

**BUCKINGHAM MFG. CO.**  
**INSTRUCTIONS / WARNINGS**  
**P/N 5002 MAR-BAR SYSTEM**

**INSTRUCTIONS**

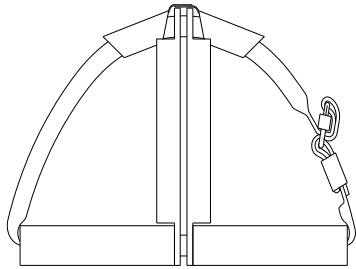
The Mar-bar system consists of the following components:

- Belt        The belt consists of 1" tubular nylon webbing with a buckle on one end. A rubber keeper is located next to the buckle. The webbing has two broken blue lines on one side.
- Insert      Consists of clear flexible plastic tubing and two stainless steel rods, one short rod and one long rod. The clear plastic tubing insert has a bend or curl.
- Handles    Manufactured from bushing quality nylon tube.
- Handle Chafe Guards  
                Manufactured from gray nylon Cordura.
- Rope Chafe Guards  
                Made from black or red ballistic nylon and two strips of Velcro®, one hook, one loop. Black is used on the hand Mar-bar, red is used on the foot Mar-bar.

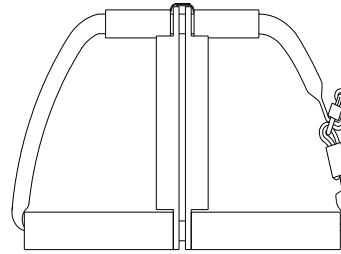
**Assembling a Mar-bar:**

- 1) Install the insert in the belt:
  - a) Place the end of the insert with the long steel rod into the open end of the belt.
  - b) Slide the insert completely into the belt.
  - c) Shake the insert down to the buckle end of the belt. To accomplish this, hold the belt by its open end only, let the belt and insert freefall for a short distance, then jerk up sharply on the belt. Repeat until the insert is down against the buckle end of the belt. **Important:** the insert must be fully installed in the belt. If the insert is not worked all the way down to the buckle end of the belt, it may not be possible to properly tighten the Mar-bar strap. A loose strap will result in poor steering of the Mar-bar. It may also result in damage to the insert.
- 2) Slide the chafe guards, handles, and ascenders onto the assembled belt and insert in the following order:
  - a) First, slide on one gray chafe guard. It should end up close to the buckle. It should rest against the closed end of the webbing.
  - b) Next, slide on one handle. It should end up close to the buckle.
  - c) Slide on the ascenders one at a time. The belt and insert should pass through the front lower attachment hole of each ascender ( the front attachment hole is the one furthest from the hand grip.) The ascenders should end up next to the handle. They should have their flat sides back to back. The broken blue lines on the belt and the inside of the curl of the insert should face the upper attachment holes of the ascenders.
  - d) Slide on the other gray chafe guard. It should end up centered over the end of the long steel rod.
  - e) Slide on the remaining handle. It should rest against the ascenders.
  - f) Slide on one black or red chafe guard (it should be the same color as the belt).
  - g) Pass the assembled belt and insert through the upper attachment holes of the ascenders.
  - h) Finally, slide on the remaining black or red chafe guard.
- 3) Run the open end of the belt through the buckle.
- 4) Adjust the handles and ascenders so the ascenders are roughly centered on the steel rods of the insert.
- 5) Tighten the strap and adjust the handles so the ascenders are exactly centered on the strap. The blue lines of the belt and the curl of the insert should face inward toward the center of the Mar-bar.
- 6) Double the loose end of the belt back through the buckle and tuck the remaining loose end into the rubber keeper.
- 7) Pull the black or red chafe guards up flush with the ascenders (this is easier if the cams of the ascenders are open). Then, connect these chafe guards together with their Velcro® strips.

