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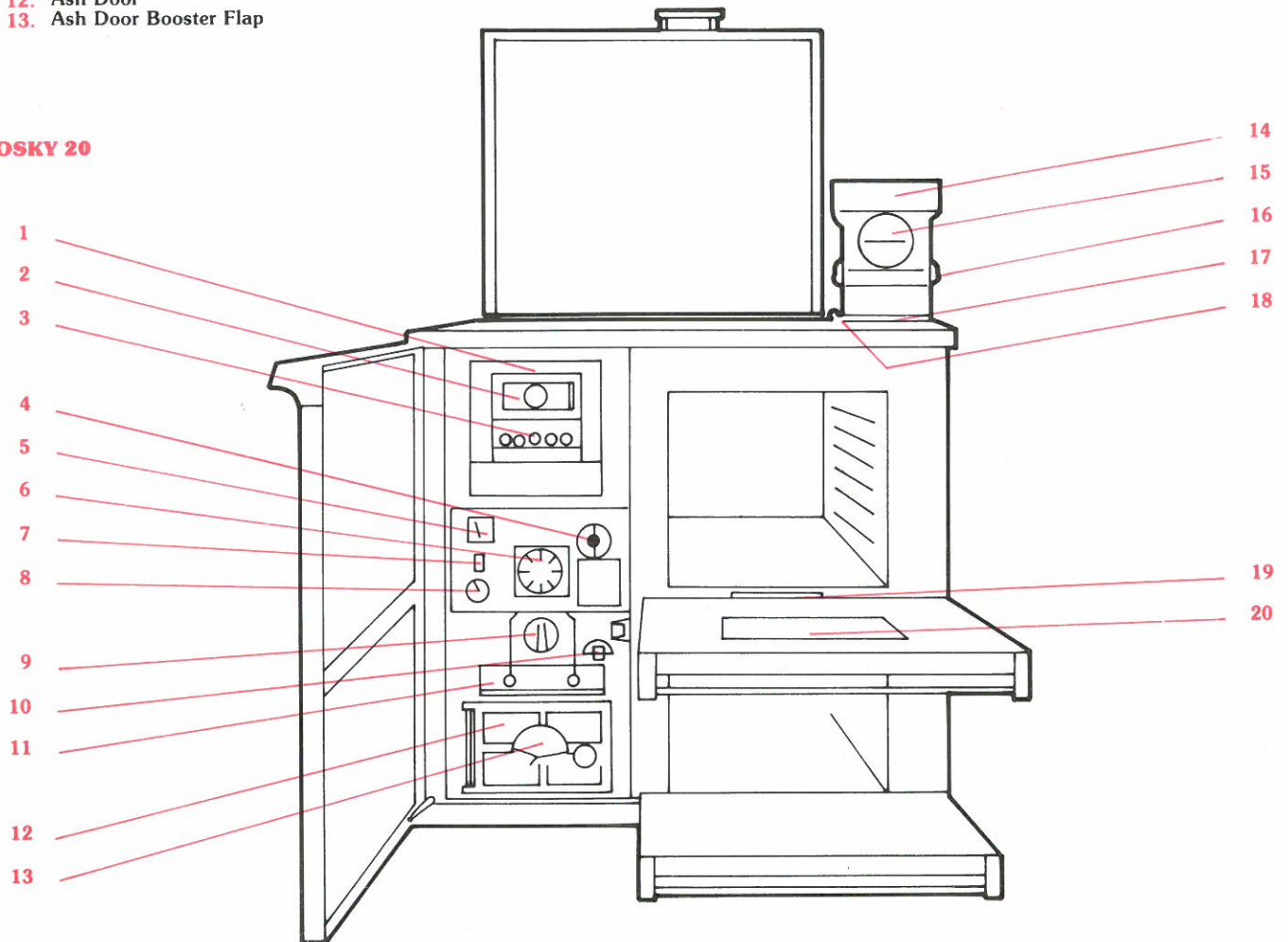


