



DS Boilers

High Efficiency Coal and Wood Boilers

Models

#1100

#3200

#4200

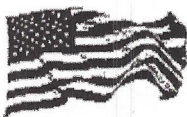
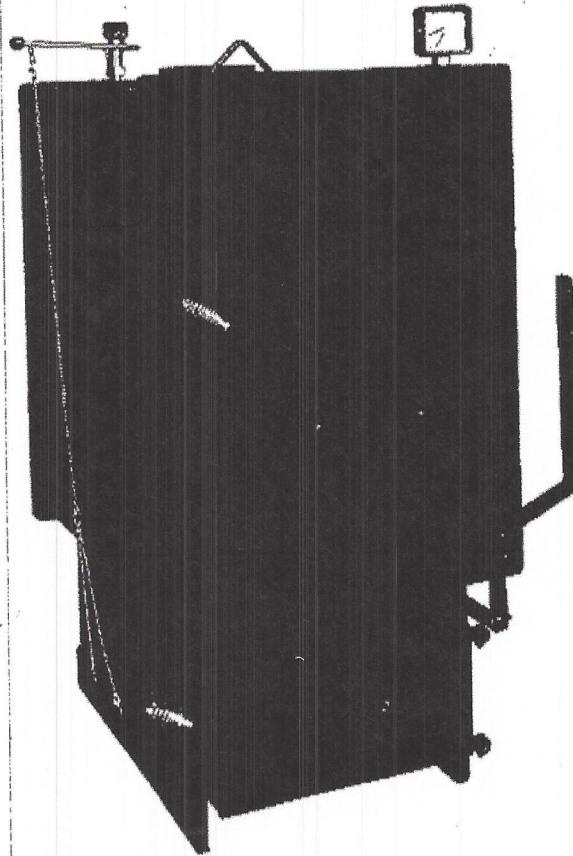
#DS5000C

#DS6000C

#30-2432W

#9158C

OWNER'S MANUAL

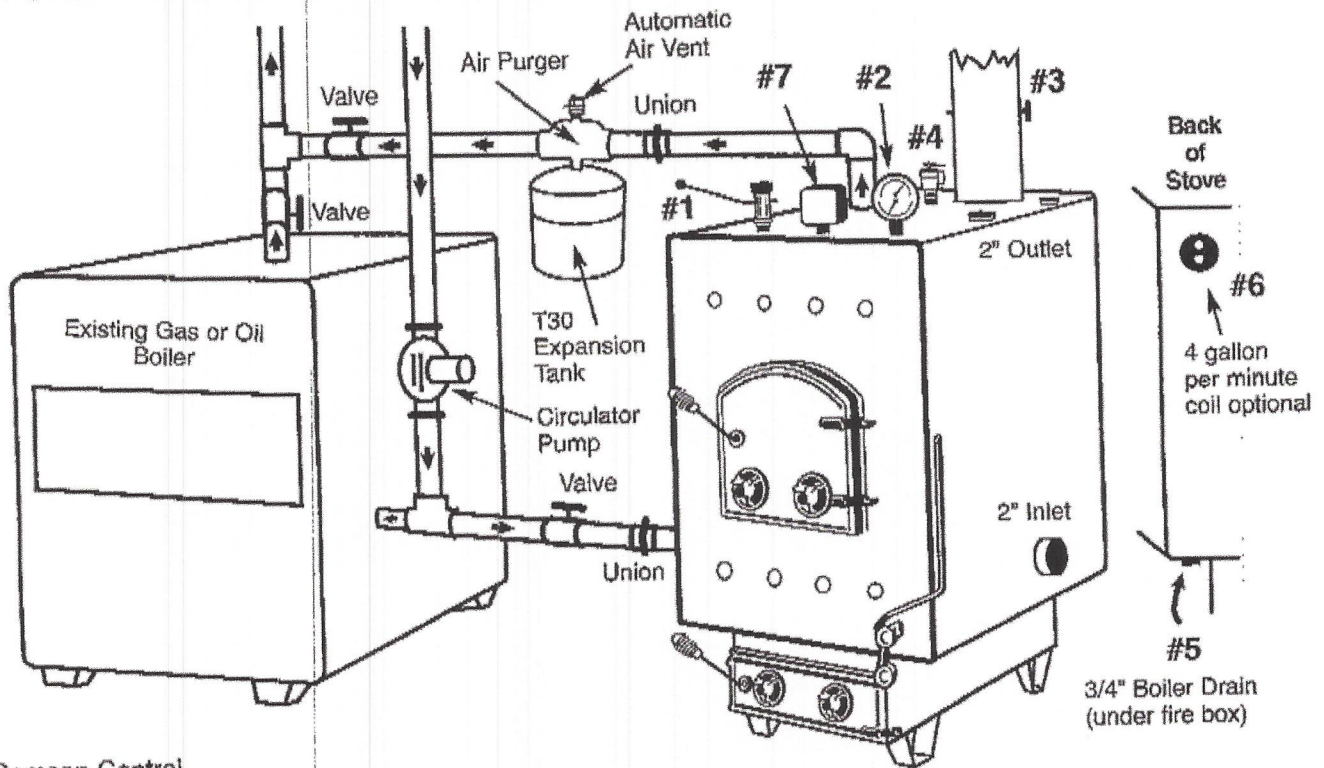


MADE IN USA
By
D.S. MACHINE SHOP

Before you install or operate a DS Boiler,
you must:

