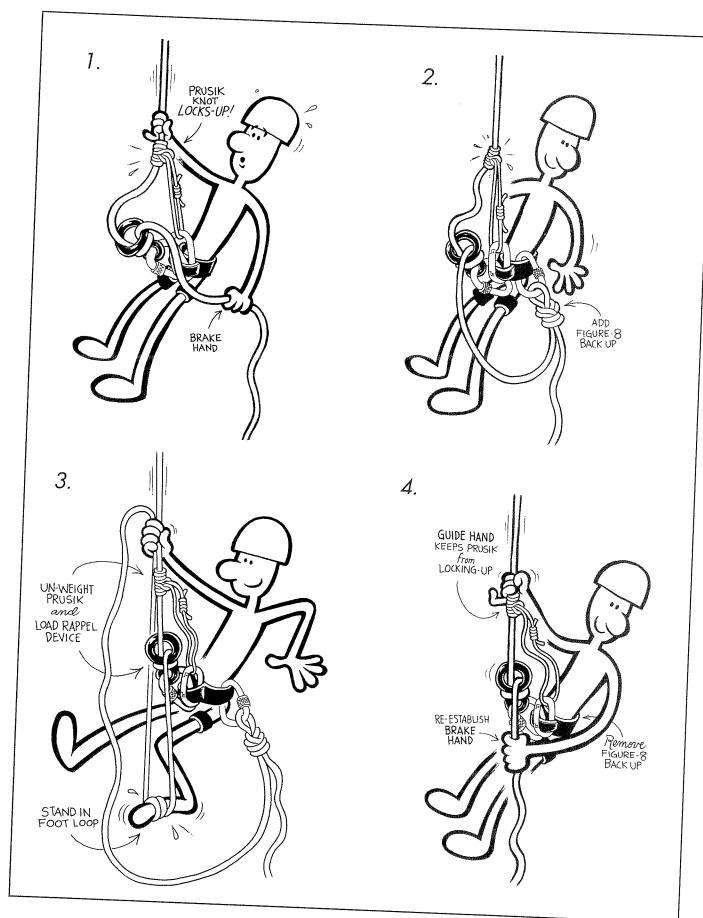


# Passing Knots

## CHAPTER 6

- b. Loop the rope around your foot just as you would to ascend a rope with a single Prusik knot. Hold the free end of the rope and the fixed rope in the same hand. Stand in the loop.
8. Remove the Prusik knot. To so you can either:
  - a. Loosen the Prusik knot, slide it down the rope and load the Autoblock. Next, remove the Prusik knot - this requires the six inch buffer due to "system stretch".
  - b. Remove the loaded Prusik while you are standing in the lower Prusik loop or loop of rope.
9. Remove the Figure Eight backup and rappel.

*Note: This system can also be used to escape a self-belay device. Assume you have weighted the device and wish to descend. Depending on your self-belay system, you can either begin from step 2; or you will need to add a Prusik knot above your self-belay device prior to beginning the sequence. This added Prusik, although more complex, may be needed to allow room for you to remove your self-belay device and extend your rappel device.*



The traditional method to backup a belay frequently stranded the climber from the Prusik knot. If, due to poor choice, you have used this method the illustration sequence shown here will unlock the Prusik knot.

This chapter covers two scenarios in which a rescuer must pass a knot which is connecting two ropes. These sections describe passing a knot while lowering a victim, and passing a knot while on rappel.

### PASSING A KNOT WHILE LOWERING A VICTIM

**Scenario:** You are lowering a climber from an anchor. You have tied two ropes together with a Double Fisherman's, or any other acceptable knot, to get the victim to the ground quickly. Because you have tied two ropes together, you need to get the knot past the belay device. Two methods are described.

The first, as well as the preferred, method utilizes two lowering points. The second lowering point is built above the first to create a simple transition when passing the knot. Ideally, this method is pre-rigged prior to lowering the victim to extend the first lowering point and tie the appropriate knots.

The second method will utilize only one lowering point. Typically, this method is more time consuming. However, depending on your circumstances, you may be unable to establish a separate lowering point above your original lowering point.

