

Cliff Assault



Marine Corps Warfighting
Laboratory (MCWL)
and
Mountain Warfare Training
Center (MWTC)

U.S. Marine Corps

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This X-File is based on training and experiments
by the Marine Corps Mountain Warfare Training
Center

Throughout this X-File, we use masculine nouns and pronouns for the sake of simplicity. Except where otherwise noted, these nouns and pronouns apply to either gender.

U.S. Marine Corps

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Commanding General
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8 August 2000

FOREWORD

1. PURPOSE: This X-File summarizes a segment of the training given by the Marine Corps Mountain Warfare Training Center on cliff assaults. It joins our other published X-Files as a reference that can be quickly read and easily transported—in the cargo pocket of the utility uniform—so Marines have easy-to-use information that can help them be better prepared to fight and win.

2. SCOPE. This X-File is a guide for a unit leader on how to plan, organize and employ his unit in a cliff assault. It is an overview. It is *not* a technical guide for an assault climber (AC) or summer mountain leader (ML).

3. SUPERSESSON. None.

4. CHANGES. Recommendations for improvements to this X-File are encouraged from commands and from individuals. You can reproduce and forward the attached User Suggestion Form to the above address.

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5. CERTIFICATION. Reviewed and approved this date.

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Introduction

Potential threats should know that there is no such thing as impossible terrain for Marines. Even vertical cliffs can be overcome by properly trained Marines using proven equipment and techniques.

The aim of a cliff assault is to move a military force from the bottom of a cliff face to the top with minimum disorganization, in order to carry out a military operation.

Focus of this X-File. This X-File is a unit leader's general guide for planning, organizing and conducting a cliff assault. It is *not* a technical guide for an assault climber (AC) or summer mountain leader (ML). Our focus is on the individual Marine who has not had the extensive, on-site training given at the Mountain Warfare Training Center. However, certified ACs and MLs will still find this document useful as a reminder of most of the general, non technical, parameters of a cliff assault.

Role of the Cliff Assault in Maneuver Warfare. Cliff assaults take advantage of rough terrain, unoccupied, or unobserved areas to have undetected movement of small elements when movement of the entire force would present greater risks. And, a properly trained Marine unit can conduct a cliff assault at any time. Because of this, an enemy would be forced to actively defend—or at least monitor—possible cliff assault sites. This draws forces from his perimeter and creates gaps and surfaces that an attacking unit could exploit. Historically, cliff assaults have been used effectively to take out weapons systems located on high ground that covers a main axis of advance. They can also be employed during a raid or a diversionary attack.

Like infiltration, cliff assault is normally conducted in conjunction with other forms of maneuver. For example, a commander may use a cliff assault to move all or part of his force through gaps in the enemy's defense to accomplish one or more of the following:

- Achieve surprise.
- Attack enemy positions from the flank or rear.
- Occupy a position from which to support the main attack by fire.
- Secure key terrain.
- Conduct ambushes and raids in the enemy's rear area to harass and disrupt his command and control and support activities.
- Cut off enemy forward units.

To increase control, speed, and the ability mass combat power, a cliff

assault is undertaken by the largest possible unit compatible with the assigned mission, the need for stealth, speed, and enemy capabilities.

Avoid using the terms cliff assault and vertical assault interchangeably. *Vertical assault* is more properly applied to helicopter borne assaults.

Cliff Assault Planning Considerations

The cliff assault is very dangerous because of the enemy, gravity and possibly the sea—making this type of maneuver a high risk option rather than a standard technique. Therefore, if another attack option exists, you should use it. On the other hand, most so-called cliff assaults are actually steep earth movements rather than up a vertical cliff face.

Planning Framework. A cliff assault is a thoroughly planned action on a known danger area. The unit's mission is the raid *beyond* the cliff, not climbing the cliff itself. Beware of losing focus on the end state.

Once the commander decides to execute a cliff assault, his planning is framed by the following:

- Surprise is paramount.
S Keep silent and minimize noise to attain surprise.
- Speed is essential.
S Use all available equipment/ropes to move at best speed.
- Ensure that the cliffhead is well organized.
- Make sure force protection measures are in place early.
S The raiding party is very vulnerable in the initial stages.

Tactical Considerations. If an enemy objective is in close proximity to a cliffhead, it is possible that defensive forces consider the cliff an obstacle, thus focusing their security to other more vulnerable areas. However, if the objective is outside small arms range from the cliff, the enemy will likely defend it in a 360-degree fashion. If this is the case, you have fatigued the assault unit with the climb while not achieving the desired surprise.

An objective that is near the cliff assault site offers these advantages:

- An enemy could assume that the cliff is not crossable and therefore is a protected “wall” against which he can put his back.
S He therefore concentrates his defenses outboard from the cliff toward more likely avenues of approach.
- The cliff edge to objective distance is within our mortar range.
S Thus, the assault unit does not have to expend the time and energy to haul mortars, crews and ammunition up the vertical distance to ensure fire support for their attack.
S On an amphibious cliff assault, without a suitable beach landing site (BLS), this advantage is void.

Beyond this, enemy security forces may not be comfortable looking over the edge of a cliff under less than ideal conditions—potentially creating a gap in security that we can exploit.

The most experienced assault climber/ML is responsible for organizing the unit's movement from the beach master's position across the vertical obstacle to the control point NCO. Therefore, he should be closely involved from the outset of planning with the unit commander.

Deception Plan. Use noise factors and diversionary attacks.

- Rivers or ocean waves breaking at the base of cliffs are common and mask the noise of a cliff assault very well.
- Weapons fire and impacts from our supporting arms can also mask the noise of a cliff assault.
S However, you must balance this with the potential to put the enemy on alert.
- For example, shell on or near positions on a regular basis at the same time over a period of several days.
S Conduct your cliff assault during this period. The enemy may be accustomed to the noise/disturbance at the regular intervals and become less vigilant during these times.
S Do not plan to use fires on—or near—cliffs because this can render the cliff dangerous or unusable due to loose rock and rock fall.
- Diversionary attacks.
S By ground, air, or indirect fire from multiple directions.
S The cliff assault itself might be the diversionary attack.

Communication / No Communication Plan. Use wire as the primary mode and radio as the alternate means to minimize radio traffic and ensure good communication.

- Intra Squad Radios (ISRs) (See X-File 3-35-9 *Intra Squad Radio*.)
S These are currently being fielded.
S Use caution because these radios have no crypto—although they operate on military band only.
S They simplify many communication problems—especially between topside and bottom side assault climbers.

The “no comm”/comm failure plan should be built on standard signals as per unit SOP, adding only a few additional signals to deal specifically with the cliff assault. Most communication topside will be by runner. Key personnel should have a radio operator (RTO) and a security/runner rifleman. Comm between top and bottom will be by wire or radio.

Fire Support Plan (FSP). Develop your FSP using MCWP 3-42.1 *Fire Support in MAGTF Operations*, using traditional deliberate attack parameters. When preparing a plan, consider the following:

- Use the unit's organic mortars first.
- Is there any artillery in range of the cliff assault?
- Availability of close air support (CAS);
S rotary- or fixed-wing, or both.

- Forward Air Controller (FAC) availability.
S Rotary wing CAS may be the weapon of choice in this situation.
- Naval Gun Fire (NGF)
S *Danger Close* is 750 meters which may eliminate its use.
S NGF cannot shoot reverse slope targets.

Above all, plan for the desired end state. The cliff assault is *not* the mission, rather, it is the overcoming of an obstacle during the movement to contact phase.

Equipment Per Man.

