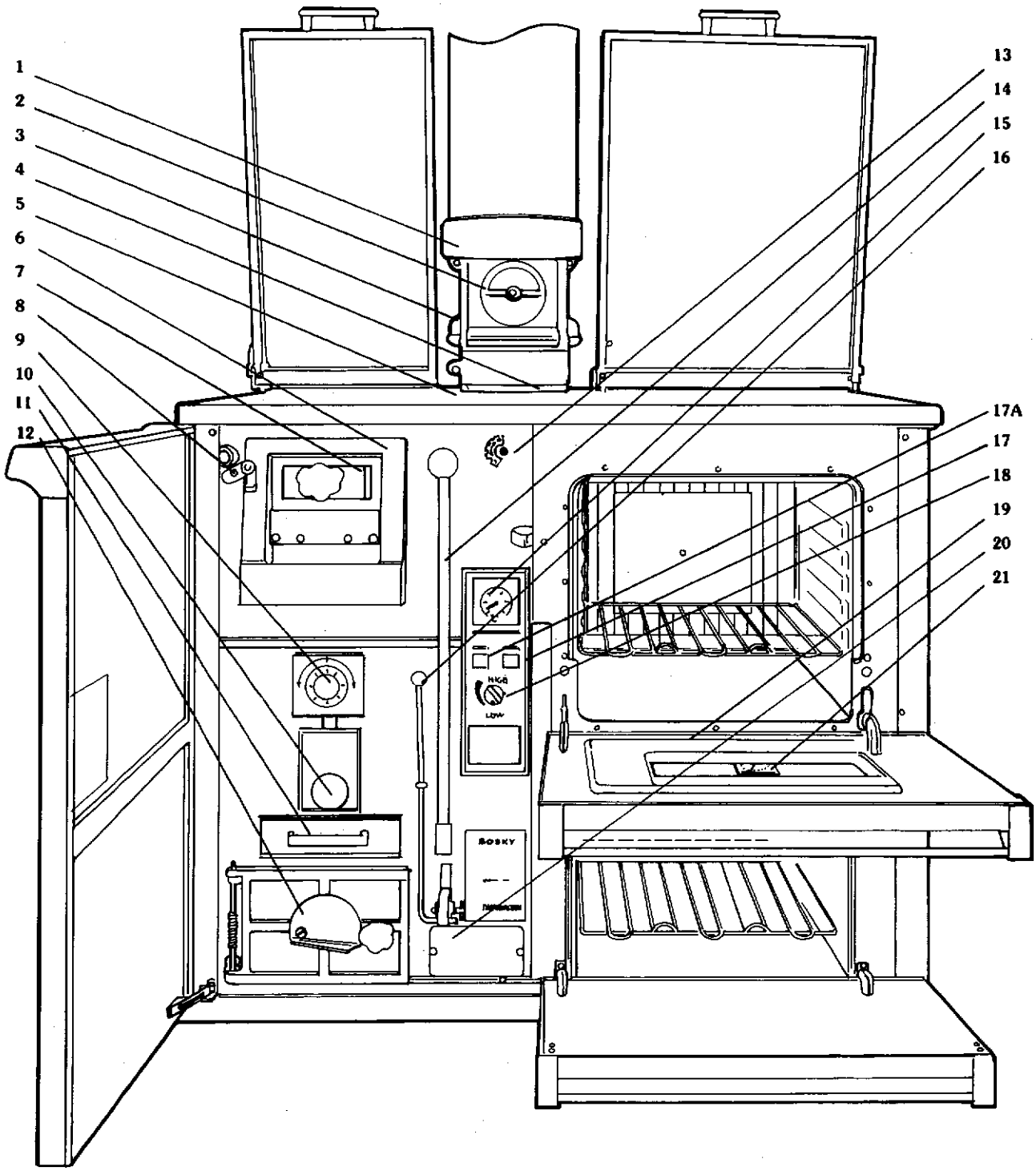
BOSKY

Central Heating Cookers and Boilers

Installation and operating booklet

1 Flue Draught Control Box
2 Flue Box Air Wheel
3 Flue Draught Control
4 Flue Spigot
5 Direct Draught Control
6 Front Loading Door
7 Secondary Air Inlet Slide
8 Front Loading Door Safety Catch

To obtain your **BOSKY** Cook Book, fill in and post the Warranty Card. Your book will be sent to you **FREE** by return.



9 Primary Air Thermostat
10 Riddling Access Hole
11 Primary Air Inlet Flap
12 Ash Door Air Flap
13 Oven Heat Flap
14 Grate Shift Lever
15 Boiler Thermometer
16 Grate Catch Release Lever
17A Circulating Pump On/Off Switch
17 Electric Oven On/Off Switch
18 Electric Oven Thermostat
19 Cleaning Access Cover
20 Cleaning Access Cover
21 Oven Thermometer

These numbers are used throughout the book to indentify each part

Specification

			60 C.H.COOKER	65 C.H.BOILER	90 C.H.COOKER	95 C.H.BOILER
Maximum output		Btu/hr Kcal/hr	60,000 15,000 approx 11rads.	62,000 15,500 approx 12rads.	80,000 20,000 approx 14rads.	82,000 20,500 approx 15rads.
Dimension	Height	mm	845	845	845	845
	Width	mm	1,000	560	1,040	610
	Depth	mm	600	600	600	600
Firebox Size	Width	mm	250	250	300	300
	Depth	mm	440	440	440	440
Adjustable Height	Top	mm	220	220	220	220
	Middle	mm	360	360	360	360
	Low	mm	500	500	500	500
Oven Size	Hot Height	mm	320		320	
	Width	mm	360		360	
	Depth	mm	530		530	
	Warm Height	mm	270		270	
	Width	mm	360		360	
	Depth	mm	530		530	
Oven Electric Heating			2 KW		2 KW	
Max Log Length		mm	430	430	430	430
Surface Area of Heat Exchanger		Sq. cm	8,400	8,600	10,000	10,200
Dia Flue Outlet Top with Flue Box or Back		ins ins	6" 6"Metalbestos SM or similar	6" 6"Metalbestos SM or similar	6" 6"Metalbestos SM or similar	6" 6"Metalbestos SM or similar
Weight		kgs	260	175	275	190

Maximum output on wood is the heat produced using wood at 20% moisture content, a flue draught of of 0.06" water gauge and a loading cycle in excess of 2 hours.
Maximum output on coal or smokeless fuel is measured under the same conditions on a 4 hour loading cycle.
Dimensions and specifications are approximate and we reserve the right to change them at any time.

