



U.S. ARMY



HAULING

Action: Create a 2:1 with a re-direct, 3:1, and 5:1 hauling system.

Conditions: In a field environment given all necessary equipment and anchor points.

Standard: Create a 2:1 with a re-direct, 3:1, and 5:1 hauling system as a squad within 20 minutes.





Prep Time: 5 minutes to inspect squad rope and hauling kits. Each hauling kit will have a pre-sewn runner, 4 pulleys, 4 24-KN non-locking carabiners, 4 51-KN steel locking carabiners, 1 olive drab 7 MIL cordage (15 ft), 2 black 7 MIL cordage tied with a double fisherman's knot, and an anchor plate per kit. (There are 3 total kits, one per system.)

Uniform: Rappellers uniform with eye protection, gloves, and ACH.

Positions: Load Team, Mule Team, and Hauling Team.





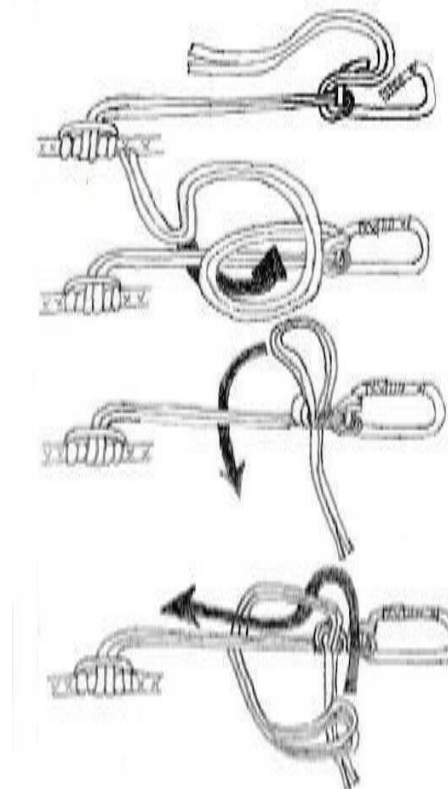
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Muntar Mule/Progress Capture

- **MUNTER MULE KNOT**

- (a)Purpose: To create a releasable anchor knot.
- (b)Tying the Knot:
 - ☐Place a Munter hitch into a locking carabiner.
 - ☐With the brake strand(s) of the Munter, create an overhand loop and place onto the load strand(s) of the Munter hitch.
 - ☐Bring a bight through the overhand loop capturing the load strand(s) creating a slipknot.
 - ☐Dress the slipknot down against the Munter hitch.
 - ☐Tie an overhand knot around the load strand(s).
 - ☐Dress the knot down.
- (c)Checkpoints:
 - ☐A bight passing through a locked carabiner.
 - ☐The closed end of the bight is around the load strand(s).
 - ☐Bight up through an over hand slipknot capturing the load strands.
 - ☐Overhand knot around the load strand(s) with a minimum of 4" pigtails.



