

# How Much Butane Do I have?

## Version 1.1

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This little butane powered burner is handy. But it has one annoying short-coming – it runs out of fuel at the worst possible time with no warning.



Fortunately, it is easy to unlock the canister, open the door, and remove it. But then what?

The last time I ran out of fuel, it inspired me to find a solution. I had a full canister and an empty one. The weight difference was small but detectable.

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I was able to put each canister on a digital scale and see that a full can weighed 330 grams while an empty container came in at 110 grams. I could then calculate the percent of butane remainings with

$$\text{percent of fuel remaining} = \frac{\text{weight} - 110}{330 - 110} \times 100\%$$

But was I going to drag out this scale each time I wanted to estimate the remaining fuel and then run through this calculation? Nope. I just wanted a quick estimate.



Instead, I threw together this proof-of-concept scale. The disk fits nicely into the recess in the bottom of the canister.



First, I put the full canister over the disk with the rod under the board. I rolled the board back and forth until it balanced. I then put a line on the board labeled with “F.”



I repeated the process using the empty canister. The line was labeled “E.”

Before I use the burner, I will place the unknown canister on this crude scale and can read off approximately how much fuel remains. If this turns out to be a useful tool, I will put in the effort to make it pretty.

Andrew Ayers offers this improvement:

If there were any improvement to your simple version, I think I would say making "ridges" between the two points, with a scale or something on the edge and/or across the top, and a triangular balance rod (so it doesn't roll - a piece of angle aluminum would work). The board could "notch" on the balance vee in the notches, and closest one would be the rough measure (heck, even just graduated into "fourths" or "eighths" would be good enough I think).

I welcome your comments and questions.

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