

**SELF-RESCUE**

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**INTRODUCTION**

The vertical world can be an unforgiving world. At some point in your climbing career, you may need to rescue yourself. In this chapter, we will discuss self-rescue techniques. All involve the use of prusiks.

**CAUTIONS ABOUT SELF-RESCUE AND PRUSIKS**

- **The first rule of self-rescue is avoidance.** If you never get into a situation requiring rescue, you have a much simpler life. Develop good safety habits and follow them religiously. Learn and review techniques before you go out on the rock. Know your climbing partners and their capabilities and limitations.
- **You must practice self-rescue techniques before you need them.** Climbing is not taught as a correspondence course. There is no substitute for practicing these techniques.
- **Always carry your prusiks on your harness.**
- **Don't grip around the prusik hitch to slide it.** Slide the prusik up or down ahead of your hand, not in your hand.
- **Always tie off short when using prusiks to go up or down a rope.**
- **Inspect your prusiks before and after each use.** Replace damaged ones.
- **Each time you stand up or sit down in your prusiks (whether going up or down,) verify that your prusik biner has not cross-loaded itself.** Adjust it to its proper position before weighting it.
- **Prusiks do not grip hard enough to catch a fall.** They are not designed as a dynamic belay device.
- **Dress the prusik hitch.** If it doesn't LOOK like a prusik hitch, it won't GRIP like a prusik.
- **Carry loose prusiks around your head AND over one shoulder** (not just around your neck).
- **Tie prusik cord into a loop using a grapevine knot.**

**PRUSIKING**

One of the most versatile pieces of climbing equipment is the prusik, which you should always carry on your harness. They weigh only ounces and cost a couple of bucks. They may save your life sometime in your climbing career or save you from the time, expense and discomfort of a rescue team effort.

A prusik is a short length of cord with the ends tied together in a grapevine knot. Use the prusik to make the prusik hitch. The 6 millimeter diameter works best on modern climbing ropes. We provide three prusiks in our Basic School: short (4' untied), medium (6' untied) and long (10' untied). Sewn runners can also work well for prusiking.

Normally, prusiks are used to ascend a rope. However, by using your imagination, you can learn to solve many on-rope problems by putting together the below-listed techniques in a certain sequence.

There are numerous uses for prusiks: you can use them to climb up and down a rope, free yourself from a jammed rappel device, give yourself a "self belay" on a fixed rope, haul a climber out of a crevasse or tie off a loaded rope. Once you learn the following techniques, you can put them together in different ways to solve problems.

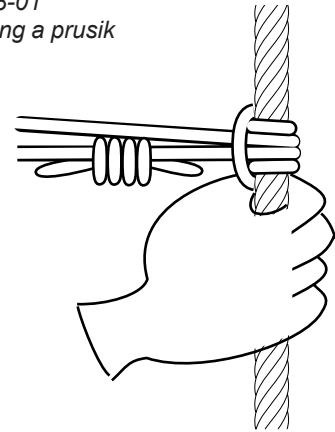
### How To Slide A Prusik

**Don't grip around the prusik hitch to slide it.** Instead, place your hand around the main climbing rope, **BELOW** or **ABOVE** the prusik hitch (fig 8-01). Slide the prusik up or down ahead of your hand, not in your hand. The hitch works by deforming the climbing rope. If you squeeze the prusik hitch directly, there is a chance you may straighten the rope, cause the hitch to slip, which will cause you to panic and grab (squeeze) harder, which will cause the hitch to continue slipping and may result in a friction-generating slide down the rope. The prusik may melt due to the heat generated by this friction and fail, and you will detach from the rope.

### Tying Off Short

**Always tie off short when using prusiks to go up or down a rope.** Tie a knot in the rope below your prusiks (a figure-8-on-a-bight is sufficient), clip it into an open harness locker and lock it (one harness locker will already be occupied by a prusik). For example, prusik up about 15' off the ground and tie off with the rope just below your prusiks. This will keep you from decking should your prusiks fail. After another 15'–20', depending on your comfort level, tie another knot. Make sure your prusiks are properly set, then clip the new knot into the same harness locker as the first knot. Then, take out and untie the old knot, dropping the rope afterward. Re-lock the harness biner. If you have verified that your prusiks are properly set, and you always put the latest knot in your harness locker before taking out the previous knot, you should never fall more than 15'–20', and then only on a shock-absorbing rope. Alternatively, you can add a third locker to your harness and clip the latest knot into the empty locker, then unclip, untie and drop the old knot so as to go back and forth between the two until finishing the ascent/descent.