- Sling Rope, 15' dynamic kernmantle preferred.
S Laid type rope is 2nd choice,
S static rope is least desirable.
- 1 Stubai 85 locking steel carabiner
- 1 extra carabiner,
S can be aluminum nonlock,
S Stubai 82 locking or
S another Stubai 85.
- 1 pair heavy gloves for rappelling.
- 1 Kevlar helmet with a chin strap.

Equipment Per Company.

- One Complete Marine Assault Climber (MAC) Kit
S Figures 1-3 show MAC Kit (MACK) general contents
- Gear *not* included in MACK, which might be needed.
S Special Equipment for Ice
S Special Equipment for Steep Earth

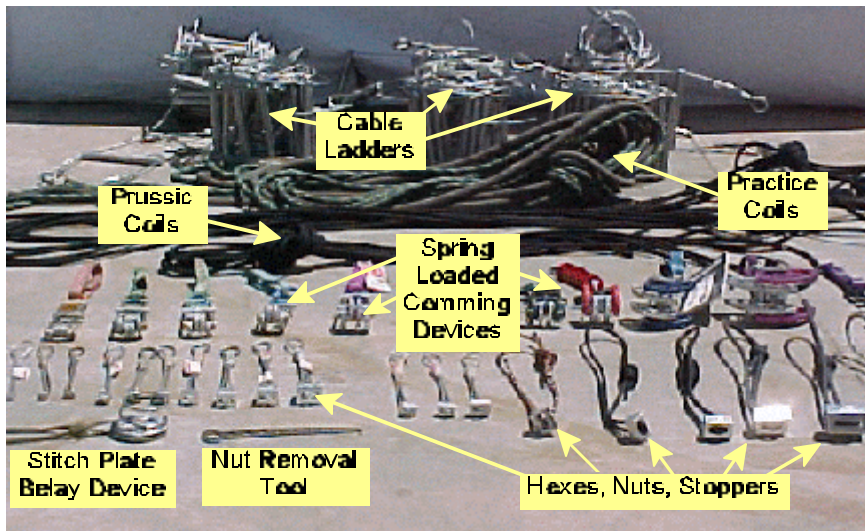


Figure 1 Some Equipment in the MAC Kit

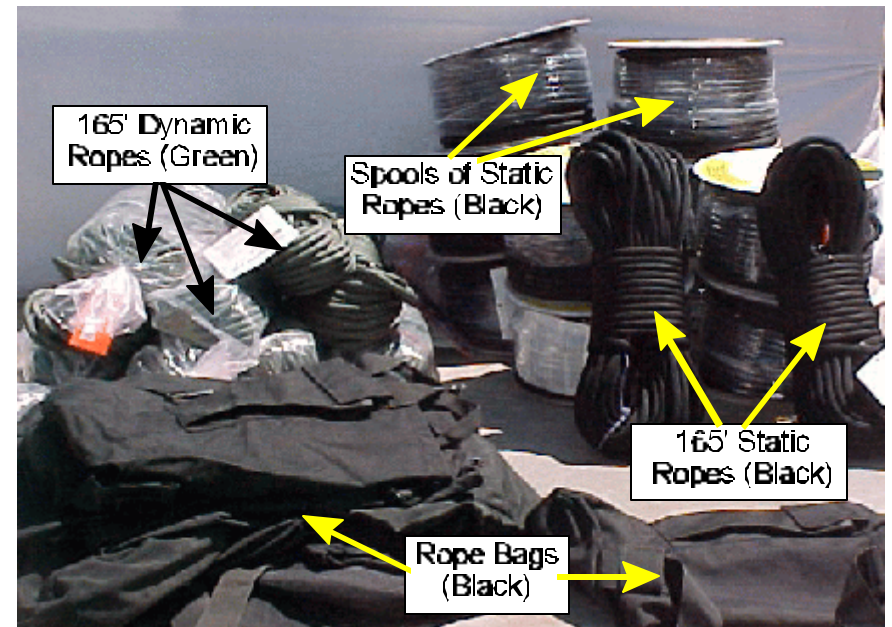


Figure 2 Assortment of Ropes in a MAC Kit



Figure 3 One of the MAC Kit Boxes

Casualty Evacuation (CASEVAC). Medical personnel will be with the raid force on the objective. One corpsman should be located topside, near the center of the security perimeter to help stabilize battle casualties. The main medical area will be at the bottom of the suspension traverse since this is the fastest way to get patients down.

- SKED® litter—highly maneuverable, man portable plastic litters that are useful for cliff assaults because they do *not* require any *additional* rigging to ensure a patient does *not* fall out / off of stretcher.
 - S** They are lightweight, fast and easy to hook up for lowering.
 - S** One or two should be placed with the corpsman at topside perimeter.
 - S** The casualty must still be harnessed or otherwise tied into the lowering system/suspension traverse whenever possible.
- Methods for CASEVAC include:
 - S** Belay-assisted rappel
 - S** Two person rappel;
 - needs to be practiced,
 - not to be used with a stretcher,
 - should be AC/ML.
 - S** Two person lower on lowering system.
 - S** Suspension Traverse;
 - fastest,
 - can be used with or without a stretcher.
 - S** Helicopter.

Control Features Topside .

- Engineer tape;
 - S** only if it is very dark.
- Extra ropes that AC/MLs don't need can serve as control features,
 - S** allowing Marines to simply follow them.
- 550 cord, but is more difficult to find/follow.
- Directional chemlight at Control Point NCO's position.
- Infrared or thermal Firefly beacons.

Control Features Bottom. You have a little more leeway at the bottom.

- Engineer tape, directional chemlights and IR beacons may be used to signal the Beachmaster that a lane is open.
 - S** Marines can also use this as a guide.
- Engineer tape, rope or 550 cord can be used.
- If it is a great distance between the Beachmaster and the climbing lanes and the unit has enough people, then guides should be considered.

Drills.

- Talk through on a chalkboard.
- Walk through daylight.

- Full dress rehearsal daylight until perfected.
- Full night rehearsal until perfected.
- Compromise/contact before ACs top out.
- Fighting withdrawal,
 - S** when the unit is established topside, and
 - S** when it is not.
- Prepare mortars to fire in support of withdrawal.
- Fighting withdrawal after a raid.
- Rehearsal without comm.
- Rehearsal with many casualties

General Organization.

- Organize a company as normal for a raid (METT-TSL) as follows:
 - S** Assault element,
 - S** Support element,
 - S** Security element.
- Reserve platoon;
 - S** can be left at topside security position or brought to the raid site.
- One support platoon;
 - S** can be tasked with security, providing ACs, manning aid station and the suspension traverse.
- Weapons platoon.
 - S** Position mortars to optimize unit scheme of maneuver and facilitate rapid egress.
 - S** Position machine guns and SMAWs to maximize fire support to the scheme of maneuver (mission dependent).

Specific

- 1stWave:
 - S** This wave would be organized with 8-24 assault climbers (depending on size of the unit),
 - S** platoon/unit commanders and
 - S** cliffhead security (top and bottom).

Training Considerations. The senior AC/ML should oversee the training. Operational risk management (ORM) should be conducted before training.

- If anything is dropped/knocked off from above, observers will immediately yell "Rock!" regardless of what object is falling.
- During training, stress to the Marines that all the safeties in place (top ropes, two rope rappels, etc.) may *not* be in place during a real world operation.
- Continually stress that Marines must check and recheck all harnesses, knots and other systems to ensure that they are in serviceable condition and properly rigged for immediate use.
- Units should train for steep earth as well as vertical rock.
- If actually conducting an operational cliff assault, then one-rope rappels are a real possibility.

