

Replacing a Keystone or Palladian Combustor Pan

Please read all the instructions before you begin the procedure. If you have any questions please call us toll free at 1-800-866-4344, Monday –Friday 9:00 – 5:00, EST.

Tools Needed:

5/32" allen wrench
7/16" wrench or nut driver
1/2" wrench
1/2" socket
large flat blade screwdriver
9/16" wrench or socket

Recommended:

safety glasses
work gloves
shop vac

Materials:

7' – 21066 - .500 graphite gasket
3' – 21085 - .250 gasket
3' – 21050 - .187G graphite gasket
3' – 21092 - .312 gasket
12' – 21016 - .375 gasket
6 – 5/16" x 7/8" (W-2567)
6 – 5/16" x 1" (W-2569)
2 – 5/16" x 5/8" (W-2565)
7 – 5/16" x 3/4" (W-2566)
2 – ¼" flat washer (W-2533)
1 – furnace cement
2 – gasket glue & 2 – anti-seize

Make sure the stove is cool.

1. The top of the stove will need to be removed, so you must disconnect your stove connector pipe from the stove. Remove the rear or top cover plate using a 5/32" Allen wrench like the one that was provided with your stove (if you have a rear vent Keystone, remove the soapstone square to reveal the bolt heads).



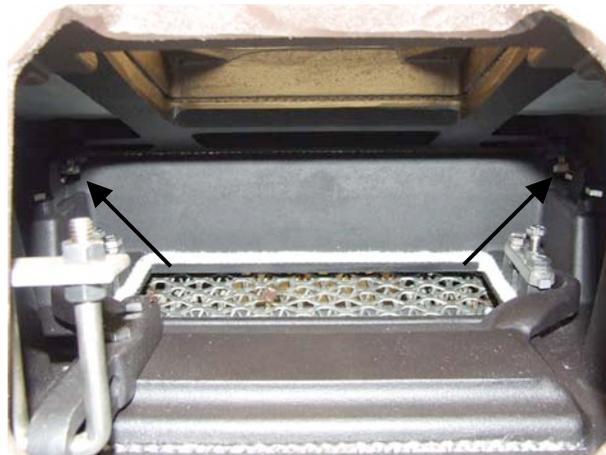
2. Remove the stainless steel combustor shield that is attached to the catalytic combustor assembly using a 7/16" nut driver or short wrench.



3. Remove the catalytic combustor assembly by removing the two shipping bolts (if they are still in place) and lift the combustor out. The bolts are found at each end of the combustor assembly and require a 1/2" wrench. Once the bolts and flat head washers are removed, lift and turn the assembly 90° and pull it out the rear vent hole. (The two 2-1/2" bolts are only necessary for shipping and do not need to be reinstalled. Leaving them out makes it easier to remove the combustor for cleaning.)



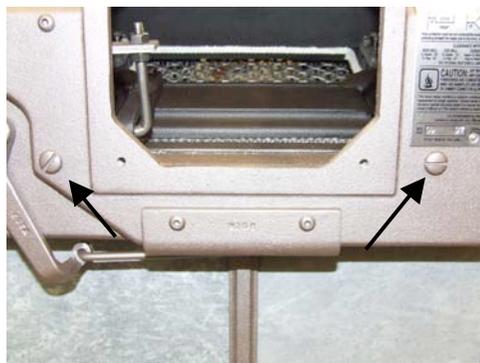
4. With the combustor assembly removed, locate the two bolts that hold the top to the two inverted L-shaped mounting brackets. These brackets are found inside the combustor area of the stove. They are about 2" further apart than the bolts of the combustor assembly and are going up through the inverted L-shaped brackets and into the bottom side of the top assembly. They are difficult to see and are easier to locate by feel. Run your hands from the combustor assembly location toward each side of the stove with your fingers running across the bottom side of the top assembly. You will feel the two L-shaped brackets and the bolt heads. The two brackets are located close to the walls of the compartment. Remove the two bolts with a 1/2" wrench.