Properly assembled Mar-bars are shown below:



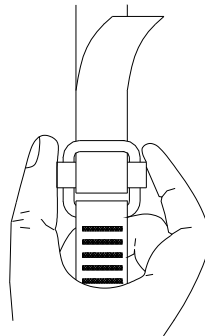
Hand Mar-bar



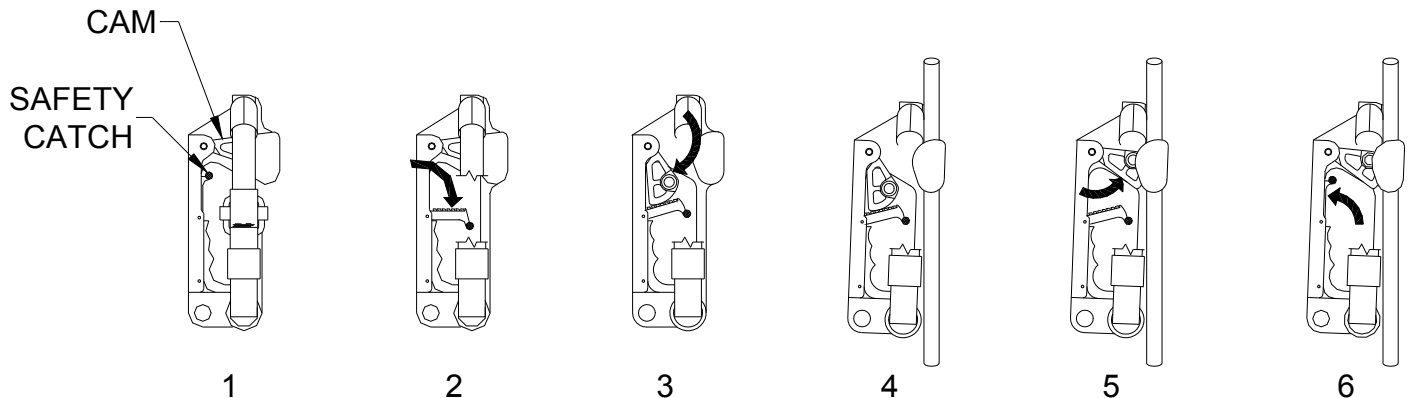
Foot Mar-bar

### Disassembling a Mar-bar

Reverse the assembly procedure. To loosen the buckle easily, place the thumb and forefinger of one hand on opposite sides of the slide and pull the slide down. See illustration below.



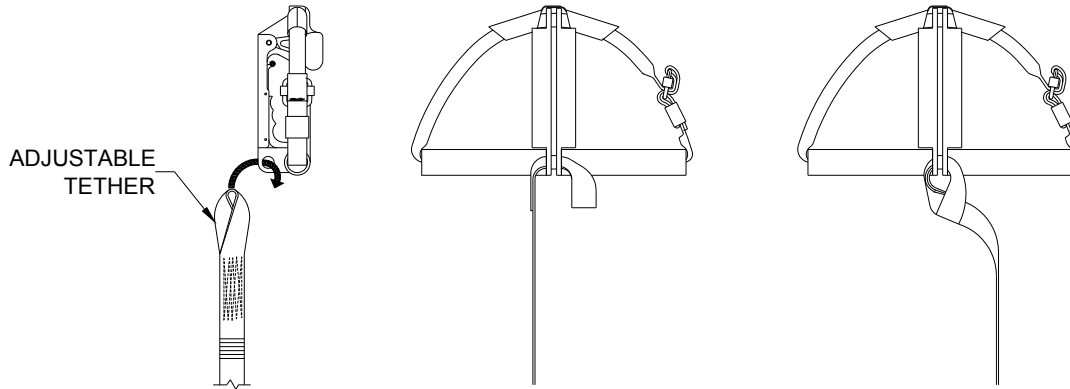
### Attaching ascenders to the rope:



- Open the safety catch (figure 2 above).
- Open the cam (figure 3). Lock the Cam open by engaging the teeth on the cam with the slots on the back of the safety catch.
- Insert the rope into the ascender body (figure 4).
- Release the safety catch, allowing the cam to rotate into contact with the rope (figure 5).
- Allow the safety catch to return to the fully retracted position (figure 6). **Ensure the safety catch is fully closed as failure to do so may result in the ascender coming off the rope.**

## Connecting the Adjustable Tether to the Mar-bar

- Push looped end (the end farthest from the adjustment buckle) of the tether through the hole in the lower end of the hand Mar-bar and secure with a girth hitch (see illustrations below).
- Adjust the length of the tether as required.
- Attach the other end of the tether to the suspension dee rings of the saddle by means of a double-locking carabiner.

