



Jackson Hole Fire/EMS Operations Manual

Developed by: _____

Brian Coe, Battalion Chief

Developed by: _____

James Powell, Captain

Developed by: _____

John Tobey, Firefighter/Paramedic

Approved by: _____

Willy Watsabaugh, Chief

Title: **Rope Rescue Gear Policy**

Division: 18 – Rescue Ops

Article: 2

Revised: 10/25/2016

Pages: 5

PURPOSE

To establish guidelines for the use, care, maintenance, and storage of life safety rope and technical rescue equipment and to standardize inventory lists for technical rescue equipment for both Rescue and Medic Units.

ORGANIZATION

Prior to implementation/purchase of rescue equipment not included in the rescue PAR lists, a committee including Rescue Captain and Rescue Battalion Chief will evaluate and provide the Chief with a recommendation.

Section I – Ropes

I. Rope Inventory

- a. All ropes and technical rescue equipment shall be inspected and inventoried after each use (training or deployment), as well as quarterly.
- b. After each use, inspect and inventory, all rescue equipment bags.
- c. Missing items shall be reported, in writing, to the Battalion Chief in charge of rescue or training operations.

II. Rope Specifications

- a. Rescue rope is used for Life Safety Lines only.

- b. Rescue rope can be used as an anchor attachment, rappel line, hauling or lowering line, safety belay line, litter tag line, or in mechanical advantage systems. It is not intended to be used as a towrope, utility line, or any other purposes.
- c. All stations with assigned rescue rope shall maintain rope use logs.
- d. Construction - Nylon, static, low-stretch kernmantle
- e. Shall meet or exceed NFPA 1983 (2012 edition) requirements.
- f. *Strength:* Rope shall have a minimum breaking strength of 40 kN
- g. *Diameter:* 11mm (7/16") or greater but less than 16mm (5/8").
- h. *Lengths:* 200' or 300'
- i. Inner core shall be of block creel construction, virgin fiber, and continuous filament nylon. The outer sheath may be nylon or polyester with a 32 or 48-carrier sheath construction.
- j. Shall be designed to have maximum working load of at least 600 pounds per foot (lbf) and shall be designated as GENERAL USE life safety rope.
- k. Shall be static or low stretch.

III. Rope Maintenance

All stations with assigned rescue ropes and technical rescue related equipment will be responsible for the care, and maintenance of such equipment.

A. Care of Rope

1. Each rope use (training or deployment) shall be documented in the rope use log.
2. Avoid stepping on rope as dirt and grit can become ground into the sheath causing damage to the core and/or mantle.
3. Always use edge protection when using rope and avoid snagging on sharp edges or projections.
4. Always keep stored in approved rope bags when not in use.
5. Avoid prolonged exposure to sunlight.
6. Avoid contact with battery acid, petroleum products, solvents, or exposure to vehicle exhausts.
7. Do not leave on concrete floors, or in damp areas.
8. Avoid passing nylon rope over nylon rope or webbing.
9. Do not mark with magic markers, paints, hose dyes, etc.; use only rope ID tags.

B. Rope Cleaning & Inspection

Each station assigned technical rescue equipment will be responsible for cleaning all life safety rescue and training ropes.

All rescue rope inspection and use procedures shall comply with NFPA 1983 (2012 edition) standard.

Rope shall be inspected visually by passing the entire length of the rope through the hands, while under slight tension. At the same time, the hands should detect any irregularities, such as lumps or soft spots, in the feel of the rope.

If any problems are encountered or concerns regarding the conditions of any rescue ropes, contact station leadership.

The condition of a rope is in effect dependent on its history: the age of the rope, the conditions to which it has been subjected, and the care it has received. NFPA 1983 requires a history be maintained on each rope.

Rope use should indicate each time the rope is used and the activity it is used in. There must be specific entries made whenever the rope is subjected to abuse that could affect its performance or safety.

Additional information on the rope history log should include pertinent information on the manufacturer, diameter, design, length, color, tensile strength, date of purchase, date placed in service.

It is essential that entries for each rope be made every time it is returned to storage. This discipline must be followed by every station assigned life safety rope.

C. Rope Replacement

Rope shall be downgraded or replaced under any of the following conditions.

- a. Suspected or known contact with chemicals or acids
- b. When damage to the sheath or core is visible due to abrasion, kinking, heat or high stresses.
- c. Any time the rope has received a shock load or impact load.
- d. After ten years of service, regardless of the condition of the rope.

Section II - Auxiliary Equipment System Components

Rope rescue system components shall meet or exceed all applicable requirements specified in NFPA Standard 1983 (2012 edition).

I. Rescue Harness

Only Class III rescue harnesses will be used by rescuers. Each harness shall meet or exceed all applicable NFPA 1983 (2012 edition) Standard and shall have a product label listing compliance specified in this standard.

Rescue harnesses should be inspected before, after each use, and quarterly. Inspect harnesses for cuts, severe abrasions, ripping and stitching that may be coming loose or is abraded. Equal and opposite pressure should be applied to harness pieces, which are stitched together (try to pull the pieces apart and examine the stitching). Any stitch showing signs of loosening shall warrant placing the harness out of service.

