

Basic Ascending and Descending

The following shows operation methods for each device during ascent and descent

1

How to Use a Descender

There are numerous gears for descending rope, each with various characteristics.

In rope access, an inline-type descender with an auto-stop function is required that does not cause kinking (twisting) in the rope being used.

This manual adopts PETZL's "RIG."



- ① Connect both the short and long cow's tails to the anchor point (carabiner, sling, or loop) at the descent starting point to establish security.



- ② Connect the descender to the main attachment point, open the front plate, and thread the rope through.
For the RIG, set the lever to belay mode beforehand.
(Are you attaching the rope while the descender is still on your gear rack?)



- ③ Release the handle to let the Rig go into the hard-locked mode.
(The older RIG models need to be manually locked.)



④ Gradually transfer your weight to the descender, and if there are no problems once your weight is fully transferred to the descender, remove the short cow's tail. (This confirms that there is no breakage of the descender body or carabiner, and that the descender connection is normal.)



⑤ Firmly grip the brake-side rope, release the hard-lock, and descend just a few centimeters. Hard-lock again and remove the long cow's tail. (This confirms that the rope is properly threaded through the descender.)



⑥ Again firmly grip the brake-side rope, release the hard-lock, and begin descent. Always keep your hand on the brake-side rope. Never release your hand from the brake-side rope without hard-locking the descender.



⑦ If you need to release your hand from the brake-side rope while on the rope during descent, always hard-lock before releasing your hand.

Caution!

- If you set the descender lever to descent mode without gripping the brake-side rope, it will result in an uncontrolled state and you will fall.
- If the descent speed is too fast, high heat will be generated from friction between the descender's bobbin and the rope, potentially melting the rope sheath. (Take approximately 2 seconds per meter of descent)
- The braking force obtained varies greatly depending on the rope's thickness, age, dry/wet condition, and the degree of wear on the descender. If the braking force appears insufficient, connect a new carabiner next to the descender on the main attachment point to obtain additional braking. There are also carabiners equipped with an additional braking bar called Freino.

2

How to Use a Ascender

There are several rope ascending styles using ascenders, mainly including the Frog System used in European-style caving, Gibbs Rope Walk System used in American-style caving, and Texas System used in alpine climbing.

This manual adopts the Frog System, which is more suitable for vertical or aerial movement and staying.

Therefore, adopted gear includes handled ascenders (such as PETZL's Ascension) and chest ascenders (such as PETZL's Croll). Adding foot auxiliary ascenders to the Frog System is called the Frog Walk System.

It is very convenient as you can choose from three ascending methods according to physical strength.

1

Frog System



① Use a maillon to connect a foot loop to the smaller bottom hole of the hand ascender. Put your foot in the foot loop and adjust the length of the foot loop so that the underside of the hand ascender cam and the upper side of the chest ascender cam are positioned to overlap precisely.



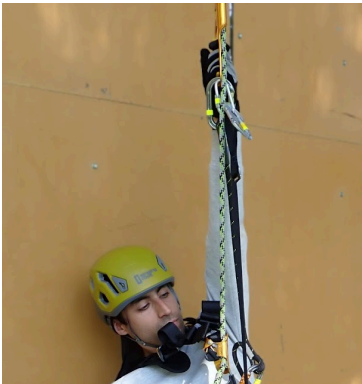
② Attach hand ascender and chest ascender to rope. Also attach the long cowstail to the bottom hole of the ascender. (Be careful that the rope and the long cowstail do not cross)



③ Pull the rope under the chest ascender downwards and stretch your body several times until tension is applied to the chest ascender.



④ While pulling the rope below the attached chest ascender downward, stretch up and entrust your body weight to the chest ascender for takeoff.



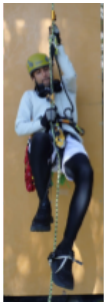
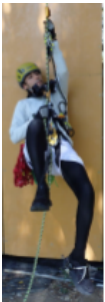
⑤ Push the hand ascender upward until the long cowstail becomes taut, then put your foot into the foot loop.



⑥ Push the foot in the foot loop down then stand up.



⑦ If the rope sags between hand ascender and chest ascender, pull the rope below chest ascender downward.