**Central Heating
Cookers and Boilers**

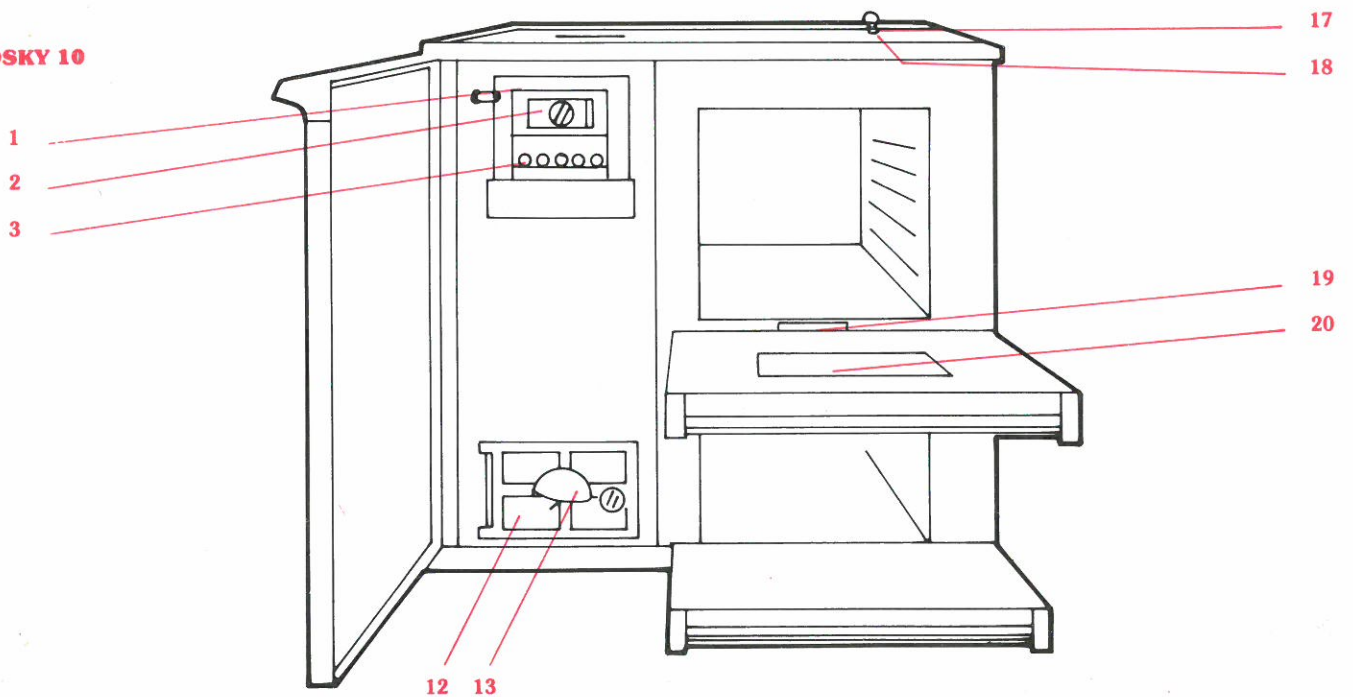
Installation and operating booklet

- 1. Front Loading Door
 - 2. Secondary Air Slide
 - 3. Secondary Air Holes
 - 4. Selector Knob
 - 5. Boiler Thermometer
 - 6. Fire Thermostat
 - 7. Electric ON/OFF Switch
 - 8. Electric Thermostat
 - 9. Riddling Access
 - 10. Grate Shift Mechanism
 - 11. Primary Air Flap
 - 12. Ash Door
 - 13. Ash Door Booster Flap
 - 14. Flue Draught Control Box
 - 15. Air Wheel
 - 16. Damper Flap Control
 - 17. Flue Spigot
 - 18. Direct Draught Flap Control
 - 19. Cleaning Access
 - 20. Oven Thermometer (celsius)
- Certain Countries Only
(See Text)

