USER SHEET

CORNER SOLID FUEL

19-02-24

SILENT SIMPLICITY JUST FOR YOU

BAKE, BOIL & ROAST, FRY, SIMMER & TOAST. ©

www.bubbleproducts.co.uk

INDEX

1. WARNINGS. 1
Tools 1
Spare Parts 2
2. INTRODUCTION. 2
3. MAIN FEATURE SUMMARY. 2
4. ASSOCIATED PROBLEMS. 3
1. Safety. 3
2. Installation / Use – Correct Compliance. 3
3. Fumes – Protection From. 3
4. Fire – Protection From. 4
5. Burns – Protection From. 4
5. FUELS. 4
1. About Wood Burning. 4
2. About Coal Burning. 5
3. About Hard Coke. 5
4. About Fuels Generally. 5
6. FUEL LOGISTICS 5
7. CHIMNEY 6
5. OPERATING PRINCIPLES. 7
6. OPERATING PROCEDURES 7
1. Lighting the stove. 7
2. Controlling the Stove. 8
3. Refuelling and de-ashing the Stove. 8
4. Maximum burning times. 9
5. TIPS. 9
6. Riddling the Stove. 9
7. MAINTAINANCE. 9
1. Day to day attention. 9
2. Front Fret. 9
3. Baffle Plate. 10
4. Riddling Grate. 10
5. Riddling Grate Carrier. 10
6. The Firebricks. 10
7. Keeping the stove clean. 10
8. To clean the chimney. 11
9. To remove the front fret. 11
10. Cleaning the door glass. 11
11. To Replace Door Sealing Rope and Glass 11
8. WATER HEATING. 12
1. Frost protection. 12
2. Gravity or Fully Pumped Systems 12
3. Gravity Systems. 12
4. NOTE WELL. 13
5. Pumped Systems. 13
9. GLOSSARY OF TERMS 13
Downdraught 13
Chimney vacuum 13
Thermostat 13
Multi fuel stove 13
Volatiles 14
10. WARRANTY. 14
11. THE WARRANTY DOES NOT COVER. 14
12 PARTS LIST 15

1. WARNINGS.

- During normal use many parts of these appliances and chimney's can become too hot to touch. We recommend that you provide secure and suitable fireguards. Always use fireproof gloves.
- The glass door panel on this appliance conforms to the requirements of BS 1945: 1971 and satisfies the heating appliance (Fireguards Safety) regulations 1991.
- On initial firing of the appliances, paint finishes will cure through the application of heat. During this process open all windows, door and ventilators until all traces of fumes have cleared.
- Before purchasing fuel for your appliance, always check with the supplier that the fuel does not contain Petro Coke.
- Do not use Petro Coke or any Petro Coke derivatives. This type of fuel will cause damage to grates, door glass and other internal components.
- When using your appliance always make sure that adequate ventilation is available, do not block or obstruct purpose made vents.
- The appliance must have an adequate and unrestricted supply of fresh air. On sea going vessels with closable vents, make sure that the vents are open before lighting the appliance and never close the vents whilst the appliance is in use.
- Frost Protection make sure that the water in your heating system circuit has a suitable anti freeze added, your builder or installer will advise you on this.
- If you are unsure about these warnings, seek advice from any HETAS registered engineer.
- Do not leave your stove unattended.

Tools

- The stove is supplied with a wire handled poker and a cast iron tee bar riddling / de ashing tool.

- The tee bar inserts into the brass riddling rod eye and the other end is used to insert into the ash pan and acts as a handle.

Spare Parts

- If you need to replace any parts on your stove, make sure that you use genuine original Bubble parts.
- **Parts not covered by warranty are: -**
- Riddling Grate
- Riddling Grate Frame
- Firebricks
- Baffle plate
- Door Glass
- Paint finish
- Note the use of Petro Coke or Petro coke based fuels will invalidate the warranty.

Note that this illustration does not comply with current requirements.

2. INTRODUCTION.

Most small solid fuel stoves have legs, and this arrangement is fine, but it means that everything has to be squeezed into the space above the legs and to keep the stove small in height this invariably means that a compromise on the available space has to be made.

This compromise has several implications affecting -:

The depth of the ashpan is critical; if it is not deep enough ash spills out and generally creates excess dust and a requirement for regular emptying.

The space between the ash pan and the bottom of the riddling grate is very important as this space allows air for combustion to travel up through the riddling grate, the air for combustion has another important function, which is to keep the riddling grate cool and so stop it from burning out.

As soon as ash is allowed to build up and touch the grate, air is then prevented from cooling it and as a consequence the grate can rapidly distort and twist or burn out.

The depth of the firebox is relative to the amount of fuel, which can be loaded into the stove and this in turn part determines the length of time, that the stove will stay in for.

There are three air routes into the stove.

- Air wash air to help keep the door glass clean.
- Over fire air for wood burning.
- Under fire air for solid fuel.

Triangular construction creates a new layout allowing the most economical use of space, a rigid design and a better-shaped combustion chamber.

To eliminate the risk of cracking the whole body of the stove is manufactured from high quality steel.

The triangular body is inherently strong comprising of an 8mm top plate, an intermediate and base plate, further strengthens it.

The triangular shape allows plenty of width in the firebox so allowing good size logs to be easily loaded.

