

Blue Ridge Mountain Rescue Group

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Appalachian Search and Rescue Conference



Technical Rescue: Solo & Team Pick-Offs

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Chip McElearney

Blue Ridge Mountain Rescue Group, Inc.

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Task: To gain introductory knowledge on technical rescue pick-offs in preparation for a practical exercise.

Conditions: Ropes, cord, webbing, carabiners, and other hardware for students to view and practice with; knowledgeable instructors and an indoor classroom environment.

Standards: Understand and the principles and techniques involved in technical rescue pick-offs and be able to apply learned skills safely & efficiently during a practical exercise to follow.

Introduction

Technical pick-offs are performed when rescuing non-injured or slightly injured subjects that have gotten stuck in a vertical situation and cannot proceed up or down on their own. If the subject is more seriously injured a technical litter scoop or other advanced rescue (not covered in this block of instruction) may be required.

The anchor systems used in these situations are the same as prescribed in the *Introduction to Anchors and Technical Litter Rigging* class. Solo pick-offs using one rescue rope are set up in much the same fashion as a basic single rappel. Team based pick-offs using two ropes will utilize two anchors and one or two sets of rappel racks, two load releasing hitches (LRHs), prusik back-ups, and prusik minding pulleys (PMPs). An independent belayer is used to control each line (working or belay) to lower or raise the rescue package.

The following information describes several methods to perform pick-offs. It is by no means all encompassing or completely definitive. Many variations of these methods exist. The student will benefit most from careful understanding of *the overall process and reasoning behind the techniques*.

Types of Subjects

Unsupported

- Subject is standing or clinging from rock or a structure without a rope or fall arrest system
- Rescuer should be prepared to “capture” the subject upon contact and attach a harness (pre-made or improvised)

Supported

- Subject is hanging on a rope or fall arrest system
- Subject is wearing some type of harness
- Rescuer must transfer subject's weight from the subject's system to the rescue system

Unsupported



Supported





Types of Rescue Pick-Offs

Solo Based

A lone rescuer ascends or rappels to the subject and lowers the subject to the ground.

Pros

- Provides the fastest access to the subject in a remote spot
- Requires a minimum of personnel and equipment

Examples

- Rescuer rappels down his/her rescue line to a stranded subject on a rock face
- Rescuer ascends up or rappels down a stranded subject's rope
 - Subject is stuck in safety or ascension prusiks and can't release them on his/her own
 - Subject's rappel device caught with clothing/hair

Team Based

A team lowers a rescuer to the subject with a working line and a belay line; rescuer attaches subject to the system and the team lowers or raises both persons to safety.

Pros

- Rescuer has hands free and better able to deal with the subject
- Easy to bring rescue package back to the top
- Provides the most options in the event of a problem

Rescue Pick-Off Scenarios

Solo – Unsupported Subject

The rescuer reaches the subject using the rescuer's line and attaches a harness to the subject for lowering. Both the rescuer and subject rappel together from a rappel rack.

1. Locate the fall line above the subject and set up slightly right or left if possible.
2. Establish an anchor system for rappel.
3. Bring helmet for subject, extra webbing and carabiners.
4. Pre-connect commercial rescue harness (if available) to rappel rack using a webbing loop or pick-off strap.
5. Carefully rappel to subject; do not dislodge loose rock or debris that may fall on subject during rappel.
6. Approach subject with caution; reassure and instruct them not to move or grab the rope.
7. Stop slightly above the subject.
8. Add *all bars* of rappel rack and lock off.
9. Attach commercial or improvised harness (see below) to subject; be careful not to pull subject off.
10. Put a helmet on subject and apply a chest harness if needed.
11. Instruct subject to sit back onto harness.
12. Unlock rappel rack and rappel to ground with the subject.
13. Remove subject from the fall line ASAP.



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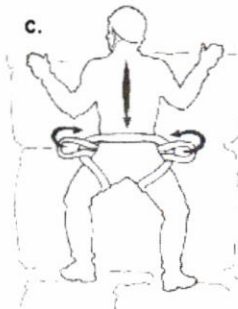
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Improvised Rescue Harness

When the subject is unsupported and no commercial rescue harness is available, construct a simple temporary improvised harness out of webbing. This harness can be quickly placed on the subject from behind with minimal effort.

1. Drape a large webbing loop over the shoulders of the subject (a.)
2. Reach from the back around the sides through the legs and grab the dangling loop (b.)
3. Pull it up through the front of the crotch. Grab the sling from both sides and pull it around the subject's sides and waist (b.)
4. Allow the sling to fall from the subject's shoulders. Pull the front crotch loops through the back sling and back again to the front (c.)
5. Attach a carabiner through the front loops and the subject is ready for attachment to any other rescue line (d.)

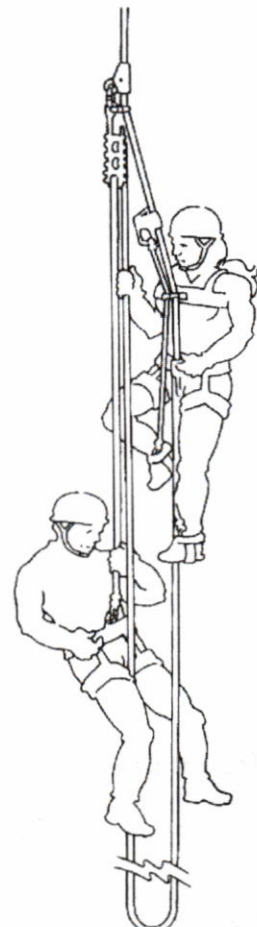


Solo – Supported Subject

If the rescuer has his/her own line, use it as described above. If not, the rescuer must rely on the subject's line already in place.