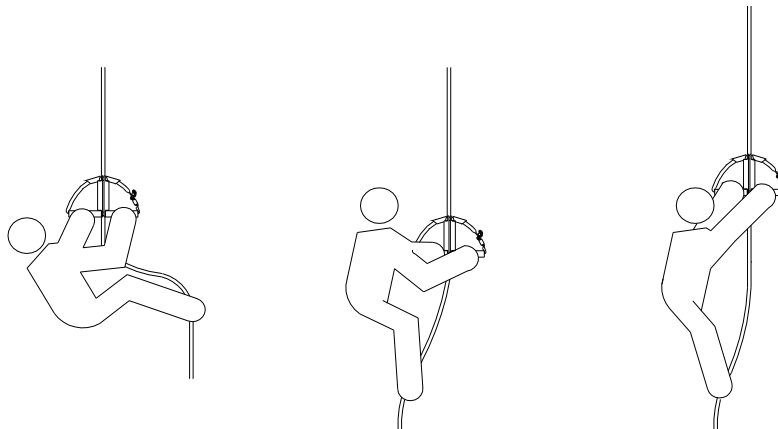


ATTACH ADJUSTABLE TETHER TO MAR-BAR WITH A GIRTH HITCH

## Climbing with the Mar-bar:

Please note: The illustrations in this section are only intended to show basic body positions. For the most part, the connections necessary for fall protection are not included in the illustrations. It is essential that you use such connections even though they are not shown.

## Footlocking:



## Comments:

Use a hand Mar-bar. The tether between the Mar-bar and saddle should be long enough to allow full arm extension (3' is usually a good length). Works best on a free hanging line. Footlocking with a Mar-bar has many advantages over footlocking with a prusik sling:

### Convenience:

- 1) Mar-bar handles are easier to hold onto than a climbing line because the Mar-bar handles are horizontal, larger in diameter than a doubled climbing line, and not waxy.
- 2) The climber's hands are not abraded by the rope.
- 3) It works well while wearing gloves.
- 4) An immediate switch to bodythrusting can usually be made without any rigging changes.
- 5) A Mar-bar will not jam on the rope after it has been loaded.

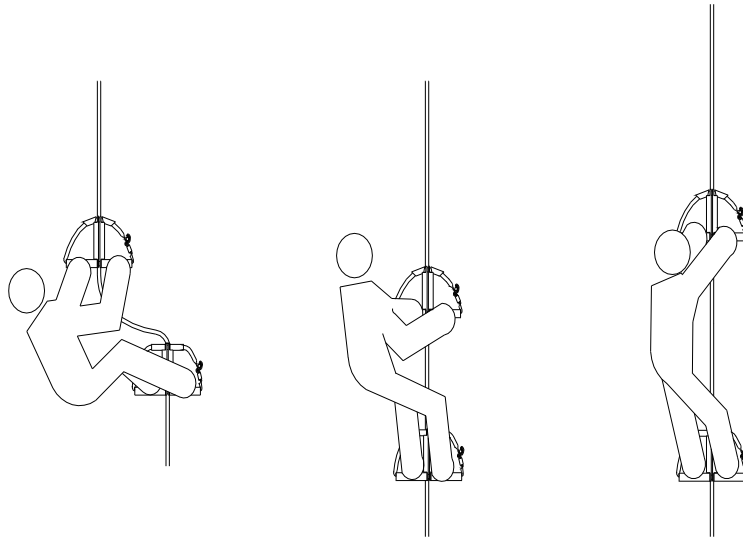
### Safety:

A prusik knot can slip and cause a fall if:

- 1) It is pushed into a widely spread rope near the climbing crotch.
- 2) the climber unintentionally pulls down on the prusik knot.
- 3) A footlock is taken on only one leg of the doubled climbing line, and the hand grip is then relaxed.