- When rigging for climbing during training, you can have Marines put on rope system, weapon across back, muzzle down and to the left, then load bearing equipment (LBE). This helps them retain their weapon, especially if the sling keeper releases. All sling keepers should be backed up with an overhand knot near the metal tab of the weapon sling.

Only a *well-trained* and *well-rehearsed* unit has a reasonable chance of success while conducting a cliff assault.

Cliff Reconnaissance

Importance of Reconnaissance. Conducting a cliff assault is a dangerous undertaking. Without extensive reconnaissance of the intended site, the operation will almost be doomed to fail. The more information available to the raid force commander the better the chances of success.

Units Capable of Conducting Cliff Site Reconnaissance.

- Force Reconnaissance Company.
 - S** This is a MEF level asset whose mission is to conduct pre assault and deep post assault reconnaissance and surveillance in support of the Landing Force Commander. Normally there will be one platoon assigned to each MEU (SOC) deployed. This unit will *sometimes* have organic Assault Climbers (ACs) and M7A qualified Mountain Leaders (MLs).
 - S** **Note:** M7A is the designation code given to those who have been specially trained by MWTC to be Mountain Leaders.
- Reconnaissance Battalion / Company.
 - S** This is a Division level asset whose mission is to conduct reconnaissance and surveillance in support of the Marine Division and its subordinate elements. Normally there will be one platoon assigned to each MEU (SOC) deployed. This unit *might* have organic ACs and/or M7A qualified MLs.
- Scout Sniper Platoon.
 - S** This is a battalion level asset, normally composed of MOS 8541 trained snipers whose mission is to conduct reconnaissance for the battalion commander and deliver long range precision fire on selected targets.
 - S** Normally, this unit is *not* employed independent of battalion level operations. They lack much of the organic support and equipment needed for insertion into operation areas compared to the reconnaissance units.
- MEU (SOC) Qualified Small Boat Company Scout Swimmers.
 - S** They are trained to conduct cliff reconnaissance as the boat company often has the primary mission of conducting an amphibious cliff assault.
- MEU (SOC) will deploy with elements from NAVSPECWARGRP (SEALS).
- Additional in theater assets may include Ranger Pathfinder Platoons and Special Forces A Teams.

All of these units are capable of conducting cliff site reconnaissance but will require extensive briefing on developing EEIs, cliff assault procedures, cliff recon reporting procedures, and extensive coordination.

General Considerations.

- Determine mission feasibility early in planning stages (METT-T).
 - S** Remember to be realistic in what can be accomplished.
- Determine equipment requirements and the assault force current capabilities; e.g., will more equipment be needed?
- Pre training / sustainment training is required for the assaulting unit.
- Request an aerial reconnaissance of the area.
- At a minimum, conduct a very detailed map reconnaissance.
 - S** Request to use current MEU (SOC) reconnaissance assets if available.
- The unit conducting the cliff site reconnaissance should be thoroughly familiar with assault climber operations and the assaulting unit's capabilities.
 - S** If the unit conducting the reconnaissance does *not* have an experienced M7A Summer Qualified Mountain Leader or formally trained Assault Climber they should bring one with them.
 - S** Ideally it would be the senior and/or most experienced one from the unit that intends to do the cliff assault.
 - S** The mountain leader / assault climber is simply attached to the unit and is not leading the reconnaissance mission.
 - S** The mountain leader / assault climber is there to provide on site expertise in order to provide a clear picture of the obstacle to be crossed, identify possible climbing lanes, designate equipment required and provide time estimates.
 - S** This will *not* always be possible due to mission limitations.
- Gather essential data.
- If the unit conducting the reconnaissance is not familiar with this type of mission, they must be thoroughly briefed on the specific information required by the assault climbers.
 - S** Face-to-face coordination with the recon team is required.
- Reconnaissance prep should include, but is not limited to,
 - S** sketches, photographs, or any other items of significance.
 - S** Don't rule out uncommon sources like tourist maps or photos from submarines. These are very good for planning and navigation.
- Information should be reported in a timely manner in order to prepare the assault force.

What to Look For. Check for:

- Bottom, and if possible, top, for anchors.
 - S** Trees serve as the best anchors for suspension traverse.
- Rally points, top and bottom.
- Pick out probable lanes
- Pick out weakness in the cliff face such as
 - S** crack systems, ledges, and chimneys
- Identify the potential for the site to be cold and wet.

- S** For example, iced over rock (called verglas) is extremely difficult to climb and will render an easy cliff nearly impossible.
 - S** Can it still be climbed?
- Look for birds' nests.
 - S** Assess the probability that they will scare and take flight, warning the enemy of a disturbance on the cliff face.
- Assess the avalanche / rock fall danger.
- Check on feasibility of fire support.
 - S** For example, can mortars employed at the cliff bottom reach the objective?

Operational Security. The reconnaissance element should *not* climb the cliff breach points. This could compromise the plan causing a disastrous loss of surprise for the assaulting unit. If the recon unit is to remain in place, surveillance of the breach points and likely avenues of approach should be established. The unit should also facilitate the arrival of the assault force and be prepared to assist in any way possible.

Cliff Sketch: Definition.

- A pictorial representation of the cliff in elevation and perspective as seen from one point of observation.
- It will contain a horizon line and intervening features.
- It is rapidly made and easily read and understood.
- Obtain and use a digital camera.

A proper cliff sketch will have enormous value to the raid force commander and his assault climbers. Reconnaissance units regularly train to produce quality sketches, however if non reconnaissance personnel are used, the following information will assist them:

- Equipment
 - S** Compass
 - S** Binoculars (best if they have an etched mil scale on the lens)
 - S** Sketch pad
 - S** Soft pencil
 - S** Ruler
 - S** Digital camera and—to the extent it is practical—video camera.
- Marginal Information
 - S** Sketchers name, rank, and unit
 - S** Date of Sketch
 - S** Sketcher's location (8 digit grid at a minimum)
 - S** Direction of view (in degrees magnetic)
 - S** Magnetic north Arrow
 - S** Scale
- Construction
 - S** Study the landscape to distinguish prominent terrain features in relation to each other. This should be done in conjunction with your military map.

- Select a reference point.
 - S** The point should be permanent and conspicuous.
 - S** This is the base that the features of your sketch will be drawn from.
- Establish a scale.
 - S** The cliff sketch is a panoramic view of the cliff. To maintain a correct relationship between objects and features, a proportion must be established. One method is the 15-inch method.
 - S** By attaching a 15-inch piece of cord to a ruler and holding one end in your teeth.
 - S** Hold the ruler at eye level, each $\frac{3}{4}$ " increment is equal to 50 mls in width.
 - S** Utilizing a scale will increase the accuracy of the sketch.

Basic Symbols. There are seven basic symbols used on the cliff sketch, each defines a characteristic that is of importance to the Assault Climber. (Figure 4 illustrates these symbols.)

