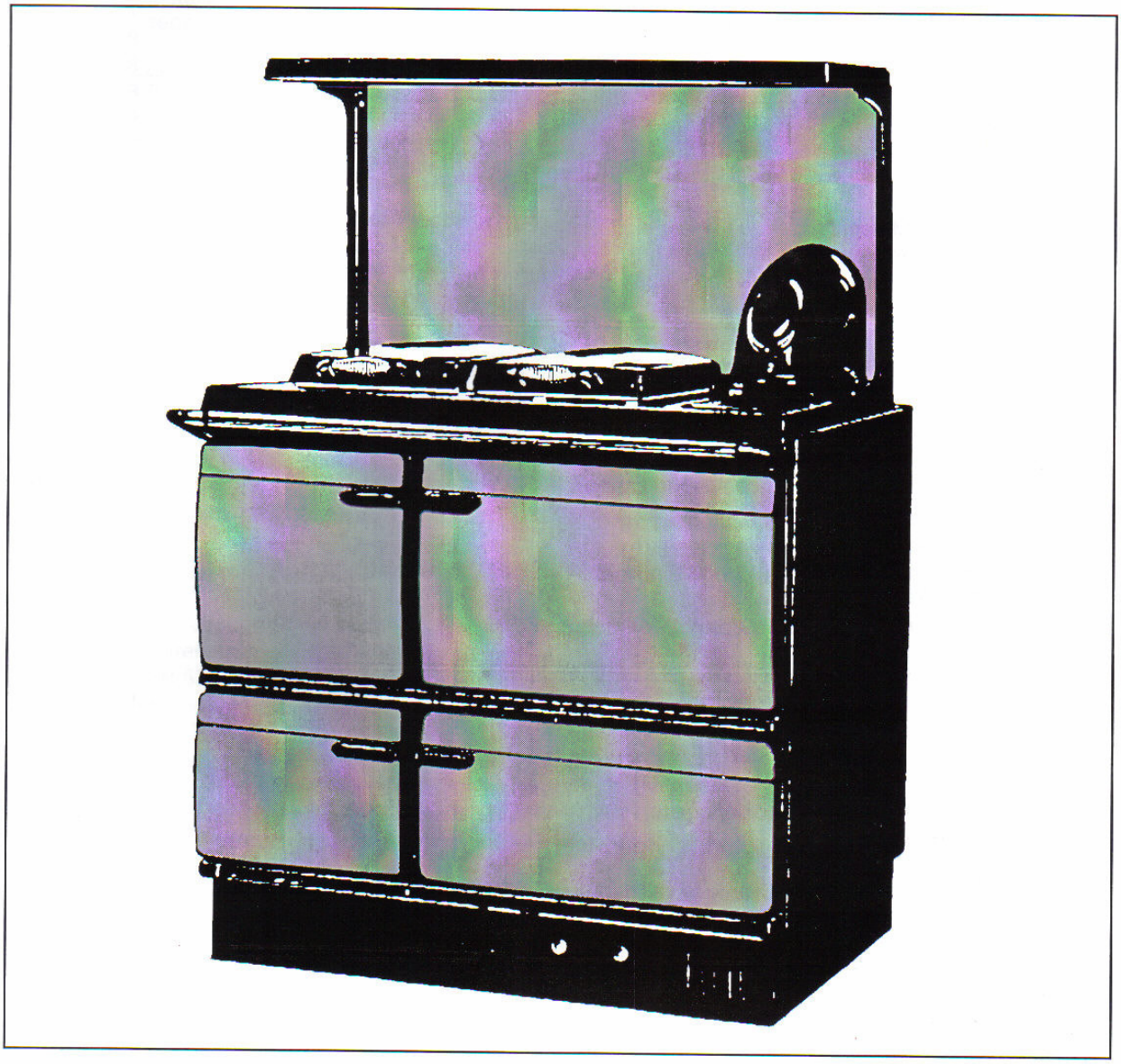
STANLEY

Gas Fired
Twin Series



TO BE INSTALLED BY A TRAINED COMPETENT PERSON

Installation and Commissioning Instructions

THIS MANUAL IS TO BE LEFT WITH END USER

TABLE OF CONTENTS

INTRODUCTION

Congratulations on purchasing this fine Irish made Gas-Fired Central Heating Appliance. It is built to exacting standards and it will give you every satisfaction in use. We invite you to read carefully the operating and installation instructions provided. This will enable you to familiarise yourself with this appliance.

In your own interest and that of safety, it is the law that all gas appliances are installed by competent persons in accordance with the Gas Safety Installation and Use Regulations.

Cookers can become very hot with use and retain their heat for a long period of time after use. Children, aged or infirm persons should be supervised at all times and should not be allowed to touch the hot surfaces or be in the vicinity when in use or until the appliance has cooled down after use.

The complete installation must be done in accordance with current Standards and Local Codes. It should be noted that the requirements and these publications may be superseded during the life of this manual.

As manufacturers and suppliers of cooking and heating appliances, we take every possible care to ensure, as reasonably practicable, that these appliances are so designed and constructed as to meet the general safety requirements when properly used and installed.

U.K.

Section 10 of the Consumer Protection Act.
Gas Safety (Installation and Use) Regulations 1998 (as amended).
Gas Appliance Safety Regulations (as amended).
Health & Safety at Work Act

Ireland

Safety Health and Welfare at Work Act 1989.
S.I. 101 of 1992 (as amended).
S.I. 150 of 1995 (as amended).

IMPORTANT NOTICE: Any alteration to this appliance that is not approved in writing by Waterford Stanley, will render the guarantee void.

The Installation must comply with the following:
The Building Regulations: Part J England & Wales, Part F Section 5 Scotland, Part L Northern Ireland and Part J Ireland.
B.S. 5449: Forced circulation hot water central heating system for domestic installation.
B.S. 7671: Requirements for Electrical Regulations.
Safety Document 635: The Electricity at Work Regulations.
B.S. 7074: Part 1 & 2: Hot Water Supply.
B.S. 4814: Sealed Systems
B.S. 7593: Treatment of Water in Domestic Hot Water Systems.
B.S. 5440: Part 1 & 2: Installations & Maintenance of Flues and Ventilation.
B.S. 6762: Services for Leisure Accommodation, Vehicles and Transportable Accommodation Units
B.S. 6891: Pipe Sizing.
I.S. 813: Domestic Gas Installation.
PAS33: 1999: Product Assessment Specification for Design, Installation & Commissioning of Gas Fired Central Heating Systems in domestic premises.

IMPORTANT — Control of Substances Harmful to Health:
It is the Users/Installers responsibility to ensure that the necessary personal protective clothing is worn when handling materials that could be interpreted as being injurious to health and safety.

When handling Firebricks, Fire Cement, Fuels, use disposable gloves.
Exercise caution and use disposable masks and gloves when handling glues and sealants.
When working with fibre glass, mineral wool, insulation materials, ceramic blanket/board, avoid inhalation as it may be harmful. Avoid contact with skin, eyes, nose and throat, use disposable protection. Installation should be carried out in a well ventilated area.

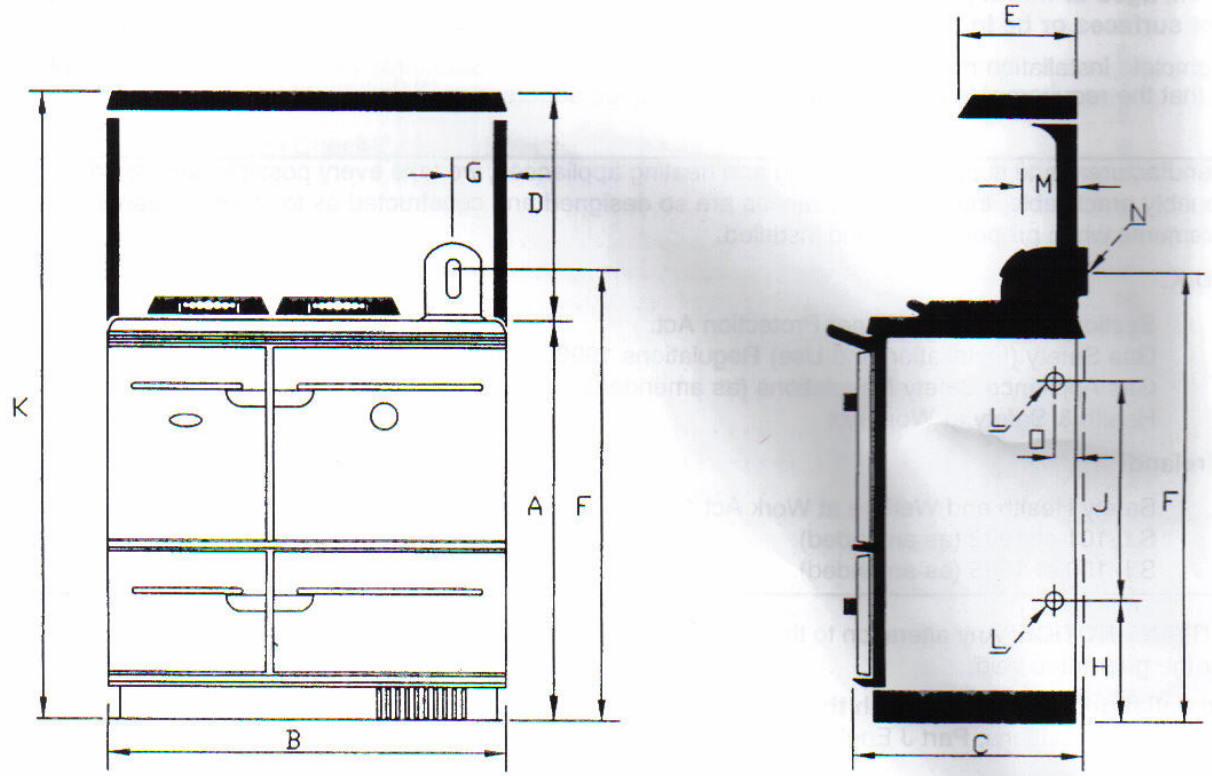
U.K.: ALL GAS APPLIANCES MUST BY LAW BE INSTALLED BY A COMPETENT PERSON, ONLY USE A C.O.R.G.I REGISTERED ENGINEER.

IRELAND: ALL GAS APPLIANCES MUST BE INSTALLED BY A COMPETENT PERSON AS OUTLINED IN I.S. 813.

THE APPLIANCE MUST BE CONNECTED TO A FULLY PUMPED SYSTEM.

The manufacturers reserve the right to make alterations to design, materials or construction for manufacturing or other reasons subsequent to publication.

Specification



NOTE: Dimensions stated below may be subject to a slight +/- variation.

Dimensions	A	B	C	D	E	F	G	H	J	K	L	M	N	O
Metric (mm)	920	920	630	510	300	1047	130	250	540	1430	N/A	115	150	45
Imperial (inches)	36 1/4	36 1/4	24 3/4	20 1/8	11 3/4	41 1/4	5 1/8	9 7/8	21 1/4	56 1/4	1"BSP Female	4 1/2	6	1 3/4

FEATURE	METRIC (mm)	IMPERIAL (inches)
Hot Plate	550W x 323L	21 5/8W x 12 3/4L
Roasting Oven	390W x 310H x 406D	15 1/4W x 12 1/4H x 16D
Simmering Oven:	390W x 220H x 406D	15 1/4W x 8 3/4H x 16D

TECHNICAL DATA

FUELS:		2nd Family, Natural Gas or 3rd Family, LPG.	
PRODUCT IDENTIFICATION:		63AR5080	
COUNTRY OF DESIGNATION:		I.E., G.B., F.R., B.E., A.T., D.K., E.S., F.I., I.T., P.T. & S.E.	
GAS TYPES:		N.G.: I_2H, G20, 20 mbar (I.E., G.B., F.R., A.T., D.K., E.S., F.I., I.T., P.T., & S.E.) L.P.G.: I_3P, G31 37mbar (I.E., B.E., G.B., F.R., E.S., & P.T.)	
MAINS CURRENT:		230V - 240V, 50 Hz, A.C.	
SUPPLY FUSE RATING:		5 Amp.	
IONISATION CURRENT:		Minimum of 7µa	
I.P. PROTECTION DEGREE:		IP 20	
ELECTRICAL INPUT:		90 watts.	
MAINS GAS PRESSURE:	N.G.	20 mbar	8" wg
	L.P.G	37mbar	14.85wg
MAXIMUM FLUE RESISTANCE:		0.8 mbar	0.32wg

	100K	80K	L.P.G
BOILER BURNER -			
MANIFOLD PRESSURE::	6.4 mbar /2.5 ins. wg	5.3 mbar /2.1ins wg	11mbar/4.3ins wg
GAS RATE :	3 m^3 / hr (106 ft^3 / hr)	2.67 m^3 / hr (94 ft^3 / hr)	
(Continuous running)			
COOKER BURNER:			
MANIFOLD PRESSURE:	5.5 mbar/ 2.2 ins. wg	5.5 mbar /2.2ins wg	6.3mbar/2.53ins wg
GAS RATE:	1.65 m^3 / hr (58 ft^3 / hr)	1.65 m^3 / hr (58 ft^3 / hr)	
(Continuous running)			
BOILER NOMINAL HEAT INPUT:	32.0 kW /109,184 Btu/hr	28.7 kW/97,924 Btu/hr	32.20kW/ 109,866 Btu/hr
OVEN NOMINAL HEAT INPUT:	17.60 kW/60,051 Btu/hr	17.6kW/60,051 Btu/hr	17.58kW/ 59,982 Btu/hr
NOMINAL HEAT OUTPUT			
TO WATER Boiler Mode	28.7 kW/98,000 Btu/hr	23.15 kW/79,000 Btu/hr	26.96kW/ 92,000 Btu/hr
Oven Mode	2.05 kW/7,000 Btu/hr	1.47 kW/5,000 Btu/hr	1.47kW/ 5,000 Btu/hr
SPACE HEATING -Boiler Mode	0.70 kW/2,500 Btu/hr	0.7kW/2,500 Btu/hr	0.7kW/ 2,500 Btu/hr
Oven Mode	2.91 kW/10,000 Btu/hr	2.91kW/10,000 Btu/hr	2.93kW/ 10,000 Btu/hr
BOILER CAPACITY:	17 Litres (3.74 Gallons)	13.3 Litres (2.93 Gallons)	17 Litres (3.74 Gallons)
FLUE GAS TEMPERATURE:	Boiler: 180°C (356°F)	Cooker: 250°C. (482°F)	
BOILER CONSTRUCTION:	4mm & 6mm mild steel plate		

BOILER TYPE:		B_{23}	
MAX. BOILER WORKING PRESSURE:		1.9 Bar	27.3 P.S.I.
TEST PRESSURE OF BOILER:		2.7 Bar	40 P.S.I.
OPERATING TEMP. LIMIT IN BOILER:		96°C	(205°F)
COOKER WEIGHT:		380Kgs	(838 lbs)

Whilst the primary air and gas rate on this appliance have been set, combustion tests and the gas rating must be undertaken during commissioning and adjusted accordingly.

