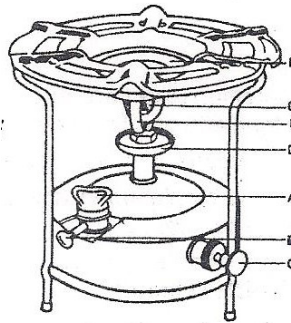


Garrett Wade

Technical Memo T97

Re: 58A02.01
&
58A02.02

Classic Burner Operating Instructions



- A) Tank lid
- B) Air key
- C) Pump assembly
- D) Spirit cup
- E) Burner
- F) Flame ring
- G) Nipple

Parts of the stove(s)

First Step: We recommend you soak the pump washer used on the pump rod in kerosene or lamp oil to soften it. It may need to be worked with the fingers until pliable. This ensures it will seal well against the walls of the pumping tube.

This stove works best with kerosene (“paraffin” in the UK and elsewhere). **Gasoline should never be used, nor should any proprietary fuel intended for gasoline stoves (eg Coleman fuel).** Fuels that are hard to vaporize, like diesel and heating oil, may be used in emergencies, but they will be smelly and won’t burn as well as kerosene. “Lamp oil” that is made from deodorized kerosene is acceptable.

Use the stove outside, not inside a small tent.

Read and understand these operating instructions.

Background

As the stove needs to be pre-heated (primed) before it will function properly, the lighting instructions for it may be different from those you are familiar with. The procedure for this, described here, is simple, quick and easy and involves using some commonly available alcohol or a solid fuel like Esbit to preheat the burner tubes so that the kerosene is vaporized before it mixes with air and is lit. If it doesn't work the first time, just start over. Please follow the instructions carefully – no short cuts. You will quickly get the hang of it.

To Light the Stove:

Remove the Tank filling lid marked A in manufactures instructions and fill tank $\frac{3}{4}$ full with good quality Kerosene (K1) available at most hardware stores. Close the tank lid tightly.

Loosen the air key marked B in the instructions a few turns (counterclockwise). Fill the spirit (alcohol) cup marked D about $\frac{3}{4}$ full with Denatured alcohol (also available at local hardware stores) or use solid fuel (Esbit for example).

Light the alcohol or solid fuel in the spirit cup with a match and allow it to preheat the Burner marked E. This preheating allows the burner to vaporize the kerosene. You cannot get the burner too hot so use a generous amount of alcohol. Light the alcohol with a match. Just before the alcohol burns out, tighten the air key B (clockwise) and apply 2 or 3 pumps on the pump rod marked C. The stove will then light. Let it burn like this until the alcohol goes out.

Then, using the pump rod again, create more pressure in the tank. Pump a few strokes until you are getting a full flame. This will create a strong heat and you are now ready for use.

What is Going On When the Stove is Operating

The pump pressurizes the tank with air, forcing the kerosene up the riser into the burner tubes where heat from the flame vaporizes the kerosene before it issues out through the nipple as a jet. It then mixes with air and burns cleanly.

Once these stoves are going, the heat from the flame vaporizes the liquid fuel in the burner tubes before it issues through the nipple, so that only kerosene vapor is emitted. The kerosene vapor then mixes with air and burns cleanly. If liquid kerosene were to issue from the nipple there could be a "flare up" – large sooty yellow flames that is simply messy That is the reason it is necessary to preheat ("prime") the burner tubes before beginning to fully pressurize the tank.

If you get a "flare up", open the air tray (B). This will release pressure in the tank and the flame will go out. Then start the process over again.

Methylated spirits (denatured alcohol) is the recommended fuel for priming the burner. Pieces of solid fuel ("Esbit" for example) may also be used and may be more attractive when backpacking because it is easier to carry. Kerosene can be used in an emergency, but it is trickier to light in the spirit cup, dirtier and needs care to avoid clogging the nipple with soot.

To extinguish the flame turn the air key (B) a turn or two counterclockwise until it is fully open.

First, read and understand the instructions that come with the lamp.

Troubleshooting:

No resistance when pumping, tank does not pressurize – pump washer needs to be made pliable

Resistance when pumping, tank does not pressurize – air valve open, filler cap open or empty.

Uneven flame – nipple jet needs cleaning

Large yellow flames - Open air valve immediately, let the flame die down and try pumping very gently.