- Thin Crack
- Thick Crack
- Left Facing Crack/Book
- Right Facing Crack/Book
- Chimney
- Overhang
- Ledge

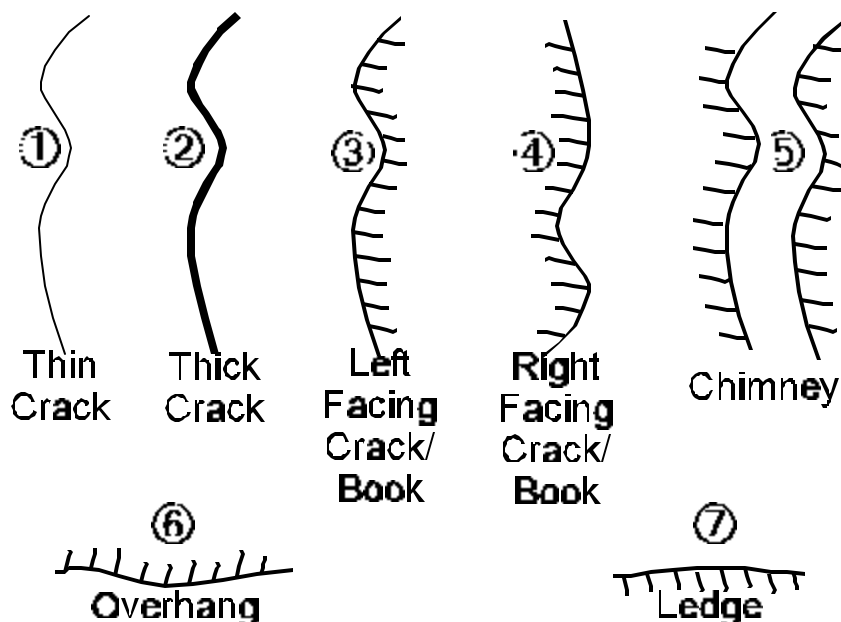


Figure 4 Basic Cliff Sketch Symbols

Only details of military importance should be added. (Anchors, nests, water channels, loose rock, manmade obstacles, cover at top/bottom). Details should not be added to simply fill up space or to improve the appearance of the sketch. Figure 5 shows an example.

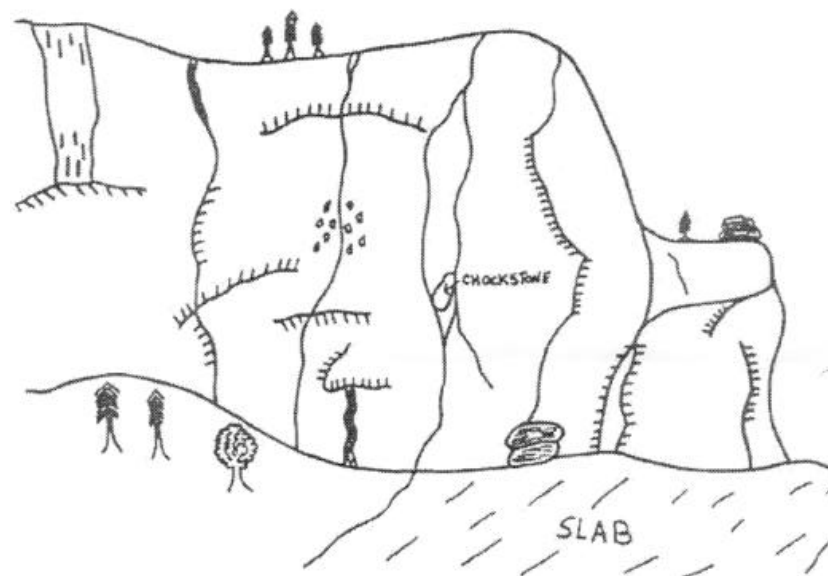


Figure 5 Cliff Sketch with Militarily Important Details

Cliff Report. The following is an example of a cliff report. It is based on the NATO report formats utilized by reconnaissance units. The advantages to this style of report are the encryption of the pertinent information and the ability to rapidly transmit data by radio communications. The disadvantage is that the receiver of the report must be thoroughly versed in the report format and how to decipher the information.

The cliff report contains thirteen lines, Alpha – Mike. Each of the lines will give information about a specific aspect of the cliff and surrounding area. The following is provided in the event that a recon team is reporting directly to the assaulting unit and *not* their SARC.

LINE ALPHA: Units of Measure	
<u>Units used throughout the report</u>	<u>Code</u>
Meters	1
Yards	2
Feet	3

LINE BRAVO: Date/Time report completed.
(2 digit day / time / time zone / 3 letter month / 2 digit year)

LINE CHARLIE: Cliff location.

- Given at cliff center
- Expressed as an 8 digit grid minimum over a secure net
S or encrypted utilizing AKAC 874.

LINE DELTA: Width of the cliffhead.

LINE ECHO: Cliff height

- Give greatest height if cliff has multiple heights.

LINE FOXTROT: Obstacles at cliff base.

- This line can have multiple codes.

<u>Obstacle</u>	<u>Letter</u>	<u>Code</u>	<u>Number</u>	<u>Code</u>	<u>Type</u>
Natural	A		1		Rocks
			2		Stream / River
			3		Trees /Vegetation
			4		Ditch(es)
			5		Snow/Ice
Manmade	B		1		Buildings
			2		Fences
			3		Pylons / Wires
			4		Poles / Masts
			5		Other

LINE GOLF: Rock type, if known

<u>Type</u>	<u>Number</u>	<u>Code</u>
Granite	1	
Basalt	2	
Lava	3	
Sandstone	4	
Steep Earth	5	
Unknown	6	

LINE HOTEL: Military classification of climbs, if determined.

<u>Description</u>	<u>Code</u>
50-60°- freeable, good rock protection (pro) placement	Easy
60-70°- good pro placement, medium to large rock pro	Moderate
70-80°- marginal pro placements, overhangs	Difficult
80-90°(+) runouts or unprotectable, overhangs	Severe

Note 1: Rock protection (“pro”) is the gear—cams, nuts, SLCDs shown in figure 1—that “clips” the rope to the rock, thus serving as an intermediate resting point should a climber fall.

Note 2: The Yosemite Decimal System (5.0-5.14d) classifying degree of

difficulty on technical rock climbs is sometimes used here when working with allies. It is readily recognized and the most widely used worldwide system.

LINE INDIA: Hazards on cliff face.

<u>Hazard</u>	<u>Number</u>	<u>Code</u>
Rockfall	1	
Water	2	
Snow/Ice	3	
Vegetation	4	
Other	5	

LINE JULIET: Number and types of tactical lanes that can be constructed. This line may contain more than one code as applicable.

<u>Lane Type</u>	<u>Letter</u>	<u>Code</u>
Simple Fixed	A	
Fixed	B	
Top Rope	C	
Cable Ladder	D	
Vertical Hauling Line	E	
Suspension Traverse	F	

LINE KILO: Is an A-frame needed? YES or NO

LINE LIMA: Enemy Situation. Given in the SALUTE-R format for any current enemy reports that may affect the cliff assault or are pertinent.

LINE MIKE: Remarks/comments.

- Identifies data that is essential but not covered in the above lines.
- If transmitting in the open, ensure this data will not compromise cliff assault site.

Example of a Cliff Report.

K1T this is G7D, stand by for CLIFFREP, over.

Line Alpha: 3
Line Bravo: 180830Zjan00
Line Charlie: MG67809568
Line Delta: 250
Line Echo: 40
Line Foxtrot: A, 2 ,4, B, 2
Line Golf: 1
Line Hotel: Moderate
Line India: 4
Line Juliet: 6C, 3D, 1F
Line Kilo: Yes
Line Lima: None
Line Mike: None

This report describes a cliff in feet that was reconned at 0830Z on 18 Jan 00. The cliff is located at Grid MG67809568 and is 250 ft wide at the base. The cliff is 40 ft high and has a ditch, stream, and fence in the area surrounding the base. It is made of granite and is a moderate climb. There is vegetation on the cliff face with six top rope lanes possible, three ladder lanes possible, and 1 suspension traverse possible. An A-frame will be needed and no enemy activity was reported.

Assault Climbing Techniques

Techniques. The actual techniques used to negotiate personnel and equipment up the vertical obstacle will vary depending on a variety of factors. These include, but are not limited to:

- level of training,
- type of vertical obstacle to be negotiated, and/or
- equipment available.

