
S.O.P. #: TACTICAL OPERATIONS MANUAL #35
SUBJECT: STOKES BASKET PROCEDURES
DIVISION: EMERGENCY OPERATIONS

Objective: Standardization of Stokes / Packaging Device Evolutions for Truck Companies

Purpose: To provide a standardized system of best practices, utilizing tested, proven methods for removing patients from remote locations using a patient packaging device attached to rope and aerial devices common in the Baltimore County Fire Department.

NOTE: This SOP is not intended to take the place of formal training, but to provide a method that can provide standardization across the Department.

NOTE: Review Tactical Operations Manual #20 prior to training and implementing Rope Rescue Operations. Sections 5. B. 1. & 2. Shall be followed.

Strategic Priorities

Suspending the weight of a patient from ropes is a High-Risk operation. Whenever possible, consider other lower-risk options. Examples are, lowering the victim down the inclined aerial bed on a SKED (fig. 1) or utilizing a Tower with bracket for stokes basket (fig.2)



FIG 1

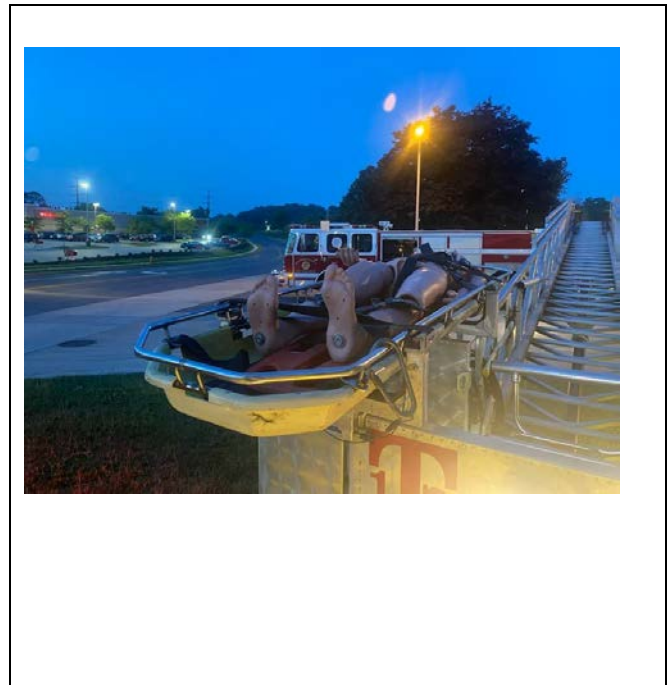


FIG 2

Rope System Equipment

The following section describes the equipment that will be carried by all truck companies in Baltimore County.

Rigging Bag to include

1. Carabiners
2. Webbing
3. Prusiks
4. Anchor straps
5. CMC MPD (Multi-Purpose Device)
6. Single Sheave Swivel Pulley
7. Double Sheave Swivel Pulley
8. Stokes Basket and Bridle

Rope

1. Rope lengths of 150 and 300 ft. ½" static Kernmantle rope for Life safety.
2. Braided nylon utility rope may ONLY be used as tag lines if an appropriate length of life safety rope is unavailable.
 - a. Rope should be inspected and stored in rope bags.
 - b. Rope should be inspected and logged in NFIRS.
 - c. Equipment not inspected, tracked, or maintained by the USAR Logistics manager shall not be permitted and shall be removed from use.

Section 1: Response

The Stokes Rescue assignment shall consist of the following:

1. (1) Battalion Chief, (1) Safety Officer, (1) Engine, (1) Capable aerial device (min 500lbs tip load required), (1) ALS Medic Unit, (1) EMS Supervisor, (1) Heavy Rescue Squad, and USAR 17.
2. The dispatching of USAR 17 is not intended to prohibit the truck company from effecting a rescue. The additional equipment is required due to the potential for these types of incidents evolving and requiring additional resources.

