ROCK RECOVERY

HANDBOOK

ROCK RECOVERY

With even the utmost care being exercised, the unforeseen can occur, resulting in the need for a recovery to be performed.

When rigging an abseil THINK;
1) What can go wrong?
2) What can I do to minimise the risk?
3) What will I do if something does go wrong?

and design the set up such that the recovery of an abseiler in difficulty can be performed simply and safely.

The abseil leader must be able to remain calm, reassure the members of the party, assess the situation and formulate a recovery technique appropriate to the situation.

Every incident is unique and the principles of recovery need to be applied in a manner that takes into account the special circumstances surrounding each incident. Therefore, to become proficient in recovery techniques requires more than reading the information contained in this handbook, which is only intended as a learning aid to be used in conjunction with proper instruction.
To become proficient requires undertaking a rock recovery course in the first instance, followed by regular practice under differing scenarios.

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and is intended for use by Scouts for Scouts

DEALING WITH AN ABSEILER IN DIFFICULTY.

An abseiler may encounter a difficulty that requires a recovery. The difficulty may arise from such things as;

Misfortune	Hair or clothing caught in the descending device. Abseiled into a bight of the rope when the end of the rope is caught in a bush or crack. "Frozen" (the abseiler cannot do anything due to fear) Rope does not reach the bottom. Knot in the rope.
Injury	Rope burn of the hands. Fracture/sprain of the wrist or ankle. Fractured/badly bruised elbow or ribs.
Medical	Hypothermia or hyperthermia. Fainting. Asthma. Heart attack/stroke. Epilepsy.

Clear and concise communication between the abseil leader, the abseiler in difficulty and the abseil party is paramount.

The abseil leader must quickly and calmly access the situation, formulate an action plan and communicate it to the group. In most incidences, the abseiler will be able to affect their own recovery by employing their prusik loops or mechanical ascending devices. If a "self recovery" is not appropriate for the situation, the abseil leader will firstly need to decide if the abseiler needing recovery will be lowered down or hauled up. Without doubt, the quickest method is to lower the abseiler and is the technique most likely to be chosen. However, there may be circumstances where this is not the best course of action.

Depending on the nature of the situation, the abseiler may require assistance while being lowered. An experienced abseiler will abseil on another rope, connect a cord between him/her self and the abseiler and guide and assist as necessary during the lowering of the abseiler.

"Rope to Rope" rescue is where the rescuer abseils on a second rope to just above the abseiler, connects the abseiler to him/her self, attaches a pulley to the abseiler's rope, runs cord from the abseiler's harness through the pulley, stands in a loop in the end of the cord to lift the abseiler's weight off their device and unclips the device from the abseil rope. The rescuer then descends, with the abseiler, on the rescue rope. **This technique is difficult and slow to effect, requires much practice and experience by the rescuer and places a double strain on the rescuer, rescuer's harness, abseil rope, and descending device. Therefore simpler techniques are preferable**

LOWERING

The possibility of difficulties arising should have been considered by the abseil leader and the anchoring system designed to deal with the situation should it eventuate.

Having assessed the situation and deciding on this action, the abseil leader will communicate this to the "abseiler in difficulty" and the abseil party. The "abseiler in difficulty" must tie him/herself off securely. A second rope is attached to the abseil rope and either passed through a belaying device or passed around a tree for friction. All the slack and as much stretch as possible is taken out of the second rope. The "abseiler in difficulty" is kept informed during the setup and then warned they will experience a short drop of perhaps 300mm. With the belayer/s in position and ready, the "abseiler in difficulty" and the belayer/s are given a count down and the sling holding the abseil rope is cut. The "abseiler in difficulty" is then lowered. The abseil rope can then be hauled up and re-rigged.

