

Improved Carabiner Brakes & Munter Lowers An Introductory Article to Accompany Instruction



version 2.0

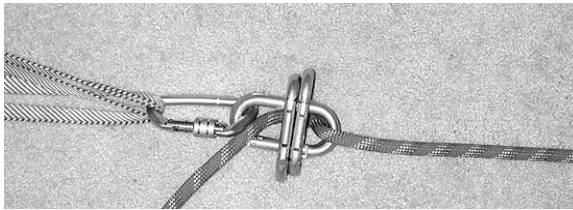
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WARNING: Failure to use any or all of the devices or systems explained or illustrated in this article in an appropriate manner could result in property damage, injury or death. Expert instruction and constant practice are mandatory. This is not an instructional article. It is designed to accompany professional instruction and practice under supervision. Always be sure you download the most recent version of any article directly from the RescueDynamics.CA website.

Improvised Carabiner Brakes

Before brake racks and other purpose built lowering devices the use of improvised brakes and carabiner brakes was the norm. Whenever possible a properly designed and tested brake rack or equivalent should be used for rescue operations. If an emergency necessitates the use of improvised materials it may be useful to know how to construct a carabiner brake. If you do not know what “opposite and opposed” means then you cannot safely assemble an improvised carabiner brake. Also, the use of a single bar from a carabiner brake rack on a single non-locking carabiner as was common in the 1970s is a dangerous technique and should be absolutely avoided.



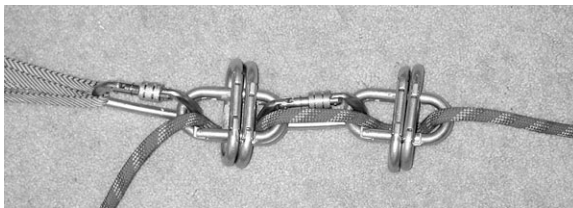
For single person loads four carabiners can be constructed opposite and opposed to each other to create a carabiner brake. A fifth locking carabiner attaches the brake to the anchor.



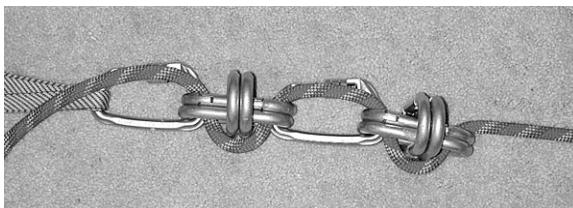
For a large single person load an additional carabiner can be added to increase the friction. Oval carabiners work well for constructing these brakes.



Locking carabiners are shown here, but they can be difficult to connect properly as the locking collars can get in the way of smooth assembly.



Two sets of four carabiner brakes can be connected with locking carabiners to increase the friction for larger loads. It is extremely difficult to vary the friction in a carabiner brake assembly once the load is applied.



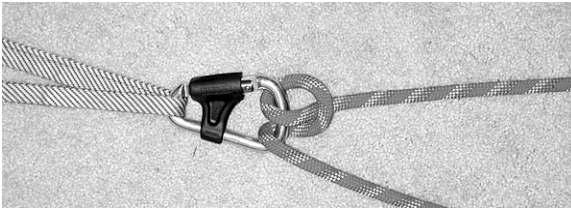
This is a side view of the same assembly as above to show the rope path and orientation of the carabiners.



This is the same assembly as above using all locking carabiners.

Better to use a brake rack!

Improvised Lowering with Munter and Monster Munter Hitches



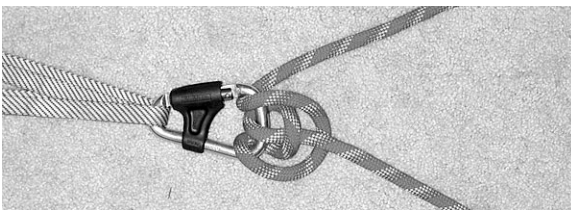
The Munter Hitch is a popular knot in the climbing community and is a mainstay of mountain guides when belaying or when lowering clients when rapid descents are a priority. There are many ways to tie the hitch and competence in rapidly and

correctly using this hitch is a basic rescue skill that every rigger should have. To use the Munter most effectively a “pear shaped” Munter or “HMS” carabiner should be used.