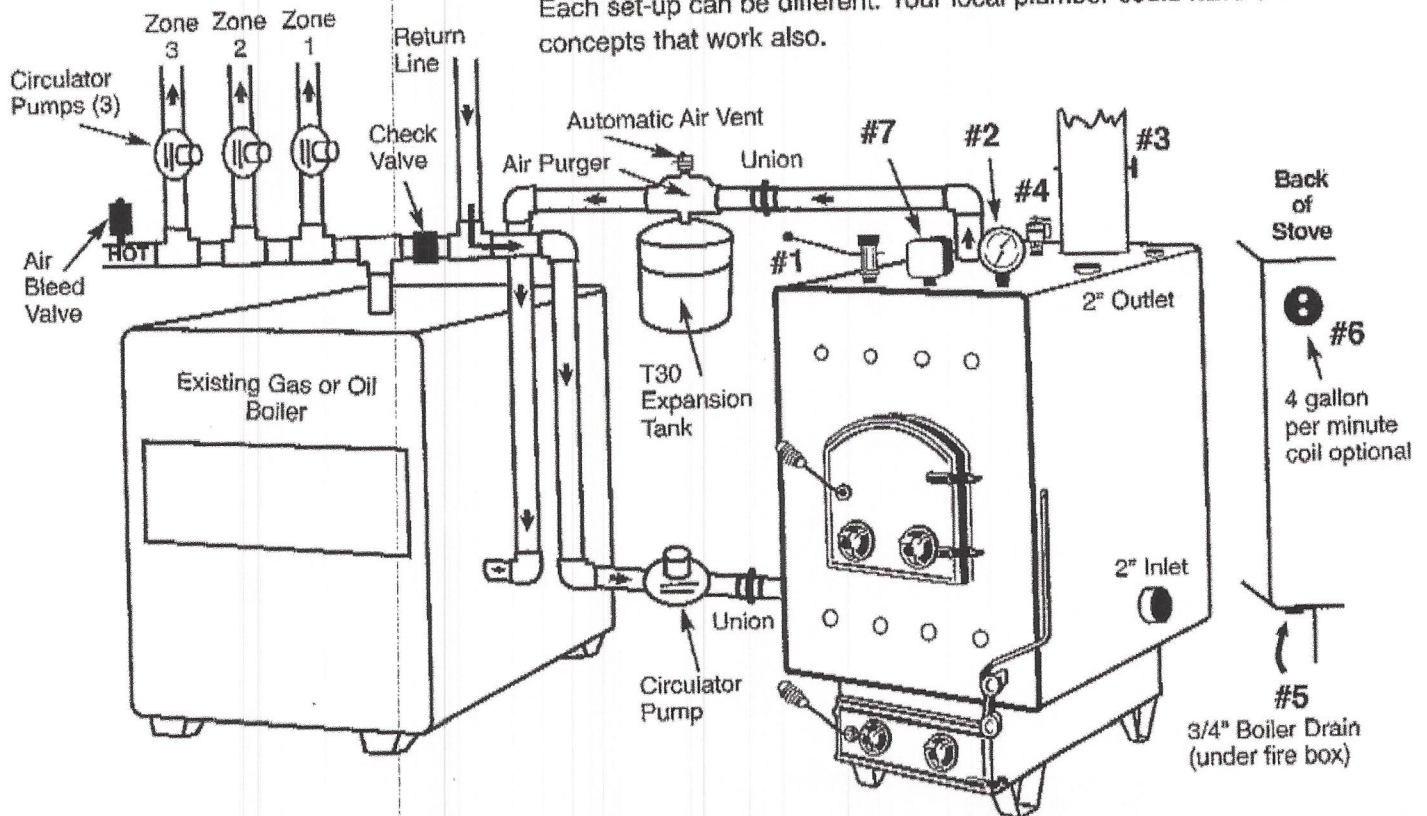
- Read all instructions carefully
- Install smoke and carbon monoxide detectors.

Boiler Installation



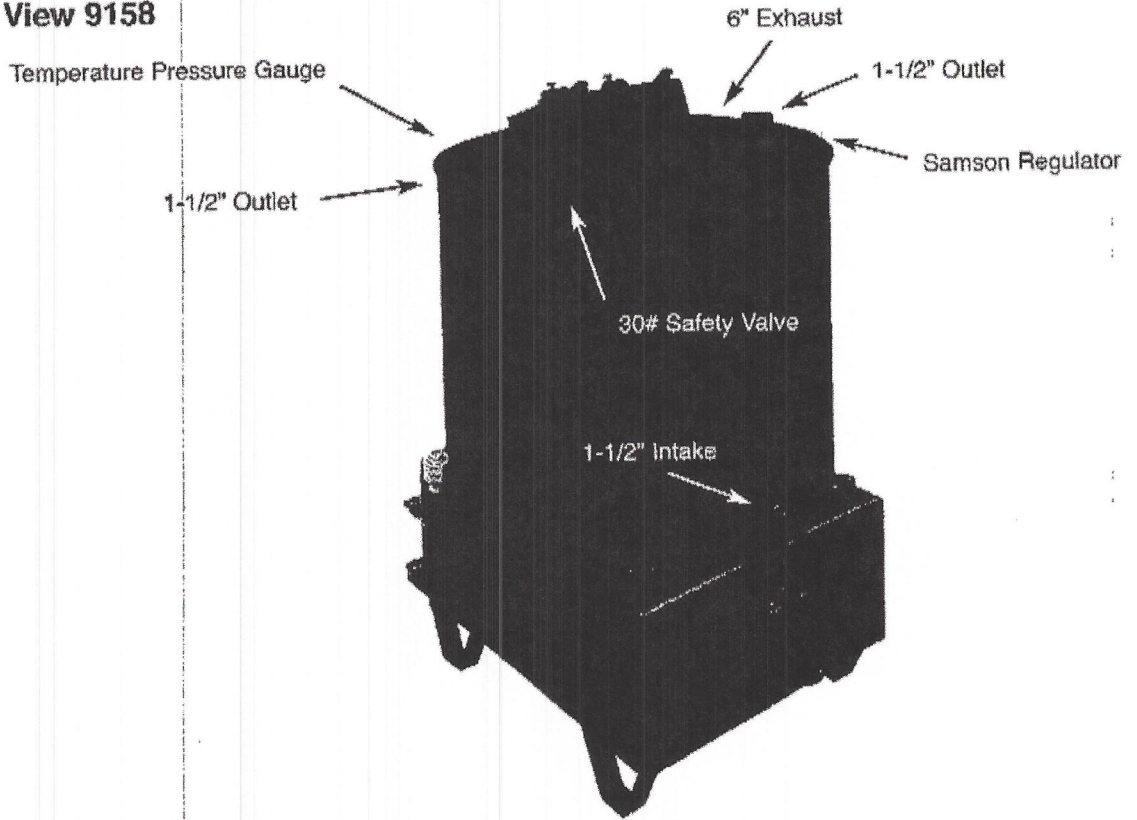
- #1 Samson Control
- #2 Temperature - Pressure Gauge
- #3 Damper
- #4 30# Safety Valve
- #5 3/4" Boiler Coil
- #6 4 Gallon
- #7 Aquastat