BOSKY 20



BOSKY 10



Specification

	BOSKY 20	BOSKY 10
Output	28,000 Btus/Hr 8 kW	10,000 Btus/Hr 3 kW
Dimensions (mm)		
Height	845	845
Width	850	850
Depth	600	600
Firebox:		
Width	245	245
Depth	440	440
Height (top position)	270	-
Height (bottom position)	460	260
Oven (top)		
Height	320	320
Width	360	360
Depth	460	460
Oven (bottom)		
Height	270	270
Width	360	360
Depth	535	535
Oven Electric Heating*	2.0 kW	-
Max Log Length	430	430
Flue outlet	to take 6" flue pipe (see text)	
Weight (approx)	200 kgs	200 kgs
Tappings 1" B.S.P. male		

* Certain Countries Only

Notes:

Output on wood is the heat produced using wood of 20% moisture content, a flue draught of 0.06" water gauge and a loading cycle in excess of 2 hours.

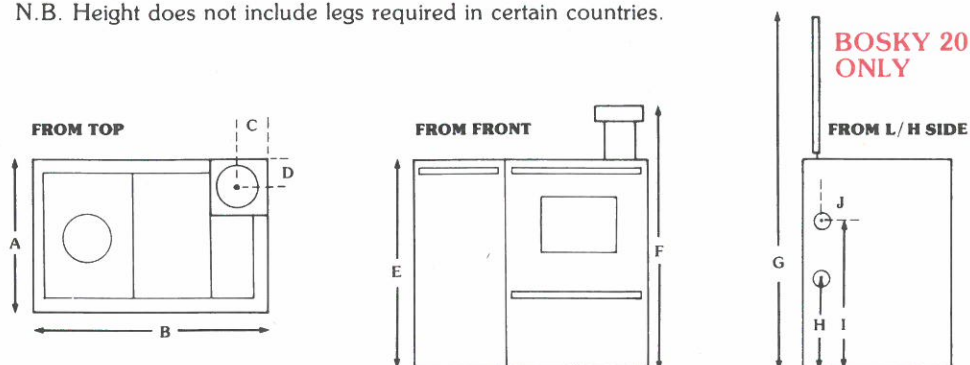
Output on coal or smokeless fuel is measured under the same conditions on a 4 hour loading cycle.

Dimensions and specifications are approximate and we reserve the right to change them at any time.

Installation Dimensions (mm)

Dimensions mm	A	B	C	D	E	F	G	H	I	J
BOSKY 20	600	850	135	110	845	1075	1460	370	590	50
BOSKY 10	600	850	135	110	845	—	—	—	—	—

N.B. Height does not include legs required in certain countries.



This booklet on the **BOSKY 10** and **BOSKY 20** cookers comes in 2 sections. **Installation Specification** Pages 3 to 5 deals with the actual installation of the unit and its ancillary equipment. **Operating Advice** Pages 6 to 10 deals with the day to day running of the **BOSKY**.

Some information is relevant only to the **BOSKY 20** and can be ignored by **BOSKY 10** owners. All information printed on the red backgrounds is relevant to the **BOSKY 20 only**.

BOSKY customers should keep this booklet for future reference.

CONTENTS

	Page
Installation Specification	Positioning 3
	The Flue 3
	The Plumbing - BOSKY 20 4
	Electrical Connections - BOSKY 20 5
Operating Advice	Lighting 6
	Day to Day Running 7
	Fuels 7
	Cooking 9
	Maintenance and Cleaning 10
Some Possible Problems and their Solutions 11	
Emergency Procedures	

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

Installation Specification

SUMMARY

- Check all building regulations and local code requirements
- 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 there is always a gap between the sides and back and combustible material.

Where local regulations insist on a maximum temperature of 60°C on surrounding combustible walls, leave a gap of 6" between the sides, back flue pipe and the walls.

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 quality and performance of the flue is the most vital part of a **BOSKY** 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. This heat must pass all the way up the flue if an adequate draught is to be produced.

