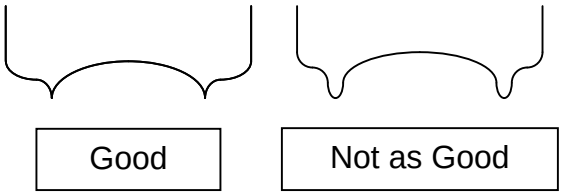
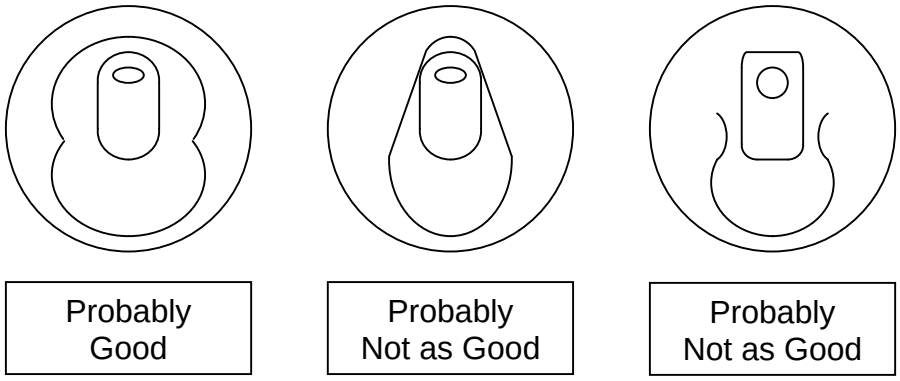
SODA CAN STOVE INSTRUCTIONS

STEP 1 - FIND THE CANS

The lowest ridge on the bottom of the can should have a sharp crease, not a rounded edge.



Usually the top of the can will tell you what the bottom of the can will look like.



You won't use the top of the can, but these can-top sketches might help you find a can with a good bottom shape. Get two cans with good bottom shapes and one more can with any bottom shape. That's a total of three cans.

The cans will be easier to work with if they don't have any dents or creases.

STEP 2 - MAKE THE FLAME HOLES

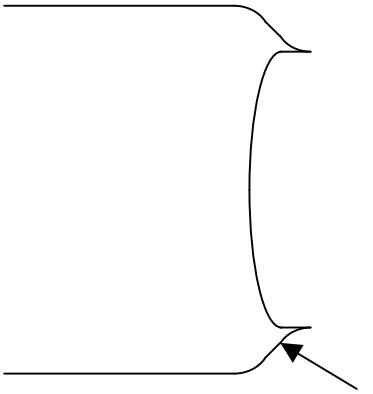
What? - Make 16 evenly spaced push pin holes around the base of one of the “good” cans.

Where? - On the flat (sort of) section, about one third of the way out from where the flat (sort of) section starts. See the sketch below. It will be easier if you make sixteen evenly-spaced dots with a marker, then poke the holes through the marks. Sixteen evenly spaced marks are easy to make.

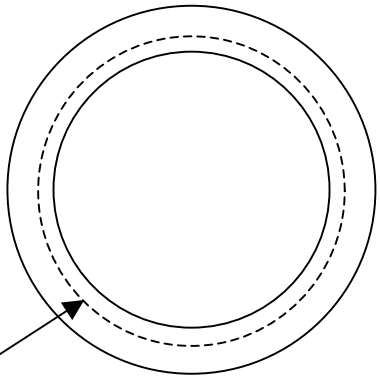
1. Start with four marks at the four compass points (N, S, E, W).
2. Make four more midway between those four (NE, SE, NW, SW).
3. Make eight more midway between the eight you already have (NNE, ENE, ESE, SSE, NNW, WNW, WSW, SSW)

How? – Use a plastic-head push pin.

Side Cross Section View



Bottom View



Burner Hole Circle

STEP 3 – CUT OUT THE DOME HOLE

CAUTION !!! This is one place where you will probably cut yourself. Do not do this step unless your adult is with you.

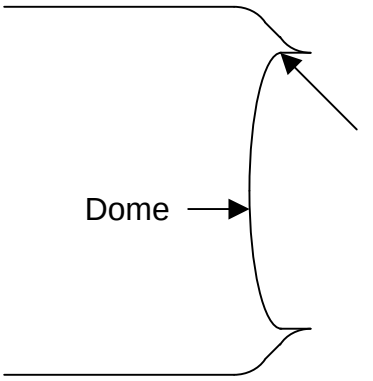
What? – Cut out the dome from the can.