- All D.S. Boilers must be plumbed up by a Qualified Licensed Plumber or D.S. is not responsible for warranty.
- Failure to follow installation and basic operation will void the warranty
- All Boilers are tested to 100psi.
- Recommended working pressure - 12psi.
- **NOTE:** This Boiler set-up is only a D.S. Machine Design. Each set-up can be different. Your local plumber could have different concepts that work also.

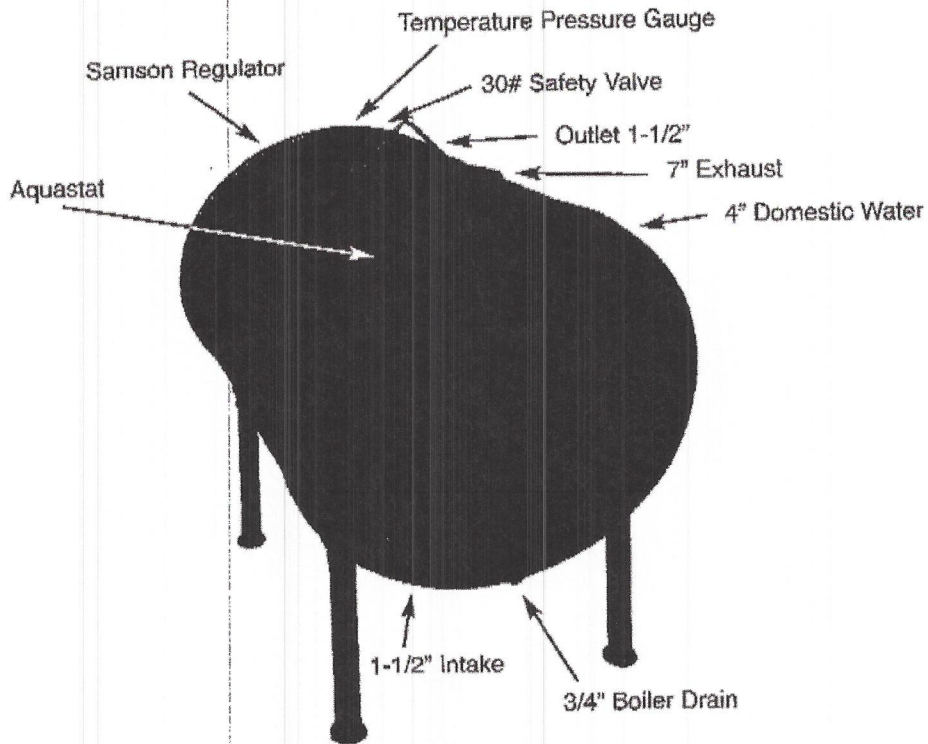


Boiler Installation

Back View 9158



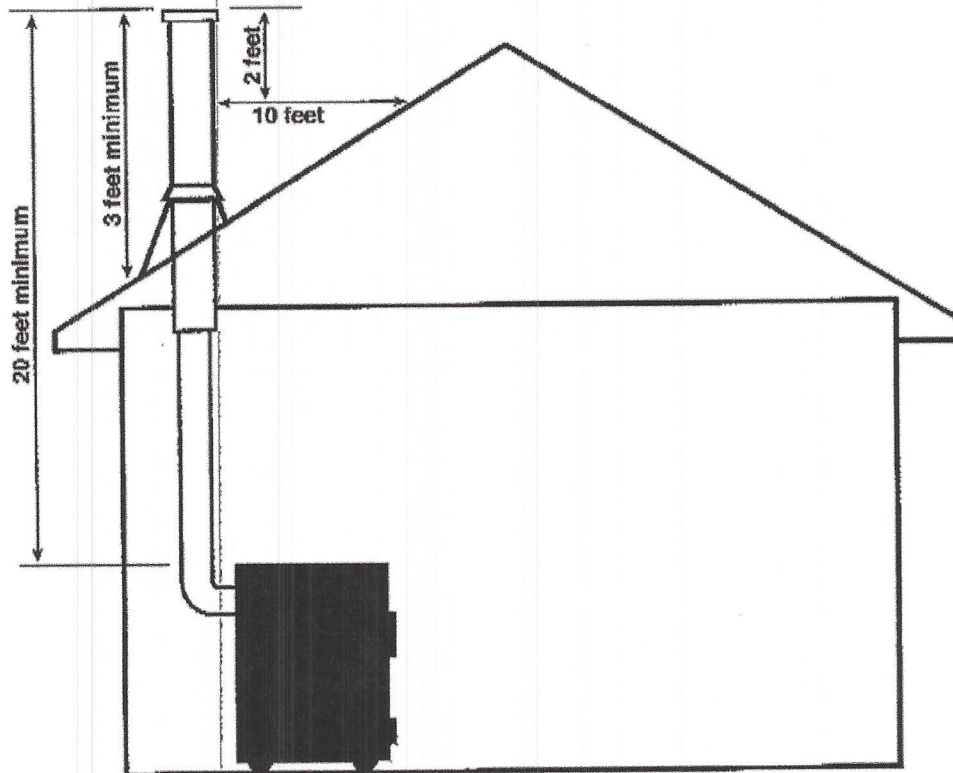
Back View 30-2432



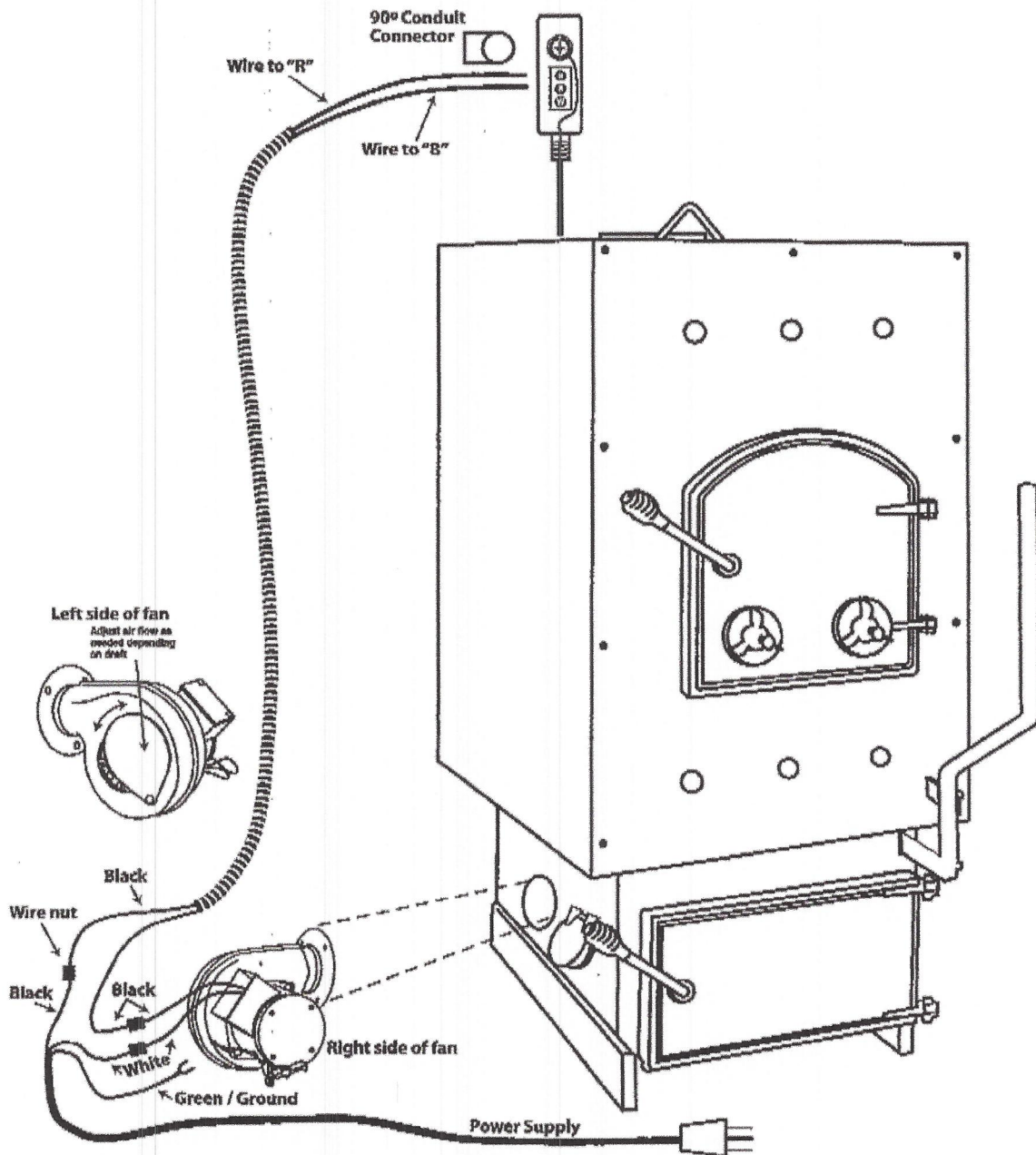
Chimney Requirements

The minimum height of a chimney system for the D.S. Boiler is 20 feet. The chimney must exceed the roof of a house at a minimum of 3 feet at any point of exit. In a pitched roof installation the chimney must be 2 feet higher than anything within a 10 foot radius of the chimney. It is important to have a chimney draft of 0.06 water column. It is required to abide by the manufacturer's instructions on Class A chimneys as well as local building codes. It is not recommended to build a chimney on an addition that is lower than the main part of your house. **Do Not extend the stovepipe past the inside of a masonry chimney liner. Never connect this unit to a chimney serving another appliance.**

Should you have a problem with inadequate draft you should see page 8.



Forced Draft Kit Setup



- Remove the rear draft intake
- Replace with draft fan
- Use bolts to cover holes

Trouble Shooting