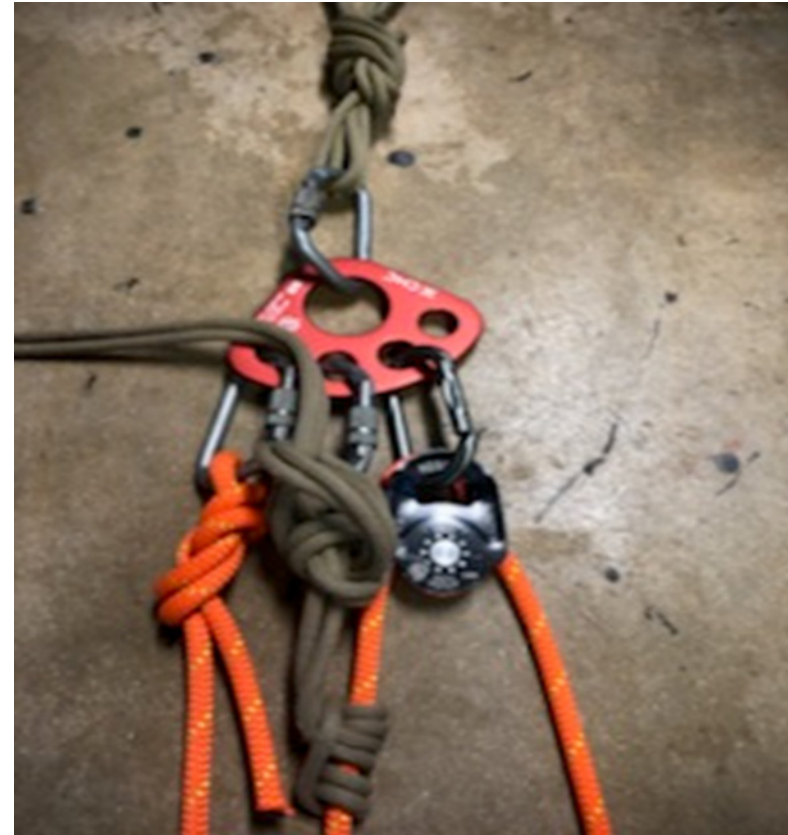


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2:1 with Re-Direct

1. Insert a 51 KN steel locking carabineer (sky to ground, wrap around) through the hot point (fixed loops) that is attached to the anchor.
2. Insert the anchor plate through the 51 KN steel locking carabineer and lock it.
3. Using your squad rope, grab the working end of the rope and tie a double figure eight knot. Insert a 51 KN steel locking carabineer into the first hole (far left), sky to ground wrap around, and attach the fixed loop of the double figure eight into that same 51 KN steel locking carabineer. Lock the carabineer.
4. Place a 51 KN steel locking carabineer inside of the second hole of the anchor plate (2nd to left) using the sky to ground, wrap around method. Lock the carabineer.





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2:1 with Re-Direct Cont.

5. Grab the first load strand and connect it to the load using a pulley and a 51 KN steel locking carabineer, sky to ground wrap around through the pulley.
6. Connect the 51 KN steel locking carabineer that is attached to the pulley directly to the load. Lock the carabineer. For rucksacks, connect to the carrying strap. For Alice packs, connect to the frame.
7. Insert a 24 KN non-locking carbineer ,sky to ground and wrap around, to the third hole of the anchor plate (third from left).
8. Take the second load strand and route it through a pulley.
9. Connect the pulley to the 24 KN non-locking carabineer and maintain tension on the rope. It is easy to straddle the system and place a knee on the haul line portion of the rope.





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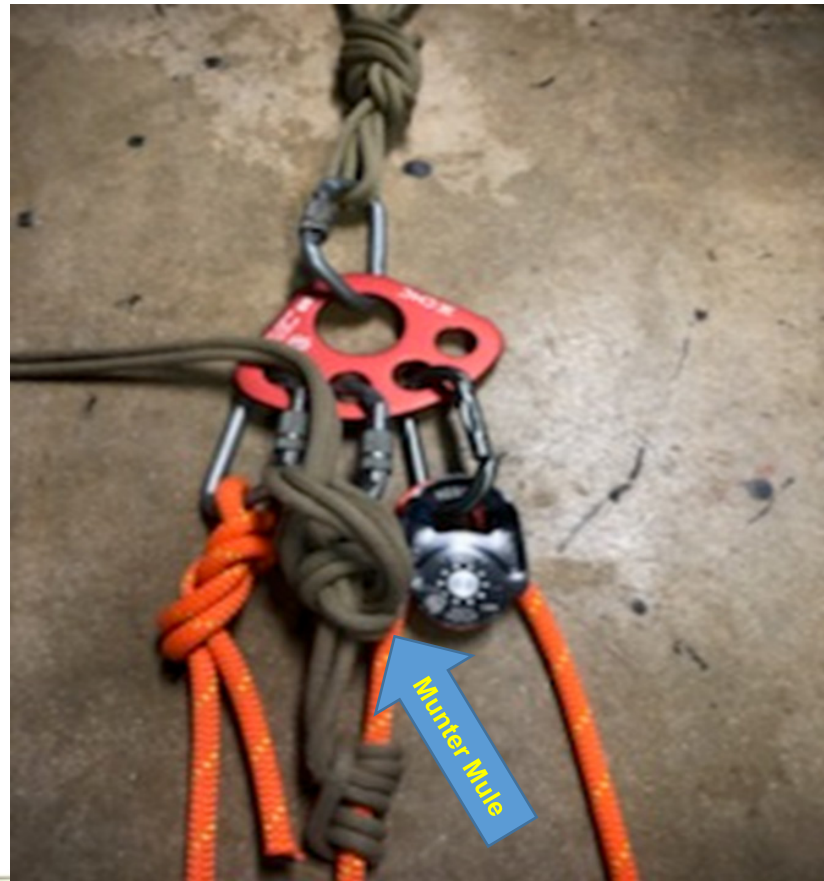


