

Index

1. Health, Safety and Warnings.	3
2. Specifications	3
Table 1	3
3. Dimensions	4
3B Corner Multifuel Stove	4
4B Multifuel Stove	5
3B Wood Stove	5
7B Wood Stove	6
3B Corner Multifuel Pod	6
4B Multifuel Pod	7
7B Wood Pod	7
Pie Pod Mini Back cabin Cooker	8
4. Distances From Combustible Materials	8
Rectangular Appliances Typical Distances from combustibles	9
Rectangular Appliances Typical Hearth Size Requirements	9
5. Distance From Combustible Materials (Flue Pipe.)	9
Fig 3 Typical Flue Pipe Clearance From Combustibles	10
6. Ventilation.	10
7. Installation dry stoves	11
Preliminary Chimney Notes.	11
Chimney Rules.	11
Chimney Systems.	11
Main Steps.	11
Fig 4 Typical General Layout of Stove and Flue.	13
Typical Example of Corner Solid Fuel Stove Fireplace Arrangements	14
Fig 5 General Layout of MK3 Deck Flange Assembly.	15
8. Installation Wet Stoves.	15
Calorifyers.	15
Venting Of Air.	15
Pumped Systems.	16
Water Treatment.	16
Drain Down.	16
Circulating Pump.	16
9. Commissioning Dry Stoves.	16
Pre Firing Checks.	16
Post Firing Checks (Dry Stoves.)	17
Instruct The User (Dry Stoves.)	17
Warranty.	17
10. Commissioning Wet Stoves.	17
Common Problems In Boat Heating Systems.	17
Pre Firing Checks (Gravity systems.)	17
Post Firing Checks (Gravity System.)	17
Warranty	18
Pre Firing Checks (Pumped System.)	18
Post Firing Checks (Pumped System.)	18
Instruct The User (Wet Stoves.)	18
11. Hot Water System Fault Finding.	18
Fig 6 Typical Gravity Heating Circuit.	19
Fig 7 Typical Pumped Heating Circuit 1	20
FIG 8 Typical umped heating circuit 2	21
Glossary Of Terms.	21
Bibliograpy	21
Guarantee	22
How to proceed with a complaint.	22
Glossary Of Terms.	22

1. HEALTH, SAFETY AND WARNINGS.

Take great care when handling materials such as insulation boards, glass fibre ropes, ceramic wool, paints and silicones, they are all irritants and suitable protective clothing such as disposable gloves, dust masks and protective goggles must be worn. Wash off thoroughly after handling any of these materials.

Fire cement is caustic and must not come into contact with the skin, protective gloves and goggles must be worn, after use, wash hands thoroughly with plenty of water.

Carefully dispose of redundant or surplus materials and always vac up after installation or service work has been carried out.

There is no asbestos used in the manufacture of this product but where the installer is replacing an older heating appliance take great care. Asbestos was commonly used in sealing ropes, insulation and gasket materials if there is any possibility of disturbing old asbestos in the course of installation seek specialist guidance and use appropriate equipment, always damp down, always wear a breathing mask and always carefully vac up.

Take care when installing or servicing this product to avoid personal injury, all works must be carried out with care to meet the requirements of Health and Safety and comply with the Health and Safety rules and any new regulations introduced during the lifetime of these instructions.

Particular attention should be drawn to:-

The weight of the appliance

The weights of each appliance are detailed in Table 1.

Suitably adequate equipment must be available for loading, unloading and on site appliance movement.

Fireguard.

A suitable fire guard conforming to BS8423:2002 should be used with all Bubble solid fuel appliances.

Correct use of the appliance.

The appliance should not be used with the fire door open and where applicable the ashpit door open. These doors must be kept closed at all times except when re-fuelling or de-ashing.

Extractor fans.

Do not fit an extractor fan in the same room as the appliance as this can cause fumes to be drawn from the stove into the room.

Inflammable materials.

Do not use or store aerosols or sprays or any other flammable materials near to the appliance when it is in use.

Flues

The appliance must not be connected to a shared flue.

Smoke Alarms

The following alarm must be fitted at a distance of no more than 1.5M from the appliance.

Carbon Monoxide Alarm to BS EN50291:2002

It is also advisable to fit an Optical Smoke Alarm to BS EN14604

Identification.

A serial number plate is fastened to the appliance displaying information about the identification and documentation for the product. When ordering consumables and spare parts it will be necessary to quote the serial number.

Consequential loss.

The manufacturer will not be responsible for any consequential or incidental loss or injury however caused.

2. SPECIFICATIONS

TABLE 1

The following table shows the approximate outputs of each appliance based on a 45 minute re-fuelling cycle burning seasoned hardwood logs.

Note that the minimum chimney vacuum will allow the fire to be started, for full output use; the chimney vacuum will need to be at the max reading.

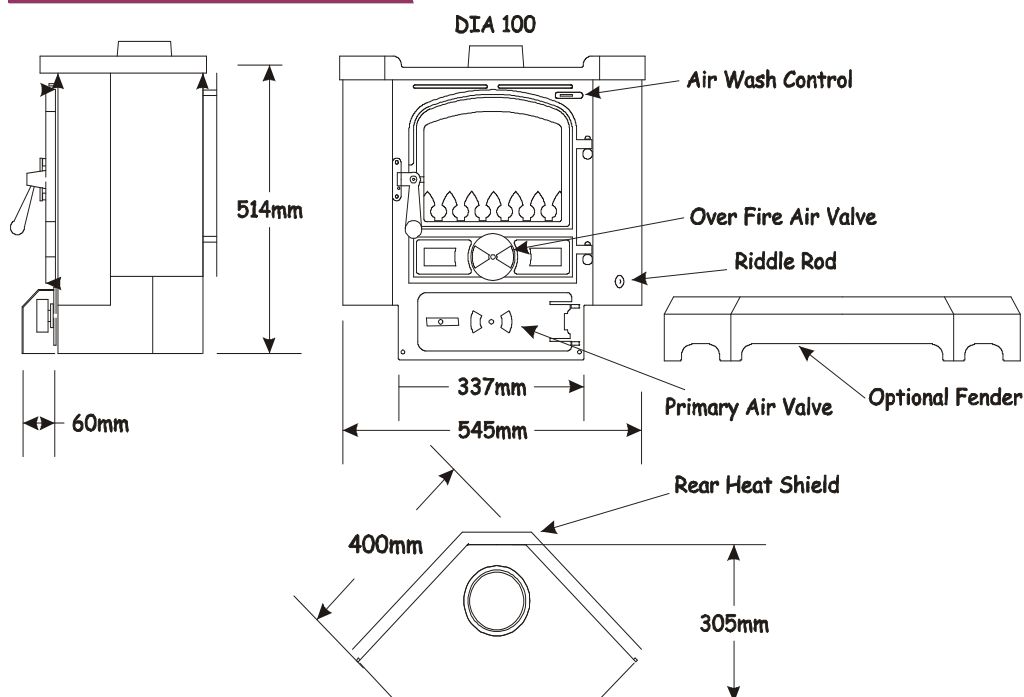
STOVES	WATER	SPACE	HEIGHT	WIDTH	DEPTH	FLUE DIA	FLUE OPTIONS	INS FLUE VACUUM	WEIGHT kg
CORNER		1-4KW	514	545	305	100	TOP ONLY	.03"MIN TO .08"MAX	50
WET VERSION	1-3KW	1-2KW	514	545	305	100	TOP ONLY	.03"MIN TO .08"MAX	60
4B		1-5KW	495	442	317	100	TOP-REAR	.03"MIN TO .08"MAX	60
WET VERSION	1-3KW	1-2KW	495	442	317	100	TOP-REAR	.03"MIN TO .08"MAX	70
3B		1-3KW	486	440	317	100	TOP-REAR	.03"MIN TO .08"MAX	50
WET VERSION	1-2KW	1KW	486	440	317	100	TOP-REAR	.03"MIN TO .08"MAX	50
7B		2-8KW	590	595	342	125	TOP-REAR	.1"MAX .03"MIN TO	80
SMALL BOILER	1-3KW	1-4KW	590	595	342	125	TOP-REAR	.1"MAX .03"MIN TO	90
LARGE BOILER	2-8KW	1-3KW	590	595	342	125	TOP-REAR	.1"MAX .03"MIN TO	120

