



DS Anthra-Max High Efficiency Coal Stove

Models: XV14 XV15 XV16

OWNER'S MANUAL



XV16 Basement Model



XV15 Living Room Model with optional step top and cover lid



XV14 Living Room Model with optional cover lid

This stove meets U.S. Test Standard UL 391 UL 1482 - ETLM 78-1 ULC S627 / CSA B - 366.1



MADE IN USA By D.S. MACHINE SHOP

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

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

All D.S. Stoves Must Be Installed By A NFI Certified Technician.

Safety Instructions

- 1 Read all instructions carefully before installing or operating any D.S. furnace.
- You must install smoke and carbon monoxide detectors before you install or operate any furnace.
 Check your local codes, this installation must comply with their rulings.
- 3 Do not open bottom door to increase draft. It is designed only to empty ashes.
- 4 Never leave furnace doors open when unattended
- 5 Do not hook up a coal furnace to an aluminum type B gas vent. Use a code approved Class A chimney that is equal or greater than the exhaust on your stove, and a minimum of 20' high.
- 6 On all new installs connecting to an existing chimney, a level 2 chimney inspection must be done by a certified Chimney Sweep.
- 7 Clean chimney before installing furnace. 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 stove. Provide a sturdy barrier to keep children and pets a safe distance from the stove, or they could get severely burned.
- 9 Keep stove area clear from all combustible materials, gasoline, and other flammable vapors and liquids.
- 10 Use the required floor protection as shown on the UL Listing plate on back of stove.
- 11 Check the clearance to combustible walls and floors.
- 12 Do not allow anyone who is unfamiliar with the furnace to operate it.
- 13 Spend some time with your furnace 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 stove ash pan. It can get very hot!
- 15 Make sure your single wall chimney connectors have at least 3 screws per joint.
- 16 Do not install this furnace in a mobile home or trailer.

Operation Instructions

Starting a Fire

- 1 When starting a fire, set hot air regulator at back of stove and air wash on front to HIGH.
- 2 Open fire door and place wads of crushed paper in the firebox.
- 3 Put kindling on top of paper. NOTE: You can also buy Fire Starter Gel or Bricks made by Rutland Products. www.rutlandproduct.com Or use charcoal briquettes.
- 4 Ignite paper or fire starter product.
- 5 Leave fire door open slightly until the smoke clears out. DO NOT leave stove unattended with the fire door open!
- 6 Once kindling is ignited add larger pieces of wood. After wood is burning add a 2" layer of coal.
- 7 Keep adding coal as necessary, but don't add too much at a time or you could smolder the fire.
- 8 You do not have an established fire until you have 8 inches of red coals on top of the grates.
- 9 If you have a coal hopper, you can now fill your hopper. The coal hopper holds approximately 40 lbs. of coal, and has a burn time of 24-48 hours.
- 10 Once you have an established fire set your regulator and air wash to meet your needs, and reload coal as needed. You can add 30 lbs. or more coal per feeding. Adjust hot air regulator and air wash together. When one is on low they should both be on low.
- 11 The furnace is designed to burn coal at a predetermined firing rate. Over firing occurs when the ash door is left open during operation or a highly volatile fuel, i.e. large amounts of small kindling is used. Do not exceed 600° degrees on top of furnace.
- 12 NOTE: 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.
- 13 Install a manual or barometric damper if your draft exceeds 0.08 water column.
- 14 If you have a manual damper installed, adjust according to your draft. Before loading coal, open damper and let open until gases have escaped.
- 15 Regularly check the fit on the load, hopper and ash doors. They must fit tightly. If it does not, check

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for deterioration or wear of the ceramic rope seal. Replace defective seals.