A Mar-bar will not slip under similar conditions.

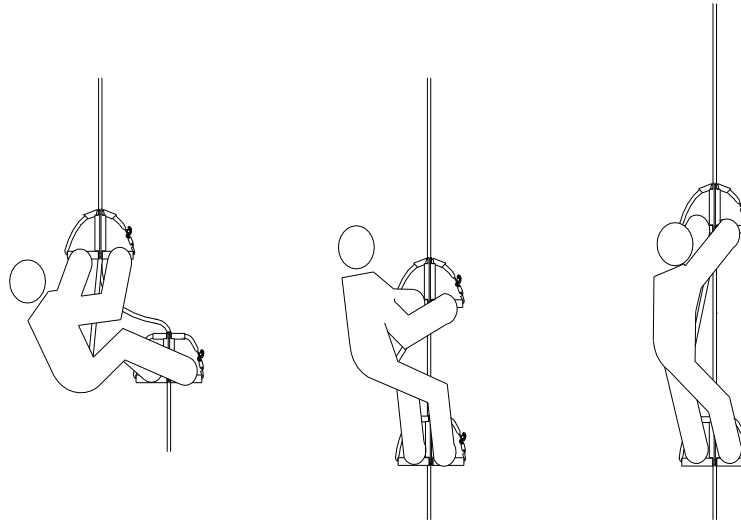
## Inchworm:



## Comments:

Use both a hand and a foot Mar-bar. The tether between the hand Mar-bar and saddle should be long enough to allow full arm extension. Works best on a free-hanging line. The inchworm requires less effort and is faster than footlocking. It is also easier to learn and to do.

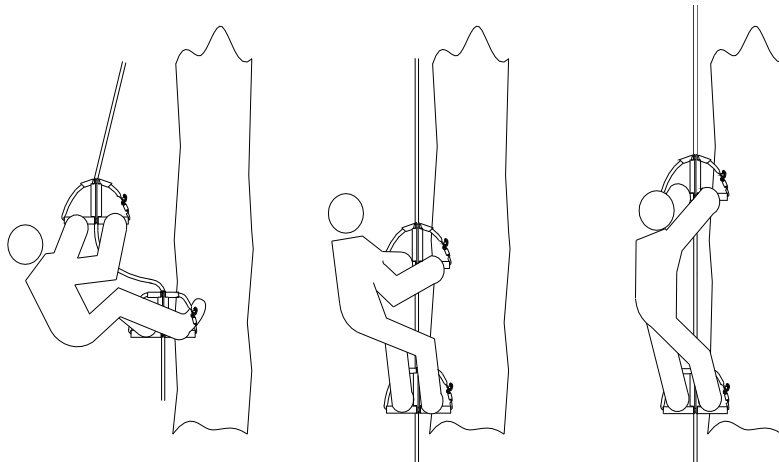
## Frog:



### Comments:

Use both a hand and a foot Mar-bar. The tether between the hand Mar-bar and saddle should be about half the length of the one used for footlocking or the inchworm (1 1/2' is usually a good length). Works well on a free-hanging line. Works well for passing side limbs, for carrying heavy loads, and for very long ascents. Slower than footlocking and the inchworm, but still fairly fast. Requires much less arm and grip strength than those two techniques. The tether, not the climber's arms, supports the climber's weight. The arms are only used to help pull the climber erect and to push up the hand Mar-bar. This method is much easier to learn and to do than footlocking.

