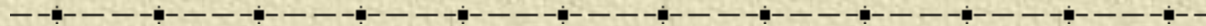


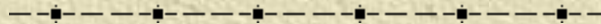


# Building an Alcohol Stove

(Thanks Luke for taking the pictures)



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Mequon/Thiensville Scout Troop 852



# Tips and Cautions

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- Be sure to wear safety glasses while cutting or drilling.
- Can edges are really sharp, be careful not to cut yourself.
- Be very careful with the fuel. Do not spill it when fueling or you will light your work surface AND the stove. Ask me how I know...
- Be sure you have adequate ventilation when burning any stove.
- Do NOT fuel or handle a hot stove and this stove gets HOT.
- Put a couple of drops of food coloring in your fuel so that you can see it if you do spill.
- HEET® REMOVES WOOD FINISHES IF YOU GET IT ON

# Tools and materials

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## •Materials you will need.

- 2 aluminum soda cans
- 4 feet of fiberglass wick (Optional)
- 10-24 x 1/8 rivet nut (Optional)
- 2 part epoxy (Optional)
- 10-24 x 1/2 thumb screw (Optional)
- 36 gauge embossing foil
- Masking tape (Optional)

## •Tools you will need

- Heavy duty shears
- Rivet nut tool (Optional)
- 19/64 drill bit (Optional)
- Drill (Optional)
- Permanent marker
- Push pin
- Safety glasses
- Vinyl or latex gloves (Optional)

# Marking your cut

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- Use a marker to indicate your cut line for the stove halves.



# Cutting the can

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- Use a heavy duty shears to cut the two stove halves to 1.25 inches.
- Make sure your cuts are clean with no nicks!!



# Bending the bottom can to fit

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- Bend the wall of the bottom can so that it fits into the top can.
- Be careful not to tear the can.



# Drilling the hole for the filling port

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- Drill the top half of the stove for the filling fitting with a  $19/64$  inch bit.



# Assembling the stove halves

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- Press fit the top and bottom together. Be sure to seat them evenly.



# Assembling the stove halves

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- Be careful not to tear either half of the stove when you press fit them together.



# Punching the flame jets

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- Use a push pin to put 16 - 20 equally spaced burner jets around the top of the stove.



# Installing the filling fitting

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- Thread the 10-24 x 1/8 inch insert onto the rivet nut tool.



# Installing the filling fitting

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- Install the threaded insert into the hole in the top of the stove.



# Installing the filling fitting

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- Here is the finished fill fitting.



# Alternative to using a rivet nut

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- If you do not have a rivet nut tool, you can punch 2-4 holes with your push pin to fill your stove.



# Installing the priming wick

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- Put masking tape over the stove jets.



# Installing the priming wick

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- Spread epoxy over the rest of the stove side walls.



# Installing the priming wick

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- While the epoxy is wet, wind 4 or 5 turns of the fiberglass wick around the body of the stove.



# Installing the priming wick

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- Fiberglass cord completely wrapped around the stove.



# Completed stove

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- Here is the completed stove with the 10-24 x 1/2 inch thumb screw installed.



# Filling your stove

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- Pour approximately 1 ounce of Heet® into the fill port of the stove.
- This will burn for 10-12 minutes.



# Priming using the fiberglass wick

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- Wet the fiberglass wick completely with Heet®.



# Priming using a priming pan

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- If you do not wrap a wick around your stove you must use a priming pan.



# Lighting your stove

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- Install the thumb screw and light the priming pan or wick.



# Lighting your stove

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- The purpose of priming the stove is to build up pressure and heat the fuel inside the stove so the jets will “bloom”.



# Side jets

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- Putting the jets on the side will result in a larger flame pattern if you are working with a larger pot.



# Top jets

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- Putting jets on the shoulder of the stove will result in a smaller flame pattern if you are using a cup or smaller pot.



# Putting the pot on

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- Time to put your pot on to boil.
- The pot rests directly on top of the stove.



# Boiling a pot of water

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- Pot cooking with the wind screen in place.
- The wind screen is made from 36 gauge embossing foil.



# Boiling a pot of water

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- 2 cups of water are boiling after about 7 - 8 minutes at room temperature.



# Boiling a cup of water

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- Notice how small the flame pattern is for the cup. Too big a flame wastes fuel.



# Boiling a cup of water

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- 1 cup of water boiling after about 7-8 minutes at room temperature.
- The cup is sitting directly on top of the stove



# Comparison of pot vs. cup

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- Notice how much bigger the flame pattern is for the pot vs. the cup.
- This due to the location of the jets



# Cook kit

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- You can build a really inexpensive cook kit around this stove.



# Cook kit contents

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- Heet®
- Grease Pot
- P38 can opener
- Pot Handle
- Fuel bottle
- Bic lighter
- Bandana
- Windscreen
- Stove
- Cost is about \$12



# Conclusion

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- I use gas line antifreeze HEET® in the yellow bottle instead of denatured alcohol since it burns hotter and doesn't soot up the pans.
- You can make these stoves with just a shears and a marker. Just don't install the rivet nut or fiberglass wrap. Just punch 3 small holes in the top of the stove to fuel it and use a priming pan instead of the fiberglass wrap to prime it.
- Experiment to see what gives you the best results. Vary the height, the number and location of burner jets, fuel type etc. I have found that a stove about 1.5 inches in height gives me the best burning characteristics.
- There are many different versions of alcohol stoves and this is only one version.



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Enjoy your stove and be careful!!