OVEN STOVES

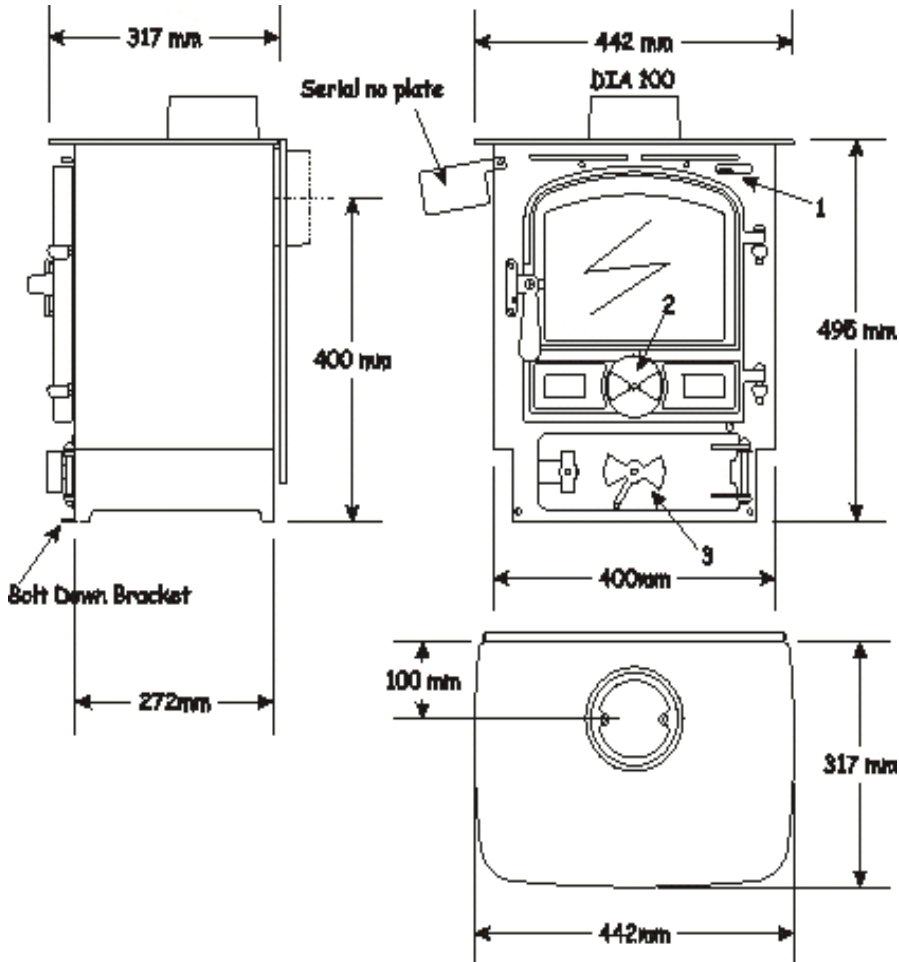
CORNER POD		1-4KW	817	545	305	100	TOP ONLY	.03"MIN TO .08"MAX	90
WET VERSION	1-3KW	1-2KW	817	545	305	100	TOP ONLY	.03"MIN TO .08"MAX	105
4BPOD		1-5KW	850	442	317	100	TOP ONLY	.03"MIN TO .08"MAX	100
WET VERSION	1-2KW	1-3KW	850	442	317	100	TOP ONLY	.03"MIN TO .08"MAX	115
7BPOD		2-8KW	1050	595	480	125	TOP-REAR	.1"MAX .03"MIN TO	130
SMALL BOILER	1-3KW	1-4KW	1050	595	480	125	TOP-REAR	.1"MAX .03"MIN TO	140
LARGE BOILER	2-8KW	1-3KW	1050	595	480	125	TOP-REAR	.1"MAX .03"MIN TO	150
MINI COOKER		1-3KW	500	550	385	100	TOP ONLY	.03"MIN TO .08"MAX	120
WET VERSION	1KW	1-2KW	500	550	385	100	TOP ONLY	.03"MIN TO .08"MAX	125

3. DIMENSIONS

3B CORNER MULTIFUEL STOVE

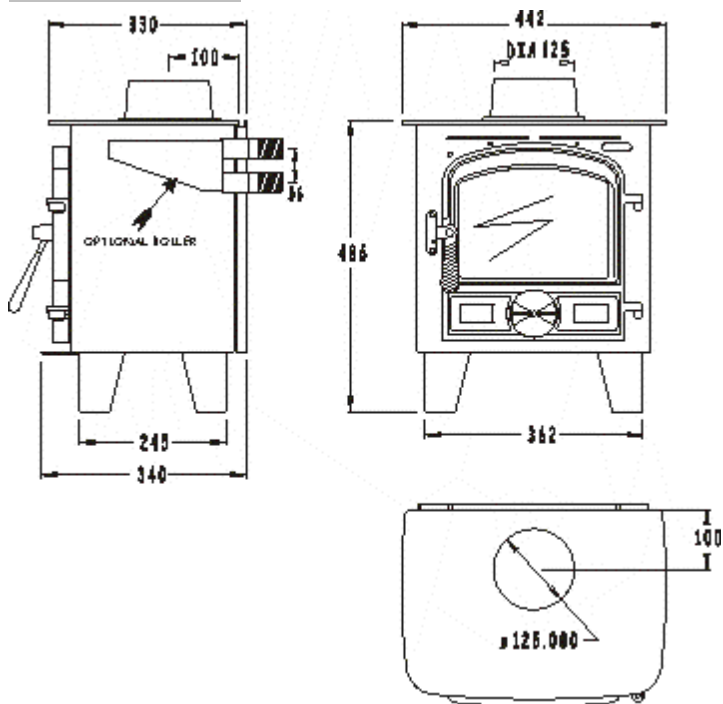


4B MULTIFUEL STOVE



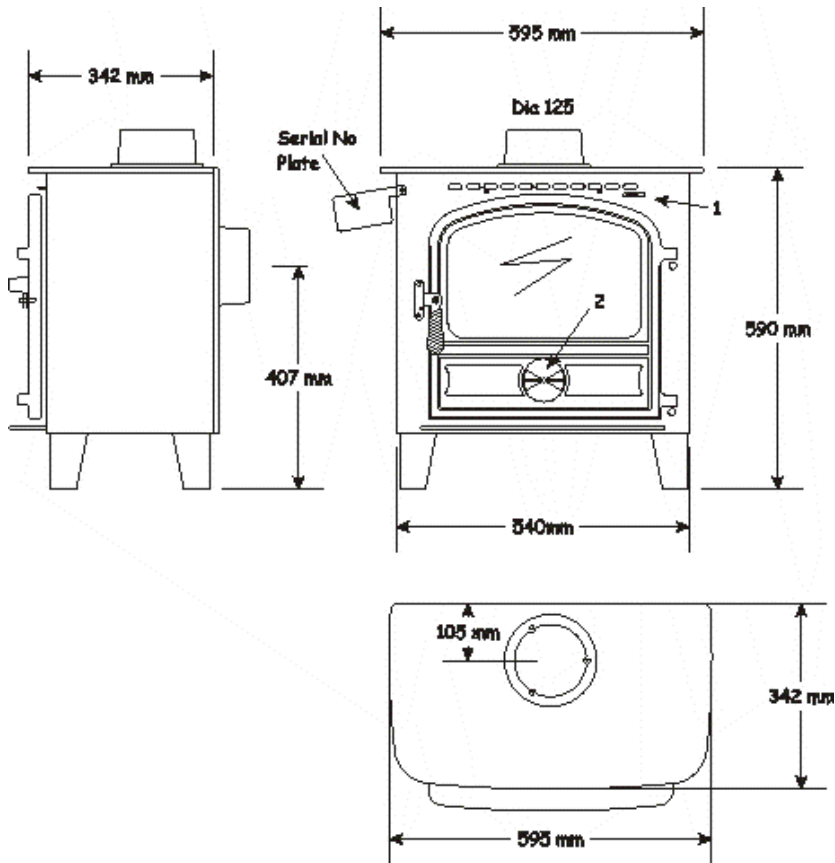
1 = airwash control, 2 = overfire air, 3 = underfire air