NOTE: This appliance shall be installed in accordance with the regulations in force and only used in a well ventilated location. Read the technical instructions before installing this appliance. Read the user's instructions before lighting this appliance.

Differential Pressure Across the Boiler

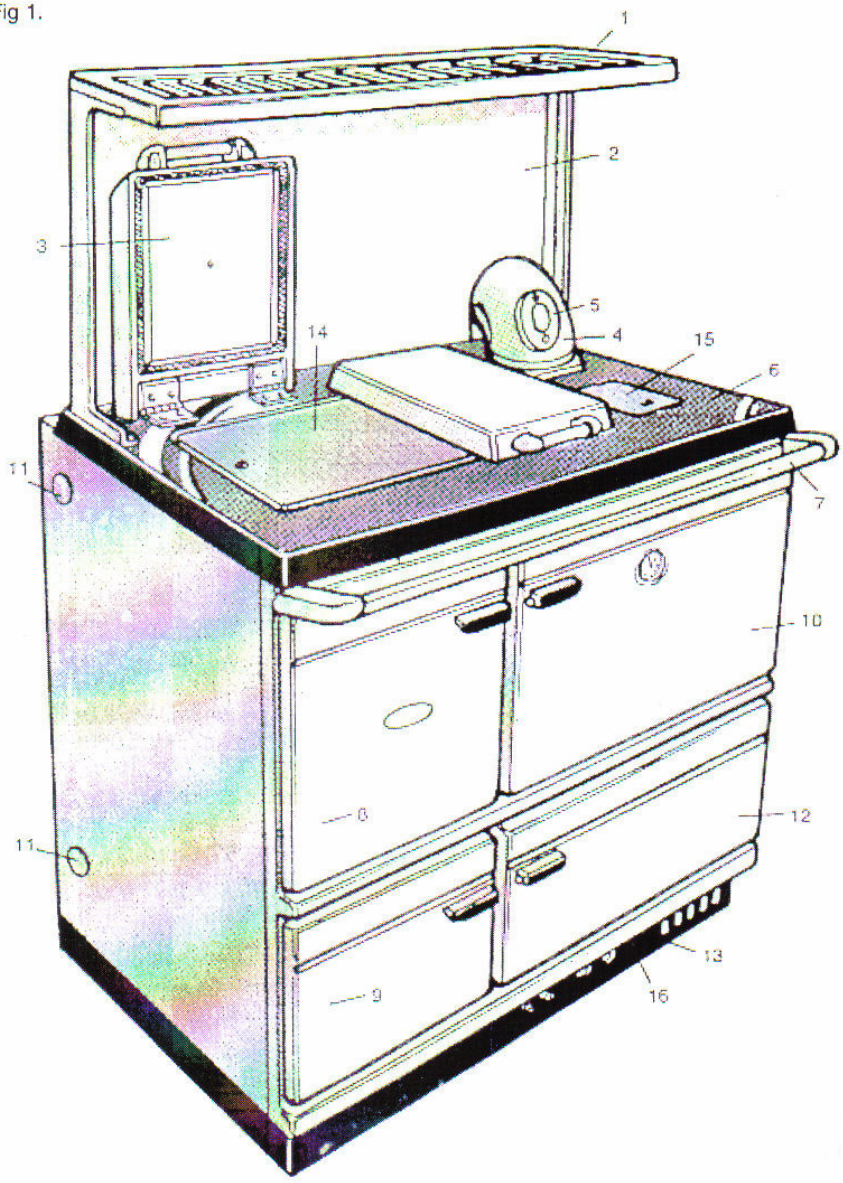
Design flow rate through the boiler	38.2 L/min / 8.4 Gpm
Static differential across the boiler	52.4 mbar / 21" wg
Dynamic pressure differential across the boiler	33 mbar / 13.23" wg

Note: Design temperature differential across the boiler = 11°C (20°F)

This appliance has been tested and approved in accordance with Gas Appliance Directive (90/396/EEC), the Low Voltage Directive (72/23/EEC) and the Electromagnetic Compatibility Directive (89/336/EEC) as amended.

SCHEMATIC

Fig 1.



1. Platerack (to order)
2. Splashback (to order)
3. Hotplate Covers
4. 150mm (6") 90° Bend
5. Bend Cleaning Plate
6. Hob
7. Towel Rail
8. Firedoor
9. Burner Door
10. Main Oven Door
11. Boiler Tapping
12. Simmer Oven Door
13. Base Frame
14. Hotplate
15. Simmer and Cleaning Plate
16. Control Box Cover

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NOTE: These instructions are only valid if the country symbol appears on the appliance. If the symbol does not appear on the appliance it is necessary to refer to the technical instructions covering modifications of the appliance to the conditions of use of the country.

LOCATION

Prior to installation, ensure that the local distribution conditions (nature of the gas and gas pressure) and adjustment conditions are compatible. The adjustment conditions for this appliance are stated on the data badge which is fitted inside the bottom burner door.

When choosing a location for this appliance you must have:

(a) Sufficient room for the installation (see clearances), a satisfactory flue (see flue system), and an adequate air supply for correct combustion and operation (see Ventilation & Combustion Air Requirements).

(b) Adequate space for maintenance and air circulation.

(c) Solid floor or base of non-combustible material which is capable of supporting the total weight. (see Technical Data).

HEARTH CONSTRUCTION

When a non-combustible floor surface is not available then we recommend that the cooker be placed on a slab of pre-cast concrete 40mm ($1^1/2$") deep or a slab of other insulating material. This hearth must extend 150mm (6") to either side of the appliance and 225mm (9") to the front.

ELECTRICAL SUPPLY

All wiring external to the appliance must conform to the current BS 7671 (U.K.), B.S. 7462, & Safety Document 635, ETC: Part 1 section 5.6.4 & The Electricity at Work Regulations. The cooker requires a 230V - 240V, 50Hz supply. Connection of the appliance and any system controls to the mains supply must be through a moulded on plug top, (with a 3 Amp fuse fitted) which is fitted to the appliance in accordance with EN 60335, Consumer Protection, SI 1994 No. 1768, plug and sockets etc. (safety) Regulations 1994.

Always install in accordance with current local wiring regulations.

WARNING: THIS SUPPLY MUST BE EARTHED (Refer to B.S. 7430 : Code for Practice of Earthing).

Where a risk of low voltage can occur, a voltage sensitive device should be fitted to prevent start up of the burner so as not to endanger the installation. Primary fuse is located in the control box tray.

To isolate the appliance completely unplug from the mains socket. Always ensure that this socket is easily accessible and close to the appliance. Persons in charge of this appliance should be aware of this socket outlet position.

REMOVAL OF CONTROL PANEL

Step 1: Isolate the cooker from the electrical mains supply.

Step 2: Remove the 6 no. screws from the base cover plate. (see Fig.2)

Step 3: Remove the 2 no. retaining screws on either side of the control panel. (see Fig.3)

Step 4: Pull the control panel out approximately 4" (100mm) until the entire control box is visible. This will allow the tray to be moved slightly to the right. (see Fig.4)

Step 5: Remove the four screws from the high limit mounting plate located at the left of the control panel. (see Fig.4)

Step 6: Push the bottom of the high limit mounting plate back into the base until the top edge can be brought out under the top edge of the base opening. (see Fig.5)

Step 7: Remove the high limit thermostat and mounting plate from the base cavity and when outside the base, gently turn towards the left taking care not to damage the capillary or wiring. (see Fig.6)

Step 8: With the high limit thermostat and base plate removed, carefully with the control panel, ensuring that no strains are subjected to the wiring in place and the pressure sensing tubes.

Step 9: Connection to be carried out in accordance with the terminal block as marked. (see fig.38)

Fig.2

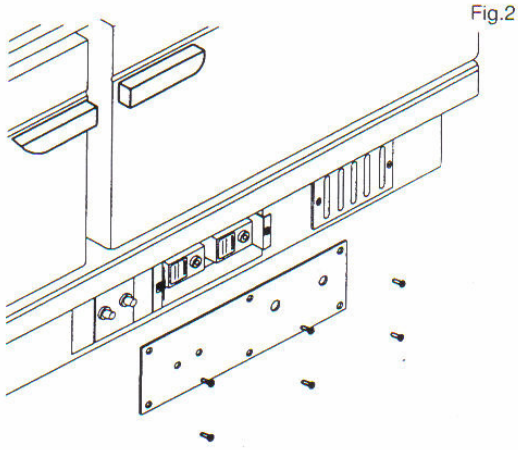


Fig.3

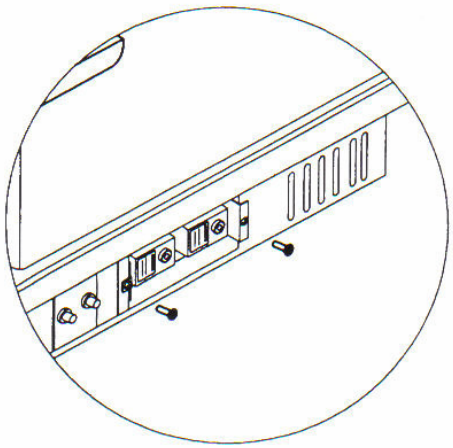


Fig.4

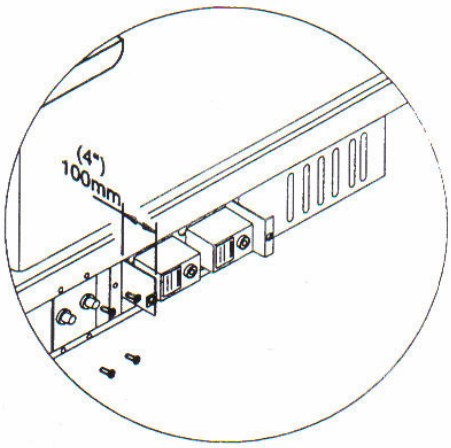


Fig.5

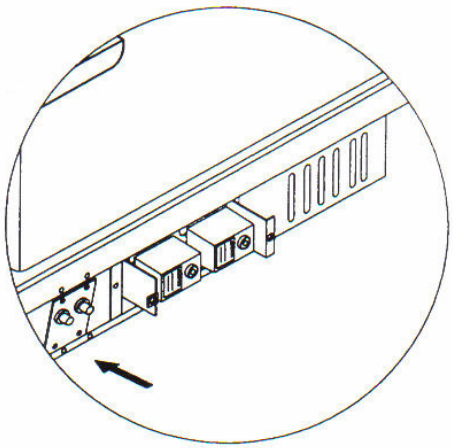


Fig.6

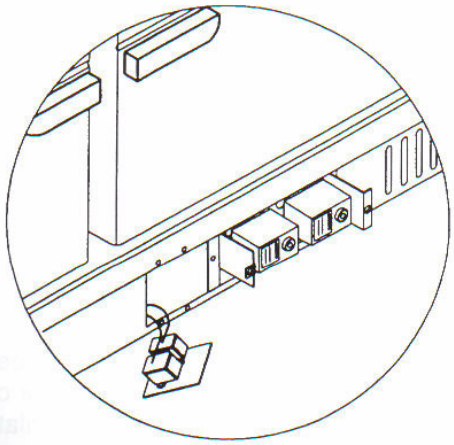
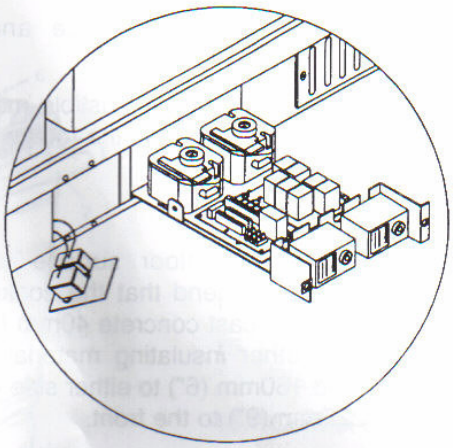


Fig.7



CLEARANCES TO COMBUSTIBLES

When bringing your kitchen units up to the sides of the cooker, leave a 10mm gap between the Stanley and adjacent units, this gap can be reduced by fitting an optional hob side filler strip to the Stanley leaving a 5mm gap (see fig. 8 & 9). Likewise the base of your units can be brought up flush to the Stanley's built-in plinth.

When bringing the work top up to the side of the hob leave a 10mm gap to combustible material (see fig.8).

Fig 8

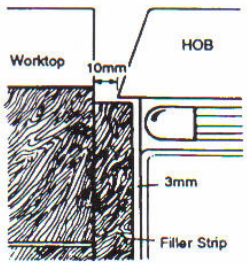


Fig 9

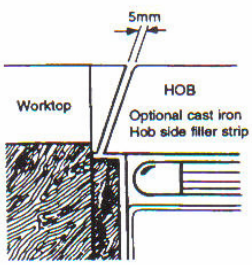
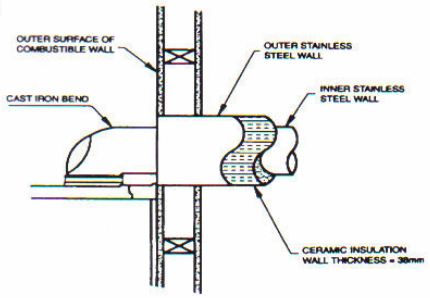


Fig. 10



Where the flue passes through a combustible material a twin wall solid packed insulated chimney connector must be used and must come flush with the outer surface of the material and run all the way to the masonry chimney or to the point of termination of the factory made chimney. (See Fig. 10)

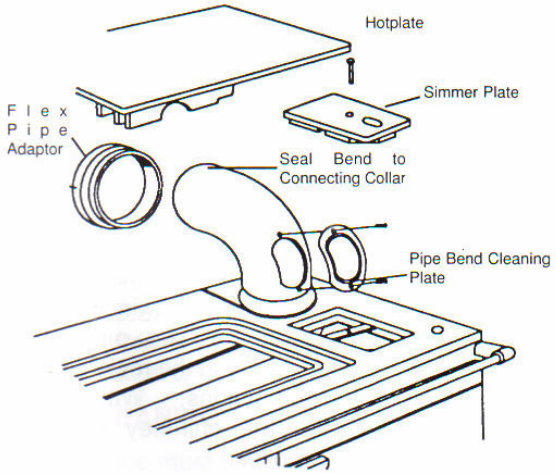
FLUE SYSTEMS

PRE-INSTALLATION CHECK

Before installing your appliance, check that the chimney is clean and clear of obstructions. Cracked brickwork and leaking joints should be made good. Where flue piping passes through a closure plate with a sliding door, ensure that the pipe continues up and is ultimately connected to the flue liner and well sealed with fire cement.