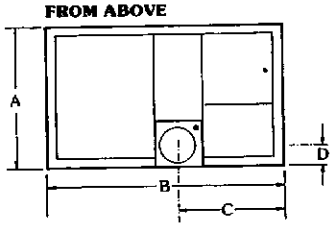
Installation Dimensions (mm)

	A	B	C	D	E	F	G	H	I	J	K	L
Model 60	600	1000	435	105	1080	845	665	783	303	80	75	1450
65	600	560	435	105	1080	845	665	783	303	80	75	1450
90	600	1040	475	105	1080	845	665	783	303	80	75	1450
95	600	610	475	105	1080	845	665	783	303	80	75	1450

Tapping sizes: 1 ¼" B.S.P. female

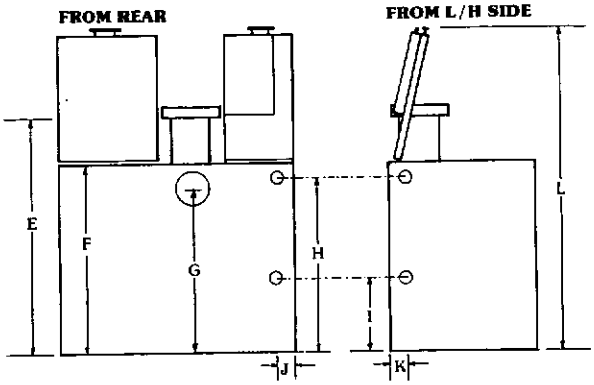
COOKER 60 + 90

FROM ABOVE



FROM REAR

FROM L/H SIDE



BOILER 65 + 95

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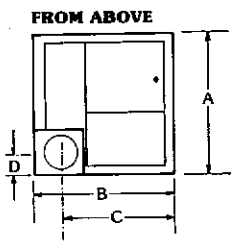

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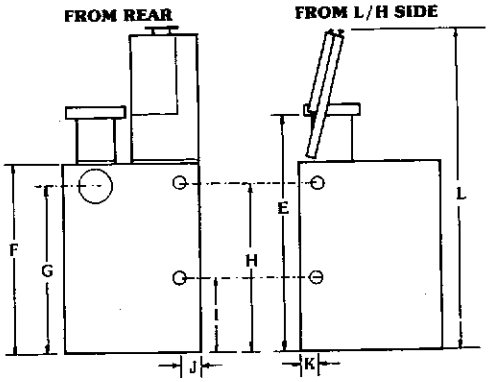


CONTENTS

Installation Specification

Summary

- Check all building regulations
- Install clear of combustibles
- Ensure that the flue is satisfactory
- Check plumbing
- Read all instructions before installing or lighting

Positioning and Installation

The Positioning and Installation of **BOSKY** must satisfy all local and national building and planning regulations. In particular, **BOSKY** should be mounted on a flat, horizontal and non-combustible surface. The sides and back of **BOSKY** are well insulated to reduce surface temperature. Ensure that the wall behind **BOSKY** is non-combustible and that there is always a gap between the sides and back and combustible material.

Fresh Air Inlet

AN ADEQUATE FRESH AIR INLET OF AT LEAST 36 SQ. INCHES MUST BE PROVIDED TO THE ROOM IN WHICH THE BOSKY IS INSTALLED IN SUCH A WAY THAT IT CANNOT BE BLOCKED AND IS NOT SUBJECT TO LOW PRESSURE IN ADVERSE WIND CONDITIONS.

Quality of Flue

THE FLUE is the most vital part of any solid fuel installation. **BOSKY** is a highly efficient device, which means that the amount of heat carried away in the flue gases is reduced to a minimum. In order to provide sufficient flue draught a high proportion of the flue gas heat leaving **BOSKY** must pass all the way up the chimney.

THE FLUE MUST THEREFORE BE WELL BUILT, WELL LINED, AND PROVIDE UNDER ALL CONDITIONS A **STEADY DRAUGHT OF BETWEEN 0.05 AND 0.08 INCHES WATER GAUGE (1.3MM AND 2.0MM).** WE THEREFORE STRONGLY ADVISE THE FOLLOWING:

Insulation of Flue

a. The full length of the flue must be sufficiently well insulated to maintain the flue gas temperature. A poorly insulated flue will allow the gases to cool and condense. Smoke will be emitted from the appliance and tar from the flue.

b. The flue gases will be at their hottest as they leave **BOSKY.** The flue pipe leading immediately from the appliance is therefore most critical. It must be properly insulated and should be vertical or near vertical for as far as possible.

Existing Flue

Liners

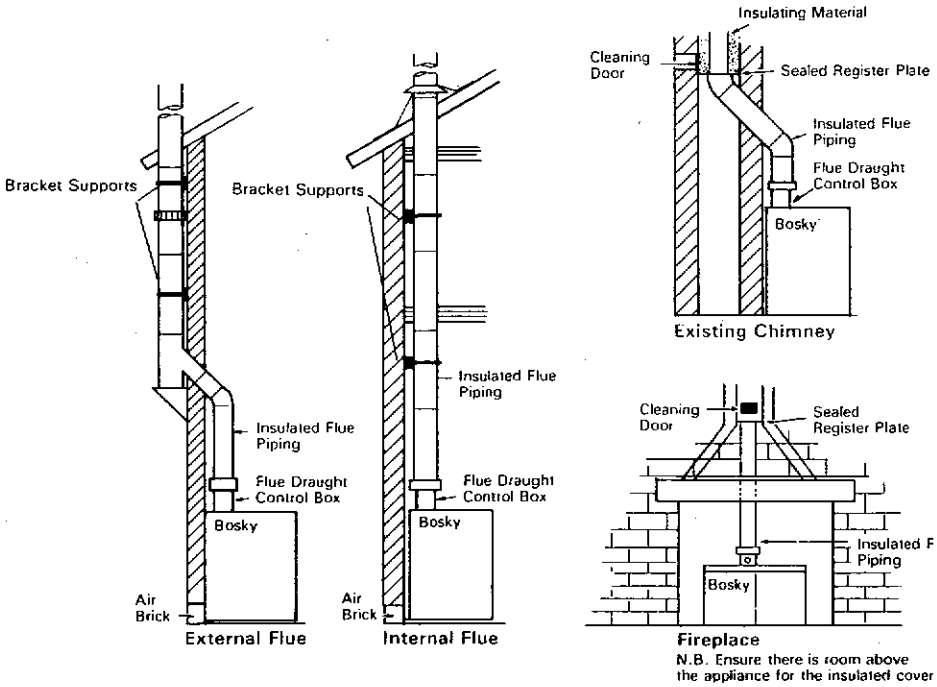
c. An existing flue must be well sealed or lined so that creosote, tar or smoke do not leak through the structure of the chimney. Always avoid venting into a large chimney opening, where the gases may cool. It is better to pipe the gases up to a narrow part of the chimney. where an airtight seal should be made. **NEVER** use flexible liners or asbestos, as these readily pick up deposits and will eventually lead to a restricted or blocked flue.

Height of Flue

d. The flue must be high enough (more than 15 feet in any case) to allow the flue gases to vent into clear air, away from the turbulence that may be caused by roof structures, other chimney stacks etc. The venting position should be three feet above any obstruction within a 25 foot radius, if downdraughts are to be avoided.

Prefabricated Flue

e. If there is no suitable existing chimney, we would recommend the use of a twin-walled pre-fabricated, insulatec chimney which can be installed either internally or externally, and will have the correct heat-retention properties tc maintain a good draw. Due to the lengthy travel of the flue gases through the water jacket, there is no possibility o: flames impinging into the flue. Twin-walled flue car therefore be placed directly into the flue box (1) which is designed for this type of piping.



Flue Outlets

f. **BOSKY** is supplied with both top and rear outlet positions. We strongly recommend that the top outlet position should be used whenever possible as this gives the flue system the best chance of drawing effectively and also allows the use of the flue draught control box (1). The rear outlet should only be used when the insulation of the flue system is known to be of the highest standard, and gives a draught of 0.08" and when the length of the flue is in excess of 30 feet.

