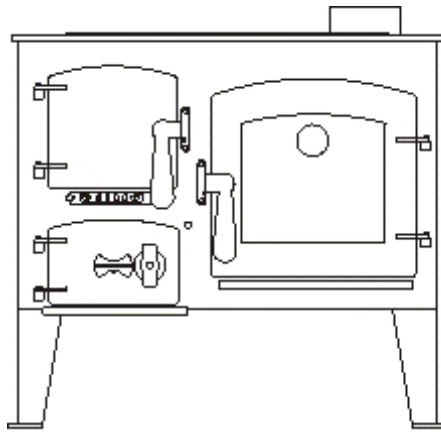




LITTLE POD WOOD©

MARINE INSTALLER INSTRUCTIONS ISSUE 1@19-09-14 ©



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If you have any difficulties please phone our technical help line on:-

01302 742520 fax 01302 750573

e mail sales@oilstoves.co.uk.

www.oilstoves.co.uk

Note: A technically competent person must carry out the installation this equipment.

EQUIPMENT REQUIRED LIST.

ITEM.	Pt. No.
<input type="checkbox"/> Fire cement.	
<input type="checkbox"/> Silicone Sealant.	
<input type="checkbox"/> Fibre Glass Rope.	
<input type="checkbox"/> Touch Up Paint.	
<input type="checkbox"/> Flue Pipe.	
<input type="checkbox"/> Fire Stop Spacer.	
<input type="checkbox"/> Ceiling Ring.	
<input type="checkbox"/> Deck Flange.	
<input type="checkbox"/> Hand Drill and 10mm drill.	
<input type="checkbox"/> Metal cutting jig saw.	
<input type="checkbox"/> Disc Grinder/Cutter.	
<input type="checkbox"/> Hand Tools.	
<input type="checkbox"/> Fasteners and wood screws.	
<input type="checkbox"/> Above deck chimney extension.	
<input type="checkbox"/> Swinging chimney terminal.	

1. BEFORE STARTING THE JOB.

1-1. FITTING OPTIONS.

There are normally three different situations that the installer may be faced with:-

1. A new build installation.
2. An established boat installation, (*which has not had a solid fuel stove fitted.*)
3. A replacement installation, where there has been a stove fitted previously.

Each of the situations will present differing problems but the new build situation should be the easiest.

The established boat situation will require careful attention to the sighting of the stove in relation to flue positions and existing fittings positions.

In replacement situations it may well be necessary to blank off the existing through roof flue position and cut a fresh one to suit the new location.

Read the user instructions to learn about:-

1. The special features of the stove.
2. How it works.
3. How to take the inners out of it.
4. How to maintain it.

1-2. SAFETY.

Take care to make sure that safety and ventilation issues are adequately addressed.

1-2-1. FUMES – PROTECTION FROM.

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

1. The chimney is blocked.
2. There are too many bends in the chimney.
3. The above deck chimney extension is not high enough.
4. The boat is moored in a position near to high buildings or trees and downdraughting is occurring.
5. The chimney is not airtight.

1-2-2. FIRE – PROTECTION FROM.

1. 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 adequately assessed.

The main danger is the effects of heat from the appliance on combustible materials and boat occupants.

Make sure that all combustibles are adequately protected from the effects of heat radiation.

2. Protection can be gained by the use of:-

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

3. 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.

1-2-3. BURNS – PROTECTION FROM.

1. During normal, day-to-day use, many parts of this appliance, appliance pipe work and appliance chimney can become too hot to touch.

2. Where necessary, we recommend that suitable guards be fitted, to provide adequate protection from the heat generated by the appliance.

3. Always use heatproof gloves when working on or near to a hot appliance.

4. 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.

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

1-2-4. VENTILATION – PROVISION OF.

1. Ventilation plays a vital role in the fitting and sighting of any solid fuel appliance.

2. The provision of ventilation for this appliance is adequately covered by the requirements of the boat safety scheme.

32.5 sq cm min permanent ventilation, directly to outside air, must be provided for this appliance.

1-3. CHIMNEY

1. This is the one of the most interesting problems the installer has to deal with and as the chimney affects most aspects of running the stove, we take time here to list the following information for your consideration.

2. The power, (*suck or vacuum the chimney can develop*) depends upon the following:-

- THE HEIGHT.
- THE DIAMETER.
- THE TEMPERATURE OF THE GASSES IN IT.
- THE RESISTANCE OF THE INNER SURFACE OF THE FLUE PIPE OR PIPES.

3. It is obvious that on a boat all the above elements are in short supply. Normally, we 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 that the boat moves across constantly changing surroundings, through locks, into headwinds and crosswinds, all creating major possibility's for downdraughting to occur.

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

5. 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 as the chimney vacuum drops, the stove may well go out. This problem is highlighted even more during very cold weather when the chimney can cool down even faster.

1-4. THE CHIMNEY RULES.

1. Always use a top outlet for flue pipe take off.
2. Keep bends in the flue to an absolute minimum (*To maintain a concentric fit, it will necessary to create a slight kick off the stove and a similar opposite kick to*

straighten the flue pipe back into the vertical position as it passes through the deck flange).