Problem 1 - Inadequate heat being delivered to your home,

Solution:

- Is boiler the recommended BTU size for your home?
- Check home insulation – is it adequate?
- Is water temperature at boiler hot enough? It should not exceed 180 degree.
- Is water circulating properly through your system? If not your system could be air locked. If your system is air locked install an air auto bleed valve at the highest point of that zone.
- Do you have a circulator pump? If not install one if needed.
- Do you have a good draft of 0.06 water column? If not, check and clean chimney and stove pipe
- Do you have the appropriate amount of floor heat or radiators?
- When burning coal your coal bed needs to be at least 8" high throughout firebox.
- Firewood with a moisture content of over 20% will greatly reduce the heat transfer to the water.

Problem 2 - Boiler burns too hot

- Is boiler the recommended BTU size for your home?
- Turn Samson Regulator to low.
- When burning wood, spinners on fire door need to be closed.
- Check gasket on all Ash Doors (replace if needed). All doors must be sealed.

If you have a manuel draft damper:

- A windy day will create more draft. If you do not have a barometric damper or manuel damper when burning coal, you must install one now. Read instructions on barometric damper before installing. At least a 0.06 water column on all D.S. Coal Boilers.
- Manuel dampers work good but you need to be cautious because a manuel damper can restrict draft so much that it can create carbon monoxide or creosote.