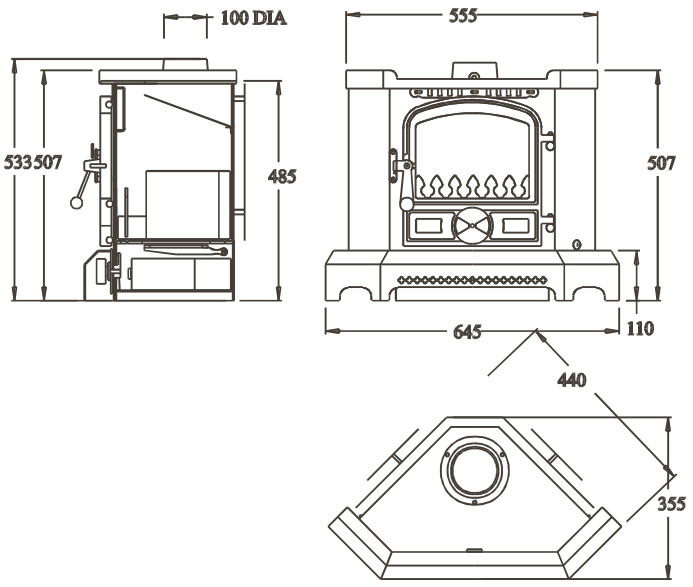
There are two choices of grate and three choices of air inlet that makes the stove uncompromising when used as a wood burner or solid fuel.

Of course, in its solid fuel set up it can burn logs as well but to set the stove up as an out and out wood burner the special wood grate must be fitted.

3. MAIN FEATURE SUMMARY.

- Space saving.
- Fully adjustable door hinges.
- Fully adjustable door lock.

- Stay cool easy to use door handle.
- Stainless steel grate carrier.
- Stainless steel front fret.
- Stainless steel grate.
- Deep ash pan, capable of holding 12 hours of burnt ash.
- Deep combustion chamber capable of holding a large load of fuel.
- Air wash air to help keep the door glass clean.
- Over fire air for wood burning.
- Under fire air for solid fuel.
- Water heating is taken care of via a fully integral triangular boiler, which forms the whole upper outer part of the stove reducing radiated heat to the fireplace.
- Built in heat shields on dry stoves.
- Constructional strength, the triangular body is inherently strong and it is cross-braced by an 8mm thick top plate, an intermediate plate and a base plate.



BUBBLE PRODUCTS

U.K. DESIGN – MANUFACTURE – DISTRIBUTION

4. ASSOCIATED PROBLEMS.

The stove has a host of features designed to give the narrow boat owner the best opportunity for installing and running a solid fuel heat source.

There are several problems involved in using any solid fuel heater on a boat and to help you make sure that you take the best course of action to minimise the effects of these problems you need to have a good understanding of why they arise.

The following information will detail problems specific to narrow boats.

Critical problems, order related.

- Safety.
- Fuel.
- Chimney.
- Location of Mooring

The boat is moored in a position near to high buildings, high trees or higher surrounding land.

If there are any of the above in the immediate location (within 100 –200 yards) of the boat, **under changing and fluctuating wind conditions, downdraghting will occur.**

If you have to moor in situations where the above-mentioned criteria exist, and the stove is running, you must **let it go out.**

Don't leave the appliance running and unattended.

Don't leave the appliance running overnight.

1. Safety.

Safety issues are set out below.

2. Installation / Use – Correct Compliance.

The appliance must be installed and used in line with our installation and user instructions.

3. Fumes – Protection From.

There are 4 main causes of fume or smoke to leak from the appliance.

- The chimney is blocked.
- There are too many bends in the chimney.

The above deck chimney extension is not high enough.

- The chimney is not airtight.

- The boat is moored in a position near to high buildings, high trees or higher surrounding land and downdraughting is occurring.

Don't leave the appliance running and unattended.

Don't leave the appliance running overnight.

Alarms Make sure that the vessel is fitted with:-

1. Optical Smoke Alarm to BS EN14604

2. Carbon Monoxide Alarm to BS EN50291

3. Fireguard to BS8423

Checked every day for correct functioning.

Make sure that the alarms are fitted in such a way as to be capable of waking sleeping occupants of the vessel.

Further guidance on the fitting of alarmS refer to BS 5839-6 AND BS EN 14604

4. Fire – Protection From.

Fire can be caused by a variety of potential danger points and because of the space limitation on boats; this risk is ever present and must be assessed.

Assure yourself by carrying out radiation tests.

Run the stove and check out the temperature on all surrounding, adjacent or nearby combustible materials and make sure that they are adequately protected from the effects of heat radiation.

Protection can be gained by the use of -:

- Sheet metal heat shields and spacers.
- Heat resistant boards.
- Fireguards.

Combustible materials can be-:

- Wooden furniture.
- Curtains.
- Wooden panels or frames adjacent to the flue pipe or where it passes through the deck of the boat.
- Carpet or flooring close to the appliance.
- Items near to the appliance, which could fall onto it and ignite, should the boat suffer a slight impact. These could be oil or gas lamps located near to the appliance.

5. Burns – Protection From.

During normal use many parts of this appliance and appliance chimney can become too hot to touch. We recommend that you provide and secure suitable fireguards.

ALWAYS USE heatproof gloves.

The glass door panel on this appliance conforms to the requirements of BS 1945: 1971 and satisfies the heating appliance (Fireguards Safety) regulations 1991 but it does get very hot and must not be touched whilst the stove is running.

The door-opening handle is designed to stay cool and can be used whilst the stove is running.

