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MODEL 600 CSS STAINLESS STEEL OUTDOOR FURNACE



INSTALLATION SHOULD BE PERFORMED BY A QUALIFIED INSTALLER AND WILL COMPLY WITH ALL THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION OVER THE INSTALLATION.



READ THROUGH THE ENTIRE OPERATORS AND MAINTENANCE MANUAL AND THIS SUPPLEMENT BEFORE OPERATING YOUR HEATMOR STAINLESS STEEL OUTDOOR FURNACE MODEL 600 CSS.



NOTE: NEVER START A FIRE INSIDE THE FIREBOX UNTIL THE WATER JACKET IS FULL OF WATER AND SAND HAS BEEN ADDED TO THE BASE TO THE CORRECT LEVEL.

Units are Safety Listed by Omni Test Laboratories

Report # 275-O-12-4

Listed to UL2523-2009 and CSA B366.1-11





MODEL 600 CSS FURNACE SPECIFICATIONS

Specifications	Model 600 CSS
Overall Width (Inches)	68
Base Width (Inches) (Footprint)	61
Overall Height (Inches) (With chimney)	106
Overall Length (Inches)	102
Base Length (Inches)(Footprint)	92
Total weight (lbs.) (Without Water)	2800
Water Capacity (US. Gal.)	285
Forced Draft (C.F.M.)	150 secondary 150 primary
Chimney Size (Inches)	10
Wood Length (Inches)	60
Insulated Heating Area (Sq. Ft.)* 1 Loading per day 2 Loading per day	Approx. 9000 Approx. 18000
Firebox Width (Inches)	38
Firebox length (Inches)	60
Firebox height (Inches)	48
Volume of firebox (Cu. Ft.)	63
Firebox Door Size (Inches)	30 x 36
Flue transfer area (Sq. Ft.)	25
BTU'S (maximum)**	600,000
Water Jacket Steel Gauge	Stainless 7
Firebox Steel Gauge	Stainless 7
Base Steel Gauge	Stainless 7
Base of Unit to Bottom of Loading Door (inches)	18
Sand required during initial setup.	1/2 yd.
Warranty – Workmanship (Includes total unit)	Limited LIFETIME Warranty

*This is an estimate only. Actual loadings per day may vary depending on structures heated and type of wood used.

**This value should only be used as an indication of the furnace's heat recovery ability. Sustained outputs at this rate will increase the loadings per day. Some types of wood may prevent the furnace from reaching this maximum output.



MODEL 600 CSS FURNACE SPECIFICATIONS (CONTINUED)

Warranty –Corrosion (Includes total unit)	Limited LIFETIME Warranty
Approvals Test Standards	UL 2523 - 2009 CSA-B366.1-11
Hookup Location	Back
Total Heat Extraction area sq.ft	109
Type of Fuel	WOOD ONLY
Electrical Supply 1 Phase	115 Volts, 60HZ

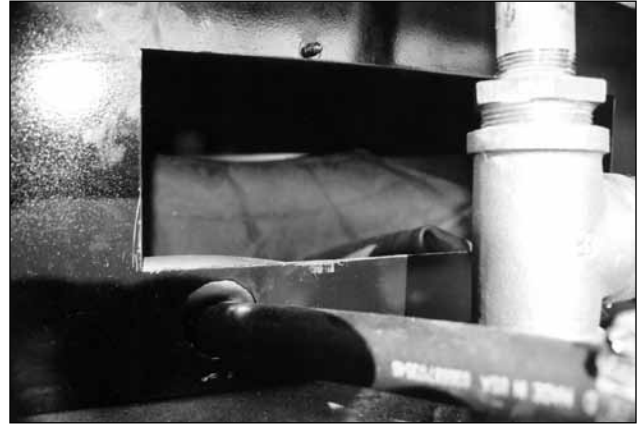
Bladder

Principle of the Bladder

The Bladder of the Model 600 CSS operates on the same principles outlined in the “Bladder Assembly” section of the Operators and Maintenance Manual. It is located behind the upper front access door. Remove the thumbnut and the cover lifts out to reveal the bladder.

Refer to the “Bladder Assembly” section of the Operators and Maintenance Manual for information on:

- 1) Operation of the bladder
- 2) Filling the bladder with water
- 3) Maintenance of the bladder



The Model 600 CSS bladder should be approximately $\frac{3}{4}$ full at normal operating temperatures.