5. Lift the top off the stove. This piece is heavy. Lift it straight up and then place it aside.



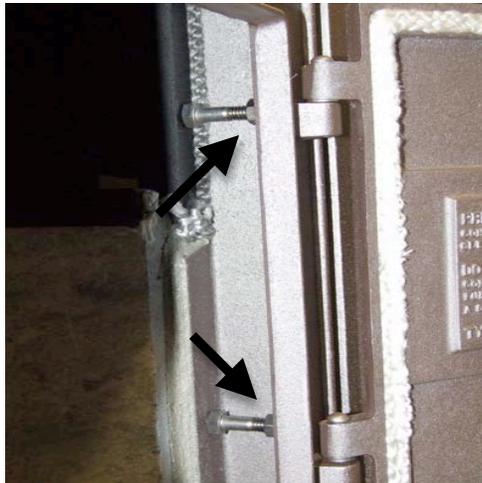
6. Using a large flat blade screwdriver, remove the two screws that go through the back of the stove through the rear wall, into the back of the combustor pan. They are located just below the rear flue and are the only flat head screws on the rear wall.



7. Go in through the loading door and into the firebox. Locate the rear stone retainer at the back of the firebox. This retainer holds the top edge of the interior rear stone. Using a 1/2" wrench or socket remove the two bolts that attach the rear stone retainer to the combustor pan inside the firebox.



8. While inside the firebox locate the 2 bolts on the backside of the doorframe. Loosen the locking nuts clockwise, then turn the mounting bolts counterclockwise, using a 1/2" wrench, to release them from the combustor pan.



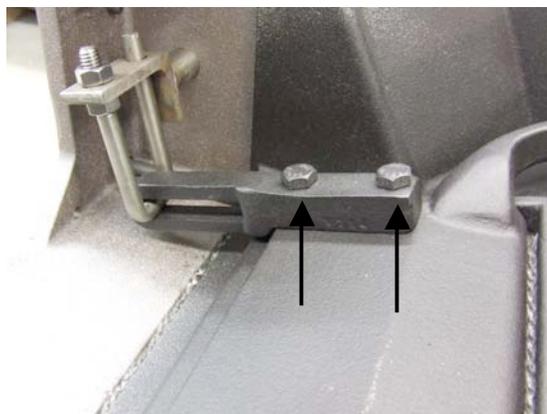
9. At the front top of the firebox you will see a flat cast iron plate called a scoop. At the end of the scoop toward the loading door you will find a single bolt that goes through the bottom of the scoop and up into the scoop support bracket. Remove this bolt using a 1/2" socket or wrench. Remove the scoop, with the expanded metal diffuser attached to the front edge, by pulling the scoop toward the loading door about a half an inch, which disengages it from the far scoop support, and then pulling toward the front glass, which disengages it from the lip along the back edge of the scoop. **Be very careful. The diffuser is extremely sharp.**



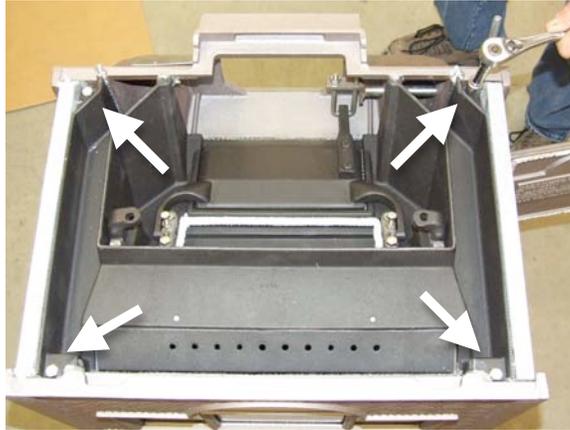
10. Go underneath the rear side of the stove and loosen, but do not remove, the two bolts that hold the bottom edge of the rear wall to the base using a 9/16" socket or wrench. These bolts are closest to the center of the stove. The outermost bolts are leg bolts; do not remove them.



11. From the top of the stove locate the lift guide that connects to the bypass cover. It is the cast iron loop that is fastened to the bypass cover with two bolts. The bypass cover is the "bull horn shaped" door that opens to allow gas to bypass the catalytic combustor. Remove the two bolts with a 1/2" wrench or socket and then push the lift guide back out of the way toward the rear of the stove.