3B WOOD STOVE



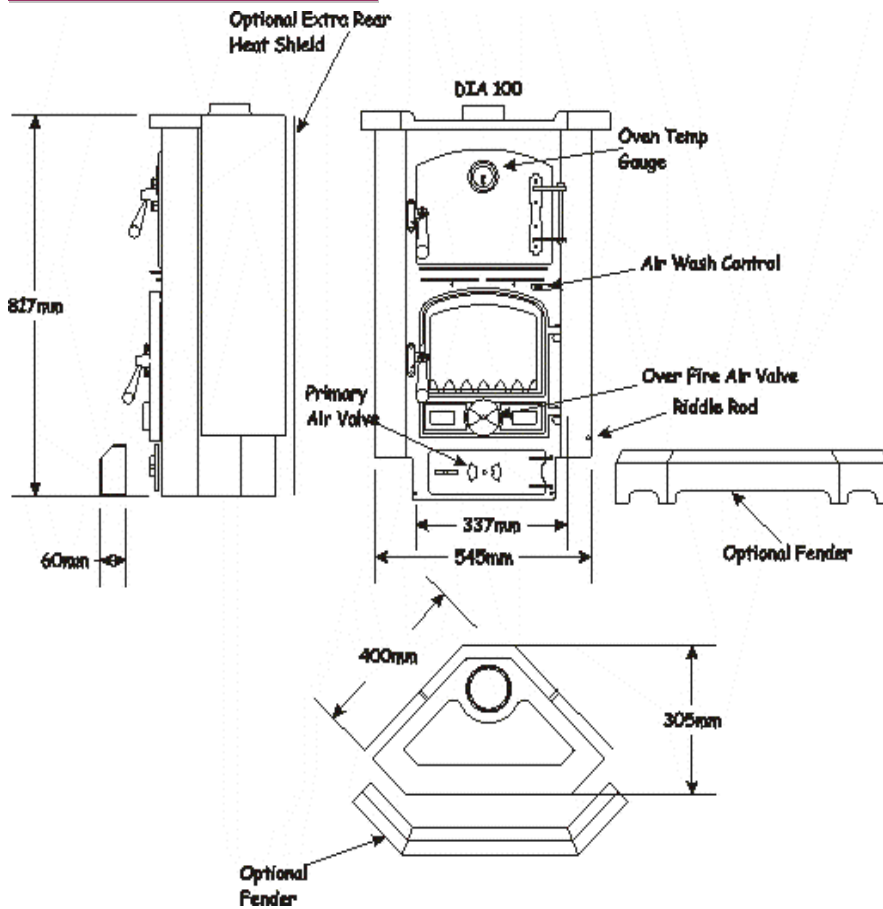
1 = airwash control, 2 = overfire air

7B WOOD STOVE



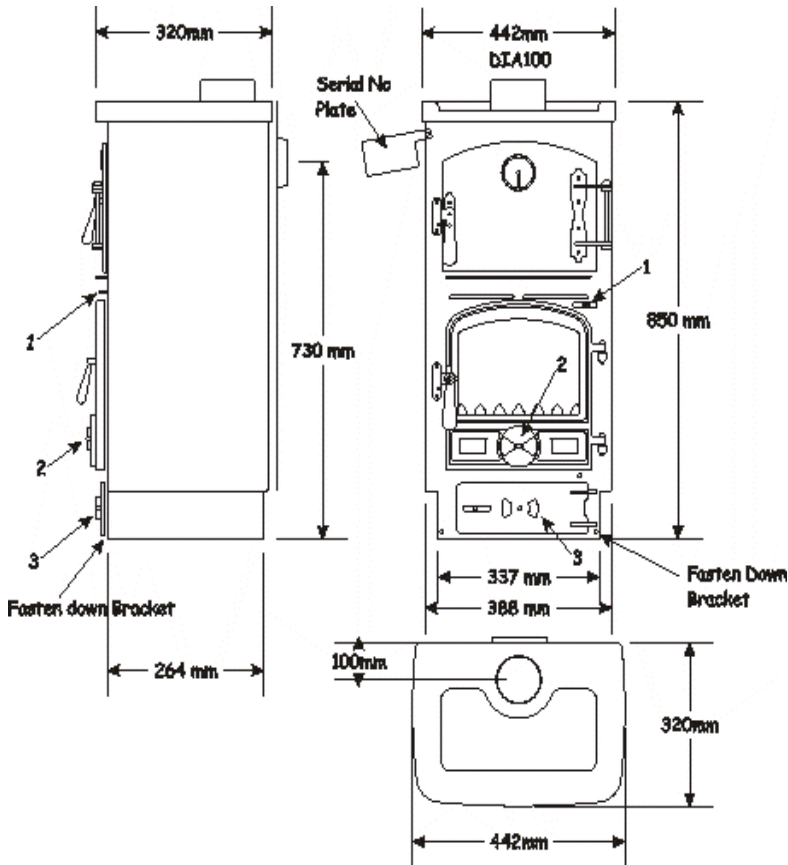
1 = airwash control, 2 = overfire air

3B CORNER MULTIFUEL POD



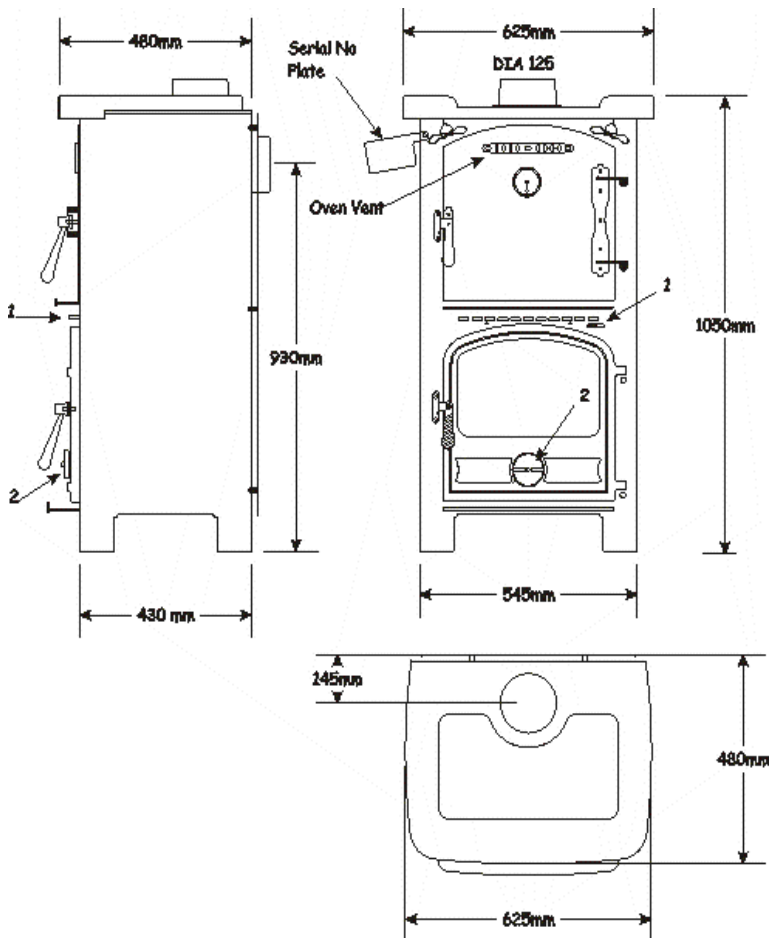
1 = airwash control, 2 = overfire air, 3 = underfire air

4B MULTIFUEL POD



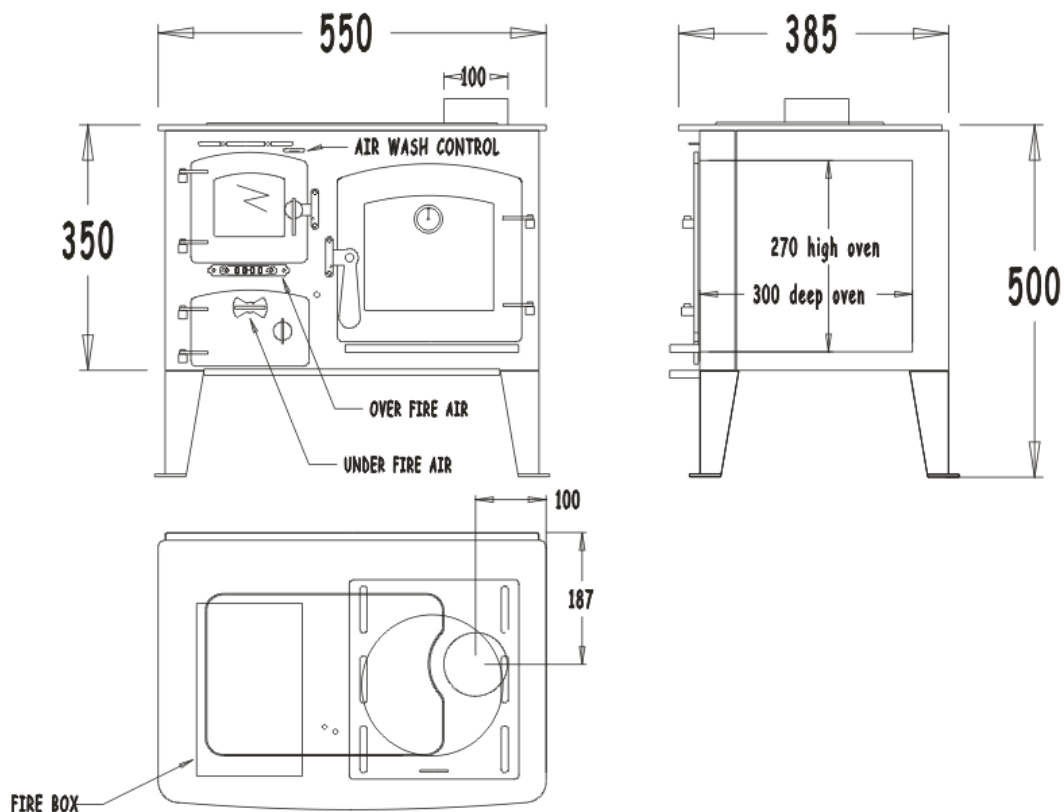
1 = airwash control, 2 = overfire air, 3 = underfire air

7B WOOD POD



1 = airwash control, 2 = overfire air.