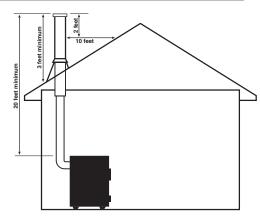
- 16 Inspect and clean your chimney and single wall chimney connectors regularly.
- 17 In the event of a chimney fire, shut all draft controls and blower off and call your fire department immediately. Alert everyone in the house. If flue is still burning vigorously, throw baking soda into firebox or discharge a fire extinguisher into fire box. After the chimney fire is over, have a certified chimney sweep complete a level 2 chimney inspection, before farther use of your chimney.
- 18 With new steel there is a small amount of oil or dirt on the metal. You may smell an odor. This is normal during the first operation. You may want to assemble the furnace out of doors and build a small fire in it to "BURN OFF" this dirt and oil before installing unit.
- 19 Equip your home with fire extinguishers, carbon monoxide and smoke detectors.
- 20 Do not burn garbage, gasoline or any other flammable liquids in this furnace.
- 21 Do not burn furnace over 600°F or warranty will be void!

Anthra-Max Annual Maintenance - After every burn season

- 1 Clean out firebox and ash pan area after each heating season.
- 2 Replace any cracked or broken firebrick-very important!
- If this is not followed your stove is at risk for warping and may void your warranty.
- 3 Take out coal hopper, remove baffle insulation and reburn baffles. Clean them with vacuum cleaner or blow gun. Once cleaned everything can be reinstalled back into stove. Before reinstalling, clean fly ash from secondary baffle at inside back of stove.
- 4 Check grates and shaker handle for wear or warping and replace if necessary. Check for any loose hardware on doors, door latches and shaker handle, tighten or replace as needed. Check all gaskets on window glass, hopper, fire and ash doors for deterioration or tears, replace where necessary. Also check seal of doors by closing doors on a piece of paper. If you can move the piece of paper between door frame and gasket, replace door gasket.
- 5 Clean inside of single wall chimney connectors and chimney at least once annually (in Spring). For longer life of your single wall chimney connectors, disconnect from stove, oil inside with vegetable oil and store in attic during summer month.

Chimney Requirements

The minimum height of a chimney system for the D.S. Stove 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 single wall chimney connector 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 11.

Locating Stove

- 1 The stove 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 stove be centrally located.

Two Options for good circulation from basement to first floor:

A - Run a plenum from stove to 1st floor – recommended 14" x 20" or larger with return vents that equal 12% or more in square inches.

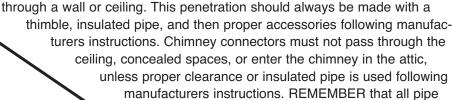
B - Install floor vents where needed without plenum. Extend the return vents 12" down from the ceiling (see drawing).

- 3 Locate and read label on stove before installation. The most important consideration in installing your stove is adequate clearance between the stove and any combustible surface. A stove that is placed too close to a wall or to furniture can cause a fire.
- 4 The base must extend at least 16" beyond the front and 8" beyond the back of the stove, 8" to the sides of fuel opening, and must extend under and 2" beyond either side of the single wall chimney connector if it's elbowed towards a wall (see page 5).
- 5 The stove 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, when needed, should be used. No reduction in flue pipe

below 6 inches in 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. Slope the flue pipe

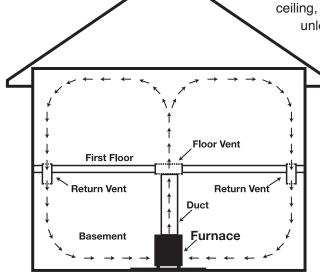
CAUTION: Keep furnishings and other combustible materials away from the stove.

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



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 single wall chimney connector past the inside edge of the flue liner. If you have a manufactured stainless steel chimney, attach single wall chimney connectors to single wall chimney connector adapter. Where the pipe connects to a masonry chimney, the flue to the chimney should be larger than the single wall chimney connector 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 trim collar.



Locating Stove

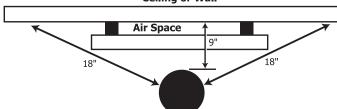
This stove is to be installed maintaining clearances as shown in illustration.

- 1. Set the stove on a solid noncombustible floor.
- 2. Use a U.L. approved fire retardant material for the floor mat.
- 3. The material must extend at least 16" in front of and 8" on either side and back, and 2" past either side of chimney connector.