12. At the top of the stove, remove the four hex head bolts that hold the combustor pan in place. These are located at each of the outside corners of the combustor pan.



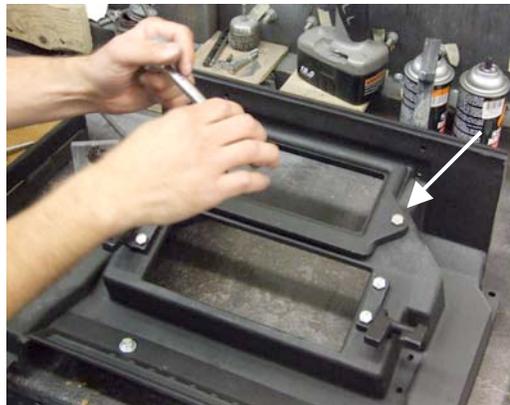
13. Now place your hands through the hole where the combustor assembly sits and pull the pan straight up and out of the stove. This part is fairly heavy and there will be resistance from the furnace cement as it slowly pulls free.
14. We use a bar clamp as a safeguard to keep the stove together, especially from front to back, while the combustor pan is removed. If you have the means to clamp it then it is highly recommended. If not, you may want to tie a rope around the girth of the stove.
15. Transfer the two L-shaped brackets from the original pan to the new one. Notice that they are different and need to be installed on the correct side so that the top surface runs parallel to the top surface of the combustor pan wall. If they are installed on the wrong side the angle of the top of the bracket will protrude up past the height of the wall.



15. Transfer the air chute from the original pan to the new one, but do not tighten the bolts completely as the chute will have to be adjusted after the pan is installed. The air chute is the long cast iron plate that protrudes from the front edge of the combustor pan and is fastened with two bolts and two flat washers that come up through the bottom side of the chute and into the bottom side of the front edge of the combustor pan.

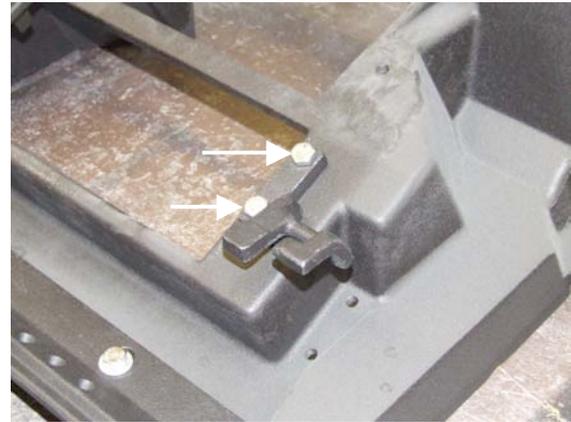
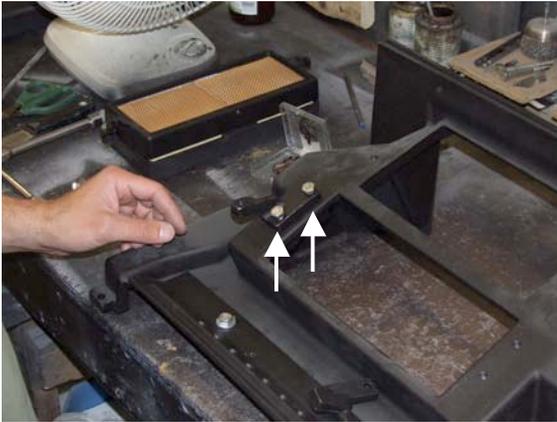


16. Remove the two bypass cover retainers from the original pan. These are the gray cast iron parts at each side of the bypass cover pivot points. First remove the center “adjustment” screws from each retainer (7/16” wrench) and then remove the two bolts on each retainer (1/2” wrench).
17. Lift the bypass cover out of the assembly and set it aside.
18. Turn the combustor pan upside down and remove the two bolts(1/2” socket) that fasten the bypass frame to the underside of the combustor pan and use a putty knife or large blade screw driver to scrape the old gasket off from the bypass frame. Install the bypass frame in the new combustor pan. As the frame is tightened push it as far toward the rear of the pan as possible (away from the center). Fasten it completely.