#### Method 1 - Passing a knot using two lowering points.

##### Set-up:

- a. From your anchor, use slings to extend a lowering device below this point.
- b. Next, attach a locking, pear style carabiner to your anchor. Attach your second rope, used to extend the lowering process, to the pear carabiner. The second rope is attached to the pear carabiner just above the Double Fisherman's, using a Munter Mule knot.

*Note: When attaching a second lowering device above the original, a Munter Hitch -versus a belay device- is used to allow the rescuer to lock the rope in place from below.*

- c. Position the first rope so it is running through your lowering device.
- d. Attach a Prusik knot to the first rope, below the lowering device, and connect it to the anchor using a Mariner knot or Munter Mule on a cordelette.

1. Lower the climber using the lowering device, while moni-

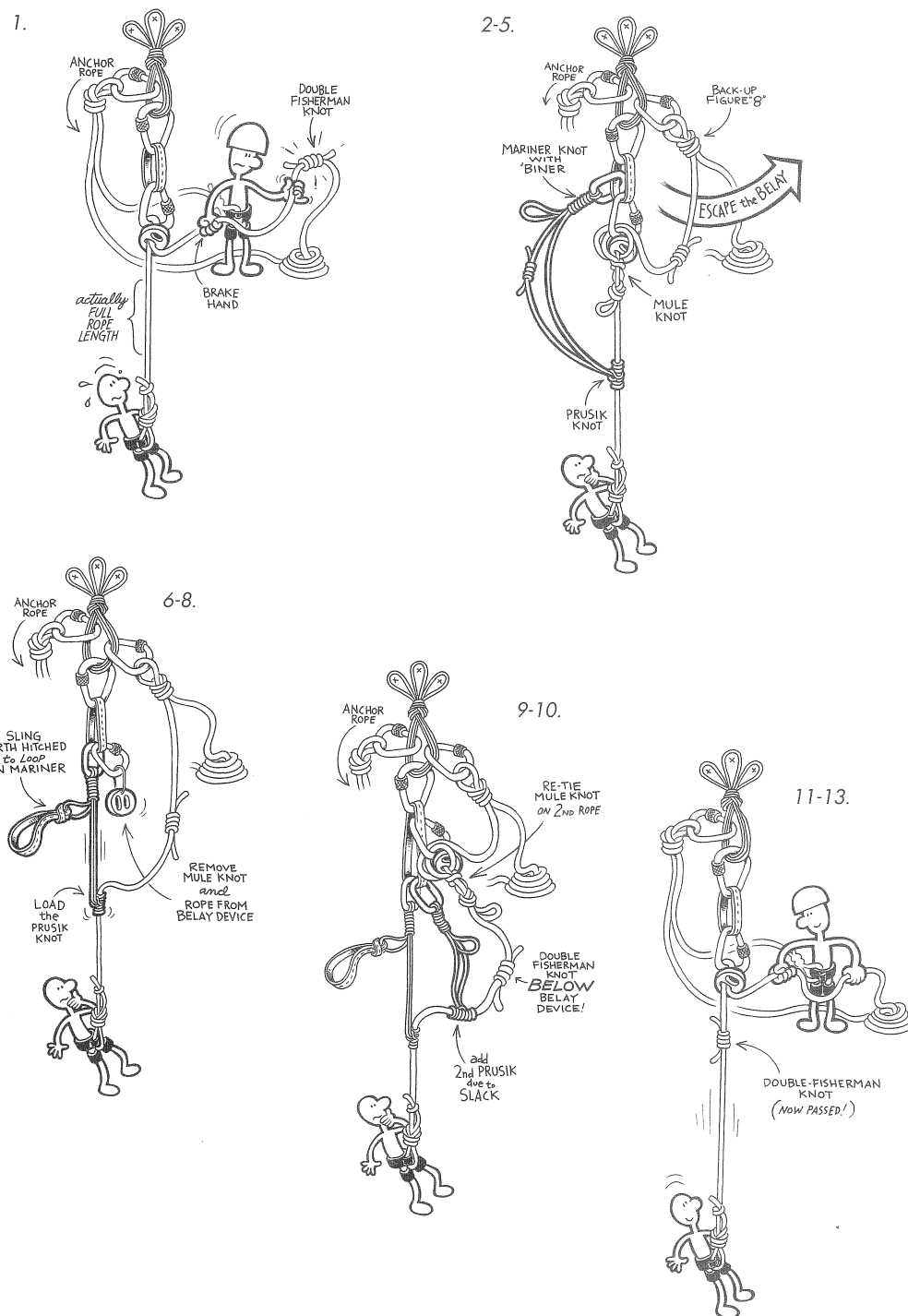
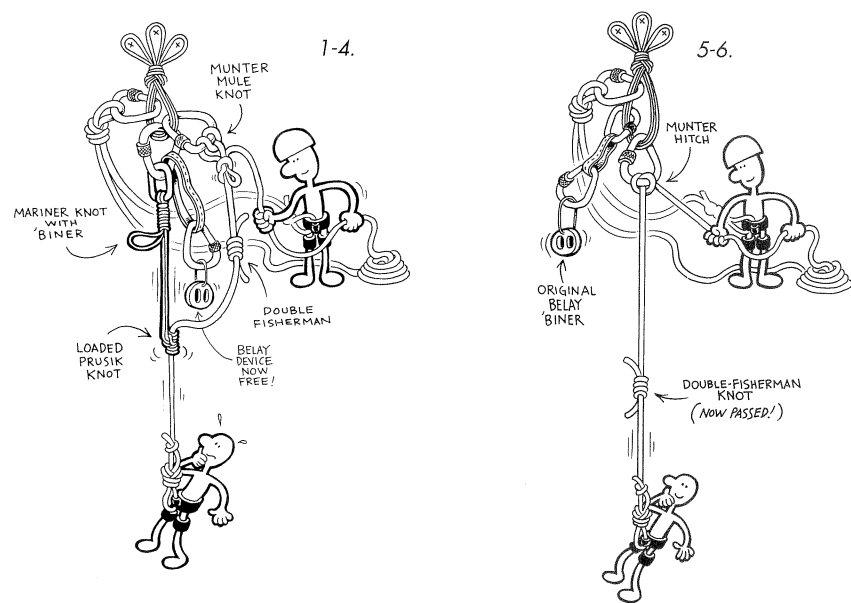
toring the Prusik knot so it does not lock.