Fig 8-01  
Sliding a prusik



### Prusiking Up A Rope

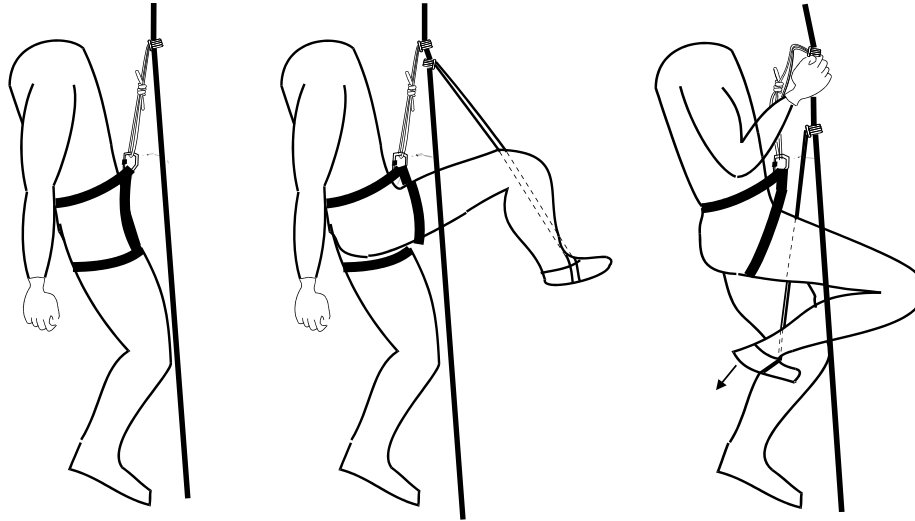
You will be using two prusiks (the short, or waist prusik; and the long, or leg prusik) to do this technique. The third (the medium) is used for special situations. Prusik up a fixed rope as follows (fig 8-02).

1. Always put your waist prusik on first and take it off first.
2. Always put your waist prusik above the leg prusik.
3. Attach your short prusik to the rope using the prusik hitch. Dress the hitch to look like the example. Make sure that the grapevine knot is neither at the very end of the loop nor lodged in the prusik hitch. If it is too close to the rope, it will make the prusik difficult to loosen. If it is too far away, it will get in the way of your harness biner or get into the foot wrap.
4. Clip the prusik loop into a harness locking biner and lock that biner. This is your waist prusik.
5. Attach your long prusik to the rope using a prusik hitch, just below the waist prusik hitch. This is your leg prusik.
6. Use the leg prusik to tie a "chicken-hitch" around your foot. With the leg prusik hanging between your legs, pull the bottom end underneath the middle of your foot, then to the outside and back over the top of your foot. Pass it between your leg and the prusik strands going to your waist, then pass it forward over your toe. Bring the bottom part of this loop back around your ankle. Adjust it so that the strands do not put a sideways torque on your foot; it will be more comfortable when you stand. Snug up all pieces, and the chicken-hitch will stay fitted to your ankle. This also serves as a backup for your waist prusik.
7. Grab the fixed rope with both hands, one as high as you can reach and one below the waist prusik. **Do not grab the prusiks themselves.**
8. Stand up in your leg prusik. This is easier if you press your heel to your butt and stand by pushing behind you with your foot.
9. Slide the waist prusik up as far as it will go. **Again, do not grip the prusik hitch itself.** If the prusik is too tight to slide, push away from the rope on the "trigger" strand that crosses the four parallel strands and the hitch will loosen.
10. Dress the prusik nicely and slowly weight the waist prusik. Be sure it grips the rope before trusting it with all your weight. If it doesn't, dress it properly, then weight it.
11. While sitting back against the waist prusik, slide the leg prusik up. You will need to hold the rope below the leg prusik to allow it to move. Leave a gap between it and the waist prusik.
12. Repeat steps 7–11. The first few repetitions will be rather clumsy until you are completely off the ground, as the rope will stretch. You will do better if a fellow climber holds the rope below you. This allows you to slide the leg prusik up easier. You'll develop a rhythm in no time.

