

Coleman Liquid Fuel Camp Stove Operation

First, some theory. Stove fuel will not burn unless it is a vapor and it has been mixed with the right amount of air. So you pump up the tank. When you open the valve, fuel is atomized and squirts out of the long tube into the gooseneck where it mixes with just the right amount of air. From there it goes to the burner where it burns. The generator (that long tube which connects the tank to the gooseneck) uses the heat from the burner to create pressure which it feeds back to the tank to keep the pressure constant as the tank empties of fuel. Note that the tube goes across the burner which is where it gets heat to create that pressure. If you play with the flame too soon after starting the stove, then the generator may never get a chance to develop that pressure and unatomized fuel will start collecting in the gooseneck. Once the gooseneck has fuel in it, it will not burn, the size of the chamber will be affected, and the proper air-fuel mixture cannot reach the burner.

If the stove is not identified as dual-fuel, NEVER use anything but stove fuel, sometimes called white gas. White gas used to be gas, but now it is some sort of naphtha concoction. If the stove is dual-fuel, you can use gasoline like the stuff that goes into cars, but it is not a preferred fuel. It is more dangerous, it contaminates whatever it spills on, and it leaves hands and clothing with a funny smell if it spills as it inevitably will.

So follow the instructions, pay attention to what you are doing, and don't play with the stove when starting it.

Lighting the Stove

- Fill the tank. I don't care how full you THINK it is or how short a time you have used the stove since the last fill. Fill the tank anyway. Don't really crank down on the filler cap—just tighten it until you can feel the neoprene sealing washer compress.
- Pressurize the tank by pumping. Pump with the tank off the stove. It is so much easier and puts less stress on the stove.
 - Make sure the valve is turned off (fully clockwise.) Don't crank down on the knob because it scores the valve seat and then it will never seal.
 - Turn the plunger counter-clockwise a couple of turns.
 - Put your thumb over the hole in the plunger knob and pump vigorously until you feel quite a bit of resistance.
 - Turn the plunger clockwise to close the pump valve. Even though you will pump a few strokes later on, don't neglect to close the valve. A leaking valve could cause a loss of pressure or a mini-fire outside the stove body. That isn't a huge problem, but why invite trouble?
- Put the tank on the stove. Make sure the latch that holds the stove closed is down so it doesn't interfere with the tank.

- Turn the wire around a few times, leaving it pointing up.
- Make sure the second burner is off. The control is at the left side of the stove. Turn it fully clockwise and don't crank down on it too hard.
- Crack the main control on the tank and apply a match or firestick to the right hand burner. Keep turning the knob on until you can maintain a flame. You don't actually need a flame from whatever you are using to light the stove. A spark will be enough.
- Now LEAVE IT ALONE. Don't play with it. Just leave it for a minute or two until the flame is steady and there is not much orange to it. Not playing with it cannot be overemphasized. It is the major reason that stoves fail to burn correctly.
- Turn the cleaning wire so it is pointing down.
- Pump the tank a few more times.
- Adjust the control knob for a nice blue flame. The generator is now functioning and pressure will be maintained in the tank. You should not have to pump again.
- You can now light the second burner. Often lighting the second burner helps to stabilize the flame from the first burner. The second burner will always be at least slightly lower than the right hand burner so if you want to boil something, put it on the right burner. If you want to simmer something, put it on the left burner.
- The flame should stabilize in a minute or two. Once the stove has been going for three or four minutes, you can adjust either burner at will without causing problems.

Problems, Probable Causes, and Possible Cures

Problem: The flame is orange and high and never settles down into a steady, low blue flame.

Cause: You probably played with the knob too much, pressure in the tank was too low to start, or there was condensation you didn't know about. The first two problems can cause gas to fill the gooseneck--the long tube on the tank (that's the generator) fits into--while the third can fill the gooseneck with water. The effect is the same although the first two are more dangerous since the stove might suddenly flare up if the gas starts to vaporize.

Cure: Turn off the stove. Allow the flame to completely die out. Remove the tank and set it aside. Now clear out the gooseneck by rotating the stove so any liquid will come out of the opening the tank tube goes into. Wait a minute or two for vapors to dissipate, reassemble the stove, and start over. Make sure the tank has enough pressure.

Problem: The pump doesn't work—it feels loose.

Cause: The washer isn't sealing correctly or you haven't put your thumb over the hole.

Cure: The thumb problem is easy. Cover the hole. If your thumb is correctly placed, then the washer isn't sealing and a little oil in the hole at the base of the plunger will probably fix it. Use 30W motor oil if you have it. In a pinch, a SMALL amount of white gas may get you by. Just a few drops, though. You don't want to have a mini-fire outside the stove. Oil the washer as soon as you get a chance, though. By the way—oil is great for the older stoves because the washers are leather, but does not work as well on the newer neoprene washers. Mark the stove as needing a replacement washer.

In an absolute emergency, the pump can be disassembled. On the older ones a wire bail holds the pump in place. Some of the newer ones have a different arrangement, but you will be able to figure it out. Don't take the spring out of the bail by yanking on it too hard with your Leatherman. Just pull one side out just enough to allow it to slip out of the hole in the assembly, then do the same to the other end of the bail.

Problem: You can't push the pump plunger in.

Cause: You haven't opened the pump valve.

Cure: Turn the pump plunger two or three turns counter-clockwise and try again. Make sure you close it when you are through. Turn the plunger to open and close the valve with the plunger fully in. Don't try it with the plunger all the way out because it won't work.