

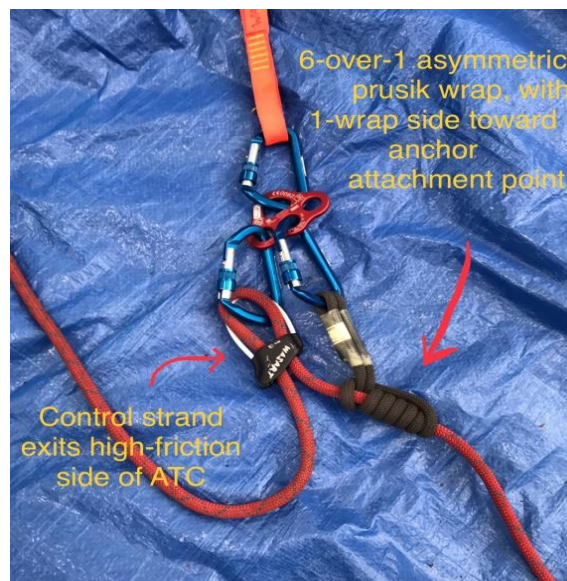
Rigging with ATCs and Asymmetric Prusiks - started May, 2021

Lowering System

- W3P2 anchor, with 2 carabiners attached... 1 for control strand re-direct, 2nd holding orange sling (note: if lowering a heavy load, a 2nd ATC could be used in place of the re-direct carabiner)



- With or without rigging plate, sling has 2 carabiners attached... one for ATC and one for VT prusik
- 5-over-1 or 6-over-1 asymmetric VT prusik on 11mm rope (7-over-1 on 9.5mm rope)
 - the "1-wrap side" goes toward the anchor/attachment
 - the 5 or 6-wrap side connection strand should be very slightly shorter than the 1-wrap strand
- Control strand exits higher friction side of ATC



- SAFETY

- Prior to prusik-belaying Attendant through the hot zone to the edge, should have length of slack rope (length appx. equal to distance to edge) between the ATC and the prusik. Rope is not fed through re-direct carabiner during hazard zone transition.



- Hand belay Attendant to the edge. STOP
- Both systems set prusiks hand-tight
- **One system at a time goes full friction...** pull all of slack back through the ATC, and continue to tension until “That’s Me!” from the Attendant. Then “capture” the tension using the ATC (keep tension on control strand) and route control strand through re-direct carabiner

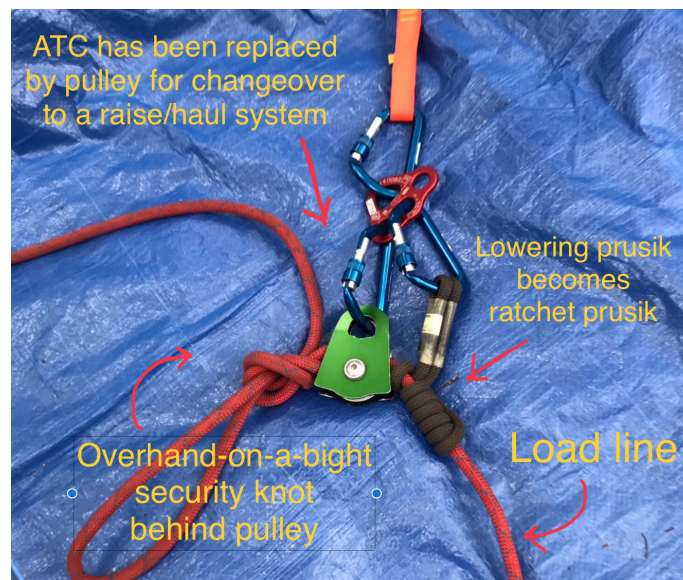


- As each system is full-friction ready, “rope (color) is full friction!”, then “rope (color) is full friction!”
- Lift litter/Attendant lean back

- Down slow (before allowing feed, make sure you're minding the prusik)
 - Note: if prusik accidentally gets locked on rope, there are several release options...
 - ◆ Try "hammering" it back with your hand
 - ◆ Vector the other rope, which might provide enough slack in your rope to release the locked prusik
 - ◆ Use jigger to raise rope just enough to slack rope and release prusik

STOP! Transition to raise

- Set prusiks on both ropes
- Rope 2 continues to hold full friction on control strand
- Rope 1
 - Removes rope from re-direct carabiner
 - Removes ATC from system
 - Inserts PMP (prusik-minding pulley) onto carabiner that housed ATC
 - Places overhand-on-a-bight security knot behind the PMP
 - Proceeds to build haul system/MA system for raise



- Once security knot is placed on Rope 1, Rope 2 can proceed through same steps
- Each system gets Safety check upon completion of haul system
- After SAFETY, Operator can remove security knot and reset system in preparation for haul, plus get rope bags in place and get haul team situated
- Remove excess slack from haul system ropes, and prepare for haul

To go hands-free on lowering system: pass large bight of control strand through "eye" of ATC, and secure it around base of ATC (between ATC and prusik wrap) with half-hitch, overhand knot.