The following four techniques—or any combination of them—may be used:

- Two party climb for assault climbers,
S all other personnel top rope.
- Two party climb for assault climbers,
S all other personnel go up fixed rope installations.
- Two party climb for assault climbers,
S all other personnel/equipment use vertical hauling line and/or suspension traverse.
- Two party climb for assault climbers,
S all other personnel use cable ladders.

Actions on Enemy Contact While Two Party Climbing.

- #1 down climbs and removes protection until he is half a rope length's distance (approx. 25m) off the deck. Then #2 takes tension and lowers #1 to the ground. Then both cut free of rope systems and move.
- To rapidly escape a multipitch climb, the #1 will do as above until he reaches the belay where the #2 man is. Then the climbing team will establish a retrievable rappel at the belay. This will continue until climbers are one pitch off the deck. At this belay they can set up a one rope, non retrievable rappel and rappel down. The rope will stay in place and the climbers will withdrawal.
- This process is difficult enough in daylight. At night or if actively under fire it will be nearly impossible. Maximum support should be used to relieve pressure off the climbers until they can reach the deck and break contact.
- When first Assault Climber team tops out, they will establish an emergency rappel lane. Ensure all topside personnel know its location.
- If compromised with less than 50% of unit strength topside it is advisable to withdrawal. If 50% or more, then it is the unit commander's decision.
- The ACs will carry an M16.

BILLET	PLATOON COUNTERPART	COMPANY COUNTERPART
#1 and #2 Assault Climbers	4 lead climbing teams from assault climber platoon	Lead climb routes and set in climbing points for follow on force
Unit Commander	HQ elements of the unit	Complete plan through visual recon
Control Point NCO (CPNCO)	M7A ML Experienced assault climber	Organize top of obstacle, set up control features, coordinate with MACO
Cliffhead Officer (CHO)	M7A ML Experienced assault climber	Position security at bottom and top of vertical obstacle, aware of all actions between beach master and control point
Beach Master	M7A ML Experienced assault climber	Same as control point NCO but at bottom of vertical obstacle
Security Teams	Security element of the unit	Provide security at bottom and top of vertical obstacle
Lane NCO	M7A ML Experienced assault climber	One per climbing lane, assist beach master and control point NCO in setting up control features, physically places individuals from climbing lanes to climbing points.

Note: Within the first wave, a company-sized unit may want to establish a vertical hauling line/suspension traverse team to transport heavy equipment. Also, ACs will require porters to assist with the gear loads. These men can then function as security, guides or runners.

• **2nd Wave.**

S This is the remainder of the task-organized units, the assault force and the reserves.

S XO commands the second wave and stays at the base of the vertical obstacle until the unit has negotiated the vertical face.

The amount of time the unit is stationary at the vertical obstacle should be minimized. Ideally, the main second wave should move from the boat/landing craft or rally point straight into the climbing lanes (via beach master).

Cliff Assault Sequence

Sequential Phases of the Cliff Assault. The best way to understand the assault sequence is to break it down into five sequential phases.

Phase One: Initial Organization and Movement. This is illustrated in figures 6 and 7:

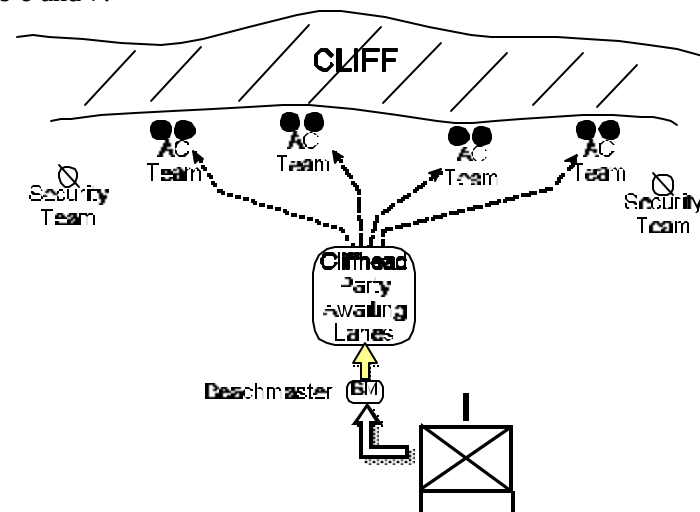


Figure 6 Initial Organization

Note: These are general guidelines and will be adapted as the situation and the size of the force dictates. For purposes of the graphics, we are using a company-sized unit.

- Assault occupies the Objective Rally Point (ORP).
- Men put on swammi wraps, around the chest bowlines or harnesses.
- S** Don't compromise unit security.
- Assaulting unit guides or leaders' reconnaissance (recon) element link up with recon teams.

If no ground elements are in place, then the assaulting element conducts a leader's recon to verify cliff assault site location, enemy presence, feasibility of actually climbing the obstacle and any other items which might change the plan.

- Ensure senior AC/ML accompanies leaders' recon.
- Leaders' recon returns to ORP, briefs changes to plan.
- 1st wave moves toward vertical obstacle.
- Cliffhead officer sets in bottom security.

- Assault Climber elements move to the base of the vertical obstacle, **S** senior AC/ML selects lanes, climbers begin establishing lanes.
- BM establishes control features at the base of the vertical obstacle.

Phase Two: Initial Ascent. When first climbing lane is established, assault climbers will establish an emergency rappel lane (figure 7).

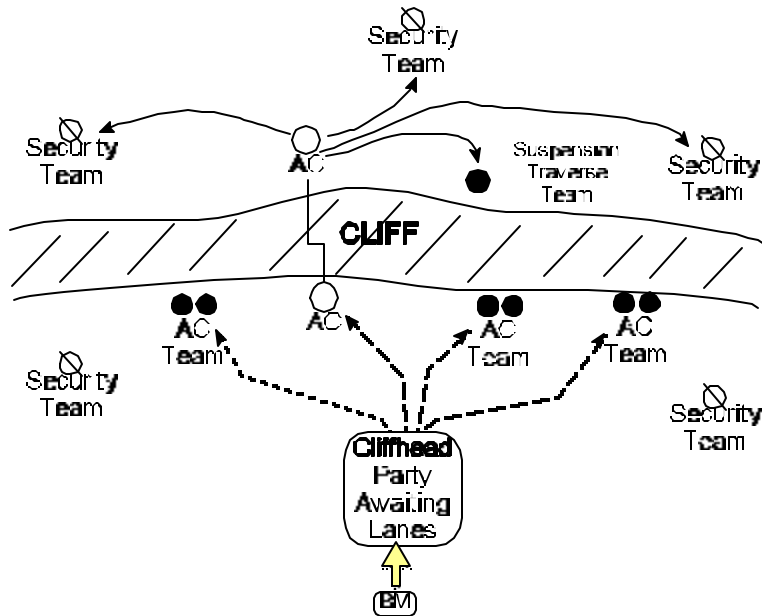


Figure 7 Phase Two: Initial Ascent

- First persons up are top side security, suspension traverse and cliffhead officer.
- As the other climbing lanes are established, unit commander (including elements, leaders, RTO, runners), control point NCO (including RTO/runners) and the remainder of the assault climbers will move to the top of the vertical obstacle.
- Cliffhead officer selects the top side cliff security positions while the control point NCO runs control features from the control point to the climbing points.
- While top side is getting set up, Raid Force Commander moves forward for leaders' recon if desired.
- Cliffhead officer's radio operator brings up wire line from the beach master.
- Vertical hauling line and/or suspension traverse will be established if required.
- Lead climbers climb

- Top security established.
- Lanes constructed.
- Communication established.
- Emergency rappels established 4:1;
S i.e., every four climbing lanes need an emergency rappel.
- #2s ascend with gear.
- Cliffhead Officer (CHO) and other essential leaders ascend.
- RFC departs for objective reconnaissance.
- Systems constructed.
- Lane NCOs ladder climb lanes to inspect for initial anchors.