Do not connect to a flue serving another appliance. Always ensure that the connection is to a chimney of the same size - never connect to one of smaller dimensions. Flues wholly constructed of single skin pipe are not recommended under any circumstances. Due to their inability to retain heat such flues will inevitably give rise to the formation of condensation.

Fig. 11



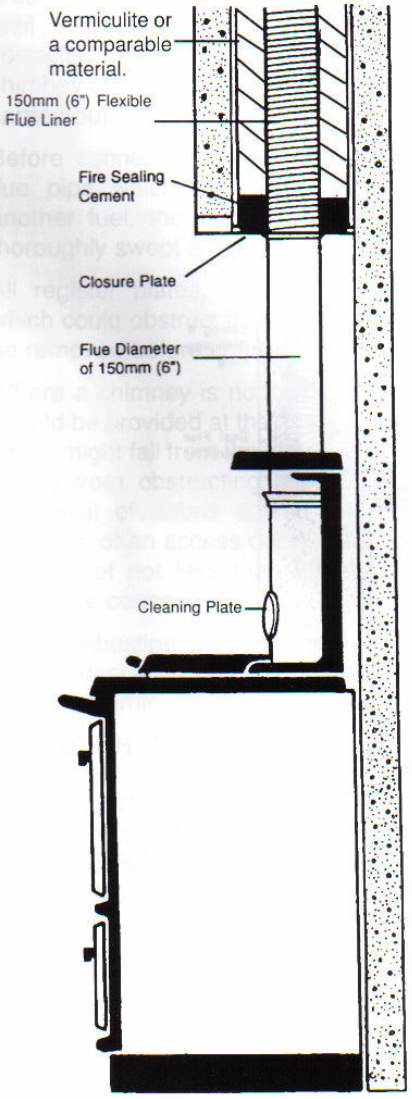
CHIMNEY'S

Generally the most effective chimney for gas is one that is straight, avoid offsets and terminate with a straight sided pot.

IT IS NOT RECOMMENDED TO CONNECT TO A FLUE SMALLER THAN 150MM (6") OR IN EXCESS OF 175MM (7") DIAMETER.

150mm (6") Diameter Flue Liner

Fig.12

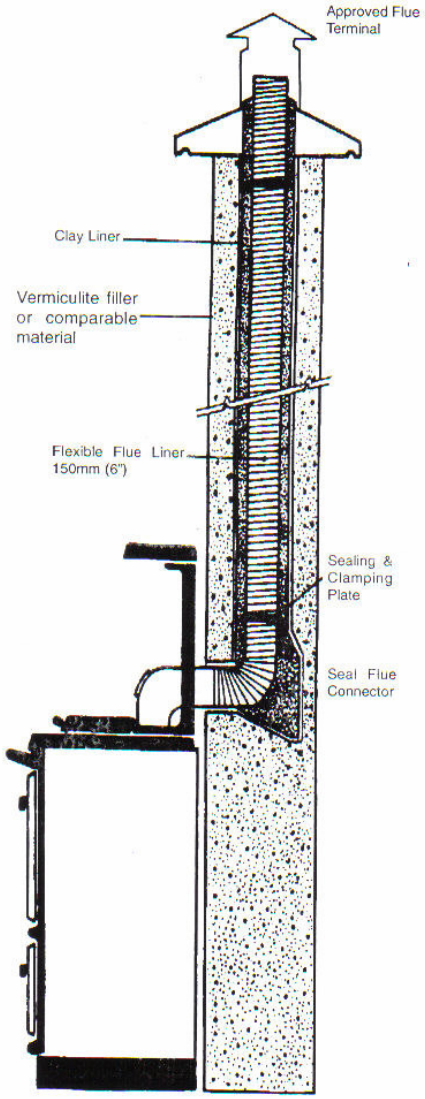


Note:

Fill voids and area around liner with vermiculite or a comparable approved material. (See Fig. 12 & 13)

Flue greater than 150mm (6") Diameter

Fig. 13



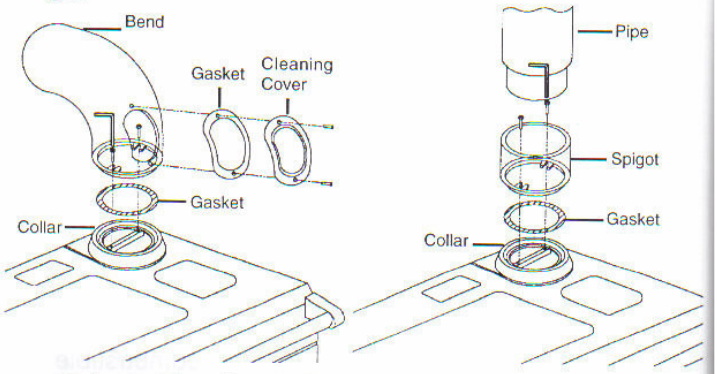
NOTE: Never connect to a chimney or flue system serving another appliance.

SEALING

This cooker and flue system operate under a positive pressure, it is essential that all flue joints are tightly sealed against flue gas leakage and tested accordingly (see Fig. 14).

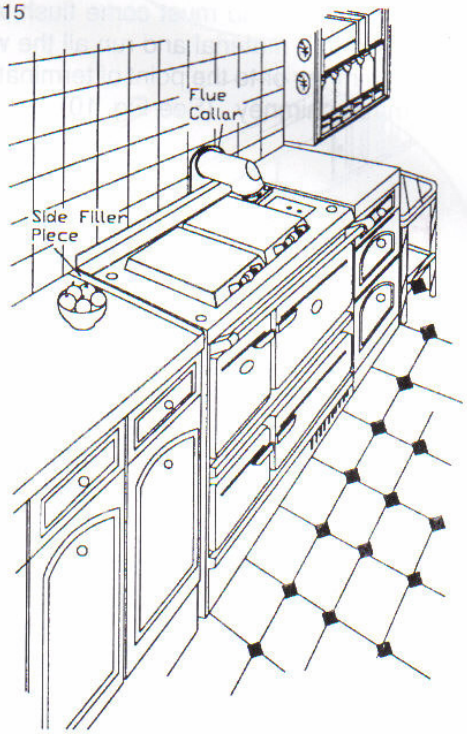
There is a flue pipe collar available which surrounds the flue pipe where it meets the wall, giving a tidier finish to a tiled background (see fig. 15). The hob back filler piece and flue pipe collar rosette is available as an optional extra. (see fig. 15).

Fig.14



Refer to Flue Assembly Instruction sheets.

Fig.15



FLUE HEIGHT

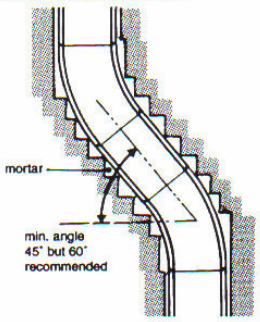
The flue must be high enough 4.5 mts. (15ft) minimum measured vertically from the appliance outlet to the top of the flue terminal, to allow the flue gases to vent into the clear air, away from the turbulence that may be caused by roof structures, other chimney stacks, etc. The terminal position should be in accordance with B.S. 5440 Part 1 and the Building Regulations:

FLUE SYSTEM

Where the standard masonry chimney is not available, a proprietary type of non-combustible or non-corrosive material 150mm (6") twin wall fully insulated pipe may be used. The pipe must terminate at a point not lower than the main ridge or adjacent outside obstructions. With such installations, access to the chimney must be provided for cleaning purposes.

Horizontal runs more than 450mm (18") and 90° bends numbering more than 2 per installation should be avoided. If it is necessary to offset the chimney the recommended angle is 60° to the horizontal and the statutory minimum is 45° (see fig. 16).

Fig. 16 Offset using prefabricated bends



CONNECTIONS

A cast iron 90° bend with cleaning door is available with the cooker. A vertical cast iron outlet pipe with cleaning door is also available. A flexible flue adaptor is supplied, this is to connect the cooker 150mm (6") bend or straight pipe to the 150mm (6") chimney liner.

ALL FLUE CONNECTIONS MUST BE THOROUGHLY SEALED. Blocked chimneys are dangerous, keep chimneys and flueways clean, read the operating instructions.

STANLEY CAST IRON PIPES AND BENDS ARE HIGHLY RECOMMENDED FOR INTERIOR USE.

WHERE THE APPLIANCE SPIGOT OR FLUE PIPE PROTRUDES INTO THE CHIMNEY, CARE SHOULD BE TAKEN TO ENSURE THAT IT DOES NOT BLOCK THE CHIMNEY.

SUITABLE MATERIALS

* Mineral Fibre cement pipes conforming to B.S. 7435.
* Sheet metal conforming to B.S. 715. & B.S. 4076.
* Insulated metal chimneys conforming to B.S. 4543 and B.S. 5440 (a galvanised finish is not suitable).
* Clay flue linings conforming to B.S. EN 1457 1999.
* Pre-cast concrete chimney blocks, incorporated into the building structure. It is particularly important that the correct connection block be provided at the base of the flue, B.S. 3572.
* Cast Iron or acid resistant vitreous enamel lined mild steel to B.S. 41.

FLUE CLEANING

The flue pipe must be fitted with a cleaning plate. The flue must be inspected annually and cleaned when necessary.

USE OF EXISTING FLUES AND CHIMNEYS

When connecting to an existing chimney it is necessary to line the flue using approved 150mm (6") rigid or flexible stainless steel flue liner.

An existing flue pipe or chimney that has proved to be satisfactory when used for solid fuel can normally be used for this appliance provided that its construction, condition and dimensions are acceptable. Flues that have proved to be unsatisfactory, particularly with regard to down draught, must not be considered for this appliance until they have been examined and any faults corrected. If there is any doubt about an existing chimney a smoke test to B.S. 5440: Part 1 should be carried out.

Before connecting this appliance to a chimney or flue pipe which has previously been used with another fuel, the chimney or flue pipe should be thoroughly swept and lined accordingly.

All register plates, restrictor plates, damper etc. which could obstruct the flue at a future date should be removed before connecting this appliance.

Where a chimney is not to be lined a suitable void should be provided at the base to contain any debris which might fall from the inside wall, so as to prevent debris from obstructing the appliance flue outlet. (Removal of debris should be facilitated by the provision of an access door). The void should have a depth of not less than 250mm (10") below the appliance connection.

The combustion products from this appliance will have a descaling effect on hardened soot deposits left from burning solid fuels.

ALTHOUGH THE CHIMNEY MAY HAVE BEEN CLEANED OF LOOSE SOOT PRIOR TO INSTALLATION, IT IS IMPERATIVE THAT THE CHIMNEY IS INSPECTED FOR SCALED SOOT PARTICLES AFTER THE FIRST MONTH OF OPERATION AND ANY LOOSE MATERIALS REMOVED TO AVOID BLOCKAGE.

DRAUGHT REQUIREMENTS

While inadequate draught can seriously effect the efficient operation of the appliance, chimneys over (5.4m) 18ft or houses built on high ground can experience excessive draught, a steady draught of between 1mm (0.04") and 1.5mm (0.06") W.G. is required for satisfactory operation.

FLUE LINERS

Chimney's lined with salt glazed earthenware pipes are acceptable if the pipes comply with BS EN 1457 1999 and must be 150mm (6"). When lining an

existing chimney, a liner approved to BS 715 and BS 4543, Parts 1, 2 & 3 should be used. The liner should be secured at the top and bottom by using closure/ clamping plate firmly sealed and secured and an approved low resistance terminal used at the top.

It is essential that every flue system be inspected and tested by a competent person for its correct effectiveness, to ensure that the combustion products are completely discharged to the outside atmosphere.

FACTORY MADE INSULATED CHIMNEYS

Factory-made insulated chimneys should be constructed and tested to meet the relevant standards and recommendations given in:

* B.S. 7566 - Installation of factory-made chimneys conforming to B.S. 4543 for domestic appliances.
  Part 1: Method of specifying installations design information.
  Part 2: Specification for installation design.
  Part 3: Specification for site installation.
  Part 4: Recommendation for installation design and installation.

VENTILATION AND COMBUSTION AIR REQUIREMENTS

It is imperative that there is sufficient air supply to the burners of the cooker in order to support combustion.

Detailed recommendations for air supply are given in BS 5440 Part 2. The minimum effective air requirement for this appliance is 192 cm^2 (100K) or 177 cm^2 (80K) Natural Gas & LPG. When calculating combustion air requirements for this appliance use the following equation: 4.5cm^2 per each kW of rated input above 7 kW. (1"^{2} per 5000 Btu/hr of rated input above 25,000 Btu/hr).

If there is another combustion appliance fitted in the same or adjacent room, it will be necessary to refer to B.S. 5440: Part 2 to calculate the additional air supply.

All materials used in the manufacture of air vents should be such that the vent is dimensionally stable and corrosion resistant.

The effective free area of any vent should be ascertained before installation. The effect of any screen or grills should be allowed for when determining the effective free area of any vent.

Air vents direct to the outside of the building should be located so that any air current produced will not pass through normally occupied areas of the room.

An air vent outside the building should not be located less than the dimensions specified within the Building Regulations (see Technical Data) from any part of any flue terminal. These air vents must also be satisfactorily fire proofed as per Building Regulations.

Air vents in internal walls should not communicate with bedrooms, bedsits, toilets, bathrooms or rooms containing a shower.

Air vents traversing cavity walls should include a continuous duct across the cavity. The duct should be installed in such a manner as not to impair the weather resistance of the cavity.

Joints between air vents and outside walls should be sealed to prevent the ingress of moisture. Existing air vents should be of the correct size and unobstructed for the appliance in use.

If there is an air extraction fan fitted in the room or adjacent rooms where this appliance is fitted, additional air vents will be required to alleviate the possibility of spillage of products of combustion from the appliance/flue while the fan is in operation. Refer B.S. 5440 Part 2, I.S. 813 and the Gas Safety (Installation & Use) Regulations as amended.

Where such an installation exists, a test for spillage should be made with the fan or fans and other gas burning appliances in operation at full rate. (i.e. extraction fans, tumble dryers) with all external doors and windows closed.

If spillage occurs following the above operation, an additional air vent of sufficient size to prevent this occurrence should be installed.

OUTSIDE AIR CONNECTION

If this option is used additional air as indicated in BS 5440, Part 2 is not required.

1. This appliance may be connected direct to the outside of the house for its combustion air supply.
2. Remove the blanking plate located at the back right hand corner and remove the primary air grill located at the front and right hand corner. Fix blanking plates over the front primary air inlet. (See fig. 17 & 18) and the right hand side primary air inlet.
3. Connect the optional 125mm (5") spigot to the base, see fig. 18.
4. To connect this appliance to an outside air supply use either 125mm (5") rigid or flexible stainless steel pipes or non-combustible corrosion-resistant materials not more than 965mm (38") in length and having no sharp bends or corners other than the down turn at the terminus.