19. Remove the two scoop supports (1/2” socket or wrench) from the original pan noting the position of each. Install the supports on the new pan, pushing each of them outward as they are installed, so that there is as much distance between them as possible for proper fit of the combustor scoop. Place the scoop on the supports to test

for a good fit. Make adjustments as needed and then remove the scoop and set it aside for now.



20. Turn the combustor pan right side up and apply gasket glue inside the bypass cover channel and insert 1/2" gasket in the channel. The split in the gasket should be in the middle of the long length of the channel toward the center of the pan.



21. Place the bypass cover into position and install the bypass retainers with the four 1/2" hex head screws. Notice that the bypass retainers are not identical. The two center holes should be offset toward the outside of the pan and the smaller of the two holes should be toward the bypass cover as seen below.



22. Once the retainers are fastened securely start the "adjustment" screws in the center of each retainer, but only by a thread or two. Now lift the bypass cover from the bottom side upward so that the two pivot points or "bull horns" are pressed up against the bottom side of the retainers. With the cover held in this position, tighten the

adjustment screws by hand just until they make contact with the bypass cover pivots. Take note of the position of the screw head (by looking at the numbers on it's head) and then rotate each screw one full revolution. Hold the screw in position while you tighten the locknuts with a 7/16" wrench.



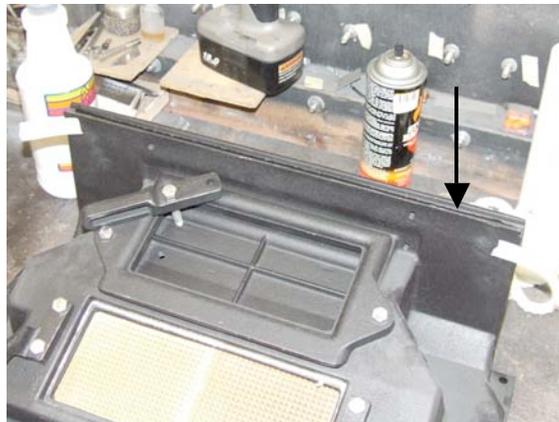
23. Apply gasket glue along the channel around the combustor assembly port and insert 1/4" gasket along the channel, with the split in the gasket at any of the four corners.



24. Inside the firebox, remove as much furnace cement as possible from the horizontal seam where the interior rear stone meets the base, and the vertical seam where the interior rear stone meets the interior left side stone, using a putty knife and vacuum.
25. Apply furnace cement along both seams and then smooth them using your fingertip. This will press the cement into the seam and make the excess cement less likely to chip after being cured.
26. Apply gasket glue in the U shaped channel at the back side of the combustor pan, insert 1/2" gasket in the channel. Tape it in place using masking tape as seen in the following photo.



27. Apply a small bead of gasket glue across the bottom edge of the elongated rear wall of the new combustor pan, which will rest on the exterior rear stone when the combustor pan is installed.



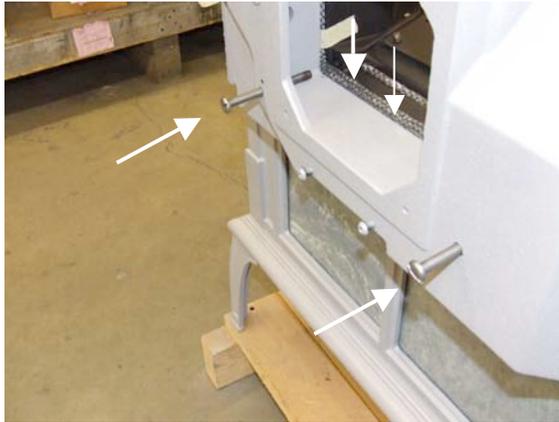
28. Apply 1/2" gasket along this entire edge. Use two pieces of masking tape to hold the gasket in place. The masking tape will burn off during normal stove use.