Problem 3 - Poor Draft

- Check and clean chimney and stove pipe
- Check chimney draft – there should be at least a 0.06 inch of water column. This service is provided by a certified chimney sweep or a professional installer.
- Open manuel damper if you have one
- If you have barometric damper? Is it installed properly? Read the instructions. Do not use when burning wood.
- Check ash pit. If it is too full - empty it.
- There might be a cracked flue liner. If so you need to reline chimney before further use of the boiler.
- Make sure no other fuel burning devices are connected to the chimney impairing the draft.
- Make sure all of chimney mortar connections are airtight.
- Check chimney for possible down draft caused by taller surrounding trees or objects.
- Make sure clean-out door in the chimney is closed tight if you have one.
- When start up, the chimney is cold so you will have less draft.

Problem 4 - Odor from first fire

- Uncured paints and oils will create an odor that can last a few hours. Odors can continue to develop if you make hot fires until the paint cures.

Problem 5 - Excessive Creosote

- It is normal to have a thin layer of gloss black creosote on the inside of the boiler. That comes from temperature differences.
- Check the grade of wood you are burning. **Recommended:** Burning cord wood with less then 15% moisture content. Stack firewood inside 60 days prior to burning.
- Make sure your unit is serviced by its own proper chimney.
- Make sure you are burning the smallest, hottest fire to adequately heat your home.
- If you have a mason chimney, get a professional chimney sweep to inspect the flue liners for any cracks. Install an insulated stainless steel chimney liner if necessary.
- If you have a stainless steel chimney liner it must be insulated when burning wood.
- Increase secondary air.
- Remove barometric damper if you have one installed.

Limited Warranty



LIMITED WARRANTY DS Boilers

Please read this warranty carefully!

DS Stoves warrants this DS Boiler against premature failure of any component due to workmanship, quality or materials. So long as it is owned by the original purchaser, subject to terms, limitations and conditions herein set out.

	Time Period
1 - Firebox	Five Years
2 - All doors - (fire and ash door)	Five Years
3 - Cast Iron Components (grates, grate rails,	Five Years
4 - Boiler Controls, Domestic Coil, and Accessories	One Year

DS Stoves will replace, at no charge to the owner, any defective part which DS Stoves determines affects the operation of the stove.

The owner is responsible for labor and costs to complete the repair. The owner may at his option and with DS Stoves approval, have the stove shipped to the factory for repair. All labor and material costs for repair at the factory will be borne by DS Stoves.

The owner is responsible for all shipping costs.

DS Stoves door glass, gaskets, paint or enameled parts, firebrick or precast baffle, and furnace cement are not covered by this Limited Warranty.

Failure to follow installation and basic operation recommendations written in this negligence abuse modifications to the boiler or over firing 200° maximum water temperature, as determined by DS Stoves or its authorized dealers.

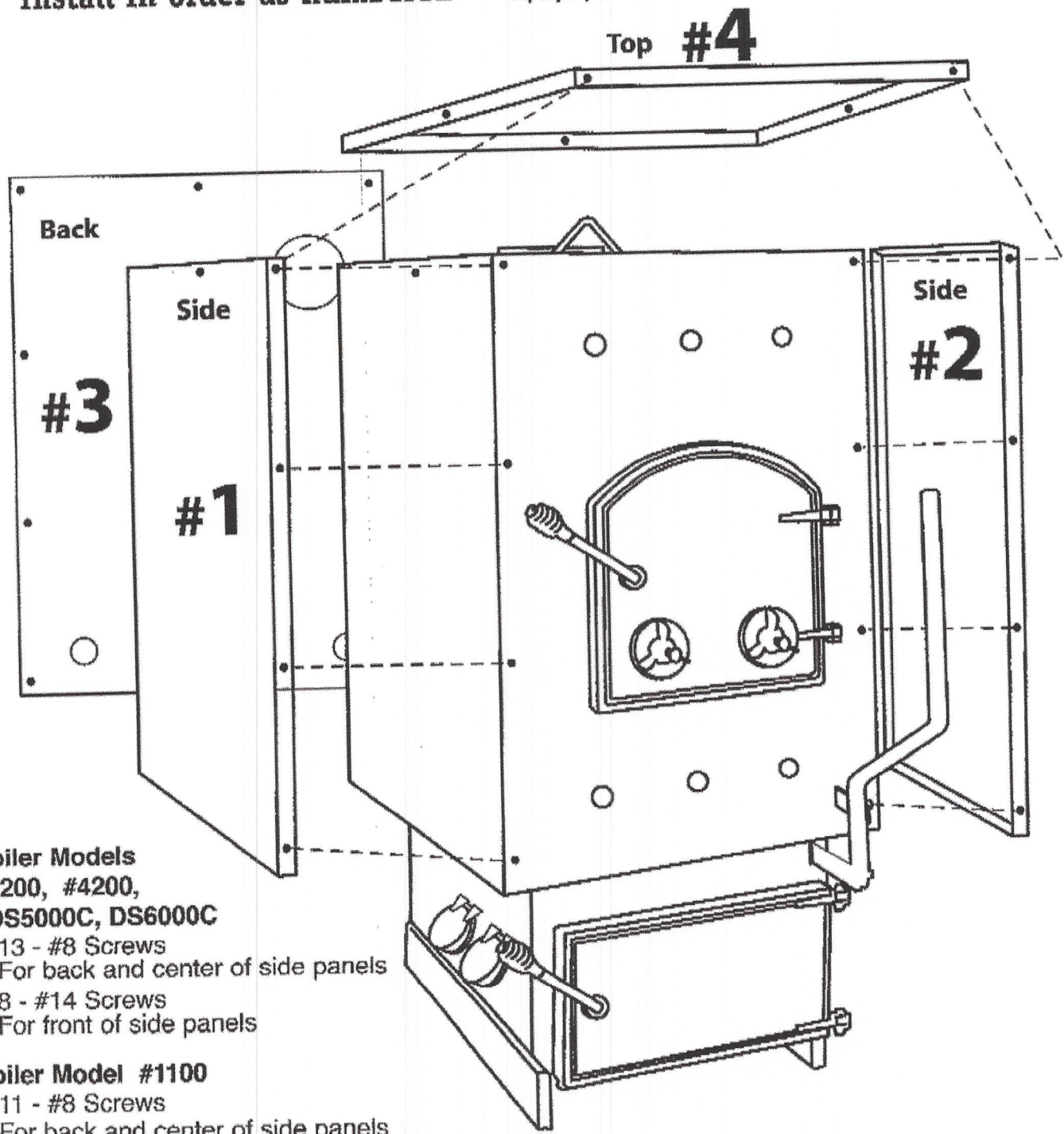
This Limited Warranty is in lieu of all other warranties either expressed or implied.