2:1 with Re-Direct

10. Using the 15 ft olive drab 7 MIL cordage, tie a muntar mule to the locked 51 KN steel locking carabineer attached to the second hole of the anchor plate. Ensure that tension remains on the rope. Ensure that the distance from the top of the prussic with an extra turn is at least 6 inches, but no further than 12 inches, away from the base of the carabineer.

11. Conduct a system safety check to ensure all equipment was attached properly and is safe to utilize.

12. Haul the load to desired height.



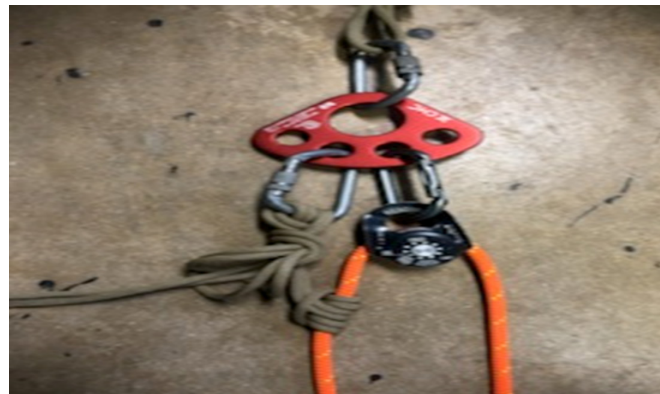


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3:1

1. Insert a 51 KN steel locking carabineer (sky to ground and wrap around) to the hot-point that is attached to the anchor.
2. Place the anchor plate through the 51 KN steel locking carabineer and lock it.
3. Insert a 51 KN steel locking carabineer (sky to ground and wrap around) through the second hole (second from left) of the anchor plate and lock it.
4. Insert a 24 KN non-locking carabineer (sky to ground and wrap around) through the third hole of the anchor plate (third from left).
5. Using the working end of the squad rope, tie a double figure of eight and insert a 51 KN steel locking carabineer through the fixed loop.
6. Attach the 51 KN steel locking carabineer to the load. For rucksacks, attach carabineer to the carrying handle. For A-Packs, attach carabineer to the frame.





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3:1 Continued

7. While maintaining tension on the load strand from the load, route the rope through a pulley and insert it through the 24 KN non-locking carabineer.

8. While maintaining tension on the haul line using the knee method, tie a muntar mule using the 15 ft olive drab 7 MIL cordage onto the load strand and 51 KN steel locking carabineer inserted through the second hole of the anchor plate.