13. In order to keep from getting too fatigued, stand up, slide the prusik, and sit down as soon as you can to take weight off your arms.
14. After about 15', tie off short as described above. Re-tie every 15' as you go up.
15. Always put your waist prusik on first and take it off first.  
The shorter your leg prusik is, the faster (and more physically demanding) the ascent will be. Hiking boots are best for prusiking. If you are wearing very light shoes, the chicken-hitch will be uncomfortable.

*Fig 8-02*

*First, put on the waist prusik. Add the foot prusik and chicken hitch. Prusik up, sliding the prusik ahead of your hand.*



### **Prusiking Down A Rope**

This is the reverse of the technique for prusiking up a rope. You will be using the same two prusiks (the short and the long) to do this technique. Normally, there will be no reason to prusik down. Rappelling down is much more efficient. The reason we teach this technique is to prepare you for any eventuality you may run into on the rock, where you may need to go short distances down or up. This assumes that you are already on the rope, that you have prusiked up and are now hanging from the rope by your prusiks.

1. Grab the fixed rope with both hands, one as high as you can reach and one just above the waist prusik. **Do not grab the prusiks themselves.**
2. Stand up in your leg prusik. This is easier if you press your heel to your butt and stand by pushing behind you with your foot.
3. Slide the waist prusik down to a comfortable level. With some experimentation, you will figure out how far down to go. Leave a gap between it and the leg prusik. **Again, do not grip the prusik hitch itself.** If the prusik is too tight to slide easily, push away from the rope on the “trigger” strand that crosses the four parallel strands and the hitch will loosen.
4. Dress the prusik nicely and slowly weight the waist prusik. Be sure it grips the rope before trusting it with all your weight. If it doesn't, dress it properly, then weight it.
5. While sitting back against the waist prusik, slide the leg prusik down.
6. Repeat steps 2-5.
7. In order to keep from getting too fatigued, stand up, slide the prusik, and sit down as soon as you can to take weight off your arms.
8. Always put your waist prusik on first and take it off first.

**Prusiking Up Past An Obstacle**

This technique will require the use of your medium prusik as a temporary waist prusik.

1. Prusik up the rope with your short prusik and long prusik until you are just below the obstacle in the rope, tying off short as you go. Always tie off short before you try to pass an obstacle going up or down.
2. Attach your medium prusik above the obstacle the way you would attach a normal waist prusik. Attach it to the empty harness locker. Never open the locker you are already hanging from.
3. Stand up and move your temporary waist prusik (the medium one above the obstacle) up as far as you can. Sit back down. Your short waist prusik should be unweighted.
4. Keeping in mind that you always want two points of contact, remove your waist prusik and reinstall it above the obstacle. If you can't reach above the obstacle, prusik up a little more with your temporary waist prusik and leg prusik until you can, then reinstall the short waist prusik on the rope.
5. While hanging from both waist prusiks, remove and reinstall the leg prusik. You should now have three prusiks above the obstacle.
6. Stand and move the short waist prusik as high as you can, so that you are now hanging from it and have unweighted the temporary waist prusik.
7. Remove the temporary waist prusik and put it back on your harness to use again if needed.

**Prusiking Down Past An Obstacle**

This technique is the reverse of prusiking up past an obstacle.

1. Prusik down to the obstacle.
2. Tie off short before you attempt to pass the obstacle.
3. Attach your medium prusik above your short waist prusik. Attach it to the empty harness locker. Never open the locker you are already hanging from.
4. Stand up and move your temporary waist prusik up as far as you can. Sit back down to weight your temporary waist prusik. Your short waist prusik should be unweighted.
5. Keeping in mind that you always want two points of contact, remove your short waist prusik and reinstall it a couple of inches below the obstacle.
6. Prusik down using the temporary waist prusik and leg prusik until your medium prusik is unweighted.
7. Remove and reinstall the leg prusik below the obstacle and below the short waist prusik.
8. Remove the temporary waist prusik and put it back on your harness to use again if needed.

**Converting From Prusik To Rappel**

This technique assumes that you have already prusiked up the rope.