5. Air inlets traversing cavity walls should include a continuous duct across the cavity. The duct should be installed in such a manner as not to impair the weather resistance of the cavity.
6. Joints between air vents and outside walls should be sealed to prevent ingress of moisture.

Fig.16a

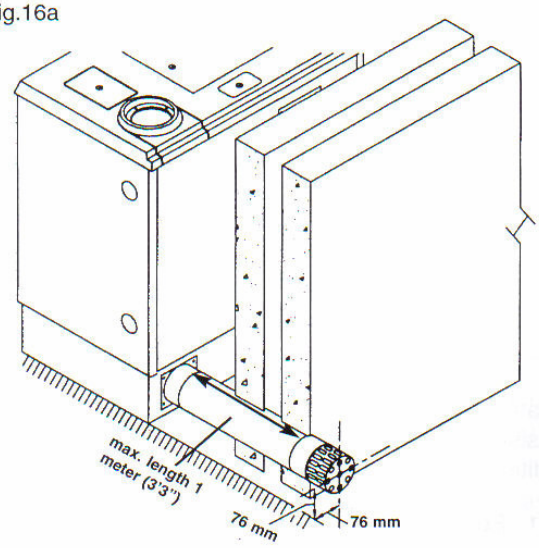


Fig. 17

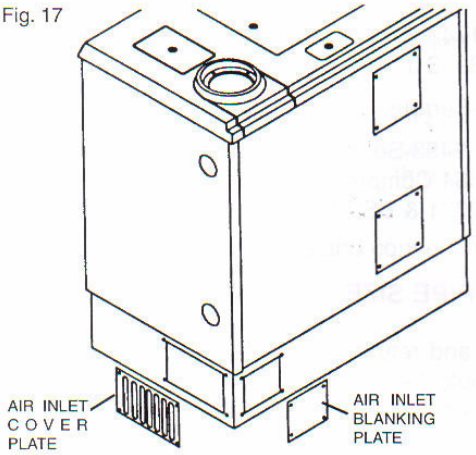
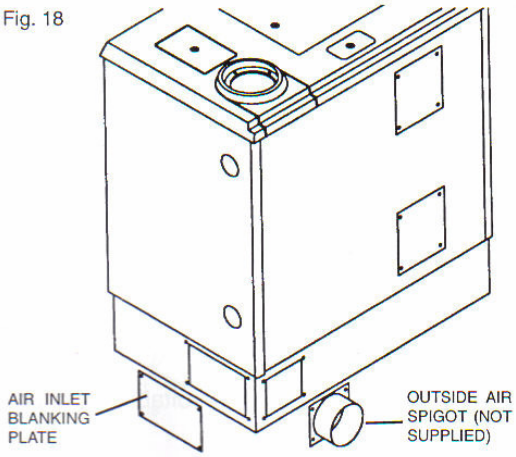


Fig. 18



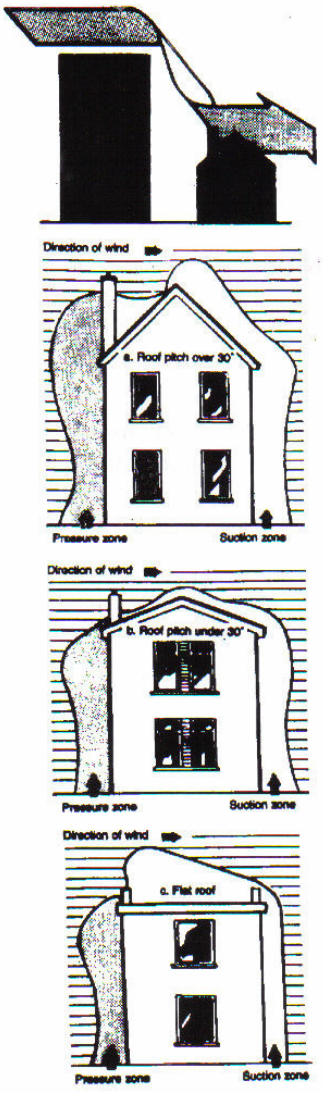
DOWN DRAUGHTS

However well designed, constructed and positioned, the satisfactory performance of the flue can be adversely affected by down draught caused by nearby hills, adjacent tall buildings or trees. These can deflect wind to blow directly down the flue to create a zone of high pressure over the terminal.

A suitable anti-down draught terminal or cowl will usually effectively combat direct down blow but no cowl is likely to prevent down draught due to a high pressure zone. Ensure that any cowl used will not restrict the flue exit or cause excessive back pressure. (See fig. 19)

HEATING

Fig. 19



METERS

A suitable gas meter must be connected to the service pipe either by a representative of the gas supplier or by an appointed contractor. If using an

existing meter have it checked to ensure that the meter is capable of dealing with the total rate of gas supply needed (see Technical Data).

A Flexible hose must not be used to connect the gas supply to the cooker.

GAS PIPE SIZE

It is important that the correct service pipe size be used in order to ensure an adequate gas supply (200 Cubic ft./hr. (5.66 m^3/hr) Natural Gas) or (110 Cubic ft./hr. (3.11 m^3/hr) L.P.G.). This depends on the distance between the supply meter, the pressure drops caused by bends and the expected pressure drop in the gas mains at peak demand times.

WARNING: To avoid pipe sealing compounds from entering into the gas train, do not apply sealing compound to the first two threads at the tip of the gas connection.

GAS CONNECTION

A 1" Female Iron x 3/4" compression fitting is packed in the top oven.

Step 1

Connect the 3/4" compression to the 3/4" pipe protruding at the bottom left corner of the cooker.

Step 2

Connect mains gas pipe to the elbow. A gas shut off valve that does not restrict the gas flow must be fitted as close to the cooker as possible and be accessible at all times.

Step 3

Check all joints for gas tightness.

Fig.20

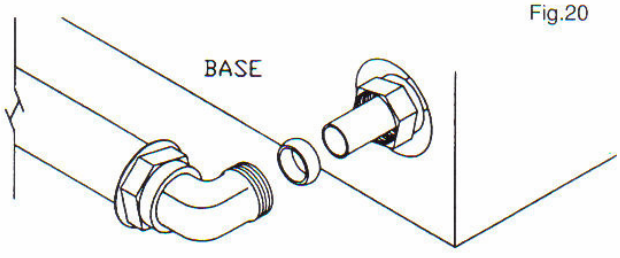
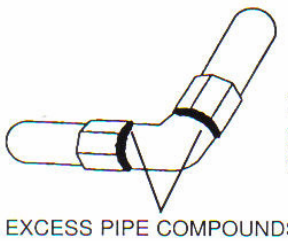


Fig 21



EXCESS PIPE COMPOUNDS

NOTE: Clean off any excess pipe compounds from connections.

GAS PIPES AND FITTINGS

Materials used for installation work should be fire resistant and gas tight and should conform to the following or their equivalent.

* B.S. 2871: Part 1 and EN 1057 - Copper Tubes
* B.S. 219, EN 29453 & ISO 9453 - soft solders.
* B.S. 669 - flexible hoses, fittings & sockets.
* B.S. 759 - Valves, gauges and other safety equipment.
* B.S. 1387 - Steel tubes.
* B.S. 6362 & B.S. 4127 - Stainless steel tubes.
* B.S. 1740 - Wrought steel pipes.
* B.S. 4089 - LPG hoses and assemblies.
* B.S. 5295 & B.S. 6956 Jointing materials.
* B.S. 1552 Manual shut off valves.

WATER PIPE FITTINGS

Materials used for installation work should be fire resistant, sound and should conform to the current editions of the following or equivalent.

1.1 Ferrous Materials

BS 1387 Steel tubes.
BS 1740 Steel pipe fittings.
BS 6956 Jointing materials.

1.2 Non-Ferrous Materials

EN 29453 Soft Solder Alloys.
BS 864 Compression Tube Fittings.
BS 2871 & BS EN 1057 Copper and Copper Alloys

WATER PIPE SIZE

The flow and return pipe must be 28mm diameter. Care should be taken to ensure that the heating system is correctly installed and that it complies with all relevant codes of practice. If this appliance is being connected to an existing system, it is strongly recommended to check the following:

(a) That the system is sound.

(b) That pipework is adequately insulated (where applicable).

(c) Check all controls, i.e. pump, motorised valves, time control etc. are operating satisfactorily and are compatible with the requirements of the cooker.

(d) Are any modifications necessary to make the heating system more efficient?

(e) Cleanse the system and add suitable inhibitor.

The use of motorised valves, room thermostats, radiator thermostatic valves, domestic hot water controllers, etc, can greatly enhance a heating system and we recommend their use.

Only approved competent personnel should be employed to carry out the heating installation.

It is important that no external control devices e.g. economiser be directly fitted to this appliance unless covered by these installation instructions or agreed with the manufacturer in writing. Any direct connection of a control device not approved by the manufacturer could make the guarantee void.

The flow and return can be taken either side of the cooker.(See Fig. 22)

1. To take off from the left simply connect direct onto the exposed boiler connection.
2. To take off from the right side.

a. Remove the two blanking plates at the back of the cooker. Then punch out the two blanking plates on the right hand side.

b. Using the towel rail, punch out a passage way through the insulation material to the boiler connections.

c. Clear insulation away from the boiler connections.

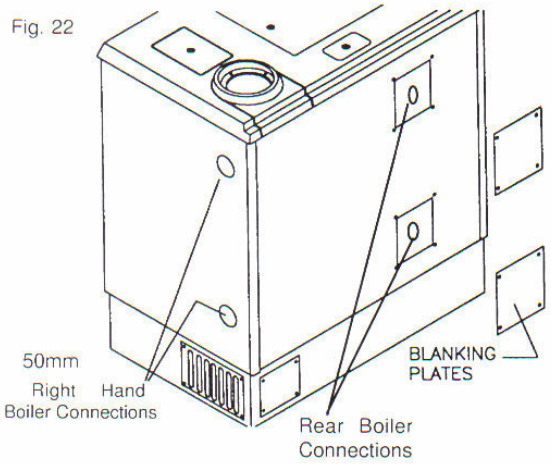
d. To avoid insulation from going into the flow and return pipe, blank off ends using insulating tape before passing through cooker.

e. Remove insulating tape and connect to boiler.

f. Replace blanking plates.

g. Test for leaks.

Fig. 22



DRAINING

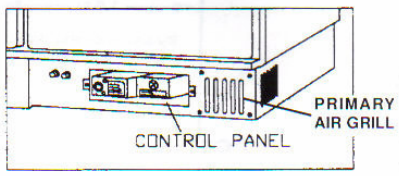
Key-operated drain taps to BS 2879 should be provided in accessible positions in all low parts of the system. However, it should be noted that there may be short sections of pipework, e.g. when passing under doorways, that may not be possible to drain.

INTERNAL PUMP THERMOSTAT

This appliance is fitted with a thermostat for switching the circulating pump 'on' and 'off' automatically. To wire in the pump connect the phase to terminal marked CIRC Pump (L) and connect the Neutral to terminal marked CIRC Pump (N). The earth wire is to be connected into the earth block.

The connection circuit board/control panel is located within the appliance beneath the warming oven. (See Fig.23)

Fig. 23



WATER CIRCUIT TEMPERATURE

The return water temperature must be maintained at not less than 50°C (122° F) so as to avoid condensation forming within the boiler.

CARE FOR YOUR CENTRAL HEATING SYSTEM

We strongly recommend the use of suitable corrosion inhibitors and anti-freeze solution in your heating system, in an effort to minimise black oxide, sludge and scale build-up, which effects efficiency.

In hard water areas the use of a suitable limescale preventer / remover is advised.

Use only quantities specified by the water treatment product manufacturer. Only add to the heating system after flushing and finally refilling. Refer to BS 7953.

INDIRECT DOMESTIC CYLINDER

The cooker must only be connected to an indirect cylinder of no less than 180 litres using 28mm diameter flow and return piping. It is recommended that the cylinder is lagged together with pipework with runs in excess of 4 meters (12').

GENERAL MAINTENANCE

It is important that the user is familiar with their heating system and that they ensure regular checks and maintenance which can limit unnecessary break-downs.

We recommend that you evaluate the overall insulation in your house, i.e. attic, external walls, windows and external doors. Insulation and draught-proofing can greatly reduce running costs while equally enhancing living conditions.

NOTE: We strongly advise the use of pipe lagging and also the use of a frost thermostat if the installation is likely to be exposed to situations where the temperature will dip to a level consistent with frost.

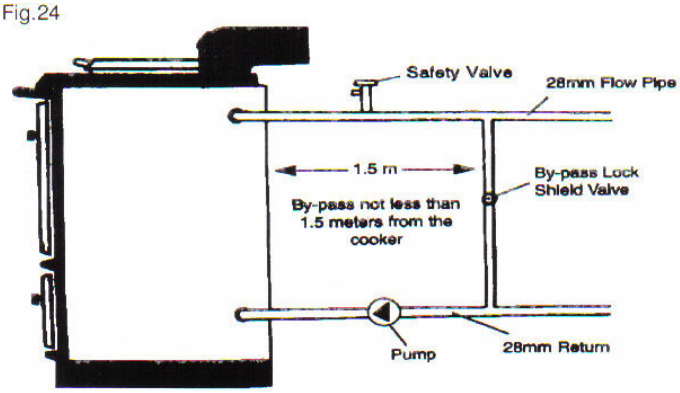
SERVICING

To ensure continued efficient and safe operation of the appliance, it is recommended that it is checked and serviced by an Authorised Stanley Service Engineer at least once a year.

SAFETY VALVE

A non-adjustable 3 bar safety valve must be fitted to the primary flow pipe adjacent to boiler connection ensuring that any discharge will not create a hazard to occupants or cause damage to electrical components or property.

