

GOING ALOFT ALONE: What mountain climbers can teach sailors about getting up the mast

by

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Going up the mast at sea may well be the least pleasant thing I have to do as an offshore sailor. Like most other experienced passagemakers, I will avoid it if there is any viable alternative. But in any number of situations offshore, the boat and crew's safety will depend on someone being able to get to the top of the mast and work effectively while there. Short-handed and singlehanded crews must be prepared for this possibility and should have practiced a safe way for one person working alone to reach the top of the mast even with the boat rolling through thirty degrees or more.

Singlehanded sailors have historically relied on mast steps or block and tackles to go aloft unaided. These techniques are effective for shorter masts in calm anchorages but work less well offshore with a large sea running. Over the course of the last decade, the elite round-the-world single-handed racers have adapted mountain climbing techniques to the task of going aloft alone. These solutions are both easier to use and safer than the traditional approaches and can be mastered with a small investment of time and money.

Mountain climbing solutions

Sailors have adapted two generations of mountain climbing solutions to get up and back down the mast safely. The first generation equipment consists of one-way jammers called ascenders (Figure 1) and has been used by the elite round-the-world racers for about a decade. Sailors are just starting to adapt the second generation mountain climbing gear, two-way jammers called self-braking belay descenders (Figures 2, 2a and 3), typified by the Petzl Grigri.

Both approaches use a climbing harness, two foot loops made of webbing and two jammers to climb a line to the top of the mast. The climbing harness consists of a webbing waist band connected to padded leg straps in which the user sits (Figures 4 and 4a). It is similar to a bosun's chair but more secure – it is virtually impossible to fall out of a climbing harness. This is attached to one of the jammers using a length of webbing. The foot loops are tied to the second jammer. A two-step process takes the user up the line by alternating weight on the harness and the foot loops. First, you sit in the harness and slide the foot loop jammer up the line (Figure 5). Next you stand up in the foot loops and slide the harness jammer up the line (Figures 6 and 6a). Repeating these two steps allows you to climb up the line like an inchworm.

While the jammers can be used to climb a halyard, they may chew up its cover. It is better to tie another line to the halyard, hoist that line up to the top of the mast, and climb up the dedicated line. This saves potential wear and tear on the halyard cover from the jammers. Mountain climbing equipment is designed to work with 10-11 millimeter line.

Climbers use nylon line to absorb the shock loads during falls, but for going aloft I have found low stretch double braid line with a very tightly woven cover to be easier to use.

The original solution to climb the line used two identical ascenders. I prefer to put the ascender attached to the harness above the ascender attached to the foot loops. After the line has been hoisted, I tie the bottom of it to a strong point on the deck near the mast and use a winch to put some tension on it. This minimizes the likelihood of the boat's roll and the waves swinging me away from the mast. I also tie the two foot loops together using a line about 18 inches long. This lets me straddle the mast with the foot loops, allowing me to brace against it with my feet while offering a better grip and more stability.

The biggest difference between the ascenders and the self-braking belay descenders comes when it is time to get back down. Ascenders are designed as one-way jammers and are slow and clumsy to use in reverse. Instead, mountain climbers use a 'rappel ring' (Figures 7 and 7a) to slide down the line. That entails doing a tricky little dance to shift your weight from the ascenders to the rappel ring. While not too difficult in a calm anchorage, this can be difficult and potentially dangerous if you are up the mast at sea in a big swell.

Using a self-braking belay descender or grigri, the grigri is attached to the climbing harness and an ascender is attached to the foot loops. In this case, the foot loop ascender has to be on top and the grigri under it on the line, as the grigri will not slide if the line is under tension. Going up the mast is exactly the same as described for the ascenders. To descend, you step out of the foot loops and remove the ascender with the foot loops attached from the line and stow it on your harness. Then you pull down on a lever on the side of the grigri with one hand while holding the line in the other hand near your hip (Figures 8 and 8a). As long as the lever is down, you will slide down the line; letting the lever back up will stop you. You can thus descend by sliding down the line under complete control.

The only downside of the grigri is that the line to be ascended can not be tensioned as tightly because the grigri needs some slack in the line to operate. While this will not be a problem in a calm anchorage, at sea the user is likely to be tossed around quite a bit. To minimize this, a second line can be hoisted and cleated off very tightly. An ascender attached to this and to the climbing harness will keep the user close to the mast as well as providing backup in case either the grigri or foot loop ascender becomes dislodged. For this purpose, you will want to use a style of ascender with a cam that allows it to slide up the line without being operated by hand, which is by mountain climbers to haul packs and other gear up ropes.

Final tips for going up the mast alone

Mast steps and block and tackles work, but they both have some serious drawbacks. Mast steps increase windage, require lots of holes and fasteners through the mast and tend to trap halyards and catch lines causing more trips up the mast than would have been necessary otherwise. Block and tackles take a lot of line and are clumsy to operate.

Using them with a bosun's chair is much less secure than using a climbing harness and ascenders. The mountain climbing approaches offer an elegant solution that is safe, easy to master and can be set up in a few minutes even at sea.

The equipment described in this article can be purchased from climbing stores. If you want some instruction, find a store with a climbing wall and ask the sales people to show you how to use it and let you experiment a bit.

Finally, if you have to go up the mast in a big sea, some padding will reduce the number of bruises you'll be wearing when you come back down. I use a padded snowmobile suit in cooler climes.

I never want to go up the mast at sea, and if I have to I would prefer that someone takes me up on a powerful, and preferably powered, winch. But those who sail short-handed have to be prepared for a situation where one crewmember has to get up the mast alone. Good preparation will pay big dividends if that time ever comes for you.