⑧ Entrust body weight to chest ascender then sit and repeat from step 5 until reach the desired level.

Tips

For the first few meters from the start of ascent, the rope has little self-weight, so the rope will not flow smoothly through the chest ascender by simply standing up—this requires technique.

① When standing up with the foot loop, pull the rope below the chest ascender downward with free hand.

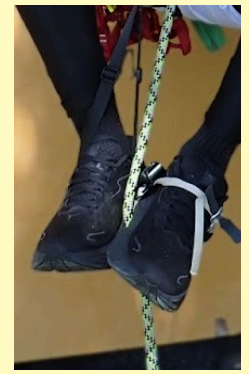


② Place the rope on your foot before threading your foot through the footloop. Then pinch the rope between your foot and foot loop before standing up.

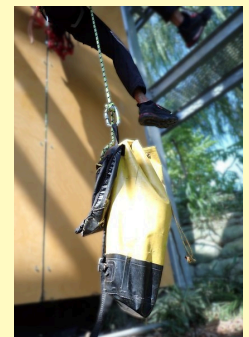
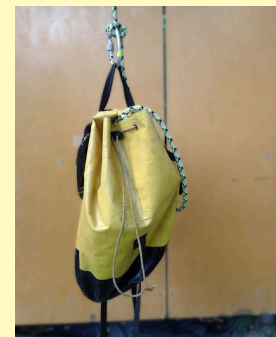
Stand up and pinch the rope on your feet downward at the same time. Repeating this process until there is enough rope weight for smooth ascending.



③ Insert both feet into the footloop, pinch the rope between feet then stand up. Repeating this process until there is enough rope weight for smooth ascending. (This solution is effective in completely suspended state with no place for hands and feet)



④ Using an object such as rope bags at the end of the rope to increase the rope weight.

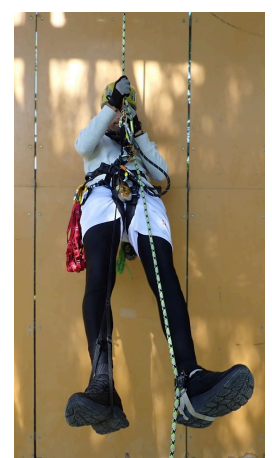
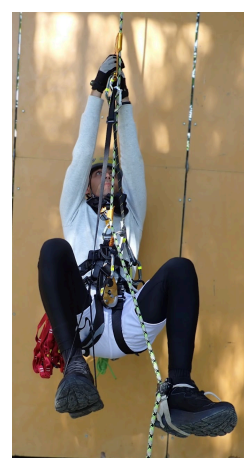
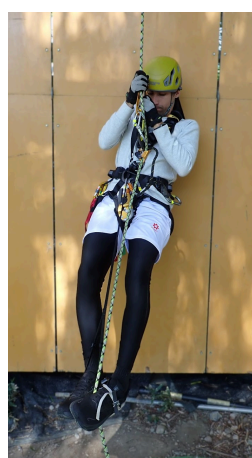


2 Frog Walk System

The Frog Walk System enables three climbing methods (Basic Step, Asymmetric Step, Symmetric Step). Climbing speed is proportional to required physical strength.

Basic Steps

Climb with sit-and-stand motion same as Frog System. Adding a foot ascender allows left and right feet to kick in different directions for stable climbing.



① Raise hand ascender to full length of long cow's tail. Raise the foot ascender to the same height as the foot loop.

② Kick up using both foot loop and foot ascender.

③ Entrust body weight to chest ascender.

④ Repeat from ①.

⑤ Can climb stably by standing with both feet.

Asymmetric Steps

Lift your body by standing in a foot loop. Standing in the foot ascender is not for lifting the body but for moving the hand ascender upward.



❶ Insert foot in foot loop, attach rope to foot ascender.



❷ Raise foot ascender to height between opposite knee and heel.



❸ While kicking up with foot ascender, raise hand ascender to full length of long cow's tail.



❹ While kicking up with foot loop, simultaneously raise foot ascender to height between opposite knee and heel.



❺ Repeat.