Safety Considerations

1. The hydraulic forces utilized by aerial ladders or towers can cause dynamic loads that may lead to the failure of rope system components. Patients **SHALL NOT** be lifted by hydraulic power. Once positioned for rescue, the aerial **SHALL NOT** be extended/retracted or raised/ lowered.
 - a. All raising and lowering shall be accomplished by the use of rope systems via the haul team.
2. Rotation presents the potential for entangling the victim and placing lateral forces on the Aerial. Therefore it should be a last resort and to the least amount of movement possible.
 - a. If the victim must be rotated, the following shall take place first.
 1. Haul team will stop all raising and/or lowering.
 2. Incident Commander and Rescue Officer will determine it is the only option.
 3. A Safety Officer or Technical Safety Officer must be in place and familiar with the operation.
 4. The operator will ensure line of sight can be maintained with the victim the entire time.
 5. A qualified person shall maintain visibility on the rigging systems to include anchor points at all times during movement to warn the operator of ANY increasing tension.
 - "Qualified Person" is defined as one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
 6. A path will be cleared of all obstructions by at least 10 ft.
 7. The landing area is clear and adequate.
3. Always work within the aerial device's manufacture's specifications and use good judgment.
4. Deploy the system in a way that minimizes the potential for overstressing and/or shock loading equipment
5. All efforts shall be made to keep rope and litter in-line with the ladder at all times. Over vectoring of the litter with tag lines can cause extreme angles on the litter and ladder and shall be avoided.
6. Due to weight limits, attendants shall not be attached to the patient/stokes. Ensure the patient is prepared for movement before beginning the lift.
7. Always select bomb-proof anchors over marginal approaches.

8. Always use "Three sets of eyes" to inspect any system before applying live loads.
9. Each 3:1 system shall not have more than (4) persons per haul line to prevent overloading the system.
10. Carabiners should be oriented "Down and Down" This means that when the system is loaded, the carabiner's gate will screw shut in a downward direction, as gravity will act upon it to keep the gate locked. The carabiner should be oriented so that the gate is facing down.
11. A technical safety officer shall be assigned who is familiar with rope systems will inspect and recommend to the rescue officer a go/no go on any system before loading any rope system.

Section 2: Operation Anchor Points:

If an anchor is "Bomb Proof," it can anchor both lines. Single point anchors should be bomb-proof anchors.

- a. Multi-point anchors must be focused in the direction of the load.
- b. If a vehicle is to be utilized as an anchor point, it must be shut off with the parking brake set and wheels chocked.
- c. Shut off vehicles shall have the electronic siren turned on, so if someone were to start the vehicle, the siren would sound. This does not apply if the aerial in use is being utilized as the anchor point.

1. Patient Packaging

- a. At the discretion of the Rescue officer, the Stokes basket may be replaced by a SKED, LSP, or other rated patient lifting device if call conditions warrant.

2. Haul Team

Both haul teams will be assigned to the Rescue Group Supervisor, who will control movement once the patient is attached to the rope. This system relies on dual tensioned mirrored systems, which requires both teams to operate simultaneously in any lift or lower.

- a. HAUL TEAM COMMANDS
 - STOP: Utilized to halt an operation immediately.
 - HAUL: Instructs the haul team to begin pulling the patient up
 - HAUL SLOW; Instructs the haul team to pull the patient up slowly
 - LOWER: Instructs the haul team to lower the patient
 - LOWER SLOW: Instructs the haul team to lower the patient slowly

3. Trucks (Straight and Tractor Drawn)

- a. Position unit for optimal use of aerial device.
- b. Place Airplane/ Double Pulley on the tip of the ladder
- c. Deploy 2- 300' sections of life safety rope over both pulleys Airplane with figure 8 on a bight tied in each

Construct a 3:1 haul system at the base of the ladder utilizing MPD's on both lines (fig 3)