Caution: Do NO	T store 🤉	combustible
or flammable n	naterial	near stove

XV16 XV15 XV14 **Specifications** 18″ Sides 18" 18" Back 18″ 18″ 18″ Front 48″ 48″ 48″ Ceiling 48" 48" 48" Clearance from flue to combustible with single wall 18″ 18″ 18″ chimney connector Clearance from flue to 6″ 6″ 6″ combustible with double wall chimney connector Corner 9″ 9″ 9″ clearance from stove to combustible

Ceiling or Wall



According to NFPA Standards single wall chimney connectors can be within 9" of combustible provided an approved fire retardant material covered with 24 gauge sheet metal, spaced out 1" on non-combustible spacers is utilized.

- 1. The furnace should be the only heating appliance using a chimney. One furnace per flue.
- 2. A masonry chimney should be a chimtek or stainless steel liner.
- 3. The masonry chimney should not have any missing mortar or loose bricks.
- 4. There should be no mortar or parts of the chimney blocking the chimney flue.
- 5. There should be a two inch clearance between any chimney except chimtek has zero clearance.
- 6. The chimney should extend at least 2' above the highest point of the house, or 2' above the point at which the chimney is 10' from the roof.

Anthra-Max Specifications	XV14	XV15	XV16
Approx. BTU	55,000		105,000
Heating Capacity (sq ft.)	1400		2500
Fire Box Size (wxdxh)	.16x12x14″	16x16x14″	16x20x14″
Fire Box Volume	45#		90#
Coal Hopper Capacity	40#		40#
Approx. Coal Volume w/Hopper			
Flue Size	6″		6″
Stove Width w/Living Room Sheet Metal	28 ¹ /2″		
Stove Depth w/Living Room Sheet Metal	22 ¹ /2″		
Stove Height w/Living Room Sheet Metal	391/2″		
Stove Width w/Basement Sheet Metal	34 ¹ /2″		
Stove Depth w/Basement Sheet Metal	221/2″		
Stove Height w/Basement Sheet Metal	391/2″		
Fire Door Gasket (3/4") 34-GR	62″	62″	62″
Ash Door Gasket (3/4") 34-GR	50″	50″	50″
Window Gasket (7/8" 78-WG	52″	52″	52″
Stove Weight			650 lbs.

Assembly Diagram

XV Basement Sheet Metal Installation Instructions

1 - Install Shaker Handle on stove using 2-5/16"
x 1" bolts, 2-5/16" lock washers and nuts (included).

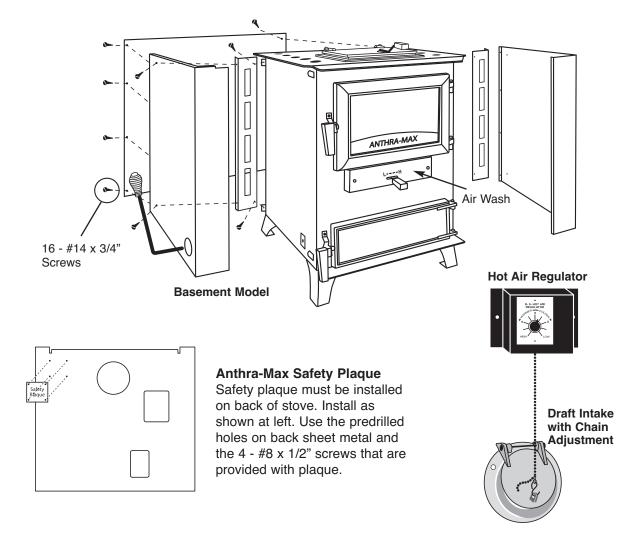
2 - Install Sheet Metal Brackets on back corners of furnace using 4 #14x3/4" self tapping screws (included).

3 - Install left side sheet metal on furnace. First, slide 2.5" hole over shaker handle then insert front bend of sheet metal into left front sheet metal brackets of furnace. Then put 2 #14x3/4" screws (included) into the 2-1/4" holes on side of sheet metal and screw into sheet metal bracket at back of furnace.

4 - Install right side sheet metal on furnace. First slide front bend of sheet metal into sheet metal brackets on front right side of furnace. Then put

2 #14x3/4" screws (included) into the 2-1/4" holes on side of sheet metal and screw into sheet metal bracket at back of furnace.
5 - Install back sheet metal. Line up sheet metal holes on each side with holes on right and left side sheet metal and screw together with 8 #14x3/4" self tapping screws (included).
6 - Fasten shaker handle to shaker grate flat in bottom of furnace inside ash door with 3/8"x1" bolt and 1-3/8" locknut (included). 3/8"x1" bolt will be located in hole on shaker grate flat in bottom of furnace.

