimal, the assembly is free of heat oxidised surfaces, and is interlocked together. Remove any internal/external surface deposits with soft brush.
- (iii) Remove the six wicks **C** and vapourising chamber lid **D** from oil burner box. If the wicks are badly charred or heat hardened, prepare replacements and clean vapourising chamber lid free of carbon deposit.
- (iv) Carefully remove any carbon deposit on machined surfaces of oil burner base which provide seating for burner shell assembly.

DO NOT MARK OR DAMAGE MACHINED SURFACE.

Scrape and remove carbon deposit from burner base wick grooves.

- (v) Detached burner oil feed pipe **E** from burner base elbow **F** and scrape/brush the internal core of the burner base elbow **F** until it is free of deposit. Use pipe cleaner to brush open end of oil feed pipe **E** free of deposit, then reconnect to burner base, using an oil resistant sealant.

NOTE: ENSURE ELBOW AT OPPOSITE END OF OIL FEED PIPE E IS ORIENTATED CORRECTLY TO THE BURNER BASE ELBOW.

- (vi) Fit the vapourising chamber lid to the oil burner base then place the burner shell assembly **B** on to the burner base **G** and locate same. Check that the joint between the oil burner base and burner shells, is near airtight, otherwise, unacceptable air gaps may result in burner light-back with ignited fuel occurring below the oil burner base.

- (vii) Remove the shells, replace wicks in oil burner wick grooves and ensure vapourising chamber lid is seated correctly. Refit burner shells, ensuring correct fit and location, then place burner assembly in combustion chamber, locating support legs in recess of combustion chamber base.

Reconnect the cooker oil feed pipe **J** to burner oil feed pipe elbow **H** and tighten.

The cooker burner is now ready for re-lighting.

3. b. To Clean the Boiler Burner – See Fig. 5

- (i) Unscrew two bolts **A** securing top heat baffle **B** remove and brush clean both surfaces free of soot, etc.
- (ii) Lift and remove front and back end baffle supports **C**.
- (iii) Holding the finger grip **D** of the now exposed top internal burner baffle **E** tilt it slightly and lift out clear of burner. Brush clean both surfaces free of soot.
- (iv) Holding the finger grip **F** of the bottom internal burner baffle **G** tilt it and lift out clear of burner. Brush clean both surfaces free of soot.
- (v) Temporarily paper plug the oil inlet hole **H** in the burner base bottom and brush/scrape the internal faces of oil burner and ignition element **J**, then tip the debris out of the burner.
- (vi) Remove paper plug from oil inlet hole, then clean each end section of the oil feed pipe **K** with a pipe cleaner, tipping the debris via the inlet end.
- (vii) With the ignition element surface clean, check and ensure that the air clearance between element underside and oil burner base, is maintained at 30mm. **THIS IS IMPORTANT**

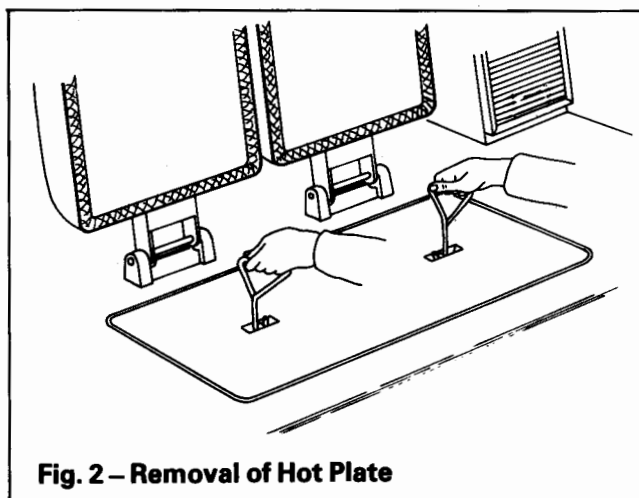


Fig. 2 – Removal of Hot Plate

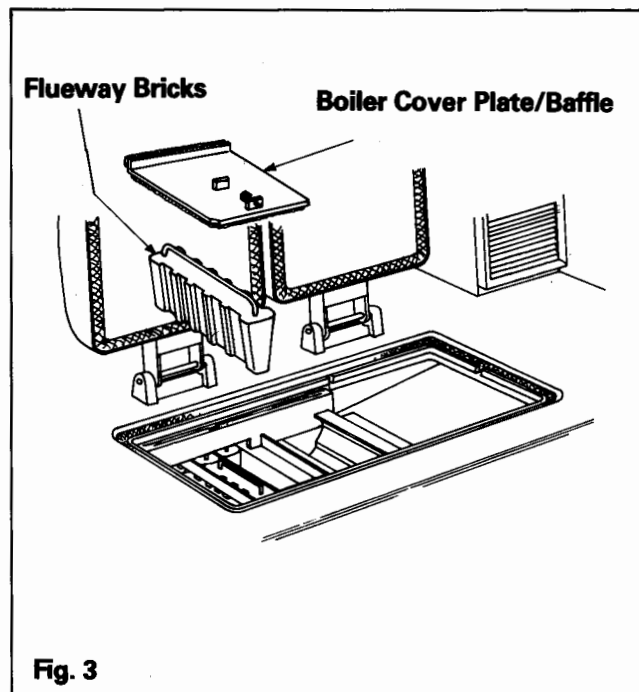


Fig. 3

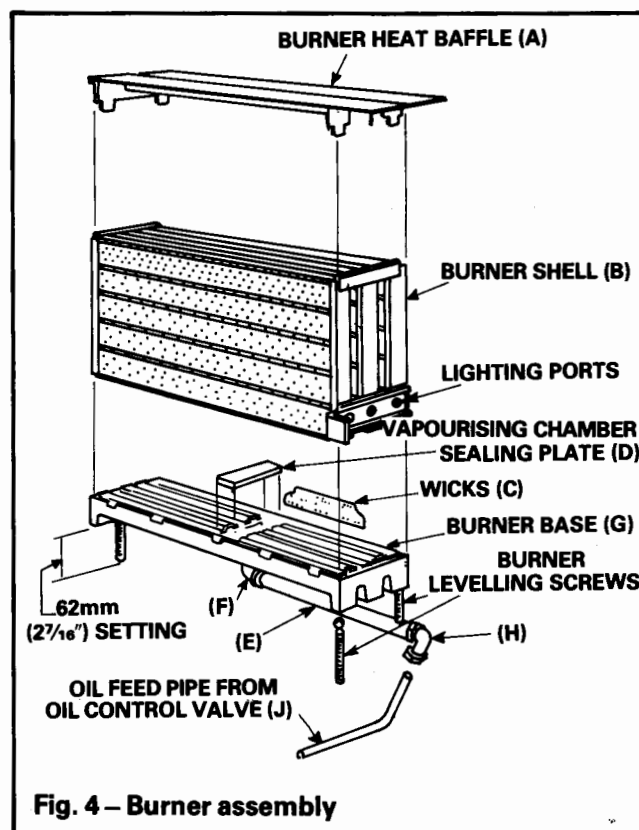


Fig. 4 – Burner assembly

- (viii) Replace all baffle plates, etc., in reverse order of dis-assembly.
- (ix) Check the soft seal in base of the boiler chamber and boiler burner front and renew if necessary, adhering the soft seal with sealing plate adhesive.
- (x) Lift the complete oil burner assembly into the boiler chamber and push inwards in the reverse manner of withdrawal. Reconnect the oil feed pipe and electrically reconnect the flame sensor and ignition elements in reverse order of dis-assembly. Replace boiler strap retaining strap and secure tightly with retaining bolt. The boiler burner is now ready for re-lighting.