3. Always try to get the stove as low as possible in the boat, this will allow installation of maximum length flue pipe.
4. For those who want a traditional narrow boat chimney extension, it is necessary to have two double walled, above deck extensions, short for cruising and long (28inch minimum) for mooring.
5. Harworth heating can now supply much more efficient insulated chimney extensions but they have to be fitted on to a purpose made deck flange which can be supplied with the new above deck system.
6. Fit a rotary swinging cowl to each extension or make one interchangeable.
7. Clean or have the chimney cleaned regularly. (Frequency depends upon type of fuel and length of time used).

Harworth Heating can supply a suitable flue brush for this purpose, for further details call our sales desk or visit our website, www.oilstoves.co.uk.

8. Don't phone in and ask for dispensations on the rules.

2. MAIN STEPS DRY OVEN STOVES.

2-1. SUMMARY OF MAIN STEPS.

1. SELECT LOCATION.
2. FIT SUITABLE FIREPLACE.
3. TRY STOVE IN POSTION.
4. ESTABLISH FLUE POSITION.
5. MARK AND CUT ROOF PLATE.
6. FIT FIRESTOP SPACER.
7. FIT DECK FLANGE.
8. FIT FLUE PIPE.
9. TRIAL FIT FIRE.
10. TRIAL FIT EVERYTHING ELSE.
11. IF IT ALL FITS REFIT IT PERMANENTLY.

2-2. LOCATION OF THE APPLIANCE.

The stove can be located in any suitable position. It, and the flue system must be securely fastened, so as to withstand the normal day-to-day situations which will be encountered in a narrow boat.

These could be:-

- Impact by other vessel.
- Impact into lock gate.
- The pitching and rolling effects of inland water sailing.
- Etc.

There are fastening down holes drilled into each bottom leg plate.

The location must have adequate protection from the effects of radiated and conducted heat as specified below.

2-3. PROTECTION FROM HEAT

Base - The stove must stand on a fireproof base of minimum thickness 50mm.

Sides - The stove has a built in rear heat shield and when the stove is positioned in a suitable location there must be a space of 25mm clearance beyond the outer heat shield, to allow air to rise up and around the shields.

The space above the heat shield must be left clear to allow heat to rise up and around it, obstructions which restrict the free flow of cooling air could cause the surrounding materials to overheat.

Do not remove the heat shields under any circumstances.

Fireproof boards must be fixed to the sides of the location and extend to a minimum **distance of 200mm above the top of the appliance (vertical clearance) and 300mm in front of the appliance (horizontal) see fig 1**

Any combustible material within these distances from the appliance must be protected by a suitable heat shield.

2-4. COMBUSTIBLE FLOORS.

Take care to protect floors in front of the appliance from hot ashes or burning fuel which could fall from the fire when the door of the appliance is left open for any reason.

Floors in front of the appliance must have suitable fire protection. The rule in domestic land based dwellings is 300mm (12")

2-5. FLUE.

Normally the stove will be fitted in a suitable location and this will predict how the flue pipe will have to be fitted.

It is important to make sure that the flue fits concentrically at both the stove end and as it passes through the fire stop spacer and deck flange.

Mark out and cut through the roof plate.

2-6. DECK FLANGE.

If you are going to use a standard, traditional deck flange for 6-inch extensions you will have to cut off the lower extension with a grinder to allow fitting of the fire stop spacer.

The deck flange will be fitted as illustrated in fig 2.

It will be bolted to the roof plate with a seal of silicone rubber applied between the joint.

The flue pipe provided with the stove will be marked and trimmed off 10mm below the top of the deck flange to allow the flexible fire-cement to be flounced into a suitable taper.

The glass fibre rope will be wrapped around the flue pipe and gently pressed down on to the fire stop spacer, allow 10mm at the top of the joint and pack the gap with the flexible fire cement which will form a seal.

The deck flange will form the base for the traditional chimney extension to be fitted.

2-7. FIRESTOP SPACER

The fire stop space will be fitted in between the deck flange and the ceiling plate concentric to the flue access hole cut in the roof plate of the boat.

It will provide heat protection for any combustible materials located near to the through roof location.

The centre hole is cut deliberately undersize to accommodate differing flue sizes and angles.

It will be necessary to open up the centre hole to fit the flue pipe, this can be done by using the flue pipe as a template and carefully marking round the flue pipe.

File the excess material away with a rough rasp. (Do this a little at a time to make sure that a good fit is achieved.)

The top surface of the spacer may also need trimming to provide a snug fit up to the inner surface of the roof steelwork.

2.8. CEILING PLATE.

The ceiling plate will be fitted inside the boat to finish off the through roof fitting of the flue pipe.

It will be screwed up to the trimming timber via 4 countersunk wood screws.

2-9. ABOVE DECK EXTENSION.

A traditional above deck extension can be fitted in line with normal practice.

We recommend that a short extension is used for cruising and a min 28" extension is used when mooring.

In each case we recommend the use of a rotating cowl to minimise the effects of down draught.

3. MAIN STEPS FOR WET OVENS.

3-1. PREAMBLE.

3-1-1. Installation of the wet stove will be the same as the dry except that when dealing with the location an extra element comes in to the equation and that is connecting the stove up to the heating circuit.

3-1-2. The stove has a fully integral, boiler, which is fitted in the left hand side of the firebox.