Fig.24



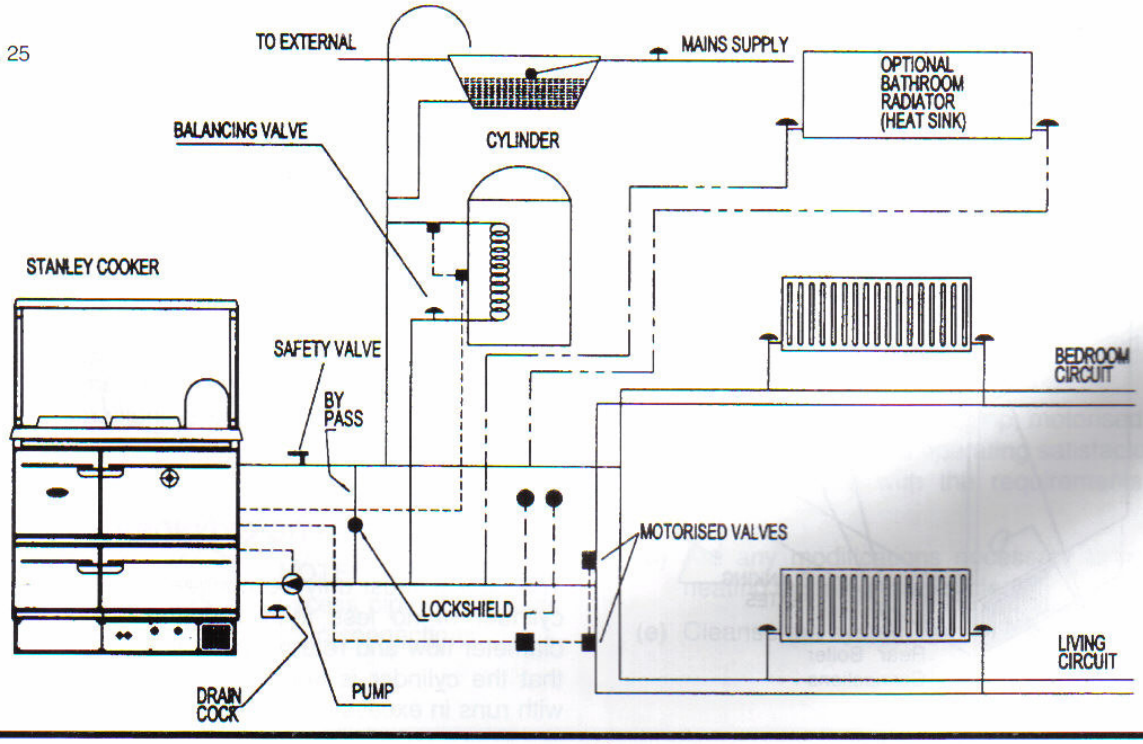
BY-PASS LOOP

A 15mm system by-pass **must** be fitted not less than 1.5mts (4.9ft) from the cooker to allow correct water circulation for the pump and to prevent condensation forming in the boiler. This should be balanced. A heat leak radiator / towel rail may be installed if desired. (See Fig. 24 & 30) in addition to the by-pass.

The following diagrams illustrate the different types of central heating systems to which this appliance can be connected, but are not to be used as working drawings.

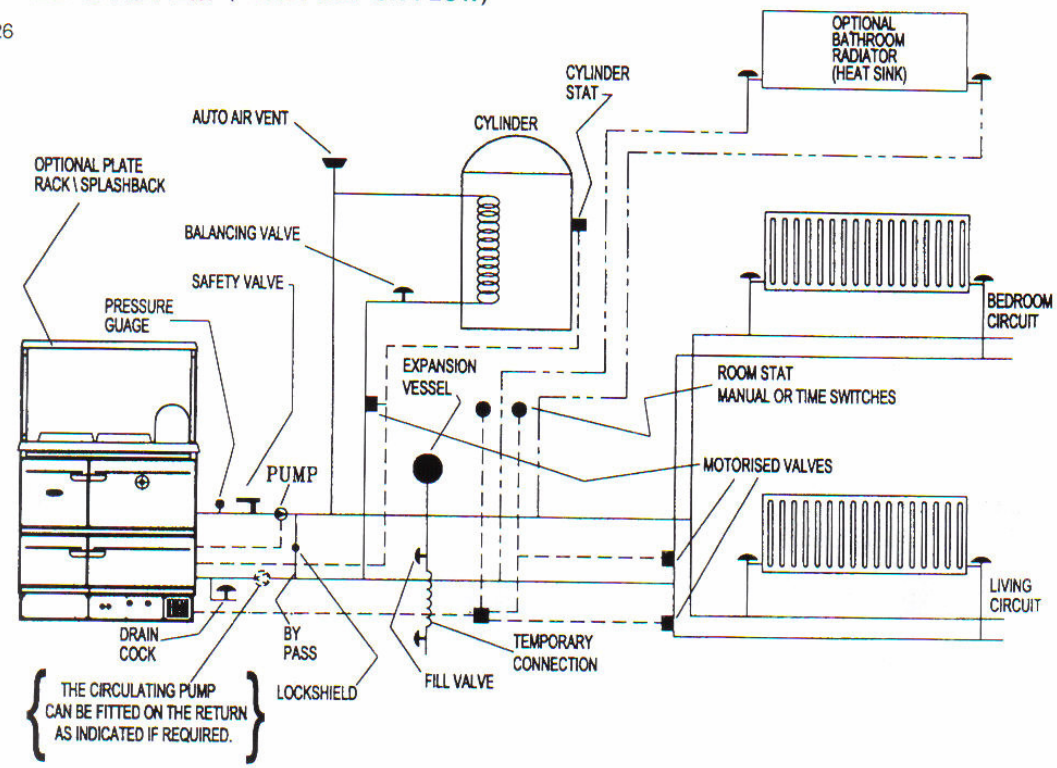
OPEN SYSTEM (WITH PUMP ON RETURN)

Fig. 25



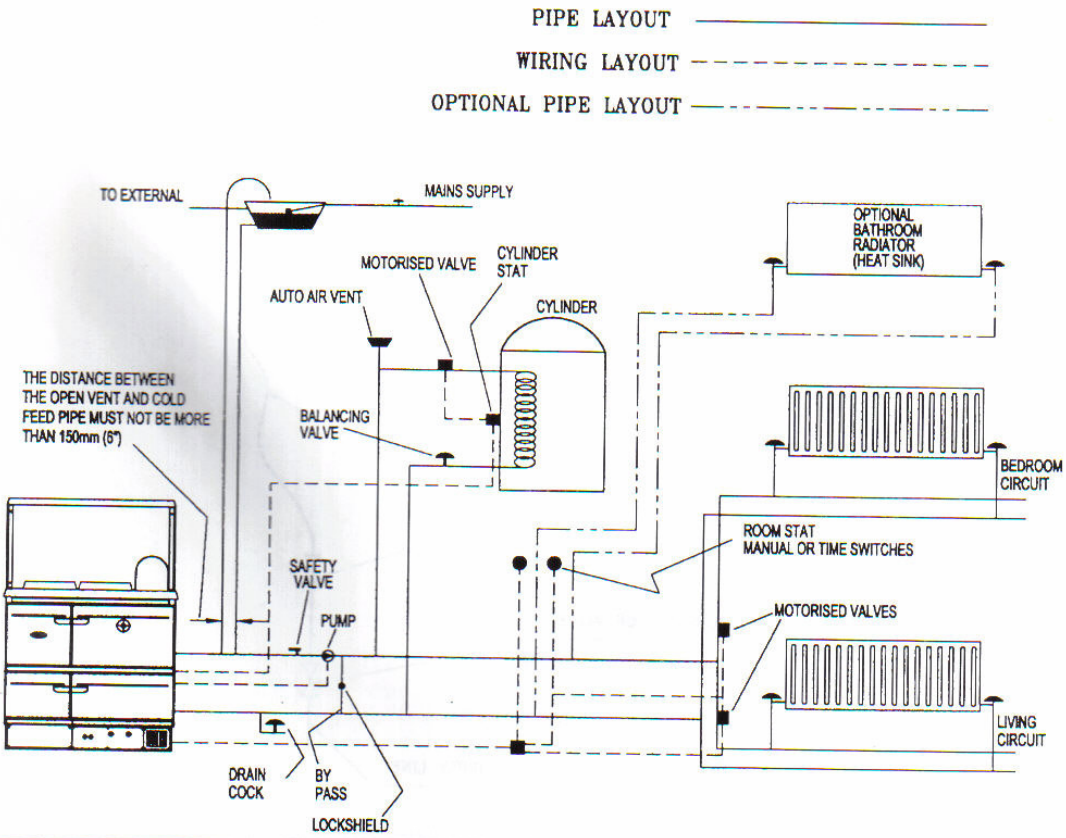
SEALED SYSTEM (WITH PUMP ON FLOW)

Fig. 26



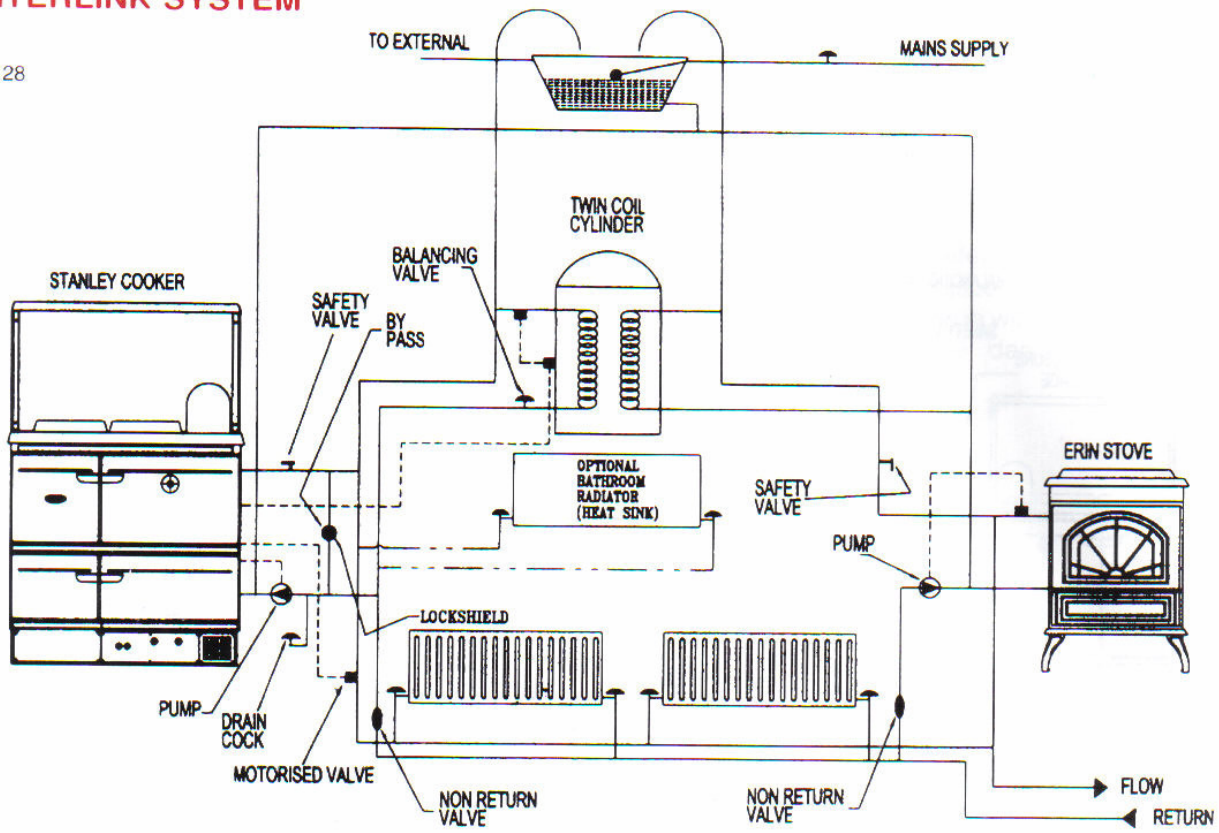
OPEN SYSTEM (WITH PUMP ON FLOW)