4. To Clean the Boiler Heat Exchanger and Cooker Flueways – See Figs. 6 and 7

- (i) Remove the cooker and boiler burners as described under Sections 2d and 2e.
- (ii) Place a layer of paper on the boiler and cooker combustion chamber base area to collect debris when brushing commences.
- (iii) Use the rake and brush to ensure that the flueway above the oven top is clear and any deposit is removed – See Fig. 6.
- (iv) Lift top plate enamelled cover panel **A** (behind the L.H. insulating cover) and remove. Remove sealing plate **B** – See Fig. 7. Insert flexible rake through exposed top plate aperture, directing it towards the flue chamber. Clean the boiler outlet flueway, by scraping the deposits towards the boiler heat exchanger and vigorously brush if necessary. Additional access can be obtained via the front of the flue chamber by removal of the flue chamber door, unscrewing the four screws securing the flue chamber door, unscrewing the four screws securing the flue stabiliser and its sealing plate.
- (v) Thoroughly brush boiler heat exchanger cross firebrick ducts and cooker flueways from the top and bottom of the heat exchanger until free of debris – See Fig. 6.
- (vi) Brush and clean in between hotplate ribs on underside. Examine soft rope seal located on underside of hotplate baffle plate and replace if worn or frayed.
- (vii) Examine soft rope seal located around hotplate aperture in top plate. Replace if frayed or damaged.
- (viii) Remove layer of paper in combustion chamber base with fallen debris.
- (ix) Replace boiler flueway firebricks in reverse manner of withdrawal, then locate boiler combustion separator baffle in original position.
- (x) Replace hotplate ensuring the underside ribs lie over the combustion chamber, and that it seals to the top plate.
- (xi) Replace both oil burners and remake all connections, etc., in the reverse manner of dismantling as described under Section 2 – **“TO REMOVE COOKER AND BOILER BURNERS”**.

5. To Remove Cooker Thermostat – See Fig. 8

- a. Isolate the electricity supply (switch **OFF** and remove plug).
- b. Pull off the two thermostat knobs. Remove four screws securing control panel cover to L.H. side plate and remove cover.
- c. Disconnect two electrical leads from thermostat body and earth terminal. See Fig. 12 for connections.
- d. Remove two securing screws holding thermostat body mounting plate. Unscrew thermostat spindle

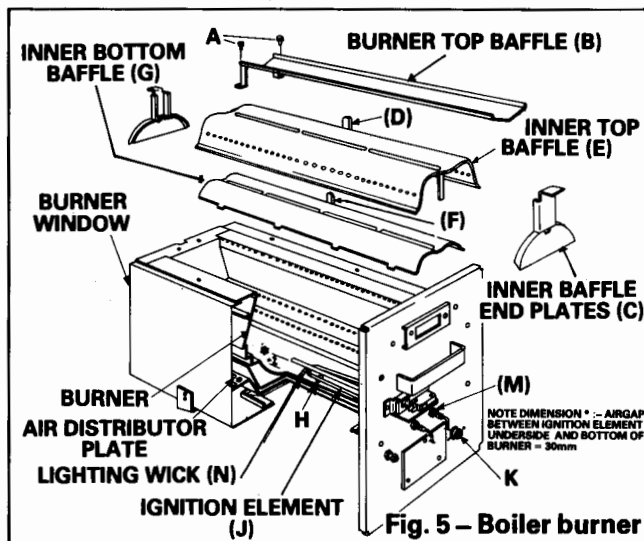


Fig. 5 – Boiler burner

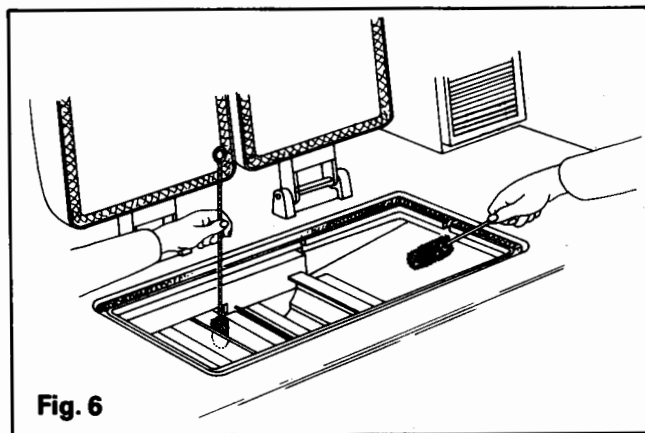
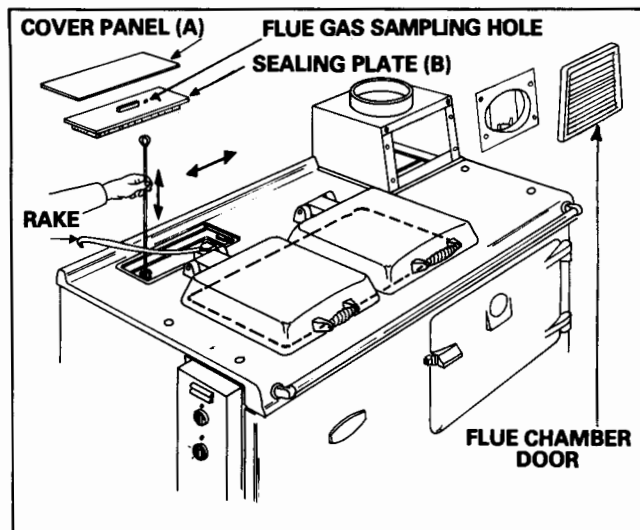


Fig. 6



locknut to detach thermostat **A** from mounting bracket.

- e. Open top oven door and using a screwdriver, remove two fixing screws securing inner L.H. oven side to expose the located thermostat phial – See Fig. 8.
- f. Unclip thermostat phial from L.H. side of roasting oven and reset phial to face across the oven width instead of facing in depth. Withdraw thermostat phial and capillary tube clear of oven and cooker front plate until it is fully exposed at L.H. side of appliance.
- g. Fit replacement thermostat and assemble in reverse order of dismantling. Electrical leads to be reconnected as previously – See Fig. 12 for connections.

6. To Remove Boiler Thermostat – See Fig. 8

- Isolate the electricity supply (switch **OFF** and remove plug).
- Pull off the two thermostat knobs. Remove four screws securing control panel cover to L.H. side plate and remove cover.
- Remove split pin from boiler thermostat pocket.
- Remove and withdraw boiler thermostat phial from boiler phial pocket.
- Disconnect two electrical leads from thermostat body and earth terminal.
See Fig. 12 for connections.
- Unscrew thermostat spindle locknut to detach thermostat **B** from mounting plate.
- Fit replacement thermostat and assemble in reverse order of dismantling.
Electrical leads to be reconnected as previously.
See Fig. 12 for connections.

7. To Remove Oven Temperature Indicator

- Open roasting oven door fully and remove four screws securing inner lining panel to outer door.
- Remove inner lining panel and slagwool insulation.
- Unscrew two hexagon nuts securing indicator to outer door and remove indicator.
- Fit replacement indicator in reverse order of dismantling.

8. To Remove Oil Solenoid – See Fig. 9

- Isolate the electricity supply (switch **OFF** and remove plug), remove the side cover panel **S** via its fixing screws and then remove mini-plug lead connected to terminal block position 'SOL' on sequential control box – See Fig. 1b.
- Isolate oil supply by turning **OFF** isolating valve on inlet to oil control valve.
- Ensure boiler oil control valve knob **F** is set at **OFF**.
- Place a small tray receptacle on floor beneath the oil control valve and break joint **A** on the vertical outlet of oil control valve.
Surplus oil will run from pipework into tray receptacle. Break joint **B** on the horizontal outlet of oil solenoid valve and unscrew long barrel nipple **C** on the inlet of oil solenoid. Unscrew and remove pipe connection fitting from outlet of oil solenoid valve.
- Clean threaded ends of long barrel nipple and connecton fitting from oil solenoid valve. Re-coat threaded ends with oil sealant and refit to new solenoid valve.
- Re-assemble in reverse order of dis-assembly and reconnect electrical plugged lead to sequential control. The oil solenoid valve is now ready for use.