DS Stoves is not responsible for accidents due to improper installation or failure to follow instructions.

- DS Stoves
238-B Old Leacock Road, Gordonville, PA 17529
717-768-3853

Boiler Sheet Metal Installation

Install in order as numbered - 1,2,3,4



Boiler Models
 #3200, #4200,
 #DS5000C, DS6000C

- 13 - #8 Screws
For back and center of side panels
- 8 - #14 Screws
For front of side panels

Boiler Model #1100

- 11 - #8 Screws
For back and center of side panels
- 6 - #14 Screws
For front of side panels

Install side and back panels first
Back panel goes inside of side panels
Top panel goes outside of all panels

ALL BOILERS MUST BE PLUMBED UP BY A QUALIFIED LICENSED PLUMBER OR D.S. IS NOT RESPONSIBLE FOR WARRANTY.

Locating Boiler

- 1 - The boiler must be placed on a solid none combustible floor. If you have a combustible floor it is required to use a code approved none combustible floor board (Type 1 Board)
- 2 - It is recommended that the boiler be centrally located.
- 3 - The most important consideration in installing your boiler is adequate clearance between the boiler and any combustible surface. A boiler that is placed too close to a wall or to furniture can cause a fire. See UL plate on boiler for clearances.
- 4 - The base must extend at least 16" beyond the front and 8" of the back, and sides of fuel opening, and must extend under and 2" beyond either side of the stove pipe if it's elbowed towards a wall.
- 5 - The boiler or furnace must have its own flue. Do not connect this unit to a chimney flue serving other appliances.
- 6 - Connection of the stove to the chimney should be made as directly as possible (6 feet maximum horizontal) and not more than two bends. No reduction in flue pipe below the exhaust diameter should be used. The pipe connecting the stove to the chimney should be at least 24 gauge. Thicker gauges are available and will resist corrosion longer and need fewer replacements.

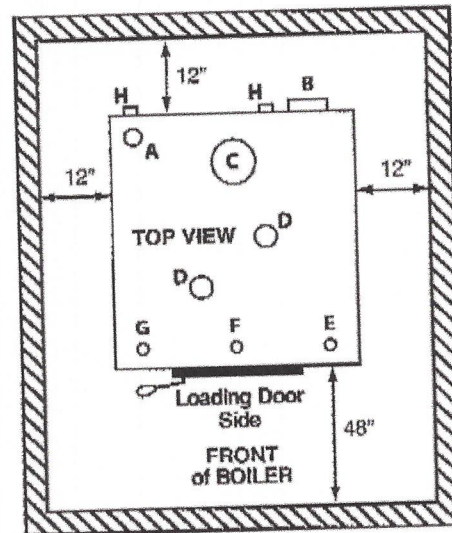
CAUTION:

Keep furnishings and other combustible materials away from the boiler.

Slope the flue pipe back towards the heater, 1/4" per foot of horizontal run. That way if any condensation forms in the pipe it will be carried back into the heater. The connector pipe should be installed so that the upper pipe section fits inside the lower section. This way any condensation building up inside the pipe will stay inside the pipe as it flows down the inside surface. Horizontal pipe runs should have the pipe seams turned up. Particular attention should be paid to the point where the flue passes through a wall or ceiling. This penetration should always be made with a thimble, insulated pipe, and

then proper accessories

following manufacturers instructions. Chimney connectors must not pass through the ceiling, concealed spaces, or enter the chimney in the attic, unless proper clearance or insulated pipe is used following manufacturers instructions. REMEMBER that all stove pipe sections should be connected with at least 3 sheet metal screws per joint. A fire in the stack may cause vibration and poorly fastened piping may come apart causing an extreme fire and smoke hazard. Do not extend stove pipe passed the inside edge of the flue liner. If you have a manufactured Stainless Steel chimney, attach stove pipe to stove pipe adapter. Where the pipe connects to a masonry chimney. The flu to the chimney should be larger than the stove pipe so you can insert the pipe out to the inside edge of the chimney, but not past. Then seal as tight as possible and cover with a stove pipe collar.



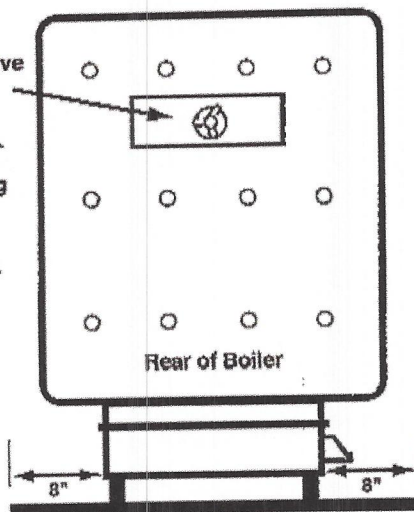
Clearance to Combustibles

- A - 30# Safety Valve
- B - Domestic Coil
- C - Exhaust
- D - 2" Hot Water Out
- E - Temp. Pressure Gauge
- F - High Limit Aquastat
- G - Samson Regulator
- H - 2" Water Return on back

Model #3200 and #4200 have 1-secondary air intake.

Open approx. 1/16" to 1/8" when burning wood.