2. Approximately two feet before the Double Fisherman's reaches the lowering device, allow the Prusik knot to lock the rope in place. The closer the Double Fisherman's is to the lowering device, the easier the transition. However, if the Double Fisherman's locks in the belay device, a separate Munter Mule and Prusik combination will be needed to free the lowering device.
3. At this point the Munter Mule knot, tied above the Double Fisherman's, is the backup. However, you may decide to add a Figure Eight backup, behind the Munter Mule knot on the second rope, as an extra precaution.
4. Release your belay device from the rope. The load is now on the Mariner or Munter Mule knot.

*Note: If using the Mariner knot, Girth Hitch a sling or accessory cord through the protruding loop of the Mariner knot. When the Mariner knot is released, any slack in the rope will shock-load the rope. The additional length provided by the Girth Hitched sling will allow the loaded rope to be lowered further than the original Mariner knot will allow. The extra length will be useful once you have passed the knot around the belay device - see further notes.*

5. Untie the Mariner, or Munter Mule knot, to load the second rope and the Munter Mule which is tied above the Double Fisherman's.
6. Pull on the Mule knot to "pop" it free and continue to lower using the Munter Hitch.

Passing a knot while lowering a victim via the Munter Mule method.



## **System two - Passing a knot using one lowering point.**

1. You are lowering the rope through a belay device and you have not had an opportunity to pre-rig the system.
2. One meter before the knot reaches the belay device, tie a Mule knot with an overhand to stop the lower and free your hands.
3. To backup, tie a Figure Eight loop and attach it to your anchor. To allow enough rope to work with, tie the loop three meters behind the knot connecting the two ropes.
4. Attach a Prusik knot to the loaded rope. The Prusik knot is attached under the belay device and towards the victim.
5. Attach the Prusik knot to your anchors with a Mariner or Munter Mule knot.
6. Untie the Mule knot which locked the belay device, but keep your hand on the brake end of the rope.
7. Gently release slack, monitoring the Prusik knot so it does not lock, until the knot connecting the two ropes is about two feet from the belay device. The closer the knot is to the belay device, the easier the transition.
8. Lock the Prusik knot in place. Be very careful not to jam the Double Fisherman's knot in the belay device.
9. Unclip the rope from the belay device and re-clip the rope after passing the knot around the belay device.