5. FUELS.

1. About Wood Burning.

The first thing to learn about burning wood is that the fuel has to be dried or seasoned and technically this means moisture content of less than 20%. To achieve this the wood needs to be stored for about 12 months after cutting, before burning. This is a general guide and dependent upon the type of wood to be used, Pine will dry out faster than Elm, and some woods such as Willow will take forever to dry.

Cut logs sizes to suit the size of the stove you are going to burn them on.

You will not be able to burn wood properly until you have built up at least 30mm of wood ash on top of the wood grate, this can take two to three days of burning to build up, when it has, riddle with care as you can soon riddle it away.

You will find that when you are wood burning you will only have to empty the ash pan once a week, if that.

When re fuelling a wood stove always leave at least 30mm of ashes in the grate, carefully stack fresh logs onto the ashes but not too many, re fuel in line with our instructions a little and often.

Burning green or wet wood will mean increased fuel consumption, reduced heat output and excessive tarring of the chimney.

Take great care with very dry fuel such as compressed wood waste, peat briquettes or kiln dried timber, if the stove is excessively loaded with these fuels it can race away and over fire, it is

better to mix these fuels with other fuels or use them sparingly.

2. About Coal Burning.

Coal burns in different phases of combustion.

Phase one is long flame combustion where air has to be supplied though a grate, during this phase masses of tar and volatiles are burned off from the coal and masses and masses of air is required to allow this to happen. In its next phase of combustion, the fuel then burns like coke with short flame incandescence.

You can burn house coal on your Bubble stove but it must be 50mm doubles or trebles in size and it must be placed onto an established hot fire, throw the shovel away and use tongs to load it.

Do not put more than two x 50mm single pieces on at any one time otherwise the door glass will soot up and the chimney will smoke.

Load the fresh fuel to the back of the stove and give the stove plenty of air through the over fire and under fire controls.

3. About Hard Coke.

It is possible to burn coke on a Corner Bubble on a boat but you have to experiment with the air controls and building up the fire during the evening.

You will have to use the long chimney extension, as you will not be able to maintain enough chimney vacuum without it.

4. About Fuels Generally.

Do not use Petro Coke on Bubble Stoves, if you do it will invalidate the warranty and cause damage to the grate, grate frame, stove glass and could damage the stove beyond repair.

If you are unsure about petro-coke ask your supplier to confirm that what he is selling you does not contain it.

Do not use the stove without the front fret fitted correctly see sec7-2.

There is a large variety of solid fuel available for use on solid fuel stoves however because the stove is designed for use on boats we recommend the use of large type solid fuel such as -:

- Furnacite.

Furnacite is good and stays in well.

Established fires will run on air wash only.

- Coalite.

Coalite burns with plenty of clean flames and is very easy to light.

- Homefire.

Homefire is hexagonal shaped fuel which works well with minimum chimney draft.

- Homefire E Coal.

This is a fuel supplied by CPL

0800 1953 755.

It stays in for a long period of time and has proven to be quite good for corner stoves.

Established fires will run on air wash only.

- House coal – use large pieces typically called trebles and load it in single pieces only.
- Do not put coal on to a fire which is almost out.

Anthracite is difficult to get going but burns with little ash and gives off lovely wispy blue flames, it is difficult to keep in for long periods because it needs a constant steady chimney vacuum which is not available on a boat chimney.

Note that this illustration does not comply with current regulations.

6. FUEL LOGISTICS

One of the major complaints about using solid fuel stoves on boats is dirt and dust.

This is brought about because the chimney on a boat cannot generate the pull required to suck dust up the chimney as it would in a house or normal long chimney.

In a boat space is at a premium and any dust soon shows itself.

We have found that there are several ways that this situation can be improved.

- Because we have a short chimney we have to keep it hot to make it work, therefore before opening the stove door, give the stove a few minutes of full bottom air to increase the temperature in the firebox and so increase the flue vacuum.
- Riddle the stove with a hot fire and always keep the door closed whilst riddling.
- Use a tippy ash pan holder to dispose of the ash. Some boaters have an extra tippy to store hot ashes in until they have cooled down. Tippies can be obtained from Harworth Heating Ltd.
- Always carry firelighters and or pre prepared bundles of kindling sticks to make lighting quick and easy.
- Keep your fuel carefully stored under cover and in a dry and ventilated environment
- Keep a good mix say Homefire ovals, Sticks and well-dried logs.
- Keep logs in a suitable basket to avoid mess.
- Use a good quality hearth tidy.

Do not store or dry fuel within a combustible distance from the appliance.

Do not use chemicals or fluids to start the fire and make sure that they don't come into contact with the fire.

Make sure that combustible materials do not come within a distance of 600mm from the appliance.

7. CHIMNEY

This is the one of the most interesting problems a boat owner wanting to use solid fuel has to deal with and as the chimney affects all aspects of running the stove, we take time here to list the following information for your consideration.

The power, suck or vacuum the chimney can develop depends upon the following-:

- **ITS HEIGHT.**
- **ITS DIAMETER.**
- **THE TEMPERATURE OF THE GASSES IN IT.**
- **THE RESISTANCE OF THE INNER SURFACE OF THE FLUE PIPE OR PIPES.**
- **LOCATION OF MOORING**
- **PROVISION OF ADEQUATE VENTILATION**

The boat is moored in a position near to high buildings, high trees or higher surrounding land.

If there are any of the above in the immediate location (within 100 –200 yards) of the boat, **under changing and fluctuating wind conditions, downdraghting will occur.**

If you have to moor in situations where the above-mentioned criteria exist, and the stove is running, you must **let it go out.**

Don't leave the appliance running and unattended.