Use 16 #14x3/4" self tapping screws (included) to install sheet metal kit.



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Assembly Diagram

XV Living Room Sheet Metal Installation Instructions

1 - If you will be installing the step top option you will want to install that first.

2 - Install Shaker Handle on stove using 2- 5/16" x 1" bolts, 2-5/16" lock washers and nuts (included). 3 - Bend back sheet metal tab for regulator to 90° to protect bottom of regulator for optional blower. 4 - Install back sheet metal by sliding sheet metal flanges inside of the bottom tabs on back of stove and letting it slide down until the top flange clears the bottom of top tabs, then slide up till holes on sheet metal flanges line up with holes on the 4 tabs of stove, then screw the sheet metal flanges to the stove tabs with the sheet metal flanges on the front side of stove tabs, using 4 - #14 x ³/₄ self tapping screws (included). 5 - Install left side sheet metal on furnace. First slide 2 ¼" x 7/8" slot over shaker handle then insert front bend of sheet metal into left front sheet metal bracket of stove. Then put 4 - #8 x 5/8" self tapping screws (included) into 4 holes on back of sheet metal. 6 - Install right side sheet metal on stove. First insert front bend of sheet metal into right front sheet metal bracket of stove. Then put 4 - #8 x 5/8" self tapping screws (included) into 4 holes on back of sheet metal. 7 - Fasten shaker handle to shaker grate flat in bottom of furnace inside ash door. with 3/8" x 1" bolt and 1- 3/8" lock nut (included).

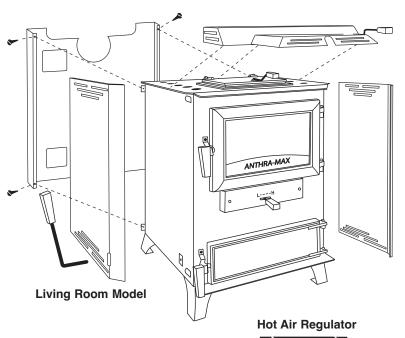
3/8" x 1" bolt will be located in hole on shaker grate flat in bottom of furnace.

OPTIONAL XV Step Top Installation Instructions

1. Sheet metal sides must be removed in order to install Step Top. Set step top on top of stove. Make back and sides of step top even with back and sides of stove top. Then use one 5/16" x 1" bolt and 2 - 5/16" washers and one 5/16" nut to fasten back of step top to back of stove. Put one washer on bolt and put in from bottom through slot of stove top then through slot on back bottom of step top and fasten with one 5/16" washer and nut. Install bolt and washer on right and left side of step top. Take a 5/16" x 1" bolt and put a 5/16" washer on bolt and insert through the slot on the top of stove that lines up with the nut that is welded on the bottom of the step top. This must be done from the

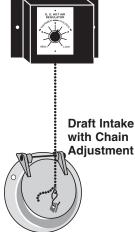
Bend sheet metal tab in to 90° to protect the bottom of regulator for optional blower.

bottom up



Anthra-Max Safety Plaque

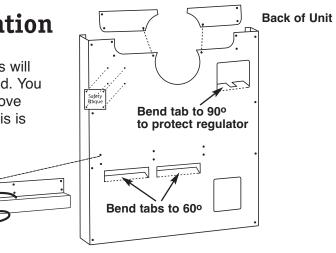
Safety plaque must be installed on back of stove. Install as shown at left. Use the predrilled holes on back sheet metal and the 4 - #8 x 1/2" screws that are provided with plaque.



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Optional Blower Installation

Use snap disc provided with blower. This will prevent blower from running if unit is cold. You should not run blower at start up until stove has reached its desired temperature. This is to allow regulator to reach its desired temperature before blower is turned on.