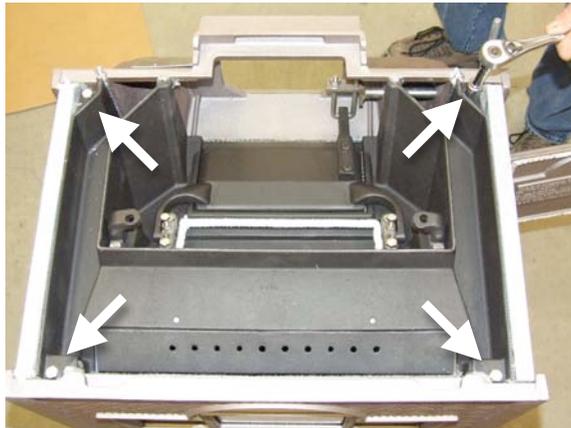
29. Let the gasket sit for about three minutes to allow the glue to become tacky enough to hold gasket in place when the combustor pan gets turned right side up.
30. Use a putty knife or another flat surface to scrape the old furnace cement off the top edge of the interior side stone panel that the combustor pan rests on.
31. Apply a bead of cement to the top of the interior side stone toward the inside edge. This bead should go along the entire length of the panel where the combustor pan will rest.



32. Loosen the clamp, or rope, for this step, and then retighten afterward. Holding the combustor pan in the center, lower the pan into place. Watch the sides of the pan so that the stone panels do not get hit and chipped.
33. Once the pan is completely in place, tuck the gasket down in between the combustor pan and the rear wall, which is just inside the rear flue, using your fingertips or a flat blade screwdriver.
34. Insert the two flat head bolts through the rear wall and into the combustor pan. Use these bolts to help get the proper hole alignment for the four bolts in the next step.



35. Start one of the bolts in the top of the combustor pan and tighten finger tight. Then do the same for the bolt diagonal to it. Now start the others also in a criss-cross sequence. Tighten all four bolts evenly with a 1/2" socket in this manner until securely fastened. These bolts do not need to be extremely tight.



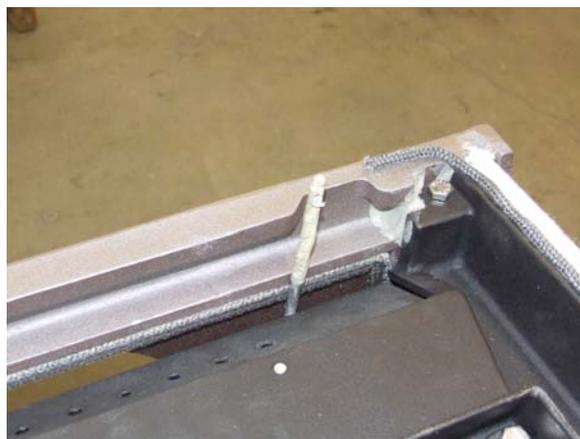
36. From underneath the rear of the stove tighten the two bolts that hold the rear wall to the base using a 9/16" socket.



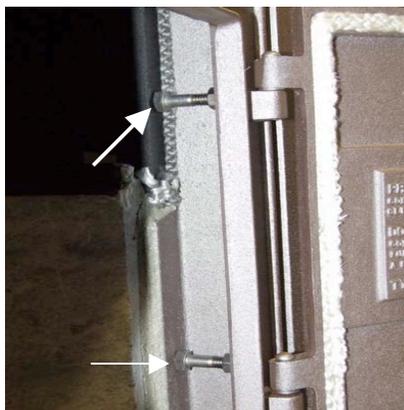
37. Reinstall the rear stone retainer. Place the bolts through the retainer and into the extended rear wall of the combustor pan. Tighten the bolts incrementally and evenly.



38. Use the shank of a 1/4" drill bit as a measuring device to reset the space between the front edge of the air guide and the glass panel. The spacing should be adjusted so that the drill bit may move between the two with just a slight bit of friction. Tighten the two air chute bolts securely with the proper 1/4" spacing.



39. Tighten the (2) bolts on the inside of the doorframe so that they are snug against the side of the extended wall of the combustor pan and then lock in position by tightening the nuts.