Phase Three: Second Wave Ascends. Illustrated in figure 8:

- Second wave ascends.
- CHO receives updated situation.
- BM accounts, inspects and assigns Marines to a lane.
- CPNCO organizes topped-out climbers.
- RFC completes plan.

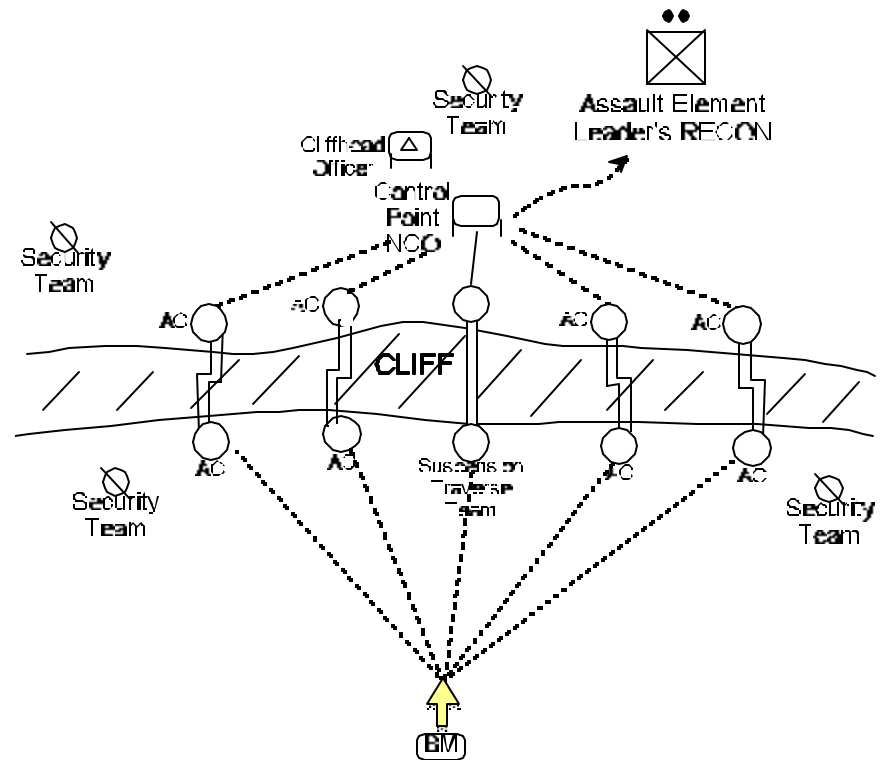


Figure 8 Third Sequence

When all lanes and the suspension traverse are constructed, the 2nd wave

moves to base of obstacle, deploys and ascends up climbing points. It should pass smoothly through Beachmaster, lanes, NCO, Cliffhead Officer, and finally to their respective platoons.

The Beachmaster cannot hesitate to move Marines into open lanes. The Senior AC/ML must inform the Beachmaster which lanes are easy and which are difficult. Heavily laden troops will obviously go to easy lanes. So when Marines approach the Beachmaster, they must inform him of their load and their climber ability. Once on top, all climbers check in with control point NCO, remove ropes, and move to security positions.

Phase Four: Raid Force Departs. This is illustrated in figure 9:

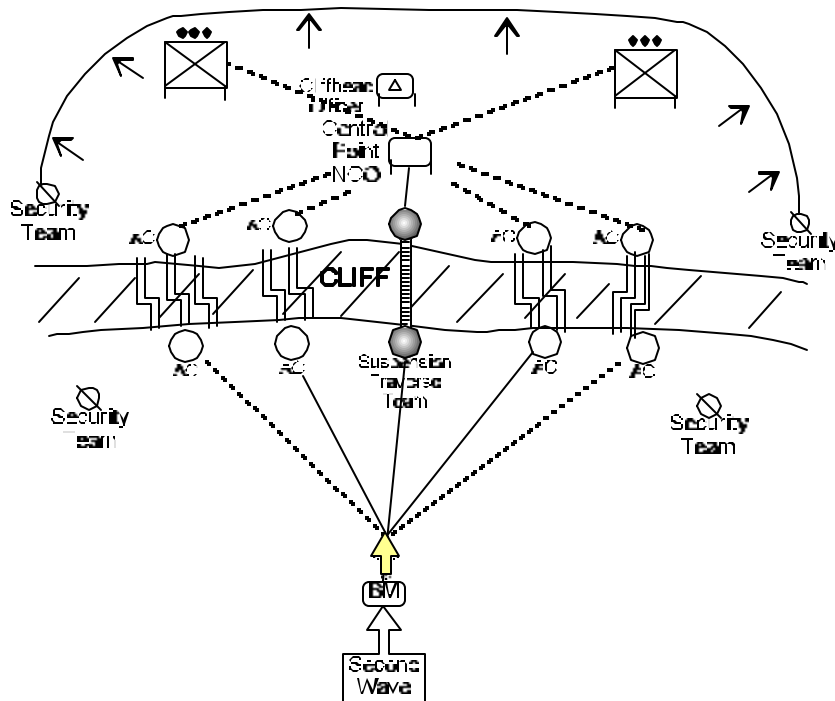


Figure 9 Fourth Sequence

All unit leaders report their readiness to the commander.

- Raid Force moves out to conduct attack.
- Once the entire unit has passed the control point NCO, revises control features as necessary.
- Cliffhead officer organizes for defense/security.
- Assault climbers drop lanes and establish rappel points.
- Beachmaster party provides base security.
- Assault climbers tear down lanes / establish retrievable rappels.

- Enemy Prisoner of War (EPW) /casualty collection point established.
- CHO maintains situation awareness of the raid force over radio.

Phase Five: Withdrawal. The key to this is to maintain a perimeter defense until the last possible moment to protect the withdrawal of the rest of the unit. Also, you should be prepared to use maximum available firepower from both ashore and afloat—you must plan and rehearse this.

Note: If the unit is compromised before the mission has been completed, then the tactical situation will dictate how the withdrawal will be made.

Also, the unit commander decides whether to complete the mission or withdraw if the unit is compromised *before* the mission has begun. For example withdrawal may be the best option if less than half of the unit is on top of the vertical obstacle—and the ratio of the size of your force to the size of the enemy force is not in your favor given the loss of surprise.

Routine Withdrawal. The normal withdrawal procedure is used if the force has not been compromised and/or is not in contact with the enemy. The principles for this are as follows:

- Unit returns and forms a 180-degree defensive perimeter in its original position.
- Individual Marines construct rappel seats / don harnesses.
S Do not compromise security.
- Unit commander gives the signal to "withdraw" and the beachmaster and his party prepare to receive the descending troops.
S Essentially the Beachmaster (BM) and Control Point NCO (CPNCO) will switch duties.
S In an amphibious raid, BM would call the landing craft/vehicles. Company XO rappels down.
- #1 / #2 assault climbers control their ropes.
- Leave at least 25% of the machine guns in the defensive perimeter until the final moment of withdrawal.
S Always in pairs.
- Squads thin their positions with the squad leader descending last.
S He reports his squad's departure to the Control Point NCO.
- Unit commander descends after the main body has descended.
- Security teams descend down.
- Control features removed.
- Cliffhead officer/messenger rappel down and assist the beach master.
S In an amphibious assault, they would assist in back-loading.
S In mountains, control features can be used to control organization following descent.
- #2 ACs cast off their ropes and rappel down #1 ropes.
- The senior #1 AC rigs a rope for a retrievable rappel and dispatches all remaining #1 ACs then rappels down, recovers the rope and reports to the unit commander that the vertical obstacle is cleared.