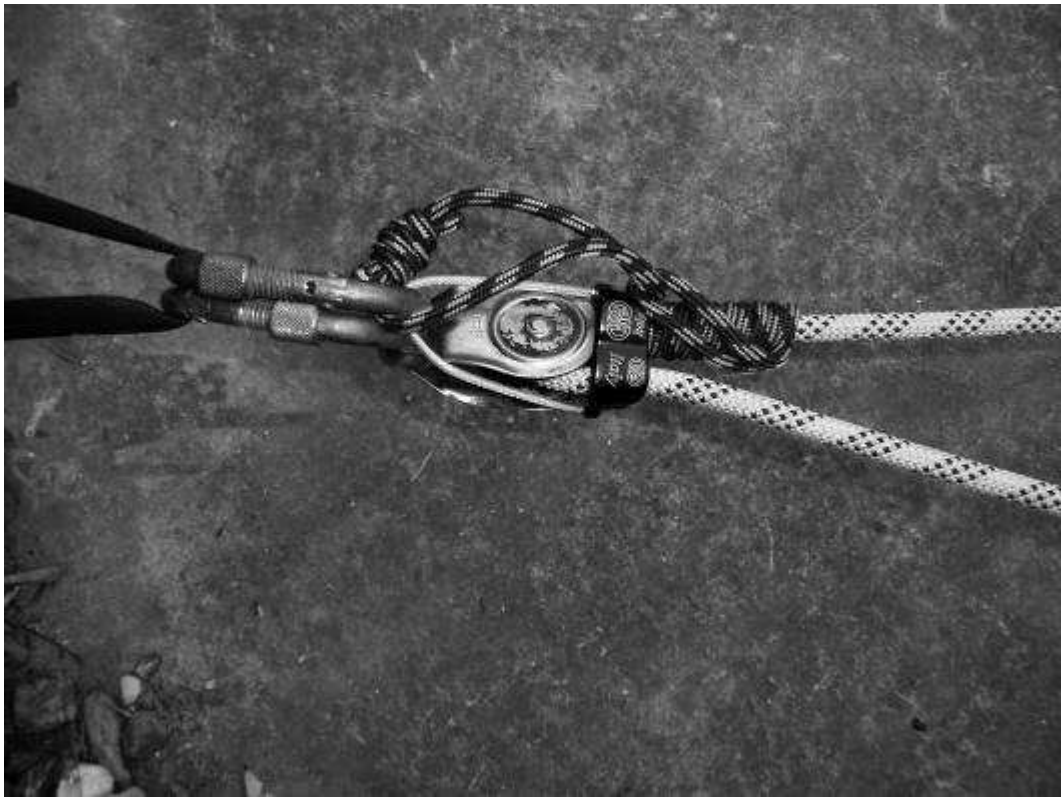
If the "abseiler in difficulty" requires assistance, a second rope is rigged and an experienced abseiler will descend, tie off beside the person and connects them with a cord from the person's harness to their own. The above procedure is followed and the recoverer will then abseil beside the person being lowered to guide and assist as necessary.