Trouble Shooting

Problem 1 - Inadequate heat being delivered to your home, Solution:

- Check home insulation is it adequate?
- You may have poor circulation. For example, If your stove is in the basement and it is warmer there than the first floor, put in a few floor vents to help move the hot air to where it's needed. (see page 4)
- If you have hot air regulator set at High and stove does not heat properly, shorten chain one or more notches (see page 6). DO NOT exceed 600°F on top of stove.
 Overheating will damage stove.
- Do you have a good draft of 0.06 water column.
- If not, check and clean chimney and single wall chimney connectors

Problem 2 - Stove burns too hot

- Turn Hot Air Regulator to low. If it does not burn low enough, lengthen chain one or more notches at draft intake (see page 6)
- Check gasket in Bottom Ash Door (replace if needed). Ash door must be sealed.

Problem 3 - Poor Draft

- Check and clean chimney and single wall chimney connectors
- Check chimney draft there should be 0.06 inches of water column. This service is provided by a certified chimney sweep.
- Open manual damper if you have one
- If you have barometric damper? Is it installed properly? Read the instructions.
- Check ash pit. If it is too full empty it.
- there may be a cracked flue liner. If so you need to reline chimney before further use of stove.
- 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 is closed tight if you have one

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 - Coal Gas Explosions

- Oiled or wet coal could make matters worse. Coal gas explosions come from lack of oxygen, or lack of secondary air. Set air wash on high.

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Assembly Instructions

Parts List - Anthra Max XV14

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17-1/2" wide x 12" long x 3-1/2" deep ...18-12-35AP 2-Wood Door Handles for fire and ash doors ...XV-WDH 1-Wood Shaker Bar HandleXV-05WH 3-Wood Handles for Air wash, hopper door and

cover lid handlesXV-03WH

2-Door Latches (fire and ash doors)XV-DL
1-62" 3/4" Rope Gasket (fire door)34-GR
1-50" 3/4" Rope Gasket (ash door)34-GR
1-48" 3/8" Rope Gasket (hopper door)
1-Air Wash Cover PlateXV-AWCP
1-Fire Door GlassXV-GL
1-Left Baffle Re-burnXV14-LBR
1-Right Baffle Re-burnXV14-RBR
1-Hot air regulatorHot A-Reg
1-Hot air regulator chainHot A-Chain
1-Hot air regulator fittingsHot A-Fittings
1-Draft intake assemblyAlum-DA
1-Optional Cover LidXV-OCL
1-Back Baffle Insulation (for top back of
re-burn baffle)XV14-BBINS
2-Side Baffle Insulation (for top sides of
re-burn baffles)XV-SBINS

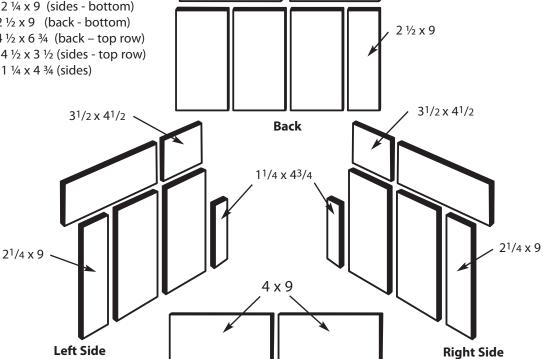
6³/4 x 4¹/2

2-Metal Door Handle (fire and ash doors) ... XV-FDH

XV14 Brick are 4 ½ x 9 unless noted otherwise

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10 pcs 1 ¼ x 4 ½ x 9 2 pcs 1 ¼ x 4 x 9 (Front) 2 pcs 1 ¼ x 2 ¼ x 9 (sides - bottom) 1 pc 1 ¼ x 2 ½ x 9 (back - bottom) 1 pc 1 ¼ x 4 ½ x 6 ¾ (back - top row) 2 pcs 1 ¼ x 4 ½ x 3 ½ (sides - top row) 2 pcs 1 ¼ x 1 ¼ x 4 ¾ (sides)



