

**Water Rescue Rope Guidelines**

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## References:

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“CMC Rope Rescue Manual, 2<sup>nd</sup> Edition”, James A. Frank and Jerrold B. Smith, California Mountain Company, Ltd, Santa Barbara, CA 1992

“Special Rescue Services Group’s Helicopter Rescue and Operations Class”, Special Rescue Services Group and World Rescue Services Inc, Sonora, CA, 2000

“Swiftwater Rescue Technician Advanced, Student Manual”, Rescue 3 International, Elk Grove, CA, 2000

**Information Sheet #1**

TOPIC: TACTICAL RAPPELLING GUIDELINES - HELICOPTER

INTRODUCTION: Guideline for rappelling out of hovering helicopter.

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**Prepare to Exit Aircraft at Insertion Site** – Crew Chief Directs All Activity in Cabin

Initially Rescuer Clipped into Aircraft by Seat Belt or Safety Line

Pair of Rescuers Rappel at Same Time to Balance Aircraft

Hand Signals Used Due to Noise

Crew Chief May Signal With Two Fingers Toward Eyes to Say “Pay Attention”

Crew Chief Points at Next Set of Rescuers: Rescuer Confirms Ready With Nod

Rescuer Attaches 8 Plate to Rope and Clips Into Harness

Crew Chief Directs Rescuer to Unclip Safety Line / Unfasten Seat Belt

(Two Fists Flat Together at Knuckles, Rotate One Fist)

Rescuer Detaches Self; Do Not Leave Loose Gear Behind

Rescuer Moves to Doorway – Pull Slack Rope Through 8 Plate

Crew Chief Safety Checks Rescuer Hookup to System

Harness Attachment, Carabiner Locked, 8 Plate Rigged Properly

Rescuer Gear Securely Attached and Will Not Interfere in Rappel

Crew Chief Directs Rescuer to Turn and Face Aircraft (Spin Index Finger in Air)

Rescuer Puts Feet on Frame / Skid of Aircraft

Lightly Load System by Leaning Against Rope Ready to Rappel

Crew Chief Confirms Rescuers Ready to Rappel – Rescuer Confirms With Nod

Crew Chief Signals Go (Extends Arms From Vertical At Elbow to Outward)-

Rescuer Starts Rappel

**During Rappel**

Go Over Edge / Skid of Helicopter With Legs Extended and Invert Body

After Past Skid Rotate Self Back Upright – Be Positive Head Clear

Acquire Position and Condition of Rescuer On Other Side of Aircraft

During Descent, Match Speed and Position of Other Rescuer

At 10' Off Ground Put Feet Out in Front of Body and Wave Legs

**On Ground**

Squat When Reach Ground – Need Slack in Rope to Unfasten

Detach From System – Caution on Helicopter Moving And Pinching Finger

After Detached Walk Backwards With Arm Extended Sideways

**Information Sheet #2**

TOPIC: ROPE RESCUE COMMUNICATIONS

INTRODUCTION: Standardized communications. Use of standardized communications improves coordination of a team during rope rescues.

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| <u>Rescuer Command</u>           | <u>Meaning</u>                            |
|----------------------------------|---|
| On Rope                          | Attaching to rope                         |
| On Belay                         | Requesting belay from belay team          |
| On Rappel                        | Starting to rappel                        |
| Off Rope                         | No longer attached to rope                |
| Tension                          | Apply tension on belay line               |
| Slack                            | Give slack on the belay line              |
| Up Rope                          | Take up extra rope in belay line          |
| Haul                             | Start hauling main line                   |
| Haul Slowly                      | Haul main line slowly                     |
| Lower                            | Start lowering main line                  |
| Lower Slowly                     | Lower main line slowly                    |
| Stop                             | Stop hauling / lowering                   |
| <u>Belay / Haul Team Command</u> | <u>Meaning</u>                            |
| Belay On                         | Ready to belay                            |
| Rappel On                        | On Rappel from rescuer understood         |
| Ready to Haul                    | Haul team ready                           |
| Ready to Lower                   | Lowering team ready                       |
| Passing Knot                     | Passing knot in haul / lowering line      |
| Converting                       | Converting between haul / lowering system |
| Stop                             | Stop hauling / lowering                   |

