

Solo-Aid Instruction Manual

INTRODUCTION

The Solo-Aid is designed to provide, in conjunction with a backup knot, a means of self-belay. Rope is manually fed, with one hand, in increments as the climber advances. Use on aid routes or easier free climbs where one hand can be used to feed slack.

SPECIFICATIONS

Approx. breaking strength: 5000 lbf; 22.7 kN
Weight: 6.5 oz; 182 gm Rope Size: 10-11 mm



WARNING!

The Solo-Aid is for expert use only. It is the user's responsibility to get proper instruction and to climb safely. It is imperative for the user to practice extensively with the Solo-Aid in a no-risk situation (i.e. with a safety rope from above) before embarking on any climb in which injury may occur. **READ THIS MANUAL COMPLETELY AND CAREFULLY.**

Solo climbing is much more dangerous than climbing with a partner. Those who have made the decision to solo do so entirely at their own risk. The Solo-Aid will not necessarily make soloing safer.

Your ultimate belay is your backup knot. The Solo-Aid is only an intermediate device that may shorten your fall if used correctly. Falling while climbing solo is extremely dangerous and **may** result in death or injury. Any solo belay method should be regarded as a last resort that may allow you to survive the fall, **but no system, including the Solo-Aid, can guarantee your safety in a fall.** Your first rule of climbing must be: Don't fall.

Any rope clamping device weakens the rope. Pay particular attention to keeping the fall factor low, less than 1. If you occasionally tie into your protection while leading (to take weight off the anchored side of the rope, thereby making it easier to feed), you must be very careful that you only do this when you are absolutely sure a fall will not occur until you have enough extra rope out and pieces placed that the fall factor will be low. If you tie into a piece and fall before you have placed another piece of pro, you will have a very hard and dangerous fall.

Note: Reading this manual alone **does not** mean you are qualified to climb solo. There are many ways to misuse this device and there are many dangers in solo climbing. It is impossible to list all of these. If you are not willing and able to assume complete responsibility for your safety, do not use this device.

THEORY

For lead climbing, one end of the rope is securely anchored at the start of the pitch. The Solo-Aid is attached to the climber and as the climber progresses upward he or she feeds the rope through the device. The climber places protection and clips the **anchored** side of the rope into them. Obviously, it is important to minimize the amount of slack between the anchor and the climber since more slack will result in a longer fall.

To see how the Solo-Aid works, put a rope through it and pull on the anchored side. You'll see that one end of the cam acts as a lever which forces the cam face to clamp the rope in the Curved Cam Interface. Study figures 1 through 3; they show the Solo-Aid used on lead, with and without a chest harness, and on top rope.

Note that the anchored side of the rope always runs over the tail end of the jaw so that it will lever the cam and lock the rope.

For lead climbing, slack is fed either by grabbing the rope near the tail of the cam and pulling rope from the free side up and letting it feed out the anchored side, or by pinching the tail end of the cam and rotating it so it is unlocked; this allows you to step up while rope feeds through the Solo-Aid. Experiment!

BACKING UP THE SOLO-AID

The Solo-Aid is backed up by tying a loop knot in the free side of the rope. Your backup knot must be tied so that if the Solo-Aid does not catch the fall, you will not be injured. The safest backup is to have the knot slipped into your harness. In some situations you may decide to just let the knot hang. This is only effective if the rope cannot come out of the Solo-Aid and if it is securely attached to you; you must be very careful to check the condition of all its parts, including your locking carabiner, and your attachment method. **Make sure your backup knot cannot come untied.**

In lead climbing, you pull up some of the free side of the rope to tie your backup knot; the knot then moves toward you while climbing and when it gets to you, you tie another backup knot further down the free side and untie the old knot.

In top roping, you tie the backup knot close to where the free side of the rope comes out of the Solo-Aid; you then move away from the knot as you climb, tying more knots as needed.

ATTACHING THE SOLO-AID TO THE CLIMBER

Tie the device to your waist harness with a loop of 8 or 9mm rope tied in a double fisherman's knot. You may use it with a chest harness if desired, in which case the 'biner in the top hole is clipped to your chest harness. Do not wear the Solo-Aid loose and sloppy as this increases the chance that it will tangle in your gear, or possibly hit your face in a fall.