Don't leave the appliance running overnight.

It is obvious that on a boat the first and second requirements are in short supply, we normally have low flues which are small in diameter and generally not very well insulated, coupled with all these problems we have the other one which is the boat moves across constantly changing surroundings and through locks, into headwinds and crosswinds and also moors up in constantly changing locations which create major possibility's for downdraughting to occur.

Any bend in any part of the chimney roughness on the internal chimney wall will slow down the velocity of rising gasses and reduce the effectiveness of the chimney.

Any slight reduction in the flue gas temperature will reduce the chimney vacuum or pull, hence when the stove is slowed down for all night burning, as the flue gas cools down the chimney vacuum reduces and the chimney could develop so little pull that the stove may well go out. This problem is

highlighted even more during very cold weather when the chimney can cool down even faster.

On a boat this is obviously not possible, therefore we have to take great care to make sure that we get the chimney to work as well as possible given all the limitations that Narrow Boats impose upon us.

Here are the rules.

1. Always use top outlet for flue pipe take off.
2. Never put any bends in the flue. (To maintain a concentric fit, we will allow a slight kick off the stove and a similar kick into the deck flange).
3. Always try to get the stove as low as possible in the boat as this will allow installation of maximum length flue pipe.
4. Always have two double wall above deck extensions, short for cruising and long (28" minimum) for mooring. Insulated extensions are a thing of the future but it is possible to fill the space using a vermiculite and cement mix sealed off with flexible fire putty.
5. If you have to moor in a position near to high buildings, high trees or higher surrounding land.

Don't leave the appliance running and unattended.

Don't leave the appliance running overnight.

Note that this illustration does not comply with current requirements.

5. Fit a rotary swinging cowl to each extension or make one interchangeable.
6. Clean or have the chimney cleaned regularly. (Frequency depends upon type of fuel and length of time used).
7. Make sure that the boat ventilators are always open when the appliance is in use.
8. Before lighting the appliance make sure that the weather cap has been removed and any chimney extensions are fitted.

Don't phone in and ask for dispensations.

5. OPERATING PRINCIPLES.

The output generated from a solid fuel stove depends upon several factors.

1. The ability of the chimney to pull air through the stove.
2. The size and capacity of the firebox.
3. The grate design.
4. The control and direction of combustion air allowed to go into and through the stove.
5. The type of fuel.
6. The calorific value (c.v.) of the fuel.
7. The ability of the stove to dispose of the heat (radiate or convect) generated from the burning fire.

In the design of the corner stove we have attempted to build in items 2,3,4&7.

Item 5 is down to you making the correct choice but we have plenty to say about the subject and you should read, practice and understand all about different fuels, it's worth it!

6. OPERATING PROCEDURES

1. Lighting the stove.

Make sure that the long above deck extension is fitted.

Make sure that the front fret is fitted the correct way round to keep the fuel away from the front of the stove.

The stove comes without the wood-burning insert fitted but if you are going to wood burn only fit the wood-burning insert.

Otherwise proceed as follows.

Open the door and build a fire in the normal way using newspaper or firelighters first, then place

plenty of small chopped pieces of dry sticks onto the paper or firelighter.

Open

1. The ash pit door air valve in the ash pit door.
2. The over fire air valve in the refuelling door.
3. The air wash air valve slider on the upper front face of the stove.

Light the fire at the base and let it get going before closing the door.

Because the chimney is cold it will take a little while for the fire to get going, when it does you will find it draws well and you will be able to partially close the air valve in the ash pit door.

Keep an eye on the fire through the lighting process and once the sticks are well alight put some larger wood on and get that well alight before putting any solid fuel onto the fire.

When your fire is well alight you can start to control the burn rate and heat output.

2. Controlling the Stove.

There are **three** air control valves on the stove.

- Under fire air for solid fuel.
- Over fire air for wood burning.
- Air wash air to help keep the door glass clean.

You will find your own way to run the stove but to start with we give guidance on the use of the air control valves.

The under fire air control valve in the ash pit door will be used mainly for burning solid fuels.

It controls the volume of air allowed to go through the grate and into the burning fuel.

The over fire air valve in the bottom of the fuel door is used for wood burning and additional air wash for keeping the door glass clean,

The air wash air is used for keeping the glass clean and burning wood or coal.

When the fire is well established control can be achieved by using one or more or all of the controls.

3. Refuelling and de-ashing the Stove.

Correct refuelling is the key to keeping.

- A nice looking fire.
- A clean door glass.
- A clean chimney.
- Happy neighbours.

If you put a small amount of fuel onto a good fire it will soon recover and rapidly get back up to temperature.

Depending upon the fuel being used, smoke will only come from the fire immediately after it has been re fuelled or during the lighting stage, if the fire recovers or is allowed to burst into flame quickly, smoke emission is kept to a minimum and will only occur for a short period of time.

To help you make this happen. the stove has the potential to allow massive amounts of air into the combustion zone from a variety of different directions.

Even with all this available air it is sometimes advisable just to open the door slightly if the fire is particularly smokey during lighting or immediately after re-fuelling.

ON THE OTHER HAND

If you let the fire burn low and then put a huge load of fuel on, you will kill the fire and it will go out or take some considerable time to recover, during this time it will smoke and soot the chimney up.

RECOVERING THE FIRE

If the fire is allowed to get low, refuel with small amounts of wood and give the stove plenty of air until the firebox temperature recovers. Slowly build the fire up by adding fuel little and often.