**Information Sheet #3**

TOPIC: ROPE ASCENDING GUIDELINES

INTRODUCTION: Guideline for ascending a fixed line – 3 prusik method

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**System Setup** – Move Rope Out of Rock Fall Zone If Able To

Use Two or Three Wrap Prusik Knot As Needed (Test Two Wrap Before Use)

Attach Top Prusik Loop to Rope (Purple Color)

Clip Loop to Main Connection on Seat Harness

Attach Bottom Prusik Loops to Rope Under Top Loop (Red and Teal Color)

Tie Figure Eight On a Bight in Lower Part of Bottom Prusik Loops

Test Foot in Bight for Fit (Should Just Fit Over Foot At Heel)

For Single Line (No Belay Line) – Use Webbing to Attach Feet in Bight

One Short Webbing (Green) Going Around Ankle and Through Bight

Also Known as a “Chicken Loop” – Hold Prusik Loop On Foot

For Dual Line (Belay Line) – Separate Line Used As Safety Line

System Safety Checked Before Use – Knots, Carabiner, Harness

**Test System Setup** – Checkout System Barely Off Ground for Fit

Raise Top Loop and Set Knot

Gradually Load Knot – Check for Knot Rolling or Slipping

Two Wrap Prusik - Knot May Roll and Slip on New Rope Use Three Wrap

Suspend Weight on Top Loop and Raise Foot Loops Slightly Off Ground

Gradually Load Foot Loops – Perform Same Check for Two Wrap Prusik Knots

Check Foot Position in Loops

Loop Positioned At Heel of Boot

Loop Not Rolling Ankle – Foot Is Evenly Loaded

Loop Does Not Easily Slip Off Foot

**General Notes on Use of System**

Climb At Steady Pace – Set Top Prusik and Rest As Needed

Open Sticky Prusik Loops By Loosening Knots As Needed During Ascent

**Climbing Technique**

Set Top Prusik Loop As High As Possible

Load Top Loop and Raise Lower Loops Attached to Feet

Bend Knees and Position Feet Under Butt (May Use Slight Swinging Motion)

Stand Up Using Both Legs – Minimal Use of Arms Balancing Weight

Set Top Prusik Loop As High As Possible – Repeat

**System Breakdown** – Perform When in Safe Area

Remove Foot Loops First – Top Loop as Safety, Rope Can't Pull Down on Feet

Remove Top Prusik From Rope – Reattach All Loops To Harness on Left Side

### Information Sheet #4

TOPIC: GUIDELINES TO SUPPLY ASSISTANCE WITH RIGGING AND MECHANICAL ADVANTAGES TO TECHNICIAN LEVEL PERSONNEL

INTRODUCTION: Operational support for technician level personnel in rope rescue

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#### **Equipment Location / Identification**

Water Rescue Rope Equipment Is Contained in the Shallow Water Trailer  
See Shallow Water Trailer.xls (Planning Section, Resources Unit)

#### **Rope Rescue Communications**

See Information Sheet 2, Rope Rescue Guidelines

#### **Knots Used By Water Team**

Operational Support Personnel Will Use Knots As Per DART Rescue Team

#### **Rope Systems – Copies of Systems Stored in Harness Bag of Rope Equipment**

Approved Rope Systems Are in Order of Priority for Techniques

DART Water Rescue Guidelines

Rescue Systems 1

Rescue Systems 2

Swiftwater Rescue Technician Unit 1

Swiftwater Advanced

Operational Support Personnel Shall Have Rescue Systems 1 Training

#### **Operational Support Conducted Under Supervision of Technician Level**

Approval of Rope System by Technician Level Personnel

Safety Check of System by Technician Level Personnel

Operation of System Supervised by Technician Level Personnel

#### **Equipment Restaging**

Condition of Gear (Rope Log) Verified by Technician Level Personnel

Equipment Organization Checked by Technician Level Personnel