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 (1.3 AND 2.00MM)**. WE THEREFORE STRONGLY ADVISE THE FOLLOWING:

Insulation of Flue

1. The flue must be well insulated. Do not use single skin metal flue pipe, flexible chimney liner or asbestos pipe.

2. The flue must not be shared with any other appliance.

Height of Flue

3. The flue must be at least 12 ft. high.

Angles

4. The flue must be as vertical as possible. Avoid angles greater than 30°, or long angled sections.

5. The flue outlet at the top should be 3 feet above all obstructions within a 25 foot radius to avoid downdraughts.

Cleaning Access

6. There must be easy cleaning access to the whole flue system.

Size of Flue

7. The flue system must not be smaller than 28 sq. inches in cross section (6" or 150mm internal diameter).

Flues that may have been adequate for other types of solid fuel units will not be necessarily adequate for **BOSKY**. Because of its efficiency, **BOSKY'S** flue gas temperatures may 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 most 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 cut corners. Occasionally this works, but more often than not the gamble only ends up producing a disappointing performance, as well as being a potential risk.

Flue Draught Control Box

The **Flue Draught Control Box (14)** that is supplied with **BOSKY** rests on the flue spigot with the larger diameter flange upwards. It is designed to take 6" internal diameter/8" outside diameter pre-fabricated flue pipe. Such flue pipe should be independently supported so that the flue draught control box can be unscrewed and removed for cleaning and chimney sweeping.

Plumbing

BOSKY 20 is fitted with a stainless steel water jacket capable of producing 28,000 Btu/hr. The appliance must be connected to the filled water circuit before it is fired. It must never be fired dry. The plumbing must meet all local Building Regulations and Practices. We also recommend:-

Gravity Circuit

A gravity circuit with an open header tank must be fitted. To ensure sufficient heat absorption this circuit should consist of the largest possible hot water cylinder and a heat leak radiator if possible. The hot water cylinder must be positioned above the **BOSKY** and all piping in this system should be at least 28 mm diameter.

Hot Water Cylinder

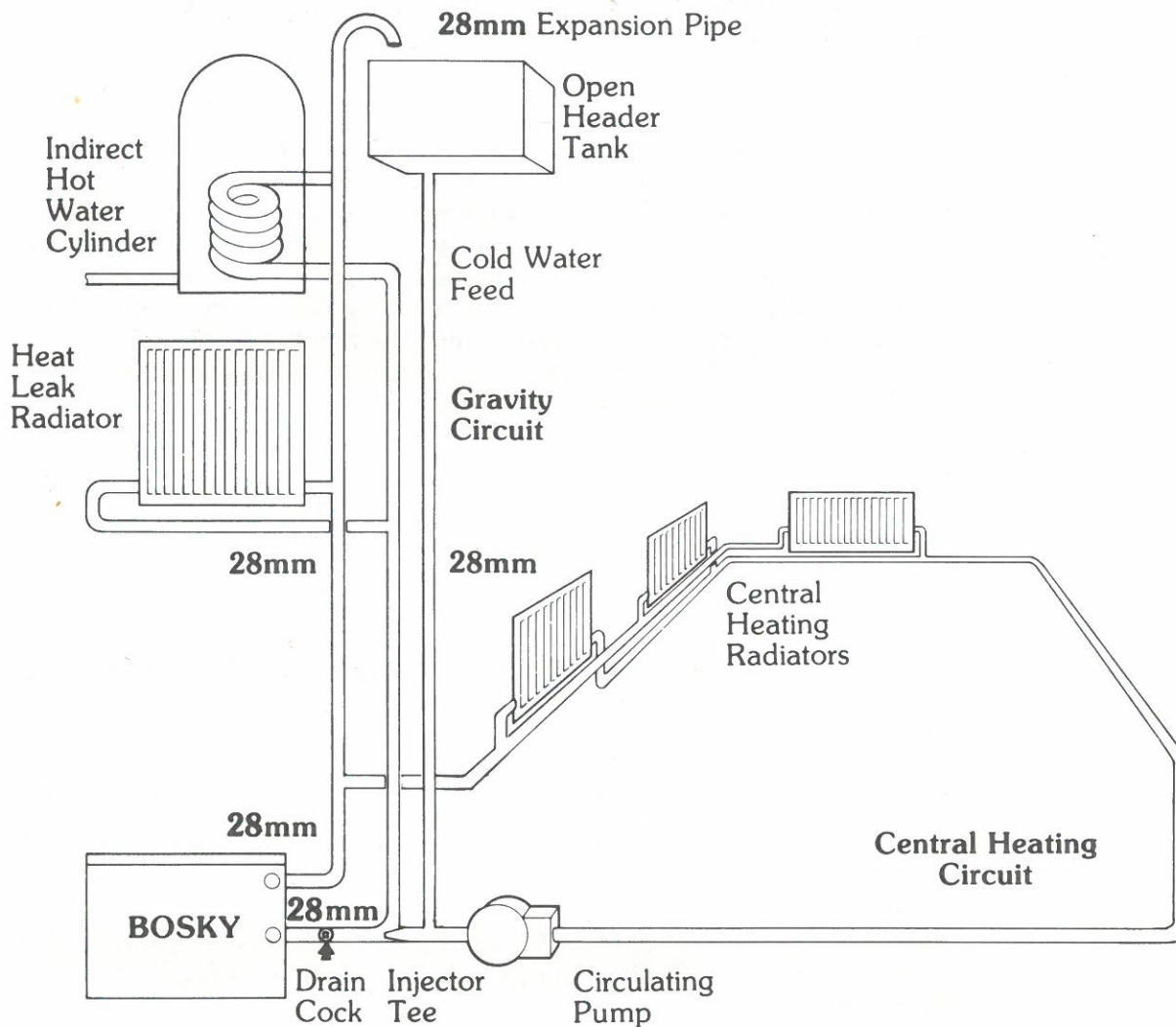
The hot water and heating system should be of the indirect type with a separate heating coil in the hot water tank. This reduces corrosion, silting and calcium build up in the hot water circuit. If a direct system has to be used, ensure that all components are compatible with the stainless steel heat exchanger in the **BOSKY**.