9. To Remove Airfan – See Fig. 10

- Isolate the electricity supply (switch **OFF** and remove plug), remove the side cover panel **S** via its fixing screws, and then remove mini-plug lead connected to terminal block position 'FAN' on sequential control box – See Fig. 1b.
- Using box spanner, slacken and remove two top nuts **A** and also slacken two bottom locknuts and screws **B** securing mounting plate **C** to boiler side.
- Tilt and lift complete fan assembly away from appliance.
- Remove the two screws securing the fan assembly to the mounting plate and replace with new fan assembly.

CHECK THE GASKET SEAL IS INTACT AND REPLACE IF NECESSARY.

- Re-assemble in reverse order of dis-assembly and reconnect electrical terminals.
The airfan is now ready for use.

Fig. 8

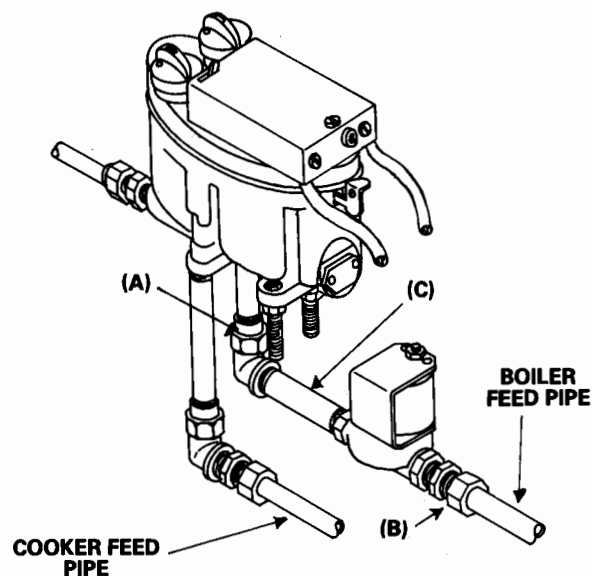
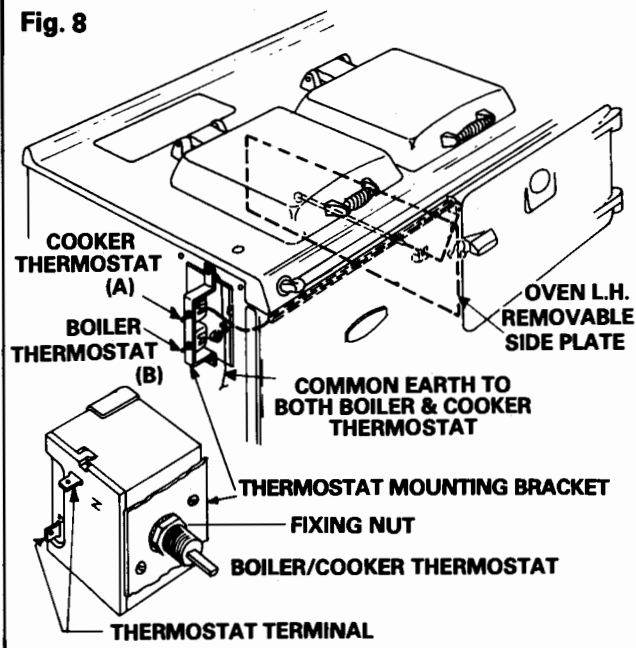


Fig. 9

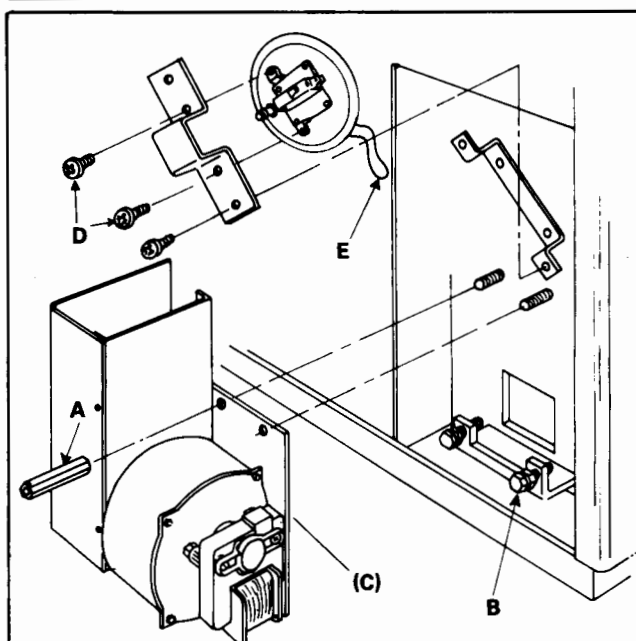


Fig. 10

10. **To Remove Air Pressure Switch – See Fig. 10**

- Isolate the electricity supply (switch **OFF** and remove plug), remove the side cover panel **S** via its fixing screws – See Fig. 1b.
- Remove three sleeved electrical terminations from micro-switch noting the order of connection.
- Remove two fixing screws securing switch assembly to mounting bracket **D**.
- Tilt and lift switch assembly to obtain access for the detachment of the plastic tube **E**.

NOTE: CHECK PLASTIC TUBE IS INTACT/ AIRTIGHT AND REPLACE IF NECESSARY.

- Replace switch assembly in reverse manner of dis-assembly and remake electrical terminations. The air pressure switch is now ready for use.

11. **To Remove Flame Sensor – See Fig. 1b**

- Isolate the electricity supply (switch **OFF** and remove plug).
- Open outer burner door **C** and slacken/remove nut **V** securing flame sensor cover **M**. Remove flame sensor cover.
- Slacken and remove two flame sensor securing nuts **W** and remove earth cable termination.
- Detach three sleeved terminations from micro-switch, noting the respective order of connection, and withdraw complete flame sensor.
- Remove sealing grommet and clip from removed flame sensor stem and transfer to new flame sensor.
- Refit flame sensor and re-assemble in reverse manner of dis-assembly and remake electrical terminations. The flame sensor is now ready for use.

12. **To Remove Ignition Element – See Fig. 1b.**

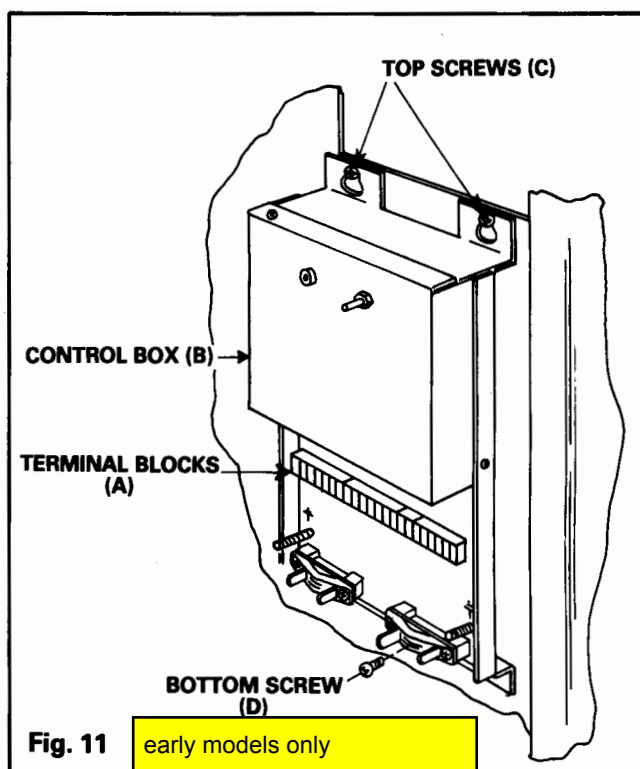
- Isolate the electrical supply (switch **OFF** and remove plug) remove the side cover panel **S** via its fixing screws and then remove 6-way mini-plug lead connected to terminal block position 'HTR' and 'FL. SENS' on Sequential Control Box connections **L** and **P** – See Fig. 1b.
- Remove boiler burner from appliance as described under **"TO REMOVE COOKER AND BOILER BURNERS"**, Section 2e and place on a servicing surface. Remove baffles to gain access to ignition element – See Section 3b.
- Slacken and remove two ignition element retaining nuts **M** and withdraw the ignition element **J** from oil burner. Check capillary wick on ignition element is undamaged and replace if necessary – See Fig. 5
- Fit new ignition element with capillary wick in position **N** ensuring it makes contact with the bottom of the oil burner. Check that the air gap between the underside of the element and oil burner bottom measures 30mm and manually set it if necessary – See Fig. 5.