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Front

Assembly Instructions

Parts List - Anthra Max XV15

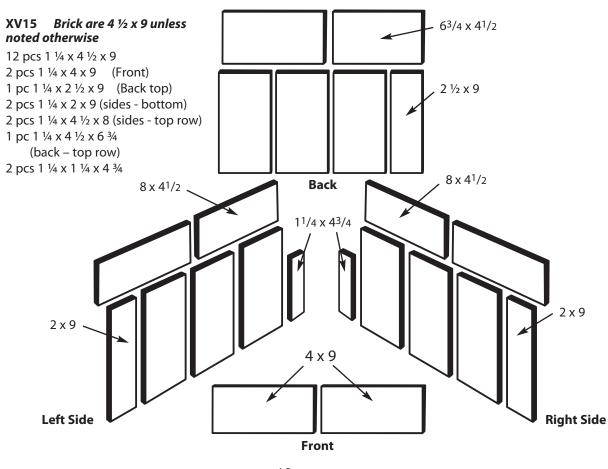
1-Right Side Living Room Sheet Metal Jacket XV15-RS
1-Left Side Living Room Sheet MetalXV15-LS
1-Back Living Room Sheet MetalXV15-BS
1-Back Basement Sheet MetalXV15-BBSM
1-Left Side Basement Sheet MetalXV15-LBSM
1-Right Side Basement Sheet MetalXV15-RBSM
1-Coal Hopper / Hopper Door and FrameCH-110
1-Hopper Door (door only)CH-120
1-Hopper Door Frame (frame only)CH-130
1-Removable Coal Hopper (hopper only) XV1516-Hopper
1-Right Side Firebrick AngleXV15-RSFA
1-Left Side Firebrick AngleXV15-LSFA
1-Ash Shaker Bar AssemblyXV-ASBA
3-Cast Iron 4" x 16" Grates4X16-C1G
2-Cast Iron Grate Rails for 3 – 4" grates43-GR
1-Cast Iron Anthra-Max Fire DoorXV-FD
1-Cast Iron Ash Door 20" x 6"
1-Ash Pan
17-1/2" wide x 16" long x 3-1/2" deep18-16-35AP

2-Wood Door Handles for fire and

ash doorsXV-WDH 1-Wood Basement Shaker Bar HandleXV-58WH

1-Wood Living Room Shaker Bar HandleXV-05WH 3-Wood Handles for Air wash, hopper door
and cover lid handleXV-03WH
2-Metal Door Handle (fire and ash doors) XV-FDH
2-Door Latches (fire and ash doors)XV-DL
1-62" 3/4" Rope Gasket (fire door)
1-50" 3/4" Rope Gasket (ash door)
1-48" 3/8" Rope Gasket (hopper door)
1-Air Wash Cover PlateXV-AWCP
1-Fire Door GlassXV-GL
1-Left Baffle Re-burnXV15-LBR
1-Right Baffle Re-burnXV15-RBR
1-Hot air regulatorHot A-Reg
1-Hot air regulator chainHot A-Chain
1-Hot air regulator fittingsHot A-Fittings
1-Draft intake assemblyAlum-DA
1-Optional Step Top with Cover LidXV15-OST
1-Optional Cover LidXV-OCL
1-Back Baffle Insulation (for top back of
re-burn baffle)XV15-BBINS
2-Side Baffle Insulation (for top sides of
ro hurp haffloc) VV CDINC

re-burn baffles)XV-SBINS



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Assembly Instructions

Parts List - Anthra Max XV16

1-Right side living room sheet metal jacketXV16-RS
1-Left side living room sheet metalXV16-LS
1-Back Sheet MetalXV16-BSb
1-Back Basement Sheet MetalXV16-BBSM
1-Left Side Basement Sheet MetalXV16-LBSM
1-Right Side Basement Sheet MetalXV16-RBSM
1-Coal Hopper / Hopper Door and FrameCH-110
1-Hopper Door (door only)CH-120
1-Hopper Door Frame (frame only)CH-130
1-Removable Coal Hopper (hopper only) XV1516-Hopper
1-Right Side Firebrick AngleXV16-RSFA
1-Left Side Firebrick AngleXV16-LSFA
1-Ash Shaker Bar AssemblyXV-ASBA
4-Cast Iron 4" x 16" Grates4X16-C1G
2-Cast Iron Grate Rails for 4 – 4" grates44-GR
1-Cast Iron Anthra-Max Fire DoorXV-FD
1-Cast Iron Ash Door 20" x 6"
1-Ash Pan