PIE POD MINI BACK CABIN COOKER



4. DISTANCES FROM COMBUSTIBLE MATERIALS

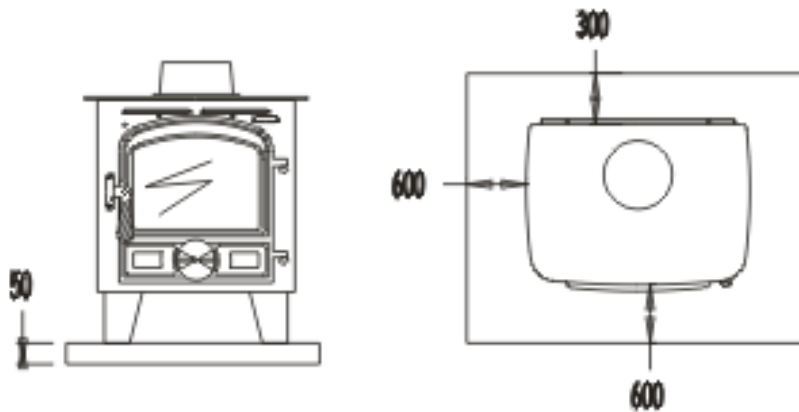
Dimensions shown in Table 2 are the minimum safe distances which combustibile materials should be kept away from the wood or oven stove.

Note that on some appliances the rear clearance is reduced because of the rear heat shield or the rear face of the boiler, in both cases the radiated temperature is reduced.

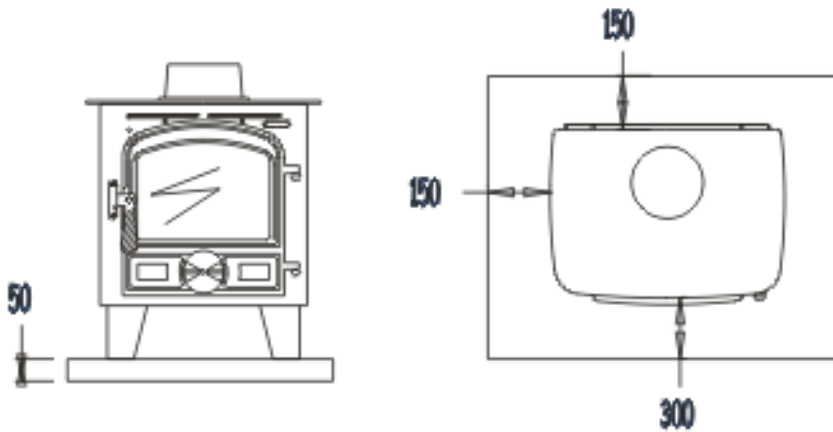
Table 2

	FRONT	REAR	SIDES	ABOVE	HEARTH THICKNESS
STOVES					
CORNER	600	300	600	600	75
WET VERSION	600	100	100	600	75
3B	600	300	600	600	50
WET VERSION	600	300	600	600	75
4B	600	300	600	600	75
WET VERSION	600	300	600	600	75
7B	600	300	600	600	50
SMALL BOILER	600	300	600	600	75
LARGE BOILER	600	300	600	600	75
OVEN STOVES					
CORNER POD	600	300	600	600	75
WET VERSION	600	100	100	600	75
4BPOD	600	300	600	600	75
WET VERSION	600	300	600	600	75
7BPOD	600	300	600	600	50
SMALL BOILER	600	300	600	600	75
LARGE BOILER	600	300	600	600	75
MINI COOKER	600	300	600	600	25

RECTANGULAR APPLIANCES TYPICAL DISTANCES FROM COMBUSTIBLES



RECTANGULAR APPLIANCES TYPICAL HEARTH SIZE REQUIREMENTS



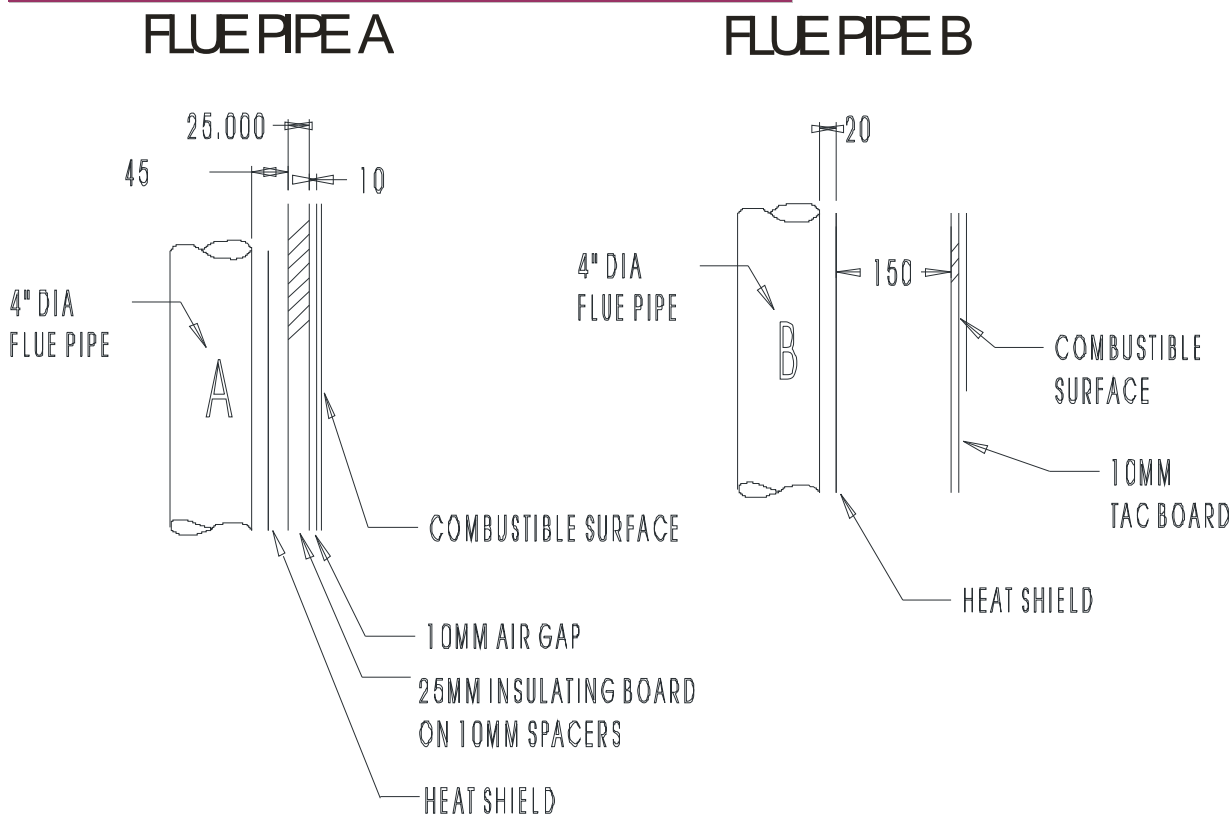
5. DISTANCE FROM COMBUSTIBLE MATERIALS (FLUE PIPE.)

Fig 3 shows two illustrations "A" and "B".

"A" shows the flue pipe fitted with a heat shield and 25mm fireboard lining on 10mm fireproof spacers. Note that the outer diameter of the flue pipe is spaced at a distance of 45mm from the 25mm thick fireboard.