When the fire is established control the burning rate by reducing the airflow. Use the air valves but keep plenty of air wash going to keep the glass clean.

Excessive smoke emission is a sure sign that you are not running the stove correctly.

When the stove is running correctly there will be no or very little smoke coming from the chimney.

After a fresh charge of fuel it may be necessary to open all three air controls, when the fire has settled down, use the over fire air and the air wash.

Once the stove is up to temperature you will see how the fuel gasses off to produce lovely light

wispy flames rolling around the firebox. These flames are very controllable and by building on your experience you will be able to get the stove to respond to most of your requirements.

De Ashing the stove is important, if the ash is allowed to build up it will touch the grate and stop cooling air reaching it, this will in turn cause the grate to overheat and become damaged and unserviceable.

This sort of damage will not be allowed as fair wear and tear and will not be covered by the warranty.

4. Maximum burning times.

- **Do not top the fire off with house coal.**
- **It is completely unsuitable and will lead to a sooty glass, sooty stove and a rapidly blocked chimney.**

There is a skill and knowledge to acquire if you want to get the stove to burn for long periods.

Here are the critical factors

- What type of fuel to use.
- How and when to re-fuel.
- Where to set the air controls.
- How to set the chimney up.
- What happens to the chimney when the stove is slowed down.

5. TIPS.

Maximum length of burn will be achieved using a smokeless fuel.

Build the fire up slowly by adding fuel during the evening, try to get the firebox full of red-hot fuel, before retiring to bed, give the stove a slight riddle and then top it up with a final load of fuel. Leave the over fire air and the air wash just cracked.

If you admit too much air it will burn all the fuel away.

If you don't admit enough air the stove will go out without burning all the fuel and the glass will become dirty.

You will have to experiment to find out the best way to keep the fire in.

We recommend the use of a stove top temperature gauge to help you operate the stove at the correct running temperature.

6. Riddling the Stove

To riddle the stove simply insert one end of the tee bar tool into the brass eye at the end of the riddling rod and pull / push until the ash has been riddled away.

7. MAINTAINANCE.

To keep your stove working well, you must make sure that it is kept in good condition.

As you can see we have linked cleaning with maintenance, if you pay attention to keeping the stove clean and tidy, maintenance will be much reduced and the stove will work to its maximum potential.

ASH and clinker are the major problems with solid fuel stoves.

To try and minimise them we have designed this stove with a large ash pan and an externally operated riddling grate allowing you to riddle the stove with the door closed.

In addition to the large ash pan we have also fitted ash pan guides in either side of the ash pit base. These guides make sure that the ash pan is forced to go where we want it: under the grate.

1. Day to day attention.

Make sure that the fuel-loading door and ash pit doors close correctly and that there is no ash or dirt trapped behind them.

Make sure that the base of the ash pit is clean, any dirt or pieces of coke could trap behind the ash pan stopping it from going fully up to the back of the stove.

This could cause the ash pan to catch the back of the ashpit air inlet valve and hold it open.

For the stove to work correctly, it is important that all the air coming into the stove goes through the air valves only, if the upper and lower door are not properly closed this will not happen as well as it should.

2. Front Fret.

The stainless-steel backed front fret is slipped in to the front of the stove with the vermiculite board facing the fire.

It is important to make sure that the appliance is never run without the front fret correctly fitted otherwise damage to the front plate of the stove will occur and subsequently prevent the door from closing correctly.

The front fret slips into the front of the stove and is located on two small circular buttons, to remove it simply lift it straight up in a vertical direction, once removed the two locator slots can be seen and the two buttons on to which the front fret is located can also be seen.

Before re fitting the front fret make sure that all ashes and dust are removed so as to accommodate the front fret without any interference.

3. Baffle Plate.

The baffle plate is designed to stop the flames or heat from the fire going straight up the chimney.

As the flames rise in the stove they hit the baffle plate and are pushed forward to hit the front and top plate of the stove. This slows them down and makes them lose more heat to the stove and less up the chimney.

It is a triangular plate, which fits into the top of the stove and is supported by three small brackets.

The baffle plate is only fitted to the non water-heating stove.

It should be inspected occasionally to make sure that it is still in good condition.

The baffle plate is a consumable item and may need replacing from time to time.

4. Riddling Grate.

The riddling grate fits in the circular hole in the bottom of the grate carrier plate.

It can be riddled by pulling and pushing the riddling rod, always use the tool for this job as the brass end of the riddling rod gets hot when the stove is running.

To remove the grate the riddle rod must be detached from it.

To do this proceed as follows-:

Let the stove go out.

Clean all the ashes out of the grate.

Open the de ashing door and remove the ash pan.

Remove the 8mm nut on the end of the riddle rod under the grate. You will have to stop the riddle rod rotating by inserting the tee bar into the brass eye.

Note the 8mm nut is punched on one end to allow it to lightly lock on to the riddle rod.

When replacing this nut put it back with the punched end outermost.

If you over tighten this nut it will cause the riddling action to lock up.

When the nut is removed, pull the rod out of the grate lever and it should then be possible to remove the grate by lifting it out.

Re build in reverse order.

5. Riddling Grate Carrier.

The riddling grate carrier supports the riddling grate.

To remove it first remove the riddling grate.

Remove all the firebricks.

Then lift out the riddling grate frame.

Note.

It is important that the frame is flat and sitting snugly down on to the fixed hearth plate.