Picture to the right illustrates rescuer lowering the subject after rescuer ascended up the subject's rope. Note rappel rack suspended above both persons – can be done with a Gibbs (shown) or prusiks.

1. Inspect and verify safety of subject's anchor setup and rope. Proceed on subject's rope only if sure of its safety.
2. Ascend or rappel to the subject.
3. Lock off rappel device if rappelling to subject.
4. Secure subject with a webbing loop or pick-off strap.
5. Hang a rappel rack above subject and rescuer with a prusik or mechanical ascender attached to main line.
6. Pull up the end of the rope leading to the ground and tie a Figure-Eight on a Bight; attach the Bight to the subject's harness.
7. Put the rope in the rappel rack, snug it up as tightly as possible, and lock off the rack.
8. *If the subject needs to free a stuck prusik or rappel device:* attach an etrier to the rappel rack and have subject step up on etrier to release the prusik/descender. If subject unable to step up, use a simple pulley set-up (4:1) to raise subject and release stuck device.
9. Carefully detach the subject's original prusik(s) and/or rappel device. The subject is now hanging from the end of his/her rope and upper rappel rack.
10. Unclip the webbing loop/pick-off strap connecting rescuer to subject.
11. Carefully unlock upper rappel rack and lower subject to the ground.
12. Remove upper rappel rack from rope, unlock rescuer's rappel device or change to rappel after ascending, and rappel to ground.



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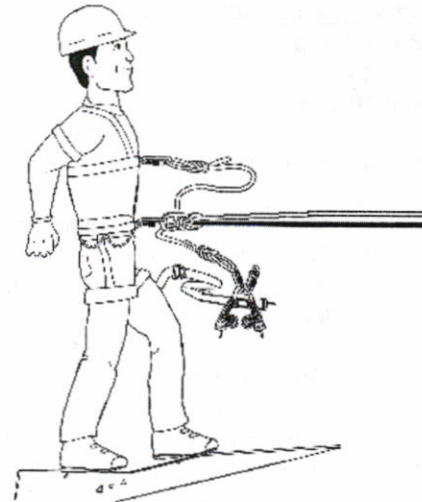
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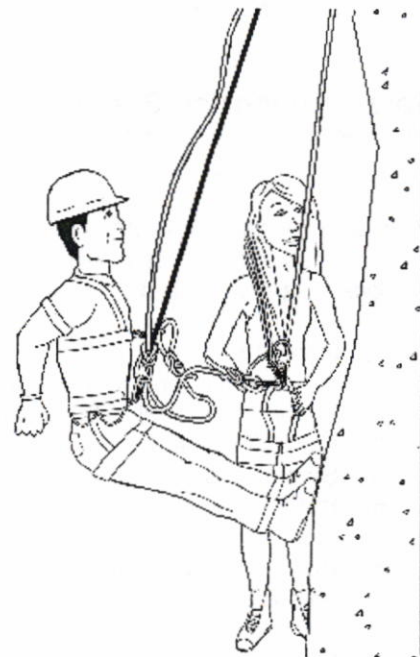
Team – Supported & Unsupported Subject

The rescuer and subject are lowered by a team from above.
Team-based rescues use *TWO* ropes (main line and belay line)
as in most other types of technical rescue.

1. Rescuer connects to working line and belay line that are tied together as one with a doubled long tail Bowline (tails are 3' long). The Bowline with the two ropes is connected to the rescuer's waist harness. A Figure-Eight on a Bight is tied on each tail.
2. Connect one tail to rescuer's chest harness as a second point of contact.
3. **Unsupported:** Connect other tail to a rescue harness or have ready to connect to improvised rescue harness once applied to subject. Also attach rescue harness to rescuer with webbing loop or pick-off strap.
Supported: Other tail is ready to connect to supported subject's harness once reached.
4. Bring helmet for subject.
5. Advise team that rescuer is ready to lower and be sure to protect ropes from edge friction.
6. Lower over edge when ready.
7. **Unsupported:** Call for a stop when even with subject. Attach harness to subject.
Supported: Call for a stop slightly above subject. Connect other tail of rescue line to subject's harness and attach sling or pick-off strap to subject.
8. Put helmet and chest harness (if needed) on subject.
9. Have team raise subject slightly to tension line or unload stuck prusik/belay device.
10. **Supported:** Disconnect subject's support system.
11. Have team raise or lower rescuer and subject to safety.



Rescuer preparation (steps 1-3)
Unsupported, Commercial Rescue Harness



Team pick-off (step 7) Supported Subject
Pick-off strap omitted for clarity

References:

Pendley, Tom. The Essential Technical Rescue Field Operations Guide, Second Edition. Desert Rescue Research. July 2000. Rescue Pick-offs section.

Smith, Bruce and Allen Padgett. On Rope, North American Vertical Rope Techniques. New Revised Edition. National Speleological Society, Huntsville, Alabama. 1996. Chapter 12, Vertical Skills and Rescue Training.