1. Always tie off short before converting from prusik to rappel or vice versa. You will need a third harness locker to tie off safely.
2. Unweight the leg prusik.
3. Place your rappel device in between the waist prusik and the leg prusik.
4. Attach your rappel device to your bely loop or an empty harness locker.
5. Check and double-check your rappel setup.
6. Make sure the locker holding your rappel device is locked.
7. Make sure your rappel device is installed correctly.
8. Grab the brake rope and pull as much as possible through your rappel device so that the device is as high on the rope as possible.
9. Stand up in your leg prusik. It will serve as your temporary brake hand, so when you sit back down, don't unweight your leg prusik.
10. Loosen your waist prusik and slide it down toward your rappel device. Remember, don't unweight your leg prusik.
11. Remove your waist prusik and place it on your harness.
12. Grab the brake rope with your brake hand and hold it tight. Slide your leg prusik down the rope to get it below your brake hand's normal position, so that the leg prusik is not in danger of getting caught in your rappel device.
13. Remove your leg prusik or leave it on and use it as a backup brake hand if you like.
14. Remove your knot from tying off short.
15. Rappel down.
16. Note: if your prusik does creep up into your rappel device, you will have to reinstall your waist prusik, stand up, free your leg prusik, then repeat the operation.

### Converting From Rappel To Prusik

1. Lock off your rappel with an autoblock (see Rappel Chapter).
2. Always put your waist prusik on first and take it off first.
3. Leaving your hand on the brake rope, install your waist prusik above the rappel device with one hand.
4. Slide the waist prusik up as far as you can.
5. Slowly release your brake hand to let the prusik take your weight.
6. Keeping your brake hand on the rope, install your leg prusik below the waist prusik but above the rappel device..
7. When both prusiks are installed, tie off short. You will need a third harness locker to tie off safely.
8. Prusik up to provide slack for taking the weight off the rappel device.
9. Remove the rappel device from the rope and place it on your harness.
10. You are now on your prusiks and can move up and down the rope at will.

### Prusiking Up A Rope Using A Single Prusik

If for some reason you lose your leg prusik, you can still ascend with just one waist prusik and use the climbing rope to make a **foot wrap** in place of your leg prusik.

1. Tie a prusik hitch with your prusik and clip it into your harness. Hang on it (fig 8-04a).
2. Bring your climbing foot (right foot) up about even with your other (left) knee. Let the rope run between your legs.
3. Hold the rope above your foot with your left hand. With your right hand pass the end under your foot and hold it. Use your right hand to keep this rope in place.
4. Using the rope in your left hand, wrap outward over the top of your foot and around the bottom (fig 8-04b).
5. Make sure that the rope between your legs **crosses over the rope trailing off your foot**, making an “X” under your foot.
6. Slowly apply weight to the foot wrap. It should cinch down on itself on the bottom of your foot.
7. Take the rope on the outside of your foot and pull it up over your shoulder. The rope will hang off your back.
8. Stand up on the foot wrap and simultaneously slide the waist prusik up as high as it will go.
9. Sit back on the waist prusik. As you lift your right foot up for another step, simultaneously adjust the rope around your foot with both hands to take out the slack between the prusik and your foot, but keep the wrap intact across the instep of your foot. Readjust the “cross” if necessary.
10. Repeat Steps 8–9 until you reach your goal.