The water circuit must be kept topped up from an open header tank. There must be a 28 mm expansion pipe to the tank and a separate cold water feed to the cold water return side of the **BOSKY**.

Central Heating

BOSKY can power a central heating system of up to 28,000 Btu/hr. This system can be either a radiator on an underfloor piping system or, with suitable heat exchangers, a ducted air system. The system can be a gravity flow arrangement, but most people will choose a circulating pump. Use an injector tee to join the heating and domestic hot water circuits before they return to the **BOSKY** to avoid reverse circulation.

After completing the plumbing ensure that it is well flushed out to remove excess flux and is then filled with a corrosion inhibitor. Use a good propriety brand of inhibitor, not ethylene glycol, and keep topped up regularly.



Electrical Connections

Connect the electrical wire through the rubber grommet on the lower left panel of **BOSKY** to the terminal block. Use 3-core cable and connect as shown on the diagram on the cooker. The cable must be capable of carrying a load of 2.5 kW (this leaves a safety margin) and can be connected to a suitably fused plug. **N.B.** Make electrical connections before positioning the **BOSKY 20**, if space is limited.

Operating Advice

Operating Summary

- Check water circuits for leaks
- Check soundness of flue
- Remove protective coatings
- Light according to instructions
- As necessary, adjust grate height, flue draught, air inlet, type of fuel and ash depth to suit requirements - see text overleaf
- Keep **BOSKY** clean and chimney well swept

Before Lighting

Make sure that the water circuit has been properly filled and tested for leaks, air locks etc. Make sure that all protective plastic coating has been removed from the stainless steel surround.

Make sure that all controls on the face of the unit operate freely, in particular the fire thermostat (6) and the grate shift mechanism (10). This mechanism is operated by inserting the riddling handle into the locating hole (10) and levering clock-wise as far as it will go. You will feel the mechanism travel over-centre. To lower the grate, simply lever the handle anti-clockwise, taking care to ease the fire down gently. When lifting and lowering, the grate shift mechanism 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.

Lighting

Never use petrol/gasoline, paraffin/kerosene, lighter fluid or any inflammable liquid to start or freshen up the fire. Keep all such liquids well away from the **BOSKY**. The only lighting assistance that may be used is a stick of recognised solid fire-lighter beneath the normal kindling.

Direct Draught Flap

Open the direct draught flap (18) with the opening tool by lifting the ring and leaning it to one side so that it catches in the up position.