To go hands-free on raise: prusik holding load. Attach haul strand back to anchor with clove-hitch, or tie overhand-on-a-bight security knot behind PMP

Knot pass on lower (keeping shared tensions):

- Need jigger or some form of releasing hitch... guide sling, RRH
 - Usage of rope tail is also an option (easiest to do demo during training)
 - ◆ Option 1: Figure-8-on-a-bight at end of rope tail (attached to anchor), rope loops through carabiner attached to prusik on load rope, then returns to Múnter Hitch (backed up) at anchor. Múnter used to lower load after knot pass
 - ◆ Option 2: Figure-8-on-a-bight at end of rope tail (attached to anchor), Múnter hitch on carabiner attached to prusik on load rope; Múnter backed up with half-hitch/overhand or mule/overhand. Múnter hitch will travel away when load is lowered after knot pass.
- After knot is passed beyond redirect carabiner, as knot approaches ATC, STOP!
- Secure jigger or releasing hitch to anchor, and prusik other end to load rope on load-side of lowering prusik
- Lower both ropes until jigger/releasing hitch prusik takes the load
- Remove rope from ATC and remove lowering prusik, and reattach both on other side of knot
- Extend rope via releasing hitch/jigger until ATC again has the load
- Remove the jigger/releasing hitch from the rope
- Continue lowering

Knot pass on Raise (keeping shared tensions)

- On an extension sling, place a new prusik and PMP load-side of the knot
- Transfer weight onto new ratchet prusik
- Release rope from initial ratchet prusik and PMP
- Continue haul on extended pulley system

Knot-Tying video links:

Alpine Butterfly:

<https://www.dropbox.com/sh/bk68845ar2pffn5/AAAOt5HQGX7oWkLuJDw6BsKca?dl=0&preview=Jeff+Dahl+-+Alpine+Butterfly.mp4>

Bowline:

<https://www.dropbox.com/sh/bk68845ar2pffn5/AAAOt5HQGX7oWkLuJDw6BsKca?dl=0&preview=Jeff+Dahl+-+Bowlines.mp4>

Clove Hitch:

<https://www.dropbox.com/sh/bk68845ar2pffn5/AAAOt5HQGX7oWkLuJDw6BsKca?dl=0&preview=Jeff+Dahl+-+Clove+Hitch.MP4>

Double Overhand:

<https://www.dropbox.com/sh/bk68845ar2pffn5/AAAOt5HQGX7oWkLuJDw6BsKca?dl=0&preview=Jeff+Dahl+-+Double+Overhand+or+Barrel+Knot.mp4>

Figure 8, Figure 8-on-a-bight:

<https://www.dropbox.com/sh/bk68845ar2pffn5/AAAOt5HQGX7oWkLuJDw6BsKca?dl=0&preview=Jeff+Dahl+-+Figure+8+%26+bight.mp4>

Figure 8 bend:

<https://www.dropbox.com/sh/bk68845ar2pffn5/AAAOt5HQGX7oWkLuJDw6BsKca?dl=0&preview=Jeff+Dahl+-+figure+8+bend+or+Flemish.MP4>

Water Knot, Wrap 3/Pull 2:

<https://www.dropbox.com/sh/bk68845ar2pffn5/AAAOt5HQGX7oWkLuJDw6BsKca?dl=0&preview=Jeff+Dahl+-+W3P2+%26+Water+Knot.MP4>

Sheet Bend:

<https://www.dropbox.com/sh/bk68845ar2pffn5/AAAOt5HQGX7oWkLuJDw6BsKca?dl=0&preview=Jeff+Dahl+-+Sheet+Bend.mp4>

Mechanical Advantage (pulley) Systems

(note: loop prusiks were used in these photos instead of the VT prusiks we are now using, but the pulley systems are otherwise the same)

3:1 MA:

<https://www.dropbox.com/sh/bk68845ar2pffn5/AABqYo4CEoYuVYMsd29RMNGca/Jeff%20Dahl%20-%20haul%20system%203%20to%201.JPEG?dl=0>

3:1 MA with redirect:

https://www.dropbox.com/sh/bk68845ar2pffn5/AAA_Q_nnojgiQduUhheFh_4Wa/Jeff%20Dahl%20-%20haul%20system%203%20to%201%20with%20redirect.JPEG?dl=0

5:1 MA:

<https://www.dropbox.com/sh/bk68845ar2pffn5/AAB6lgbYufKjOLl1YoEbXyena/Jeff%20Dahl%20-%20haul%20system%205%20to%201.JPEG?dl=0>

9:1 Compound MA

<https://www.dropbox.com/sh/bk68845ar2pffn5/AAAOt5HQGX7oWkLuJDw6BsKca?dl=0&preview=Jeff+Dahl+-+haul+system+9+to+1.JPEG>

Jeff Dahl

WASART Technical Rescue Committee Chair/Admin

July, 2021