Flue Box

g. The flue draught control box (1) supplied with the **BOSKY** is fitted only with the top flue outlet. It rests on the flue spigot (4) with the larger diameter flange upwards. It is designed to fit directly onto 6" i.d./8" o.d. prefabricated insulated flue pipe such as Metalbestos SM. The flue pipe should be supported from the roof or the back wall so that the flue box can be unscrewed, split and removed for cleaning and chimney sweeping.

Angles

h. Avoid abrupt angles or changes in section in a flue which will disturb the smooth flow of the flue gases, and the flue system should be kept as vertical as possible to maintain the correct draught.

Cleaning Access

i. Whichever type of flue is chosen, there must be cleaning access to the whole of the flue system.

Size of Flue

j. No part of the flue system should be smaller in cross-section than the flue outlet of your **BOSKY,** which is 28 sq ins (180 sq. cms).

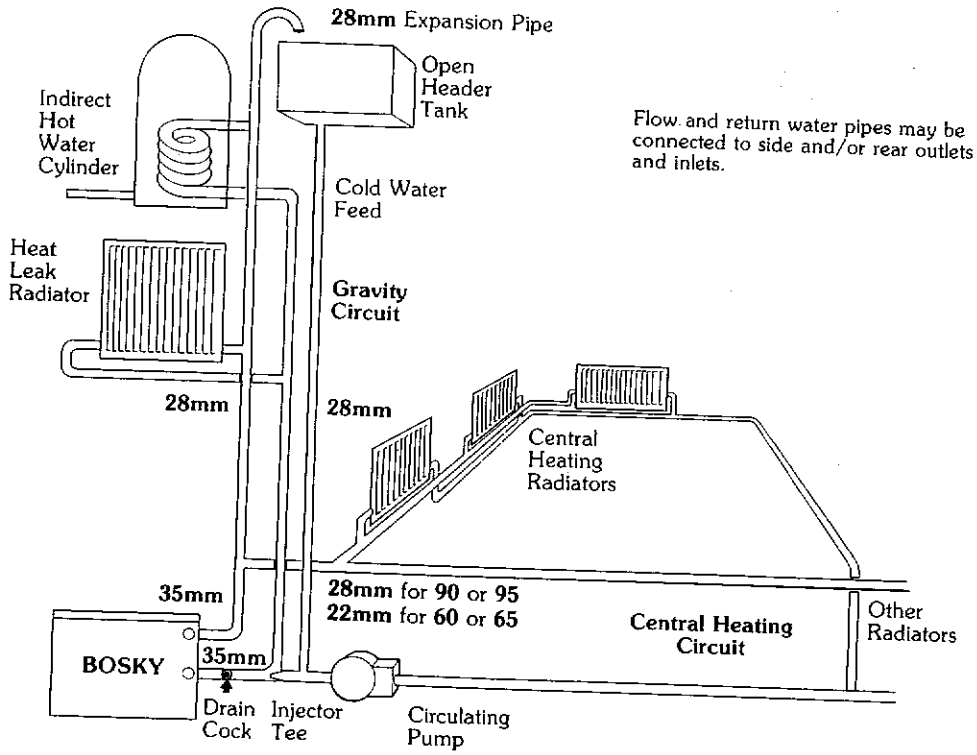
Flue

Flues that may have been adequate for other types of solid fuel units will not necessarily be adequate for **BOSKY**. Because of its efficiency, **BOSKY's** flue gas temperatures will be lower and its volumes smaller than may have been the case with its predecessor. The draw and insulation of the flue system is therefore more critical.

Nearly all apparent 'faults', from smoking to excessive fuel consumption and lack of performance, are due to flues with either poor or unstable draught, or with bad heat-retaining properties. A good flue system may be expensive, and many people are tempted to try an existing chimney just as it is before spending the money. Occasionally this works but, more often than not, the gamble only ends up producing a disappointing performance.

Plumbing

The Plumbing must be in accordance with all relevant regulations and practices. It must include a gravity circuit with expansion pipe, open to the atmosphere. The central heating will normally be pump-driven as with other types of boiler.



Gravity Circuit

The gravity circuit consists of the domestic hot water cylinder and a radiator (although it could equally well consist of a number of radiators and no cylinder). The cylinder must be of the **Indirect** type, having a heat exchanger coil running down the interior. A large cylinder is preferable to a small one, and should be positioned somewhere above **BOSKY** to encourage the natural convection of hot water. The radiator in this circuit is strongly recommended to act as a fail safe heat sink in the event of pump failure on the central heating circuit, and may be installed in a bathroom. All the piping in the gravity circuit, including the expansion pipe, should be at least 28mm to allow easy flow, and the sections of common flow and return (i.e. when gravity and central heating are running together) should be 35mm. For safety's sake do not have any valves on this circuit.

Central Heating

The central heating circuit can be designed to suit the house, and normal control devices such as timers and thermostats may be incorporated in the circuitry controlling the circulating pump. We recommend the use of individual radiator thermostat valves, partly because they help heating control and reduce fuel costs, and party because they help to smooth out heat requirement variations in the central heating circuit.

Connecting Pipework

Pipes for the central heating and domestic water flow and return cai be connected to either the side or rear tappings on the **BOSKY.** If re quired, both tappings can be used, one for each flow and return pipe oi each circuit.

THE PIPE CONNECTION ONTO THE BOSKY MUST BE THREAD ED IN FOR A LENGTH OF 20MM OR LESS. THIS ENSURES A GAI OF AT LEAST 10MM BETWEEN THE END OF THE CONNECTIOI AND THE OPPOSITE INSIDE FACE OF THE HEAT EXCHANGER

Ensure that pipe sizes around the central heating circuit are in acco dance with normal practice. The piping for the first section of the centr heating circuit after the tee off from the gravity flow pipe should b 28mm for a typical **BOSKY** 90 or 95 circuit and 22mm for a typic **BOSKY** 60 or 65 circuit. The piping may then be reduced as the Bt requirement of the balance of the circuit diminishes step by ste Similarly, the return piping should be increased step by step until it to returns at 28mm or 22mm before joining the gravity return.

Injector Tee

(Common Water Return Systems)

Where the gravity and central heating circuits join together to return to the **BOSKY,** we recommend the use of an injector tee connectio situated as close to the unit as possible. This type of tee encourages stable flow of hot water through both circuits and helps to prevent prio ty being given to the stronger flow, which is most commonly t pumped central heating circuit. This way, there will not be a shortage hot water to the taps when the heating is on. A special injector tee f this purpose is available and can be obtained via a main **BOSK** distributor.

Inhibitor

Always use a corrosion inhibitor when filling the system as this will he to preserve the life of the heat exchanger and the radiators. Follow t manufacturers instruction and top up the system regularly.