Fig.27



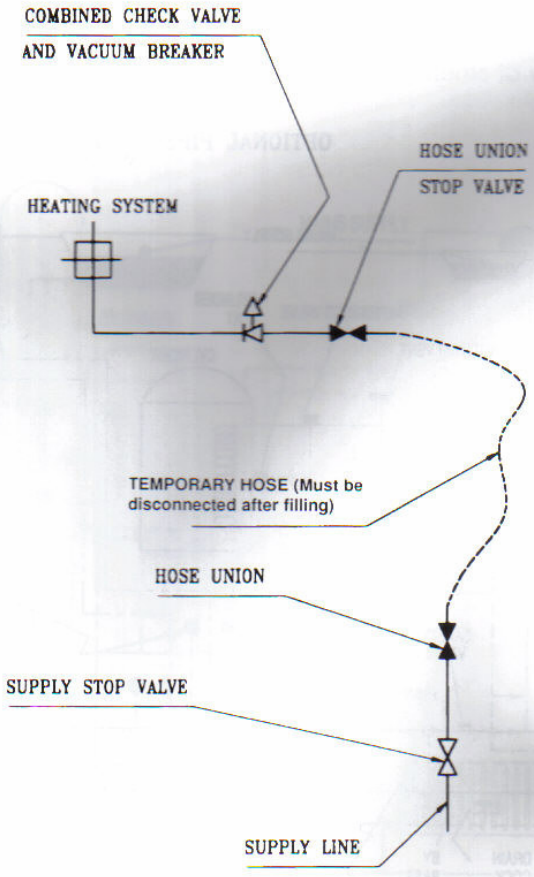
INTERLINK SYSTEM

Fig.28



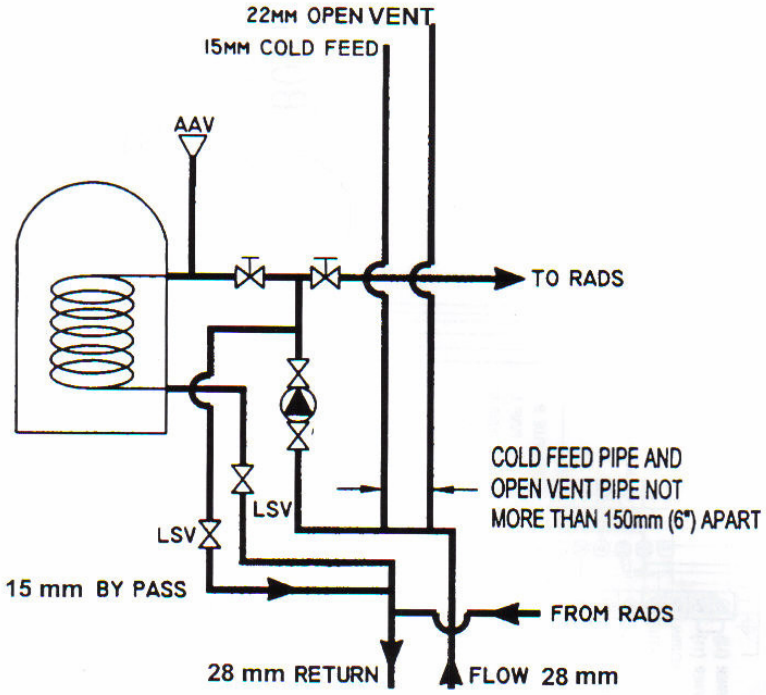
PROVISION FOR FILLING SEALED SYSTEM

Fig.29

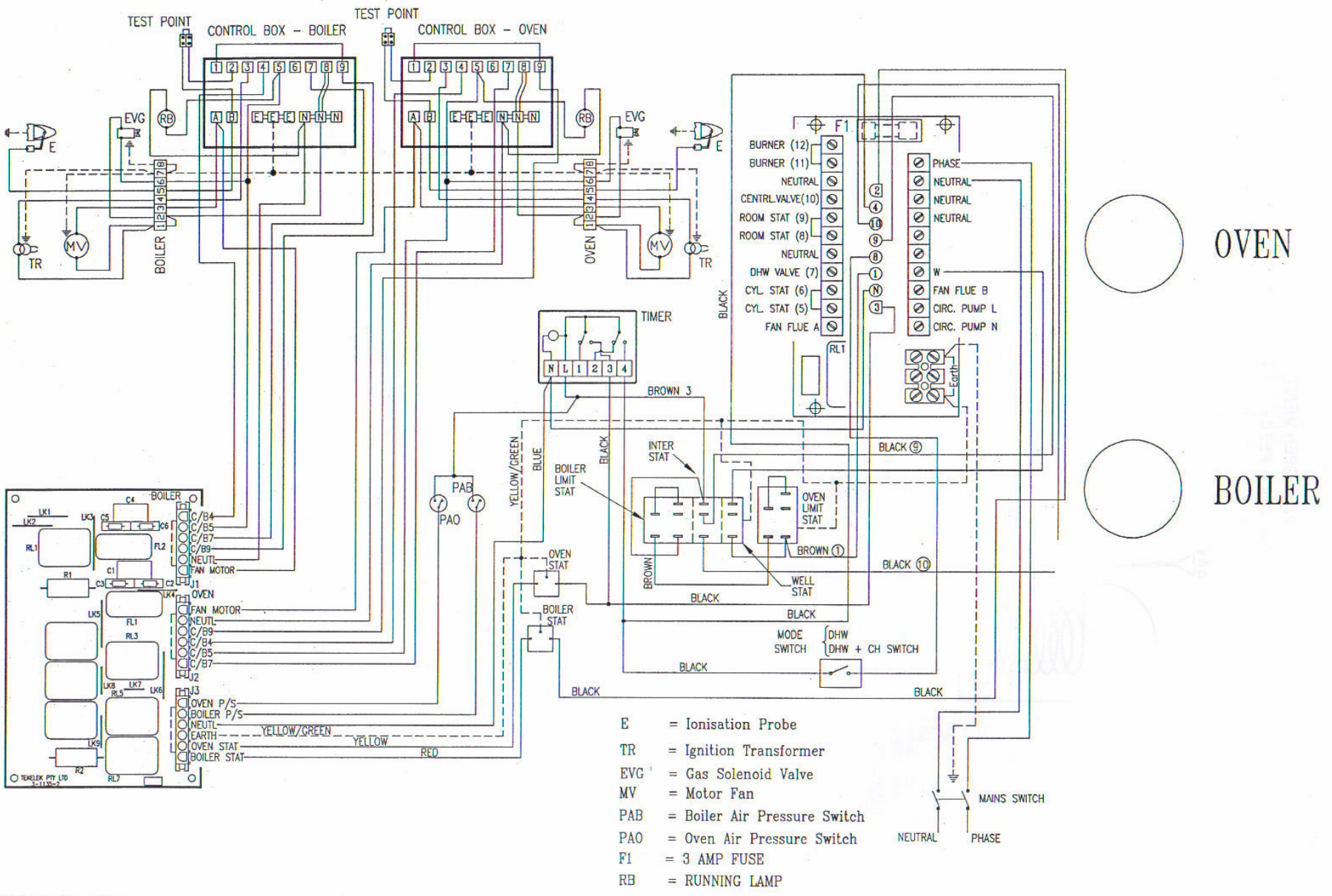


S PLAN SYSTEM

Fig.30

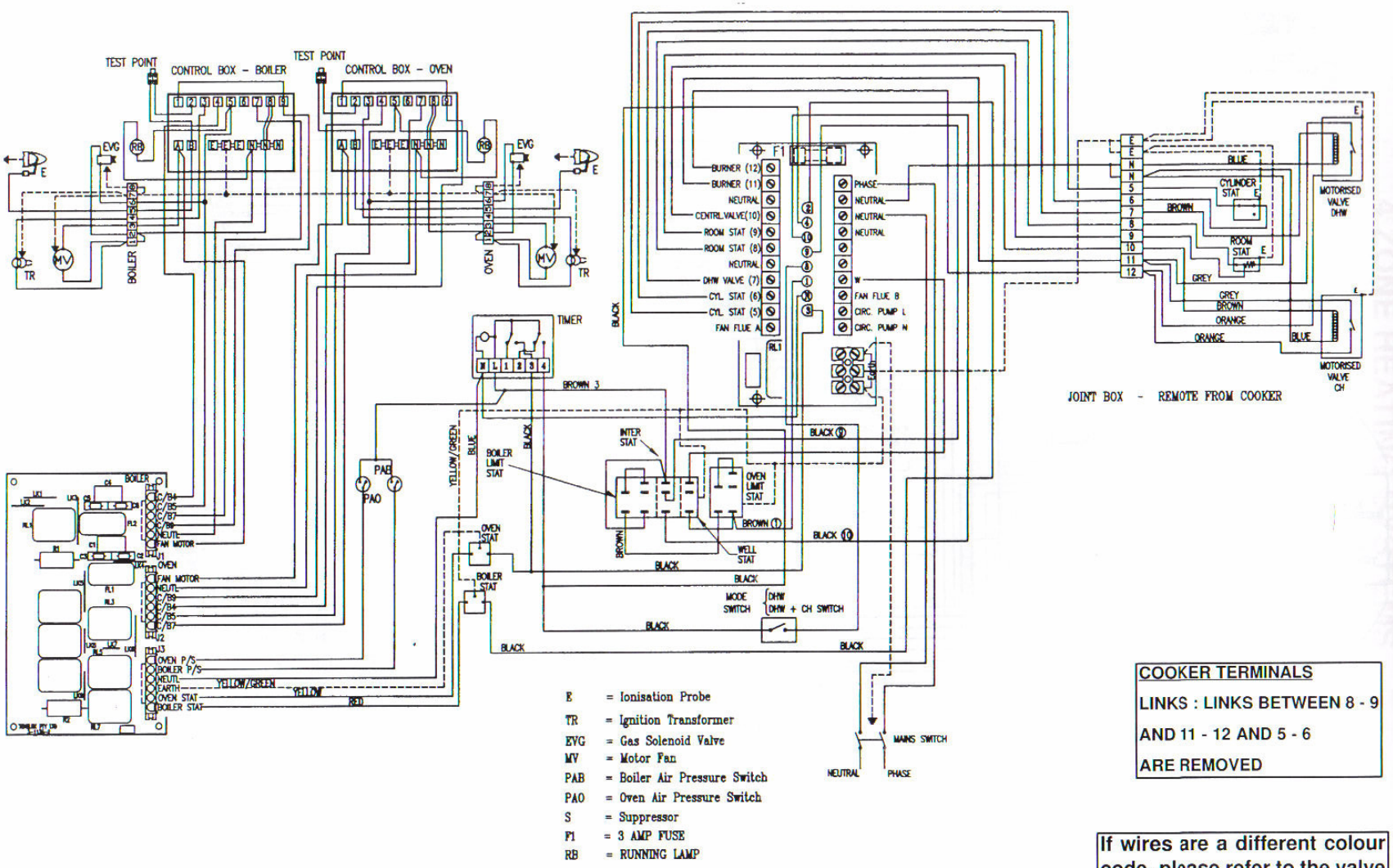


TWIN SERIES GAS WIRING DIAGRAM Fig. 31



E = Ionisation Probe
TR = Ignition Transformer
EVG = Gas Solenoid Valve
MV = Motor Fan
PAB = Boiler Air Pressure Switch
PAO = Oven Air Pressure Switch
F1 = 3 AMP FUSE
RB = RUNNING LAMP

S PLAN WIRING DIAGRAM TWIN SERIES Fig. 32



COOKER TERMINALS

LINKS : LINKS BETWEEN 8 - 9

AND 11 - 12 AND 5 - 6

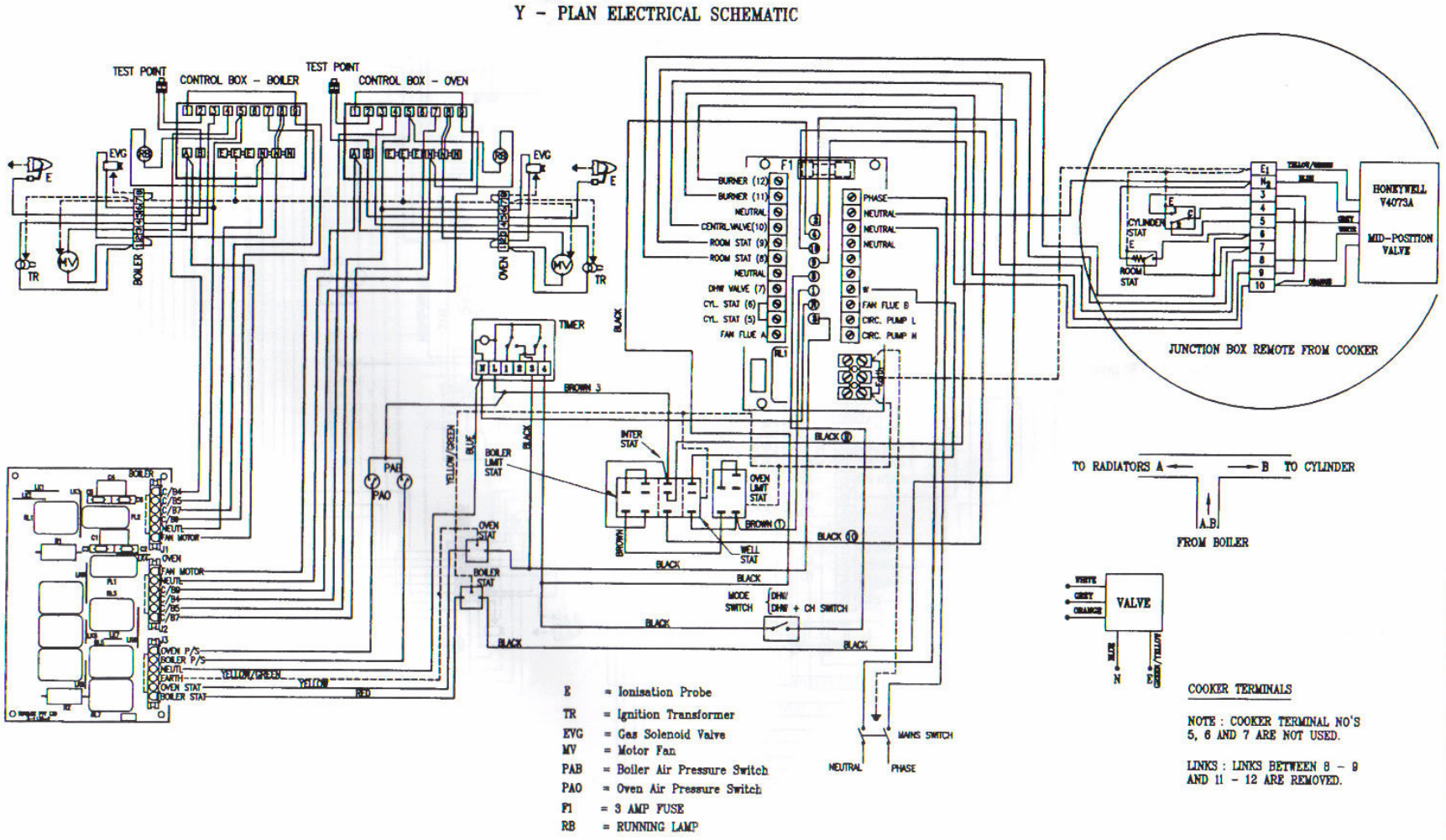
ARE REMOVED

If wires are a different colour code, please refer to the valve manufacturers instructions.

Y PLAN ELECTRICAL SCHEMATIC

Fig.33

On cooking mode hot water will be provided continuously to the cylinder by-passing the cylinder temperature control stat and increasing the cylinder temperature above that of the thermostat setting.



4 ZONE HEATING SYSTEMS

4 ZONE HEATING SYSTEM

When connecting the Stanley Twin Series cooker to a 4 zoned heating system (i.e. separate time switches and thermostats for domestic hot water and four central heating zones), the domestic hot water and one zone **must** be controlled directly from the cooker enabling the inter thermostat to operate if necessary. All other zones can be controlled from the cooker CH control relay where a constant live supply must be connected to the **time clocks** only (see figure 34 & 35).

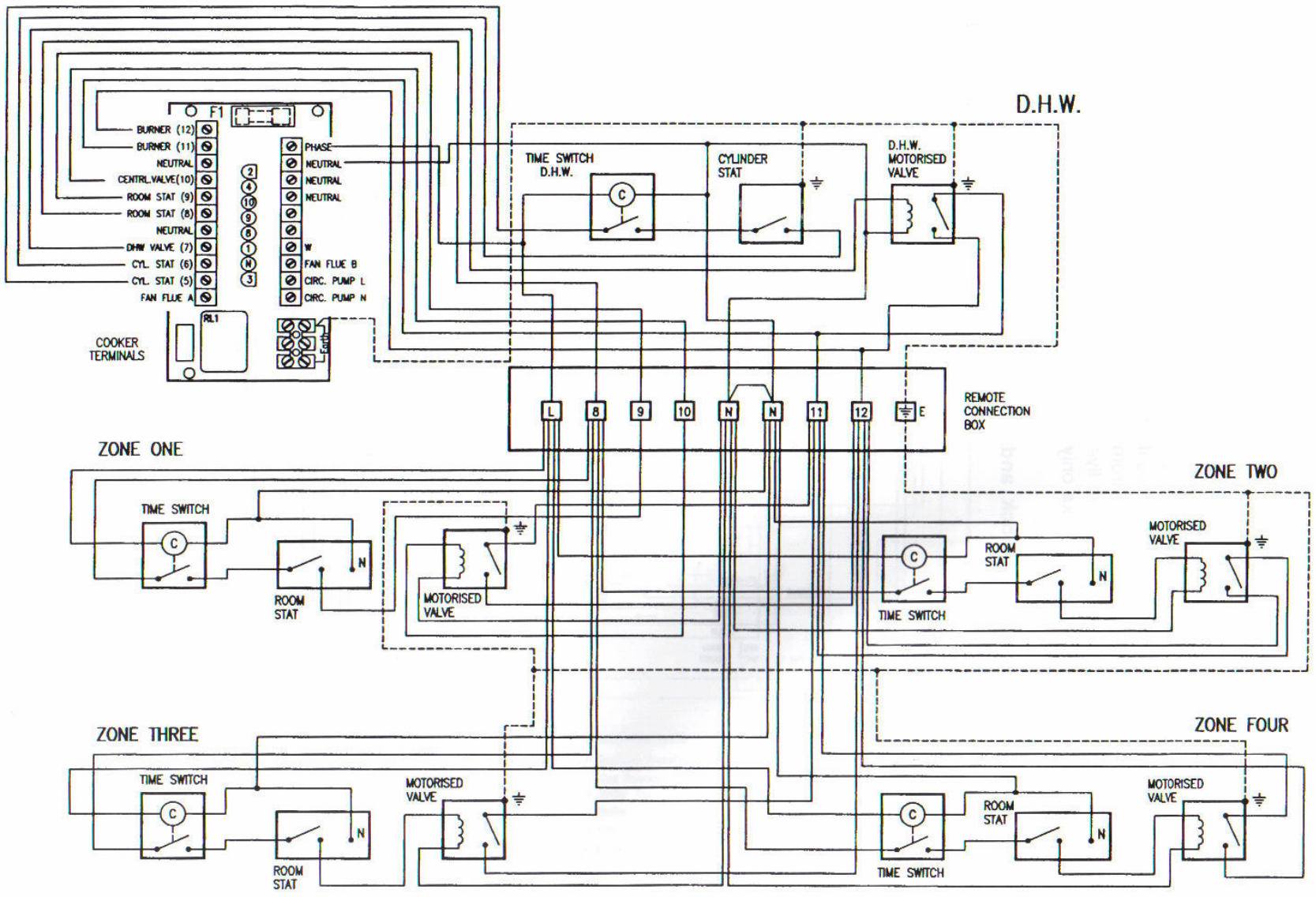
Time switches with independent clock and switch circuits must be used.