RIGGING THE SOLO-AID

The Solo-Aid must be rigged correctly. You must be sure that the anchored and free side of the rope are oriented correctly in the device. Before climbing, make it a habit to double check and to pull on the anchored side to simulate a fall.

YOUR LOCKING CARABINER

The carabiner through the top hole keeps the pin from coming out. Make sure you use a 'biner large enough to capture the pin. You must always have this carabiner installed whether or not you are using a chest harness.

OTHER PRECAUTIONS

Keep the unit free of debris and ensure that nothing tangles with the rope as it passes through the device and that absolutely nothing comes between the rope and the cam.

Climbing with the Solo-Aid

ENSURE PROPER SET-UP

Make sure you have attached and rigged the Solo-Aid correctly. Always take a second look at your rigging and test by pulling on the anchored side of the rope. Make sure that the pin is properly secured by your carabiner.

LEADING

Lead some easy routes at first to get the feel of the Solo-Aid. While leading you'll want to be aware of where the rope is so that in a fall it won't get tangled around your legs and flip you over. Also, there will be two sides of the rope hanging from you, the free side and the anchored side (plus the rope hanging from the backup knot if it is attached to you). Make sure you clip the anchored side into your pro.

Obviously, in aid climbing you have a hand free to feed slack when needed. In free climbing, it is necessary to feed enough slack through the system so that you can reach the next place that you can take a hand and feed more slack for the next move. Expertise is required to judge how much slack to pull; you don't want to take a longer fall than necessary, but you also don't want to run out of slack in the middle of a move. For free climbing, the Solo-Aid is best used on easier free climbs where taking a hand off the rock to feed slack is possible.

You should try the Solo-Aid both with and without a chest harness to decide which you prefer. Many climbers will prefer to use it without a chest harness; when top roping they will clip it to a gear sling to hold it so the slack is easier to pull through.

TOP ROPING

Top roping with the Solo-Aid is easier if it is used with a chest harness or clipped into your gear sling so that it is oriented as shown in Figure 3. Then, as slack develops when moving up, you can simply pull down on the free side to take up the slack.

REDUCING DRAG

As you climb long pitches, there may be enough rope between you and the anchor that the weight of the rope causes tension on the Solo-Aid. This weight can be taken off the anchored side as needed by tying the rope into bomber pieces anywhere on the pitch, but never do this if a high fall factor fall can result.

The weight on the free side of the rope can be regulated if needed by whether you clip the backup knot to your harness or let it hang down.

RAPPELLING WITH THE SOLO-AID

If you clip a 'biner through the rope near the tail of the jaw (see Figure 4) the jaw will not lock and you can rappel with the Solo-Aid. Remember that many accidents occur when rappelling; be careful with your rappel device and your anchors.

SOLOING MULTI-PITCH ROUTES WITH THE SOLO-AID

Leading with the Solo-Aid is generally straightforward if it becomes second nature to incorporate some slack through the Solo-Aid with each aid placement upward. A routine sequence of events for each move speeds up the process considerably.

A routine must be developed for ascending each pitch in its entirety (each pitch must be led, cleaned, and the haulbag hauled). Of major importance is setting up the lead and haul line so that no snags can develop as the pitch is led. Once a lead is finished, the climber must rappel back down to the previous belay, release the haulbags from the anchor and clean the pitch. Generally it is possible to rappel down the haul line, with the haul system set up before rappelling - Petzl's Wall Hauler is excellent for this purpose. Rappelling back to the previous anchor can be difficult if the pitch traverses considerably; infrequently two ropes must be tied together (must be set up prior to leading the pitch). One rope is then rappelled and the next jumared to the previous belay. The latter rope is then pulled back into the belay and used to lower out the haulbag. Generally, it is possible to simply rappel down on a rope and pull oneself (jumars will work) back to the prior belay.