- Assault climbers coil rope / retrieve gear. Unit provides security. The last element withdraws.
- S** In an amphibious raid, the beach is checked to ensure no equipment is left behind.
- S** The unit commander embarks last.

Withdrawal if Compromised or Under Fire. If the force has been compromised, or is in close contact, then the principles are:

- Maintain perimeter integrity as its diameter decreases.
- Reinforce hasty 180° defensive perimeter with preplanned fires, demolitions (e.g., claymores) and hasty obstacles.
- A high proportion of leaders remain to ensure close control.
- Maintain effective presence of automatic weapons until the last moment.
- S** You do not want to leave crew served machine guns on top; SAWs and M16s will do the job
- During operational withdrawals, nonessential gear may be left behind.
- S** This will increase speed during the withdrawal.
- S** This will *not* work if the nationality of the unit is to be concealed (an almost impossible task considering boot prints, expended bullet casings, dropped ammunition containers, verbal commands overheard during the assault and the fact that only a handful of nations even have a cliff assault capability).

Unit Movement

General Guidelines. Most combat equipped Marines are only able to climb a 60-foot section of cable ladder (two ladders). They usually climb quickly, outrunning their belayer at first, climb steadily in the middle as they should, and have to be almost hauled up at the end of a 60ft climb by the belayer. This is carrying only LBE and weapon.

- Units should *not* be designated to climb or descend a specific lane. This will cause a bottleneck at the lane. A Beachmaster and control point NCO will direct the waiting group(s) toward the next empty lane.
- In ORP. If ACs plan on using fixed lanes (as described on page 29 of this X-File), then in order to expedite movement, approximately **b** of the unit should rig for fixed lanes and **a** should rig for vertical climbing using harnesses, rappel seats and swammi wraps (figure 10). This will be adjusted by senior AC/ML. These will *not* be removed until topside.
- Units should *not* attack while wearing rappel seats or swammi wraps, as they will loosen on the movement.
- Upon consolidation at the cliffhead, maintain security while rigging for descent.
- Do *not* overcrowd climbing lanes.
- S** Four to six is the maximum.
- Do *not* have men waiting in an exposed danger area;
- S** exposed to enemy fire / observation, or
- S** exposed to rockfall, icefall, or dropped objects.



Swammi wrap and picture of a square knot used to tie the two ends together. The knot should be moved to your left side.

Figure 10 Swammi Wrap

Climbing Lanes. Climbing lanes assist heavily laden troops in ascending steep terrain. They should be used where a fall might result in injury. Choose a route that will allow a Marine to be ready to fight upon reaching the top. These two factors determine the maximum possible difficulty of a route:

- Unit's climbing experience and ability.
- Unit's climbing load.

Individual Climber Preparation.

- Helmet on.
- Sleeves down.

- Gloves off.
- Blouse tucked in.
- Trousers unbloused.
- Appropriate rope system (or harness) worn under LBE / weapon.

S Swammi Wrap

S *Around the Chest Bowline* with a figure of 8 loop (figure 11)

- Remove rings or other jewelry.
- Dry boot soles
- Weapon down and to the left.

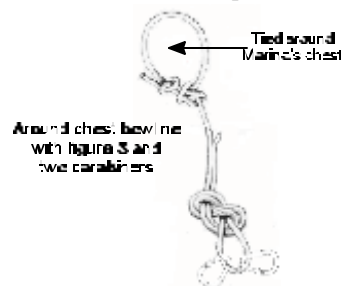


Figure 11 Around the Chest Bowline

Cliff Assault Ropes. These can be divided as follows:

- Simple Fixed Rope
- Semi-Fixed Rope
- Fixed Rope

Simple Fixed Rope. The simple fixed rope is defined as being anchored at one end of a climbing rope. This type of rope installation is primarily designed to aid heavily laden Marines in ascent or descent of a steep to moderately steep slope. The rope can be used for aid when climbing by pulling on the rope and walking the feet up the rock. A knotted rope is more effective than an unknotted rope.

- Ascending a simple fixed rope (figure 12):

S Straddle the rope with your legs and walk up the rope while pulling yourself up the rope with your hands.

S Unless required for environmental reasons, do *not* wear gloves when using the simple fixed rope as they give you a false grip on the rope.

S One man on a rope at a time.

- Descending a simple fixed rope:

S Done the same way as a hasty or body rappel as described in rappelling.

S Wear gloves to prevent rope burns.

S Only one man on a rope at a time.

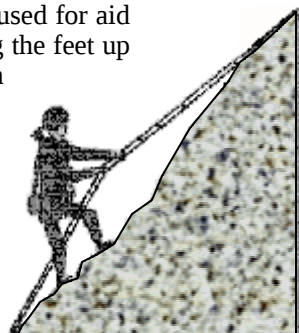


Figure 12 Straddling a Simple Fixed Rope

Semi-Fixed Rope. A semi-fixed rope is one that is anchored top and bottom but has no intermediate anchor points.

Fixed Rope. The Fixed rope is defined as being anchored or fixed at both ends as well as with intermediate anchor points. This type of rope installation is primarily designed to protect heavily laden troops while negotiating snow / icy slopes, difficult scrambles, traverses, or other slopes where balance climbing may be hazardous. Weather (hot sun,

rain, snow, etc.) may have adverse effect on the anchor medium so all anchor points must be continually inspected by qualified personnel.

Ascending a Fixed Rope :

- Tie a bowline around the chest with a 15' sling rope.
- Wear this under a load-bearing vest (LBV) and / or pack.
- With at least an arm's length of pigtail left, tie a large figure of eight loop.

S Clip two carabiners (locking or non locking) to the loop.

- Clip both carabiners onto the fixed rope.

- Begin climbing.

- Do *not* pull on the fixed rope for assistance while climbing;

S you may dislodge the anchors if you pull on them in a direction other than that intended to stop a fall.

- Upon reaching each intermediate anchor point,

S unclip one carabiner from the fixed line and reattach to the fixed line above the anchor point.

S The carabiners never come off the figure of eight loop.

S Do the same thing with the other carabiner.

- Ensure you are always attached to the fixed rope with at least one and preferably two carabiners.

- Only one Marine per section of rope.

S Therefore, if a fixed rope is anchored at two intermediate points for a total of three independent sections, three Marines could climb at the same time.

You can *descend* a fixed line in much the same manner, but you will be down climbing. It is very time consuming. It is easier for the assault climbers to clear the lane and set up a normal rappel.

Cable Ladders. The cable ladder or *caving ladder*, consists of two long wires with eyes at each end connected by aluminum crosspieces at a suitable distance. The crosspieces serve as steps and handholds for ascent or descent.

- Ensure ladders are the newer type with two metal swedges fixing the end of the wire back onto itself after looping over to form the eye.

Ascending a cable ladder.

- Climb as any other type of ladder.

- Climb with one arm and one leg on each side of the ladder (figure 13).

S The ladder is easier to climb in this manner if one foot is put into the rung toe first and the other is put in heel first.

- Concentrate on using your legs more than your arms.

- Reach up with your hands and pull on the rungs as when climbing a normal ladder.

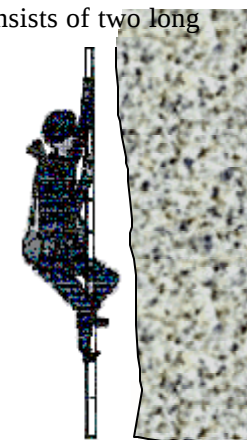


Figure 13 Ascending a Cable Ladder

- When walking up a steep slope, climb hand over hand with the legs straddling the ladder, walking up the slope.
- S** Similar to climbing a simple fixed rope.