Where? - At the corner where the dome meets the straight edge of the ridge. See the sketch below.

How? – Score the corner a bunch of times until you break through somewhere:

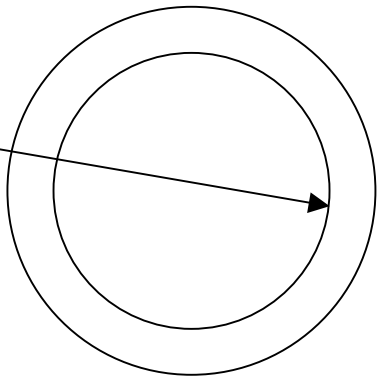
1. Take a sharp, pointed blade (x-acto, single-edge razor blade, small pointed pocket knife) and carefully scratch a line around the corner.
2. With the same blade, carefully scratch THE SAME LINE a little deeper.
3. Keep scratching, making the line a little deeper each time. It will take at least ten times.
4. When you break through at one place, go around one more time, then stop scratching.
5. Lay a towel or rag or something across the bottom of the can. This will reduce your chance of getting cut on the next step.
6. Push down on the place where you broke through. The dome will tear away the same way that the drinking hole opened on the other end. Throw away the dome.

Side Cross Section View



Scoring Circle

Bottom View



Things you should know:

- This will require patience. It cannot be rushed. It will take at least 30 minutes. If you don't have time to do it right, stop and finish it later when you can pay proper attention to it.
- It will not work if you make a new line each time you go around. You are trying to make the same line deeper each time.
- It will be safer for you if you scratch twenty times around the can with meduim pressure than if you push down hard and only go around five times.
- After the dome peels off, the peeled edges will be RAZOR SHARP. Make it duller by rubbing it with the back edge of your blade. Sand paper is even better.

STEP 4 – CUT THE STOVE BODY

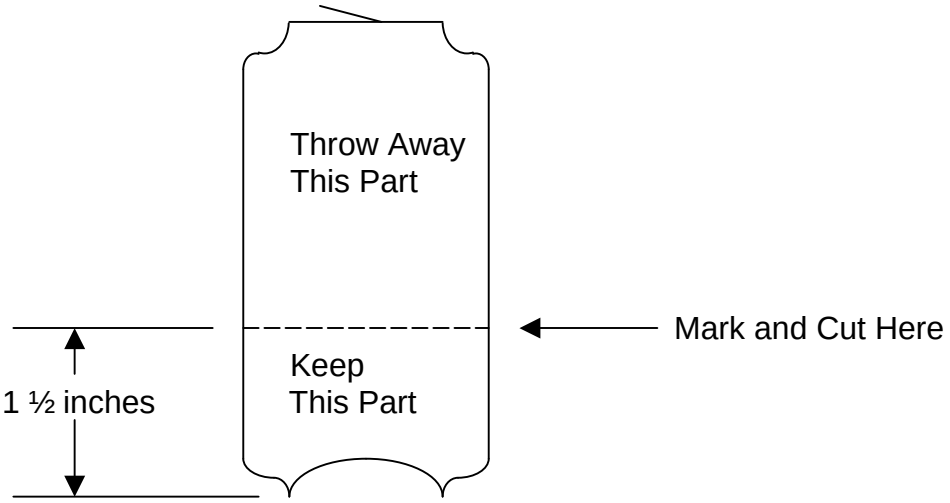
CAUTION !!! This is one more place where you will probably cut yourself.

What? – Cut two cans to the right height.

Where? – One and a half inches from the bottom end.

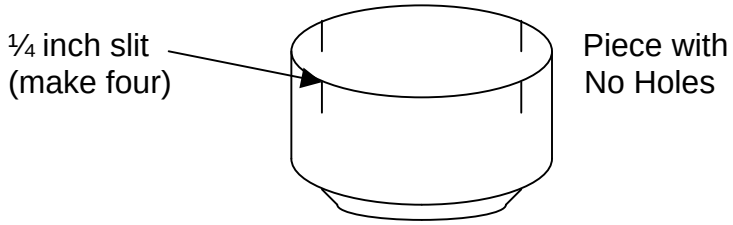
How? – Make a line and cut:

1. Stand two of your cans up normally. One will be the perforated can with the holes facing down. The other will be your second can with a "good" bottom ridge and no holes.
2. On each, make a mark 1 ½ inches up from the bottom end. Draw the line all the way around each can. If you're a little off, it's OK. If your line is, that's OK too. This isn't the important dimension.
3. Use scissors to cut your cans on the lines. It will be easier to first cut off the top of each can, then cut on the lines. You should end up with a 1 ½ inch tall cup, and a 1 ½ inch tall tube



4. Throw away your leftovers. It is especially important to throw away any tiny metal slivers you made.

5. After the unperforated can is cut, snip four ¼ -inch slits in the sharp edge, at north, east, south, and west.



STEP 5 – ASSEMBLE THE STOVE BODY

CAUTION !!! This is one more place where you will probably cut yourself.