Circuit Temperatures and Condensation

The return water temperature must be maintained at no less than 40° so as to avoid condensation in the heat exchanger and return piping. ensure that cold water for the radiators is not returned to **BOSKY** wh the boiler is cold a low temperature thermostat is incorporated in the a pliance. The central heating circulating pump must therefore be wir through the terminal block on the side of the **BOSKY.** This circuit cludes a pump on/off switch (No. 17A) as well as the thermostat. Oth controls such as a time clock and room or frost stats can be added to t circuit between terminal block and pump. Should the system be so c as to stop the pump ever working continuously, a three or four-way n ing valve and by-pass pipe may be fitted to the flow pipe to divert so hot water straight back into the return pipe. Such a valve can be a justed to allow enough hot water directly back into the heat exchan to enable the pump to reach continuous operation that much soon **THE GUARANTEE WILL BE INVALID IF THE CENTR HEATING PUMP IS NOT WIRED THROUGH THE BOSKY or RETURN WATER TEMPERATURES BELOW 40°C ARE MAI TAINED.**

In line with other boilers

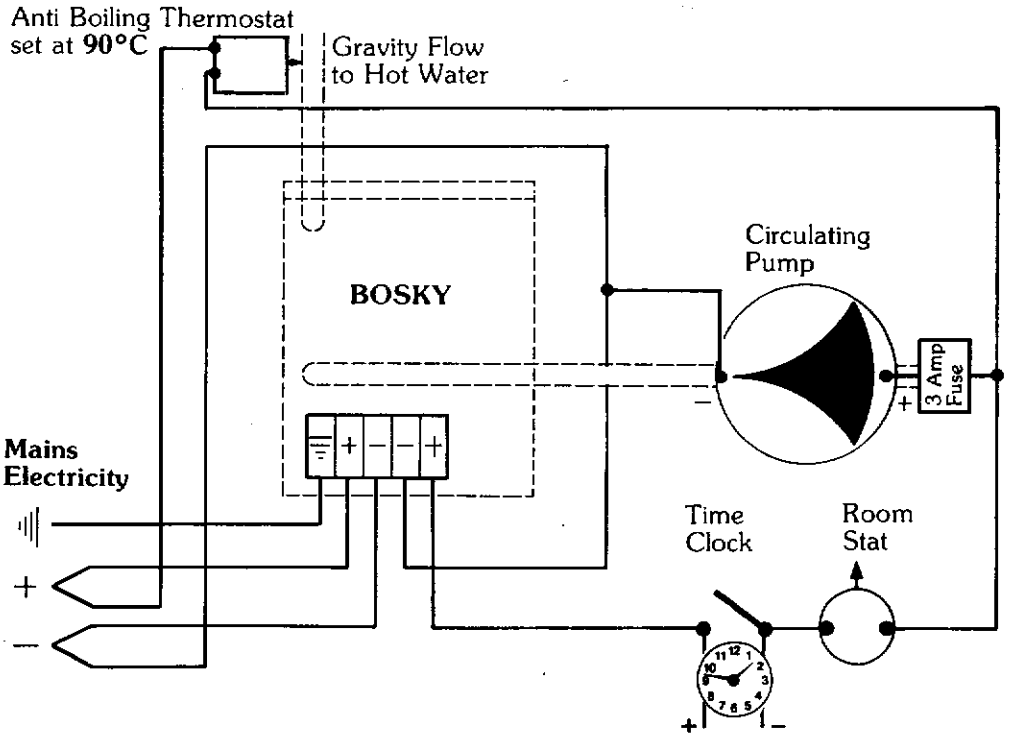
It is quite possible to fit **BOSKY** in parallel or series with another boiler unit. The thermostat controlling the other unit should be set lo than that on **BOSKY,** so that, when the temperature falls, the m economical **BOSKY** is called on to heat up the system first. Onl **BOSKY** cannot produce sufficient heat will the other unit fire up. If two units are connected in parallel, ensure that the full central heat circuit receives the hot water, rather than a small 'closed-circuit' be set up between the boilers.

Pump Controls

There is a chance, as in any solid fuel central heating system, that **BOSKY** may cause the water to boil. This is possible if the central heating circulating pump is off, no domestic hot water is being used and there is a good fire in the **BOSKY**. To eliminate this potential problem an anti-boiling thermostat should be fitted. The thermostat sensor should be fitted to the flow pipe of the gravity circuit so that when the water temperature at this point exceeds, say 90°C the circulating pump is automatically switched so that the excess heat can be absorbed in the radiators.

The anti-boiling stat must be wired to the same plug as the **BOSKY**, but must then bypass all other switches. Ensure that it is connected to the circulating pump with the same polarity as the other mains wiring to the pump. The pump should be protected by a 3 amp fuse.

The diagram shows how **BOSKY** must be wired to the mains and to the circulating pump and to the anti-boiling thermostat.



Summer Shields

Special cast iron summer shields which greatly reduce the heat transmitted to water are available as an extra. If boiling is a problem in the summer time contact your distributor.

Electrical Connection

BOSKY can be connected to normal wiring through a 13 amp plug. The terminal connections are on the left hand side beneath the removable plate. Ensure that the mains and the pump wires are connected through the rubber grommets.

Operating Advice

Summary

- Test water circuits and flue. Ensure that system is filled with a corrosion inhibitor
- Remove protective plastic coatings from the hot plates, surrounds and covers
- Light according to instructions
- Adjust grate height, flue draught, air inlet, type of fuel and ash depth to suit requirements
- Avoid condensation and maintain water temperatures above 40°
- Keep appliance clean and chimney well swept

Lighting

Make sure that the water circuits have been properly flushed out, inhibited, filled and tested for leaks, air locks, operating of pump, valves and balancing of radiators etc. Make sure that all protective plastic coating has been removed from the stainless steel surround and the insulating covers.

Make sure that all the controls on the face of the unit operate freely; in particular, try the oven heat flap (13), the boiler thermostat (9) and the grate shift lever (14). This last item may be best operated by crouching in front of the boiler and gripping the top of the lever with both hands at arms length and pulling to obtain the different positions. There will be audible clicks from the ratchet at the base of the grate shift lever (14) as the middle and top position are achieved, and the lever can be stowed away once the ratchet has engaged. To lower the grate, pull the grate shift lever (14) down and raise the grate a little; the grate catch release lever (16) can be pulled up, releasing the ratchet mechanism and allowing the grate to be lowered slowly down. When lifting and lowering, the grate shift lever (14) carries the full weight of the fire. It is therefore easier to move the grate to a new position with a smaller fire before new fuel is loaded.

Once these checks have been carried out, raise the grate to its top position (so that the fire can be lit easily through the front loading door) and lay the fuel on the grate. Newspaper and kindling is normal, but other ways of lighting, such as proprietary firelighters, can be used.

Before lighting, open the direct draught flap (5) with the blade of the opening tool, so that the slot points from side to side when the fire is first lit, this will allow hot gases direct access to the flue, thus inducing a good draw.

The flue draught control box (1) on top of the top flue outlet should have its front air wheel shut (2) and damper flap (3) open (side handles in their top setting).

Opening both the primary air inlet flap (11) to number 8 and the ash door flap (12) to its widest position will allow a large volume of air to reach the underside of the fire.

Now light the fire and allow it to establish for a few minutes. Usually, the front loading door (6) can be shut and the secondary air slide (7) behind the knob left open. After the fire has caught reasonably well, lower the grate to the middle positon and fuel up through the front with a light load. Close the front loading door (6) and its secondary air slide (7), and allow this fresh load to catch for a few minutes. If, during this process, the gases above the fire are 'brightened' by opening the front loading door (6) for a couple of seconds, open the secondary air slide (7) again so that the extra oxygen over the fire can help to burn off the volatile gases.

When the fresh load has caught after a few minutes, shut the direct draught flap by moving the control slot (5) to a front-to-back position; there is a catch bar mechanism inside this part of the unit and the control should be moved firmly to ensure that this clicks together. At the same time, close the ash door air flap (12) and adjust the primary air inlet flap (11) (boiler thermostat) down from number 8 to, say, number 6 (somewhere between 5 and 7 may eventually turn out to be 'normal' setting, depending on the size of your heating system, the draw from the flue, the quality of your fuel and the water temperature required).