3-1-4. Before designing the fireplace, take great care about making provision for the boiler connections.

3-1-5. To facilitate removal of the stove, make sure that there is

- Easy access to the boiler unions.
- Easy access to the drain down valve.

3-1-6. Water can be connected to the stove via 2 x 1 inch BSP female sockets, welded into the boiler.

Make sure that the vertical sides of the fireplace can easily accommodate the pipe work.

3-1-7. When installing water heating Bubble stoves, the space heating output will be reduced slightly.

3-1-8. The boiler is high water content and suitable for pumped or gravity systems, provided that they are correctly designed.

If you are not suitably qualified, arrange for a heating engineer to do the design work for you.

See fig 4 for schematic layout.

3-2. CALORIFIERS.

Indirect calorifiers must be used on gravity or pumped systems.

If you are going to install a gravity system you must make sure that you purchase a special calorifier with a 28 mm internal diameter coil, **don't be put off by suppliers who say that they have 28mm connections which are adequate, they are not as effective.**

On gravity systems the calorifiers must be located higher than the stove and as close as possible to it, obviously keeping horizontal runs as short as possible.

3-3. VENTING OF AIR.

Gravity or Pumped systems must be open vented with cold feed, ball valve controlled expansion tanks.

The feed and expansion tank must be as close as possible to the boiler and be fitted at the highest part of the circuit.

Consult an experienced boat-heating engineer for advice on feed and expansion tanks.

To vent the system of air use automatic air vents on all possible air lock locations.

3-4. PIPE WORK.

1. All gravity pipe work must rise on flow and fall on return and be a minimum of 28mm dia. (35mm dia preferred)

2. To reduce resistance to flow:-

- Use swept bends, do not use elbows.
- Use copper pipe work.
- Use high water content radiators.

3. The primary circuit must have a total length of not more than 6 meters otherwise the recovery time of the calorifier will be increased beyond an acceptable period of time.

4. Primary circuit pipe work must not have valves or other devices that can be used to interfere with the free flow of water.

3-5. PUMPED SYSTEMS

1. Always come off the stove with 28mm copper for a minimum run of 350 mm before dropping on to 22mm hep 2o

2. To ensure suitable flow of water through the primaries suitable injector tee's should be used.

3. Great care should be taken with the positioning of the circulating pump and the feed and expansion tank to make sure that the water flows where it should and that over pumping does not occur.

4. The heating circuit must be piped in 22mm copper or Hep 2o with 15mm stabs to radiators.

5. Where additional radiators are fitted as heat leaks, the pipe work must be kept as short as possible, rise on feed and fall on return.

3-6. SAFETY VALVE

1. A 1" safety valve must be fitted as close to the boiler as possible (within 300mm) and the outlet from it must be directed to a safe location so as not to present any danger should the

valve blow-off and exit steam or boiling water. *Available ex Harworth Heating*

2. Note

Safe location could be through the side of the boat, with a deflector to stop any horizontal emission.

3-7. WATER TREATMENT

1. To reduce the build up of lime scale in the primary circuit pipe work the temperature of the water should not be allowed to exceed 65 Deg C and a suitable water treatment should be added. *Available ex Harworth Heating*

2. If the boat is to be left unattended the water, in the heating system should also have suitable antifreeze added or be drained down.

3-8. DRAIN DOWN.

1. A drain down valve should be fitted at the lowest point of the circuit. *Available ex Harworth Heating*

3-9. CIRCULATING PUMP.

1. On pumped systems make sure that the circulating pump is fitted in such a way as to make it easily replaceable, this means lock shielded valves at either side and easy access. *Available ex Harworth Heating*

4. COMMISSIONING DRY OVENS.

1. PRE FIRING CHECKS

Check the following, to make sure that they fully comply with the instructions given in section 2 -:

1-1. FIREPLACE LOCATION.

1-2. FIXING OF THE APPLIANCE.

1-3. PROTECTION FROM HEAT.

1-4. COMBUSTABLE FLOORS.

1-5. FLUE.

1-6. FIRESTOP SPACER – CEILING PLATE.

1-7. DECK FLANGE.

1-8. ABOVE DECK EXTENSION.

1-9. VENTILATION.

Open all the doors, windows and ventilators and read the user instructions on -:

SECTION 4-2. FUELS.

SECTION 6. OPERATING PROCEDURES.

Light the appliance as per instructions in the user manual.

2. POST FIRING.

2-1. When the appliance is going check that there are no fume leaks on the flue pipes and check that none of the surrounding combustible materials are overheating or showing signs of overheating.

3. INSTRUCT THE USER .

3-1. Instruct the user on the principles of operation.

4. WARRANTY.

4-1. Fill in the warranty registration details to return to us.

5. COMMISSIONING WET OVENS.

5-1. PREAMBLE.

5-1-1. If the stove has been fitted to an existing heating system, make sure that the system is adequately designed and complies with the details outlined in the section 3.

5-1-2. If the heating circuit does not comply, it must be modified, before attempting to light the stove.

5-2. The major problems in boat heating systems are-:

5-2-1. Inadequate flow of water through the boiler.

5-2-2. Inadequate flow of water through the calorifier.

5-2-3. Inadequate flow of water through the radiators.