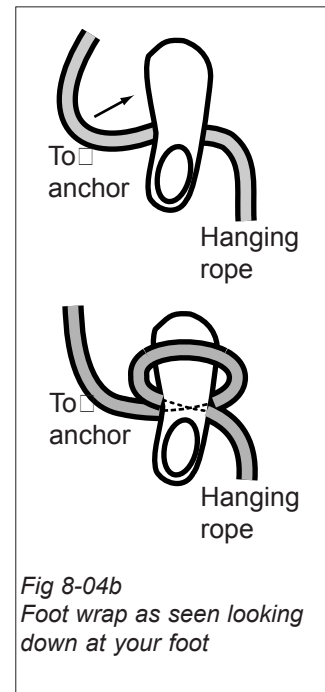
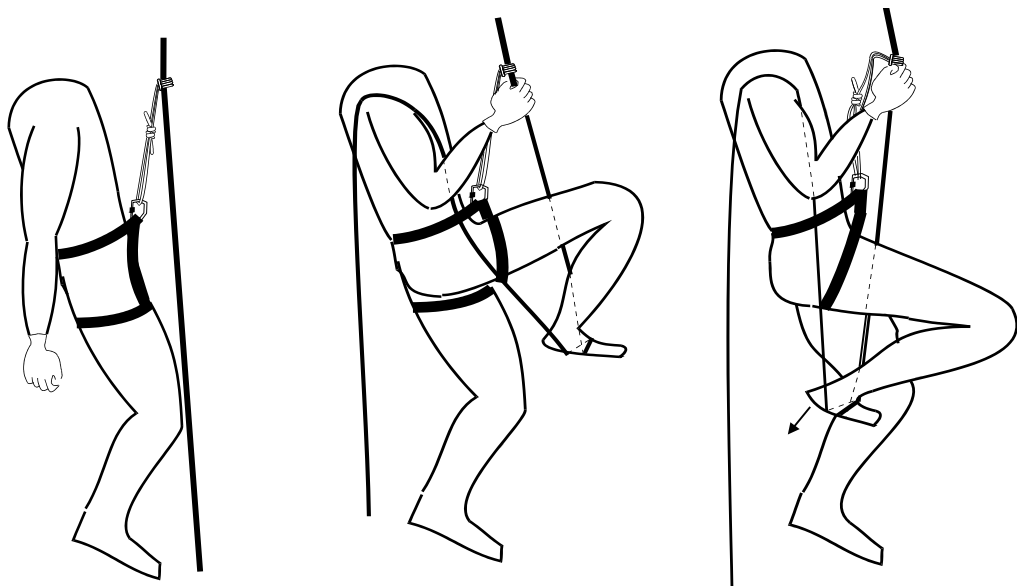


Fig 8-04b  
Foot wrap as seen looking down at your foot

Fig 8-04a  
Prusiking with one prusik and a foot wrap



### ESCAPING A BELAY

This technique can be used any time a climber has fallen and the belayer cannot lower the climber (fig 8-05). This may happen on a lead climb, where the leader has fallen and the rope is not long enough to lower the climber all the way, or it may happen if a top-roped climber falls and is knocked unconscious on a ledge. This assumes you are already attached to an anchor.

