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A second-generation model

The Super Cat Stand

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Background

If you use a [Fire Bucket](#) as your Super Cat windscreen, you normally won't need a separate stand, since the Fire Bucket includes a built-in, elevated stove platform. If you want to use a traditional windscreen, however, or if you'd like to build a handy test platform, an optional stand can make a lot of sense.

In April of 2005, I published plans for a [first generation stand](#) that a fair number of Super Cat users constructed, but a year later, came up a design that I thought was superior. The advantages of using both a separate stand in general, and of the second-generation design in particular are highlighted below.

Why Build a Separate Stand?

- The stand creates a wider base with fewer ground contact points, improving stability. It also adds a small bit of mass to the otherwise miniscule weight of the Super Cat (0.2 oz), which by itself can help keep the stove from tipping or blowing over.
- This design allows the stove to be further stabilized by staking it to the ground. I often insert a pair of slim tent stakes through the two holes in the base of the stand, then push them into the ground. This arrangement virtually eliminates any possibility of the stove tipping or blowing over.
- The docking socket feature allows different stoves to be used with the same stand since there's no permanent connection required between the two. The socket is tight enough, however, to hold the stove very securely.
- The stand protects the bottom of the stove from damage. If the stove alone, for example, is placed on a gravel surface, the weight of a pot filled with water can sometimes push the bottom's soft aluminum into the sharp edges of stones, causing dents and possibly even punctures. The stand eliminates this hazard.
- The airspace trapped under the stand base serves to insulate the stove from cold ground. Doing so solves pretty much eliminates the conductive heat losses to the ground that otherwise ruin the performance of an alcohol stove when used in cold weather. For use at really low temps, it's also possible to fill the base with fiberglass insulation for even better performance.
- This same airspace also protects the surface under the Super Cat from the heat that's produced by the stove. I can now use the stove directly on my workbench without having to worry about cooking the surface. The airspace also protects the vegetation under the stove when used on the trail.

- The base allows the effective use of the "snuffer cup" that's described below. The snuffer cup seals well against the uniform surface of the base, permitting the stove to be easily and reliably extinguished at will. A great fuel-saving and safety feature.
- And finally, the top of the stand base can serve as a priming pan for the stove. Adding a few drops of alcohol primer to the base just outside the wall of the stove helps the stove come up to operating temperature faster and also makes it easier to light the stove (especially in cold weather).

Now, rather than having to reach over top edge of the stove with your match or lighter to ignite the alcohol fuel, it's possible to simply light the primer outside the stove (the flame quickly spreads inside). The outer ridges that are stamped into the base can's bottom conveniently keep the priming fuel from spilling over the edges.

Design Notes



Stand alone (+)



With Super Cat "plugged-in"
to docking socket (+)

THE Docking Socket

Central to the design of this stand is a "docking socket" that serves as an interface between the stove and the stand. The socket eliminates the need to drill holes in the bottom of your Super Cat in order to mount it to a stand. It also permits you to "plug-in" or remove your stove from the stand at will, meaning that you can move your Super Cat to different stands should you care to. By the way, many thanks to Bruce Strickling ("bstwo") for the contribution of his ideas that lead to the creation of the docking socket.

The docking socket is simply the bottom of another 3 ounce pet food can whose side walls been cut down to a height of 5/8" or so. It needs to be tall enough to support the stove, but short enough that it doesn't cover the stove's bottom row of vent holes.

To be able to fit the stove down into the socket, a small slit must also be cut in the socket sidewall to allow the sides to expand enough to accommodate the insertion of the stove. Once inserted, a snug "friction fit" will keep the stove firmly in place until it's deliberately removed from the socket. The socket is attached to the base as described below.

The Base

The base of this stand is constructed from an inverted 5½ or 6 ounce aluminum pet food can. Interestingly, this base type was tried in an [early design iteration](#) but abandoned in favor of the masonite base used in the first generation stand. I later returned to it after realizing that it offered a number of practical advantages over the initial design.

This base can also work well with the optional "snuffer cup" that's described in the main Super Cat article, so as noted in that section, I'd suggest using the same brand of can for both projects to ensure an optimal seal between the two components.



Aluminum pet food cans work well for the base (+)

Note: If you you a snuffer cup made from a pet food can, it's best to use the same brand of can for the base to assure an optimal fit between the two

If you can't find a suitable aluminum can, which will typically weigh about ½ ounce, a comparably-sized steel can will also work, but will probably weigh about 1½ ounces.

Build Instructions

Step 1: Prepare the base can. Once a suitable aluminum base can has been obtained and cleaned, the paper label should be removed. I'd also recommend that you remove the gummy label adhesive using a solvent such as Goo Gone or Goof Off. The lubricant WD-40 also does a great job of dissolving many adhesives and is probably less toxic than most other solvents.

Step 2: Construct the docking socket. Construct the docking socket from a clean, 3 ounce pet food can (or equivalent) that's identical to the one used for your stove. When cleaning the can, you can remove any sticky label adhesive as described above.

Cut the walls of the can down to a height of about 5/8" (a sturdy pair of household scissors should cut easily through the soft aluminum). If the wall is a bit too high after the stove is inserted, you can trim it later.



Start with a new can of the same type used for your stove (+)



Completed docking socket (+)
(note vertical slit with hole at base)

Next, cut a single vertical slit in the sidewall from top to bottom (i.e., 5/8" long). To keep the slit from expanding beyond the cut, drill or punch a small (1/8") hole in the bottom of the can near the base of the slit as a "rip-stopper". Finally, cut or round the corners at the top of the slit to eliminate their sharp points. You can see the slit and the rip-stopper hole in the photos both above and below.

Before proceeding, I'd suggest that you test the wall height by plugging your Super Cat stove into the completed docking socket. If you find that the socket covers any portion of the stove's lower row of vent holes, you can trim the walls of the socket as necessary.

Step 3: Mount the docking socket. Mount the completed docking socket to the center of the base. I'd suggest using three 1/8" diameter, 1/8" grip range aluminum pop rivets with backing plates on the underside of the base can only. I've found that backing plates are not only unnecessary on the top side, but are undesirable since they consume vertical space, reducing the depth to which the Super Cat can be seated in the docking socket.

You'll need to drill 3 holes (1/8" diameter) through both the socket and the base. Space the three pop rivets equally around the inside of the socket as shown below.



Pop rivets, backing plates
and rivet tool (+)

Docking socket
mounted to base (+)



Underside of base shows rivets and backing plates (+)

By the way, if you don't have a pop rivet tool, you can also mount the socket to the base using three short machine screws (#4 or #6) with nuts and washers. However, you'll want to use screws with heads that are as flat as possible or the stove may not fit deeply enough into the socket to achieve a tight fit.

Some users (including myself) have also tried attaching the docking socket to the base using [J-B Weld](#), which is a high-temperature epoxy. Though this adhesive is rated for use up to 500°F, it usually fails quickly in this application and is therefore not recommended.

Step 4: Optional stake holes. If you'd like to have the option of staking the stand to the ground, drill or punch two small holes near the base as shown below. I often use two micro-titanium stakes that weight about ¼ each for this purpose.

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Completed stand shows one of two stake holes (+)

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