Symmetric Steps

Lift body with standing motions of both foot loop and foot ascender. Achieves unbeatable speed on 70°-80° inclined walls where toes touch a wall.



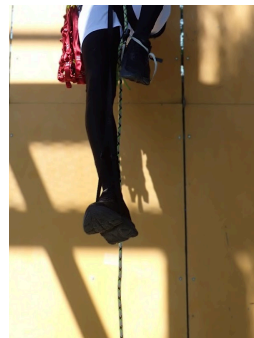
❶ Insert foot in foot loop, attach rope to foot ascender.



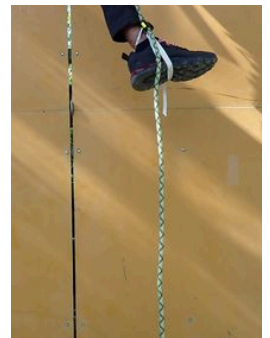
❷ Raise foot ascender to opposite knee height.



❸ While kicking up with foot ascender, raise hand ascender to full length of long cow's tail.



❹ While kicking up with foot loop, simultaneously raise foot ascender to opposite knee height.



❺ Repeat.

3

Descending with Chest Ascenders



① Hand ascender and chest ascender are connected to the rope, with body weight resting on the chest ascender.



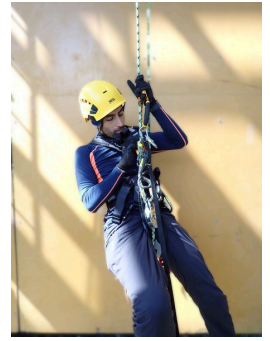
② Stand up on the foot loop, gradually push open the chest ascender cam while slowly sitting down to slide the chest ascender down the rope (do not completely remove the chest ascender from the rope).



③ Lower the chest ascender cam just before the long cow's tail is tight.

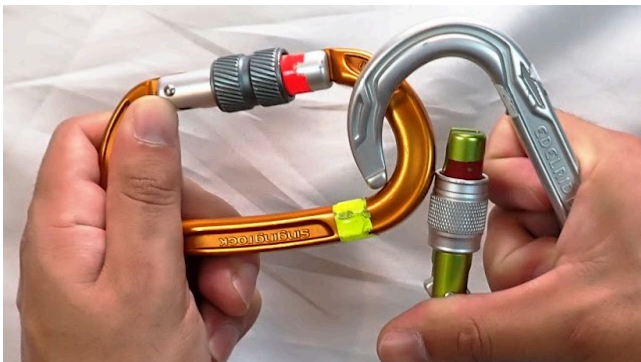


④ As body weight transfers to the chest ascender, pushing the hand ascender's cam to open it (do not completely remove the hand ascender from the rope) then slide the hand ascender down.



⑤ Repeat the step ①. Until reaching the desired level.

When connecting descenders, ascenders, cowstails, etc. to the harnesses (also during rigging), do not link carabiners together. Twisted carabiners under load could cause accidents where gates are forcibly opened unintended.



Exception: Connection between descender and main attachment point, or demi-rond carabiner.

When connecting a descender to an ascent harness (one that connects the main attachment of a sit harness with a semi-circular demi-rond carabiner) or other work solution harness (one with a ring pre-sewn into the main attachment point), you will be connecting

carabiner to carabiner, or carabiner to metal main attachment point.

While this is unavoidable in such cases, make the descender-side carabiner as small as possible. Large-diameter HMS and similar carabiners can easily come off when twisted. Of course, use carabiners with safety gates.

For connections that unavoidably use carabiner-to-carabiner connections, watch the loading carefully without taking your eyes off it until loading is complete to ensure it is loading without twisting during re-tensioning.