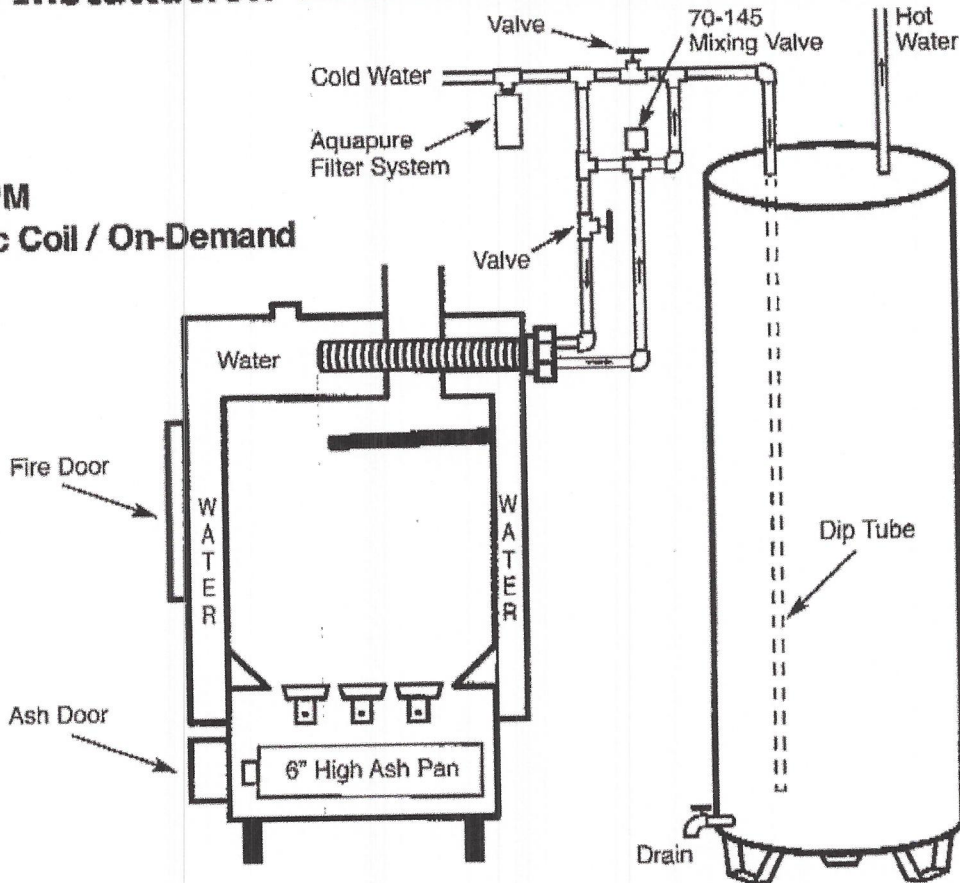
Close when burning coal.



Class 1 Floor Protection
8" on back and two sides - 16" on front

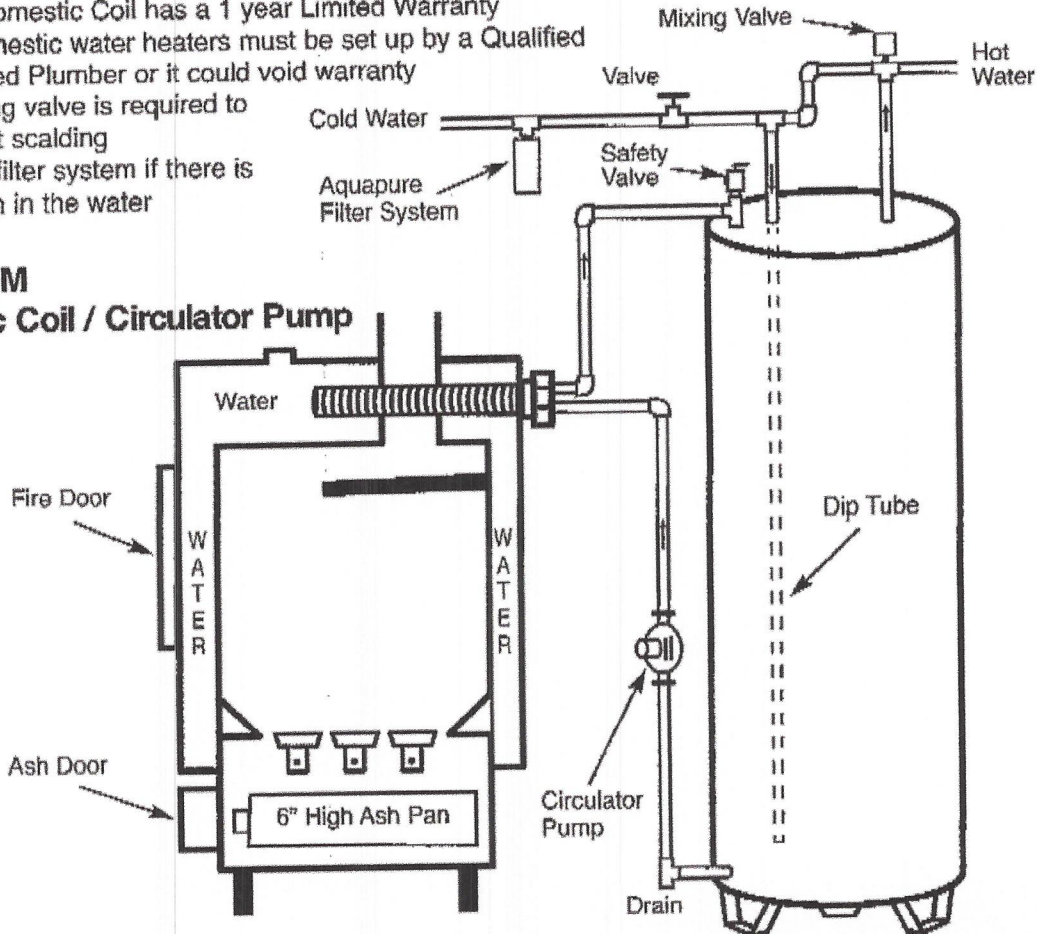
Boiler Installation

DS 4-GPM Domestic Coil / On-Demand



- This Domestic Coil has a 1 year Limited Warranty
- All Domestic water heaters must be set up by a Qualified Licensed Plumber or it could void warranty
- A mixing valve is required to prevent scalding
- Install filter system if there is calcium in the water