*Note: At this point you may be able to connect the second rope behind the belay device using a Munter Mule knot. If so, the remainder of the sequence is simplified and the first method, Passing a knot using two lowering points, can be used.*

10. Once the knot has been passed around the belay device, position the knot connecting the ropes close to the belay device and tie a Mule knot with an overhand. Follow these steps:
  - a. Attach another Prusik knot just below the knot connecting the two ropes and attach this new knot to the anchor with a Mariner or Munter Mule knot.
  - b. Untie the original Mariner or Munter Mule knot to load the new Prusik knot. Remove the original Prusik knot from the rope.

*Note: This transfer is generally, but not always, necessary to decrease the amount of slack in your system so you can retrieve your original Prusik knot.*

11. Untie the new Mariner or Munter Mule knot to load the belay device and Mule knot which is locking the belay device.
12. Untie the Figure Eight backup.
13. Remove the Prusik knot, unload the Mule knot, and continue to lower the victim.

*Notes:*

*Unless you are careful with your rope-handling, the Prusik knot will be out of reach after you release the Mariner knot. You will be forced to leave the Prusik on the rope. This may cause the rope to snag during the lower.*

*When tying the Prusik knot to the rope, the knot that makes a loop of the accessory cord (Double Fisherman's) should be close to the rope so it does not interfere with the Mariner knot.*

*Before you Girth Hitch cord or webbing through the protruding loop of the Mariner knot, make sure the knot is tied correctly. The Mariner knot should finish by wrapping around itself at least three times before it is threaded between the cord or webbing under tension. If not, the section to which the webbing has been Girth-hitched to extend its length will jam in the Mariner knot and be difficult to release.*

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## **ASSISTED LOWER**

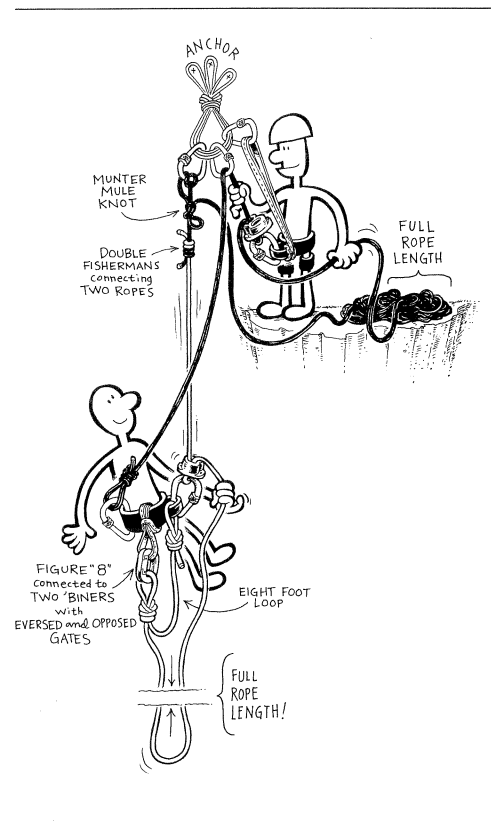
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This system can be used to quickly lower a victim or an inexperienced climber two full rope lengths without establishing a new rappel station or passing a knot. When utilizing this system, the rescuer cannot stay close to the victim while descending, so if the victim is injured, the rescuer should use the assisted or counter-weight rappel. Furthermore, if there are more than two pitches involved, the victim must be able to anchor to a new rappel station without assistance so that the rescuer can retrieve the rappel ropes and continue the descent.

**Scenario:** You are two pitches up a route, climbing with double ropes, and a lightning storm moves in. Your partner is new to climbing and you do not feel confident that he can retreat from the climb safely. Your objective is to retreat from the second pitch quickly while remaining in control of your partner's safety.

For clarity, I will refer to the two ropes as the White rope and the Black rope. The White rope is used by the victim to rappel and must be shorter than the Black rope. The Black rope is used by the rescuer to belay the victim during the rappel and lower the victim after the rappel.