5-2-4. Over pumping.

5-2-5. Air locks.

5-2-6. Lack of safety valves.

5-2-7. Poorly positioned feed and expansion tanks.

Many of these basic problems can be caused by a variety of reasons such as :

1. Bad circuit design.

2. Air locked pump.

3. Air locked system.

3. Inadequate head pump.

4. Pump failure.

4. Inadequate pipe sizing.

5. Inadequate dia coil fitted in calorifier (for gravity systems always order special calorifiers with 28 mm dia coils).

6. Stove fitted out of level allowing an air pocket to build up in the top of the boiler causing subsequent kettling.

5-3. PRE LIGHTING CHECKS GRAVITY SYTEMS.

5-3-1. If the plumbing system has been designed as a gravity system you should be able to run the stove without a water-circulating pump.

5-3-2. Carry out all the pre firing checks as per the list in dry stove commissioning (section 4 items 1-1 to 1-9) before carrying out the heating system checks.

5-3-3. After these checks have been carried out, check the following-:

1.

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

3. The system is free from entrapped air.

4. Check the action of the safety valve and make sure that it is free to blow off at the required pressure setting of 2.5 bar.

5. Check that the chimney is free from obstruction and the long extension is fitted.
6. Check that the inners of the stove are correctly fitted in place.
7. Check that there are no closed valves, which are likely to stop the flow of water around the heating circuit.

5-3-4. After you have checked as above and found everything in order, proceed as follows:-

5-3-5. Light a small fire and build it up slowly.

5-4. POST LIGHTING CHECKS GRAVITY SYSTEMS.

5-4-1. 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.

5-4-2. Getting heat into the system is a slow and steady job; 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.

5-4-3. 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.

5-4-4. If the stove is brought up to temperature too quickly there could be some water lost through the feed and expansion tank.

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.

INSTRUCT THE USER .

Instruct the user on the principles of operation.

WARRANTY.

Fill in the warranty registration card and return it to us.

5-5. PRE FIRING CHECKS PUMPED SYSTEM.

Go through the following checking procedure before lighting the stove.

5-5-1. Carry out all the pre firing checks as per the list in dry stove commissioning (section 4 items 1-1 to 1-9) before carrying out the heating system checks.

5-5-2. The feed and expansion tank is topped up to the specific level.

5-5-3. The system is free from entrapped air.

5-5-4. Check the action of the safety valve and make sure that it is free to blow off at the required pressure setting of 2.5 bar.

5-5-5. Check that there are no closed valves, which are likely to stop the flow of water around the heating circuit.

5-5-6. Turn the water-circulating pump on and make sure that it is running.

5-5-7. 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.

5-5-8. Check that the chimney is free from obstruction and the long extension is fitted.

5-5-9. Check that the inners of the stove are correctly fitted in place. Baffle. - Grate assembly. - Firebricks.

5-5-10. After you have checked as above and found everything in order, proceed as follows:-

5-5-11. Light a small fire and build it up slowly.

5-6. POST FIRING CHECKS PUMPED SYSTEM.

5-6-1. If the plumbing system is working correctly, heat will build up in the water and the pumped system should quickly move the heat around the system.

5-6-2. Before adding any more fuel to the fire, make sure that the heat in the boiler is being carried around the pumped system correctly and make sure that the system is not over pump.

5-6-3. 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.

5-6-4. 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.

During the post firing checks it will be possible to check on the effectiveness of the heating circuit by feeling at the differing pipe temperature. Take great care with this operation, if the system is not removing heat from the stove, the boiler temperature will rapidly rise up to boiling point.

6. HOT WATER SYSTEM FAULT FINDING.

If the system does not perform well check the following:-

1. The design of the circuit.
2. The pump is not air locked.
3. The system is not air locked.
3. The pump has an adequate head.
4. The pump is running.
4. The pipe work is adequately sized.
5. Adequate dia coil fitted in calorifier (for gravity systems always order special calorifiers with 28 mm dia coils).
6. The stove is not fitted out of level, allowing an air pocket to build up in the top of the boiler, causing subsequent kettling.
7. Adequate flow of water through the boiler.
8. Adequate flow of water through the calorifier.
9. Adequate flow of water through the radiators.
10. The system is not over pumping.

11. Lack of safety valves.
12. That the feed and expansion tank is fitted in the correct place.

GLOSSARY OF TERMS

ABOVE DECK EXTENSION.

This is the secondary part of the flue pipe system, it is generally removable and fits on to the deck flange.

When cruising a short above deck extension is used and when moored a longer above deck extension is used.

CEILING PLATE.

Generally a metal plate which is fitted on the inside roof of the boat to both hold the firestop spacer in position and form a neat internal finish to the joint between the roof lining and the firestop spacer.

CHIMNEY VACUUM.

The negative pressure, which the chimney system is able to generate.

COMBUSTIBLE MATERIALS.

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

DECK FLANGE.

Generally a circular metal component which is fitted externally, around the point at which the flue pipe passes through the roof of the boat. It is used to form the safe location for the above deck chimney extension to be fixed to.

DOWNDRAUGHT.