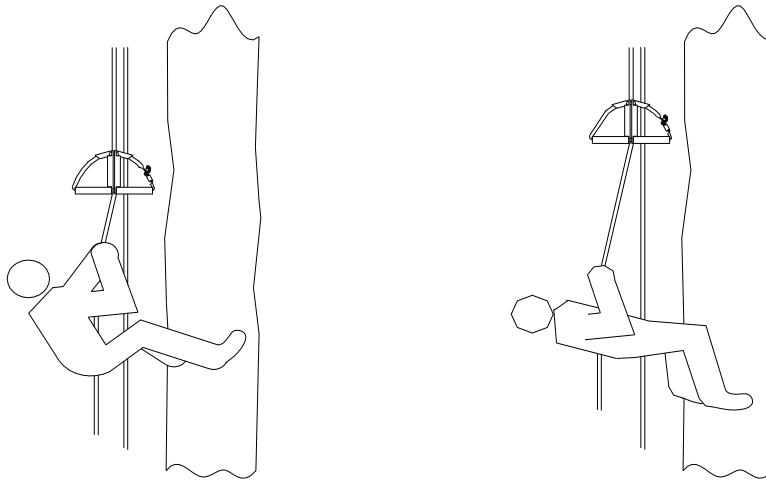
## Pogo:



### Comments:

Same rigging set-up as for the "frog". This technique is used when the climbing line lays against a limb-free section of tree trunk. It is done facing the trunk. Push off the trunk with your toes just before lifting your feet and raising the foot Mar-bar. This is a slow, but very easy way to ascend. The pogo can be easily interchanged with the "frog" on an ascent.

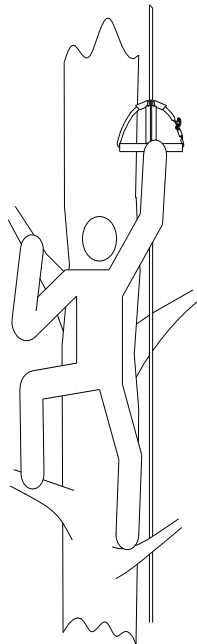
## Bodythrusting



### Comments:

A switch to bodythrusting can be made from any of the preceding techniques without any rigging changes. To perform this technique, pull down on only one leg of a doubled climbing line. This technique can not be used on a single line or a fixed line. It works best when the climbing line lays against the tree trunk.

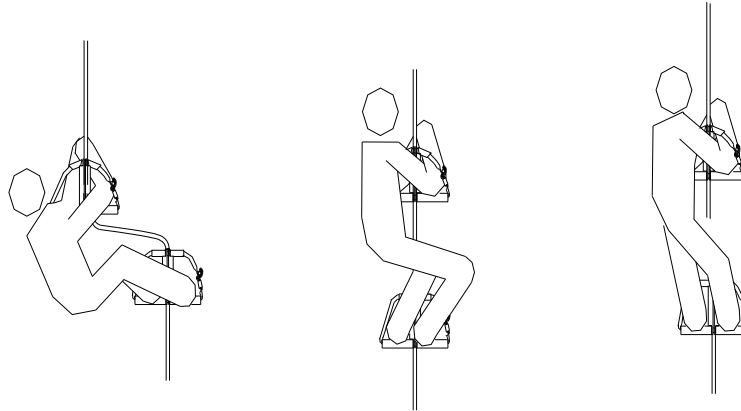
## Protected free Climbing



### Comments:

A switch to protected free climbing can be made from any of the preceding techniques without any rigging changes. To perform this technique, grasp the ascender handles of the hand Mar-bar and use the hand Mar-bar as a moveable handhold. Use this technique for climbing a heavily limbed section of a trunk.

## Short Frog:



### Comments:

Use both a hand and a foot Mar-bar. The hand Mar-bar should be connected to the saddle with either a very short tether or just a carabiner. The climber's arms pass through the hand Mar-bar. The hands are held against the climbing line and help keep the climber erect during the leg extension. Works best on a free-hanging line. This is a slow, but very easy way to ascend. Very little arm and grip strength are required. This technique is very easy to learn. A rigging change is required to bodythrust or descend with a Figure Eight (the short tether does not provide enough space for a Figure Eight or efficient bodythrusting). A switch to two-hands-free protected free climbing can be made without any rigging changes if the hand Mar-bar is connected to a chest harness as well as the saddle before beginning an ascent.