Steep Earth Considerations. This procedure will usually feature a knotted simple fixed rope lane. Remember, as the climber nears the top he must reverse his grip so his little finger is toward the top anchor and the climber's thumbs are toward him. This will cause the climber to stay lower and reduce his silhouette as he comes over the top of the obstacle. It also reduces the chance a climber could exert a force in an upward direction on the steep earth anchor, possibly dislodging it.

Safety Devices used in Training for Assault Climbing. We use a top rope system when training for assault climbing. This is attached to the climber with a swammi wrap or harness and a locking carabiner worn under his gear.

Fixed Rope Running Parallel to Ladder. The climber ascends a fixed line normally, moving over each intermediate piece of protection, but now he has the added assistance of the ladder.

- This method *cannot* be used on vertical ladders because of the high impact forces generated in the event of a fall.

Semi-fixed Rope System Running Parallel to the Ladder. The climber has an *around the chest bowline* with the large *figure of eight loop* at the end of one of the pigtails. A carabiner is clipped to the figure eight loop and to a short prussic cord. The other end of the prussic cord is tied in a *middle of the line prussic knot* to the semi-fixed rope. As the climber moves up the ladder, he slides the prussic knot along with him.

- Usually only one climber per ladder in training because that is all the top rope can handle at a time.
- If using a fixed line, then have only one climber between each intermediate piece of protection.

Caving / Cable ladders are normally *not* descended. It is more efficient to drop the ladder and establish a rappel lane.

Ascending with a Top Rope. Top ropes are usually used on moderate rock climbs or for vertical cable ladders. The climber will be wearing a swammi wrap or harness with his locking carabiner in the front. This will be worn *under* the climber's gear. A rope end is thrown to the base of the cliff. Ideally the #2AC is there to hook men up, but any Marine who is proficient with his knot skills can serve in this function.

- A figure of eight knot is tied in the end of the climbing rope and

clipped to the climber's carabiner.

- Ensure carabiner is locked down.
- Climber gives signal that he is ready to climb.
- S** either verbal (e.g., on a radio) or two tugs on the rope.
- Belayer takes slack out of the system, hooks up, and return two tugs to indicate climber is on belay and can climb.
- At the top, climber steps back from edge of cliff unhooks climbing rope from his carabiner and moves to control point NCO.

Individual Preparations for Rappelling.

- Helmet securely fastened.
- Blouse tucked in—trousers unbloused.
- Harness fitted and worn properly.
- Rappel seat tied correctly.
- Carabiner orientation correct for type of rappel.
- Gloves on, sleeves down.
- All loose gear tucked in and out of the way.
- LBE fastened behind rappeller.
- Weapon down and to the left.

Hasty Rappel. This is used for moderate slopes with a load (figure 14).

- Face slightly sideways.
- Place rope across your back
- S** grasping it with both hands,
- S** palms forward,
- S** arms extended.
- The uphill hand is your guide hand.
- The downhill hand is your brake hand.
- Lean downslope and descend facing half sideways,
- Take small, slow steps—continuously looking downhill while leading with the brake hand.
- Do not cross your feet.
- Use your downhill foot to lead at all times.



Figure 14 Hasty Rappel



Figure 15 Seat-Hip Rappel

You can create additional friction by wrapping the rope around one or both arms to slow your rappel even more.

- **Braking**
- S** Bring the lower hand across the front of your chest to brake.
- S** At the same time, turn and face up the hill.

Seat-Hip Rappel. This is used on near vertical to vertical faces with a load (figure 15).

- Tuck blouse in, don harness / construct the rappel seat, roll sleeves down, gloves on.

- Clip the steel locking carabiner to the rappel seat so that the gate opens up and away
- Step up to the rappel station loading platform with your left shoulder towards the anchor.
- Clip the rappel rope to the carabiner,
S insure that the running end goes to the right side and the standing (anchor) end goes to the left.
- Take slack from the left or anchor side, and wrap it around the spine of the carabiner and through the gate again.
- Lock the gate down.

Your left hand is the guide hand and your right hand, gripped with palm down, is your brake hand.

- Do *not* bound or jump while rappelling.
- “Walk Down” using your brake hand to control the rate of descent.

NOTE: A STITCH PLATE, MÜNTER HITCH, OR OTHER BELAY DEVICE MAY ALSO BE USED.

Seat-Hip Rappel Braking. Grasp the rope tightly with the brake hand.

- Place the brake hand in the small of your back.
S This will create enough friction to stop all movement.
NOTE: IF YOU ARE DOING A ONE ROPE RAPPEL, THE HOOK UP PROCEDURE IS THE SAME, EXCEPT YOU WILL WRAP THE ROPE AROUND THE SPINE OF THE CARABINER AN ADDITIONAL TIME TO INCREASE THE FRICTION. YOU MUST ENSURE GATE IS LOCKED DOWN.

Seat-Shoulder Rappel. Use this technique for vertical to near vertical slopes with very heavy loads (figure 16). It is the same as *seat-hip* except that the carabiner is placed in the rappel seat so that the gate opens down and away. When hooking up for rappel, it is exactly the same. Just remember, the spine of the carabiner will now be facing up.

- From the carabiner, take the running end and place it over your left shoulder, around your pack and grasp it with your right hand, palm forward.
 - Face up the hill, *not* sideways down the cliff.
- Initially this technique will be very slow because of the large amount of friction on the rope.

To use braking:

- Lean back
- Face uphill.
- Bring braking hand across the front of the body and down across the crotch.

NOTE: A STITCH PLATE, MÜNTER HITCH, OR OTHER BELAY DEVICE MAY ALSO BE USED HERE.



Figure 16 Seat-Shoulder Rappel

Other Descent Systems. Other systems that exist for ascending and descending the cliff face are more advanced than the above-mentioned ones. These should be the AC's responsibility. If time is available, the AC or ML can train a squad to construct these systems which are designed mainly for casualty evacuation or the transport of gear up and down a cliff face. These systems are *not* described in this X-File. Some of these other systems are:

- Tandem lowering systems.
- Vertical Hauling Line.
- Slack Cable Way.
- Suspension Traverse.
- BarrowBoy.

Listing of X-Files

Status of all X-Files		
Title	X-File	Publication Status
Tentative Landing Operations Manual	0-1.2	February 2001
Enhanced Human Physical Performance	3-02.1	November 2000
Combined Arms	3-1.1	Published
Combat Squad Leader	3-11.21	Published
Designated Marksman	3-15.31	Published
Directed Energy Weapons	3-15.81	Limited Distribution
Urban Attacks	3-35.31	Published
HA/DR Assessment	3-33.61	Published
HA/DR Operations	3-33.62	Published
Small Unit Support Vehicle ¹	3-35.11	September 2000
Cliff Assault ¹	3-35.21	Published
Water Procurement ¹	3-35.22	August 2000
Animal Packers Manual ¹	3-35.23	August 2000
Urban Defense	3-35.32	Published
Urban Patrolling	3-35.33	Published
Security Operations	3-35.34	Published
Intra Squad Radio	3-35.35	Published
Urban Vertical Mobility	3-35.36	June 2000
Urban Sustainability	4-11.71	Published
Tactical Instrumentation	6-2.1	Published
Battle Captain	6-2.2	Published (Draft)

Status of all X-Files

Title	X-File	Publication Status
Project Metropolis Interim Report	3-35.37	Published (Draft)
Project Metropolis Final Report	3-35.xx	February 2001

1 - Mountain Warfare Training Center is the source of subject matter.