DS 4-GPM Domestic Coil / Circulator Pump



**ALL BOILERS MUST BE PLUMBED UP BY A QUALIFIED LICENSED
PLUMBER OR D.S. IS NOT RESPONSIBLE FOR WARRANTY.**

Safety Instructions

- 1 - Read all instructions carefully before installing or operating any D.S. boiler.
- 2 - You must install smoke and carbon monoxide detectors before you install or operate any boiler.
Check your local codes, this installation must comply with their rulings.
- 3 - Never leave boiler doors open when unattended
- 4 - Install barometric damper or manual damper when only burning coal.
- 5 - Do not hook up a wood or coal boiler to an aluminum type B gas vent. Use a code approved Class A chimney that is equal or greater than the exhaust on the boiler, that is high enough to give a good draft.
- 6 - Before you ignite boiler, be sure to inspect chimney for any cracked or leaking liners. This will affect your draft.
- 7 - Clean chimney before installing boiler. If there is creosote attached to the liner you could create a serious chimney fire.
- 8 - Never leave children unsupervised when they are in same room as boiler. Provide a sturdy barrier to keep children and pets a safe distance from the boiler, or they could get severely burned.
- 9 - Keep boiler area clear from all combustible materials, gasoline, and other flammable vapors and liquids.
- 10 - Use the required floor protection as shown on (page 5).
- 11 - Check the clearance to combustible walls and floors. (see page 5)
- 12 - Do Not allow anyone who is unfamiliar with the boiler to operate it.
- 13 - Spend some time with your boiler to become well acquainted with the different settings and how each will affect its burning patterns. It is impossible to state just how each setting will affect your stove because of variations in each installation, and chimney drafts.
- 14 - Be extremely careful when removing the boiler ash pan. It can get very hot!
- 15 - Make sure your stove pipe has at least 3 screws per joint.
- 16 - You must install a 30# safety valve.
- 17 - If you have a circulator pump you must install a high limit Aquastat set at 190°.
- 18 - When starting a fire circulator pump must be running continuously.
- 19 - Always use a mixing valve when hooking up a domestic coil.

Operation Instructions

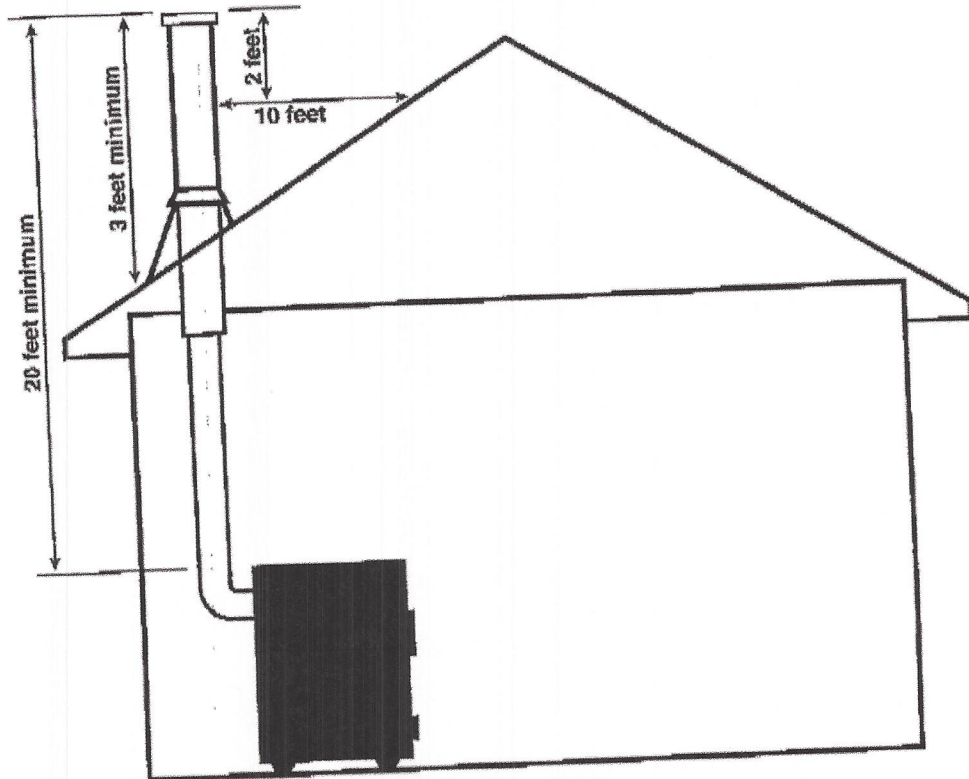
Starting a Fire

- 1 - Set samson draft regulator at boiler to HIGH.
- 2 - **DO NOT leave boiler unattended with the fire or ash door open!**
- 3 - Open fire door and place wads of crushed paper in the firebox.
- 4 - Put kindling on top of paper. NOTE: You can also buy Fire Starter Gel or Bricks
- 5 - Or use charcoal briquettes when starting a coal fire.
- 6 - Ignite paper or fire starter product.
- 7 - Once kindling is ignited add larger pieces of wood.
- 8 - If you want to burn coal, add a 2" layer of coal.
- 9 - Keep adding coal as necessary, but don't add too much at a time or you could smolder the fire.
- 10 - You do not have an established coal fire until you have 6 – 8 inches of red coals on top of the grates.
- 11 - Once you have an established coal fire you can add 30 lbs. or more coal per feeding.
- 12 - Set your regulator to meet your needs.
- 13 - NOTE: When burning coal, shake ashes every 12 hours if possible. You must keep your ashes cleaned out from under the grates. This may require emptying your ash pit daily. If there is no air space under the grates, the grates will warp and become inoperable.
- 14 - Reload coal every 12 hours or as needed.
- 15 - If you have a manual damper installed, adjust according to your draft. Before loading coal, open damper and let open until gases have escaped.
- 16 - If you are burning wood, allow 2" to 3" of ash to build up before removal. This will protect the boiler grates and also increase burn time.
- 17 - When burning coal open spinners on fire door approx. 1/8", on all models.
- 18 - When burning wood close spinners on fire door. If you have a model #3200 or #4200 open secondary air spinner at back and close when burning coal. The secondary air inlet on the #1100 is on top of the fire door.

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