The pitch is then cleaned in the conventional manner and when the climber returns to the higher belay, the haul bag is ready to haul, and the next lead ready to set up. Always ensure that each anchor can handle both an upward and downward pull, and always, but always, **back up the Solo-Aid!**

One of the trickier aspects of soloing is managing pendulums. Normally for a pendulum with a partner belaying, it is a simple matter for the climber to lower off a piece, perform the pendulum and obtain proper slack while possibly free climbing at the end of the pendulum. To lower off a piece with the Solo-Aid requires the use of ascenders and/or a rappel device. It is always necessary to remove the tension from the anchored end into the device prior to obtaining slack through the Solo-Aid.

WE WOULD LIKE TO HEAR FROM YOU

If you have any questions, comments or tips concerning the Solo-Aid, please let us know.

Rock Exotica Equipment
P.O Box 160470
Clearfield, UT 84016

801-728-0630 Phone
801-728-0667 Fax
rockexotica.com

We'd like to thank John Middendorf of A5 Adventures for his considerable help in preparing these instructions.

FIGURE 1

Solo-Aid used for lead climbing without a chest harness - you just let it hang down from your waist harness. Note: Carabiner is **always** required to lock pin in.



Warning: Always make sure the rope is laying against the tail end of the jaw; there must never be a loop of rope that something could get caught in or the jaw may not lock.

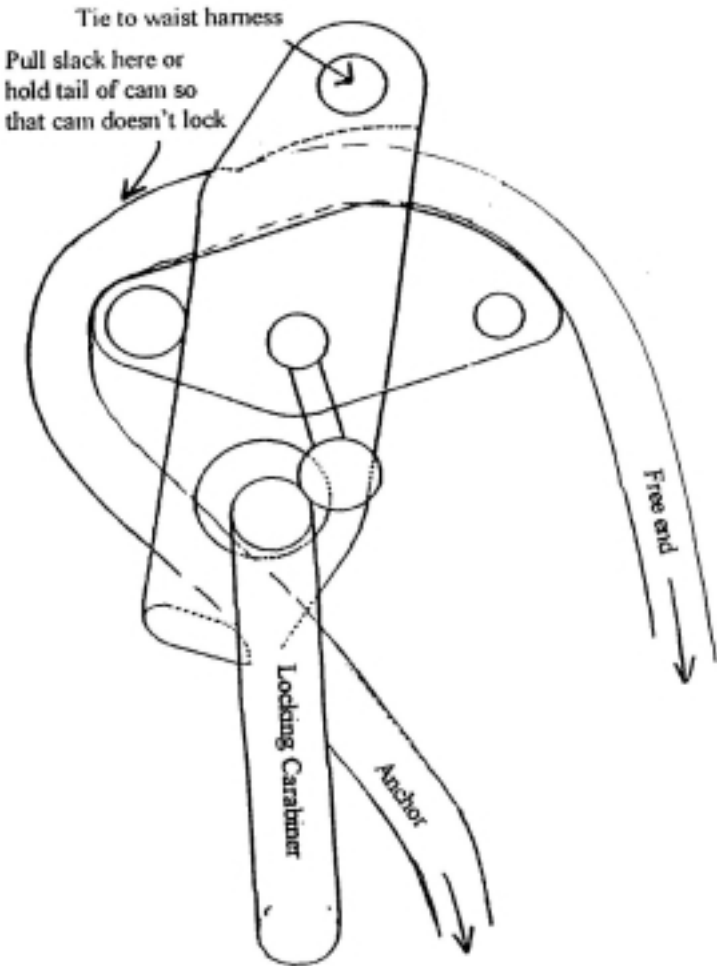


FIGURE 2

Lead climbing using a chest harness

The carabiner locks the pin in place and is also used to clip to your chest harness if desired.