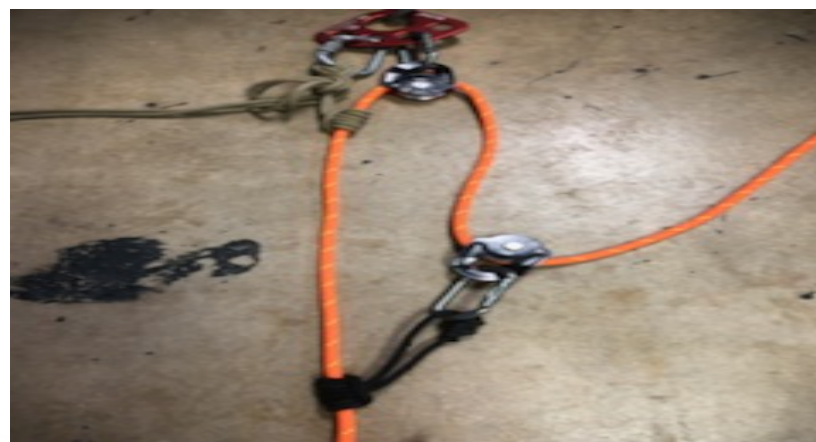
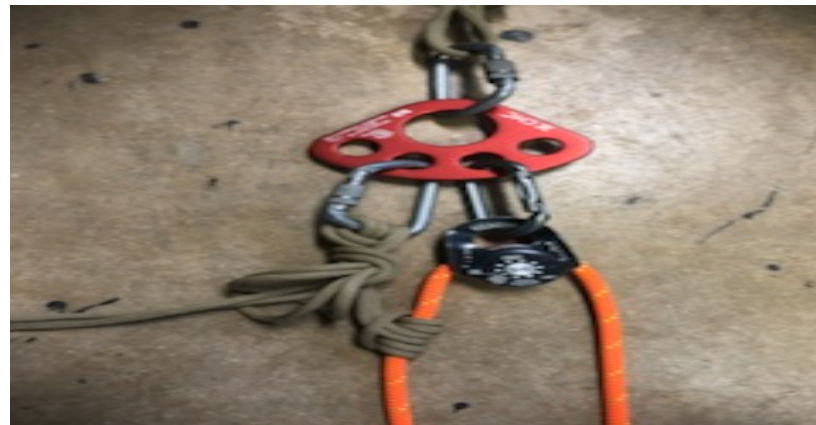
9. Below the muntar mule, tie a prussic with an extra turn on the load strand using the black 7 MIL cordage tied off with a double fisherman's knot. Ensure to offset the double fisherman's knot prior to tying the prussic with an extra turn.

10. Route the haul line through a pulley system and insert a 24 KN non-locking carabineer, sky to ground and wrap around, through the pulley.

11. Attach the 24 KN non-locking to the black 7 MIL cordage tied with a double fisherman's knot

12. Conduct a system safety check to ensure all equipment is correct and the system is safe to utilize.

13. Haul load.



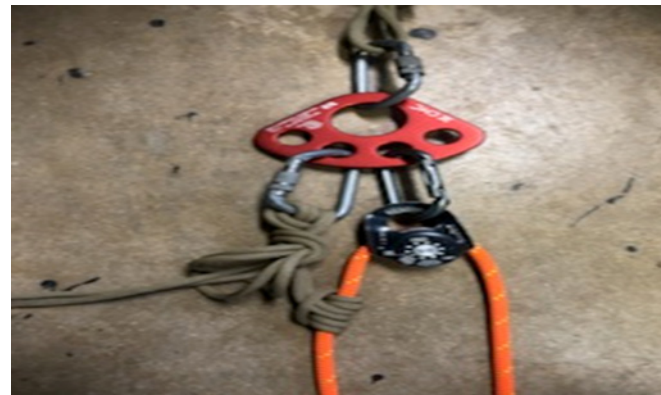


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5:1

1. Insert a 51 KN steel locking carabineer (sky to ground and wrap around) to the hot-point that is attached to the anchor.
2. Place the anchor plate through the 51 KN steel locking carabineer and lock it.
3. Insert a 51 KN steel locking carabineer (sky to ground and wrap around) through the second hole (second from left) of the anchor plate and lock it.
4. Insert a 24 KN non-locking carabineer (sky to ground and wrap around) through the third hole of the anchor plate (third from left).
5. Using the working end of the squad rope, tie a double figure of eight and insert a 51 KN steel locking carabineer through the fixed loop.
6. Attach the 51 KN steel locking carabineer to the load. For rucksacks, attach carabineer to the carrying handle. For A-Packs, attach carabineer to the frame.