6. The Firebricks.

The firebricks comprise of -:

One centre rear.

One right side and one left side.

Ditto-small fillet bricks at either side front which can be secured with firecement.

They are self supporting and are fitted-:

Rear centre first.

Sides next.

Small fillets to lock the assembly in place.

The firebricks are consumable items and will need to be replaced from time to time.

I f the stove is left to run with damaged fire bricks the outer steel panels could burn through.

7. Keeping the stove clean.

To clean the stove externally allow it to go out and simply give it a slight dusting with a very soft small brush

8. To clean the chimney.

Let the stove go out and remove the baffle plate.

Not required to be done on water heating stoves.

Close the door and all the air valves.

Remove the chimney extension and slowly push a 4" brush down the chimney.

All the debris should fall into the stove ready to be cleaned out.

When you are happy that the chimney is clean.

Use a vacuum cleaner to vac all the debris from the stove.

Note it will be useful if you could enlist an assistant to stand near to the stove with a vacuum cleaner running to vac any dust, which may leak from the stove.

9. To remove the front fret.

Let the stove go out, open the front door, clean the ashes out and simply lift the front fret up vertically, twist and remove.

Before replacing it make sure that all the ash is removed from the base of the two retaining brackets.

10. Cleaning the door glass.

If you are running the stove correctly and using the specified fuel the door glass will remain clean, there may be slight sooting after lighting or re fuelling but this can be easily removed using a damp cloth.

If you use house coal and do not refuel as per our specific instructions on how to refuel, the door glass will soot up!

Warning

Do not attempt to clean the glass door with a damp cloth whilst the stove is running or the door is hot.

If the door glass does become tarred up you will have to use a glass cleaner available from Bubble Stoves.

When using these cleaners you should carefully follow the detailed instructions on the product packaging.

Avoid contact with skin, eyes and items other than the glass.

Before closing the stove door always make sure that there are no obstacles likely to break the glass upon closing.

Do not use the door glass to push awkward shaped logs into the firebox as this can break the glass.

11. To Replace Door Sealing Rope and Glass

The door sealing rope should be replaced before the start of the heating season.

The door glass should be replaced if it becomes etched or discoloured.

Remove the door and lay it down on some bubble pack.

Support it around its periphery taking great care not to break the door glass.

Use an old flat bladed screwdriver to scrape the old rope and cement from the cast socket.

Apply adhesive to the socket and then re fit the new rope.

To Replace the Door Glass

If you need to replace the door glass make sure that you order the door glass sealing rope.

Remove the door and lay it down on some bubble pack.

Support it around its periphery.

Undo the 4 screws and clamping plates then lift the glass out.

Remove the sealing rope under the glass and replace it with new rope.

Make sure that the rope forms a good airtight seal, make sure that the ends of the rope but up together.

Place the glass into the door socket and onto the new rope.

Put the screws through the stainless clamping plates and make sure that the small gaskets are sandwiched in between the glass and the stainless clamping plates.

Do not over tighten the screws.

The door is now ready to be re fitted.

8. WATER HEATING.

1. Frost protection.

Make sure that the water in your heating system circuitry has a suitable anti freeze added, your builder or installer will advise you on this.

The Corner Bubble stove can be supplied with a fully integrated boiler.

In most other types of stoves the boiler is a secondary consideration and supplied as an additional item to be fitted inside the stove.

This is not the case with the corner bubble stove; the boiler forms the whole upper outer part of the stove.

This has several advantages over bolt in boilers-:

- It does not reduce the inner volume of the firebox.
- It reduces the amount of radiated heat to the surrounding fireplace as the whole of the back panel of the combustion chamber is water cooled, this reduces the risk of heat damage and helps make the stove much safer.
- It has the largest water heating capacity of any small stove.
- The output of the stove is perfectly balanced between heat to space and heat to water.

If you have a water heating stove there are certain extra items you will have to take care of.

You must know which type of plumbing system is installed on your boat, as there are two distinct types, which are

2. Gravity or Fully Pumped Systems

In each case learn how the plumbing is laid out and where the feed and expansion tank is situated.

In each case go through the checking procedure detailed below, before lighting the stove.

The feed and expansion tank on land based systems is automatically topped up should any overheating or evaporation occur, generally on boats this is not the case and topping up has to be done by hand, because of this it is important to carry out regular checks on the water level in the feed and expansion tank and you installer or builder should instruct you on this procedure.

3. Gravity Systems.

If the plumbing system has been designed as a gravity system you should be able to run the stove without a water-circulating pump.

Before you light the stove go through this checking procedure.

- **The feed and expansion tank is topped up to the specific level.**

The system installer must advise you how to do this.

- **The system is free from entrapped air.**

The installer will tell you where the air vents are located but remember if you bleed air off top up the feed and expansion again.

- **Check that the chimney is free from obstruction and the long extension is fitted.**
- **Check that the inners of the stove are correctly fitted in place.**

(Baffle, grate assembly and firebricks.)

Check that there are no closed valves likely to stop the flow of water around the heating circuit.

(It is illegal to place any un-shielded valves on a solid fuel heating circuit we give advice in 5 as a precautionary exercise.)

After you have checked as above proceed as follows-:

Light a small fire and build it up slowly.

Keep an eye on the progress of the heat out of the appliance through the system.

Heat will build up in the water and force the water to expand and push itself around the system.

Getting heat into the system is a slow and steady job, you must be patient and let it push through the system slowly.

Once heat is back returning into the appliance the system will gather momentum and circulation will proceed faster.