THIS AIR CLEARANCE IS IMPORTANT.

- Re-assemble the burner in the reverse manner of dis-assembly and remake electrical connections. The ignition element is now ready for use.

13. **To Remove Sequential Control Box – See Fig. 11**

- Isolate the electricity supply (switch **OFF** and remove plug).
- Pull and remove two thermostat knobs **A** and **B** – Fig. 1a or 1b.
- Remove side cover panel **S** via its four fixing screws – Fig. 1b.
- Remove the cable clamp straps via fixing screws.
- Disconnect all electrical connections on terminal



block **A** beneath control box **B** and also the nuts on earth posts.

- Slacken the two top screws **C** and remove the bottom screw **D** securing the control box **B** to the L.H. side plate. Lift up the control box until the keyhole slots clear the two top screws and remove.
- Fit replacement control box in reverse order of dismantling, ensuring that all the cable connections are fitted to the respective terminal strip positions. Finish re-assembly of appliance.

Cooker Operating Sequence

With the oil valve trip lever depressed **ON**, the L.H. knob in the oil control valve set at No. 6, oil will flow to the cooker burner. It is intended that the cooker burner be operated on a 'high-low' oil rate basis, with idling oven temperatures obtained by a thermostat knob setting of 'LOW' (oven temperature 125°C approx.), without the use of electrical power.

Setting the thermostat knob from 1-6 setting will cause the thermostat to switch electrical power **ON-OFF** automatically and vary the oil rate to provide a selected oven temperature, thermostatically controlled. Setting No. 6 is the maximum oven temperature and maximum oil rate obtainable with reduced knob settings, providing reduced temperatures/oil rates. See Users Instructions for details of thermostat knob settings and oven temperatures.

Electrical Power Failure

Despite the loss of electrical power, high oven cooking temperatures can still be obtained, but oven temperature control must be manual only.

Method: Holding the actuating lever on the top of the oil control valve, push it to left and engage it in the notch of the cover.

Ensure the L.H. knob on the oil control valve is set at No. 6 setting to obtain maximum oil rate and adjust later to suit temperature requirements.

Electrical thermostat control will not be possible until the actuating lever is dis-engaged and the oil control valve L.H. knob is returned to No. 6 setting.

Cooker Electrical Faults

Because the control system is basically simple, only two electrical malfunctions are likely to occur, namely:-

1. Oven thermostat malfunctions and must be replaced.
2. Oil control valve electric top, bi-metal heater element fails. The complete electric top must be replaced.

Boiler Operating Sequence

The operation of the boiler burner is under the overall control of an electronic sequential control box, whose function is to provide the following service:-

1. A purpose-made orderly timing sequence of electrical signals, to various electrical controls, to enable the boiler to cycle upon boiler thermostat demand.
2. To recognise an electrical control malfunction or condition, and prevent the timing sequence continuing, by causing a lock-out condition.

With the oil valve trip lever depress **ON**, the R.H. knob on the oil control valve set at No. 6, oil will exit from the oil control valve as far as the de-energised solenoid valve only.

NOTE: WHERE THERE IS A LIKELIHOOD OF AIRLOCKING SUCH AS INITIAL COMMISSIONING OR REPLACEMENT OF CONTROLS, SECTION 1-5 OF "LIGHTING THE BOILER" IN THE INSTALLATIONS INSTRUCTIONS, PROVIDES A METHOD OF AIRLOCKING AVOIDANCE. SWITCH ON THE POWER SUPPLY AND SET THE BOILER THERMOSTAT KNOB TO A HIGH SETTING. THE LOCK-OUT LAMP WILL ILLUMINATE AND THE AIRFAN BECOMES ENERGISED. WAIT 30 SECONDS, THEN DEPRESS THE LOCK-OUT BUTTON AND THE LIGHTING SEQUENCE WILL COMMENCE, AND THE LOCK-OUT LAMP WILL EXTINGUISH.

Lighting Sequence

1. With the lock-out button depressed, the ignition element becomes energised for a nominal period of 4½ minutes.
2. After 2 minutes of element ignition, the airfan and oil solenoid valve become energised to provide air and oil to the burner.
3. After up to 20 seconds of air and oil supply, the ignited oil in the burner can be observed through the glass viewing window.
4. Some 4½ minutes from ignition start, the heated flame sensor operates and causes its changeover switch to switch off the ignition element and to maintain continued electrical control until interrupted by the boiler thermostat.

NOTE: IF FOR ANY REASON, ONE OF THE FUNCTIONS ARE NOT CARRIED OUT IN POINTS 1-4, A LOCK-OUT CONDITION WILL OCCUR OR THE SEQUENCE WILL NOT COMMENCE.

5. With boiler thermostat interruption, power is isolated from the oil solenoid valve, but the fan remains energised on an overrun, to burn all the oil in the burner and cool the flame sensor stem down in temperature to allow its changeover switch to de-energise the fan. The fan overrun time varies, depending on the cycle time of the burner, but an overrun may take up to 8-9 minutes. Once the overrun is completed, power is isolated until the boiler thermostat calls for heat.

Post Servicing Checks

Confirmation of oil rates and combustion must be made as a final check, and should be carried out as follows:

Cooker

1. Remove oil filter within oil control valve and connect oil flow gauge assembly. Gauge must be capable of measuring 60cc per minute.
2. Confirm the cooker burner base is level in all directions.
3. Confirm the static oil depth in the cooker burner box is 10mm (13/32in) after a 15-20 minute period.
4. After lighting the cooker burner assembly, check the oil rates as follows, using the oil flow gauge and setting the thermostat knob.
 - (i) Low Fire – 4.7cc per minute (Setting **LOW**)
 - (ii) High Fire – 13.5cc per minute (Setting No. 6).After 30 minutes on high fire, sample the flue products in the flue chamber for a Smoke Test which should indicate a Baccarach Smoke No. 0-1
5. Leave the cooker thermostat knob set to No. 6 and the oil flow gauge connected.

Boiler

1. Connect manometer tube to test point nipple.
2. Switch **ON** power supply and set boiler thermostat knob to 80°C, whereupon the lock-out lamp will illuminate and the airfan become operative.
3. Confirm the air pressure at 3.9-4.1mm w.g. (0.15-0.16in w.g.) then disconnect manometer and re-plug the test nipple.

NOTE: LOW PRESSURE INDICATES A LEAKING GASKET SEAL BELOW THE WINDBOX OR AROUND ITS DOOR.
4. Depress the lock-out button to extinguish the lock-out lamp and permit the lighting sequence to commence.
5. Allow the boiler burner to operate for 2-3 cycles, then during a boiler **ON** period, sample the flue products within the Boiler Flue Chamber, where a Baccarach Smoke No. 0-1 should be made.
6. Confirm the oil rate from the oil flow gauge which should indicate a total of 52.5cc per minute maximum.
7. Disconnect oil flow gauge and replace oil filter in oil control valve.

Boiler Control Electrical Faults

If the boiler fails to start, make the following checks:-

1. Ensure there is electricity available at the wall socket, the plug is fully engaged, its fuse is intact and the switch is made.
2. Remove the L.H. side control cover panel.
3. Locate the terminal block assembly below sequence control box, and using a testmeter, check for mains voltage at the following points:
 - (i) '**IN**' connection.
 - (ii) '**OUT**' connection. This confirms that the fuse within the control box is intact.
 - (iii) '**CLK**' connection R.H. terminal. Ensure any time clock and room thermostat is calling.
 - (iv) '**STAT**' connection L.H. terminal. If the hot water temperature is satisfied, the thermostat contacts will remain open and prevent the boiler cycling or power to the **PUMP**.