HAULS

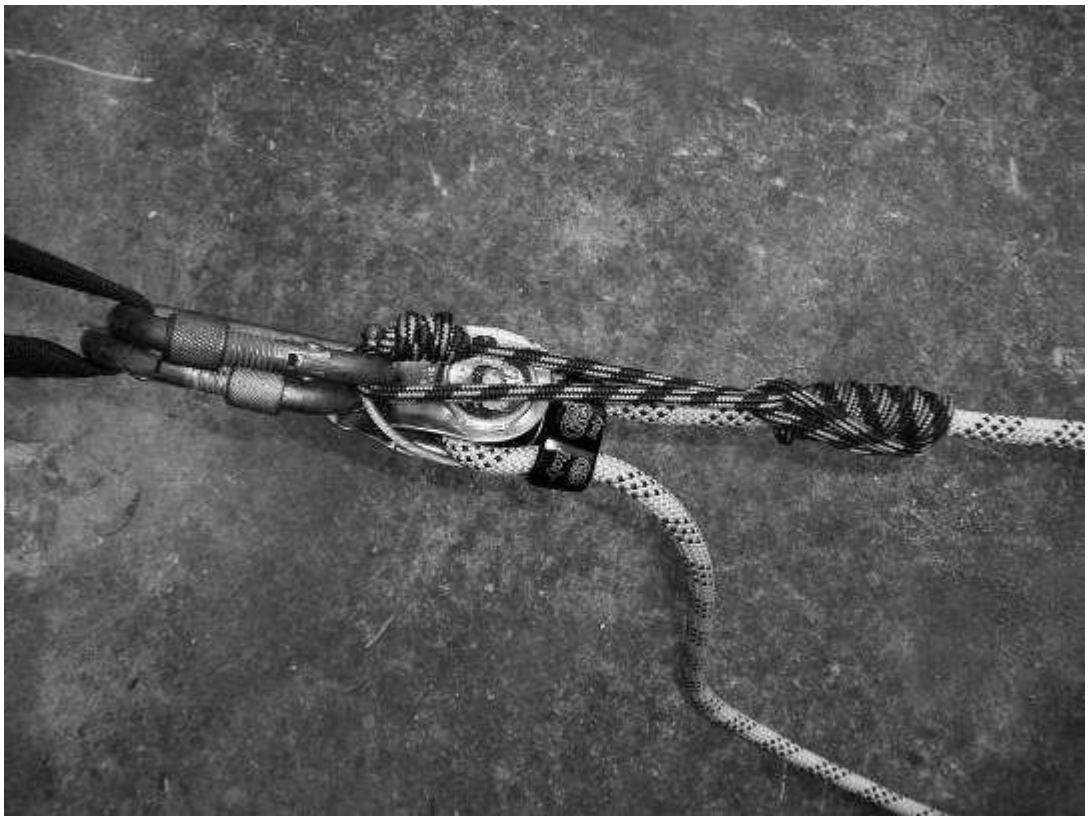
If the situation requires the abseiler to be hauled up rather than be lowered, the technique employed will depend on whether the abseiler can assist or not and the number of people at the top. In any event, a braking system must be used to prevent the abseiler from falling back down if the hauling slips or needs to be adjusted. One method is to position a person on a safety line, close to the cliff edge. This person controls an ascending device or prusik that is acting as a brake, as well as communicating between the abseiler and the haulers. Another method is to set up an auto-brake using a Klemheist or French prusik and tubular device.

AUTO-BRAKE

The recovery rope is passed through a tubular device before passing through a pulley and the pulley attached to the anchor. A Klemheist or French prusik is attached to the load side of the recovery rope, in front of the tubular device, and secured to the anchor. When the recovery rope is hauled on, the prusik moves towards the pulley but is prevented from jamming the pulley by the tubular device. When the haul is released, the load is held by the prusik.