1. Arrange belay anchors to allow the victim to rappel.
2. Join the two ropes.
3. The victim ties into the end of the White rope. The ropes need to be set up so that the White rope is shorter than the Black rope. This prevents loading the belay rope once the victim reaches the end of his rappel. To prevent the belay rope, or Black rope, from being improperly loaded, follow these steps:
  - a. From the victim's tie-in knot, measure out approximately eight feet of slack on the White rope.



Assisted lower.

- b. Tie a Figure Eight loop and attach it to the victim's harness using two reversed and opposed carabiners.
4. The joined ropes are attached to the anchor using a Munter Mule knot tied on the Black rope. The Munter Mule is attached to the anchor just above the knot used to join the two ropes.
5. The victim sets up a rappel on the White rope, attaching the rappel device just beneath the knot used to join the ropes.
6. Attach a locking carabiner to the victim's harness and clip the other end of the Black rope to the locking carabiner.
7. The victim rappels down the White rope while the rescuer belays him using the Black rope.
8. The victim rappels to the end of the White rope. The Figure Eight loop, which is attached to the victim's harness using two carabiners, will halt the rappel.
9. The victim unclips the Black rope that was used for a backup belay.
10. The rescuer releases the Mule knot and lowers the victim using the Munter Hitch.
11. Once the victim is on the ground, he unties from the rope.
12. At this point the rescuer can either pull up the ropes and set-up a multiple rappel to the ground, or rappel down the joined ropes passing a knot en route.

*Note: If the eight-foot section of rope used to shorten the White rope is needed to reach the ground, a few options are available. Probably the simplest solution is to have the victim use a backup friction knot during his rappel, such as an Autoblock attached to a leg loop. Instruct the victim to load the Autoblock knot just before the Figure Eight knot connected to the two carabiners reaches the rappel device. At that point, the victim will need to unclip from the Black rope. Next, he will unclip the White rope and continue the rappel until his tie-in knot halts the rappel.*

## PASSING A KNOT WHILE RAPPELLING

This section describes methods of passing a knot connecting two ropes while on either a low-angled or a free-hanging rappel. Such a scenario would be encountered when two ropes are tied together for a full rope-length counter-weight rappel – or if a particular circumstance requires passing a knot on rappel.

## AUTOBLOCK METHOD

**Scenario:** You are rappelling down a rope and your objective is to pass a knot around the rappel device. This method is used for low-angled rappels.

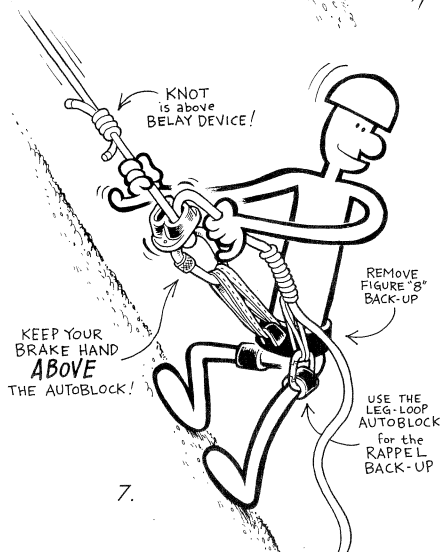
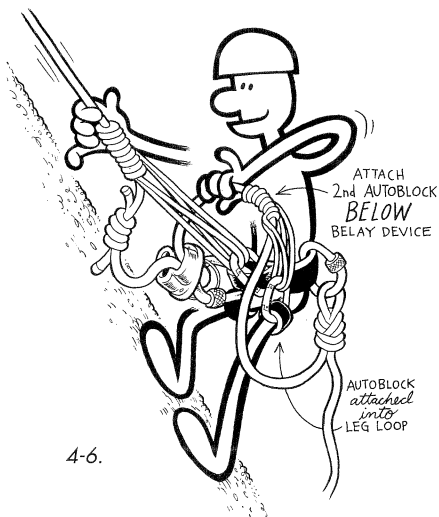
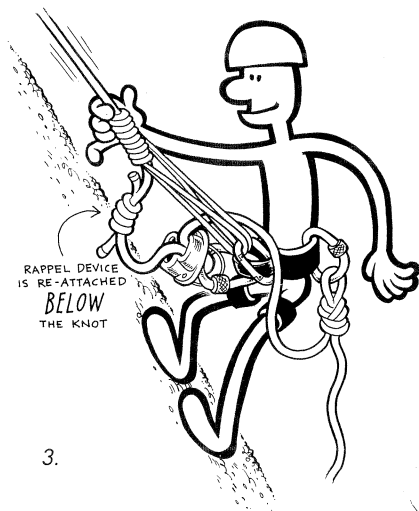
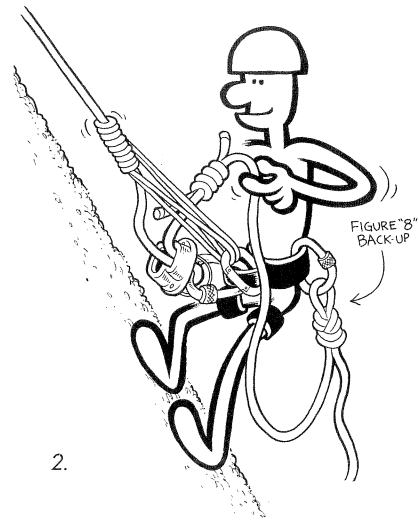
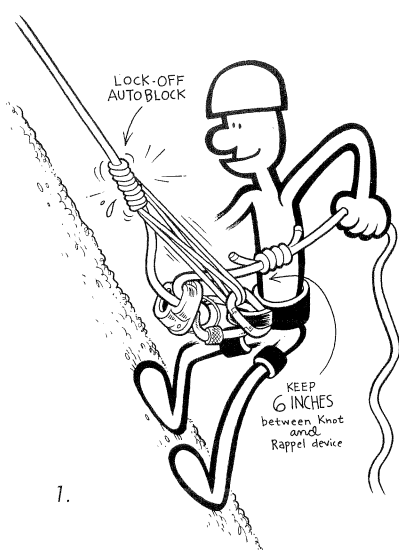
1. Load an Autoblock knot connected above your rappel device. This will stop the rappel before your rappel device reaches the knot connecting the two ropes.