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5:1 Continued

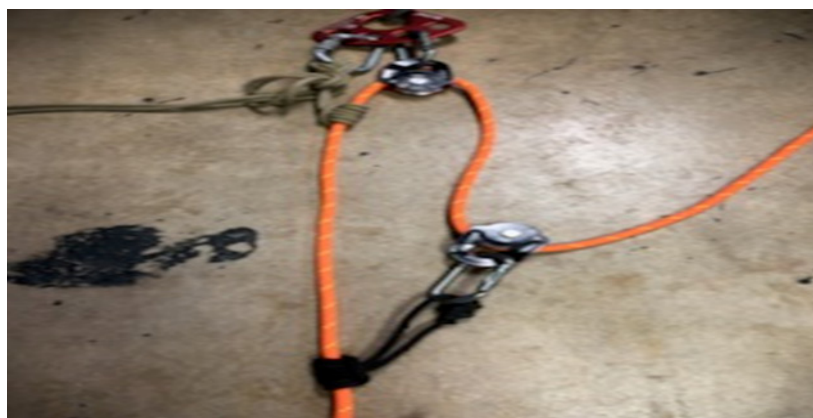
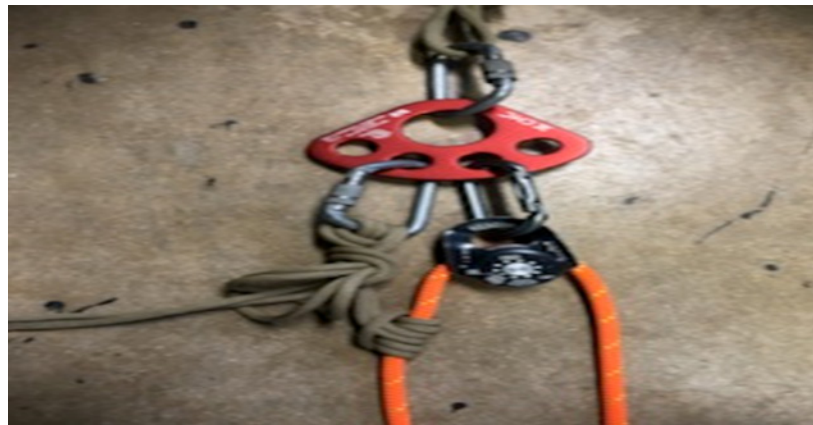
7. While maintaining tension on the load strand from the load, route the rope through a pulley and insert it through the 24 KN non-locking carabineer.

8. While maintaining tension on the haul line using the knee method, tie a muntar mule using the 15 ft olive drab 7 MIL cordage onto the load strand and 51 KN steel locking carabineer inserted through the second hole of the anchor plate.

9. Below the muntar mule, tie a prussic with an extra turn on the load strand using the black 7 MIL cordage tied off with a double fisherman's knot. Ensure to offset the double fisherman's knot prior to tying the prussic with an extra turn.

10. Route the haul line through a pulley system and insert a 24 KN non-locking carabineer, sky to ground and wrap around, through the pulley.

11. Attach the 24 KN non-locking to the black 7 MIL cordage tied with a double fisherman's knot.





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5:1 Continued

12. Connect a 24 KN non-locking carabineer to the fourth hole of the anchor plate, sky to ground and wrap around.

13. Route the rope through the third pulley. Attach the pulley to the 24 KN non-locking carabineer that is attached to the fourth hole in the anchor plate.

14. Route the next portion of rope through a pulley and insert the final 24 KN non-locking carabineer through the pulley, sky to ground and wrap around.

15. Insert that pulley through the black 7 MIL cordage, ensuring that the double fisherman's knot is not incorporated into either 24 KN non-locking carabineers.

16. Conduct a system safety check to ensure system is correct and safe to use.

17. Haul load.