Auto-brake with the rope being hauled



Auto-brake with the rope arrested

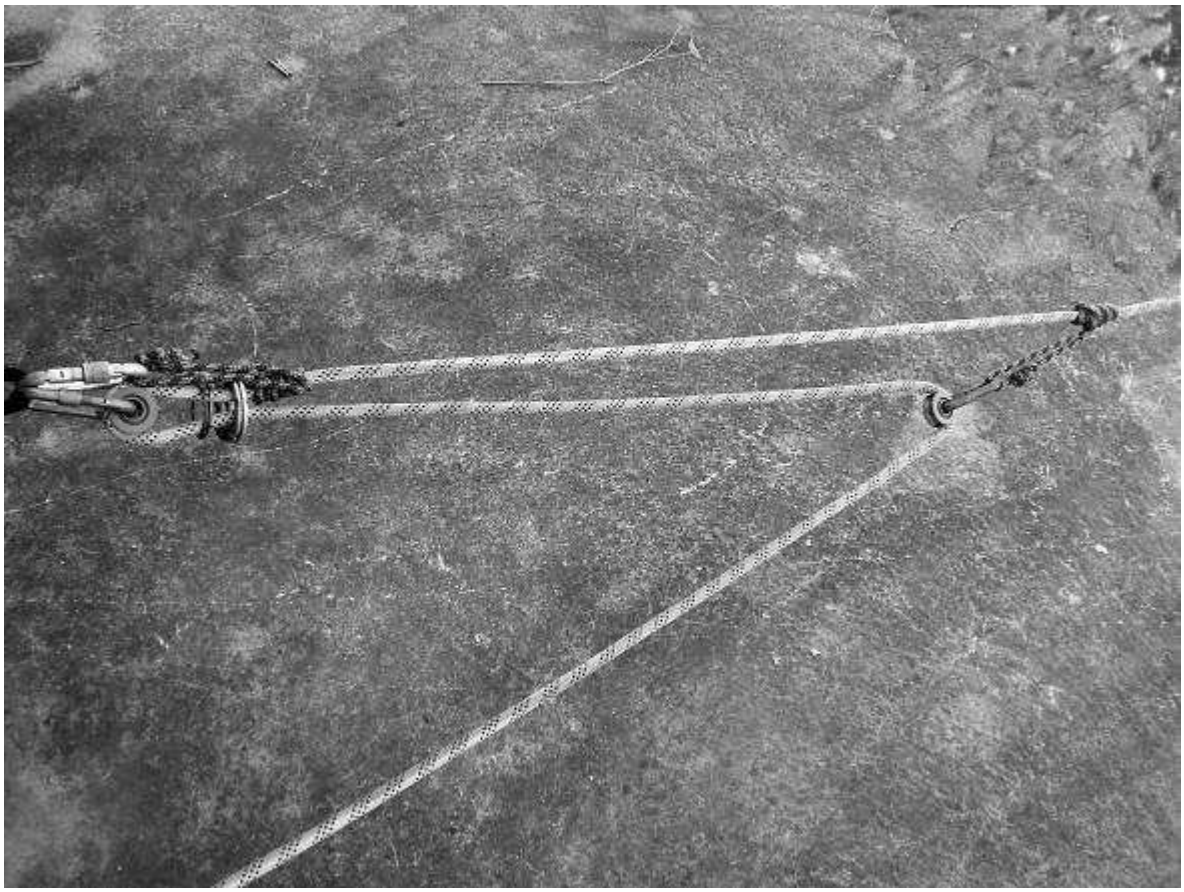
Pulleys can give a mechanical advantage when lifting a weight. The actual advantage gained not only depends on the arrangement of the pulleys, but other factors such as the stretch in the rope and the amount of friction. The greater the mechanical advantage, the less effort that is required to lift a weight. However, the trade off is more rope needs to be pulled through the system. A theoretical mechanical advantage (MA) of 3:1 requires 3 metres of rope pulled through to lift a load 1 metre. What does this mean to us? Well the greater the mechanical advantage of the system that is set up, the greater the amount of rope that needs to be pulled through resulting in the need to reset the haul more often.

Crowd Haul (MA 1:1)
The crowd haul can be used if there are at least 3 people at the top. The abseiler secures him/herself to the abseil rope, a brake system is established and the abseiler is hauled up. Alternatively, a second rope is passed through an auto-brake and the end with a carabiner attached, is lowered to the abseiler who clips it to their harness. The abseiler is hauled up.