Although it is used as a belay for rescue loads in some settings, be aware that the Munter hitch becomes dynamic as the applied force increases and may burn the hands of an inattentive rescuer or belayer. Also a rescue load hanging vertically with no additional friction at an edge or over a directional anchor is likely to go out of control and be dropped to the ground or to the end of the rope. It is also conditional on having the person lowering or belaying not let go of the rope for any reason.

The Munter hitch is very good at causing kinks to build up in the rope behind the knot when lowering. This is avoided by feeding the rope into the Munter hitch in a “hand – behind – hand” fashion instead of letting the rope run through your hand. The proper technique is sometimes referred to as “milking the cow” due to the characteristic hand movement. There is one hand holding the rope statically at all times. Have an experienced instructor show you how this is done and the kinks will disappear!

The Munter hitch is not particularly appropriate for lowering large single person loads, two person loads or when using new slippery ropes or thin ropes less than 10mm in diameter. Wet or icy ropes may also limit the effectiveness of the Munter hitch. In vertical or overhang situations with little additional friction it may be difficult to control even a single person load. For these types of situations the Monster Munter may be more appropriate.



The Monster Munter is possibly one of the most confusing hitches for people to learn to tie correctly. It is actually just a Munter hitch inside a Munter hitch. It goes by several other names around the world.

The Monster is excellent for thin, slippery, wet ropes and large single person loads. The hand – behind – hand technique applies here as well. The very experienced guide or rescuer may use the Monster to lower two person loads on moderate sloping terrain and possibly three person loads on low angle terrain where the footing is good. Using this hitch with more than a single person load should be reserved for those with extensive experience lowering with a Munter and a Monster Munter. Its use is not advocated as a replacement for the brake rack, rather as a supplement to other techniques for improvised situations. Don’t get someone hurt or killed trying out a new “rescue knot”.

Tying a Monster Munter Hitch (a sequential approach)

I have been teaching knots for over 30 years. The Monster Munter is probably one of the hardest knots for people to master. Part of the problem is that many methods for tying the Monster result in the lines being crossed when the hitch is completed. The following procedure, if followed step by step, always results in the lines being neat and not tangled. It is best if you learn this procedure under the watchful eye of someone who has perfected it and can identify it every time. It must be noted that there is a right-handed and a left-handed technique for tying this hitch. This does NOT imply that one is for right-handed people and the other for left-handed people. What really matters is what side of you the person being lowered (your partner) is going to descend on. The procedure for a person standing on your right and you standing on the left is as follows:



←Step One: Clip the rope in to the carabiner with a “twist” already in the line. The rope coming from the person being lowered is on top. This is critical to avoiding twists. (If confused just try to follow the photos.)



Step Two →: Make a loop on the rope coming from your partner. This loop points to the carabiner as shown and once again orientation is critical.



←Step Three: Clip the loop into the carabiner. You will recognize that you have simply tied a Munter Hitch. Why go through the trouble of tying it in this complex fashion? The reason is that the orientation of each strand is critical to finishing with a Monster!



Step Four →: Take the strand that was along the spine (back) of the carabiner and bring it toward the gate.



←Step Five: Clip this strand into the carabiner (orientation is critical here again) and you now have a properly oriented Monster. Lock the carabiner and you are ready to lower with the hand – behind – hand technique (milking the cow). You will notice that when the carabiner is loaded it stays oriented gate out and the line you are controlling exits the carabiner on your side while the loaded line is centered. Perfect.

Procedure for a person standing on your left and you standing on the right is as follows:



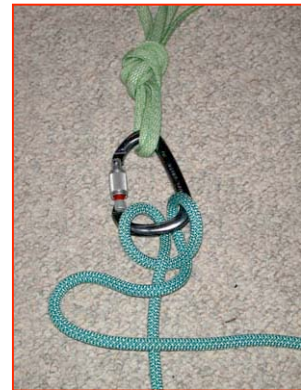
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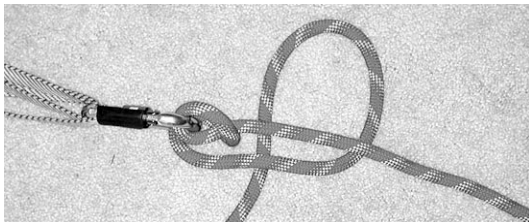
←Step Five: Clip this strand into the carabiner (orientation is critical here again) and you now have a properly oriented Monster. Lock the carabiner and you are ready to lower with the hand – behind – hand technique (milking the cow). You will notice that when the carabiner is loaded it stays oriented gate out and the line you are controlling exits the carabiner on your side while the loaded line is centered. Perfect mirror image to the previous example.