### Tips

- 1) **Chafe guards:** Do not let the chafe guards wear all the way through. Reposition them before this happens. Each rope chafe guard has four different wear areas. Handle chafe guards can be repositioned to any unworn area.
- 2) **Replacement parts:** Replacement parts are available. If a part of your Mar-bar strap becomes excessively worn or damaged, it can be replaced. You do not have to get whole new strap.
- 3) **Strap tension and adjustment:** Make sure your Mar-bar straps are properly tightened and adjusted before you begin an ascent.
- 4) **Tethers:** The Buckingham P/N 5002MBC tether is light-weight, adjustable, and very strong. They can be connected to the saddle tie-in point with a double locking carabiner.
- 5) **Positioning Mar-bars on the rope:** Mar-bars should be positioned on the rope so that the rope is between the Mar-bar handles and the climber. This helps prevent the hand Mar-bar from rotating up and getting into a position where it jams on the rope. It also helps prevent the foot Mar-bar from pressing uncomfortably against your ankles. Exception: The hand Mar-bar in the "short frog" should be positioned so that the Mar-bar is between the rope and the climber.
- 6) **Hand position:** Grasp the Mar-bar handles with your palms facing you. This is more comfortable and provides better steering. The handles of a hand Mar-bar rotate to help distribute rope wear on the handles and to help prevent blisters. If you like this free rotation, place your grip completely on the handles. If you wish to minimize this rotation, wrap your thumbs over the ends of the handles.
- 7) **Foot Position:** Keep your feet pressed against the sloping sides of the foot Mar-bar and your toes pointed straight ahead. This will allow the foot Mar-bar to be lifted easily. It will also prevent the rope from getting pinched between your boots or between a boot and the Mar-bar.

- 8) **Weighting the rope when using a foot Mar-bar:** When a foot Mar-bar is used, the rope must be lightly weighted for the first 15 to 20 feet of the ascent. If the rope is not weighted, it will not pull through the foot Mar-bar when the foot Mar-bar is lifted. A carabiner with two or three throwbags works very well for weighting the rope.
- 9) **Tether position:** Any tether between a Mar-bar and the saddle tie-in point should go around the legs of the doubled climbing line, not between them. This will avoid pinching of the tether and resistance to upward movement.
- 10) **Descending device:** Before beginning an ascent with a Mar-bar, make sure you have a descending device with you. If you forget to take one, you can back down your climbing line using your Mar-bars, but doing so is slow and awkward.
- 11) **Advancing a hand Mar-bar:** When footlocking or using a foot Mar-bar, a hand Mar-bar should only be advanced when the rope below it is vertical. If the rope below the hand Mar-bar is not vertical, the hand Mar-bar will be pushed into the tensioned rope instead of along it. This will cause a tremendous amount of resistance to upward movement.
- 12) **Abandoning and retrieving a foot Mar-bar:** If you are using both a hand and a foot Mar-bar on a doubled rope, you can abandon the foot Mar-bar on the rope at any time and easily retrieve it later. If you abandon the foot Mar-bar to bodythrust, the foot Mar-bar will simply climb the rope behind you as you bodythrust. If you abandon the foot Mar-bar to do protected free climbing, you can walk the foot Mar-bar up the rope and back to you at any time by alternately pulling up on each leg of the doubled rope.
- 13) **Passing down Mar-bars:** After completing an ascent on a doubled climbing line, if you want to get rid of your Mar-bars, there is a very safe, fast, and efficient way to do so: Lanyard in, then disconnect your Mar-bar tethers from your saddle tie-in point. Next, disconnect the Mar-bars from the side of the rope you will be pulling up to tie in with. As you pull up that side of the rope, your Mar-bars will be lowered to the ground on the other side. As you tie in, a groundperson can remove the Mar-bars you have lowered.
- 14) **Using a hand Mar-bar as back-up fall protection for descents with a figure eight:** During a descent where a Mar-bar is used as fall protection, hold the cams of the ascenders down against the safety gates. Do not lock the cams open. Your fall protection must be free to engage immediately and automatically if your hand is removed from it. The best hand position on the Mar-bar for such descents is with your palm against the back of the ascenders (the side the hand grips are on) and your thumb and middle finger pulling down on either the bottoms or thumb notches of the cams. If the cams are held down against the safety gates, the Mar-bar strap will prevent the climbing line from coming in contact with the cam teeth as you descend. To prevent wear on the fabric parts of your Mar-bar, descend slowly and try to hold the Mar-bar so those parts do not contact the rope during your descent. Before beginning your descent, check to be sure the upper chafe guards are in place. These chafe guards are designed to come apart easily if the Mar-bar is pushed into a widely spread rope near the climbing crotch. This allows the ascenders to spread apart and helps reduce sideloading. If the chafe guards have come apart, descend a few feet slowly and then reconnect them.
- 15) **Single line versus double line use:** Double ascender Mar-bars can be used on a single line. Just leave one ascender empty on each Mar-bar. However, it is best to use them on a doubled line. A doubled line is twice as strong, puts half the load on each ascender in use, is more easily retrieved, is more easily recrotched, and allows a wider variety of techniques to be used.
- 16) **Temperature limits:** To avoid damage to the vinyl tubing in the insert, the Mar-bar straps should not be used below -20°F (-29°C) or above 150°F (66° C).