Finally, check the position of the oven heat flap control (13) (cooker only), this should normally be up, on central heating, at least until **BOSKY** and the flue system are thoroughly warm. However, it should not take long for this to happen, and the flap may be dropped for cooking quite soon after lighting.

Condensation

It is not unusual for some condensation to form on the heat exchanger when the unit is first lit. This will gradually disappear as temperatures within the unit rise. While the unit is new, always be prepared for condensation when lighting from cold and take care to protect floor coverings, just in case. Leaving the secondary air slide (7) open will help dry out the condensation.

The anti-condensation thermostat built into the **BOSKY** control system will only allow the pump to operate if the heat exchanger has achieved a reasonable temperature. If it proves difficult to get the whole central heating system up to temperature so that the pump runs continuously, allow the system to warm up gradually by turning on the radiators one by one.

Day to Day Running

Ash Bed

Some attention should be paid to the amount of ash that is allowed to build up in the firebox. Wood has better burning characteristics if a bed of ash is allowed to build up, riddling only being necessary to liven up the fire (for cooking, for example). Coal or smokeless fuels, on the other hand, burn better if they are well riddled to allow a good airflow to the fire. For slow combustion, it is better to have a thicker ash bed for all fuels. Therefore, do not riddle the fire before slowing it down for overnight burning, but riddle if required in the morning or before cooking.

Riddling

Before riddling open the direct draught flap (5) to increase the draw over the fire and thus reduce the chances of dust escaping from areas below the fire. Close the primary air flap (11) and ash door flap (12). With the grate in its bottom position, insert the riddling tool through the access hole (10) by the boiler thermostat arm. Move the riddling arm gently to start with, particularly with dusty fuels. When the ash begins to fall through in lumps rather than as powder, riddle more vigorously as necessary.

Oven Heat Flap (Cookers only)

When water heating only is required, the oven heat flap (13) should be rotated clockwise. When cooking is required, the flap should be turned anti-clockwise; this action diverts the hot flue gases under the right-hand hot-plate, around the main oven, then over the slow oven.

Grate Height

For normal running when central heating is being used and most of the heat is required for water heating, **BOSKY** will work best with the grate on the lowest position.

In summer, when the central heating is not required, raise the fire grate to the middle or top position. The fire can then be kept small for cooking and domestic hot water only.
If you do a lot of cooking but do not require much hot water you may need to use a "summer shield", available from your **BOSKY** distributor.

With greater depths of fire, or with fuels that seem to snag, try loosening the grate before lifting or lowering with a few sharp tugs on the grate shift lever (14). Once this has freed the grate, lift it to the required position.

When using the top for cooking, the fire can provide a higher temperature to the top plate if it is raised. Provided the fire is not too large, raise the grate to the top or middle position.

Insulated Covers

The insulated covers retain most of the heat that would otherwise be radiated into the kitchen. They are typically used to prevent the room becoming too warm, although many people find that the surface radiates just the right amount of heat to keep the room comfortable, and they therefore leave the covers up.

Flue Draught Control Box

The flue draught control box (1) fitted to the top outlet can be used in two ways.

The internal damper flap (3) can be moved to any one of four positions by moving either of the lugs on the sides of the box. Should night-long burning not be possible due to a strong draught from the flue system, this flap should be moved down a stop or two to slow down the burning rate.

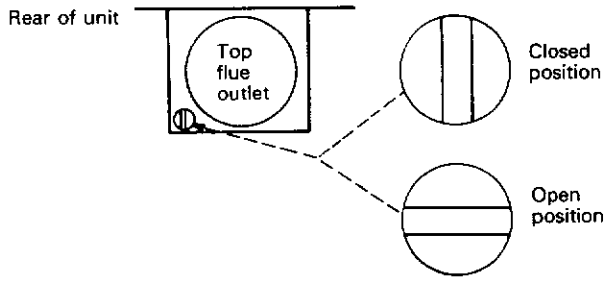
The flap should be kept as open as possible even for long burning; try it wide open first, then move down the stops, using the fully closed position only as a last resort.

The second way that the box gives you control over the draught is by allowing air directly into the flue through the front air-wheel (2). As well as reducing the negative pressure though **BOSKY** the ingress of cold air will also reduce the temperature of the flue itself, again lowering the draught. Do not leave this wheel open for long periods or when **BOSKY** is running unattended.

Direct Draught Control

Make sure that the direct draught control flap (5) is normally kept closed. Open it only when lighting or riddling or when reloading, to increase the draught. If it is left open at other times a high proportion of the heat produced will go straight up the chimney. It may warm the neighbours but your own water temperature will suffer.

Direct Draught Control Positions



Running Rate

If the appliance is run for extended periods on a low fire, especially when burning wood, the fire can cool down to such an extent that vapour in the flue gases may condense. This will make the inside of the flue damp so that the soot sticks to the flue, and the tarry mixture formed may drip down into the appliance or may seep through the chimney walls. It is always a good idea to run **BOSKY** at a high rate whenever possible. Because it is so easy to light, a lot of people, especially in the summer, run the appliance for just a few hours with a roaring fire. The appliance is then allowed to die until the hot water is used up and then **BOSKY** is relit. From the appliance and the flue point of view, this is a better technique than running a low fire continually.

Secondary Air Slide

BOSKYS are supplied with an adjustable secondary air inlet slide (7) as well as the fixed secondary air holes. Both holes and slide can be found on the front loading door. The purpose of introducing secondary combustion air at this point is to ensure that all fuel is completely and therefore efficiently burnt. Any unburnt gases rising from the fire will be burnt in the excess oxygen from the secondary air. Normally, the air holes at the base of the door are sufficient and the slide should be kept closed. There are two exeptional cases when the slide should be opened:-

1. If the fire is kept at a low level and the water temperature is cool, condensation may occur and will be noticed seeping around the base of the cooker.

2. If a hot fire is blanketted with new coal or smokeless fuel and 'popping' is persistant.

In both these cases open the air slide. Condensation will rapidly dry up and the 'popping' will cease. Close the slide and keep it closed when these problems are overcome.

Fuels

Summary

- Any fuel with a good flame is potentially a good cooking fuel. Try a number of good flaming fuels either by themselves or on top of a well-riddled 'base' fuel to find the best for you.
- Fuels that glow rather than flame are probably best left for central heating, and tend to be slow or difficult to cook with. However, a glowing fuel 'base' can usually be supplemented with a flaming fuel just at cooking times.
- All fuels, in sufficient quantity, should be capable of burning overnight. The only exception may be smaller pieces of wood, which tend to burn away more rapidly. Use a bottom grate setting to allow space for sufficient fuel.
- Ask your **BOSKY** distributor for the best fuels available in your area.

A large variety of fuels can be burned on your **BOSKY** from peat briquettes to anthracite. Each fuel has a different burning characteristic, a different energy content and a different price. A little experimentation with a number of fuels will produce one that has the best combination of these for you. For example, some smokeless fuels produce 12,000 Btus per pound weight but burn without a flame and are comparatively expensive. On the other hand, some woods produce only 5,000 Btus but they flame well and may be free. Smokeless fuels may need to be loaded less frequently, whereas wood has the advantage of being a good cooking fuel. So there is no 'best' fuel, only a fuel or combination of fuels that suit your requirements.