Tying Off a Munter Hitch on a Loaded Line

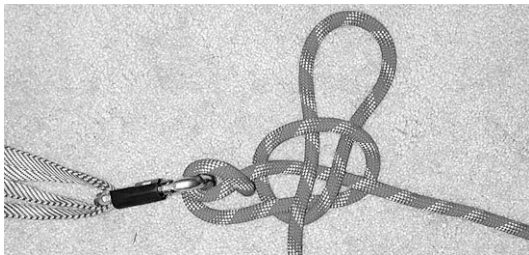
If you are going to use a Munter hitch or Monster Munter as a lowering device or a belay device you should be able to tie off the loaded line under full load should the need arise. Although the procedure to do so is simple, it should be learned under the watchful eye of an experienced instructor and then practiced often to maintain proficiency. The procedure is as follows:



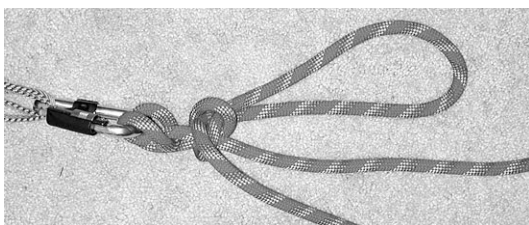
Step One: Hold the load on the Munter Hitch tightly during the entire process and **DO NOT** let go of the braking hand, even for an instant.



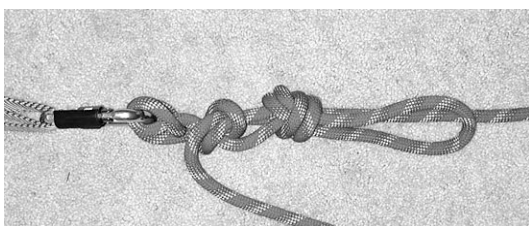
Step Two: Make a loop of rope exactly as shown.



Step Three: Pass a bight of rope through this loop as shown, creating an overhand slip knot.



Step Four: While ensuring that the load will not suddenly drop, tighten the overhand slip knot you have just made.



Step Five: With the bight of rope exiting your slip knot above, tie an overhand knot around the loaded line. At this point the Munter Hitch is tied off. Some people call this a “Tied – Off Munter Hitch” or “Blocked Munter Hitch” while in the US it is sometimes referred to as the “Munter Mule”. You can now proceed to add additional backup knots or rig a system if required.

Multi-Media Monster



If a picture is worth a thousand words then perhaps a movie is worth a thousand pictures. Here is a movie version of completing the Monster Munter. (Not available on the PDF file version of this article.

(Note: Other names for the Monster Munter include the Super Munter and the Double Munter. “Monster” is most common in Canada.)

About the Author: Cyril Shokoples is an internationally certified Mountain Guide and is a Past President of the Association of Canadian Mountain Guides. He has been a member of the Alpine Club of Canada and Edmonton Section since 1975. He became a Senior member in 1979 and received the Silver Rope Award in 1988. He received the Distinguished Service Award from the Alpine Club in 2002. He subsequently received the Distinguished Service Award from the Association of Canadian Mountain Guides in 2003. He received the George Stefanick Legacy Award from the ACC Edmonton Section in 2005. Cyril instructs the ACC TNF National Mountain Leadership courses in summer and winter and recently ran the first ACC Central Canada Rock Leadership Course in Quebec.

Cyril has trained the prestigious Canadian military SARTECHs (Search & Rescue Technicians) for the last fifteen years. He instructs both the basic and advanced mountain climbing and mountain rescue phases of their trade qualification courses (TQ5 & TQ6A). He currently resides in Edmonton and is the proprietor of the firm Rescue Dynamics, which is involved in climbing, rescue and safety instruction, as well as mountain guiding.

Further information on courses as well as additional copies of this and other technical notes in this series can be obtained directly from Rescue Dynamics. On the Internet, visit the Rescue Dynamics World Wide Web Site at - <http://www.rescuedynamics.ca>