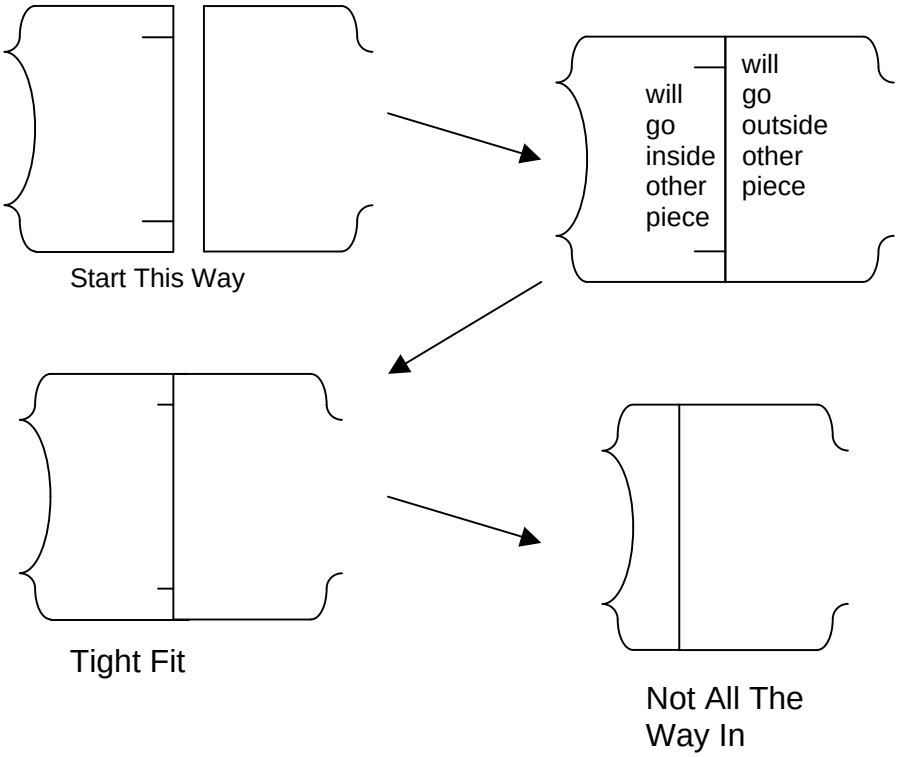
What? – Slide the two body pieces together.

How? – This will make you wish you had three hands:

1. Push three of the snipped slots into the large opening in the perforated can.
2. Carefully work the rest of the snipped can into the perforated can. This is a very easy step to write about. That's the only easy thing about it. Good luck. It is normal for the inside can to get wrinkled a little once it's inside.
3. After the two halves are partly together, DO NOT push them all the way together.

Things you should know:

- This will require patience. It cannot be rushed. It will take many tries to make this happen. If you don't have the patience to take it slowly, stop and finish it later when you can pay proper attention to it.



This is a mostly blank half-page. Write a poem or draw a picture here.