Starting

Lay a bed of newspaper and kindling wood on the grate (top position) and light through the front loading door (1). Close this door when the flames have caught, and open the secondary air slide (2).

Flue Draught Control Box

The flue draught control box (14) on top of the flue outlet should have its front air wheel (13) shut and damper flap (16) open (side handles in their top setting).

Air Supply

Open the ash door booster flap (13) to its widest position, and the fire thermostat (6) to No. 8.

After 5-10 Minutes

Add a little fuel to the fire, close the direct draught flap (18) by centralising the ring control and close the secondary air slide (2). **N.B.** Always open the loading door or plate slowly after refuelling (see also 'Secondary Air Slide').

After 10-20 Minutes

If you are cooking, leave the ash door booster flap (13) open and add small quantities of fuel as necessary. If not, a larger quantity of fuel can be added (grate lowered to bottom position) and some minutes later, the booster flap may be closed (partially on the **BOSKY 10** and totally on the **BOSKY 20**). The **BOSKY 20's** fire thermostat (9) will now take over, and should be set at around number 5 to 7; the selector knob (4) should be pushed **IN**, unless the oven is to be used (see 'Cooking' page 9).

Condensation

Vapour in the flue gases will condense out as a liquid on any cold surfaces, particularly if the fire is running slowly. Therefore, always run the fire hot and fast after lighting until the boiler has heated up. If a circulating pump has been fitted, leave this **OFF** until the boiler is hot. Open the secondary air slide (2) to 'dry out' the flue gases. When lighting the **BOSKY** from new, be prepared to cover the floor around the unit in case any condensation occurs. There is only a very **slim** chance of this occurring but it is as well to be aware of the possibility.

Fuels

Wood

Wood must be well seasoned and dry, the moisture content being 20% 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 may corrode the heat exchanger and the flue. Furthermore, the heat output of a given quantity of wood will be dramatically reduced.

Larger hardwood 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 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 below).

Coal & Smokeless Fuels

A large variety of solid fuels can be burned in a **BOSKY**. The best cooking performance is obtained with a solid fuel high in volatiles that will produce a long flame. Experiment is needed to find the best available fuel in your area. Many people use different fuels, for rapid heat and for slow overnight burning.

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, de-ashing only being necessary to liven up the fire (for cooking, for example). For slow combustion, it is better to have a thicker ash bed for all fuels.

Coal or smokeless fuels, on the other hand burn better, if they are well riddled to allow a good airflow to the fire. Do not riddle the fire before slowing it down for overnight burning, but riddle if required in the morning before cooking.

Riddling

Before riddling open the direct draught flap to increase the draw over the fire and thus reduce the chances of dust escaping from areas below the fire. Close the thermostat flap and ash door flap. With the grate in its bottom position, insert the riddling tool through the access hole by the fire 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.

Ash can also be removed by poking the fire through the front loading door (1).

After riddling check the amount of ash in the ash pan. This will need to be emptied before it becomes full and should be checked daily.

Grate Height

In the bottom position, the fire will transfer heat to water in the water jacket, creating ample hot water for normal domestic requirements. The bottom position also makes room for a large volume of fuel, enabling the **BOSKY** to run for a longer time without attention. Most solid fuels and hard woods will burn overnight with the grate in the bottom position.

In the top position, there is negligible heat transfer to the water jacket, so raise the grate when you do not wish to over-heat the domestic hot water. The top position brings a small fire into a more effective position for cooking and should be used for high temperatures either on the top plates or in the oven. (See 'Lighting', above for method of lifting and lowering.)

Thermostat Selector Knob

The thermostat selector knob (4) allows the fire thermostat to be controlled by either oven temperature, or by water temperature. If the knob is pressed in, the water temperature in the **BOSKY** will determine the thermostat position and the fire will be controlled to maintain a steady water temperature. If the knob is pulled out, the thermostat will sense the oven temperature and the fire will be controlled to try to hold a steady oven temperature. In both cases the thermostat can be set at different settings (shown by numbers 1 to 8). The thermostat will only assist in holding temperature steady. These temperatures are also controlled by the state of the fire, use of water and of the oven and other factors.