Removal and Replacement of the Bladder

Do not attempt replacement unless furnace water temperature is less than 100°F (38°C)

- 1) Turn off the bladder gate valve located behind the top front access door.
- 2) Remove the bladder cover plate by loosening the thumbnut and pulling out the plate.
- 3) Loosen the hose clamp from the bladder gate valve.
- 4) Pull the bladder hose from the gate valve and allow the water from the bladder to drain. USE CAUTION! THIS WATER CAN BE WARM.
- 5) Remove the old bladder and re-install the new bladder.
- 6) Push the new bladder hose onto the bladder gate valve and tighten the hose clamp.
- 7) Open the bladder gate valve and then refer to “Filling the Bladder with Water” from the Bladder Assembly section of the Operators and Maintenance Manual to refill the bladder to the correct level.

Filling the HEATMOR™ Outdoor Furnace Model 600 CSS Initially with Water

See the “Filling the HEATMOR™ Furnace Initially with Water” section of the Operators and Maintenance Manual.

Fire Door

Principles of the Fire Door

The Model 600 CSS fire door is water cooled to prevent warping of the door. It also absorbs heat from the fire and transfers heat to the water, adding a heat-exchanging surface. Because it is water cooled, the outer surface will never be hotter than the water in the furnace.

Removal and Replacement

If your fire door needs to be removed or replaced on your Model 600 CSS, please contact your local dealer for assistance.

Opening the Fire Door

It is important to always stand behind the fire door when opening it. Open the door just slightly to allow air to the firebox. This clears the firebox of smoke that may be lingering in the firebox. Once the smoke is evacuated from the firebox it is safe to open the door fully, always standing behind the door for safety. Refer to the “Safe Furnace Operation Guidelines” section of the Operators and Maintenance manual for further instruction on safe opening of the fire door.



Refer to Safe Operating Guidelines for further instructions on how to safely open and close the fire door or contact your local dealer. Ask for a demonstration.

Adjustment of the Model 600 CSS Fire Door

The fire door hinges of the Model 600 CSS are stronger, more permanent, hinges than the residential models. Unlike the residential models, the hinges are not utilized for adjustment.

There are two major parts that make up the fire door of the Model 600 CSS, the door water jacket and the door-mounting frame. The water jacket is mounted to the door frame with three one inch threaded studs and held in place with two jamb nuts and two washers on each stud. When making adjustments, it is important not to loosen more than two studs at a time. The holes in the doorframe are larger than the studs to allow for movement required to align the door with the doorframe. Please follow the recommended instructions for proper adjustment of the fire door or contact your local dealer for further details.

If there is smoke leakage around the fire door at any point, and the gasket has been found to not be the problem, the door should be adjusted. Prolonged exposure to smoke and heat can cause permanent damage to the fire door gasket, magnify leakage problems, and create safety concerns. If the door seems to be aligned properly with the fire door frame, adjusting the fire door towards the fire door frame will likely solve the leakage problem. Using a socket, loosen the outer and inner nuts located on the horizontal door support arm. This will move the door towards the firebox creating a tighter seal between the door seal gasket and doorframe. Once the door has been adjusted to the correct depth, the inner and outer nuts should, once again, be tightened against each other to hold the door in that position.

Alignment of the Fire Door

- 1) The fire door should be positioned over the fire door frame so that there is an equal distance between the fire door and the fire door frame on all four sides. Generally, this can be achieved by returning the three adjustment studs to the center of their respective holes. The model 600 CSS fire door is heavy; safe adjustment can be done with the assistance of a hydraulic or manual jack and a small pry bar. Loosen the doorframe jamb nuts just enough to allow the door to move. Center the door vertically in the frame. Move the door horizontally right to left with the use of a small prybar between the door mounting frame and a jamb nut. When the water jacket is centered on the doorframe, the jamb nuts should all be tightened.
- 2) The next procedure is to seat the door water jacket evenly around the fire door frame. It is best to start with the water jacket away from the fire door frame approximately a 1/4".
- 3) If the right side of the door is not seated against the fire door, loosen the top right adjustment, first the outer jamb nut, then the inner jamb nut may be turned until the water jacket is seated about 1/8" into the silicone seal.
- 4) Follow the same procedure on the bottom adjustment until the right edge is seated evenly. Now tighten the bottom adjustment.
- 5) To ensure the left side of the door is sealed, follow the same procedure as the right side with left side adjustment only.



Remember: When adjusting the seating of the fire door, loosen only one adjustment at a time. After completion, make sure all jam nuts are tight.