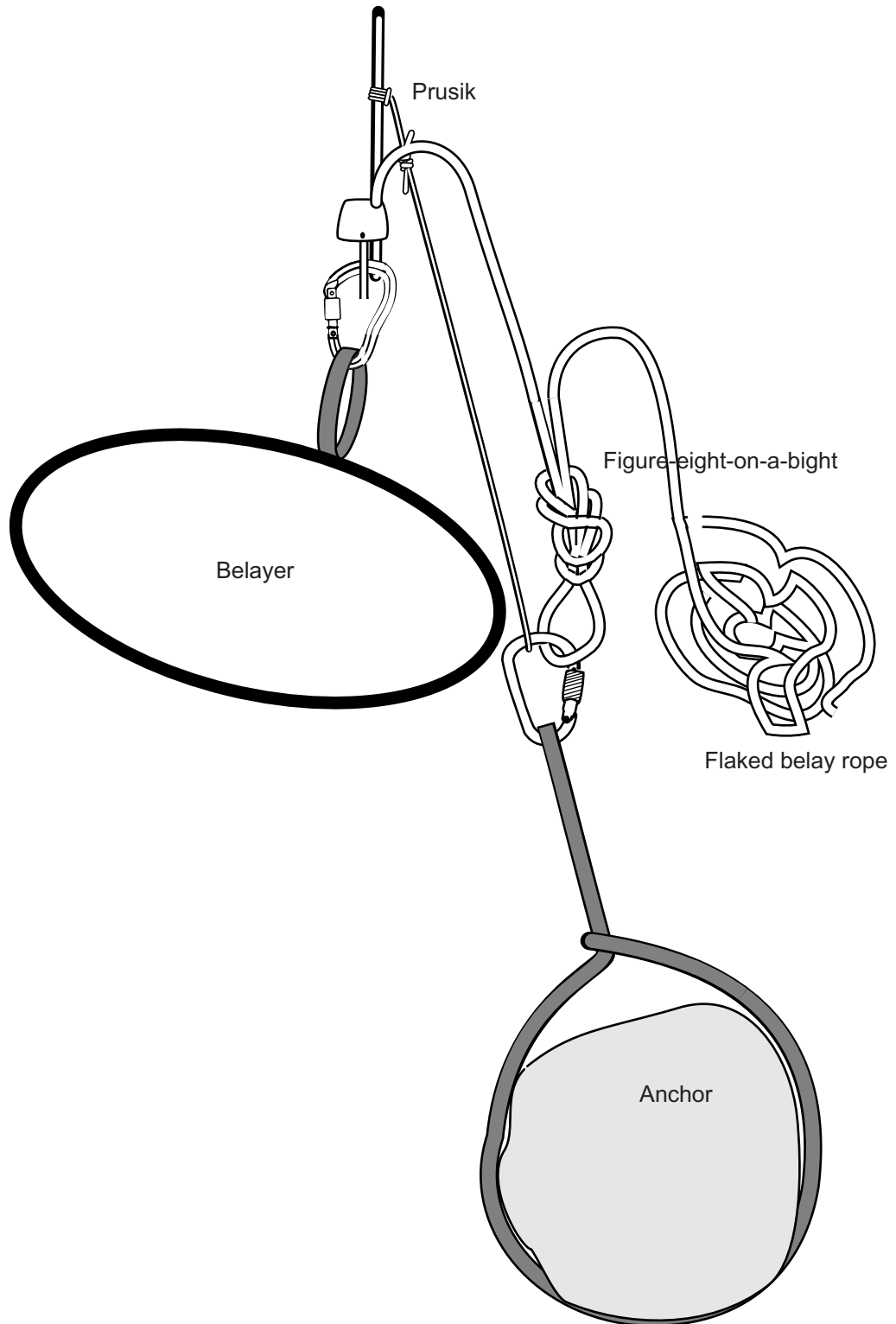
1. Keep the brake rope locked off. Wrap it around your leg if it helps to relieve the tension on your brake hand.
2. Take out a prusik. (Any prusik will do, depending on the distance from your belay device to the anchor.)
3. Install the prusik between your belay device and the climber.
4. Attach the free end of the prusik to a locking biner clipped to your anchor. Use a sling or another prusik to extend your reach if you can't clip the first prusik into the anchor. Lock the biner. Slide the prusik up as far as it will go.
5. Slowly release the brake rope until the prusik takes the full weight of the climber; remove your belay device.
6. Tie a figure-eight-on-a-bight below the prusik hitch and clip it to a different biner on the anchor.
7. You now have a backup for the prusik. If it fails, the figure-eight knot will stop the rope.
8. Get help.
9. To get back into the belay, put the rope below the prusik hitch into your belay device. Clip it into your harness locker as it was before. Double-check your belay setup as you would before letting a climber start. Make sure:
  - a. Your harness is doubled back
  - b. The harness locker holding your belay device is locked and oriented correctly
  - c. Your belay device setup is correct
  - d. The belay anchor is good
10. With your brake hand on, untie the figure-eight backup knot.
11. Lean back to take the weight of the fallen climber. If the climber is able to help, the process will be easier. When you are able to, slide the prusik toward you and remove it.
12. Your climber is now back on belay.

### TYING A HARNESS OUT OF WEBBING

This harness has a wide waist belt and skinny leg loops, both of which are necessary for comfort while hang dogging or rappelling. Start with 20 feet of 1-inch tubular webbing (fig 8-06).

1. Grasp the webbing 36" from one end. Let the ends fall and hook a finger through the bight with your right hand. Grasp both strands together, about 18" down, with your left hand.
2. Size the bight for your leg by holding your left hand on your inseam and your right hand on your outseam. Adjust the bight until your right hand is about two inches beyond the outseam. Don't lose that original 18" free end. Tie an overhand-on-a-bight at your left hand.
3. This loop should slip up your leg, to the top. The loop should stay in place without being a tourniquet.
4. Tie the other leg loop next to the first, but leave about 2–3 inches between the knots (the leg loop connector). If your harness carabiner is uncomfortably tight when you are standing, lengthen this leg loop connector.
5. You should now have a pair of "bunny ears," or leg loops. Step into them and slide the loops up to the top of your legs.
6. Wrap the long end of the webbing snugly around your waist at least 2 times, starting in the opposite direction from the original 18" tail. Spread out the wraps to distribute the load on your body. Bring the long (travelling) end back around your waist to the same side as the other (dangling) end (fig.A-3). Optimally, the travelling end should be about 12-18" from the side of your hip to the end.
7. Tie a loose overhand knot (the beginning of a water knot) in the travelling end so that the knot is right at your hip.
8. Bring the dangling end up and finish off the water knot. Bend forward at the waist or sit down while you tie the water knot. This final piece from your leg loops to the water knot should be snug. Clip in a locking biner through the leg loop connector and all waist loops. The biner gate should be "up and out."