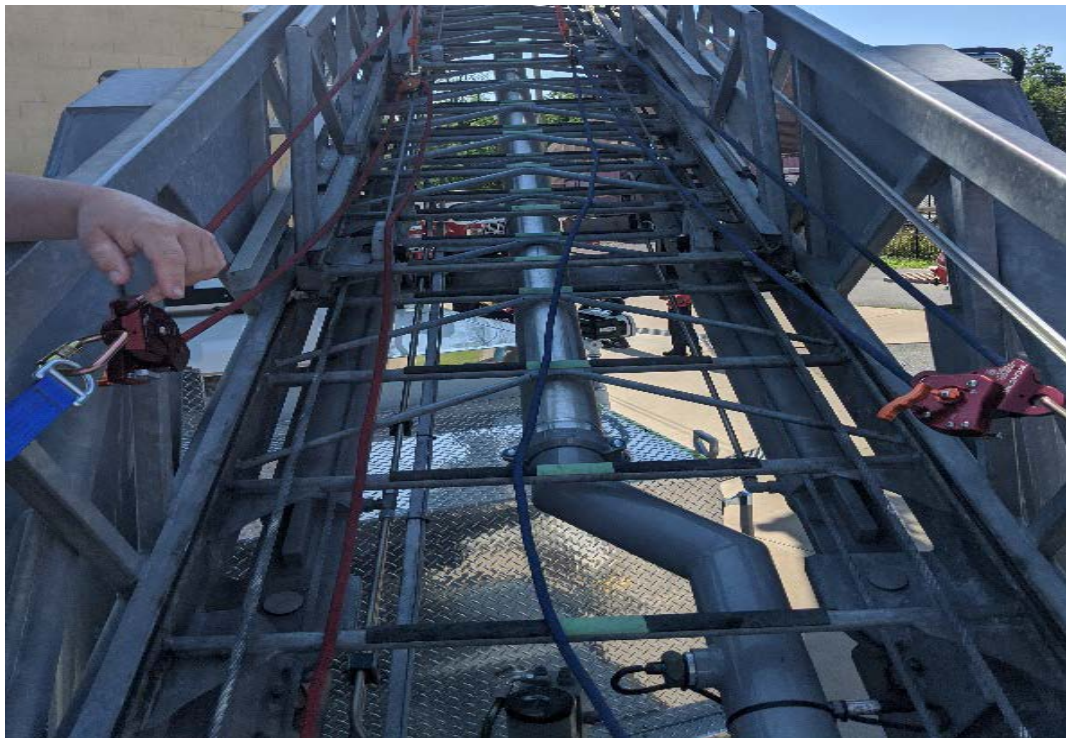
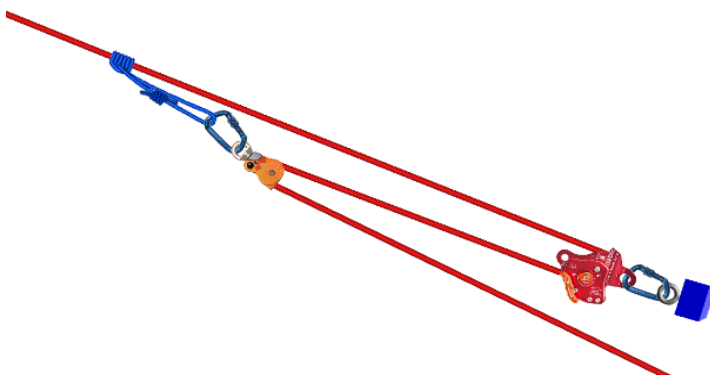


FIG 3

Anchor 3:1s on vertical main brace at base of ladder utilizing anchor strap. (fig 4)



FIG 4

Place a double pulley at bottom of top fly utilizing anchor strap to keep life safety rope off of ladder rungs. (fig 5)