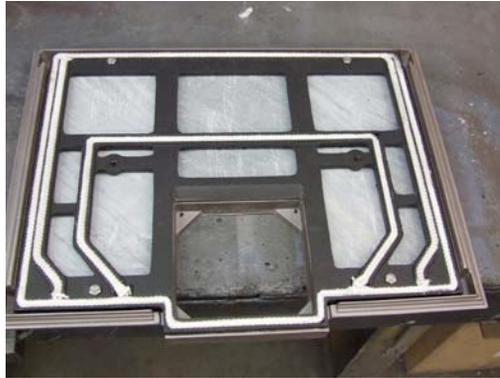
40. Install the combustor scoop/expanded metal from inside the firebox. Slide the scoop back into the lip of the bypass frame and then slide it toward the left scoop support. Once in place, fasten it to the right scoop support using a 5/16-18 x 3/4" bolt. Notice how the scoop sits between the two fingers of the left scoop support as seen in the photo.

41. At the top of the stove, place 3/16" gasket between the two outside edges of the combustor pan and the stone shell. You may substitute 5/16" gasket in place of the 3/16" if the space is large enough to do so.

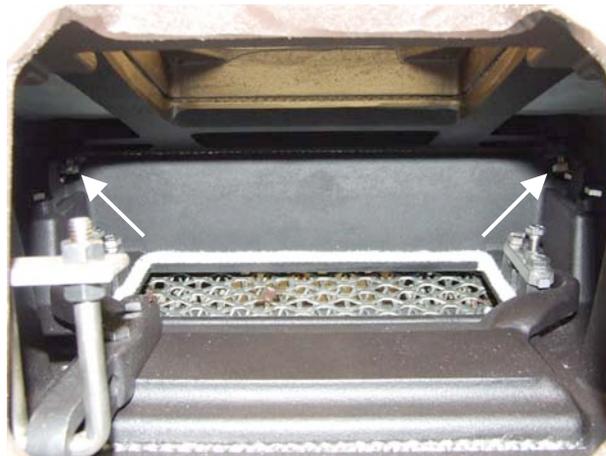


42. Remove all of the old glue and gasket material from the underside of the top assembly using a flat blade screwdriver or small Dremel like tool.

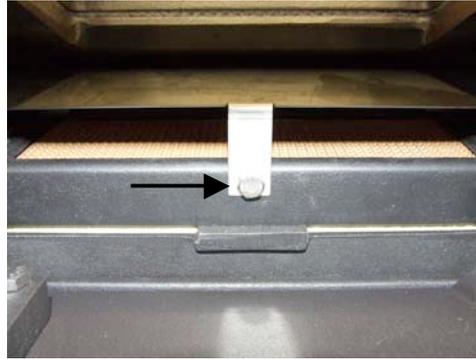
43. If the 5/16" gasket along the top edge of the exterior side stone needs to be replaced, remove the old gasket and glue using a putty knife. Now run a bead of glue along the length of the stone and press 5/16" gasket on the glue from front wall to the rear wall.
44. Remove all of the old gasket and glue from the underside of the top assembly. Apply gasket glue to all the channels and insert 3/8" gasket into all of the channels, making sure the gasket is stretched out a little as you insert it and that it is inside the channel and not popping out.



45. Position the top on the stove. To find the proper position start by pushing the backside of the top so that it touches the back edge of the rear wall. Lower the top onto the stove. Pull the top toward the front of the stove slightly.
46. Use the (2) 7/8" bolts to secure the top to the two L-shaped mounting brackets from inside the flue, combustor area. It may be necessary to adjust the position of the top slightly to achieve the proper alignment. I find that placing the top on the stove and then pushing it forward as far as it will go helps get the proper alignment in most cases.



47. Clean the combustor with a vacuum if you have not already done so. Install the combustor assembly. It should sit nicely into the seated gasket. Do not fasten it with the transport bolts. Leave the bolts out of the stove.
48. Install the stainless steel combustor shield. Rest the front footers on the top of the combustor assembly and then attach the tab to the combustor frame with the 3/8" long screw and star washer using a 7/16" nut driver.



49. Reattach the cover plate.
50. Attach the vent pipe.
51. Allow the cement to cure for at least 48 hours before operating the stove.
52. Enjoy your stove!

We need your help! Woodstock Soapstone Co. takes pride in providing the highest quality products as well as the best customer service in our industry. We welcome your suggestions and input to help us achieve these goals. If you have any comments to improve our products, service, and information provided in these instructions please contact us at (800) 866-4344 or info@woodstove.com. Thank you.

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