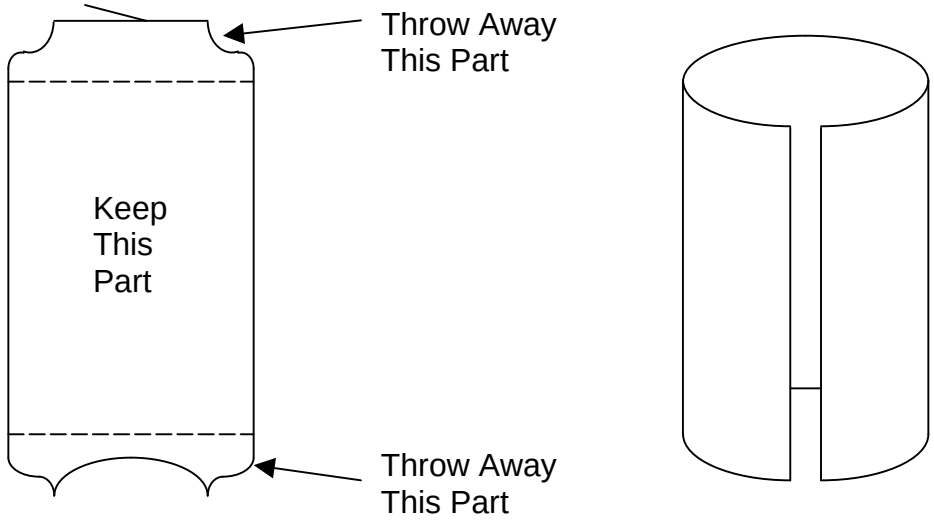
STEP 6 – MAKE THE INSIDE WALL

CAUTION !!! This is one more place where you will probably cut yourself.

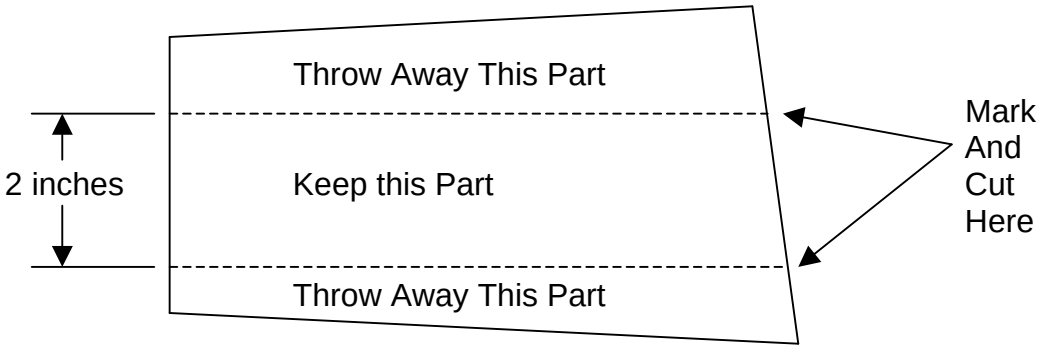
What? – Cut a 2-inch wide strip of metal.

How? – Make two parallel lines 2 inches apart and cut:

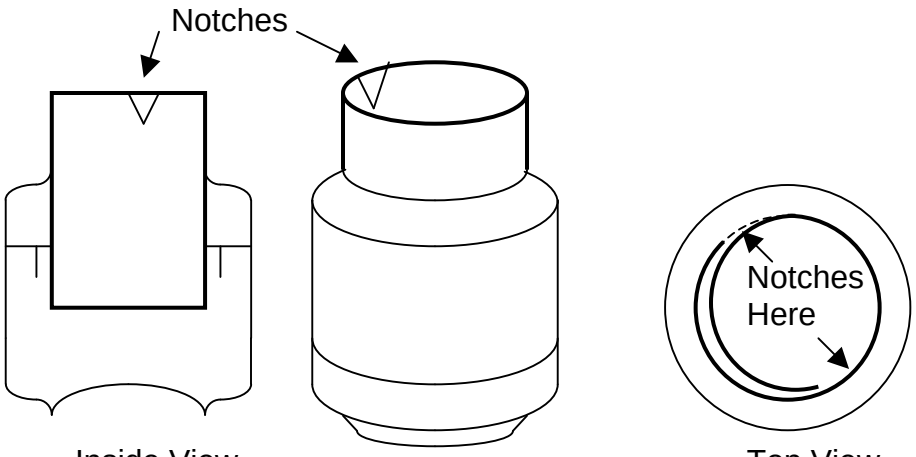
1. Take your third untouched can and cut off the top and bottom.



2. Trim your metal sheet to remove all the jagged edges.
3. Lay the sheet flat on a table, silver side down.
4. Make a straight line on the metal so that it is in line with the curve (If you allow the metal to curl up on its own, the ends of the line should almost meet).
5. Make another line parallel to the first line, and 2 inches away. BE AS ACCURATE AS YOU CAN BE.
6. Cut your metal strip on the lines. Use the whole length of the metal. THESE CUTS MUST BE AS ACCURATE AS YOU CAN MAKE THEM. IF THE CUTS AREN'T STRAIGHT AND PARALLEL, YOUR STOVE WON'T WORK.



7. After your strip is cut, roll it up and fit it into the big dome hole in your stove body. Keep the strip cylindrical. Don't let it turn into a cone.
8. Snip two small triangles out of one end of your cylinder. They should be about ¼ inch wide and ¼ inch deep. They should be opposite each other, where the metal is only one layer thick.
9. Throw away the triangles.