Alternatively, other zones can be powered from a supply source other than the cooker provided zone 1 of the heating circuit and the domestic hot water are powered directly from the cooker (see figure 28). This can be achieved using a central heating control relay which is energised from the cooker when the selector switch is set to central heating. Energising this relay closes a contact which switches the second supply to the additional zone control valves via time switches and room thermostats. A constant live is supplied to the time clocks from the supply source.

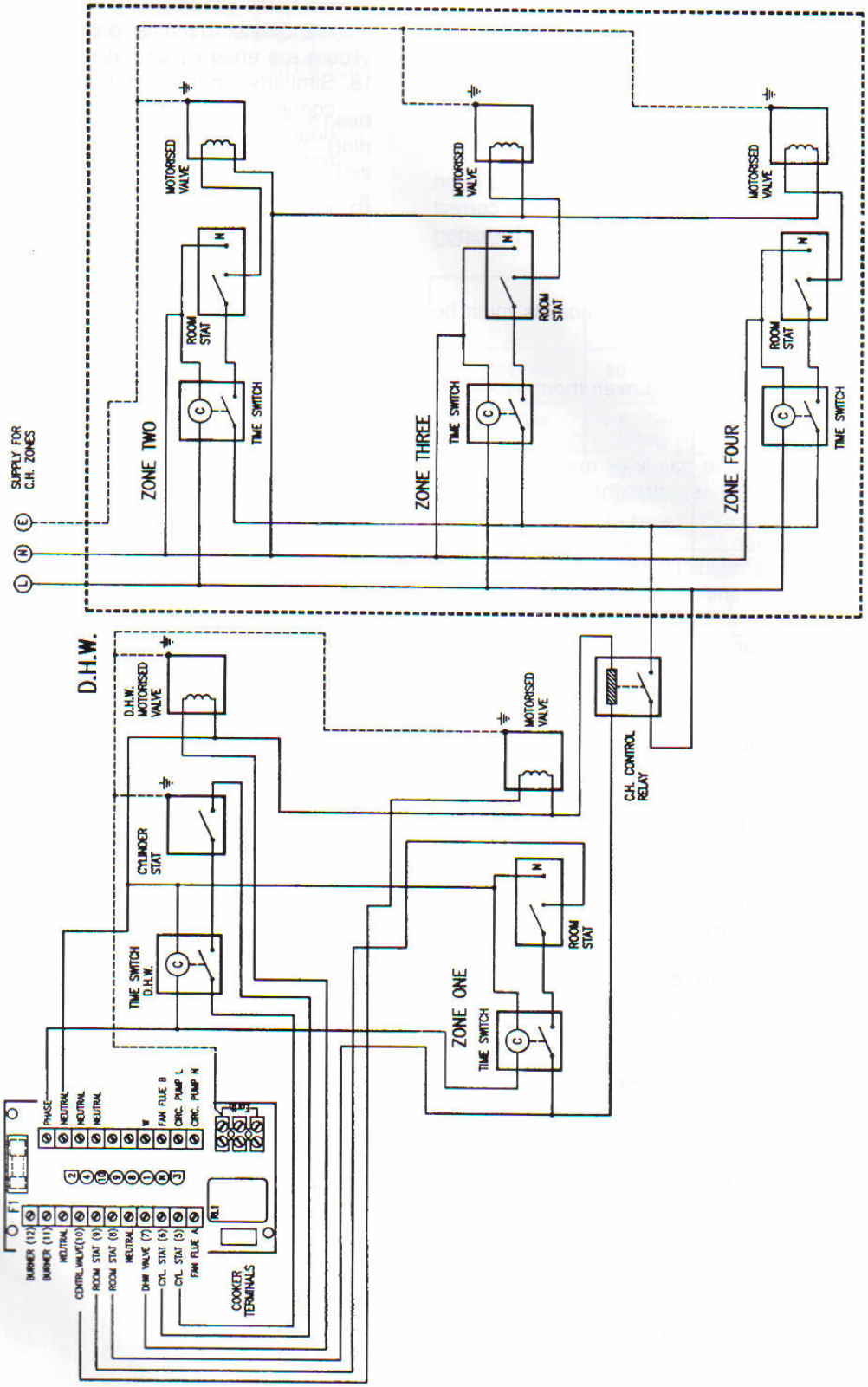
Under no circumstances can other supply sources be connected directly to the cooker.

Refer to figs 31 & 34.

SCHEMATIC DIAGRAM "FOUR ZONE" SYSTEM DIAGRAM ONE Fig.34



SCHEMATIC DIAGRAM "FOUR ZONE" SYSTEM DIAGRAM TWO Fig.35



COMMISSIONING CHECKS

1. Check all items of packaging are removed from ovens and the shelves are properly fitted.

2. Check that electrical wiring is correct.

3. Check that boiler and heating system is full of water and purged of air.

4. Check that boiler plate transport screw has been removed and that the plates are in their correct positions. (See section Removal of Transport Screw and Fig.38)

5. Time switches and room thermostats must be on.

6. Check that the boiler and oven thermostats are functional.

7. Connect burners to gas lines making sure that the connection is straight and properly connected.

8. Check that the mains Natural Gas supply line or L.P.G supply line is capable of supplying sufficient amounts for running both of the burners simultaneously.

9. Turn on the mains Natural Gas supply or L.P.G. supply ensuring that the cooker is switched off. Test the whole gas installation including the meter for soundness and purge in accordance with B.S. 6891 (U.K.) and I.S. 813 (I.E.), purge not to exceed 50 mbar.

10. Check the gas supply and burners for escapes using an approved leak detector spray and tighten if necessary.

11. Check temperature differential between flow and return 11°C (20°F) and adjust pump or by-pass accordingly.

12. Check heating circuit and balance if necessary.

13. With the mains Natural Gas supply or L.P.G supply off switch on the burners.

14. Complete the start sequence to lock out observing the correct operating functions.

15. Pre-purge time to run for up to 30 seconds.

16. Reinstate the gas supply and switch on the burners to ensure that they fire correctly.

17. With the cooker operating on full flame check for adequate gas supply by connecting a water manometer to the nipples near the main unions.

18. Similarly check the manifold pressures by connecting the manometer to the test nipples nearest to the burner heads and adjust as required.

19. When commissioning ensure that all doors of the appliance are closed while in operation.

20. After a minimum of 15 minutes of continuous operation with each burner still running, check flue gas analysis.

22. Make sure specified clearances are adhered to.

23. A spillage test should be then carried out with all external doors and windows closed and all extract fans and any other appliances requiring air in full operation.

24. Check flue joints are sealed correctly and that no escapes are occurring.

25. Check flue joints are sealed correctly and no escapes are occurring.

26. Check that the ignition electrodes and ionisation probes on each burner are set correctly.

27. Check the ionisation current on both burners by disconnecting the links and connecting the multi-meter set on µA.

28. If the cooker is not operating correctly, refer to the trouble shooting guide and/or the Manufacturers Technical Section.

29. **IMPORTANT** Check that the mains cable anti-lug gland located at the left side of the cooker at base level in service and tightened if required.

30. Refer to the Operation Instructions Manual for correct operation of the appliance and familiarise the occupants on the correct method of operating the appliance.

COMMISSIONING OF BURNERS

Both burners used in the Stanley Twin series cookers are slight variations of the standard Ecoflam Azur 30 burner currently used in existing Stanley cookers thus ensuring that spare parts are readily available. (See fig. 37).

The boiler burner has a specially designed disc head which ensures clean and silent operation. Both burners use a Honeywell VK4100 gas valve. This valve has a soft start facility but only requires a single wire which is connected to terminal 5 on the control box.

The Satronic control box has a programme indicator which aids fault finding. A full description of the programme indicator is given below. Both oven and boiler control boxes are wired to a printed circuit board. The PCB enables both fans to run whenever either or both burners are operating.

(This is required for safety reasons). A full description of the operation of the PCB is given below.

The following checks must be carried out when commissioning the burners:

1. Gas Pressure & Rates

The gas pressures are checked by connecting a manometer to the test points on each burner. Each burner pressure should be checked while that burner is operating alone. The burner pressure is set by adjusting the gas pressure adjuster screw. Note: This adjuster screw is very sensitive to even small adjustments so the gas pressure must be set very accurately. Consequently the manometer used must be graduated in mbar or be of a higher resolution. Check to make sure that the gas rate is correct (see technical data).

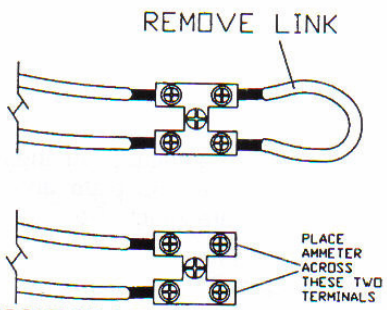
2. Air Setting

The CO_2 operating level for each burner is measured at each test point using a combustion gas analyser. The CO_2 level must be set to within the operating ranges specified below. This is achieved by moving the air adjuster on each burner.

3. Ionisation Current

The ionisation current for each burner must be measured. This is done by removing the link on the test block and connecting an amp meter across both terminals of the block. (See Fig.36)

Fig 36



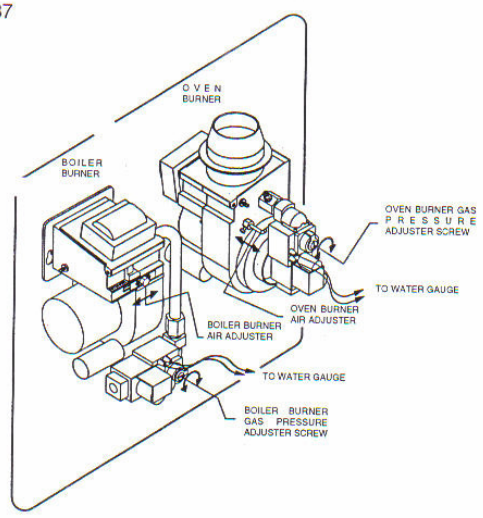
COMMISSIONING TABLE: NATURAL GAS ONLY

	Boiler Burner 100k	Boiler Burner 80k	Cooker Burner 80k/100k
Inlet Gas Pres.	20 mbar 8"wg	20 mbar 8"wg	20 mbar 8"wg
Manifold Gas Pres.	6.4 mbar 2.5"wg	5.3 mbar 2.1"wg	5.5 mbar 2.2"wg
CO_2 Range	9.5% to 9.65%	9.5% to 9.65%	9.05% to 9.20%
Ionisation Current	7µ Amps min.	7µ Amps min.	7µ Amps min.
CO max	100ppm	100ppm	100ppm

COMMISSIONING TABLE: L.P.G. ONLY

	Boiler Burner LPG	**Cooker Burner LPG**
Inlet Gas Pressure	**37mbar** 14.85"wg	**37mbar** 14.85"wg
Manifold Gas Pressure	**11mbar** 4.3"wg	**6.3mbar** 2.5"wg
CO2 Range	11%	11%
Ionisation Current	7µ Amps min	7µ Amps min
Co. Max	100ppm	100ppm

Fig.37

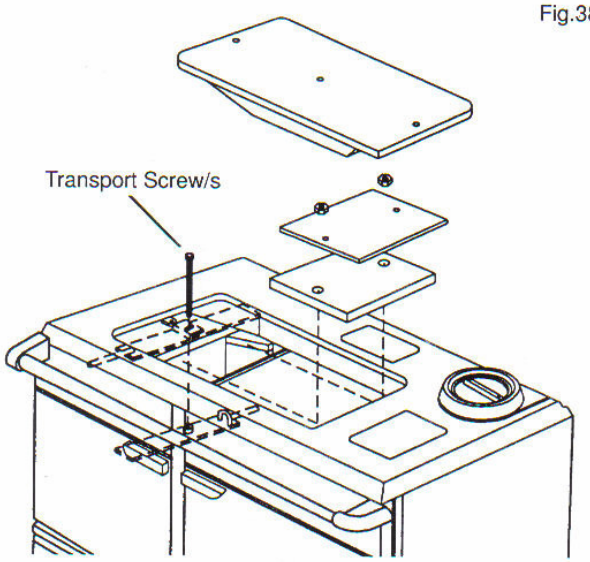


LEAVE ALL DOCUMENTS WITH THE END USER

REMOVAL OF TRANSPORT SCREW/S

Remove the hotplate and boiler top plate. Remove retaining screws from boiler plates. Check that all plates have remained in their correct positions and that no debris has accumulated on them during transport. Replace boiler top plate and hotplate ensuring that all seals are intact. See fig. 38.

Fig.38



Description of Satronic Control box and PCB controller.

The following is a description of the start up sequence of the twin series control system. Each coloured section on the control programme indicator represents a different stage in the start up sequence.

StepDescription

Turn on oven thermostat. When the oven thermostat is turned on power is supplied to the oven control box and to both burner motors which start immediately. The oven and boiler pressure switches close and relays RL4 and RL5 energise. The indicator cam on the control box then rotates to the start position.

Turn on boiler thermostat. When the boiler thermostat is turned on relay RL1 energises and power is supplied to the boiler control box and both burner motors which start immediately. The oven and boiler pressure switches close and relays RL4 and RL5 energise. The indicator cam on the control box then rotates to the start position.

