

MAINE ASSOCIATION FOR SEARCH AND RESCUE

Rescue Team Member Certification Standard

Appendix A

Training Requirements

I. Introduction

- A. To be certified as a Rescue Team Member a person must complete all of the requirements included in this Appendix
- B. For the purposes of this standard, definitions of terms, and examples of systems and techniques, shall be those shown and described in the following reference(s):
 - 1. "Technical Rescue Rigger's Guide" by Rick Lipke, second edition
- C. Other terms, systems, and techniques shall be considered by the Standards Committee, upon written request

II. Rescue Operations

- A. Explain the significance of the "Golden Hour" to wilderness rescue
- B. Define "rescue triage" and explain its significance to wilderness rescue
- C. For a given rescue scene in steep to high angle terrain:
 - 1. Recommend the type of rescue needed
 - 2. List the number of victims, their location(s), the rescue priority for each, and the resources needed
 - 3. List the hazards, both immediate and potential, and explain the risk associated with each vs. the benefit of rescue
 - 4. Describe how to avoid the most likely risks for rescuer and victim(s)
 - 5. Describe how to locate and reach victim(s)
- D. Define low, steep, and high angle terrain
- E. List the hazards associated with, and skills required for, the rescue system(s) employed for each terrain type
- F. Describe how the following factors affect a speed and safety of a rescue operation:
 - 1. Time to access victim
 - 2. Rescue terrain, including topography and ground cover
 - 3. Weather, both current and forecast
 - 4. Time of day
 - 5. Environmental dangers
 - 6. Rescuer ability:
 - i. Training
 - ii. Experience
 - 7. Condition of rescuers
 - i. Physical
 - ii. Mental
 - 8. Condition of victim

9. Number of victims
- G. Define the functions of the following personnel in a rescue operation:
 1. IC
 2. Operations
 3. Safety
 4. Medical Officer
 5. Main line operator
 6. Belay operator
 7. Edge attendant
 8. Litter attendant
- H. Explain the effects of the following factors on rope rescue systems:
 1. Loads
 2. Forces, including magnitude and direction
 3. Fall line
 4. Friction
 5. Backup vs. redundant systems

III. Communications

- A. Demonstrate the use of clear and concise verbal commands in a rope rescue operation (for an example see the pages 1-2 of the "Technical Rescue Rigger's Guide" by Rick Lipke, second edition)
- B. Demonstrate the use of whistle signals, as defined in ASTM standard F1768, in a rope rescue operation

IV. Administration

- A. Demonstrate proper record keeping, including completion of the following:
 1. Rope use log
 2. Any other relevant unit inspection logs

V. Equipment

- A. Explain the reasons for selection and reasons to carry, and demonstrate the proper use of, the following PPE:
 1. Seat harness
 2. Chest harness
 3. Helmet
 4. Gloves
 5. Carabiners
 6. Personal use slings or lanyards (i.e. Prusik loops, Purcells, etc.)
- B. List approximate breaking strengths, in pounds or kiloNewtons, for the following rescue equipment:
 1. 11mm Nylon kernmantle static or low-stretch rescue rope
 2. 8mm Nylon kernmantle accessory cord
 3. 1" Nylon tubular webbing
 4. Aluminum carabiners
- C. List the advantages and disadvantages of the rescue litter with which he or

- she will usually work
- D. Explain the reasons for selection and reasons to carry, and demonstrate the proper use of, all unit equipment which the Rescue Team Member normally employs in rope rescue operations
 - E. Demonstrate the ability to inspect personal and team equipment for the purpose of identifying wear, damage, and operational readiness
 - F. Demonstrate the ability to perform personal and team equipment maintenance procedures, including cleaning, inspection for damage and wear, and repacking

VI. Knots

- A. Construct the following knots, hitches, and bends, as shown in reference 1 (note – all must be neatly tied and properly dressed)¹
 - 1. Bowline with tie-off
 - 2. Interlocking long-tail bowlines
 - 3. Figure 8 follow-through
 - 4. Figure 8 on a bight
 - 5. Butterfly knot
 - 6. Stopper knot (figure 8, overhand, or equal)
 - 7. Ring bend (in 1" tubular webbing)
 - 8. Double overhand bend
 - 9. Münter hitch
 - 10. Clove hitch
 - 11. Triple wrap Prusik hitch
- B. Construct a Radium Load Release Hitch, or equal, as shown in reference 1
- C. Construct an improvised seat harness
- D. Construct an improvised chest harness

VII. Patient Care

- A. For a given scenario, perform triage of multiple victims
- B. Demonstrate the performance of basic patient emergency care, including treatment of the following:
 - 1. Clear airway
 - 2. Ensure proper ventilation
 - 3. Check circulation and resolve issues affecting it
 - 4. Control bleeding
 - 5. Protect spine from further injury
 - 6. Mitigate the effects of shock
- C. Demonstrate the use of personal protective equipment, including:
 - 1. Gloves
 - 2. Face mask
 - 3. Eye protection
- D. Demonstrate body fluid isolation methods for a patient

¹ Alternates to these knots may be used with the prior agreement of the Standards Committee.