"B" shows an alternative where the flue pipe is fitted with a heat shield and a 150mm air gap to a 10mm fireboard spaced off the combustible lining on 10mm non combustible spacers.

FIG 3 TYPICAL FLUE PIPE CLEARANCE FROM COMBUSTIBLES



6. VENTILATION.

The provision of ventilation for this appliance is 550mm sq for each kilowatt of stove output.

STOVES	OUTPUT TO WATER IN KW	OUTPUT TO SPACE IN KW	TOTAL OUTPUT IN KW	VENTILATION IN CM SQ
CORNER MF		1-4KW	4KW	22
WET VERSION	1-3KW	1-2KW	5KW	27.5
3B WOOD		1-3KW	3KW	16.6
BOILER VERSION	1-2KW	1-3KW	3KW	16.5
B4 MF		1-5KW	5KW	27.5
WET VERSION	1-3KW	1-2KW	5KW	27.5
B7		2-7KW	7KW	38.5
SMALL BOILER	1-3KW	1-4KW	7KW	38.5
LARGE BOILER	2-8KW	1-3KW	11KW	60.5
OVEN STOVES				
CORNER MF POD		1-4KW	4KW	22
WET VERSION	1-3KW	1-2KW	5KW	27.5
B4 MF POD		1-5KW	5KW	27.5
WET VERSION	1-3KW	1-2KW	5KW	27.5
B7POD		2-8KW	7KW	38.5
SMALL BOILER	1-3KW	1-4KW	7KW	38.5
LARGE BOILER	2-8KW	1-3KW	11KW	60.5
MINI COOKER	1-3KW	3kW	3KW	16.6

If the appliance is fitted into a space which has an extractor fan fitted, additional ventilation will be required to compensate for the effects of the extractor unit.

Where air for ventilation is taken from another room and not directly from outside air, the ventilation allowance needs to be doubled.

Make sure that the appliance is fully and correctly assembled, and that the baffle plate is correctly fitted.

Make sure that the front fret is correctly fitted and that the doors are closed.

7. INSTALLATION DRY STOVES

PRELIMINARY CHIMNEY NOTES.

Chimneys are one of the most difficult problems the installer has to deal with.

The chimney affects most aspects of running the stove and we take time here to list the following information which you should study carefully before fitting the appliance.

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.

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.

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.

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.

CHIMNEY RULES.

Always use a top outlet for the flue pipe take off.

Never put any sharp bends in the flue. (This means bends in excess of 15 Deg.)

Where ever possible try to get the stove as low as possible in the boat, this will allow installation of the maximum length flue pipe.

Clean or have the chimney cleaned regularly. (Frequency depends upon type of fuel and length of time used).

CHIMNEY SYSTEMS.

Fit the appliance as illustrated in figs 4 & 5 is fitted with our MK3 flue system.

The primary flue pipe can be fabricated from 4" O.D. tube with a minimum wall thickness of 3mm.

If there is a possibility of anyone touching the primary flue it must be fitted with a suitable flue guard and it must comply with the distance from combustibles requirement.

It is important to make sure that the flue pipe fits concentrically at both the stove end and as it connects to the twin wall adaptor.

MAIN STEPS.

Read and thoroughly understand DISTANCES FROM COMBUSTIBLES for flue and appliance.

Select suitable location and always try to get the stove as low as possible in the boat, this will allow installation of maximum length flue pipe.

Design Fireplace.

The fireplace will be designed with reference to:-

The distances from combustibles for the appliance.

The distances from combustibles for the flue.

The hearth thickness and materials.

Make sure that all combustibles are adequately protected from the effects of conducted and radiated heat.

Protection can be gained by the use of -:

Sheet metal heat shields and non combustible spacers.

Heat resistant boards which have a thermal conductivity of no more than 0.06 W/m-K

When the fireplace or fitting location has been correctly established, trial fit the stove in position.

Make a template for the flue pipe to establish the position where the flue pipe will pass through the roof plate.

When you are happy with the stove location and flue route, it is then possible to mark and cut roof plate.

Fit a suitable deck flange assembly.

Mark, cut and weld the flue pipe.

Trial fit fire.

Trial fit everything else.

If it all fits nicely, refit it permanently.

Securely fastening the appliance.

There are fastening brackets provided with the appliances, which can be used for fixing down.

The Back Cabin Cooker is fastened down through the holes in the foot plates.

Both the appliance and the flue system must be securely fastened, so as to withstand the normal day-to-day situations which will be encountered in a marine situation.

These could be, impact by other vessel, impact into lock gate, the pitching and rolling effects of sailing.

Fireguards.

Triangular fireguards and fixing fasteners are available and should always be fitted.

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.

Deck Flange.

The deck flange will be fitted as illustrated in figs 4 & 5.

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

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.

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 countersunk wood screws.

Note that B in fig 5 shows how the ceiling plate has been trimmed to allow the flue system to be positioned a little closer to the roof edge.

Above Deck Extension.

We recommend that 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.

Ventilation - Provision Of.

The provision of ventilation for this appliance is 550mm sq for each kilowatt of stove output.

This equates to 2200mm sq (4"Square) divided between high and low level, directly to outside air.

If the appliance is fitted into a space which has an extractor fan fitted the additional ventilation will be required to compensate for the effects of the extractor unit.

If the ventilation is not directly into the space where the appliance is fitted then the allowance should be doubled.

For sea going craft (Cat A and B) with closable ventilators, a warning sign (WARNING, open ventilators before use.) should be fixed near to the appliance.

FIG 4 TYPICAL GENERAL LAYOUT OF STOVE AND FLUE.