10. Take out the inside wall.
11. Roll up your inside wall tightly so that it makes itself into a cylinder slightly smaller than the dome hole. If your inside wall rattles around a little when sitting inside your stove, it is just right. Don't kink or crease the wall while you are rolling it.

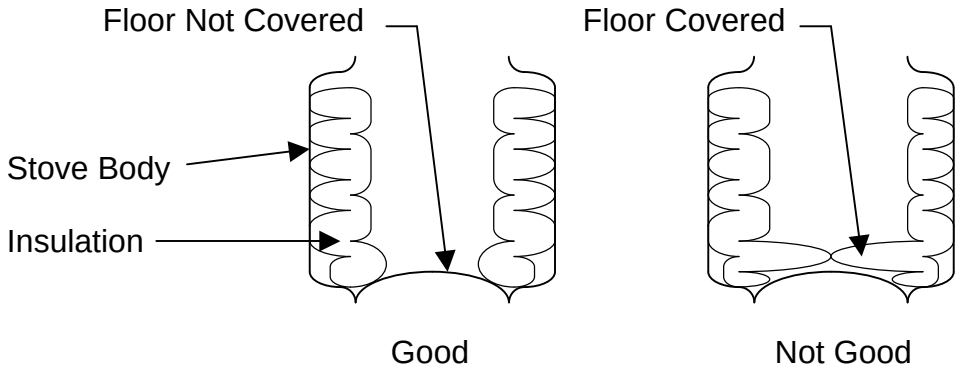
STEP 7 – ADD THE WICK

CAUTION !!! Fiberglass insulation can irritate your skin. After you are done touching the insulation, wash your hands.

What? – Stuff fiberglass insulation into the can.

How? – Stretch it and stuff it.

1. Take “some” insulation and stretch it into a flat, thin layer, about 2 inches wide, 8 inches long, and about 3/8 inch thick.
2. Line the inside wall (not the floor) of your stove body with it. If it overlaps itself, that’s OK. If it doesn’t stretch all the way around, pull it longer. This isn’t critical. It just has to be there.



HEY! THIS IS STEP NINE!
SKIP OVER THIS AND DO STEP EIGHT FIRST!

STEP 9 – ADD THE TAPE

What? – Tape the stove halves together.

How? – Use high-temperature tape:

1. Cut a piece of metal foil tape about one inch wide and 9 - 10 inches long.
2. Wrap it around the seam between the top and bottom halves of your stove. Smooth the lower edge around the bottom edge of the stove.

STEP 8 – ADD THE INSIDE WALL

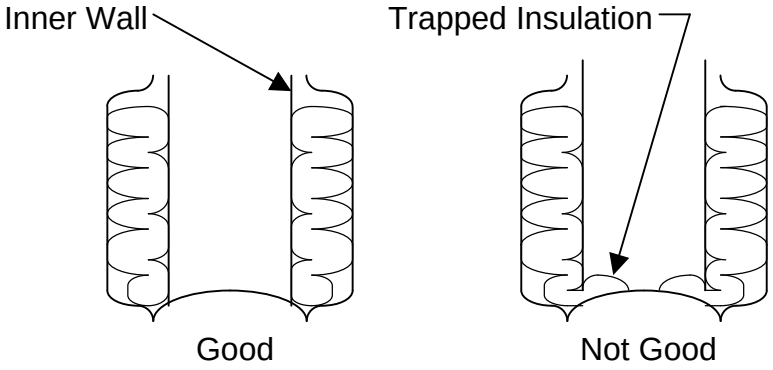
CAUTION !!! Fiberglass insulation can irritate your skin. After you are done touching the insulation, wash your hands.

CAUTION !!! This is one more place where you will probably cut yourself.