II. Carabiners

Only GENERAL USE carabiners will be used and have major axis minimum breaking strength, with the gate closed, of at least *40 kN (8992 lbf). Carabiner gates shall be self-closing and of a locking design.

- a. Do not subject the carabiner to loads on the gate or minor axis.
- b. Do not subject the carabiner to loads over a sharp bend, such as a building edge.
- c. Remove small nicks or burrs on the gate or hook with a fine file and polish with emery cloth.

- d. Corroded or dirty gates can be cleaned with warm soap and water, dried thoroughly and wiped lightly with graphite.

*28KN Carabiners can be utilized as a single rescuer point of attachment. Only 40 KN Carabiners will be used where a full rescue load is anticipated.

III. Rescue Eight Plates, and Rappel Racks

Load-bearing hardware auxiliary equipment shall be constructed of forged, machined, stamped, extruded, or cast metal.

Descent devices shall have a minimum tensile strength of at least 22 kN (4946 lbf).

IV. Ascending Devices and Pulleys

All auxiliary equipment shall have a minimum tensile strength of at least 22 kN (4946 lbf).

Handle ascenders, Gibbs ascenders and rescusers shall be designed for GENERAL USE.

Pulleys shall be sealed ball bearing with anodized aluminum side plates. The two and four inch sizes will be used with single or double sheaves.

V. Nylon Webbing

All webbing used as rescue components shall be tubular design with a tensile strength of at least 4,000 lbf. for one inch, and 6,000 lbf. for two inch webbing. Webbing serves many functions in the rescue system. It can be used for anchoring systems, patient packaging, hitches, quick-set harnesses, gear slings and even self-rescues.

Knots should not be left in webbing when stored, and the only knot to be used is the Water Knot.

Webbing is to be inspected before, after use, and every quarter. Inspect every running foot for cuts, nicks and abrasions. The webbing should be pulled taught while inspecting it. Tiny, minor abrasions are acceptable in webbing. Webbing that is unacceptable should be removed from service for life safety use.

VI. Prussik Cord

Prussik cord is also referred to as accessory cord. It shall be constructed of nylon, low stretch, kernmantle, same as rope. The care, maintenance and cautions for prussik cord are the same as for rescue rope.

It has many applications in the rescue system, the same as webbing. The most prominent use is for attachments, self-rescue, and for use on rope as a prussik hitch. Prussik cord utilizes a double fisher-mans knot also referred to as a barrel knot to make a loop or sling and which is left tied during storage. Prussik cord is to be inspected before, after use, and each quarter. It shall be replaced as needed.

Section III - Inventory Lists

Rope Rescue Mainline Package – 1 per Rescue

- 1 Cache Bag
- 1 Anchor plate
- 1 XL carabiner
- 6 Carabiners
- 5 Prussik minding pulleys
- 6 Red prussik
- 1 Green prussic
- 1 Edge Pro
- 1 Medium Quick Anchor
- 1 Large Quick Anchor
- 1 Edge Pad XL
- 1 Load Release Strap

Rope Rescue Belay Package – 1 per Rescue

- 1 Cache Bag
- 1 Anchor plate
- 1 XL carabiner
- 3 Carabiners
- 1 Prussik minding pulley
- 1 Red prussik
- 1 Green prussik
- 1 Edge Pro
- 1 Medium Quick Anchor
- 1 Large Quick Anchor
- 1 Edge Pad XL
- 1 Load Release Strap

Rope Rescue Rescuer Harness Package – 4 per Rescue, 3 per Medic Unit

- 1 Pro Pocket
- 3 Carabiners
- 1 Red Prussik
- 1 Pick-Off Strap
- 1 Adjustable Litter Strap
- 1 Rescue eight
- 1 Vertex Vent Helmet

Victim Harness Package – 2 per Rescue

- 1 Victim Harness

Ropes – 1 Belay, Rapid & Mainline per Rescue, 1 Rapid per Medic Unit

- 1 Belay (Blue 200' or 300') & Rope Bag
- 1 Mainline (Red 200' or 300') & Rope Bag
- 1 Rapid Access (Orange 200') & Rope Bag

- Litter – 1 per Rescue
- 1 – Patient Tie in System
- 1 Litter
- 1 Pre-built litter bridle
- Webbing

Swiftwater Technician PPE Package – 1 per Swiftwater Technician

- 1 Drysuit
- 1 Type V PFD
- 1 Helmet
- 1 Wet shoe or boot
- 1 Pair Gloves
- 1 Small throw bag (fits in PFD pocket)
- 3 (28KN) Carabiners
- 1 Short and 1 long prusik loop
- 1 Whistle
- 1 Rescue knife
- 1 Duffel or dry bag for storing gear

Swiftwater Rescue Package – 1 per Rescue

- 1 Carlson board, and 2 sets of strap on fins
- 10 Rescue throw bags
- 8 Type III PFDs
- 2 Type V PFDs
- 1 Big shot - line advancement system