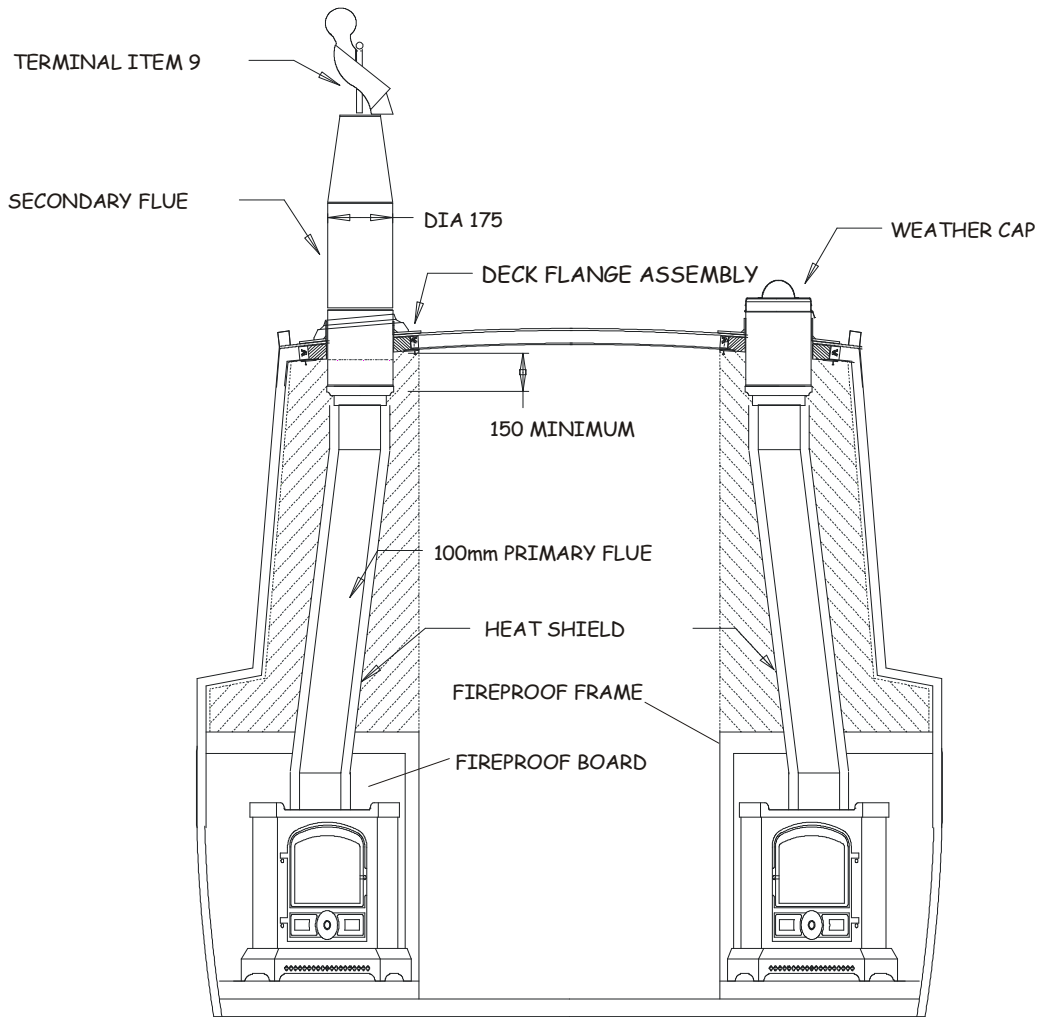
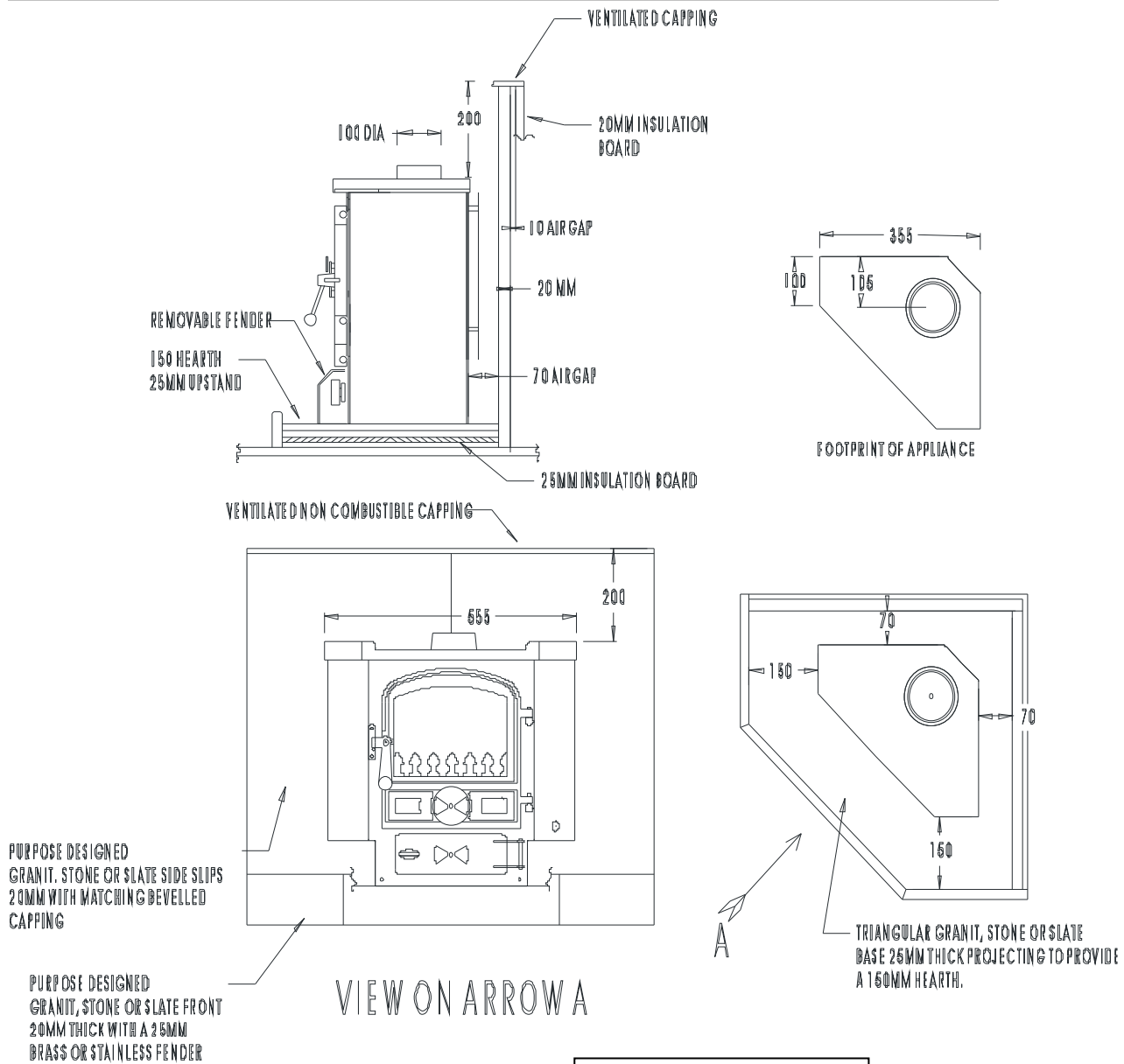
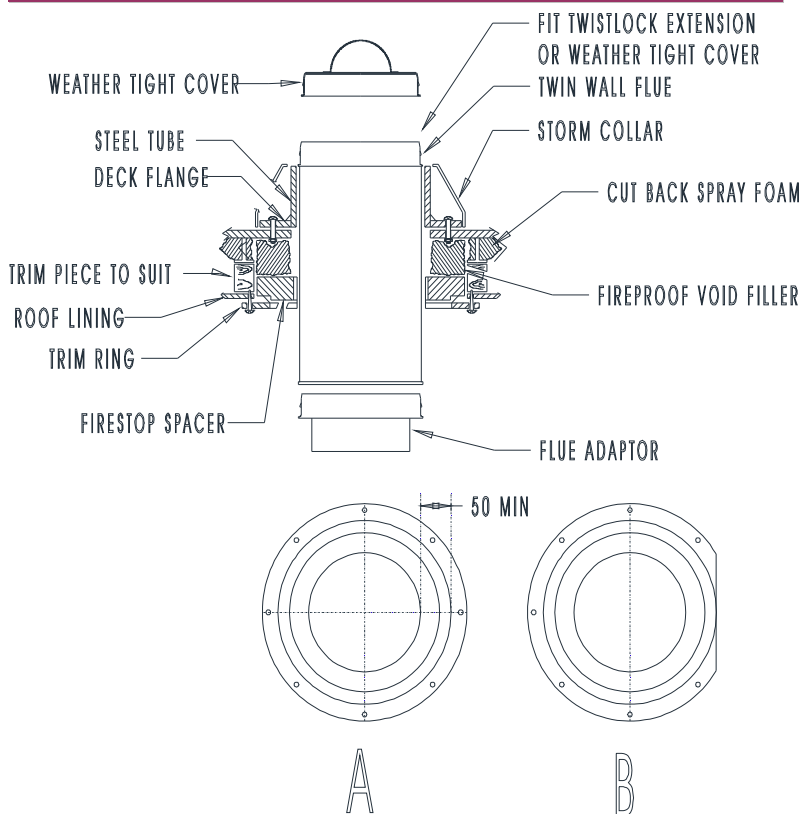


FIG 4A TYPICAL EXAMPLE OF CORNER SOLID FUEL STOVE FIREPLACE ARRANGEMENTS



Note that the wet corner stove has greatly reduced rear clearances because of the cooling effect of the wrap around water jacket.

FIG 5 GENERAL LAYOUT OF MK3 DECK FLANGE ASSEMBLY.



8. INSTALLATION WET STOVES.

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.

Before designing the fireplace, take great care about making provision for the boiler.

To facilitate removal of the stove, make sure that there is:-

Easy access to the boiler unions.

Easy access to the drain down valves.

Water can be connected to the stove via 1 inch BSP female sockets.

When installing water heating Bubble stoves, the space heating output will be reduced.

The boilers are 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.

CALORIFYERS.

Indirect calorifiers must be used on gravity or pumped systems.

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.

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 which should be manufactured to BS4215 and should be designed to withstand the 500 hour boil test without leaking or collapsing.

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

PIPEWORK.

All gravity pipe work must rise on flow and fall on return and be a minimum of 28mm dia.

To reduce resistance to flow:-

Use swept bends, do not use elbows.

Use copper pipe work.

Use high water content radiators.

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.

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

If the layout of the boat and calorifier restricts the use of gravity pipework to supply the calorifier, consider the use of a single pump controlled by a cylinder stat to allow hot water to access the indirect circuit of the calorifier.

An example of a dedicated calorifier pump can be seen in fig 7.

PUMPED SYSTEMS.

Always come off the stove with 28mm copper for a minimum run of 350 mm before dropping on to 22mm copper pipe, do not use plastic pipework on solid fuel systems.

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

The heating circuit must be piped in 22mm copper with 15mm stabs to radiators.

Fig 7 shows a system employing two pumps, the hot water pump is controlled by cylinder stat and the central heating pump is controlled by a clip on pipe stat set to turn the heating pump on at a temperature above 50 deg C.

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.

SAFETY VALVE.

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.

Note

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

WATER TREATMENT.

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.

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

Consult the manufacturer of the antifreeze for advice on the suitability of their product for use in solid fuel heating systems.

DRAIN DOWN.

A drain down valve should be fitted at the lowest point of the circuit.

