

I. INTRODUCTION

- A. Purpose: To provide Department personnel with information and instruction for constructing lowering systems and belay lines.
- B. Scope: This instruction applies to all sworn personnel.
- C. Author: The Deputy Chief of the Special Operations Bureau is responsible for the content, revision, and periodic review of this instruction.
- D. Objectives: To assist Department personnel with identifying lowering systems, belay lines and their components and maintaining uniformity Departmentwide.
- E. Definitions: See glossary.

II. RESPONSIBILITY

- A. All sworn personnel are responsible for the information contained in this section.
- B. Company officers/training captains are responsible for training personnel and ensuring proficiency with the information contained in this section.

Note: It would be virtually impossible to describe a system for every type of rope rescue situation that might be encountered. Therefore, it is the responsibility of each individual to fully understand the equipment, its use, and its limitations to ensure that the rescue system built to handle a particular rescue situation is a safe system and the one which will be the most effective.

The location and physical condition of the victim will also contribute to the type of system to construct. Equipment, resources, number of trained personnel, and the speed of implementation must all be considered.

The systems in this manual are general purpose in nature, built around the equipment supplied in the Department's rescue and lifeline packs, and utilize the Department's standard knots and hitches. Specialized equipment obtained by individual units may alter the systems described.

III. POLICY

- A. All lowering systems shall be constructed with both a main and belay lifeline.
- B. All sworn personnel shall be able to construct a lowering system using both a main and belay lifeline.
- C. Commands: The following commands and whistle signals shall be used on all lowering systems.
 - 1. All stop* (one long whistle blast)
 - 2. Lower (three whistle blasts)
 - 3. Raise (two whistle blasts)
 - 4. Belay line ready
 - 5. Main line ready
 - 6. Rescuer(s) ready
 - 7. On belay line
 - 8. Off belay line
 - 9. On main line
 - 10. Off main line

*If at any time during a rescue operation it is felt that something is not correct with the system being used or the procedures being applied, a rescuer should loudly state “**ALL STOP**”! All personnel shall stop their actions immediately until the suspected problems can be resolved.

- D. Lowering Systems
 - 1. Lowering systems are used to lower personnel over the side, off of an object, or out of a helicopter. Helicopter lowering systems are called short-hauls and utilize a single lifeline.

2. Lowering systems shall include both a main and belay lifeline. The belay is a back-up to the main lifeline and is the only means of protection should a fall or failure of the main lifeline occur.
3. Separate anchor points shall be used for the main and belay lifelines. At no time should both lifelines be attached to the same anchor point.

IV. PROCEDURES

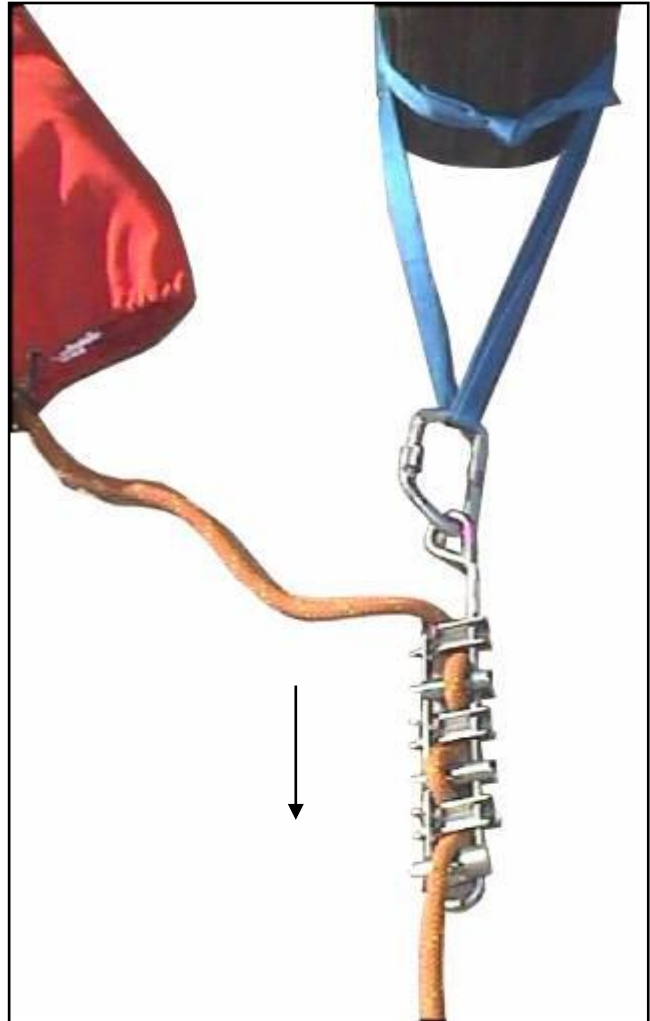
A. Rescue system for lowering main lifeline

1. Establish an anchor system. (See Vol. 4, Chpt. 6, Sub. 8)
2. Attach a carabiner to the anchor webbing.
3. Make a one foot bight with the lifeline. Place the bight up through the large hole in the figure 8 descender and wrap over the small end of the figure 8 descender. Clip the small hole of the figure 8 descender into the carabiner attached to the anchor system, and lock the carabiner.
4. Tie a figure 8 on a bight at the end of the main lifeline and attach it to the sit harness of the rescuer or to the pre-rig assembly of the stokes litter, depending on the operation.