Fig 8-05  
Escaping the belay



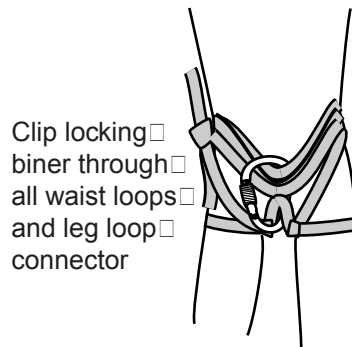
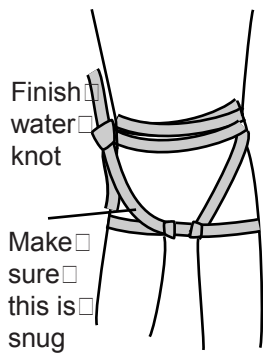
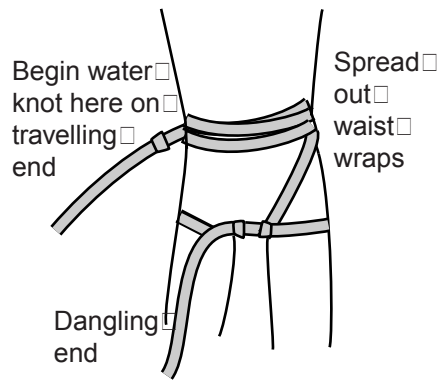
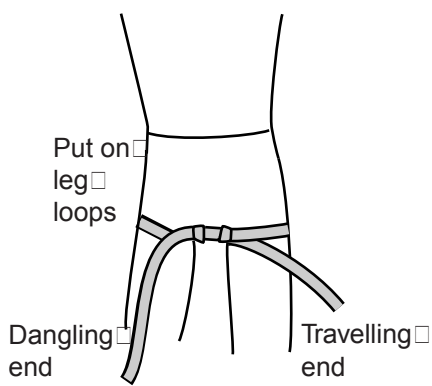
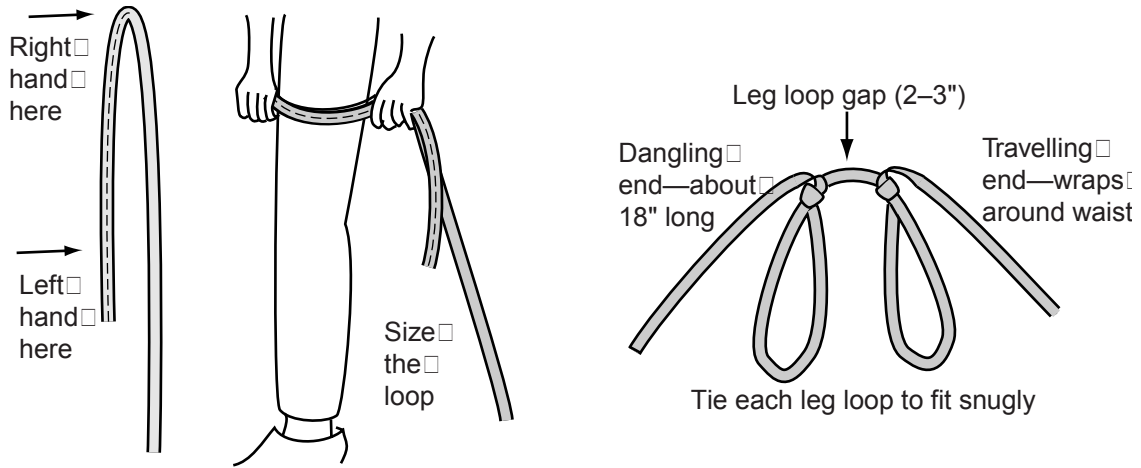


Fig 8-06  
Tying a harness out of 20 feet of webbing