- E. Explain the effects of extended transport on patient care
- F. Describe how to mitigate the effects of extended transport on a patient's condition
- G. Describe the legal requirements, and practical considerations, for transferring patient care to local EMS personnel

VIII. Patient Packaging

- A. Package a patient in a litter, providing for the following:
 - 1. Spinal immobilization
 - 2. Patient protection (thermal, environmental, etc)
 - 3. Access to injuries
 - 4. Access to patient care equipment, e.g. BP cuff, etc.
 - 5. Patient restraint and attachment to the litter
 - i. Patient without a harness
 - ii. Patient with a harness

IX. Litter Rigging

- A. Rig a litter for a steep angle rescue
- B. Rig a litter for a high angle rescue

X. Anchor Selection and Construction

- A. List natural anchors that are suitable for a rescue load including the following:
 - 1. Appropriateness for the location
 - 2. Risks and benefits
- B. Explain the effects on anchor system design of the following:
 - 1. Interior angles
 - 2. Alignment
 - 3. Anchor material strength
- C. Perform the following:
 - 1. Tie a "Wrap 3 Pull 2" anchor
 - 2. Tie a high strength tie-off (aka tensionless hitch)
 - 3. Tie a two-point distributive anchor
 - 4. Back tie an anchor
 - 5. Use a vehicle as an anchor

XI. Steep Angle Litter Carry

Perform as a side attendant in a three person, steep angle, litter carry.

Demonstrate the following during the operation:

- A. Use of an effective primary attachment
- B. Use of an effective belay
- C. Control of the litter
- D. Clear and effective communications with all of those involved in the operation

XII. Belay Line Rigging and Operation for Low, Steep and High Angle Rescue

- A. Explain the purpose and function of the belay system in a rescue operation

- B. Build a Tandem Prusik Belay system for raising and lowering a rescue package, including the following:
 - 1. Explain the risks inherent to the system
 - 2. List the advantages and disadvantages of the Tandem Prusik Belay
 - 3. List the advantages and disadvantages of an alternative to the Tandem Prusik belay
- C. Operate a Tandem Prusik Belay system during a litter raise and lower operation. Demonstrate the following during the procedure:
 - 1. Primary attention on belay operation
 - 2. Maintain clear and effective communications with all of those involved in the operation
 - 3. Lock the belay
 - 4. Tie-off the belay to leave it unattended
 - 5. Release a locked belay while maintaining control of the rope
 - 6. Pass a knot through the system

XIII. Main Line Rigging and Operation for Steep and High Angle Rescue

- A. Explain the purpose and function of the main line system in a rescue operation
- B. Build a safe and effective main line system² for lowering and raising a rescue package, including the following:
 - 1. Explain the risks inherent to the system
 - 2. Explain the reason for selection of the components and technique used
- C. Construct the following mechanical advantage systems correctly and clearly, with no twists in system ropes:
 - 1. Simple 3:1
 - 2. Simple 3:1 with CD (Change of Direction)
 - 3. Complex 5:1
 - 4. Simple 5:1
 - 5. Compound 9:1
- D. Operate a main line system during a raise and lower operation. Demonstrate the following during the procedure:
 - 1. Primary attention on belay operation
 - 2. Maintain clear and effective communications with all of those involved in the operation
 - 3. Maintain clear and effective control of the haul team
 - 4. Tie-off brake rack to leave it unattended
 - 5. Convert system from raise to lower
 - i. Ensure minimum rope loss during maneuver
 - 6. Convert system from lower to raise
 - i. Ensure minimum rope loss during maneuver
- E. Pass a knot through the system during raise and lower

² Any system shown in reference 1 is acceptable. Alternate systems may be used with the prior agreement of the Standards Committee.

XIV. Ascending and Descending Ropes

- A. Ascend a rope
 - 1. Use Prusiks for ascent system
 - 2. Use a self belay
- B. Descend a rope by rappelling
 - 1. Use a self belay
 - 2. Tie off rappel device mid-rappel, then continue descent
- C. Demonstrate conversion from descending to ascending, and reverse

XV. Edge Attendant

- A. Demonstrate the construction and use of a safe and effective edge restraint
- B. Explain the purpose of vectoring for edge transition
- C. Demonstrate the use of vectoring during raise and lower
- D. Demonstrate the use of the “Pike and Pivot” or an equivalent maneuver for simplifying the edge transition during a litter raise operation