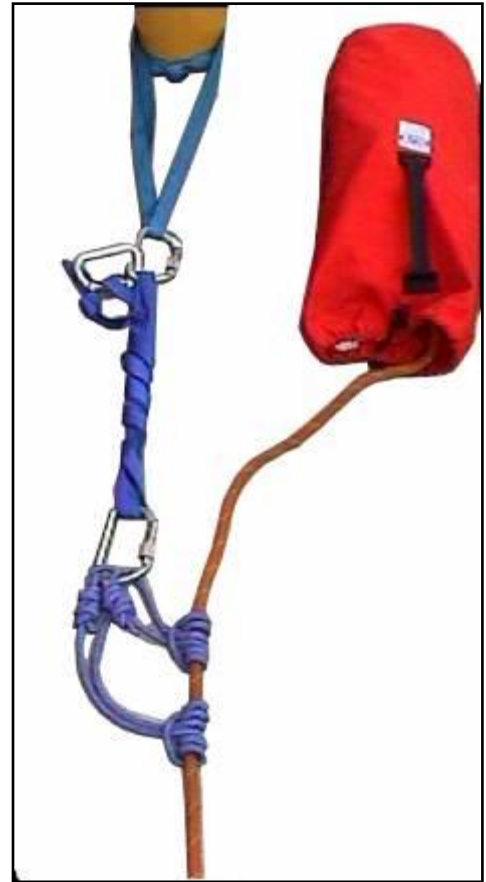
5. If using a brake bar rack, clip the brake bar rack into the carabiner attached to the anchor system and lock the carabiner.

- a. Feed the main line through the brake bar rack, making sure the rope is NOT passed between the first bar and the bend in the rack.
- b. Engage all available bars in the rack and insure that the rope is threaded properly.



B. Rescue system for lowering belay lifeline

1. Establish a separate anchor point for the belay lifeline. If possible, use a different color rope. The belay lifeline is the only means of protection should a fall or a failure of the main lifeline occur.
2. Attach a webbing load releasing hitch or radium release hitch to the anchor system.
3. Attach the short prusik, using three wraps to the belay lifeline, and clip into the load end carabiner of the webbing load releasing hitch or the radium release hitch.
4. Attach the long prusik, using three wraps to the belay lifeline, to the load side of the short prusik, and clip into the same carabiner as the prusik.
5. Tie a figure 8 on a bight and attach it to both the sit and chest harness of the rescuer or to the pre-rig assembly of the stokes litter depending on the operation.



Proper belay position and technique.



C. Operation

1. When both the main and belay systems are ready, a safety check shall be completed on all the rigging, from the anchor to the rescuer(s).
2. The control person then needs to insure that the appropriate people are in position and ready to begin by asking the following questions and receiving the response shown:

Belay line ready? Belay line ready!

Main line ready? Main line ready!

Rescuer(s) ready? Rescuer(s) ready!

Answering ready, means that all systems are ready to operate immediately. If there is a delay at any position, the response should be “stand by” and indicate what the problem is and how long it will take to correct the situation.

3. The person in charge of the main lifeline operates the brake bar rack or the figure 8 descender (single person load only). This person controls the speed of the lowering system. Speed commands are relayed from the rescuer through control to the person operating the brake bar rack or figure 8 descender.
4. The person on the belay lifeline will operate the tandem prusiks. The belay person must always be attentive, and feed the belay lifeline through the prusiks at such a rate that they do not set prematurely. The belay line should be kept slightly slack and should never be left unattended.
5. The control person is to issue all commands and should be stationed in such a position to maintain voice or radio contact with the rescuer(s). The rescuer(s) will advise control on the speed of descent throughout the lowering operation.
6. When the rescuers reach the victim or the bottom, the brake bar rack or figure 8 descender shall be locked off.

D. Lowering system for a victim pick-off

1. Use: A lowering system rescue is designed to rescue an uninjured or slightly injured victim from a vertical or near vertical location.

This evolution is designed to lower a single rescuer on a two-line rescue system to the victim, then secure the victim and either continue lowering both rescuer and victim to the bottom or changeover to a raising system and bring both back up to the top.

2. Procedure:

- a. Set up a two line lowering system.
- b. Rescuer puts on a sit and chest harness or full body harness if equipped.
- c. Rescuer obtains equipment for securing victim to lifelines and secures on harness, a minimum of one prusik, one blue webbing pre-tied into a continuous loop, victim sit harness, two carabiners, helmet, if necessary, and a radio.
- d. Rescuer attaches to both main and belay lifelines.
- e. Complete a safety check and begin the lowering operation.
- f. Rescuer notifies control person to stop when the victim is reached.
- g. Rescuer immediately ties a chest harness or hasty harness around the victim's chest and connects it to the bight of the belay lifeline with a carabiner. The victim is now in a secure position.



h. Attach a prusik loop to the main lifeline using three wraps. (This can also be done prior to going over the side.)

i. Tie/attach a sit harness to the victim and connect it to the prusik loop on the main lifeline with a carabiner. Adjust the prusik loop so the victim is positioned in front of and between the rescuer's legs.

Note: The victim may be facing toward or away from the rescuer. If the victim is already wearing a sit harness it may be faster to connect it to the prusik loop prior to tying and connecting the chest harness.



j. Once the victim is attached to both lifelines the determination shall be made to continue lowering to the bottom or convert the system over to a raising system.



- k. The rescuer can adjust the position of the victim on the lifeline by adjusting the prusik.