Insulated Cover

The insulated cover (extra for **BOSKY 10**) retains most of the heat that would otherwise be radiated into the kitchen. It is 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 cover up, particularly in winter. **DO NOT** put the cover down over the very hot hob plates as they may damage the enamel. Allow the plates to cool back to a more normal temperature after cooking before lowering the cover.

Flue Draught Control Box

The flue draught control box (14) (extra for **BOSKY 10**) fitted to the top outlet can be used in two ways:

The internal damper flap can be moved to any one of four positions by moving either of the lugs on the sides of the box (16). If night-long burning cannot be achieved due to a strong draught from the flue system, this flap should be moved down a stop or two to slow the burning rate.

This 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 (15). As well as reducing the negative pressure through **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.

Secondary Air Slide

BOSKY'S are supplied with an adjustable secondary air inlet (2) 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 exceptional 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 'weeping' will be noticed around the base of the boiler or in the ash pan area.

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

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

Hot Water Production

BOSKY only puts out heat to the domestic hot water system when the fire is in the bottom position. The 1-8 thermostat will respond to boiler temperature when the selector knob is pushed in, thus controlling the air supply to the fire in line with your hot water requirements. Try a half way number on the thermostat to start with, then adjust up or down, depending on how much more or less hot water you require. Should you need a fast boost to the hot water system, open the manual ash door air flap as well as a wide setting of the boiler thermostat.

If you find that too much hot water is being produced, lift the grate to the top position.

Cooking

Hotplate

Temperatures around the hot plate area depend on the brightness of the fire, the quantity of flames and, the height of the grate. For high temperatures, open the air flap(s), give the fire a good riddle and bring the grate up to the 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.

To Obtain a Hot Oven on Wood/Solid Fuel

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 will need less attention in this respect.

A small amount of fuel of a good flaming type may be needed if the existing fire is a little 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 wide open (and the thermostat 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.

Pull the selector knob (4) OUT so that the fire thermostat senses oven temperature. Adjust the thermostat knob as necessary once you reach the desired oven temperature.

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

When you are 30-40° below target temperature, partially close the ash door air flap. The temperature should continue to drift up to target and now is a good time to add more fuel if necessary. The temperature should peak. The exact position for the ash door air flap **(and fire thermostat)** will require some experimentation, and will depend on the flue draught available and type of fuel used as well as the oven temperature required. In general, allow more air in if the temperature starts to fall, but restrict the air a little more if the temperature continues to rise. **Don't forget** to have the selector knob pulled **out**.

Some experimentation will inevitably be necessary before the right combination of fuel and control settings are 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.

Electric Oven

The electric heating for the oven is controlled by the electric on/off switch (7) and the electric thermostat (8). This electric heating is used either in conjunction with, or in place of, the normal solid fuel heating of the oven.

Set the thermostat by rotating the knob and switch the oven on. If the oven temperature is already high because of solid fuel heating, the electric may not come on until the temperature has fallen, but the electric will then hold the chosen temperature. If there is no fire and a cold oven the electric will immediately come on and will raise the temperature as with a normal electric oven.

Maintenance and Cleaning

Clean Surfaces

For most efficient heat transfer through the unit and **into the water jacket**, all surfaces that come into contact with the fire 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. Have an occasional look at the top plate and side plate of the oven by removing the right hand hot plates, and remove the deposits with the 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 less frequent.

Internal Cleaning

Every few weeks, depending on the type of fuel used, it will be necessary to take off the cleaning access cover between the two ovens (19) to remove deposits that will have collected. Some people allow their **BOSKY** to go cold then use a vacuum cleaner to remove these deposits.

Flue Cleaning - Creosote and Soot Formation and Removal

When wood is burned slowly, it produces tar and other organic vapours, which combine with expelled moisture to form creosote. The creosote vapours condense in the relatively cool chimney flue of a slow burning fire.

When coal is burned on the **BOSKY 20**, the products of combustion combine with moisture to form a soot residue which accumulates on the flue lining. When ignited, this soot makes an extremely hot fire.