Sequence Failure Problems

Failure of any extraneous boiler control, should result in the sequential controller recognising such a condition, and taking safety action in response.

The following 'list' is intended to indicate the reaction of the controller.

Ignition Element (HTR)

1. If the element heating coil fails.
2. If the element lead is not connected.

The sequence will not start.

Combustion Air Fan (FAN)

3. If the fan fails to start.
4. If the fan motor windings fail.
5. If the fan lead is not connected.

The lock-out light will come on after a fixed period of time.

Air Pressure Switch (PSW)

6. If the pressure switch does not changeover due to 3/4/5.
7. If the pressure switch does not changeover due to failure.
8. If the pressure switch does not changeover due to air pick-up tube being misplaced.
9. If the pressure switch does not changeover due to plastic air pipe being disconnected, etc.
10. If the pressure switch is not made.

The oil solenoid will not energise (**NO** voltage at R.H. of connection) and **LOCK-OUT LIGHT** will come on after the fixed period.

Oil Solenoid (SOL)

11. If no voltage is present at R.H. terminal of **SOL CONN.** – see 6/7/8/9 or 10 above.
12. If voltage is present at **SOL** but no oil flows:
 - a. Check wiring at **SOL** plug
 - b. check solenoid is not sticking.
13. If the solenoid lead is not connected.
14. If no oil flows and the solenoid is heard to click as power comes on – check that oil is available.

No oil will flow and lock-out light will come on after the fixed period of time.

General

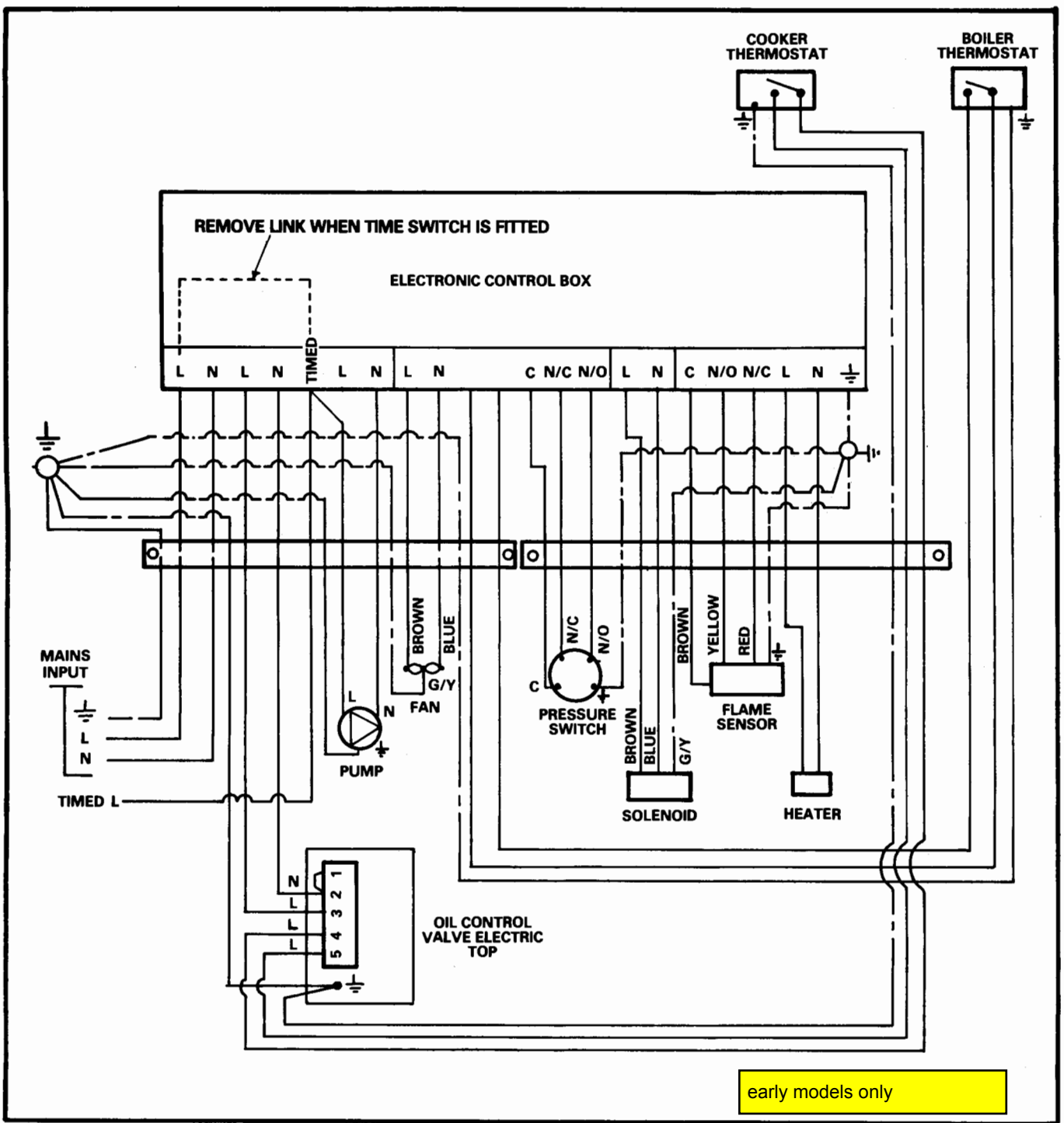
15. If pressure switch N/O and N/C wires are reversed.
16. If pressure switch N/O and C wires are reversed.
17. If pressure switch sticks in a changeover position.
18. If pressure switch N/C and C wires are reversed.
19. If **FLAME SWITCH (FLSW)** N/O and N/C wires are reversed.
20. If **FLAME SWITCH (FLSW)** N/O and C wires are reversed.
21. If **FLAME SWITCH (FLSW)** N/C and C wires are reversed

The sequence will not start.

HTR energises and de-energises after 4½ minutes, fan remains energised with lock-out lamp display.
Fan only remains energised – no lock-out display.

The sequence will not start.