At this stage it will then be possible to build the fire up a little as the heating circuit will be able to dissipate the increasing volume of heat production from the stove.

If the stove is brought up to temperature too quickly there could well be some water lost through the feed and expansion tank.

4. NOTE WELL.

When you are lighting a stove from cold there will be a build up of condensates on the boiler surfaces and this can build up to be quite a lot of moisture.

As soon as the return water gets warm this condensation will stop, if the return water does not get hot condensation may well stream from the appliance.

5. Pumped Systems.

If the system is designed as a pumped system you will have to keep the circulating pump running whilst the stove is alight.

You must go through this checking procedure before lighting the stove.

- **The feed and expansion tank is topped up to the specific level.**

The system installer must advise you on this point

- **The system is free from entrapped air.**

The installer will tell you where the air vents are located.

- **Turn the water-circulating pump on and make sure that it is running.**

The installer will tell you where the pump switch is located.

- **When you have turned the pump on make sure that you have enough power in your batteries or electrical system to keep the pump running all the time that the stove is under fire.**
- **Check that the chimney is free from obstruction and the long extension is fitted.**
- **Check that the inners of the stove are correctly fitted in place.**

  (Baffle, grate assembly and firebricks.)

Light a small fire and build it up slowly.

Heat will build up in the water and the system will slowly come up to temperature.

At this stage it will then be possible to build the fire up a little more.

If the stove is brought up to temperature too quickly there could well be some water lost through the feed and expansion tank or safety valve, replace this water when the system has settled down.

When the fire has settled down, adjust the air control as desired to give the temperature required.

Note if the circulating pump fails, hot water may expand out of the feed and expansion tank and also out of the safety valve.

Take great care if this happens as the water will be up to boiling temperature and if there is a big fire in the stove, may soon turn to steam.

Open the front door of the stove and allow it to cool down as quickly as possible.

Always have a pair of tongues available near to the appliance.

Using the tongues, remove the hot embers as quickly as possible and place them in a suitable ashcan which must be standing on fireproof material.

9. GLOSSARY OF TERMS

Downdraught

A wind effect creating a situation where air is being either blown down the flue pipe.

Vortexing

A wind effect creating a situation where air is being sucked down the flue pipe by negative pressure inside the boat.

Chimney vacuum

The negative pressure, which the chimney system is able to generate which draws the products of combustion from the appliance.

Combustible materials.

Any materials in close proximity to the appliance which can easily ignite with the application of enough heat.

Thermostat

A device for controlling air or water temperature.

Multi fuel stove

A stove, which can accommodate all the combustion and other technical requirements of wood, coal and smokeless fuel burning.

Volatiles

Combustible entrapped component of hydrocarbon fuel.

10. WARRANTY.

Fill in the warranty form and returned it to us, the information recorded on the warranty form helps us to deal with any problems you may encounter. Where we do not hold returned warranty forms replacement parts would only be issued when we are sure that the stove has not been damaged by improper use or installation.
The warranty covers PARTS ONLY for a period of ONE YEAR and is conditional upon all the requirements of our installation instructions being fully adhered to.

11. THE WARRANTY DOES NOT COVER.

1. DOOR GLASS.

2. BAFFLE PLATES.

3. THE RIDLING GRATE

4. THE RIDLING GRATE FRAME

5. LABOUR COSTS.

6. TRAVELING COSTS.

7. CONSEQUENTIAL LOSS.

8. CONSEQUENTIAL DAMAGE.

9. DAMAGE RESULTING FROM IMPROPER USE.

9A. DAMAGE RESULTING FROM THE USE OF PETRO COKE BASED FUEL.

10. TRANSPORT COSTS IN CONNECTION WITH REPAIRS CARRIED OUT UNDER GUARANTEE.

11. LABOUR COSTS INVOLVED WITH FITTING PARTS SUPPLIED UNDER GUARANTEE.

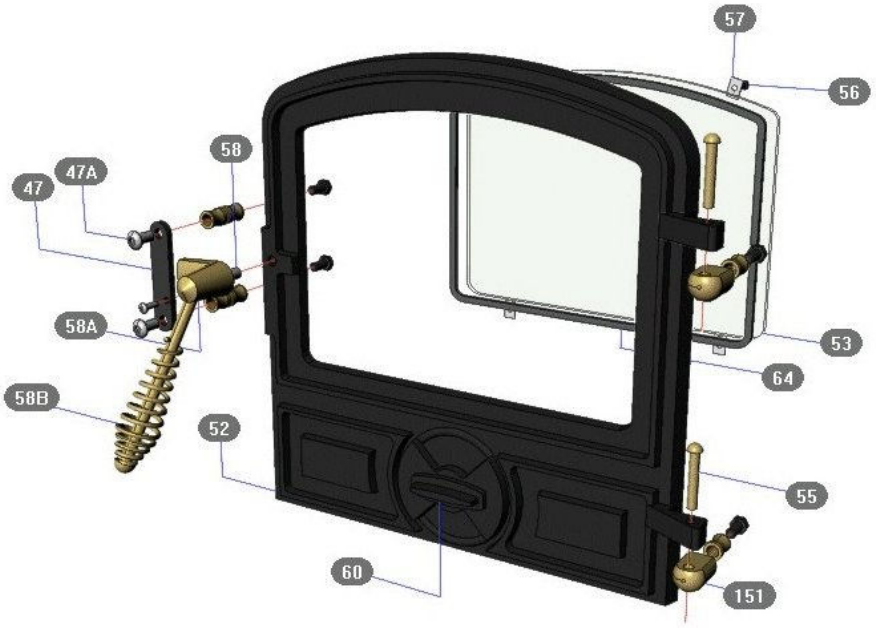
This product is subject to continuous development and improvement and it is consequently acknowledged that due to this process there may be some omissions and errors.