## **Safety Tips**

- 1) Mar-bars should not be used for fall arrest.
- 2) Mar-bars should not be side loaded.
- 3) Do not let foreign objects press against or get stuck in the cams of the ascenders in a Mar-bar.
- 4) Do not let your Mar-bar strike another object, and do not let another object strike your Mar-bar.
- 5) Fall protection equipment, (i.e. fall arrest, work positioning belts, climbers, retrieval, suspension etc.) should not be resold or provided to others for re-use after use by original user as assurance can not be granted that a used product meets criteria of applicable standards and is safe for use to a subsequent user.
- 6) Equipment that is used for fall protection must not be used for other purposes such as lowering limbs or cabling.
- 7) Fall protection equipment must be carefully inspected before each use. Any equipment that is found to be damaged, excessively worn, or not operating properly must be repaired or retired.
- 8) Always use a reliable connection to the climbing line. Your fall protection should engage automatically when your hand is removed from it.
- 9) Visually check connectors that are a part of your fall protection system to make sure they are securely closed. Do not rely on sound or feel alone.
- 10) Practice new techniques on or near the ground until you become proficient with them.
- 11) Try out any newly acquired equipment on the ground before using it aloft.
- 12) The safest way to learn new techniques is under the guidance of a competent trainer. This is also the fastest way to develop good techniques.
- 13) Know the complete history of every piece of fall protection equipment you use.
- 14) To increase the security of your fall protection system when you use Mar-bars:
  - a) Use a foot Mar-bar below either a Prusik sling or a hand Mar-bar and tether. The foot Mar-bar can act as an emergency stop if the primary fall protection starts sliding down the rope for any reason.
  - b) If you use a tethered hand Mar-bar with an untethered foot Mar-bar, do not release your hand or foot holds until you know your hand Mar-bar is set on the rope. If you do this, it is unlikely you will take even a short fall if one of the ascenders in the hand Mar-bar fails. Instead of falling, it is likely you will merely run in place on the rope or ascend half as fast as you had been going.
  - c) Use a tethered hand Mar-bar together with a tethered foot Mar-bar.
  - d) Use a belay line.
  - e) Use one or more tethered Mar-bars on a doubled climbing line that has been rigged so that each leg of the climbing line provides independent support for the climber.
  - f) Use one or more tethered Mar-bars on two separate climbing lines that have been rigged through the same crotch and made secure.

Note: Product covered under these instructions / warnings should not be resold / redistributed or re-used after use by original user.

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