Fire Door Chain

The fire door chain prevents the outer door of the Model 600 CSS from swinging open uncontrollably. It is recommended to install a post to the side of the furnace, to secure the outer door from opening or closing during loading and maintenance procedures. See the "Site Preparation Specifications" drawings further on in this supplement.

Fire door Latch

Principles of the Fire Door Latch

The purpose of the fire door latch is to secure the fire door during operation. The fire door latch is not adjustable on the Model 600 CSS.

Fill Line

The purpose of the Fill Line is to avoid a situation where the furnace is overfilled with wood. An over filled furnace will smoke more than one that has been properly filled with wood. A properly filled furnace will have less problems with debris in the secondary airbox.



Combustion Blower Power Switch

Principle of the Combustion Blower Power Switch

The Combustion Blower Power Switch is located at the front of the unit, making it easy to switch the blowers on or off during loading or maintenance.

Removal and Replacement

To remove the Combustion Blower Power Switch, use the following steps:

- 1) Turn off the main electrical power supply to the HEATMOR™.
- 2) Remove the switch cover plate.
- 3) Make a sketch of the location of the wires on the switch.
- 4) Remove the wires and replace the switch.
- 5) Replace the wires to the original locations.
- 6) Secure the cover plate.
- 7) Turn the main electrical power supply back on to the HEATMOR™.

Note: It is recommended to contact a licensed electrician to perform the above operation.

Combustion Air Blowers

The model 600 CSS has two 150 CFM blowers. The blower on the left, also called the primary air, delivers air to the fire from below the grates. The blower on the right, also known as the secondary air, delivers air into the firebox by means of an airbox on the inside, rear, wall of the firebox. The airflow of each blower is adjustable by means of a damper installed on each. This adjustable air flow is key to getting the most efficiency from your model 600 CSS Outdoor Furnace.



Principle

Refer to the “Wood” section of the Operators and Maintenance Manual to gain a better understanding of how wood burns and the stages of combustion.

The air delivery of the model 600 CSS is different than the residential models because it supplies air to two areas of the fire. The primary air is supplied under the fire and is responsible for creating smoke and getting the temperature above 500°F. The secondary air is introduced into this smoke above the wood stack allowing the smoke to combust, creating higher fire temperatures and less smoke.

Air Supply

Depending on the type of wood fuel used, different amounts of primary and secondary air are required for optimal efficiency. For example, small pieces of wood (high surface area) with low moisture content requires a small amount of primary air and a large amount of secondary air. If the opposite is done, with this type of fuel, an over-fueling situation will likely exist and the furnace will lose efficiency and smoke more. Cordwood with high moisture (30 - 40 percent) will likely require a lot of primary air and medium to large amounts of secondary air. A properly fired furnace will operate at optimum efficiency with the least amount of visible exhaust. Once the operator is familiar with their type of fuel, they will not need to adjust the dampers on the fans.

Operation

The blowers are controlled by the “Water Temperature Range Control” aquastat. When the water temperature reaches the low set point of the aquastat, the aquastat will supply power to the fans until the water temperature reaches the high set point of the aquastat. When the high set point is reached, the aquastat terminates the power supply to the fans. The dampers on the blowers give control over the airflow while the aquastat is supplying power to the blowers.

Maintenance

Refer to the “Air Supply” section of the Operators and Maintenance Manual for further information on maintaining the air combustion blowers.

Flipper Assemblies

See the “Air Supply” section of the Operators and Maintenance Manual.

Secondary Air Box

Operation

The Secondary Airbox is located along the rear, interior, firebox wall. It is a means to direct air from the secondary combustion air blower to the upper area of the firebox. This is how smoke from the fire can be ignited. Do not stack anything over the opening of the secondary airbox as poor combustion could occur.



Anti-Rollout Device (A.R.D.) and Auger Tube



THE A.R.D. MUST OPERATE PERFECTLY OR PROBLEMS QUICKLY ARISE.

Anti-Rollout Device

Principle

The Anti-Rollout Device (A.R.D.) is a safety feature that allows air into the firebox before the main fire door is opened. Along with normal, recommended, safe fire door opening practices, the risk of a flash back is greatly reduced.

Operation

The A.R.D. opens and closes automatically with the operation of the outer door.

Maintenance / Result

Ensure ash, shavings or small wood pieces do not become lodged in the A.R.D. Make sure that the spring on the auger tube cover is working properly. This ensures a compression fit of the cover to the auger tube. If the A.R.D. is not closing 100 percent, a constant air leak will allow air to continually fuel the fire. This will cause a smoldering fire resulting in creosote, boiling, and premature warping of the ashpan grates.