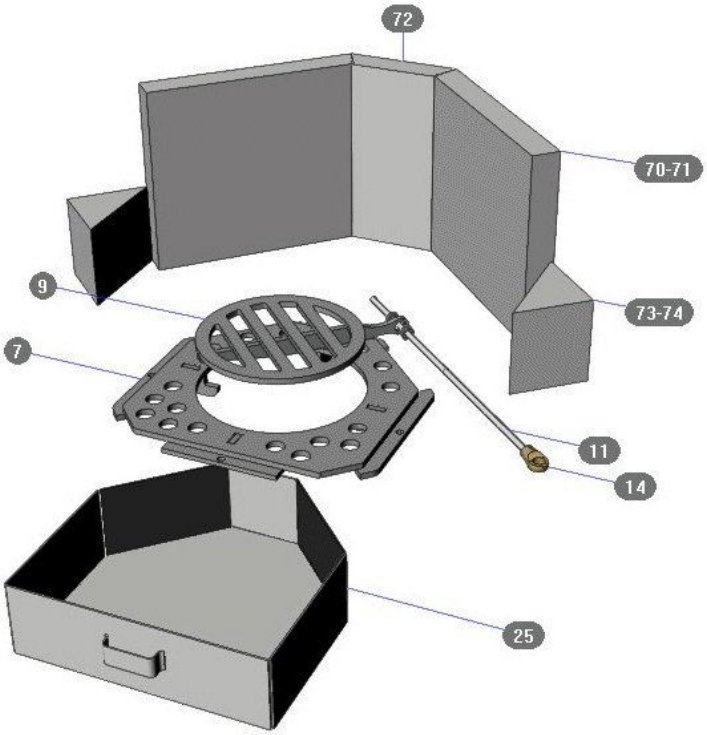
This publication is intended only to assist the reader in the use of this product and therefore Harworth Heating Ltd shall not be liable for any loss or damage whatsoever arising from the use of any information, error or omission found in this guide.

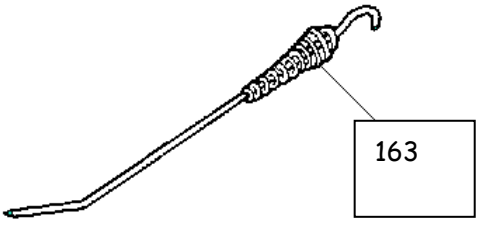
Bubble Products

Design and manufacture in the U.K.

12 PARTS LIST







ITEM NO.	DESCRIPTION	QTY PER STOVE	PART NUMBER
7	GRATE SUPPORT PLATE ASSY	1	87-01-450-6
9	GRATE ASSY	1	87-01-450-9
11	GRATE OPERATING ROD	1	87-01-450-11
14	GRATE OPERATING ROD HANDLE	1	105123-B
16	TOP AIR SLIDER	1	87-01-450-16
22	BAFFLE PLATE	1	87-01-450-22
25	ASHPAN ASSEMBLY	1	87-01-450-25
30	ASHPIT DOOR	1	87-01-450-29A
35	ASHPIT DOOR LOCKING ASS	1	900915-B
36	ASHPIT LOCKING PLATE	1	87-01-450-36
37	FRONT FRET	1	87-01-450-37
44	PRIMARY REAR HEATSHIELD	1	87-01-450-44
45	SECONDARY HEAT SHIELD	2	87-01-450-45
46	FRONT FENDER	1	87-01-450-46
47	DOOR LOCK PLATE	1	87-01-450-47
47A	SCREW FOR DOOR LOCK PLATE	2	77-02-030
52	BLACK DOOR	1	309989-B
53	STANDARD DOOR GLASS	1	188798-B
55	B1 HINGE PIN	2	110404-B
56	M5 DOOR GLASS RETAINING SCREWS	4	77-02-128
57	STAINLESS GLASS RETAINING CLIPS	4	259015-B
58	AXIS FOR DOOR HANDLE	1	100956-B
58A	THREADED DOOR LOCK	1	301515 66-B
58B	STAY COOL SCREW IN HANDLE	1	158541-B
59	ROLL PIN FOR DOOR HANDLE CASTING	1	134749-B
60	AIR INLET WHEEL	1	301737-B
61	SPRING FOR AIR INLET WHEEL	1	166003-B
62	AXIS FOR AIR INLET WHEEL	1	189103-B
63	14MM BLACK ROPE FOR DOOR 1 MTR LONG	1	77-01-917-1
64	THERMOCORD ROPE 900MM LONG DOOR	1	142301-B1
70	LEFT HAND BRICK	1	87-01-450-71
71	RIGHT HAND BRICK	1	87-01-450-71
72	CENTRE BRICK	1	87-01-450-72
73	LH WEDGE	1	87-01-450-73
74	RH WEDGE	1	87-01-450-73
151	DOOR PILLAR	2	BRASS025
152	LOCKNUT FOR DOOR PILLAR	2	77-02-072
160	FLUE COLLAR	1	303829 EF-B
162	ASHPAN/RIDDLING TOOL	1	808001-B
163	POKER	1	180002-B