Wood

Wood must be well seasoned and dry, the moisture content being 20 per cent or lower. Wood that has been cut and stacked for more than a year in a well aerated stack may be just about ready for burning, but two or three year old wood is even better. Radial cracks in the end of a log are a good sign that the wood is seasoned enough to burn. In any case, the stack should be under cover for three months before burning. Burning wet wood MUST be AVOIDED at all costs. The creosote produced will invariably corrode the heat exchanger and the flue. Furthermore, the heat output of a given quantity of wood will be dramatically reduced.

Good dry wood, venting into a well insulated chimney, will produce flue gases that are sufficiently warm to keep such moisture as may be produced in a vapourised state. If this moisture is allowed to condense on the sides of the flue, soot and other particles will be encouraged to settle on their way up the flue system, leading to corrosion.

To dry out condensation run the appliance for a time with the secondary air slide open.

Larger logs will burn for longer periods of time and are therefore preferable for overnight burning. Small logs may produce more heat but burn away somewhat quicker. Wood is a good fuel for cooking as it burns with a long flame which will often reach across the top of the oven, giving an even spread of heat both to the underside of the hot plate and to the main oven itself. (Further hints on cooking are given overleaf).

Solid Fuels including Ordinary House Coal

Ordinary House Coal can be burnt on **BOSKY**. Avoid coal that disintegrates at temperature and certain types of coke that produce a lot of clinker. We have found that, of the smokeless fuels, the most satisfactory are those recommended for open fires such as:- Homefire, Rexco, Coalite (good for cooking, by virtue of their longer flames when riddled, and good for central heating) or Anthracite and Phurnacite (good for central heating but not always suitable for cooking, due to their lack of flame).

There is a possiblity with all types of closed solid fuel appliances of volatile but unburnt gases being produced after fuelling with certain types of low grade coal, particularly when the fire is blanketted by a fresh load. These gases sometimes pop as flames penetrate the blanket of fuel or as the gases are mixed with large quantities of oxygen when the loading door is opened. Under normal circumstances the row of small secondary air inlet holes on the front loading door of your **BOSKY** will allow in sufficient air to counteract this effect but if you find that the fire bursts into life when the loading door is opened, try opening the extra secondary air slide behind the knob. In any case, it is always a good idea to open the loading door or top loading plate with a degree of caution immediately after the unit has been loaded with coal. If 'popping' is a continual problem, try a larger size of coal or mix in a quantity of wood with your fuel to reduce the smothering effect.

The Electric Element (Cookers only)

Summary

- If the element is used as an automatic back-up, dial in the minimum oven temperature required and turn on.
- If the element is used as a 'quick start' for solid fuel cooking, turn on for 10-15 minutes at the required temperature, then turn off, as the fire takes over.
- If the element is to be used on its own, dial in the temperature and switch on.

Electric and Solid Fuel

If you are not sure that you will be available to keep the fire sufficiently well stocked for a long cooking session (e.g. joints, casseroles, etc.) the electric element can be used as an automatic back-up. Simply turn on the red on/off switch, (17) which will light up and choose the desired temperature on the oven thermostat (18). Should the fire not keep the oven up to that temperature, the elemen will come on as necessary, as a booster. You can quite easily over-ride the electric by stoking up the fire so that sufficient heat is once agair supplied by the solid fuel. At any time, you can choose to allow the oven to cool by turning off the on/off switch (17), so that the light goes out.

Electric as Starter

It is quite possible to heat the oven with the electric element while you are stoking up or starting from cold. As soon as the heat from the fire i high enough, the electric will switch off automatically on the ther mostat. You should then turn off the on/off switch (17) if you wish t continue cooking on solid fuel alone.

General

Should you not wish to, or cannot, use the fire to heat the oven (for example when there is no fire in on a hot summer's day, or if you are ou of the house for a full day but you want to come home to a hot meal then the elctric element can successfully be used on its own. Turn on th on/off switch (17), which will light up, and move the oven thermoste control (18) to the desired temperature. The thermostat will then kee the oven at that temperature for as long as the switch is on.

On a Timer

An electric time clock fitted into the mains lead will enable you to pre-se the oven to come on for as long as you want, at any time during th day. Ask an electrician for details.

Switch Off

When you have finished with the oven, remember to turn the switch off, so that the light goes out.

On Electric Alone

The electrics heat the oven in a slightly different way from solid fuel. The rear-mounted element convects heat around in such a way that the top and rear sections of the oven are a little hotter than elsewhere. As long as the food only takes up the central area of the oven, then the heat distribution will make little difference, but if the item to be cooked is quite large then it may be necessary to turn it during the cooking. Covering food with foil or greaseproof paper may help.

Cooking

We have prepared a Bosky Cook Book giving hints, advice, recipes and complete meal plans and this will be sent free to all Bosky owners. Just complete your Bosky warranty card and send it back to us. We will immediately send you your cook book. This cook book has been written by Gail Duff who has been a Bosky owner almost from the moment that they were first produced. As well as writing about Bosky she has also written many books including "Good Housekeeping Wholefood Cookery" and "Food for the Country" and writes a regular cookery column in Good Housekeeping and contributes to many other magazines. She often is seen cooking away on TV or heard on radio.

Hotplate

Temperatures around the hot plate area depend on the brightness of the fire, the quantity of the flames and the height of the grate. For high temperatures, open the air flaps after a good riddle and bring the grate up to a higher position where the flames can play directly onto the underside of the plates. Move your pans around the hot plates to find varying degrees of temperatures.

Cookers only

More extensive hot plate cooking can be achieved by rotating the oven heat flap (13) down to its lowest anti-clockwise position, allowing the flue gases to pass under, and heat up, the right hand hot plate. A wide band of boiling area spreads across the whole of the cooker top, with simmering areas around the edges.

Ovens

The main oven is brought up to temperature by turning the oven heat flap (13) anti-clockwise allowing a well-boosted fire to bring it up to temperature. The temperature can then be stabilised. Heat also passes into the lower oven bringing the upper part of the oven up to sufficient temperature to cook at a low heat, say rice pudding, milk pudding, meringues etc.

The normal way of boosting the oven temperature, and holding it, is as follows:-

To Obtain a Hot Oven (Cooker only)

Summary

- Anticipate the state of the fire
- Riddle (particularly with solid fuel)
- Add a little fuel if necessary
- Open primary air flap and ash door flap
- Drop oven heat flap
- Raise grate, if the fire is small
- Before temperatures are achieved, 'stabilise' controls

The fire should ideally be reasonably small and bright. Avoid loading heavy loads of fresh fuel shortly before cooking time as this will leave the flue gases comparatively cool just when they need to be at their hottest.

A good riddle will usually be necessary with solid fuel to bring the fire to life. Wood may need less attention in this respect.

A little fuel of a good flaming type may need to be added if the existing fire is a bit lifeless. You will learn to gauge exactly how much is necessary as you gain experience, but make it smaller rather than larger to start with; more can always be added.

The air flaps should be opened as wide as possible. With the ash door flap (12) wide open and the boiler thermostat (9) on number 8, the fire should be able to draw all the air it needs. Some people are tempted to jam open the ash door to speed things up, but this is not recommended as there is always the risk of overfiring.