*Note: The Autoblock is used because it can, with practice, be released while under tension. The distance from the Autoblock knot to your harness should be just less than an arm's length.*

2. To backup, clip a Figure Eight loop to your harness. The Figure Eight loop should be tied at least three meters below the knot connecting the two ropes.
3. Unclip the rappel device and re-attach it under the knot connecting the two ropes.
4. To backup the rappel,
  - a. tie another Autoblock knot on the rappel rope beneath the rappel device, and attach it to the leg loop of your harness with a short section of cord or webbing, and extend your rappel device using a doubled or Girth Hitched sling.
5. Grasp the top of the first Autoblock firmly and pull downward to unload the Autoblock.
6. Once you have loosened the Autoblock, the load will be placed on your rappel device and the second Autoblock that is attached to your leg loop.

*Note: If there isn't enough slack in the system to transfer your weight to the belay device, you will need to pull yourself up the rope a short distance to release the original Autoblock knot from the rope, or, prior to beginning the rappel, you will need to use a cordelette to form a "releaseable Autoblock." To do this, clip the cordelette into a locking carabiner, wrap the cordelette around the rope to form the Autoblock, and attach the other strand of the cordelette to the locking carabiner with a Munter Mule knot. To load your belay device and Autoblock backup, release the Munter Mule, which will unravel the Autoblock.*

7. Untie the Figure Eight loop, loosen the lower Autoblock and continue to rappel.



Passing a knot while on a low-angled rappel.

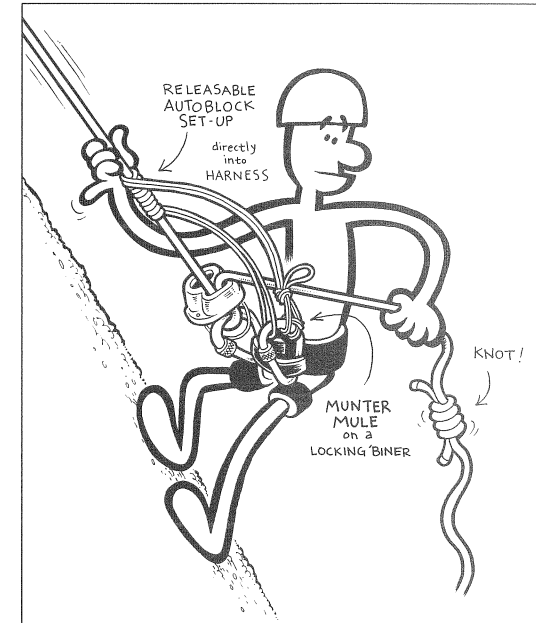
## STEP LADDER METHOD

**Scenario:** You are attempting to pass a knot, assume a Double Fisherman's knot, while on a free hanging rappel. While attempting to release your Autoblock from either its original locking position, or from its resting position on top of the Double Fisherman's, you are unable to get into position to unload the knot.