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

FLUE PIPE

An airtight piece of steel tube used to evacuate the products of combustion (smoke) from the appliance, through the roof of the boat, to atmosphere. In a boat it is usually comprises two parts, the first part being known as the primary flue and the above deck extension being known as the secondary flue.

FIRESTOP SPACER

A piece of fireproof material which is used to keep the hot flue pipe at a safe distance from combustible materials

GRAVITY SYSTEM.

Term used to describe a central heating system through which hot water will flow, without the use of a circulating pump.

KETTLING.

Hissing noise like that issued from a kettle just before it reaches boiling point.

PUMPED SYSTEM.

Term used to describe a central heating system through which hot water is forced to flow, by the action of an electrically operated circulating pump.

THERMOSTAT.

A device for controlling temperature.

VENTILATION.

Generally this term is used to describe the provision of an unrestricted flow of fresh external air always available to enter the boat via a series of non hit or miss vents.

Provision of adequate ventilation is covered in 1-9 of this publication.

VOLATILES.

Combustible entrapped component of hydrocarbon fuel.

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Only approved personnel must carry out maintenance on this product.

Fig 1 Flue Pipe Layout

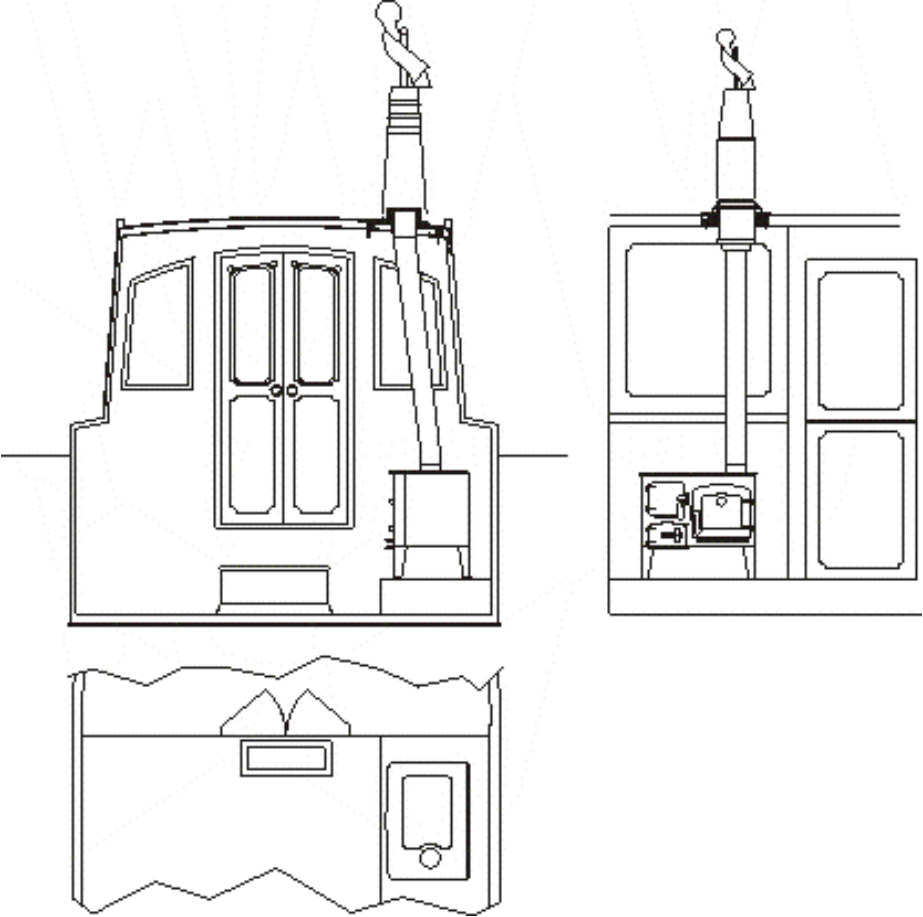


Fig 2 Mk 1 Deck Flange

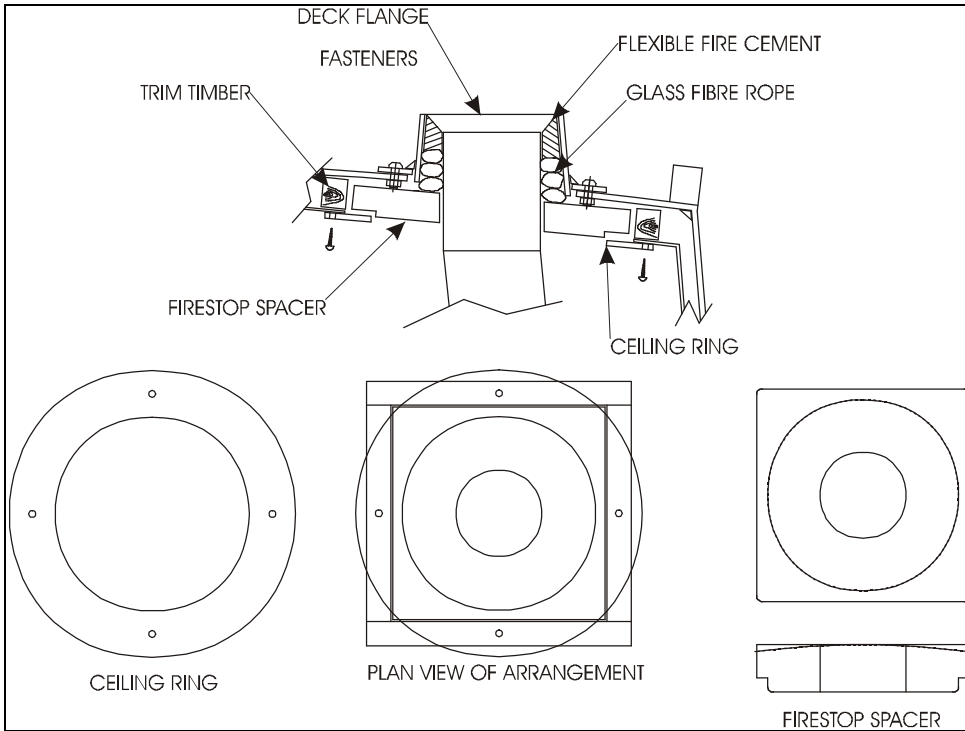


Fig 3 Corner Oven General Dimensions

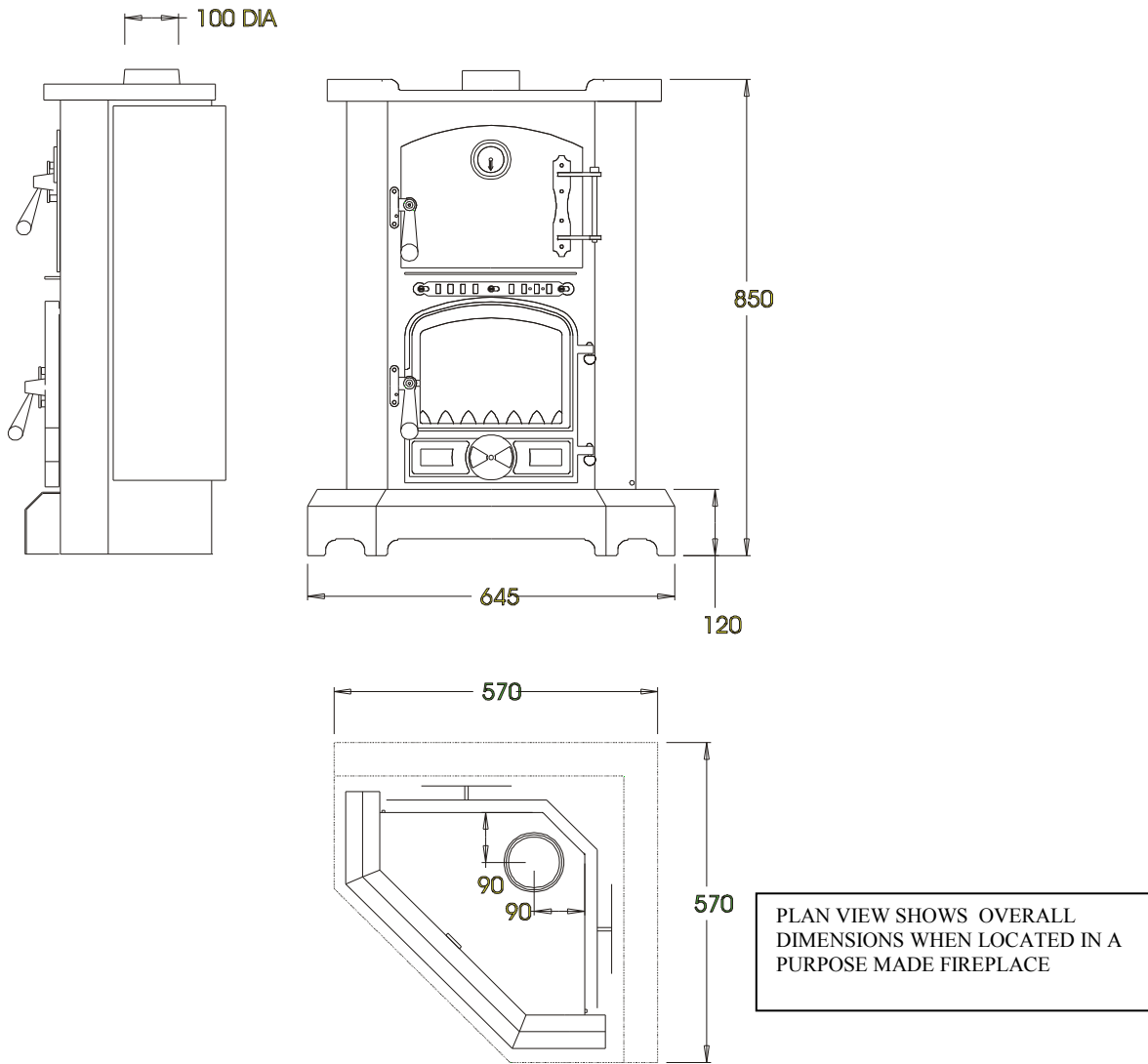


Fig3a Boiler Fitting dimensions.