Ash Auger Tube

Principles

The Anti-Rollout Device also serves as the ash auger tube. Opening the outer door will expose the auger tube. The auger tube cover is located under the front outer door of the furnace. **The cover must have a good seal against the auger tube.**

Ash Removal

- 1) When removing ashes, always turn off the combustion air blowers.
- 2) Open the outer door, which releases the auger tube cover plate.
- 3) Insert the ash auger and remove the ashes.

Supply Line and Return Line Threaded Connectors

There are two 1.5" Supply line and two 1.5" Return line threaded connectors (female NPT) located at the back of the Model 600 CSS. A brass nipple should be used to connect any fittings to the threaded spuds. Refer to the "Supply Line and Return Line Threaded Connectors" section in the Operators and Maintenance Manual.

Low Water Cutoff

Principles

The low water Cutoff (located above the flue) shuts down power to the fans when the water in the furnace is low.

The only way to restore power to the fans is to fill the furnace with water.

Do not fill a warm furnace with cold water.



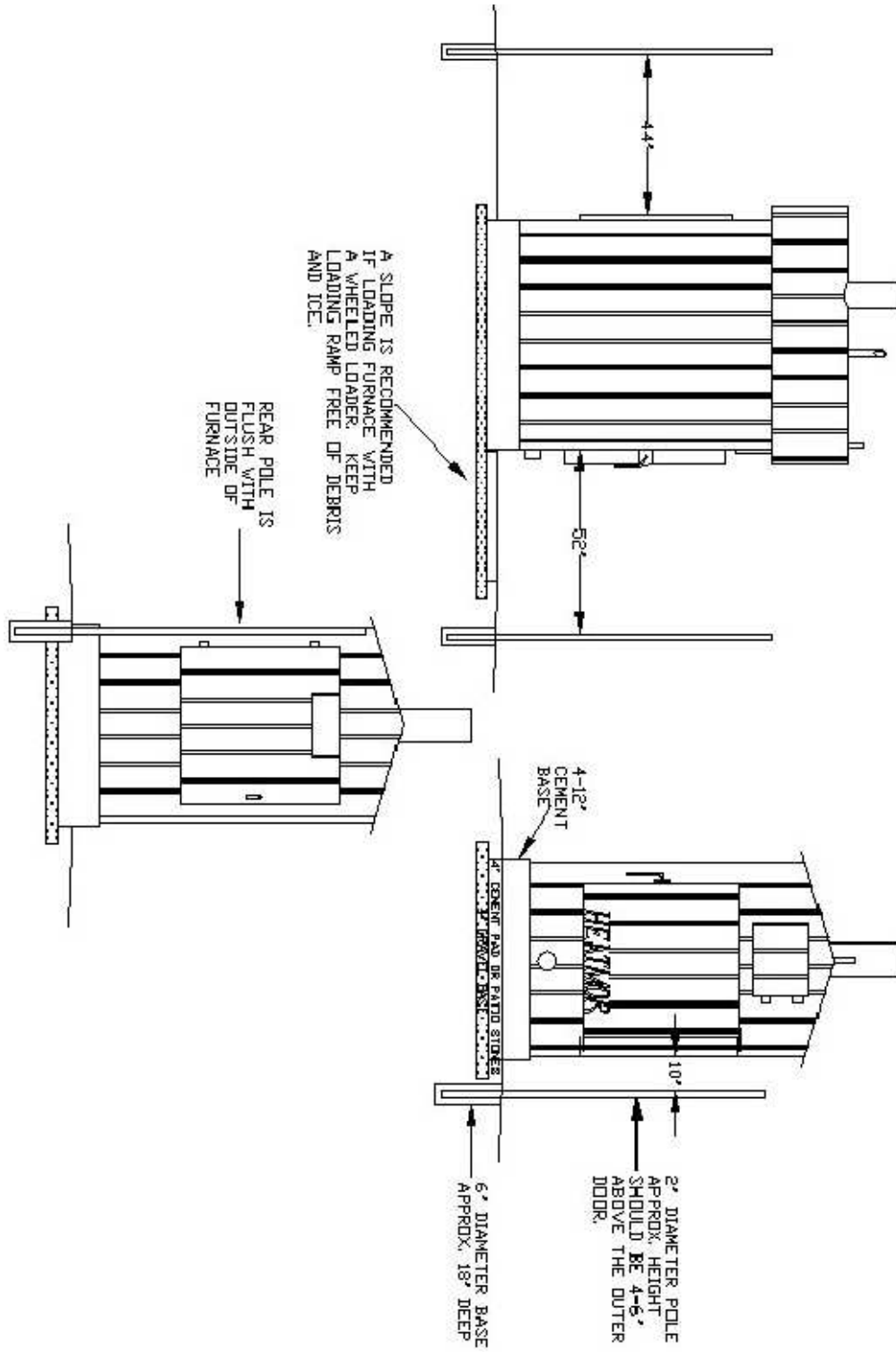
Outer Door

Operation

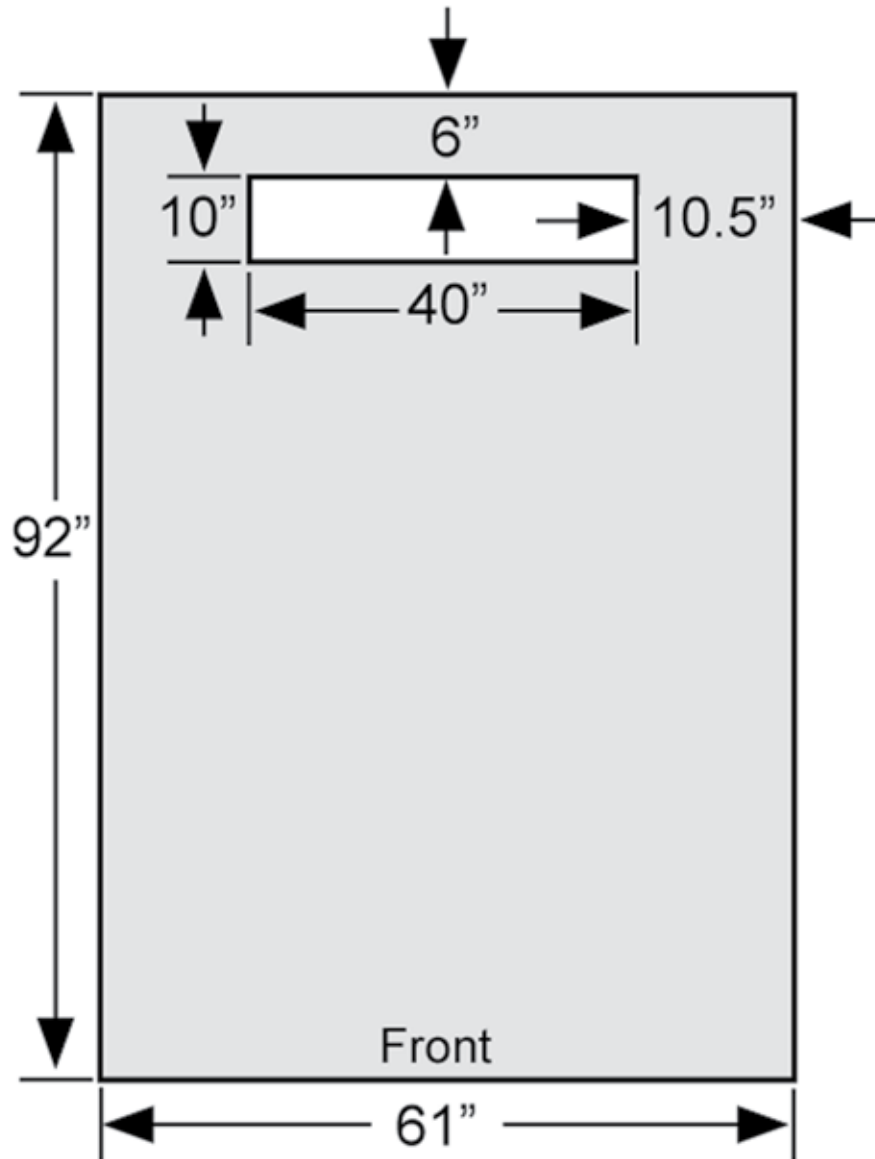
The outer door on the firebox is hinged and latched separately from the internal fire door. The door is hinged and opens to the right of the furnace. As the door opens it releases the A.R.D. auger tube cover plate, which allows air to enter the firebox before the fire door is opened, reducing the risk of a flashback. It is strongly recommended that a post is installed to the outside corner of the opened door to fasten the back and front external doors secure while in the open position. This reduces the risk of injury caused by the sudden movement of either large door (see drawing supplied).



Site Preparation Specifications – Model 600



Model 600 CSS



Notes:

1. Pad sizes are shed base dimensions plus 3 inches in width and 2 inches in length.
2. Pad thickness must be at least 4 inches but not more than 12 inches.
3. All measurements are in inches.