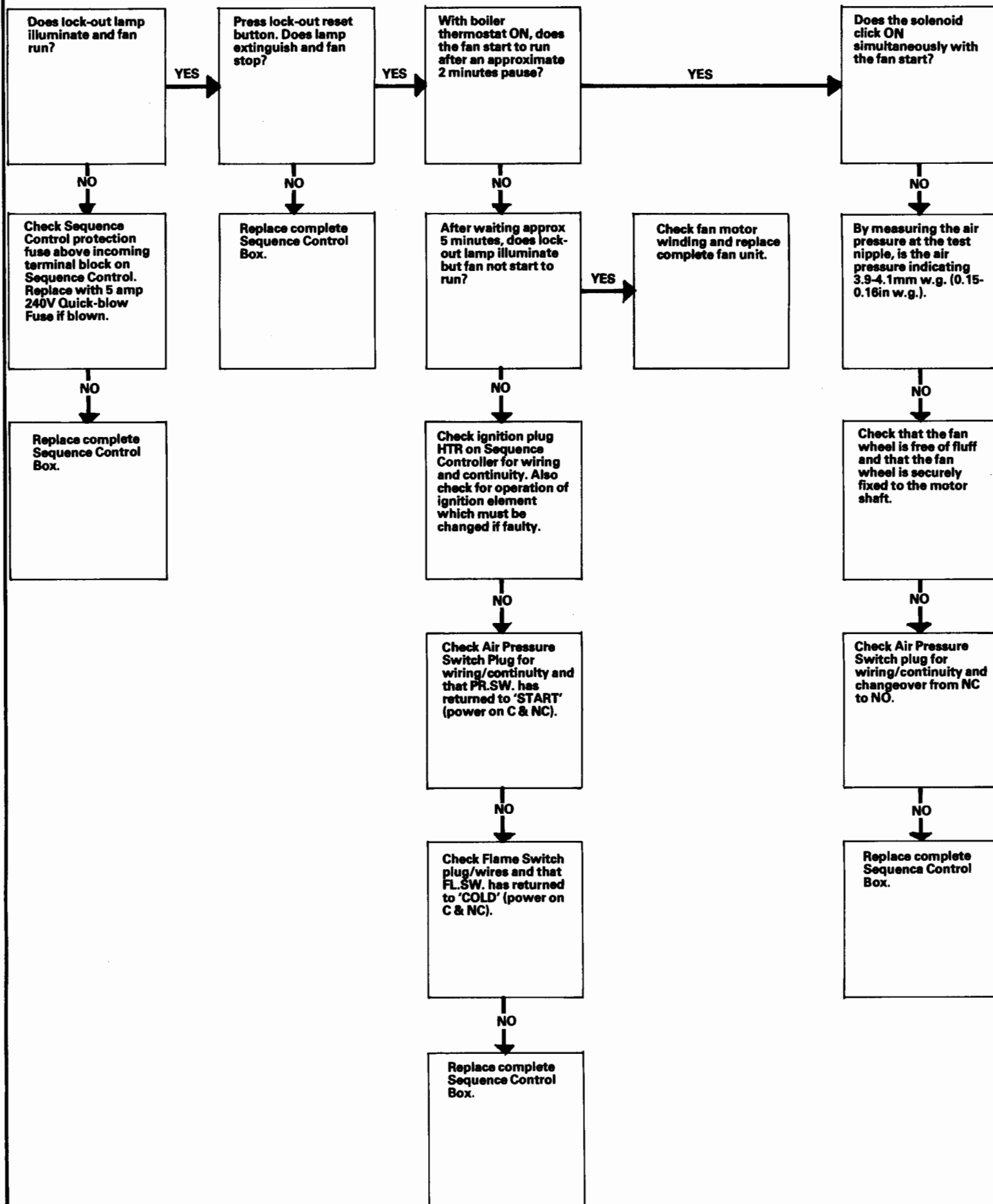
HTR, FAN, OIL and FLAME sequence – lock-out display
ON FLSW. CHANGEVER.

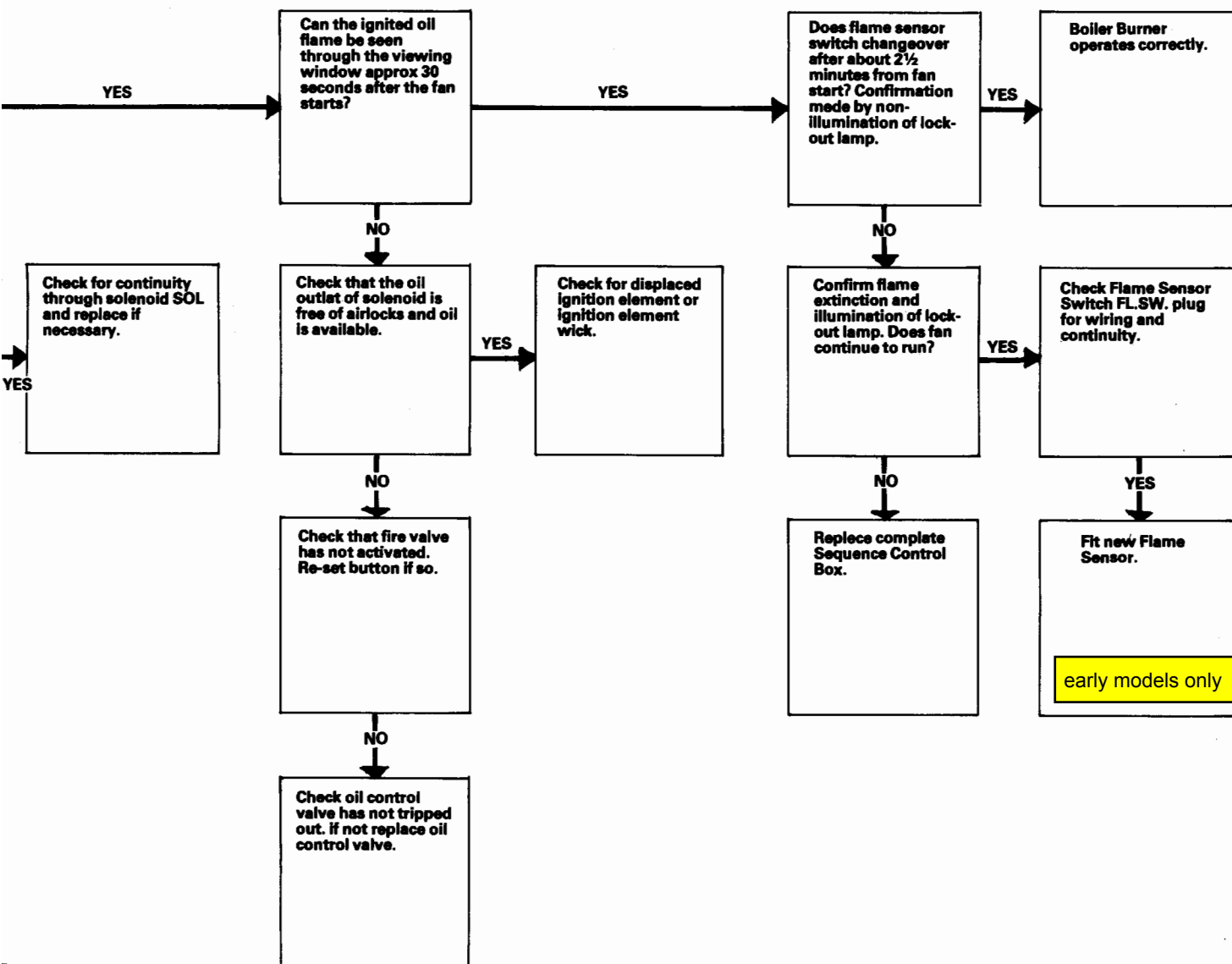


FAULT FINDING CHART FOR BOILER SECTION

If the boiler fails to start, make the following checks:

- 1 Ensure there is electricity available at the wall socket, the plug is fully engaged, its fuse is intact and the switch is ON.
- 2 Ensure there is a supply of oil to the appliance, the oil valve trip lever is depressed (ON) and the R.H. knob on the oil control valve is set at No. 6.
- 3 Ensure any Time block is on 'CALL' or overridden.





CONVERSION.

These instructions cover the conversion of a Mk1 cooker to a slightly modified Mk2 appliance. Below is given a list of parts necessary to make the changes to both the boiler burner and the cooker burner, also a brief description of the procedure to be carried out:

PARTS REQUIRED.

COOKER BURNER.

- | | | |
|----|-------|---|
| 1. | 2 off | Cooker burner heat shields. |
| 2. | 3 off | Cooker burner legs. 5mm longer than current production. |
| 3. | 1 off | Air spreader plate. |
| 4. | 1 off | Air intake slot. |
| 5. | 1 set | Burner wicks. |
| 6. | 1 off | Mk2 cooker burner door. |
| 7. | 1 off | Cooker door sealing plate. |

BOILER BURNER.

- | | | |
|-----|------------------|---|
| 1. | 1 off | Control panel. |
| 2. | 1 off | Thermocouple. |
| 3. | 1 off | Bracket for transformer/ pressure switch. |
| 4. | 1 off | Transformer. |
| 5. | 1 off | Pressure switch. - As now set higher. |
| 6. | 1 off | Boiler burner. |
| 7. | 1 off | Glo-coil. |
| 8. | 1 off | Fan duct assembly. |
| 9. | 1 off | Fan duct gasket. |
| 10. | 1 set | Oil pipe work - including solenoids and fittings. |
| 11. | 1 set | NEW DROP LEGS FOR OIL VALVE. |
| 12. | 1 off | New control panel cover. |
| 13. | 2 off | M5 x 5mm screws. |
| 14. | 2 off | M4 x 20mm. |
| 15. | 2 off | M4 nuts. |
| 16. | 4 off | M4 washers. |
| 17. | 1 off | Heat reflector baffle (modified). |
| 18. | 2 off | 5mm spacers (6mm hex.nuts). |
| | 1 off | BOILER BURNER VERTICAL SUPPLY PIPE. ROOM 38235 (MAPICS) |

METHOD OF PROCEEDURE.