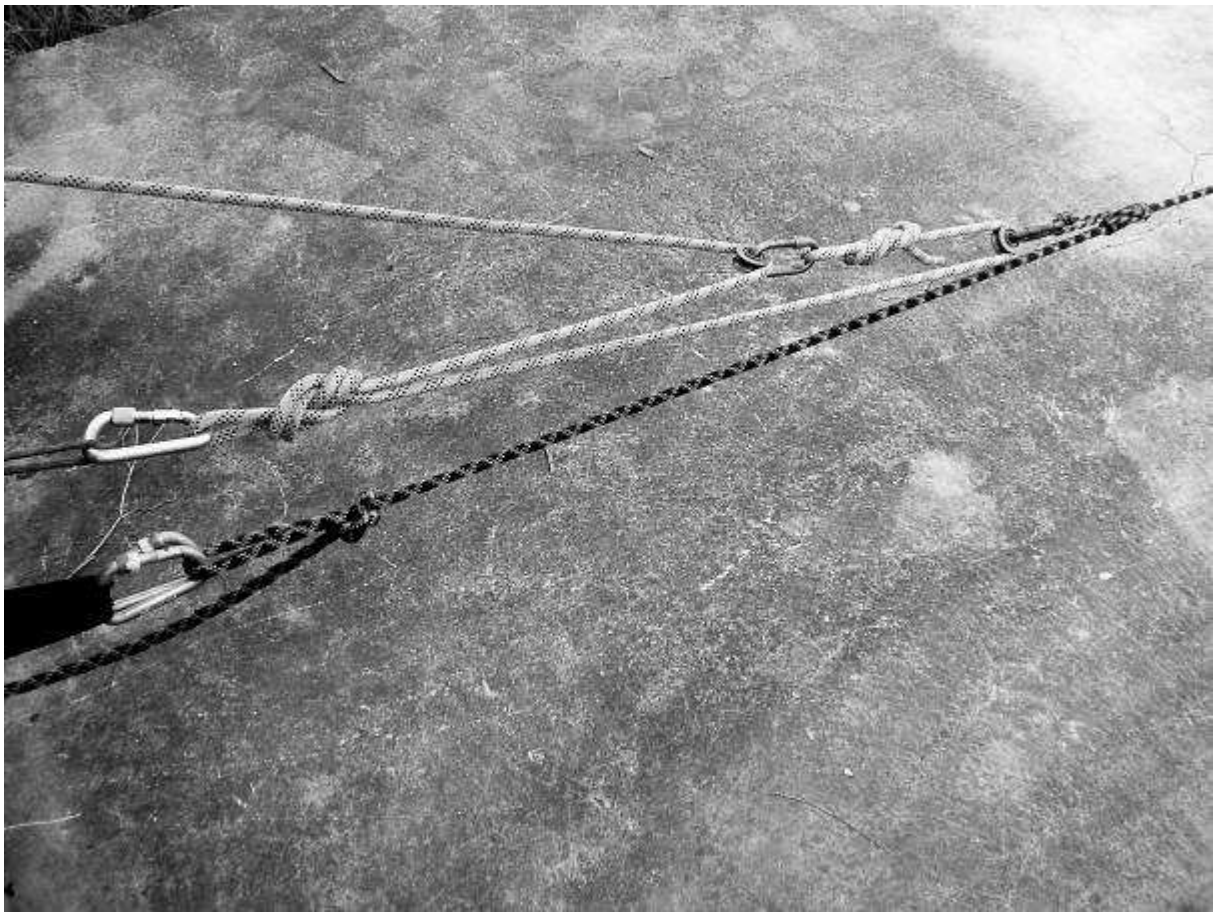
U Haul (MA 2:1)
A second rope is anchored and a bight in the rope, with a carabiner and pulley clipped onto it, is lowered to the abseiler. The abseiler lifts their weight by pulling on the standing part of the rope while the persons at the top haul on the running part of the rope. A variation of this is where a second rope is secured to an anchor, run forward and through a pulley attached to the abseil rope with a prusik loop and carabiner. The running part is then hauled on.

Z Drag (MA 3:1)
A second rope, with a carabiner attached to the end, is lowered to the abseiler to connect to their harness. The rope is passed through a pulley attached to the anchor. The running end of the rope is then taken forward and passed through a second pulley that has been attached to the rope with a prusik loop. The running part can then be hauled on. Alternatively, the second rope is secured to the abseil rope with a prusik loop and carabiner instead of being lowered to the abseiler. The rest of the rigging is as before.

Pig Rig (MA 4:1)
A “figure 8 on the bight” is tied in a second rope and used to secure the rope to an anchor. The short tail of the rope is brought forward, passed through a pulley that is attached to the abseil rope with a prusik loop. A “figure of 8 on the bight” is then tied on the running end of this short rope and a carabiner is used to attach a second pulley to it. The longer running part of the rope is then brought forward and passed through the second pulley and the running end is then hauled on.



Top	Z Drag
Bottom	Pig Rig



REMEMBER TO ALWAYS THINK

What can go wrong?

What can I do to minimise the risk?

What will I do if something does go wrong?