CIRCULATING PUMP.

On pumped systems make sure that the circulating pump or pumps are fitted in such a way as to make it or them **easily replaceable**, this means lock shielded valves at either side or easy access.

9. COMMISSIONING DRY STOVES.

PRE FIRING CHECKS.

Check the following, to make sure that they fully comply with the instructions given

Fireplace location.

Fixing of the appliance and flue system.

Integrity of the flue system, after first pre heating the chimney system with a blow gun, carry out a smoke test on the appliance and chimney system to make sure that there are no leaks from the chimney system.

Distances from combustibles.

Ventilation.

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

Fuels.

Operating procedures.

Light the appliance as per instructions in the user manual.

POST FIRING CHECKS (DRY STOVES.)

When the appliance is going, the fire is well established and the appliance is fully up to operating temperature, 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.

Check that any alarms are operating correctly.

INSTRUCT THE USER (DRY STOVES.)

Instruct the user on the principles of safe operation.

WARRANTY.

Fill in the warranty registration details to return to us.

10. COMMISSIONING WET STOVES.

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 6.

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

COMMON PROBLEMS IN BOAT HEATING SYSTEMS.

Inadequate flow of water through the boiler.

Inadequate flow of water through the calorifier.

Inadequate flow of water through the radiators.

Over pumping.

Air locks.

Lack of safety valves.

Poorly positioned feed and expansion tanks.

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

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

PRE FIRING CHECKS (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.

Carry out all the pre firing checks as per the list in dry stove commissioning before carrying out the heating system checks.

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

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

The system is free from entrapped air.

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.

Check that the chimney is free from obstruction.

Check that the inners of the appliance are correctly fitted in place.

(Baffle, grate assembly and firebricks.)

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

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

Light a small fire and build it up slowly.

POST FIRING CHECKS (GRAVITY SYSTEM.)

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

WARRANTY

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

PRE FIRING CHECKS (PUMPED SYSTEM.)

Go through the following checking procedure before lighting the stove.

Carry out all the pre firing checks as per the list in dry stove commissioning before carrying out the heating system checks.

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

The system is free from entrapped air.

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.

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

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

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.

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

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

Light a small fire and build it up slowly.

POST FIRING CHECKS (PUMPED SYSTEM.)

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.

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.

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.

Make sure that the heating circuit is fitted with a safety valve near to the appliance.

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 and the pipes will become dangerously hot.

INSTRUCT THE USER (WET STOVES.)

Instruct the user on the procedure to be followed should the pump or pumps stop working.

Allow the fire to die down as quickly as possible.

Using tongues remove the hot embers safely and extinguish the fire as quickly as possible.

If there is a large fire in the appliance it is possible that water will be emitted through the safety valve.

11. HOT WATER SYSTEM FAULT FINDING.

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

The design of the circuit.

- Pump is not air locked.
- The system is not air locked.
- Pump has an adequate head.
- Pump is running.
- The pipe work is adequately sized.
- Adequate dia coil fitted in calorifier (for gravity systems always order special calorifiers with 28 mm dia coils).
- The stove is not fitted out of level, allowing an air pocket to build up in the top of the boiler, causing subsequent kettling.
- Adequate flow of water through the boiler.
- Adequate flow of water through the calorifier.
- Adequate flow of water through the radiators.
- The system is not over pumping.
- That the feed and expansion tank is fitted in the correct place.

FIG 6 TYPICAL GRAVITY HEATING CIRCUIT.