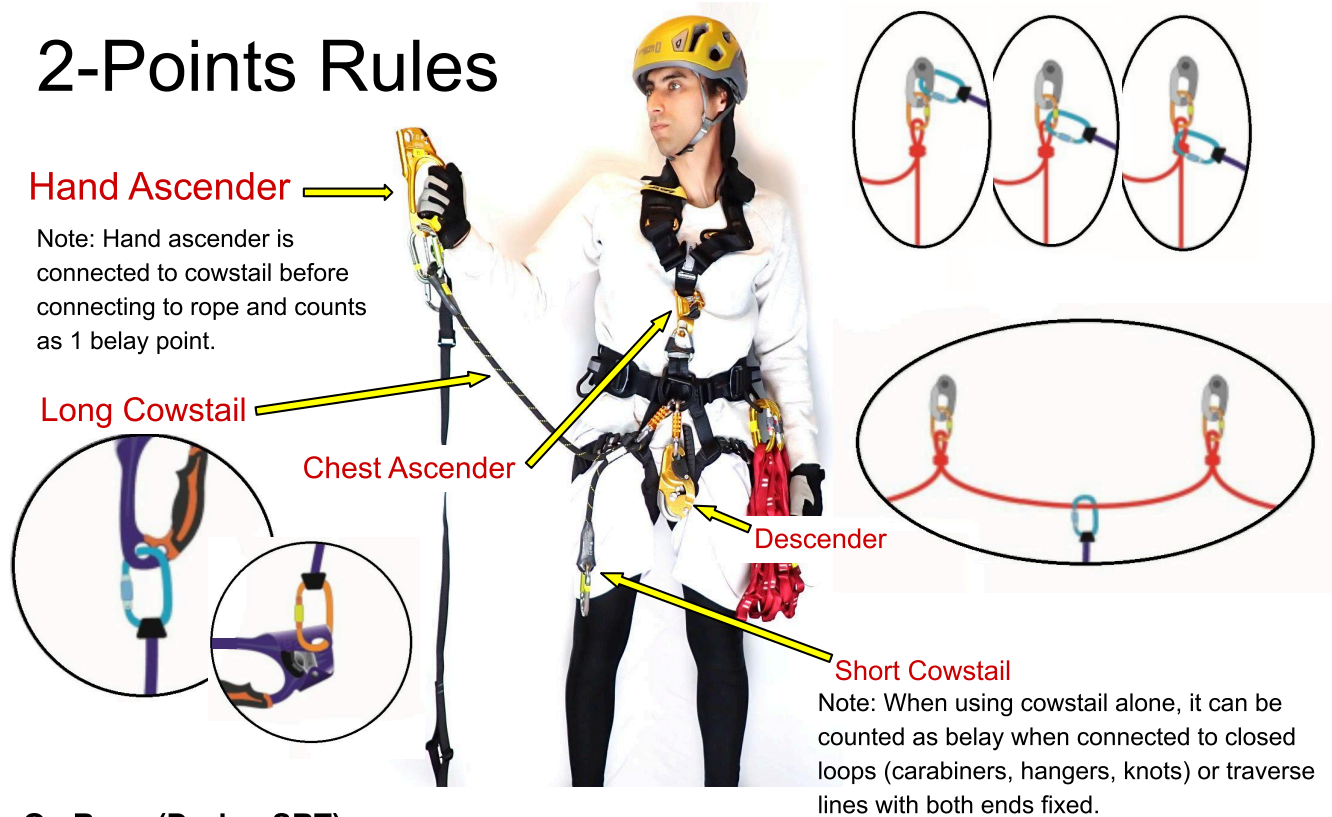


2-Point Rules

Always maintain a state where 2 points among the 5 self-belay equipment worn by the rope users (hand ascender, chest ascender, long cowstail, short cowstail, and descender) are always functioning as self-belay. (2-point rules)

As an exception, only 1 point with descender is acceptable during descent. When wanting to remove 1 point from 2-point belay state during changeover, secure a 3rd point first before changing over .

Foot ascenders are auxiliary ascenders and must not be counted as belay.



On Rope (During SRT)

Among the above 5 pieces of gear that can provide belay to rope, a minimum of 2 belay points must always be secured. The only exception is during descent with descender, where 1 point is acceptable.

A shout out to our model Mr. Jose. Jose is one of a foreign workers in Keystone who came all the way from Argentina with a big dream and a golden heart.



At our training facility in Gojo Nara, we have a modest guesthouse with a chicken and duck farm, vegetable farm and rice field.



If you have a plan to visit Nara, why not give our guest house a visit? We have fun activities for families here like indoor climbing, real Japanese traditional farming, and even professional rope access training service.