Therefore the chimney connector and chimney should be inspected at least once every two months during the heating season to determine if a creosote or soot build-up has occurred. If creosote or soot has accumulated, it should be removed to reduce the risk of a chimney fire.

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 firebox walls
2. Remove (and store carefully) the cleaning access cover (19)
3. Open the ash door air flap (13)
4. Protect the top plates
5. Ensure that dampness from the flue does not drip into the cooker
6. Check the appliance occasionally

Some Possible Problems and Their Solutions

Smoke

Smoke emitted into the room is most often caused by a poor or variable draught from a poor or cold flue and sometimes by a lack of air entering the room (see Installation Specification). Occasional hesitant puffs of smoke may be caused by a downdraughting wind - see your dealer about a cowl.

Lack of Heat

If any part of the **BOSKY** seems to be performing sluggishly, check first the cleanliness of the internal surfaces (see Maintenance and Cleaning above) **OR** change to a different operating technique (see Operating Advice) **OR** change to a faster flaming fuel. These will only make a difference if you have sufficient flue draught (see comment on the Flue -Installation Specification).

a. Hot Water

a. If the water in the boiler tends to boil, it may be that the size or configuration of the plumbing in the gravity circuit are unsuitable (see Installation Specification). If you have fitted a number of radiators you may benefit from a pipe thermostat fitted to the flow pipe that will automatically switch on the circulation pump if water temperatures rise. The easy short term way to avoid boiling water is simply to crank the grate up to its top position.

b. Cold Water

b. If the water from your taps comes out cold even through the grate is down and the air supply flaps are open, it may be that the plumbing is not allowing the heat to get to the hot water cylinder. Apart from the bore and configuration of the pipework in the gravity circuit, check that the hot water from the **BOSKY** is not circulating around the central heating radiators instead of to the cylinder.

Condensation

Condensation is the result of vapours in the flue gases meeting a cold water jacket. Check that wood is very well seasoned (see Fuels page 7) or solid fuel dry and under cover. See also comments under Operating Advice on Page 5.

Guarantee

_____ , main distributors of BOSKY appliances extends this guarantee to purchasers and subsequent owners of any BOSKY appliance.

This guarantee is for a period of 12 MONTHS from the date of original purchase on all parts. The water jacket has a THREE YEAR guarantee from the date of initial purchase. If, within this period, the appliance or any part thereof prove to be defective by reason only of faulty material or workmanship, _____ undertake at their option to repair or to replace the same free of charge on the following conditions.

1. The decision of _____ concerning defects and whether faulty parts should be replaced will be conclusive.
2. _____ will pay the costs of delivering replacement parts, but the customer will pay all labour charges.
3. _____ will not be liable for any claims for consequential or incidental loss, damage or injury however caused.

This guarantee shall be null and void if the appliance has not been installed as laid down in the technical leaflet provided, or if the flue or water circuits do not meet the specification in the technical leaflet, or if the appliance has not been operated as suggested or if any repairs or modifications have been made other than by _____ or its official representatives.

In the event of a guarantee claim, contact the dealer or the heating installer from whom the appliance was bought giving details of the date of purchase and the name and address of the original purchaser.

THIS GUARANTEE IS AN ADDITION TO THE STATUTORY RIGHTS OF CONSUMERS AND DOES NOT AFFECT OR DIMINISH THOSE RIGHTS.

BOSKY MODEL NO.

SERIAL NO.

Purchaser's Name

Supplier's Name

Address

Address

Phone No. (Day)

Phone No.

(Evening)

Installer's Name

Address

Date Purchased

.....

Date Installed

Phone No.

Emergency Procedures

Fire

In the event of a chimney fire, **close down all air inlets**: primary air inlet, secondary air inlet, ash door, front loading door, top plates and air wheel on the flue box. Call the **FIRE SERVICE** - (who will emphasise the importance of regular chimney cleaning).

Causes:-

Deposits, such as soot and creosote, 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 hot water system, **turn off the main stop tap, kill the fire, and, only when that is dead, open the drain tap** 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 '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 comments on 'Smoke'.

Boiling

In the event of the **water jacket boiling, raise the grate, close down the fire thermostat and ash door air flap**. 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