This problem arises due to the slack which has been created in the system. This slack is created from the space left between your belay device and the Double Fisherman's—the space was needed to prevent the knot from jamming in the rappel device. Slack was also created by passing your rappel device around the Double Fisherman's knot, and from extending your rappel device for the Autoblock backup.

In this sequence, you will construct a short step ladder to enable you to take your weight off the Autoblock.

1. The Autoblock, used to halt your descent and pass your rappel device around the Double Fisherman's, is locked on top of the Double Fisherman's. You need to un-weight the knot to release it.
2. Prior to releasing your belay device, you should tie a Figure Eight backup knot and attach it to your harness.
3. Extend your rappel device using a Girth Hitched, or doubled, sling.
4. Attach an Autoblock backup below your rappel device.
5. Firmly, take up the slack under the Double Fisherman's knot and guide the rope through your rappel device.
6. Firmly, slide the Autoblock up the rope to load the belay device.
7. Girth Hitch two slings together and attach them to the main rope, above you rappel device and just below the Double Fisherman's using a Prusik knot.
8. Stand in the step ladder, and remove the knot resting on the Double Fisherman's.
9. Redistribute your weight onto the rappel device and the Autoblock backup.
10. Remove the Figure Eight backup and continue your rappel.



Releaseable Autoblock setup.

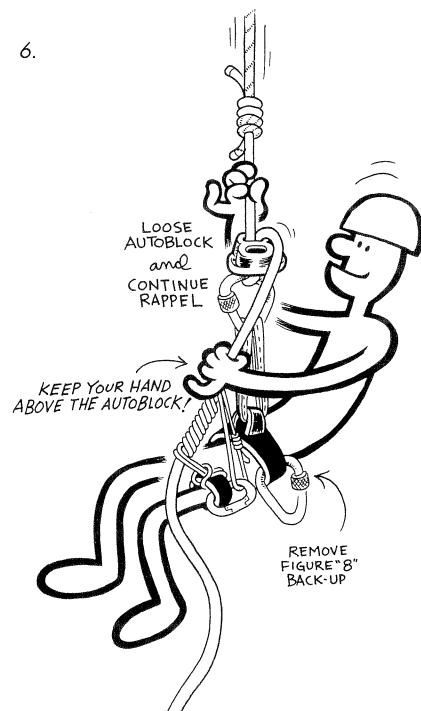
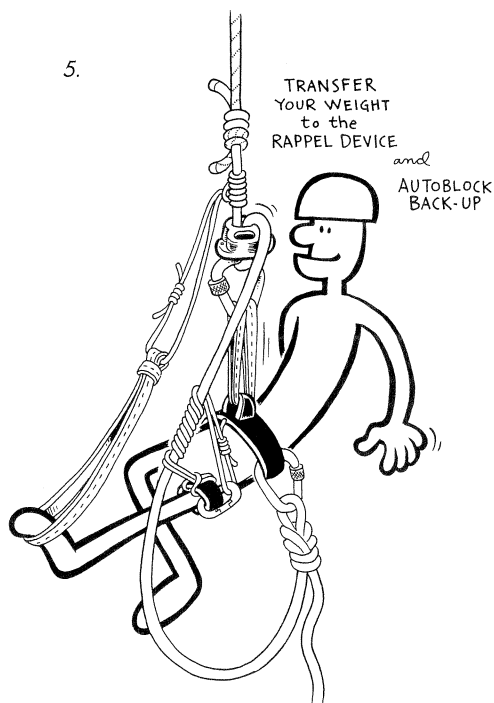
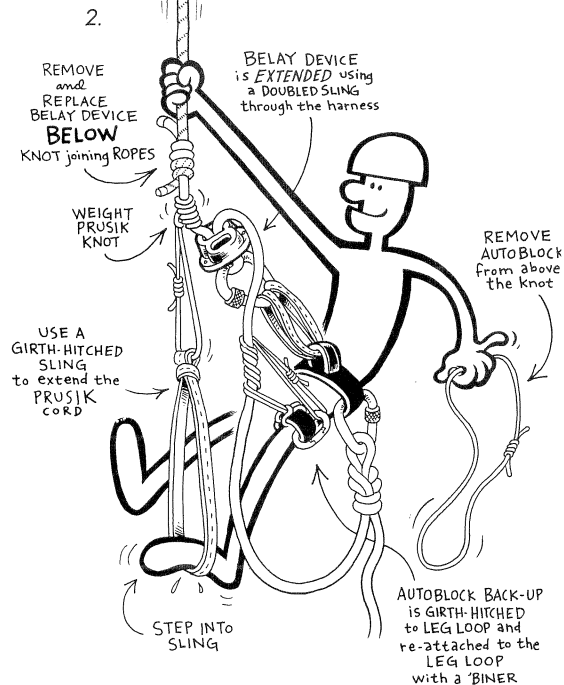
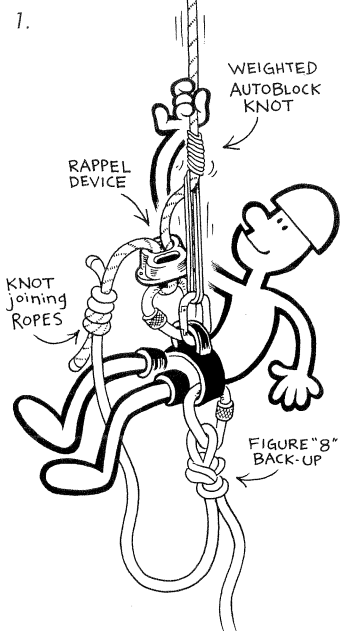
# Assisted and Counter-Weight Rappels