1. Switch off the power supply to the appliance and isolate.
2. Turn off the oil supply to the appliance before the oil valve.
3. Turn thermostats to the off position and remove knobs and control panel cover.
4. Remove cooker burner door.
5. Remove all copper pipe work to the boiler and cooker burners.

6. Remove cooker burner, and baffle below burner.
7. Disconnect all wiring to the control panel. ENSURING THAT THE PERMANENT AND TIMED LIVES ARE IDENTIFIED.
8. Remove boiler burner.
9. Remove HAWCO relay.
10. Remove control panel.
11. Remove pressure switch and bracket.
12. Remove fan and duct assembly.
13. Remove constant level oil valve.
14. Remove oil drop pipes from oil valve.
15. Remove hot plate and boiler cover plate.
16. Remove boiler bricks and clean.
17. Clean boiler and cooker combustion areas.
18. Remove stainless steel baffle and support bracket from flue chamber.
19. Clean underside of hot plate.
20. Fit new drop pipes. - Short one feeds the boiler burner.
21. Refit oil valve. - Set oil level between 182 - 187 mm above base of cooker. 182mm being the current Mk2 setting but some extra height would be an advantage. The maximum height of setting is 187mm but this may not be available due to the existing pipe work. However 182mm only gives a 4mm head to the pilot burner.
22. Fit new air slot below the burner, this can be cemented into position but MUST BE CENTRAL AND PARALLEL WITH THE ORIGINAL SLOT
23. MODIFICATIONS TO THE COOKER BURNER.
 - a) Remove legs to cooker burner.
 - b) Clean burner thoroughly, CLEAN CARBON LEG ENSURING THERE ARE NO DEPOSITS IN IT.
 - c) Put on burner legs and side heat shields. Set the cooker burner legs to mm.
 - d) CHECK THAT THE CARBON LEG IS SLOPING SLIGHTLY DOWN TOWARDS THE FRONT.
 - e) Check that the burner shells are clean and a loose fit on the base. Each panel able to slide easily up and down. If the shells are suspect then fit a new set.
24. Put cooker burner into chamber.
25. Remove top Vee baffle and inner baffles from the new boiler burner.
26. Fit glo-coil if not already assembled on burner.
27. INSPECT GLO-COIL AND WICK - SEE THAT THE WICK IS ABOUT 3MM CLEAR OF THE GLO-COIL AND IS WELL DOWN INTO THE BOTTOM OF THE PILOT SUMP.
28. Assemble the boiler burner into the appliance and bolt into position making sure that it does not ride up on tightening.
29. Fit new transformer/pressure switch bracket where the pressure switch was mounted.
30. Fit transformer on bottom part of bracket with the leads facing forwards.
31. Fit the pressure switch on the top of the bracket with the tapping points facing downwards.
32. Fit new fan duct assembly and new fan duct gasket.

33. Before fitting the control panel inspect it for long screws projecting from the back. If there are any cut them off at the nut, and remove any protrusions greater than 5mm.
34. Fit 5mm spacers onto the screws locating the control panel.
35. Fit control panel using only the top two locating screws.
36. Fit oil pipe work and solenoid valves.
37. RE-CONNECT ELECTRIC WIRING THE SAME AS THE NEW MK2.
38. Turn on the oil ensuring that the control knobs are in the off position.
39. Now check the level of oil in the boiler burner the same way as for the MK2 cooker. It should be between 16-21 mm dependent upon how high the oil valve can be lifted.
40. Disconnect the oil pipe work to the boiler burner and remove burner. Replace the burner baffles and re-assemble, ensuring that the burner front is prevented from riding up as it is tightened into position.
41. Re-connect the pipe work, fit the thermocouple and connect the glo-coil, using the self locking nut.
42. Check the levelling of the cooker burner and the depth of oil. This is 10mm the same as the Mk2.
43. Remove the cooker burner and fit vapour lid, wicks, shells etc.
44. Fit the air spreader plate to the burner and replace burner into the appliance. ENSURE BURNER REAR LEG IS LOCATED INTO ITS RECESS IN THE CHAMBER FLOOR. This is important as the burner will not be level, this has to be done by feel as the burner is slid into position.
45. Check the oil flow rates to both burners. NOTE - The cooker burner rate should be 4.75 cc/min. but must be above 4.5 cc/min.
46. Replace boiler bricks and cover plate, ensuring the rope seal is good and in position.
47. Replace hot plate again making sure of a good rope seal.
48. Open flap on fan duct to about 20mm.
49. Switch on power to the appliance both the permanent and timed lives.
50. Switch on the boiler thermostat normally after 1 min. the pilot solenoid will open. However because the wick may be wet on the first start there could be enough heat to switch to main solenoid. This should only occur on the first light up afterwards it will go through the pilot sequence first.
51. Set boiler thermostat to 80 degC. and leave for about 15 min. before taking wind box pressures. Initially set the wind box pressure as for the Mk2 burner. This should give a bright white looking flame with very little or no flame below the burner baffles. If the flame is sooty this could be due to either too much air or too little air. Should there be too much air then there tends to be an orange looking flame below the burner baffles. If there is too little air there is no flame below the baffles but the flame above is much yellower and has a sooty appearance.
52. After about 20 min. the burner will have stabilised and a soot reading must be taken. This should be 0-1.
53. Set the adjustment on the flue stabiliser to about 1/2 way and light the cooker burner.

54. Allow to stabilise as for the MK2 cooker burner. Then turn to high fire, allow the oven temperature to rise to about 200 degC. and check the flame, if it is yellowing tap the carbon leg this will cause the shells to drop into position.
55. Check the cooker burner for sooting this again should be 0-1.
56. Check boiler burner for hot and cold ignition and correct sequence on the controller.

INSTRUCTIONS FOR THE MODIFICATION OF THE

RAYBURN OIL FIRED NOUVELLE

ISSUE 1

The following instructions cover changes to the flame sensing of the appliance, element and wick modifications, also modifications to prevent Ignition Elements working loose.

List of Parts Required

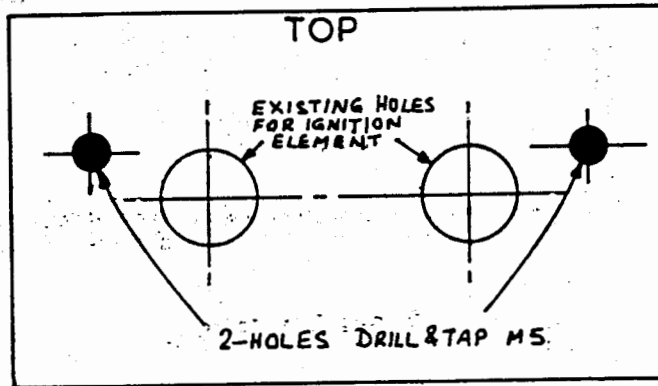
- 1 Hawco Controller
- 1 Base and Wiring Loom
- 1 Thermocouple
- 1 Fibre Washer
- 2 M5 Screws
- 2 M5 Nuts
- 2 Element Lock Nuts
- 1 Retaining Bracket
- 1 Wick
- 1 length Ceramic Fibre
- 1 Insulation Pad
- 1 Burner Retaining Bar
- 1 Electric Element
- 2 Electric Element Washers

- 1 Switch off the appliance and isolate from the Mains Supply.
- 2 Remove control knobs.
- 3 Remove the screws fixing the Control Cover Panel and take off Panel ensuring that the Panel is NOT ALLOWED to rest on the Control Reset Button.
- 4 Carefully disconnect the wires to the flame switch and the ignition element at the Control Panel, by carefully unscrewing them from their connector blocks.
- 5 Pull the wires through to the front of the burner.
- 6 Remove the Boiler Burner by disconnecting the oil supply pipe, removing the burner fixing bar. Ensuring that the oil supply pipe is below the front plate of the burner pull out the burner.
- 7 Inspect the burner.
 - a) for sooting.
 - b) for the displacement of the ceramic sealing gasket between the top mating faces of the burner pat and the top face of the wind box.