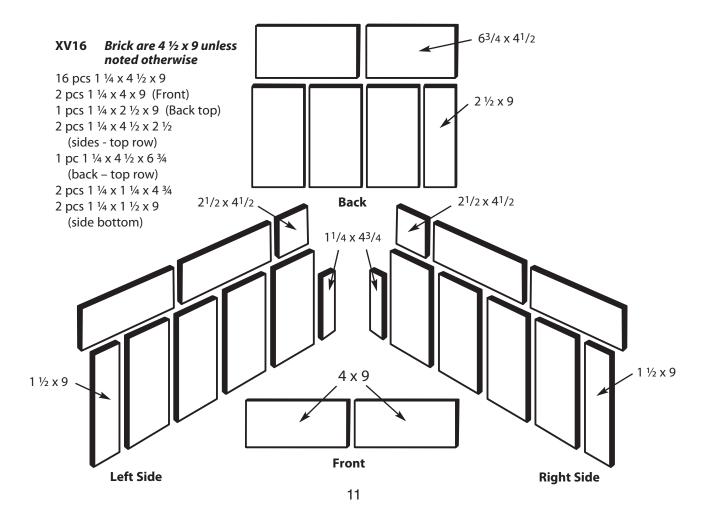
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1-Wood Basement Shaker Bar Handle	XV-58WH

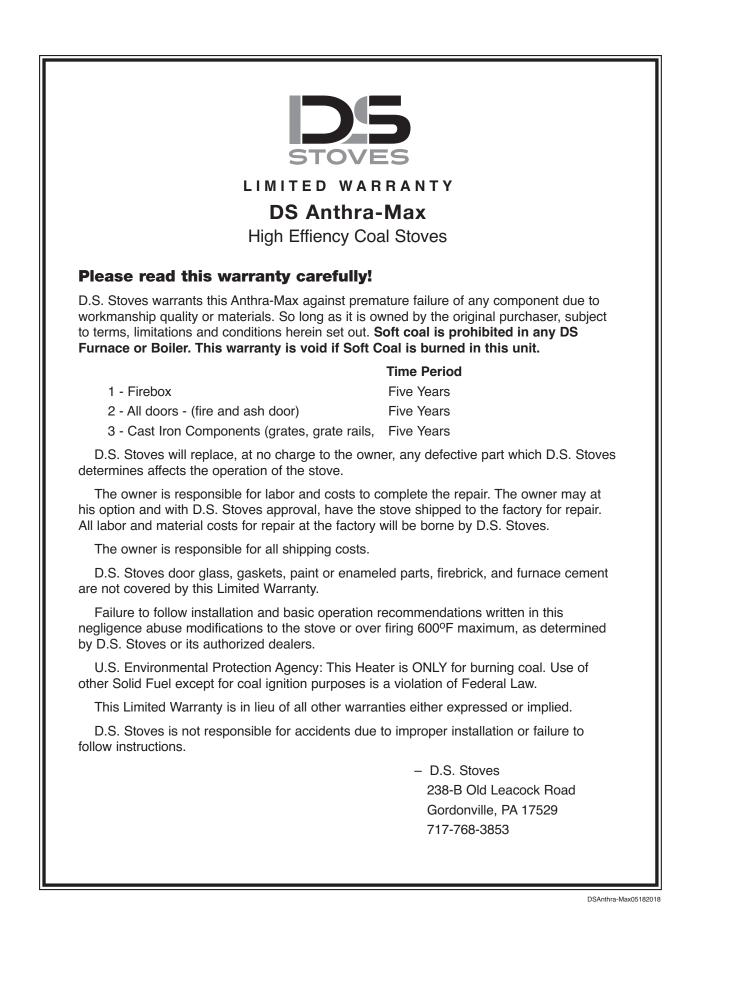
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1-Wood Living Room Shaker Bar HandleXV-05WH
3-Wood Handles for Air wash, hopper door and
cover lid handleXV-03WH
2-Metal Door Handle (fire and ash doors)XV-FDH
2-Door Latches (fire and ash doors)XV-DL
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1-Draft intake assemblyAlum-DA
1-Optional Step Top with Cover LidXV16-OST
1-Optional Cover LidXV-OCL
1-Back Baffle Insulation (for top back of
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2-Side Baffle Insulation (for top sides of

re-burn baffles)XV-SBINS



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