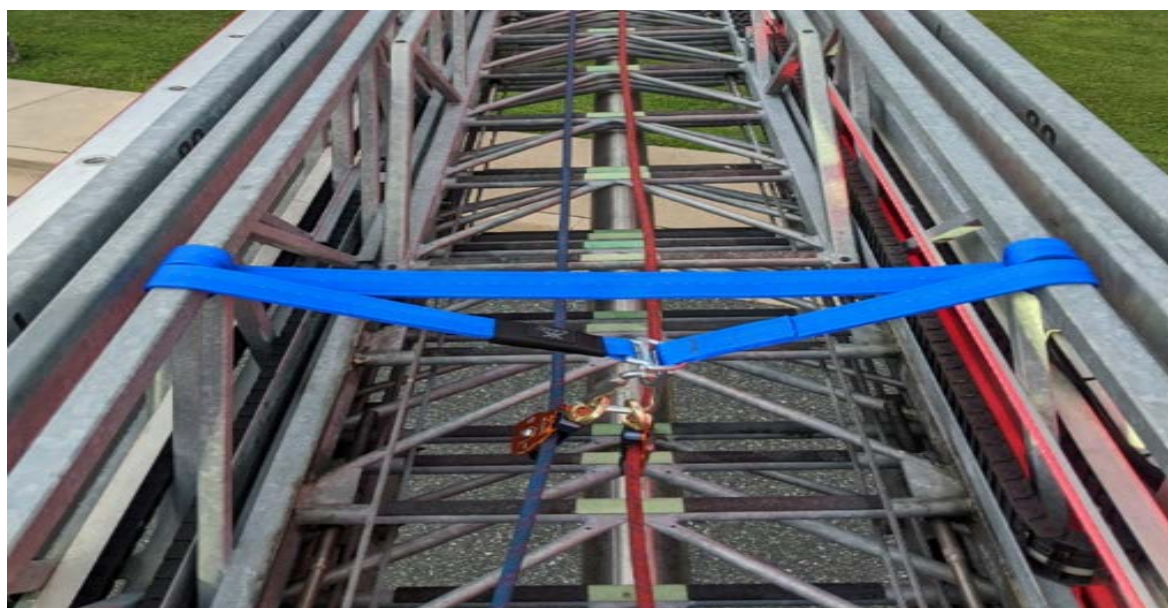


FIG 5

1. Rigging and anchor points must be placed in-line with the direction of the pull.
2. Secure life safety rope to Stokes via issued bridle.
3. Connect tagline to both ends of Stokes basket.
4. Secure Victim in Stokes basket with CMC Quick Strap System. (fig 6)



FIG 6

5. Raise victim 1-2 ft off the ground, stop and ensure bridle is set, so the head is above feet and hardware is oriented correctly.

6. If Stokes basket has to be pulled off of the centerline (Vectored), attach double pulley, carabiner, 150' of life safety rope, a single pulley, and anchor strap to the base of the ladder. Tag lines are still required on the litter device. (fig 7)

FIG 7



4. Tower

- a. Position the unit for effective operations.
- b. Attach anchor straps to rated attachment points on basket and connect a double pulley. (fig 8)



FIG 8

Deploy 2- 300' sections of life safety rope thru Double Pulley with figure 8 on a bight tied in each

1. Establish anchor, in line with the ladder way, i.e., outrigger, front hooks, rear hooks, to serve as a change of direction.
2. Connect both lines to the anchor via a pulley.
3. Establish the second anchor to create 3:1 haul system utilizing MPDs on both lines.
4. Secure life safety rope to Stokes via the issued bridle.
5. Connect tagline to both ends of Stokes basket.
6. Secure Victim in Stokes basket with CMC Quick Strap System. (fig 6)
7. Raise victim 1-2 ft. off the ground, stop and ensure bridle is set, so the head is above feet and hardware is oriented correctly.
8. If Stokes basket has to be pulled off of the centerline (Vectored), attach double pulley, carabiner, 150' of life safety rope, a single pulley, and anchor strap to the base of the ladder. Tag lines are still required on the litter device. (fig 7)

NOTE: Due to the restrictions of anchor points on the tower setup, once the tower is set up for rescue, the rotation of the tower is prohibited.

Demobilization

- a. Clean and inspect all equipment
 - b. Document rope and equipment use in a manner approved by the BCoFD
 - c. If serviceability is in question, contact Station 17