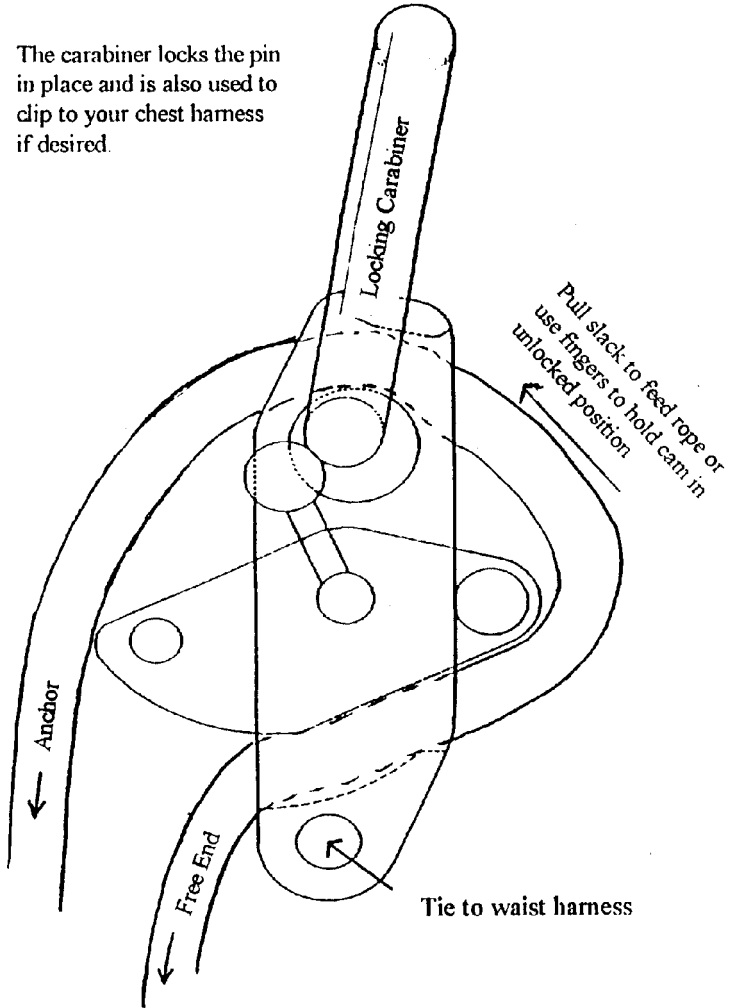


FIGURE 3

Top Roping

Clip to chest harness or gear sling to hold Solo-Aid in this position.



Warning: Never take a hard fall using a gear sling as a chest harness.

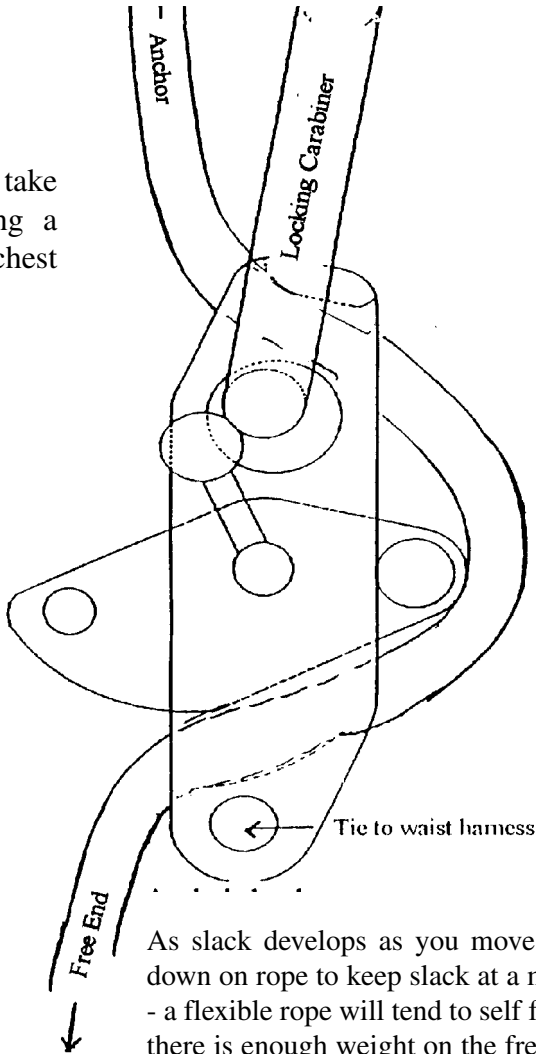


FIGURE 4
Rappelling