Blue Pre-Purge The pre-purge period will last approximately 30 seconds. The control box will lock out at this stage if the pressure switch is not closed.

Orange Ignition The transformer provides a voltage to the ignition electrode causing a spark to jump from the ignition probe to burner head.

Yellow During this section the gas valve opens while the ignition electrode continues to spark.

Pink The ionisation/flame signal is checked.

Green With the burner firing at the start of this section all checks have been carried out and found to be O.K. The control programme indicator will continue to rotate until it reaches the end of the green section.

NOTE:

1. If either or both burners lock out the burner motors will continue to run.
2. If the control box is interrupted during its starting sequence it must continue through to the end of this sequence before it can start a new sequence. This may sometimes make the start-up of the appliance seem very long.

TROUBLE SHOOTING

These checks must be undertaken by a trained and competent person.

Burner motors will not start, Control programme indicator does not rotate.

1. Check that external wiring is correct.
2. Check for electrical supply on terminal "C/B 12" of the PCB and that it is wired correctly to the control box.
3. Press reset button to ensure that the control box is not locked out.

Thermostats are turned on and burner motors do not start immediately.

1. Check that motors are wired correctly to terminal "motors" on PCB.
2. Check for phase on "oven stat" or "boiler stat" terminals on PCB.
3. Check that the relay RL1 energises when the boiler thermostat is turned on.

Burner motors start, Control programme indicator rotates continuously.

1. Check that PCB terminals "C/B 5 and C/B 7" are wired correctly to the control box.

Burner motors start, Control box locks-out during the blue section

1. Check wiring of PCB.
2. Check that the air pressure switch is closing.
3. Check air pressure switch setting and burner air setting.
4. Check air pressure switch.
5. Check for adequate air supply to the appliance.
6. Check for blockage in chimney.

Burner motors start, Flame is not established, Ignition lasts for 5 seconds approximately, Control box goes to lock-out during the yellow section.

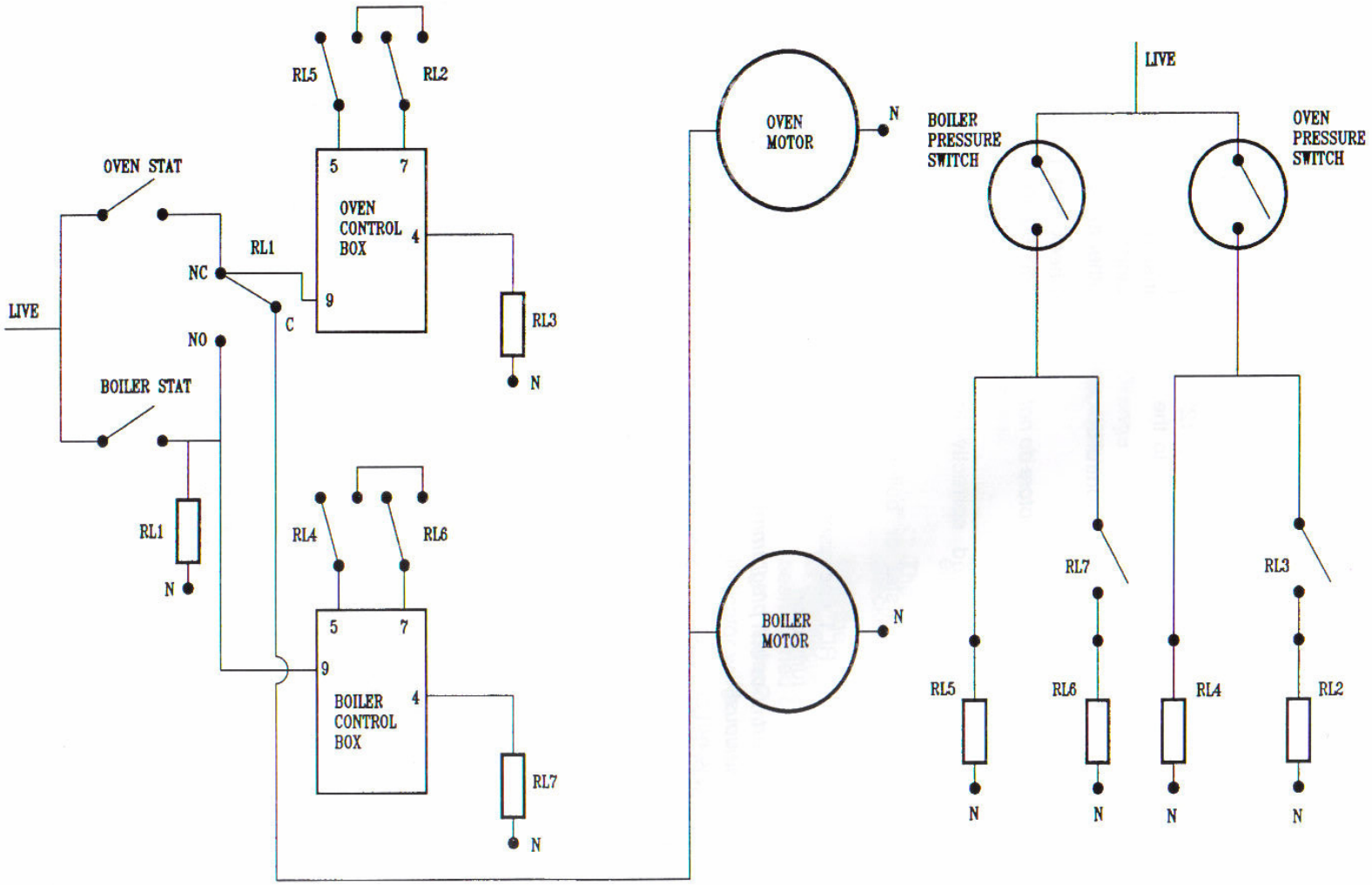
1. Check that ignition is present.
2. Check that gas supply is on.
3. Check that gas valve is energised and is operating during safety time.
4. Check the burner air setting and the gas adjuster setting.

Burner motors start, Flame is established, Control box goes to lock-out during the pink section.

1. Check the burner air setting and the gas adjuster setting.
2. Check polarity of wiring for live and neutral to control box base.
3. Check that flame detection probe is correctly positioned in the flame. Ensure that the probe insulation is sound, free from cracks or moisture. Check that probe is not in contact with other metallic parts of the burner.
4. Check that burner is effectively earthed and bonded to the incoming earth wire from the mains supply.
5. Check for interference to the flame signal from the ignition spark. This can be determined by the flame signal current with a D.C. micro-ammeter. Correct polarity of the meter connections must be observed, with the positive side of the meter connected into terminal 1. If the flame is established and the meter tends to move in reverse direction, this can be an indication that the ignition is causing interference to the flame signal. It may also be an indication that there is insufficient earth contact with the flame.

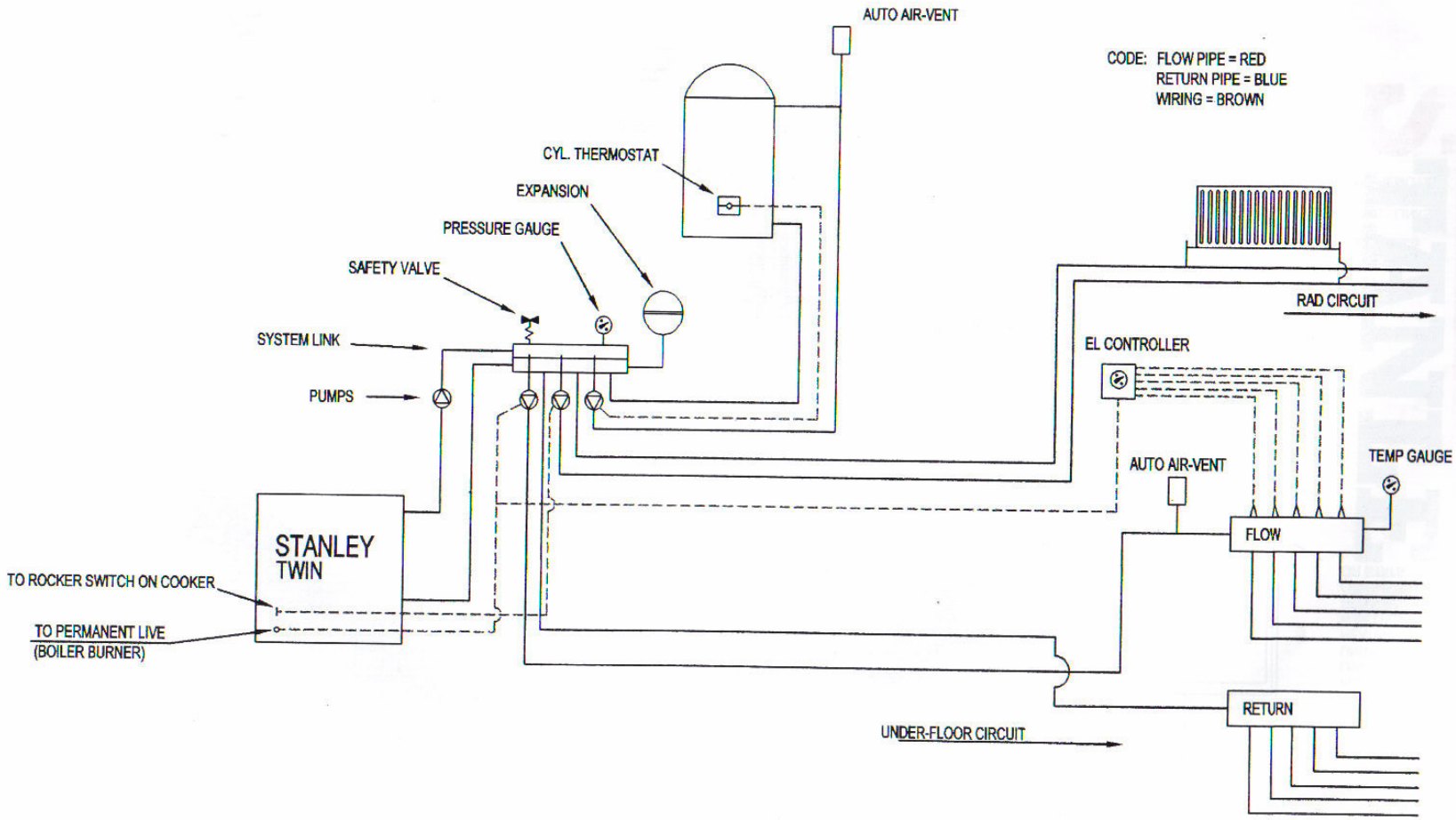
SCHEMATIC OF CONTROL BOX & PCB CONTROL SYSTEM

Fig. 39



PLUMBING DIAGRAM FOR UNDERFLOOR HEATING

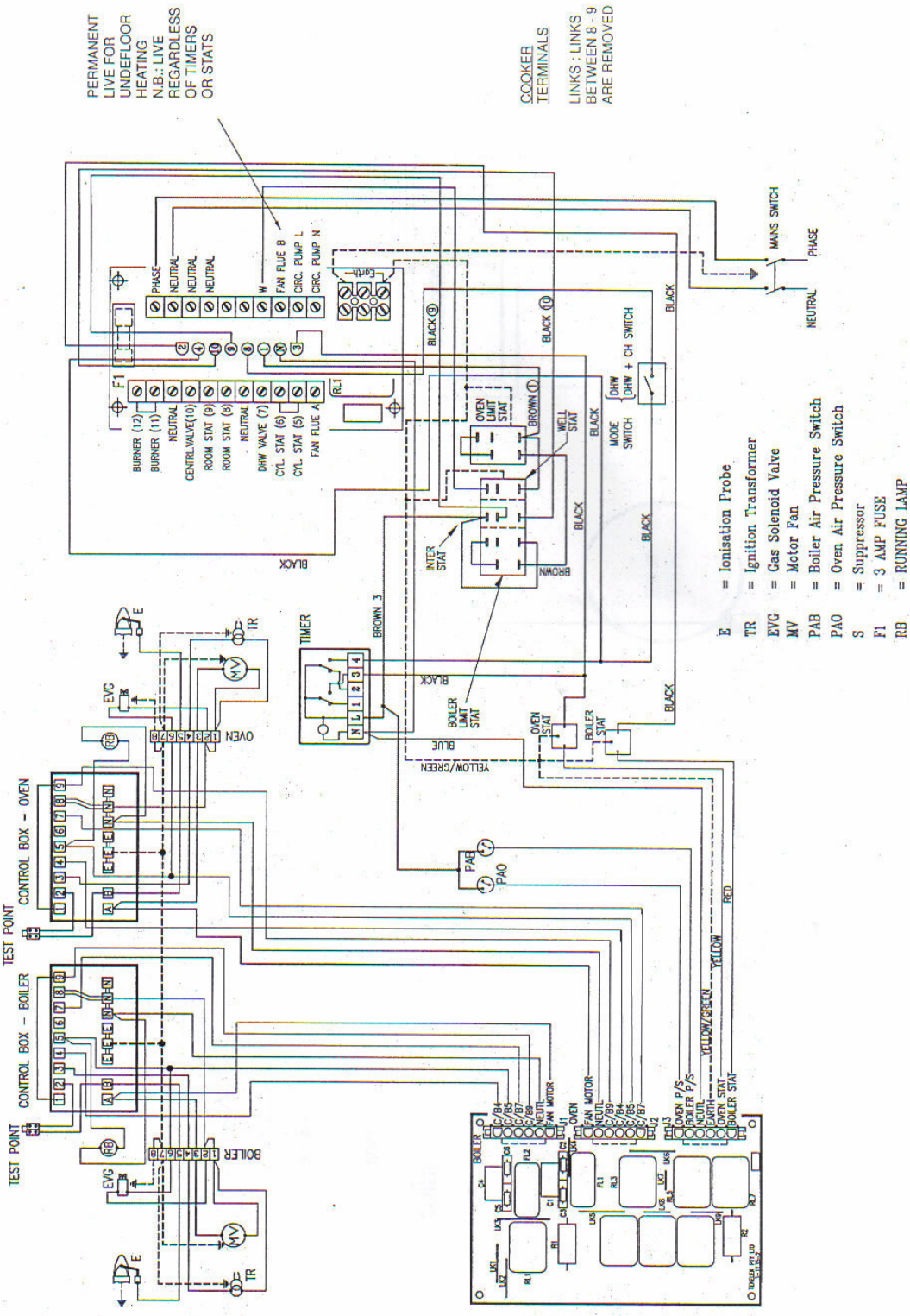
Fig. 40



WIRING DIAGRAM FOR UNDERFLOOR HEATING

Fig.41

MOTORISED VALVE – ELECTRICAL SCHEMATIC



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