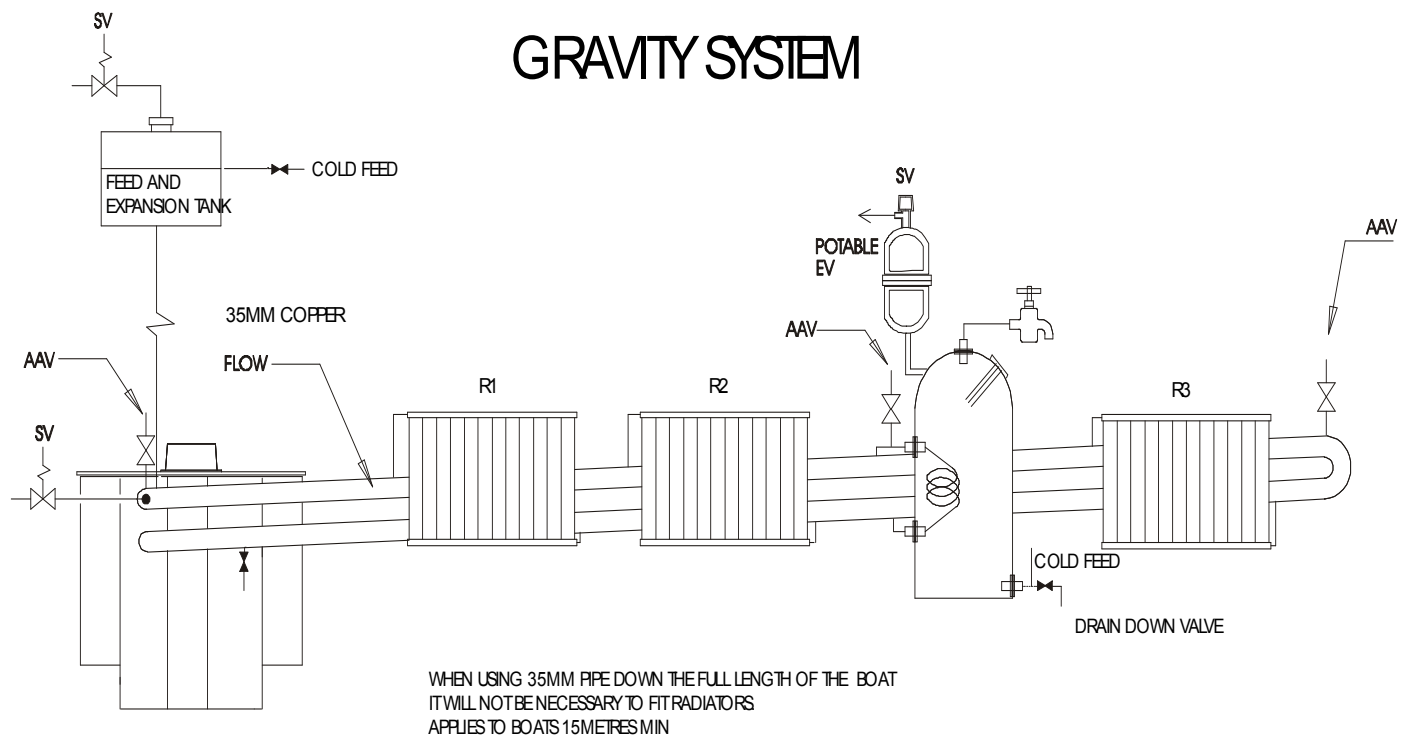


FIG 7 TYPICAL PUMPED HEATING CIRCUIT 1

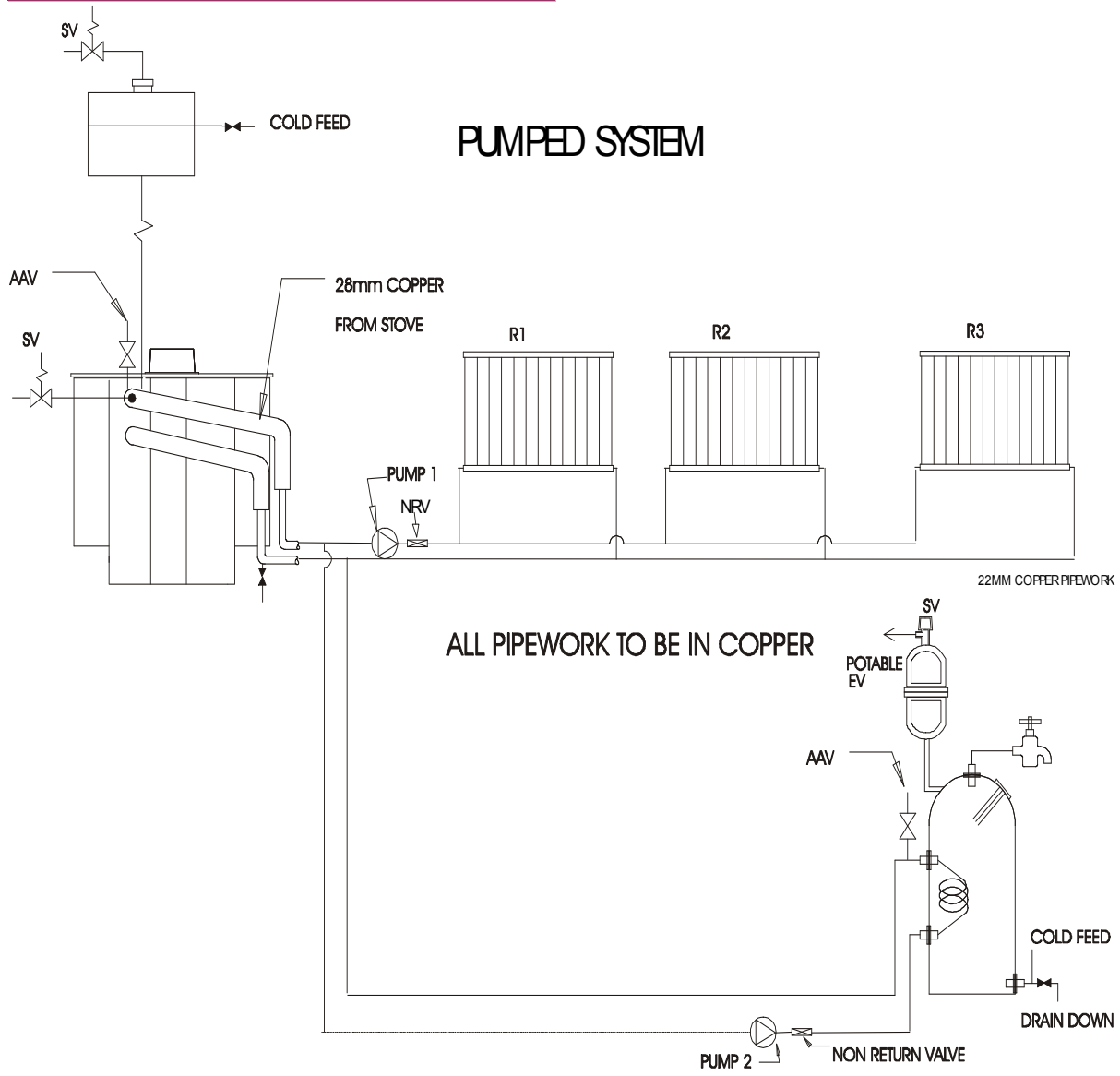
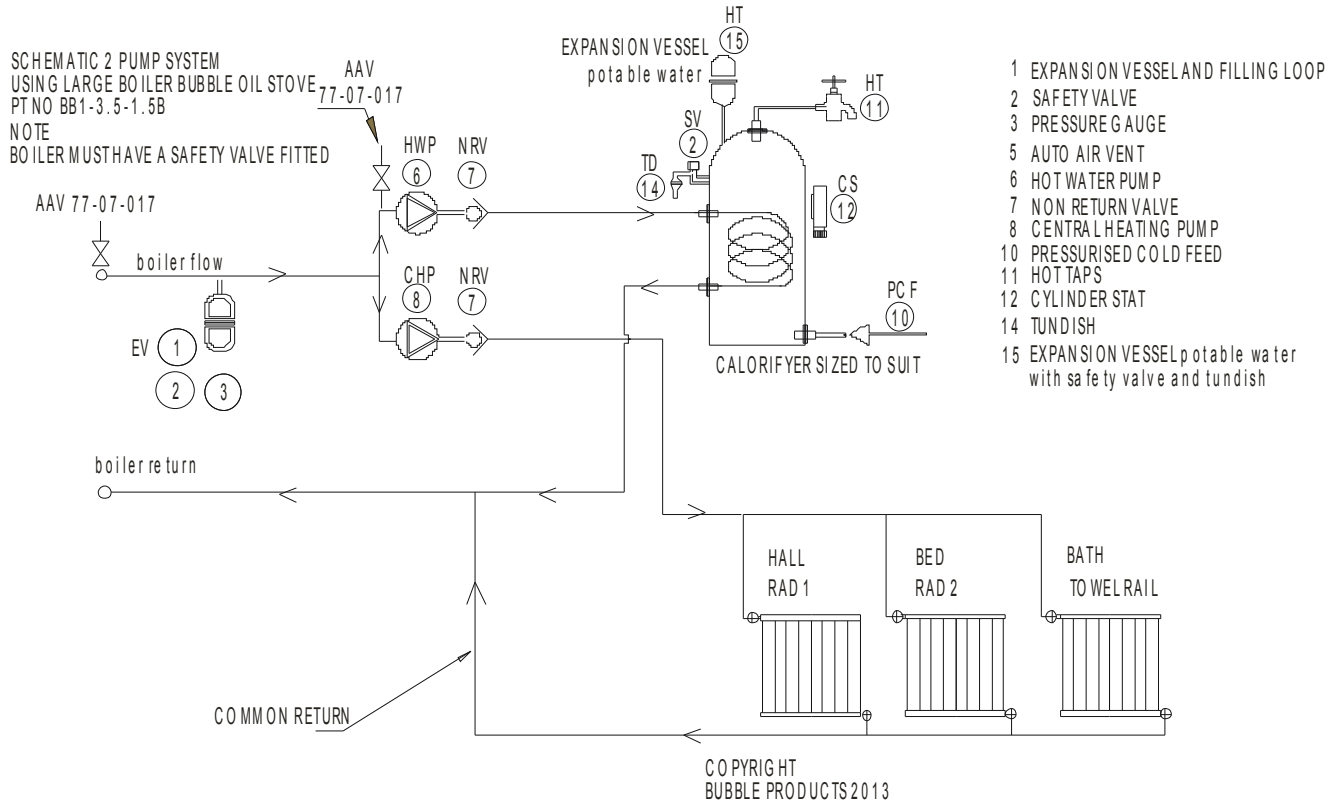


FIG 8 TYPICAL UMPED HEATING CIRCUIT 2



GLOSSARY OF TERMS.

- Downdraught.** A wind effect creating a situation where air is being either blown or sucked down the flue pipe.
- Chimney vacuum.** The negative pressure, which the chimney system is able to generate.
- Combustible materials.** Any liquids, vapours or materials in close proximity to the appliance, which can easily ignite with the application of heat or flame.
- Thermostat.** A device for controlling 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.
- Kettling.** Hissing noise like that issued from a kettle just before it reaches boiling point.
- Gravity system.** Term used to describe a central heating system through which hot water will flow, without the use of a circulating pump.
- 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.

BIBLIOGRAPY

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- BS 8423, Fireguards for fires and heating appliances for domestic use - Specification
- BS EN 14604, Smoke alarm devices
- BS EN 50291, Electrical apparatus for the detection of carbon monoxide in domestic premises - Test methods and performance requirements
- BS EN 12828, Heating systems in buildings - Design for water-based heating systems
- BS EN 14336, Heating systems in buildings - Installation and commissioning of water based heating systems
- Other publications
- EUROPEAN COMMUNITY Recreational Craft (RC) Directive 94/25/EC amended by Directive 2003/44/EC (europa.eu.int)
- For approved fuels see www.uksmokecontrolareas.co.uk
- For details of registered installers see www.hetas.co.uk

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GUARANTEE

Conditions of Guarantee

Your Bubble appliance is guaranteed against defects arising from faulty manufacture for a period of one year subject to the following express conditions.

Failure to comply with these conditions will invalidate the guarantee.

1. The Bubble appliance must be installed by a suitably qualified engineer.
2. Upon installation the receipt must be kept as proof of purchase.
3. The guarantee lasts for one year from the date of purchase.
4. The guarantee does not cover parts deemed to be replaceable in the normal use of the appliance, these parts are:-
Grates, Ash pan, Side and Back Bricks, Baffle Plates, Door Rope Seal and Door Glass.

HOW TO PROCEED WITH A COMPLAINT.

If you have cause for dissatisfaction with your Bubble appliance you should first contact the Bubble dealer or whoever you purchased the appliance from.

Your supplier should bring your concerns to our attention and we will assess the nature of the complaint.

We will either send replacement parts or nominate a regional engineer to inspect the appliance and carry out any remedial work that may be required.

If the fault or problem is not due to faulty manufacture but some other cause such as:-

Misuse, failure to install correctly, failure to service at regular intervals, a charge will be made to cover the cost of the visit and any new parts required.

GLOSSARY OF TERMS.

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

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

Class 1 Appliances. Wood and solid fuel burning appliances where the flue gas temperatures are expected to exceed 260 deg C.

Combustible materials. Any liquids, vapours or materials in close proximity to the appliance, which can easily ignite with the application of heat or flame.

Thermostat. A device for controlling 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 components of hydrocarbon fuel.

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

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

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.

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