Lowering the oven heat flap (13) is obviously necessary to get the heat around the oven. Use the bottom position at this stage.

Raising the grate to a high position will allow the flames from a small fire to run some or all of the way across the top of the oven, thus bringing up the temperature within the oven all the more quickly. Use the top grate position, if possible, if there is only a small quantity of fire available.

To stabilise the oven, close the oven heat flap (13) when the temperature is approximately 30°-40° below your target temperature. The oven heat will continue to drift up, and while this is happening, you can lower the grate one position and fuel up the fire so that it will be capable of supporting the oven temperature for some time. The depth of this load will again depend on a number of factors, such as anticipated length of the cook and the speed of burn of the fuel, but a moderate load should perhaps be tried first. This can always be supplemented later. Once the oven temperature has reached a plateau, open the oven heat flap (13) again to a half way position to allow a sustaining heat to circulate round the oven. The boiler thermostat (9) can be left at number 8, but the ash door air flap (12) may need closing down a little to prevent the fire building up too much heat again; try a half way position to start with.

Under average conditions, the oven will cruise along at the chosen temperature for quite some time, depending on how much fuel reserve there is. If the temperature should start to rise again, either raise the oven heat flap (13) a notch or two to restrict the amount of hot gases going around the oven, or close down the ash door air flap (12) a little, or try a combination of these two. If the temperature should start to fall, drop the oven heat flap (13) a little, or open the ash door air flap (12) a little or both.

Some experimentation will inevitably be necessary before the right combination of fuel and control settings is reached. Don't worry too much about odd variations in oven temperatures; the vast majority of dishes come to no harm in a solid fuel oven, even if there are fluctuations. Do persevere, it will be worth it.

Maintenance and Cleaning

Clean Surface

For most efficient heat transfer through the water jacket, all surfaces that come into contact with the flue gases should be kept clean. Regular cleaning will maintain the efficiency of the unit. Use the scraping tool to remove deposits from the inside surfaces of the firebox and from the flue-ways to the right of the comb grate. Have an occasional look at the top plate and side plate of the oven by removing the right hand hot plate and remove the deposits with a scraper. To help keep deposits to a minimum, it is a good idea to have a fast fire for 15 minutes at least once a week. Loose deposits will be scoured off and will make the necessity of cleaning out less frequent.

Grate Side Pieces

If you ever need to remove the grate side pieces, remember to replace them with the "slotted" piece in the back right position, and the "round shouldered" piece in the front right position.

Internal Cleaning

Every few weeks, depending on the type of fuel used, it will be necessary to take off the cleaning access covers (item 19 and 20) to remove deposits that will have fallen down as a result of scraping. Some people allow their **BOSKY** to go cold then use a vacuum cleaner to remove these deposits.

Chimney Cleaning

The flue or chimney will need to be cleaned regularly. How often will depend a lot on how your **BOSKY** is run, but, to start with, make a point of inspecting the flue system every three or four weeks. This period may well be extended as time goes by if there is little sign of deposition. Some people find they need to sweep the flue every six to eight weeks, but a longer period is more normal, and in some cases this may be as long as 12 months.

Hot Plate Cleaning

A zinc-based cleaner, available from your main distributor will give **BOSKY** hot plates a silvery finish. Alternatively, if you wish to cook directly on the surface of the cooker, rub cooking oil onto the steel of the plates, which will eventually achieve a drark brown appearance. However DO NOT cook directly on a zinc-finished surface, always use pans.

The zinc paste is best applied to moderately hot top plates with an old rag. Stone cold or boiling hot plates may cause the paste to lump or scale.

Precautions when not in Use.

If your **BOSKY** is not to be used for a week or longer you will need to take precautions to protect it from condensation and corrosion.

1. Clean thoroughly all flue passages and the firebox walls.
2. Remove (and store carefully) the cleaning access covers Nos. 19 to 20.
3. Open the ash Door Air Flap (12).
4. Protect the top-plates with Zebracier or cooking oil.
5. Ensure that dampness from the flue does not drip into the cooker.
6. Check the appliance occasionally.

Some Possible Problems

For solutions see overleaf.

	A Poor draught	B Strong draught	C Variable draught	D Insufficient Air	E Condensation	F Fuels	G Plumbing	H Cleanliness
Difficulty achieving high oven temperatures	●		●	●		●		●
Difficulty achieving boiler or hot-plate temperature	●			●		●		●
Difficulty maintaining fire for extended periods	●	●				●		
Unresponsive fire	●			●		●		
Smoke and smell in kitchen	●			●				
Smoke emitted when loading	●		●	●		●		
Rapid sooting up of flue ways and chimneys	●							
Overnight dead fire, fuel unburnt	●			●		●		
Overnight dead fire, fuel exhausted		●				●		
Uncontrollable burning		●	●					
Performance unpredictable, depending on wind			●	●				
Smoke from top plates when kitchen door is slammed				●				
Dampness and tar around base plate of unit and leaking from lower cleaning access	●				●			
Hot water system starved of heat when pump is on							●	

Solutions

A. Poor Draught

May be caused by poor insulation, severe angles, insufficient height, air leaks, blockages or voids in the flue system. See **Installation Specification** concerning the flue, near the front of this booklet, or consult your **BOSKY** installer.

B. Strong Draught

Can be controlled by the flue draught control box (1) see 'Day to Day Running' under **Operating Advice.**

C. Variable Draught

Is usually caused by wind conditions around the top of the chimney. These conditions may be the result of the relative positions of trees, buildings or the ridge of the roof. Extending the chimney or fitting an anti-downdraught cowl may be the solution. Consult your **BOSKY** distributor.

D. Insufficient Air

Entering the room can be solved by inserting an air brick of at least 36 sq. inches into the wall close to the **BOSKY** but not in a negative pressure area, where air may be sucked out of the room rather than allowed into it.

E. Condensation

It is not unusual for some condensation to form on the heat exchanger when the unit is first lit. This will gradually disappear as temperatures within the unit rise. While the unit is new, always be prepared for some condensation when lighting from cold and take care to protect floor coverings, just in case. Leaving the secondary air slide (7) open will help to dry out condensation.

The anti-condensation thermostat built into the **BOSKY** control system will only allow the pump to operate if the heat exchanger has achieved a reasonable temperature. If it proves difficult to get the whole central heating system up to temperature so that the pump runs continuously, allow the system to warm up gradually by turning on the radiators one by one.

F. Fuels

May need some experimentation. Good flames for cooking; large lumps of wood for a long burn; keep a check on deposits with 'dirty' fuels such as coal: running faster means running cleaner; glowing smokeless fuels give a good long run; all these rules of thumb will come naturally to you. See also 'Fuels' under **Operating Advice.**

G. Plumbing

That is incorrectly installed may result in poor flow or even reverse circulation around the gravity system. Look closely at the bore and verticality of the piping, and the type of tee used to join the returns together. See also 'The Plumbing' under **Installation Specifications.**

H. Cleanliness

Is important for good heat transfer from the flue gases to the boiler or the ovens. Probably the most crucial areas in this respect are the top of the main oven (under the right hand hot plate) and the top of the slow oven, reached through the cleaning access (19). Check these regularly; see also 'Maintenance and Cleaning' under **Operating Advice.**

Have the chimney cleaned regularly.