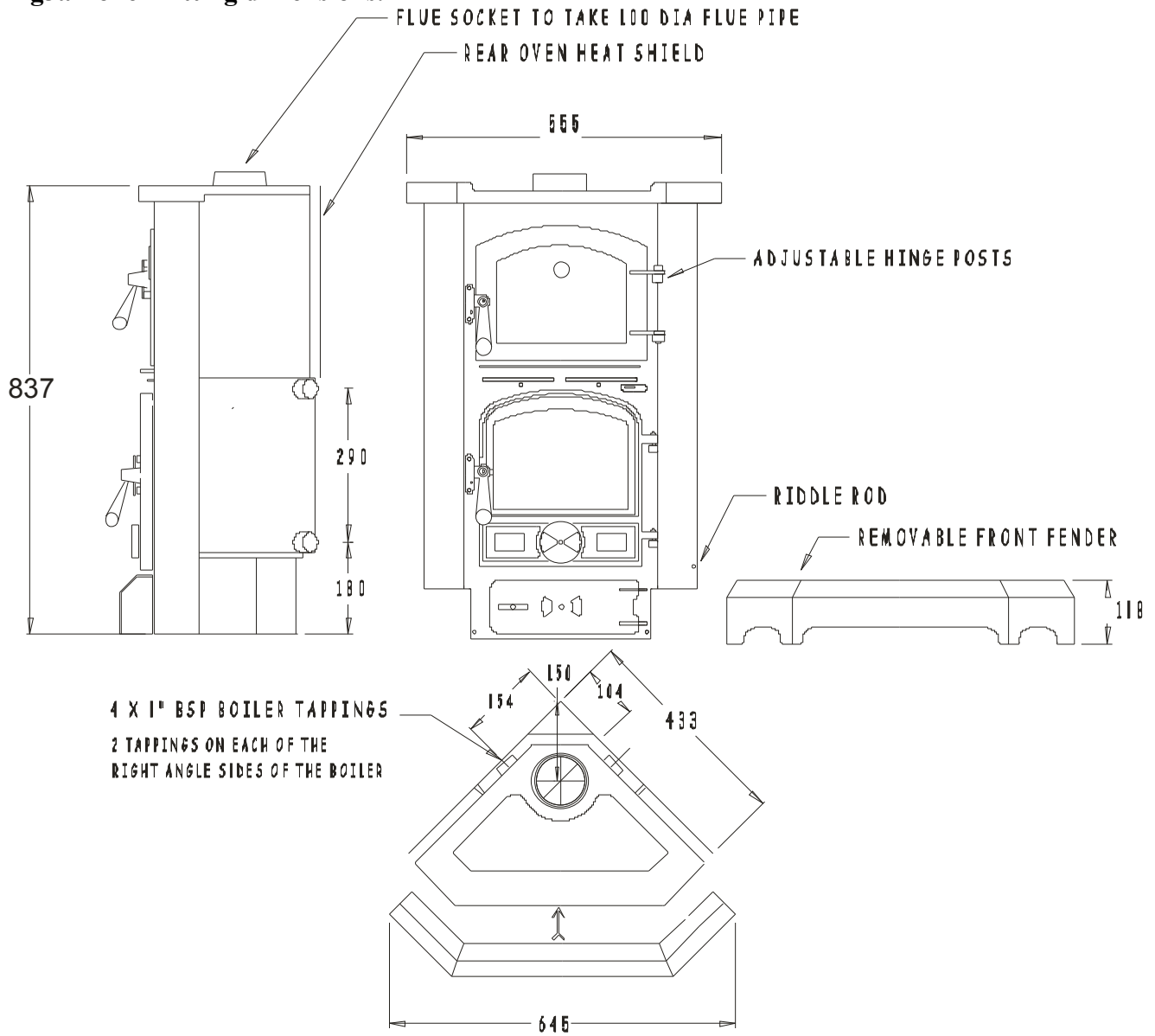
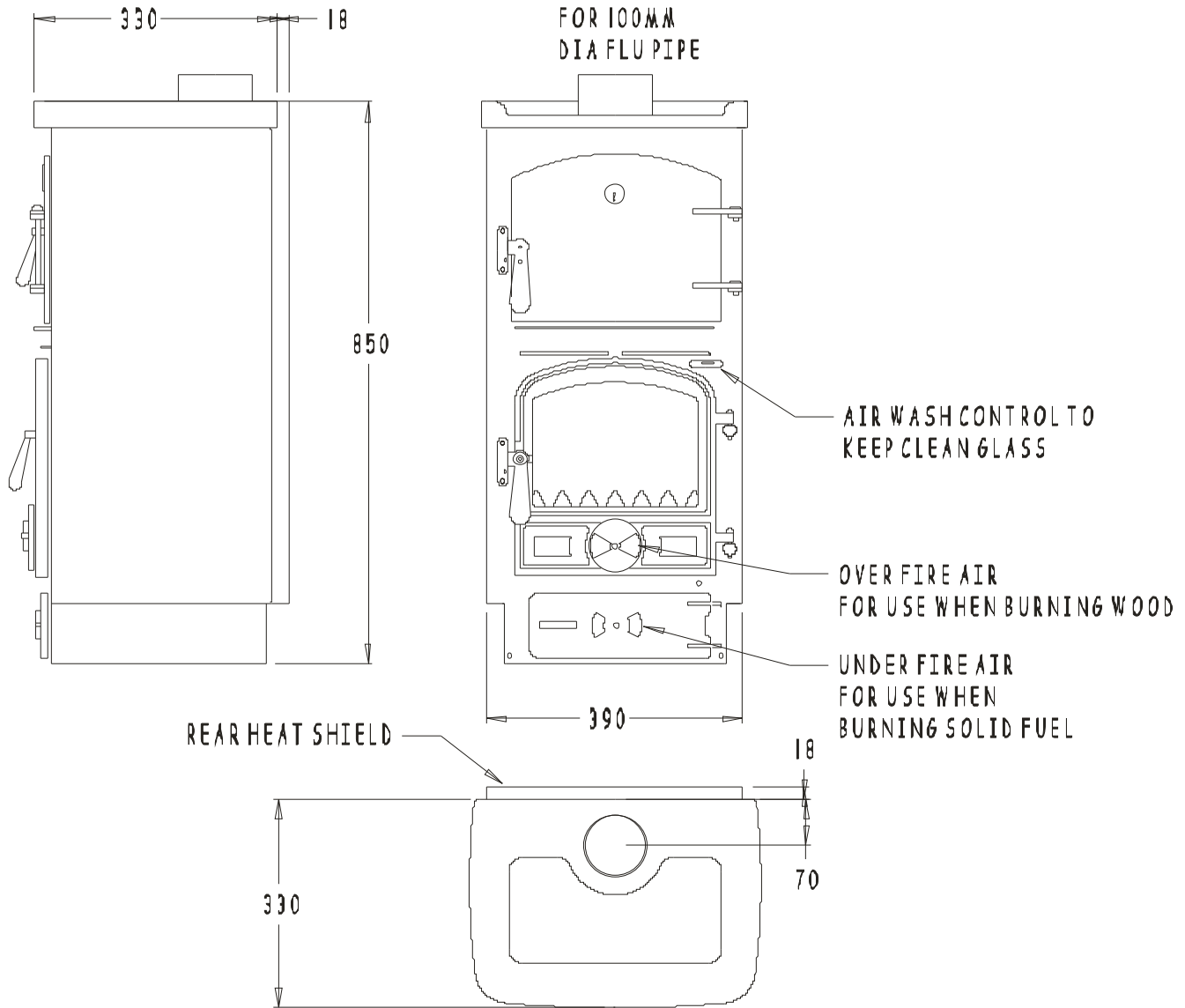
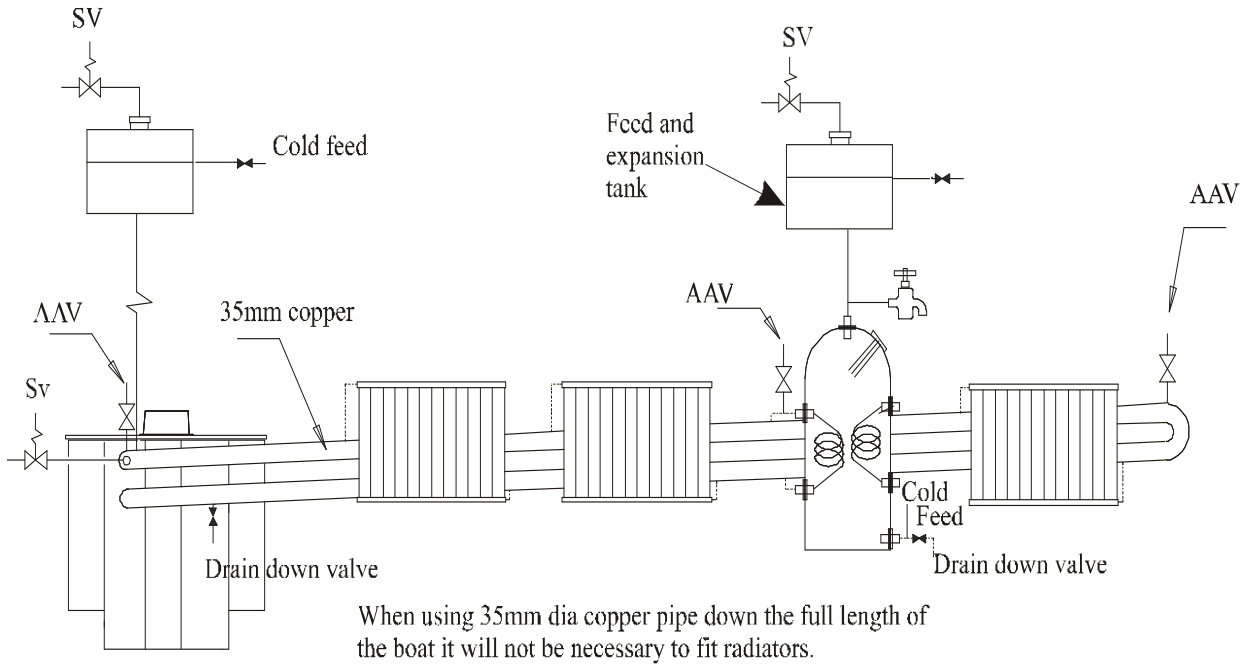


FIG 3B 4B OVEN STOVE



DRG SHOWING SCHEMATIC GRAVITY LAYOUT



DRG SHOWING PUMPED LAYOUT

