

# Winter Survival Heater

You can construct a simple homemade heater that can be used in your vehicle, which could save your life, and is very easy to make. Items needed are as follows:

- An empty one pound coffee can or a 30 oz. fruit can
- A regular roll of white plain toilet paper not scented, (because of fumes)
- Four 8-ounce bottles of 70 percent isopropyl alcohol - again, plain unscented and do not use a higher percent alcohol
- Also an empty large popcorn can, I believe it is a 3 gallon size like the ones that you buy at Christmas
- Two aluminum square cake pans or pie pans ( without holes in the bottom)
- Matches or a lighter

Start your project by removing the cardboard core from the toilet paper, (not the cheap loose rolled type) and push the roll into the coffee or fruit can so the roll is below the rim. The coffee can will have some space above the roll; if you use a fruit can, the roll will be just a little below flush. Either can, the roll should fit firmly without space around the roll. A larger can will allow the paper to burn around the sides, which you don't want; also I found that a plastic lid from a peanut can will fit loosely on the fruit can. This lid is used for storage purposes.

To use the heater, pour about 2 or 3 ounces of alcohol onto the paper, the saturated paper will act as a wick which can be ignited with a match or lighter, I suggest keeping both on hand, each stored in separate sealed containers or sandwich bags to prevent fumes from soaking into the matches and lighter which render them useless (this was learned from giving demonstrations).

Operation: Use the heater to warm the vehicle up, then put the cake or pie pan over the can to extinguish the flame, as you don't need to run the heater after the vehicle is warm. You can also use the cake or pie pan to melt snow for drinking. **Do Not** eat snow, as it will bring down your body temperature. Four pints of isopropyl alcohol will keep a car at 60 to 70 degrees for 24 hours, so you can carry more if want.

Safety: Isopropyl alcohol does not produce carbon monoxide, but a window should be cracked open for fresh air while burning. The burner can will become hot at the top, and maybe warm at the bottom so perhaps you might want to put one pan under the burner. This extra pan could be used to water pets.

Warning: These heaters are safe, but make sure flame has been snuffed out before adding more alcohol.

The empty popcorn can be used to store items for a winter survival kit such as the burner, alcohol, pie tins, lighters and matches. Other items to include in your vehicle winter survival kit include: flashlight and extra batteries, winter type clothing (hats, gloves, extra pair of long johns, scarf), first aid kit including any medications needed, extra diapers for little ones, bottled water (allow room for expansion, as it will likely freeze), high energy types of food (candy, nuts, granola bars), small bag of sand or kitty litter for traction, bendable shovel, basic tool kit (leatherman, swiss army knife), paper towels or toilet paper, spare tire, signaling devices (flares), blankets and/or sleeping bags, windshield scraper, booster cables, tow rope or chain, compass and road maps, cell phones or ham radios, and finally a hand held NOAA Weather Radio.

Carry the popcorn can in the back seat rather than the trunk. If you slide in the ditch and end up with the trunk buried in a snowbank, have a frozen trunk lock, or have damage to the trunk; the trunk might not be able to be opened.

Dress appropriately when traveling across the high plains in the winter. How many times have you seen women driving alone in freezing temperatures dressed in heels, nylons and blouse and hear them say " my car has a good heater, and I have a cell phone"...teenagers with sneakers, blue jeans, and T-shirts... men with dress shoes, slacks, shirt and tie - when the fan belt breaks, or the gas line freezes, and it's usually many miles from anywhere? Last winter I stopped and helped a gelled-up trucker from El Paso, Texas (his first winter in Montana using number two diesel) that was using socks on his hands. After 30 minutes in the pickup he could finally feel his fingers, (his boss in Texas, didn't want to pay the tow fee to get the tractor pulled to the truck repair service garage and expected the mechanics to work on the truck out on the interstate, he finally relented and paid the \$45 towing fee when the mechanics refused to work on the truck out on in the cold). So be firm everyone, and demand that your family members dress for the unexpected, you might save their life.



Basic Heater concept by:  
Steve Jenkins  
Winter Survival Expert/Montana State  
University

Jeff McLaughlin  
Montana Highway Patrol

Submitted, Edited and Expanded by:  
Maurice Luke  
NWS Storm Spotter/Glendive, MT

Edited and distributed by:  
Tanja Fransen  
Warning Coordination Meteorologist/National Weather Service Glasgow, Montana