Emergency Procedures

Fire

In the event of a chimney fire, **close down all air inlets:** primary air inlet (11) secondary air inlet, ash door (12), front loading door (6) top plates and air wheel (2) on the flue box. **Close down the damper flap** in the flue box (3). Call the **FIRE BRIGADE** - (who will emphasise the importance of regular chimney cleaning).

Causes: - Deposits such as creosote from burning wet wood are allowed to build up in the flue then catch fire at higher flue gas temperatures.

Water

In the event of a **burst** in any part of the system, **turn off the main stopcock, kill the fire,** and, **only when that is dead, turn on the drain cock** to drain the gravity circuit.**Call in the Plumber**

In the event of a **trickle** of water from **BOSKY,** protect floor coverings **then look for the causes of condensation,** particularly when starting from cold (see comments under 'Lighting' and 'Condensation'). If condensation has definitely been eliminated as a cause (and only then) kill the fire and call the plumber, who should investigate for leaks.

Causes:- Almost always condensation on the heat exchanger, brought on by cool water being returned to the unit. The heat exchanger is pressure tested and inspected in the factory and the chances of a leak are very minimal.

Smoke

Smoke suddenly emitted in large quantities from the top plates of a previously smoke-free unit may indicate the sudden blockage of a chimney by the collapse of lining material. **Kill the fire, ventilate the room** to clear fumes and call an expert to examine the chimney if it is not obvious what has happened. Note that an unusual velocity or direction of wind can also cause a previously smoke-free unit to emit smoke, but this will usually occur in the form of hesitant puffing rather than as a continuous pall of thick smoke and fumes, which would be the case with a blocked chimney. See also comment on 'Poor Draught'.

Boiling

In the event of the **water jacket boiling, turn on the central heating pump, close down the primary air inlet (11) and ash door air flaps (12) and open the direct draught flap (5).** As the gravity circuit should have been installed with an expansion pipe into an open header tank, there will be no pressure build-up and therefore no chance of an explosion.

Causes: - Fire producing too much heat for the gravity circuit to cope with. This situation may have been brought about by a number of factors:-

a. the ash door has been wedged open.

b. the gravity circuit allows only sluggish or nil circulation because of downhill or horizontal piping to the hot water tank.

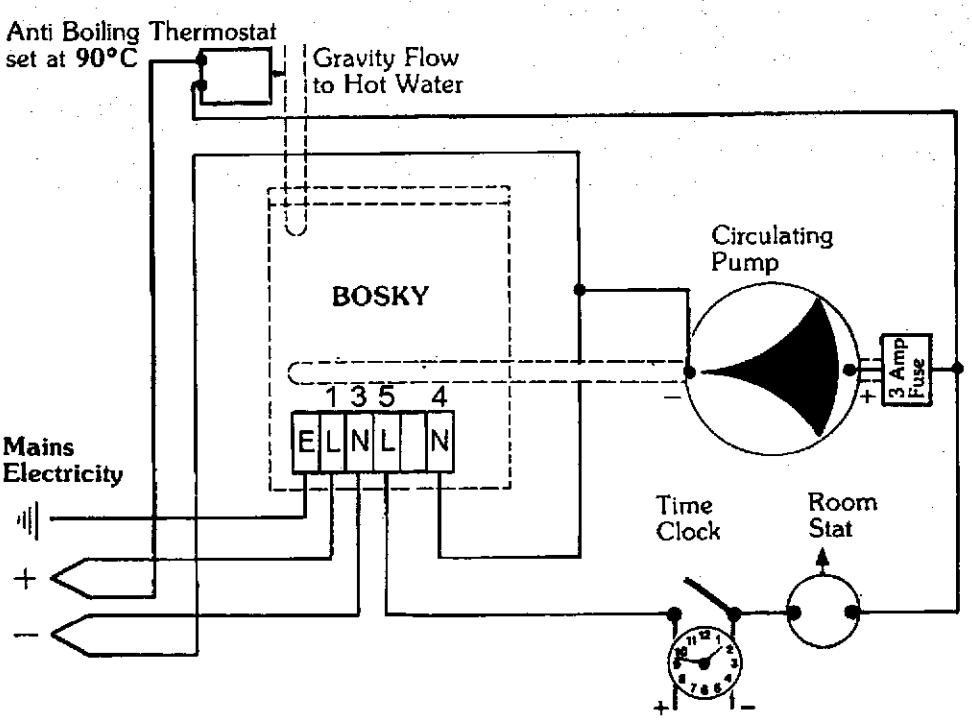
c. the gravity circuit consists of small-section piping (28mm should be minimum all round.)

d. the gravity circuit does not contain a fail-safe heat sink radiator.

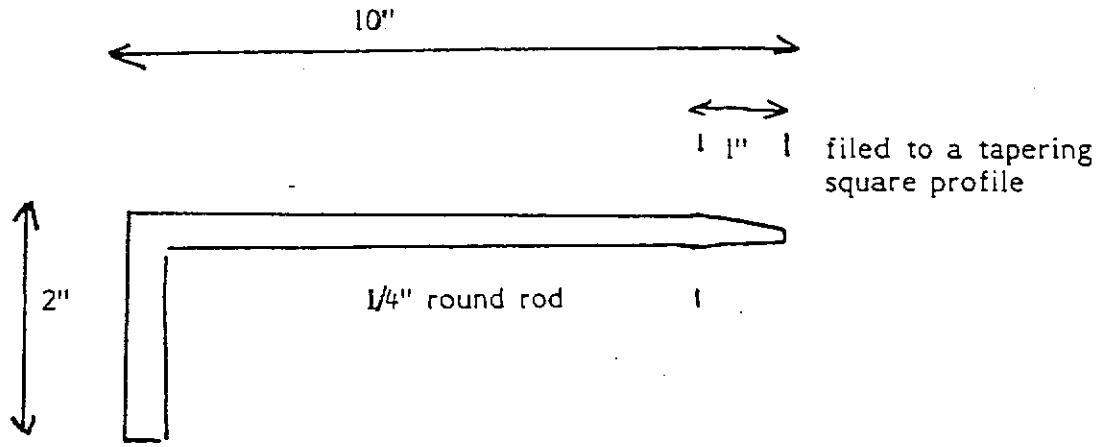
e. a circulating pump that does not allow unrestricted flow (when turned off) has been fitted into the common return i.e., after the gravity and central heating circuits rejoin.

Boiling only usually occurs when the pump is off. Turning on the pump invariably solves the problem. Thus it is possible to wire a pipe thermostat, placed on the gravity circuit flow pipe close to the unit, into a direct connection from electric mains to pump (avoiding room thermostats and timing devices) so that the pump is automatically brought into action should the water temperature exceed a predetermined level (say 90°C).

New Bosky
Wiring Diagram



METHOD OF CHANGING INNER HINGES ON BOSKY COOKERS MODEL 60/90



METHOD

1. The existing hinge is dismantled by removing the two Philips screws situated on the front panel, one above and one below the inner hinge.

2. The inner hinge will drop into the cleaning access area situated between the two ovens and can then be removed.

3. Using the special tool the new hinge may be fitted (see diagram).

Push the tapered end of the tool into the hole in the bottom left side of the hinge, using the tool, the hinge may be repositioned into the unit. Should it be difficult to re position the hinge, the covered guard of the hinge maybe pushed back using a long screwdriver to make the access easier.

4. After fitting new hinge ensure that the rollers and other moving parts are well lubricated