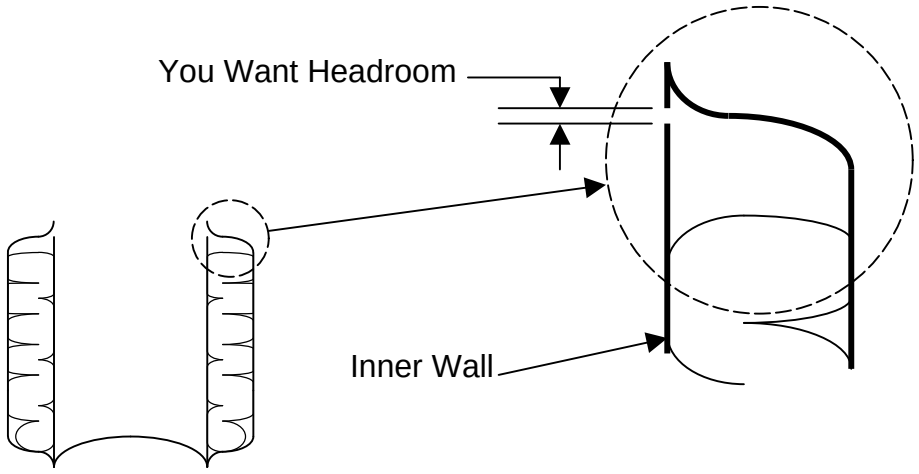
What? – Slide the inside wall between the body halves.

How? – With patience, nimble fingers, and luck.

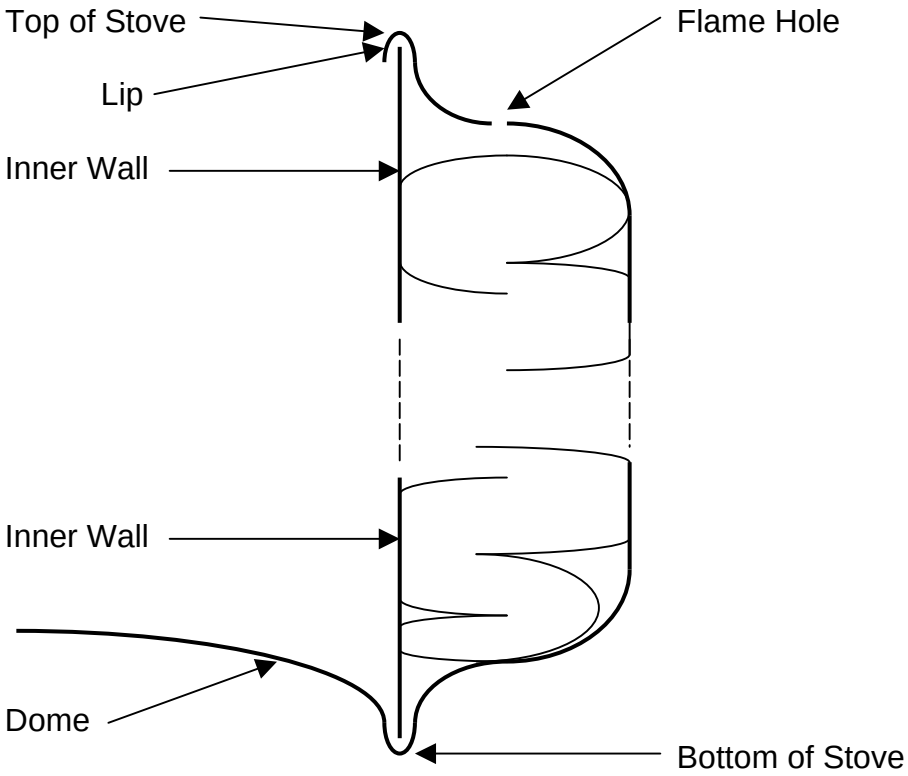
1. Insert your inner wall, triangle notches first, into the big hole until it bottoms out on the dome. Do not trap any insulation between the dome and the bottom edge of the inner wall. The only insulation you should see will be poking out of the triangle notches.



2. Keep pushing down on your inner wall while you gradually spread your inner wall wider until the bottom edge (with the triangle cutouts) seats in the valley at the edge of the dome. At this point, the top edge of your inner wall (without the triangle cutouts) should be under the metal lip at the perimeter of the large hole. If your inner wall is too tall to fit under the lip, pull apart the two halves of your stove body a little. This will give your inner wall more headroom.



3. If you still don't have any insulation trapped under the bottom edge of your inner wall, sneak the top edge of your inner wall under the lip of the large hole. At the same time, gradually push together the two halves of your stove body to keep the inner wall in place. You will probably have to use all of your fingers to keep your inner wall spread out wide enough while you shorten your stove body to trap it behind the lip.



4. After your inner wall is trapped correctly behind the lip, and if there is no insulation trapped under the bottom edge of your inner wall, push the two halves of your stove body together until your inner wall bottoms out in the valley of each stove body half. If you did everything right, your stove will be about 2 1/8 inches tall.
5. Go wash the fiberglass insulation off your hands.

NOW GO BACK AND DO STEP NINE.