- 8 If the burner has been sooting, clean where needed.
- 9 If the 3mm ceramic gasket on the top of the burner between the pat and wind box is damaged or partially missing, re-seal by packing some 6mm ceramic rope into the affected area.
- 10 Remove the flame sensor by unscrewing the retaining nuts and pulling it out.
- 11 Remove electric element and wick.
- 12 Cut out and place paper template over element holes and mark out the positions for the spacer pins. Sketch No.1.
- 13 Drill 4.2mm dia and tap outer burner plate (M5) for the spacer pins as shown in the sketch. No 1.
- 14 Replace the element and carefully tighten into position, locking the element with the additional lock nuts provided.
- 15 Screw in the spacer pins with the lock nuts and tighten up until the screw is touching the inner burner. DO NOT over tighten. Then fix into position with the lock nut.
- 16 Before replacing the burner put new wick into position as shown in the sketch. THIS WICK LIES IN THE BOTTOM and is located by a wire tag to the end of the element. See sketch No.2.
- 17 Put the burner back into the appliance, ensuring that the rope seal between the wind box and the base is intact and not loose.
- 18 Before CONNECTING THE OIL PIPE, carry out a free fall check on the OIL FLOW RATE AND SHOULD BE 39cc/min. IF NECESSARY ADJUST ACCORDINGLY WITH THE END OF THE OIL PIPE AT ITS CORRECT HEIGHT.
- 19 Reconnect oil pipework.
- 20 Using the retaining bar with two fixing bolts, screw the burner in position pulling up on each bolt a little at a time.
- 21 Slide the sealing washer over the thermocouple and push the rod into the hole previously used by the flame switch. See sketch No.3.
- 22 Secure the thermocouple in position using the retaining bracket provided. As per sketch 3.
- 23 Remove the cables from the original flame switch and take out of the sheath the brown, yellow and red cables leaving only the yellow/green earth cable.
- 24 Secure the earth lead to the front of the burner on the same stud as used on the flame switch.

- 25 Push the thermocouple leads, ignition element leads and earth lead through to the control side. Ensuring that no wires are trapped.
- 26 Carefully connect the ignition element leads back to the controller and the earth lead to the earthing stud on the controller.
- 27 Attach the thermocouple leads to the electronic flame switch base as shown in the diagram, putting the brown lead to terminal 5 and the blue lead to terminal 4.
- 28 Remove the top left hand screw retaining the control box cover.
- 29 Place electronic flame switch on the top of the controller and secure in position using the control box cover retaining screw. See sketch No.4.
- 30 Bend the electrical insulation upwards around the control base.
- 31 Carefully wire in the electronic switch to the control panel as shown in the Circuit diagram. Brown into "240V OUT" L, Blue into "240V OUT" N. Ensuring that no wires are trapped or likely to chafe.
- 32 Carefully plug the switch into its base. (NOTE: IT WILL ONLY GO IN ONE WAY. DO NOT USE FORCE).
- 33 Fit the insulation pad into the cooker side panel where the thermostat capillaries enter the appliance, ensuring a tight fit and flush with the side panel of the appliance.
- 34 Replace control panel cover (Do not rest control panel cover on the controller reset button while fixing).
- 35 Replace control knobs.
- 36 Switch appliance on and test Fire Boiler, and allow to cycle a few times.

TEMPLATE FOR DRILLING

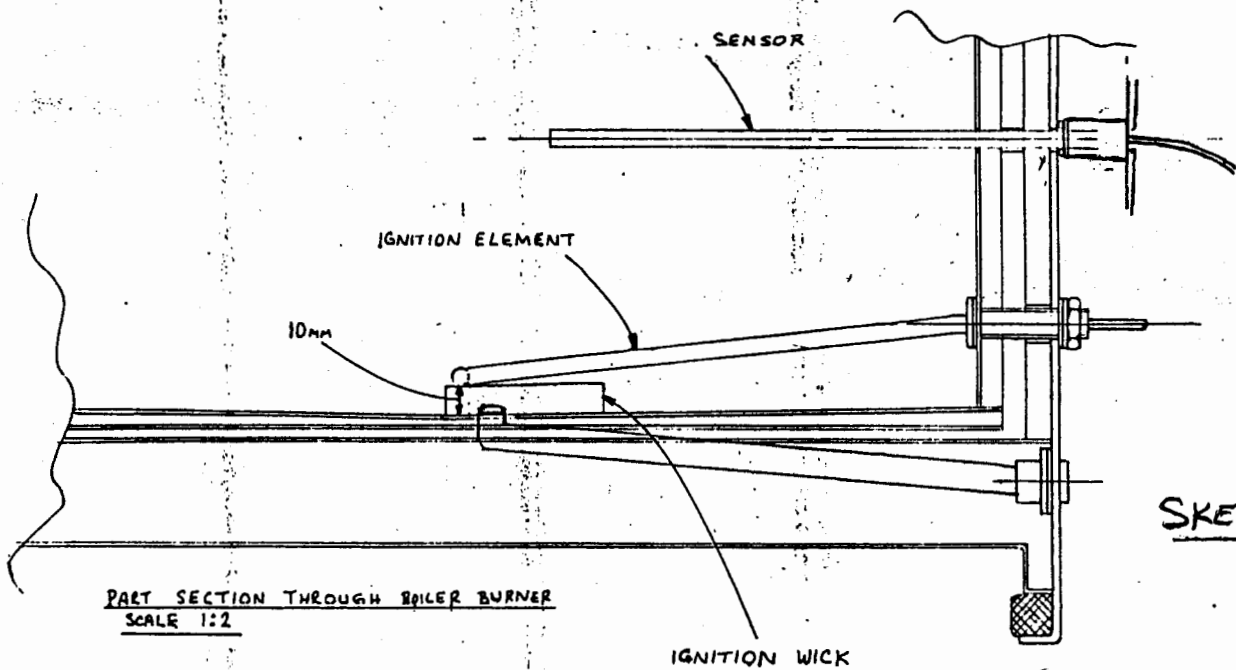


SKETCH 1

DRG No. 4/19665

WARNING

ANY BENDS OF SHEATHED ELEMENT MUST BE CARRIED OUT AT THE COLD TAIL END AS DEPICTED BELOW.
ANY OTHER FORMING CARRIED OUT WILL RESULT IN A FAILED ELEMENT



SKETCH No 2

PART SECTION THROUGH BOILER BURNER
SCALE 1:2

NOTE:- TILTING ELEMENT SHOULD HAVE $\phi 13mm$ IGNITION WICK & HORIZONTAL ELEMENT SHOULD HAVE $\phi 20mm$ IGNITION WICK TIED TO THE END OF ELEMENT

SKETCH SHOWING POSITION OF IGNITION ELEMENT
RAYBURN OIL NOUVELLE COOKER

DRG. No. 4/19665

NEW THERMOCOUPLE

THERMOCOUPLE
SEALING WASHER

WINDBOX
FRONT
PLATE

NEW
THERMOCOUPLE
FIXING BRACKET

EXISTING
SPACERS

EXISTING M4 STUDS FITTED
TO FRONT PLATE.

USE EXISTING M4 NUTS & WASHER TO FIX
NEW BRACKET.

SKETCH No 3.

THERMOSTATS.

RELAY

INSULATING
PAPER.

RELAY
BASE.

INSULATION
BLANKET.

SIDE PANEL
CUT-OUT.

CONTROL
BOX.

CONTROL
COVER.

SKETCH No 4.