This chapter describes two methods of rappelling with a victim. In an assisted rappel, the rescuer and the victim descend the same rope while sharing the same rappel device. In the counter-weight rappel, the rescuer and the victim descend the same rope while counter-balancing one another.

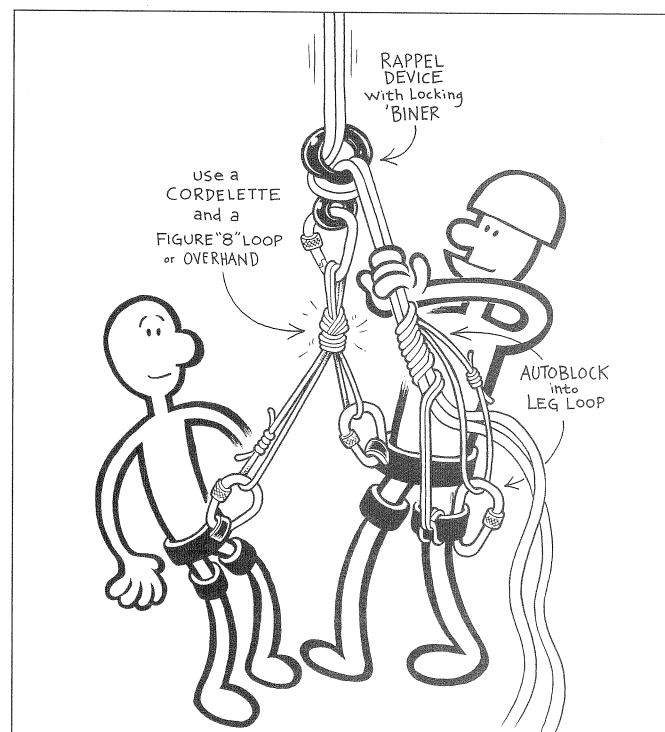
## ASSISTED RAPPEL

The assisted rappel, as described above, is a technique by which the rescuer and the victim descend the same rope, in close proximity, while sharing the *same* rappel device. This scenario would be encountered if the victim is unable to rappel without assistance due to injury or inexperience.

1. Attach a rappel device and locking carabiner through both strands of the rappel ropes. The ropes must be doubled to retrieve them after the rappel.



Passing a knot while on a free-hanging rappel.



Assisted rappel in the locked position.